Risk-Based Corrective Action Evaluation
Plattsburgh AFB

SITE ST-030
FORMER BX GAS STATION

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RISK-BASED CORRECTIVE ACTION EVALUATION
SITE SS-030, FORMER BX GAS STATION

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The former BX Service Station located at Plattsburgh Air Force Base, Plattsburgh, New York was evaluated using the NYSDEC's "**Interim Procedures for Inactivation of Petroleum-Impacted Sites**".

The available data from the monitoring wells and borings indicate that soil impacts at the site are minimal and groundwater impacts at the site are localized in the vicinity of MW-030-005. A plot of groundwater concentration along the plume axis indicates the occurrence of natural attenuation. PAHs were sporadically detected in groundwater and were generally non-detect in recent sampling events. Hence the primary constituents of concern (COCs) are BTEX, MTBE, and naphthalene.

The site conceptual exposure model (SCEM) for the site indicates that complete exposure pathways exist for (i) the potential future on-site and off-site construction worker, (ii) the future on-site resident (adult and child), and (iii) the future off-site resident (adult and child). There is no history of shallow groundwater use in the city of Plattsburgh, hence the shallow groundwater ingestion pathway is incomplete. The maximum site concentrations were compared to the Tier 1 Risk-Based Screening Levels (RBSLs). The key conclusions are:

- Maximum site-specific concentrations of **benzene** in groundwater exceeds the Tier 1 RBSL developed for indoor inhalation of vapors for the **future on-site adult resident**.
- Maximum site-specific concentrations of **benzene** in groundwater exceeds the Tier 1 RBSL developed for indoor inhalation of vapors for the **future off-site adult resident**.
- Maximum site-specific concentrations of **benzene and toluene** in groundwater exceeds the Tier 1 RBSLs developed for indoor inhalation of vapors for the **future on-site child resident**.
- Maximum site-specific concentrations of **benzene** in groundwater exceeds the Tier 1 RBSLs developed for indoor inhalation of vapors for the **future off-site child resident**.

Tier 2 Site-Specific Target Levels (SSTLs) were developed for the future on-site and off-site resident (adult and child) using a combination of site-specific and default data. The results indicate that the maximum and average benzene concentrations measured on-site,

and the maximum benzene concentration measured off-site exceed the Tier 2 SSTLs for the on-site and off-site residents, respectively. The Tier 2 target levels have been exceeded only for the inhalation pathway.

Since the fate and transport models used to estimate the emissions from soil are very conservative, soil vapor measurements 2 to 3 ft below the ground surface were performed. Four soil vapor samples were collected from around the Building 7009. Soil vapor concentrations of each COC at all the four borings were below the Tier 2 SSTLs. Therefore, based on these sample results it can be concluded that the groundwater contamination plume, potentially contributing to the detected soil vapor levels, does not result in unacceptable soil vapor levels.

Additionally, two indoor air samples were obtained inside Building 7009 (one per floor) and one ambient air sample was collected outside Building 7009. All air samples were analyzed for the COCs. Both indoor and ambient concentrations of benzene exceeded the allowable indoor air concentration. Moreover, the detected concentrations were similar to ambient air concentrations of benzene measured by the NYSDEC at Willsboro Bay, a Lake Champlain rural monitoring station that is part of the New York State Ambient Toxic Air Monitoring Network. Thus, based on the soil vapor results discussed above and the similarity of detected benzene indoor concentrations to ambient concentrations, the groundwater contamination does not appear to be causing unacceptable excessive risk to potential receptors by the inhalation pathway.

As part of the recommendations regarding containment of the groundwater plume, bio-attenuation indicators were measured during the recent event of groundwater monitoring. Although the spatial trends in these parameters cannot be established, there are indications of bio-attenuation. Further, decreasing concentrations along the downgradient axis of the plume indicate the occurrence of natural attenuation along the axis of the plume. Based on our analysis, we recommend site closure without any active remediation.

1.0 INTRODUCTION

The former BX Service Station located at Plattsburgh Air Force Base, Plattsburgh, New York was evaluated in accordance with the NYSDEC's "**Interim Procedures for Inactivation of Petroleum-Impacted Sites**" dated January 1997.

1.1 SCOPE AND OBJECTIVES

This study involved the following tasks:

- data review and identification of the constituents of concern (COCs);
- identification of current and potential future human receptors at the site;
- identification of exposure scenarios for each receptor;
- comparison of representative site concentrations with Tier 1 risk-based screening levels (RBSLs);
- if representative site concentrations exceed Tier 1 RBSLs, development of Tier 2 site-specific target levels (SSTLs);
- conclusions and recommendations based on the Tier 2 analysis.

This report consists of 7 sections including this introductory section, and six Appendices outlined in the table of contents.

2.0
REVIEW AND ANALYSIS OF AVAILABLE DATA

2.1 INTRODUCTION

This chapter presents site-specific data and relevant information used for risk assessment at the former BX Service Station, former Building 2335, Plattsburgh Air Force Base, New York.

2.2 SITE DESCRIPTION

The site is located at the intersection of New York Road and Kansas Avenue in Plattsburgh, New York. **The site** refers to the currently vacant and grassed area that used to be a service station and is shaded in Figure 2-1. The area outside the shaded portion has groundwater impacts and is referred to as the **off-site area**. The ambient land use is described below:

- The site was a service station. The site building (referred to as Building 2335) and all USTs and appurtenances were removed from the site along with a large quantity of petroleum-impacted soil.
- Towards the east and east-northeast, across Kansas Avenue, are unoccupied residences (including the downgradient Building 7009, where indoor air and soil vapor samples were taken).
- To the southeast is a school building that may be re-occupied in the near future.
- To the southwest, adjacent to the site is an old unused school building.
- Across New York Avenue to the northwest is vacant land.
- Surface water from the site drains into a storm water network that runs under the southern end of the site.

2.3 CHRONOLOGY OF EVENTS

The chronology of events at the site based on reports reviewed is outlined below. Figure 2-1 shows the locations of the monitoring wells and soil borings.

1950s The service station became operational.

1960	Station was renovated. One 550 gallon steel waste oil UST was relocated to the south side of Building 2335. One 550 gallon steel waste oil UST was installed west of Building 2335. A steel No.2 fuel oil UST was added to the south side of the building.
Early 1980s	**Six steel gasoline USTs of 3000 gallon capacity** each were abandoned in place by filling with sand. **One 3000 gallon UST** was used for storing diesel. Three 10,000 gallon fiberglass USTs were installed near the north side of Building 2335.
April 1990	The three 10,000 gallon fiberglass USTs failed tank tightness test.
May 1990	The three 10,000 gallon fiberglass tanks were excavated and replaced with double walled fiber-reinforced plastic tanks, dispenser piping, and leak detection systems. About 1500 gallons of sludge water and oil fuel were removed from the site and disposed off-site.
August 1990	**A free product recovery system** was started. Extracted groundwater was passed through an oil/water separator and then a carbon filter. The treated groundwater was discharged into the sanitary sewer on-site. The system stopped operating in September 1990 due to the absence of free product in the recovery well.
November 1990	Seven inches of water was discovered in the steel UST holding No.2 fuel oil and was excavated.
1993	**Three steel USTs** (diesel fuel and two waste oil tanks) passed tank tightness test. These tanks were replaced as a preventive measure.
April 1993	Distressed vegetation was discovered on-site. A test pit revealed **two feet of free product.**
November 1994	**Final Informal Technical Information Report (ITIR)** was prepared to qualitatively assess the extent of contamination.

Four monitoring wells MW-030-001 through MW-030-004 were drilled to maximum depth of 17 ft and screened between 2 ft and 15 ft below ground surface (bgs). MW-030-001 was located upgradient of the site and the remaining wells were drilled off-site.

Cone Penetrometer tests were conducted in **38 locations**. **One** soil sample and one groundwater sample were collected from each location and analyzed for TPH-D and Lube Oil.

One surficial soil sample was collected near the southeast corner of the pavement north of the discolored vegetation area for TCE analysis.

Two soil samples and **two** groundwater samples were collected from the storm drain system and analyzed for TPH.

An **immunoassay** was conducted at 11 on-site locations. (refer to Table 2-4)

September 1995 **Two excavations were conducted** The dimensions of the northern and southern excavation were **38 ft x 70 ft x 2.5 ft** and **40 ft x 80 ft x 2 ft**. Field screening was used as a guide to determine the extent of the excavation. The soil was treated in an off-site biocell.

- **Twenty-four** soil samples were collected in the vicinity of both excavations using a drill-rig along a grid pattern.
- **Seven** samples (three-eastern, two-southern, one-western, and one-northern) were collected from the sidewalls of the northern excavation.
- **Four** samples, one from each sidewall were collected from the southern excavation.
- All soil samples were analyzed for TRPH (Total Recoverable Petroleum Hydrocarbons).

Two monitoring wells MW-030-005 (on-site) and MW-030-006 (off-site) were drilled to maximum depth of 13 ft and screened between 2.2 ft and 12.5 ft bgs. Two soil samples from each boring were collected and analyzed for BTEX, MTBE, and PAHs (Method 8270).

September 1996 **Monitoring well MW-030-007** was installed off-site adjacent to the unoccupied residential building 7009. MW-030-007 was drilled to a depth of 13 ft and screened between 2 ft and 13 ft bgs.

May 1997 **Six geoprobe borings** (01-05-B through 06-05-B) indicated as "X" in were advanced off-site in the area of the unoccupied buildings. Groundwater samples were collected from the geoprobe borings as well as existing monitoring wells. Groundwater samples were analyzed for VOCs, PAHs, and natural attenuation parameters. Density, moisture content, and total organic carbon content were measured in the native soils at the site.

June 1997 A downgradient monitoring well MW-030-008 was installed to a depth of 18 ft bgs with a 3-18 ft bgs screen interval.

April 1998 **Four** soil vapor borings SV-9 through SV-12 (Figure 2-1(f))were drilled off-site along the approximate axis of the groundwater plume (planned samples SV-1 through SV-8 were collected due to an elevated water table in the vicinity of MW-030-005 and 006). One soil vapor sample per boring (2335-V-9-02 through 2335-V-12-02) was collected using a pump and two Tennex tubes in series. **Two** indoor air samples 7009-A-A1-AA and 7009-A-A2-AA and **one** ambient air sample 7009-A-A1-FB were also collected using similar equipment and procedures. Addtionally, one indoor air measurement was performed in an unimpacted building (Building 828).

2.4 SITE STRATIGRAPHY AND HYDROGEOLOGY

Figure 2-2 is a generalized cross-section of the soil stratigraphy at the site. The following information is based on site-specific information as well as base-wide information

- Beneath the asphaltic paving, sand is typically encountered upto a depth of 25 ft bgs and a layer of silt up to a depth of 40 ft bgs.

- A layer of glacial till exists upto a depth of 60 ft bgs.

- Below 60 ft a layer of bedrock exists.

- The average depth to groundwater at the site is 5 ft bgs with seasonal fluctuations causing groundwater seeps in the vicinity of MW-030-005.

- Groundwater flow direction fluctuates between east and northeast with an approximate hydraulic gradient of 0.02 ft/ft [Final Informal Technical Report, January 1995]. Based on the pump test data analysis, the hydraulic conductivity was estimated as 5×10^{-3} cm/s. Thus the Darcy velocity is 1×10^{-4} cm/s (103.4 ft/yr). Assuming a porosity of 0.38 representative of sand, the seepage velocity of the groundwater is 272 ft/yr.

2.5 CHEMICAL DATA

2.5.1 Chemicals in Soil

Soil analytical results are presented in Table 2-1 through Table 2-3 (Appendix B). Following are the key conclusions:

- Soil data from the November 1994 investigation presented the range but not the specific concentrations corresponding to each sampling location. Hence this data was not used for the risk assessment.

- Soil BTEX concentrations in borings for wells MW-030-005 and MW-030-006 were all non-detect. However, the detection limits were not specified.

- Soil samples from around the north and south excavation pits were essentially non-detect except for two samples, one from the storm drain and the other from the northern excavation.

- The only chemicals detected in soil were PAHs at 0-2 ft depth in MW-030-005 and napthalene at 6-8 ft depth.

- Based on the above, the residual soil concentrations are localized in the vicinity of MW-030-005.

2.5.2 Chemicals in Groundwater

Groundwater analytical results are presented in Table 2-5 through Table 2-6. The key conclusions are discussed below:

- November 1994 data was qualitative in that it provides the range of chemical concentrations detected, not the exact values. Hence, this data cannot be used for quantitative risk evaluation (refer Table 2-5).

- The chemicals detected at the site and their concentrations are presented in Table 2-6.

- The most impacted well is MW-030-005 located adjacent to the northern excavation pit.

- Concentrations are decreasing in downgradient wells (Figure 2-3) MW-030-006 and MW-030-007 indicating that the impacts are essentially localized. The decrease in concentration is indicative of the occurrence of natural attenuation.

- The primary COCs are BTEX, MTBE, and napthalene. Although there is sporadic detection of other chemicals, none have been detected in the recent sampling events.

2.6 LAND USE

2.6.1 Current Land Use

The site is currently vacant. There are several unoccupied residential establishments in the area surrounding the site as discussed in Section 2.1.

2.6.2 Future Land Use

The site is located in an area designated as residential. The future land use is hence assumed residential. Also the currently unoccupied residences may be occupied in the future after appropriate renovations.

2.7 WATER USE

The base lies in the Lake Champlain Valley. Groundwater in the Plattsburgh area occurs in both unconsolidated overburden deposits and consolidated bedrock. Locally, water yields from wells screened in unconsolidated deposits vary from several hundred gallons per minute (gpm) to a few gpm. The area is on city water.

3.1 SITE CONCEPTUAL EXPOSURE MODEL (SCEM) FOR CURRENT CONDITIONS

Currently the site is vacant. Hence the only receptors are visitors or individuals who may walk across the site. Since the exposure duration and frequency for these receptors will be very small, the risk for these receptors was not quantified. Also the adjacent residences are all unoccupied.

3.2 SITE CONCEPTUAL EXPOSURE MODEL (SCEM) FOR POTENTIAL CONSTRUCTION ACTIVITY

Exhibit 3-2 and Figure 3-1 show the SCEM during potential future construction activity. During this period, the construction worker is the most exposed receptor due to (i) proximity to the source, and (ii) number of complete routes of exposure. Thus, risks and hazard indices to other potential receptors during the period of construction need not be quantified. Note the construction worker may be located on-site or off-site.

EXHIBIT 3-2(a). SCEM FOR POTENTIAL ON-SITE CONSTRUCTION ACTIVITY

Scenario, Receptor, and Pathways / Routes Analyzed	C or NC*	Justification
Construction Worker		
Outdoor Inhalation of Vapors from Soil	C	Vapor emissions from impacted soil may occur during construction activity.
Outdoor Inhalation of Particulate Emissions	C	Soil is typically disturbed during construction.
Outdoor Inhalation of Vapors from Groundwater	C	Vapor emissions from impacted groundwater are possible.
Dermal Contact with Soil	C	Soil is typically exposed during construction.
Accidental Ingestion of Soil	C	Accidental soil ingestion is possible.
Dermal Contact with Groundwater	C	Dermal contact with groundwater is possible since the average depth to groundwater is approximately 5 ft.
Ingestion of Groundwater	NC	No drinking water wells exist on-site or are likely to be drilled.

* Note that "C" denotes complete and "NC" denotes incomplete pathway.

Exhibit 3-2(b) and Figure 3-1 show the SCEM during potential future off-site construction activity. During this period, the construction worker is the most exposed receptor due to (i) proximity to the source, and (ii) number of complete routes of exposure. Thus, risks and hazard indices to other potential receptors during the period of construction need not be quantified.

EXHIBIT 3-2(b). SCEM FOR POTENTIAL OFF-SITE CONSTRUCTION ACTIVITY

Scenario, Receptor, and Pathways / Routes Analyzed	C or NC*	Justification
Construction Worker		
Outdoor Inhalation of Vapors from Soil	NC	There are no off-site soil impacts.
Outdoor Inhalation of Particulate Emissions	NC	There are no off-site soil impacts.
Outdoor Inhalation of Vapors from Groundwater	C	Vapor emissions from impacted groundwater are possible.
Dermal Contact with Soil	NC	There are no off-site soil impacts.
Accidental Ingestion of Soil	NC	There are no off-site soil impacts.
Dermal Contact with Groundwater	C	Dermal contact with groundwater is possible since the average depth to groundwater is approximately 5 ft.
Ingestion of Groundwater	NC	No drinking water wells exist off-site or are likely to be drilled.

* Note that "C" denotes complete and "NC" denotes incomplete pathway.

Exhibit 3-3(b) and Figure 3-2 show the site-specific conceptual exposure model (SCEM) for off-site residents.

EXHIBIT 3-3(b). SCEM FOR FUTURE OFF-SITE CONDITIONS		
Scenario, Receptor, and Pathways / Routes Analyzed	**C or NC**	**Justification**
Off-site Residents (Adult and child)		
Indoor Inhalation of Vapors from Soil	NC	There are no soil off-site impacts.
Outdoor Inhalation of Particulates from uncovered areas	NC	There are no soil off-site impacts.
Indoor Inhalation of Vapors from Groundwater	C	Vapors from groundwater can penetrate through cracks and joints in the floor. Hence indoor exposure to vapors from groundwater is possible.
Dermal Contact with Surficial Soil	NC	There are no soil off-site impacts.
Accidental Ingestion of Surficial Soil	NC	There are no soil off-site impacts.
Dermal Contact with Groundwater	NC	No drinking water well exists off-site or are likely to be drilled. The area is supplied by the municipality.
Ingestion of Groundwater	NC	No drinking water well exists off-site or are likely to be drilled. The area is supplied by the municipality.

Note that "C" denotes complete and "NC" denotes incomplete pathway.

4.1 INTRODUCTION

Tier 1 risk-based screening levels (RBSLs) are based on non-site specific generic fate and transport and exposure parameters, aesthetic criteria, and other appropriate standards such as the maximum contaminant levels (MCLs) for potable groundwater use. Tier 1 allows for the selection of exposure scenarios based on current and future land use, receptors, and institutional controls and very conservative exposure assumptions.

4.2 TIER 1 RISK-BASED SCREENING LEVELS

Table 4-1 shows a comparison of the Tier 1 RBSLs with the relevant maximum site concentrations. Note no data is available for surface soil concentrations, hence the RBSLs for surficial soils were compared with the maximum soil concentrations detected. This is a conservative assumption since the primary COCs are volatile and therefore surficial soil concentrations are expected to be lower than subsurface soil concentrations. Following are the conclusions based on the comparison of the relevant site concentrations with the RBSLs presented in Table 4-1:

Construction worker

Maximum on-site and off-site site-specific concentrations of BTEX and PAHs in soil and groundwater are significantly lower than the respective Tier 1 RBSLs. Note that the small difference in the site-specific depth and the Tier 1 default depth to groundwater and impacted soil is not likely to alter this conclusion.

Resident On-site Adult (Future)

Maximum site-specific concentrations of benzene in groundwater exceeds the Tier 1 RBSL developed for indoor inhalation of vapors.

Resident Off-site Adult (Future)

Maximum site-specific concentrations of benzene in groundwater exceeds the Tier 1 RBSL developed for indoor inhalation of vapors.

Resident On-site Child (Future)

Maximum site-specific concentrations of benzene and toluene in groundwater exceed the Tier 1 RBSLs developed for indoor inhalation of vapors.

Resident Off-site Child (Future)

Maximum site-specific concentrations of benzene in groundwater exceeds the Tier 1 RBSLs developed for indoor inhalation of vapors.

4.3 RECOMMENDATIONS BASED ON TIER 1 EVALUATION

If the site-specific concentrations exceed the RBSLs one of the following three alternatives may be selected:

Alternative 1: Remediation/removal of localized hot-spots on-site, if RBSLs are exceeded in the localized areas.

Alternative 2: Remediation to Tier 1 levels.

Alternative 3: Tier 2 RBCA evaluation of the chemicals and the complete routes of exposure for which the RBSLs are exceeded.

Selection of alternative 1, 2 or 3 is essentially a cost-benefit decision. For this site, it was decided to conduct a Tier 2 analysis using available site-specific data. Hence Tier 2 SSTLs for groundwater were developed for indoor inhalation of benzene and toluene from groundwater for the future adult and child resident. Also note that the Tier 1 RBSLs assumed groundwater depth of 300 cm whereas the depth to groundwater at this site is approximately 176 cm. This also suggests the need to develop Tier 2 SSTLs.

5.1 INTRODUCTION

Tier 2 site-specific target levels (SSTLs) are corrective action goals based on site-specific fate and transport parameters. To develop the Tier 2 SSTLs, the methodology described in the NYSDEC Interim Guidance was used. Tables 5-1(a) and 5-1(b) show the input parameters used. The following parameters were modified from the Tier 1 default values to reflect the site-specific conditions (also see Appendix A):

1. The **depth to groundwater** was changed to the average site-specific depth of shallow groundwater of 152.4 cm (5 feet). The **thickness of the vadose zone** (147.4 cm) is the depth of groundwater less the assumed thickness of the capillary fringe (5 cm).

2. For the future on-site and off-site residents, the **areal fraction of cracks** was reduced from 0.01 to 0.001. This implies that 0.1% of the floor area is devoid of concrete and has the same characteristics as the underlying soil. This is reasonable, since new construction would typically have fewer cracks.

3. Site-specific average soil **organic carbon** of 0.0237 g organic carbon/ g soil was used. (refer to Appendix A)

4. The Tier 1 default **porosity** of 0.38 cc/cc was retained whereas site-specific **water content** of 0.20 cc/cc were used (refer Appendix A). In addition the water content in the capillary fringe was estimated as 90% of porosity, i.e., 0.342 cc/cc.

5.2 SITE-SPECIFIC TARGET LEVELS

Table 5-2 presents the estimated Tier 2 groundwater SSTLs for future resident adult and child (both on-site and off-site) and compares them with the representative site concentrations. Key conclusions are as follows:

5.5 RECOMMENDATIONS BASED ON TIER 2 EVALUATION

Generally, after the completion of Tier 2 evaluation, one of the following three alternatives may be selected:

Alternative 1: No further action if the Tier 2 SSTLs exceed the representative site concentrations.

Alternative 2: Site remediation to Tier 2 SSTLs if the site concentrations exceed the SSTLs.

Alternative 3: Performance of Tier 3 evaluation if site concentrations exceed the SSTLs.

For this site Tier 2 target levels have been exceeded only for the inhalation pathway. Since the models used to estimate the emissions from soil are very conservative, we recommend the performance of a soil vapor survey 2 to 3 ft below the surface in the zone immediately above the water table where vapor concentrations are expected to be the highest. The survey should cover the site as well as the adjacent off-site area where the plume has migrated. The result of the soil vapor survey should be compared with the site-specific Tier 2 soil vapor target levels presented in Table 5-3. If the soil vapor concentrations do not exceed the target levels, the inhalation pathway is not of concern at the site.

5.6 MEASUREMENT OF VAPORS IN SOIL

In response to the recommendations discussed above, a soil vapor survey was conducted at the site. Four soil vapor samples P-2335-V-9-02-AA through P-2335-V-12-02-AA (refer to Figure 2-4(e)) were collected at a depth of 2 ft and analyzed for VOCs. Planned samples SV-1 through SV-8 were not collected due to an elevated water table in the vicinity of MW-030-005 and 006. One liter of soil vapors was withdrawn using a pump and volatile organics were collected on sorbent tubes. Sorbent tubes were analyzed using EPA Method 5041, Volatile Organic Sampling Trains (VOST) for EPA Target Compound List (TCL) or NYSDEC Spill Technology and Remediation Sercices (STARS) Compounds. Laboratory analytical results including QA/QC data validation and usability reports, chain of custody forms, and validated Form 1's are included in Appendix D. The results are tabulated in Table 5-4. As per the EPA Contract Laboratory Protocol (CLP) and the data validation process, the analytical data has

been qualified as "U" (below-detection), "J" (estimated), "UJ" (below detection, however detection limit estimated) and "R" (rejected). Soil vapor concentrations for all the analytes from all six borings were well below the Tier 2 SSTLs protective of indoor inhalation. These results indicate that the indoor inhalation pathway is not expected to pose unacceptable risk.

5.7 MEASUREMENT OF VAPORS IN INDOOR AND AMBIENT AIR

In addition to the soil vapor measurement, one ambient air sample in the vicinity of Building 7009 (P-7009-A-A1-FB), and two indoor air samples (one per floor) were obtained inside Building 7009. Sample P-7009-A-A1-AA was obtained inside the first floor unit while sample P-7009-A-A2-AA was obtained inside the second floor unit. All air sample were analyzed for volatiles using EPA method T01/T02, Air and Gas Sorbent Tube Method, specifically for EPA TCL or STARS compounds. Air samples were collected over a minimum duration of one hour with sample volume of ten liters in accordance with NYSDOH's Draft Indoor Air Sampling and Analysis Protocol. Similar measurements were conducted at other sites at Plattsburgh AFB such as former Building 205, Buildings 864 and 828. Analytical results for indoor and ambient air concentrations are tabulated in Table 5-5. As per the EPA CLP and the data validation process, the analytical data has been qualified as "U" (below-detection), "J" (estimated), "UJ" (below detection, however detection limit estimated) and "R" (rejected). Following are the key findings:

As can be seen by these results, only the benzene concentrations in the two indoor air samples (7009-A-A2-AA, 7009-A-A1-AA) exceed the Tier 1 Risk Based Concentration for Inhalation Indoor Air of 0.306 ug/m3 at 1.20 and 1.00 ug/m3, respectively. The associated ambient air sample (7009-A-A1-FB) also exceeds the target concentration at 0.69 ug/m3. Therefore, as is evident by these results the indoor air concentration in building 7009 is not significantly higher than ambient air concentrations at the site. In addition, comparing these target concentration exceedances to New York State Ambient Toxic Air Monitoring Network data for monitoring location Willsboro Bay – Lake Champlain, which is a rural sampling station located approximately 20 miles from the Plattsburgh AFB, the concentrations are very similar. The 1994 annual average concentration (most recent available data) at Willsboro station was 0.98 ug/m3 and ranged from 0.33 to 3.81 ug/m3. The Statewide wide air

monitoring covers 10 sites with the Willsboro station being the closest and most similar rural characteristic as the Plattsburgh AFB. Based on these results, it is apparent that the indoor air concentrations at building 7009 is no higher than background levels and it can be concluded that the groundwater contamination has no significant adverse effect on the air quality. Therefore, it can ben concluded that no deleterious effects would be expected for people using this building.

5.8 MEASUREMENT OF BIO-ATTENUATION INDICATOR PARAMETERS

As part of the recommendations regarding containment of the groundwater plume, natural indicator parameters were measured during the May 1998 groundwater monitoring event. The indicator parameters and trends are listed in Table 5-6. Laboratory analytical results are included in Appendix e. The indicator data and the trends are not conclusive. However, high ferrous iron concentration near the "source' well MW-5 is indicative of anaerobic conditions relative to the downgradient wells where lower ferrous concentrations were measured. Further ORP readings increased along the axis of the plume indicating more oxidizing conditions in the downgradient direction. These observations indicate the occurence of bio-attenuation that maybe confirmed by subsequent monitoring events.

Additionally, Figure 2-3 clearly indicates a decrease in concentrations along the axis of the plume indicative of the occurrence of natural attenuation.

6.0
CONCLUSIONS AND RECOMMENDATIONS

The former BX Service Station located at Palttsburgh Air Force Base, Plattsburgh, New York was evaluated using the NYSDEC's **"Interim Procedures for Inactivation of Petroleum-Impacted Sites"**.

1. The available data from the monitoring wells and borings indicates that soil impacts at the site are minimal and groundwater impacts are localized in the vicinity of MW-030-005 which is located in the northeast portion of the site.

2. PAHs were sporadically detected in groundwater and were generally non-detect in recent sampling events. Hence the primary COCs are BTEX, MTBE, and napthalene.

3. Site conceptual exposure model for the site indicates that the complete exposure pathways exist for (i) potential future construction worker, (ii) future on-site resident (adult and child), and (iii) future off-site resident (adult and child). Since there is no history of shallow groundwater use at the Plattsburgh AFB, and the area is supplied water by the city of Plattsburgh, the shallow groundwater ingestion pathway is incomplete. The representative site concentrations were compared to the Tier 1 RBSLs. The key conclusions were:

- Maximum site-specific concentrations of benzene in groundwater exceeds the Tier 1 RBSL developed for indoor inhalation of vapors for the future on-site adult resident.
- Maximum site-specific concentrations of benzene in groundwater exceeds the Tier 1 RBSL developed for indoor inhalation of vapors future off-site adult resident.
- Maximum site-specific concentrations of benzene and toluene in groundwater exceeds the Tier 1 RBSLs developed for indoor inhalation of vapors for the future on-site child resident.
- Maximum site-specific concentrations of benzene in groundwater exceeds the Tier 1 RBSLs developed for indoor inhalation of vapors for the future off-site child resident.

4. Tier 2 site-specific target levels (SSTLs) were developed for the future on-site and off-site adult and child resident using a combination of site-specific and default data. The key conclusions were:

- The representative site concentration (maximum and average) of benzene in groundwater exceed the Tier 2 SSTL for future on-site resident adult calculated for indoor inhalation of groundwater.
- The representative site concentration (maximum) of benzene in groundwater exceeds the Tier 2 SSTL for future off-site resident adult calculated for indoor inhalation of groundwater.
- The representative site concentration (maximum and average) of benzene in groundwater exceed the Tier 2 SSTL for future on-site resident child calculated for indoor inhalation of groundwater.
- The representative site concentration (maximum) of benzene in groundwater exceeds the Tier 2 SSTL for future off-site resident child calculated for indoor inhalation of groundwater.

5. Since the fate and transport models used to estimate the emissions from soil are very conservative, a soil vapor survey 2 to 3 ft below the surface in the zone immediately above the water table was conducted.

6. A comparison of the soil vapor concentrations with soil vapor SSTLs (Table 5-4) indicated that soil vapor concentrations for all COCs for all the six borings were below the Tier 2 SSTLs. Based on these results, the indoor inhalation pathway is not expected to pose unacceptable risk.

7. In addition to the soil vapor measurement, ambient and indoor air samples were also collected. Analytical results for indoor and ambient air concentrations are tabulated in Table 5-5. Both indoor and ambient concentrations of benzene exceeded the allowable indoor air concentration. Moreover, the detected concentrations were similar to ambient air concentrations of benzene measured by the NYSDEC at Willsboro Bay, a Lake Champlain rural monitoring station that is part of the New York State Ambient Toxic Air Monitoring Network. Thus, based on the soil vapor results discussed above and the similarity of detected benzene indoor concentrations to ambient concentrations, the groundwater contamination does not appear to be causing unacceptable excessive risk to potential receptors by the inhalation pathway.

8. As part of the recommendations regarding containment of the groundwater plume, bio-attenuation indicator parameters were measured during the recent groundwater monitoring event. Although the data is not definitive, there is indication of bio-attenuation. Further, a plot of benzene concentration along the axis of the plume center line indicates a clearly decreasing trend with distance. This is indicative of the occurrence of natural attenuation.

9. The above analysis indicates that the exposure due to the inhalation of vapors migrating from subsurface impacted soil and groundwater is acceptable. Also, the plume is stable and decreasing and therefore the site should be closed without any active remediation.

7.0
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APPENDIX A

TABLE A-1
SUMMARY OF SITE-SPECIFIC SOIL PARAMETERS
AT THE FORMER BX STATION

Sample	Water Content cc water/cc wet soil	Total Organic Carbon g organic carbon/g soil
1	0.286	0.0609
2	0.176	0.00992
3	0.169	0.000258
4	0.189	-
Average	0.205	0.0237

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APPENDIX B

TABLE 2-1
SOIL SUMMARY FOR PRELIMINARY INVESTIGATION AT FORMER BX SERVICE STATION (November, 1994)

Analytical Method	Analyte	No. of Detects	Total no. of Samples	Concentrations Range
DOH 210.13	Diesel	2	49	7.9 - 21 µg/kg
	Lube Oil	6	49	Detected
SW 6010	Lead	3	3	0.9 - 1.7 µg/kg
				[µg/kg]
SW 8270	Acenaphthene	1	1	76
	Fluorene	1	1	68
	Phenanthrene	1	1	410
	Anthracene	1	1	110
	Fluoranthene	1	1	380
	Pyrene	1	1	340
	Benzo (a) anthracene	1	1	160
	Chrysene	1	1	150
	Benzo (b) fluoranthene	1	1	180
	Benzo (k) fluoranthene	1	1	55
	Benzo (a) pyrene	1	1	150
	Benzo (g,h,i) perylene	1	1	98
SW 8021	Benzene	1	8	6.3 µg/kg
	MTBE	1	8	7.9 - 22 µg/kg
SW 8010	Trichloroethene	0	1	-
	cis-1,3-Dichloropropene	0	1	-

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TABLE 2-3
SOIL BTEX AND PAH CONCENTRATIONS IN MONITORING WELLS AT THE FORMER BX SERVICE STATION (September 1995)

Chemical	MW-030-005 (0 - 2) ft [mg/kg]	MW-030-005 (6 - 8) ft [mg/kg]	MW-030-006 (0 - 2) ft [mg/kg]	MW-030-006 (4 - 6) ft [mg/kg]
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND
Naphthalene	ND	0.05	NA	NA
Acenaphthene	ND	ND	NA	NA
Fluorene	ND	ND	NA	NA
Phenanthrene	ND	ND	NA	NA
Anthracene	ND	ND	NA	NA
Fluoranthene	0.043	ND	NA	NA
Pyrene	0.048	ND	NA	NA
Benzo (a) anthracene	0.049	ND	NA	NA
Chrysene	0.061	ND	NA	NA
Benzo (b) fluoranthene	0.072	ND	NA	NA
Benzo (k) fluoranthene	0.068	ND	NA	NA
Benzo (a) pyrene	0.077	ND	NA	NA
Dibenzo (a,h) anthracene	ND	ND	NA	NA
Benzo (g,h,i) perylene	0.061	ND	NA	NA
Indeno (1,2,3-cd) pyrene	0.055	ND	NA	NA
Bis(2-ethylhexyl)phthalate	0.037	ND	NA	NA

ND non-detect
NA not analyzed

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TABLE 2-4
IMMUNOASSAY RESULTS AT
THE FORMER BX SERVICE STATION

Sample	Location	Depth ft	Result [ppm]
	Southern Excavation		
PT 1	2 feet South	1.5	> 60
PT 2	15 feet South	1.5	15 - 60
PT 3	2 feet East	1.5	> 60
PT 4	12 feet East	1.5	> 60
PT 5	2 feet West	1.5	< 15
PT 6	2 feet South	1.5	15 - 60
PT 7	2 feet South	1.5	> 60
	Storm Drain		
PT 8	15 feet West of Kansas Avenue	1.5	15 - 60
PT 9	5 feet West of Kansas Avenue	1.5	15 - 60
PT 10	6 feet West of Kansas Avenue	1.5	15 - 60
PT 11	6 feet West of Kansas Avenue	1.5	> 15

TABLE 2-5
GROUNDWATER SUMMARY FOR PRELIMINARY INVESTIGATION AT THE BX SERVICE STATION (November 1994)

Analytical Method	Analyte	No. of Detects	Total no. of Samples	Concentrations Range
DOH 210.13	Diesel	6	37	0.01 - 0.48 µg/L
	Gasoline	3	37	Detected
	Lube Oil	10	37	Detected
SW 6010	Lead	1	1	540 µg/L
SW8010	Trichloroethene	1	3	1.4 mg/L
	cis-1,3-Dichloropropene	2	3	1.2 - 4.7 mg/L
	Methylene Chloride	1	3	2.8 mg/L

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TABLE 2-6
SUMMARY OF CHEMICALS IN GROUNDWATER
AT THE FORMER BX SERVICE STATION

Chemicals	MW-030-001 [mg/L]		MW-030-002 [mg/L]					MW-030-003 [mg/L]				MW-030-004 [mg/L]					MW-030-005 [mg/L]				
VOCs	Sep-95	May-98	Sep-95	Aug-96	Sep-96	May-97	May-98	Sep-95	Aug-96	May-97	May-98	Sep-95	Aug-96	Sep-96	May-97	May-98	Sep-95	Aug-96	Sep-96	May-97	May-98
Benzene	ND	ND	0.002	0.006	0.013	0.006	0.011	ND	ND	ND	ND	0.127	0.147	0.11	0.028	0.036	5	24.1	13	4.1	5
Toluene	ND	ND	ND	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12.3	0.85	0.28	0.16
Ethylbenzene	ND	ND	ND	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	2.94	0.51	0.99	0.92
Total Xylenes	0.001	ND	ND	0.0025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.4	8.72	4.5	1.6	2.75
MTBE	ND	ND	0.0016	ND	0.0027	ND	ND	ND	ND	ND	ND	0.174	0.704	0.082	ND	ND	7.1	6.1	1.4	ND	ND
Isopropylebenzene	ND	ND	ND	ND	ND	ND	0.0004j	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.041j
n-Propylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.145	ND	ND	0.091j
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.308	0.26	ND	0.19
1,2,4-Trimethylbenzene	ND	ND	ND	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.47	1.35	0.58	ND	0.76
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.036	ND	ND
Naphthalene	ND	ND	ND	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	0.313	0.11	0.093	0.11j
Tetrachloroethylene	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0004	0.009	ND	ND	ND	0.0002j	ND	ND	ND	ND	0.0002j
Styrene	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.002j	ND	ND	ND	ND	0.002j
Trichloroethene	ND	ND	ND	0.003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	ND	ND	ND	0.0006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		ND																			
SVOCs		ND																			
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0038	ND	ND	ND	ND	0.047	0.022	0.05	0.053j
2-methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	ND	ND	ND
3/4-methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.14	0.014	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.033	0.018	ND	ND
2-methylnapthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.012	0.014	0.007	ND	0.01j
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo (a,h) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-ethylexyl)pthalate	ND	ND	0.0091	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND Non-detect

Chemicals Detected

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TABLE 2-6 (continued)
SUMMARY OF CHEMICALS IN GROUNDWATER
AT THE FORMER BX SERVICE STATION

Chemicals	MW-030-006 [mg/L]				MW-030-007 [mg/L]			MW-030-008 [mg/L]	Storm Drain-6100 [mg/L]	Storm Drain-6101 [mg/L]
Method 8021	Sep-95	Aug-96	May-97	May-98	Sep-96	May-97	May-98	May-98	May-97	May-97
Benzene	ND	0.002	0.3	ND	0.098	0.3	0.14	ND	0.026	0.049
Toluene	ND	0.001	0.029	ND	ND	0.029	0.011	ND	ND	0.007
Ethylbenzene	ND	0.0006	0.041	ND	0.012	0.041	0.014	ND	ND	ND
Total Xylenes	ND	0.0007	0.09	ND	0.012	0.09	ND	ND	0.011	0.022
MTBE	0.0027	ND	ND	ND	0.08	ND	ND	ND	0.037	0.038
Isopropylebenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ND	ND	ND	ND	ND	ND	0.0006j	ND	ND	ND
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	0.002J	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	0.002J	ND	ND	0.005
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	0.001	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Method 8270										
Phenol	ND	ND	ND	ND	ND	ND	0.005J	ND	ND	ND
2-methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3/4-methylphenol	ND	ND	ND	ND	0.0005	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-methylnapthalene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benzo (a) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benzo (b) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benzo (k) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benzo (a) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Dibenzo (a,h) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benzo (g,h,i) perylene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Bis(2-ethylexyl)pthalate	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

ND Non-detect NA Not Analyzed

Chemicals Detected

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TABLE 2-6 (concluded)
SUMMARY OF CHEMICALS IN GROUNDWATER**
AT THE FORMER BX SERVICE STATION

Chemicals	01-05-B [mg/L]	02-05-B [mg/L]	03-05-B [mg/L]	04-05-B [mg/L]	05-05-B [mg/L]	06-05-B [mg/L]	On-site Max. [mg/L]	On-site Avg.* [mg/L]	Off-site Max. [mg/L]	Off-site Avg.* [mg/L]
Method 8021	May-97	Sep-96	May-97	May-97	May-97	May-97	May-97	May-97	May-97	May-97
Benzene	1.6	0.001	0.002	0.001	ND	ND	24.1	10.24	1.6	1.46
Toluene	1.6	ND	ND	ND	ND	ND	12.3	3.40	1.6	1.75
Ethylbenzene	0.65	ND	ND	ND	ND	ND	2.94	1.19	0.65	0.48
Total Xylenes	3.29	ND	ND	ND	ND	ND	8.72	3.50	3.29	1.56
MTBE	ND	0.08	ND	ND	ND	ND	7.1	4.87	0.704	1.54
Isopropylebenzene	ND	ND	ND	ND	ND	ND	0.041	0.04	0.0004	0.02
n-Propylbenzene	ND	ND	ND	ND	ND	ND	0.145	0.12	0.0006	0.07
1,3,5-Trimethylbenzene	1.2	ND	ND	ND	ND	ND	0.308	0.25	1.2	0.50
1,2,4-Trimethylbenzene	1.2	ND	ND	ND	ND	ND	1.35	0.79	1.2	0.50
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	ND	ND	ND	ND	ND	ND	0.036	0.04	ND	0.04
Naphthalene	0.2	ND	ND	ND	ND	ND	0.313	0.15	0.2	0.12
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	0.002	0.002	0.0001	0.0011
Trichloroethylene	ND	ND	ND	ND	ND	ND	0.005	0.0026	0.009	0.0037
Styrene	ND	ND	ND	ND	ND	ND	0.001	0.001	ND	0.001
cis-1,2-Dichloroethene	ND	0.001	0.001	ND	0.003	ND	0.002	0.002	0.01	0.003
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	0.003	0.0030
4-Isopropyltoluene	ND	ND	ND	ND	ND	ND	ND	ND	0.0006	0.0006
Method 8270										
Phenol	0.01	ND	ND	ND	ND	ND	0.053	0.043	0.01	0.018
2-methylphenol	ND	ND	ND	ND	ND	ND	0.05	0.05	ND	0.05
3/4-methylphenol	ND	0.0005	ND	ND	ND	ND	0.14	0.077	0.0005	0.047
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	0.033	0.026	ND	0.033
2-methylnapthalene	0.059	ND	ND	ND	ND	ND	0.014	0.011	0.059	0.028
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo (a,h) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-ethylexyl)pthalate	ND	ND	ND	ND	ND	ND	ND	ND	0.0091	0.0091

Chemicals Detected ND Non-detect

** Sampled from Geoprobe borings drilled in May 1997 (refer Figure 1-1(e))

* only detected values were used

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TABLE 4-1
SUMMARY OF TIER 1 RISK-BASED SCREENING LEVELS FOR SOIL AND GROUNDWATER
BX SERVICE STATION

Receptor	Media-Pathway	Concentration	Benzene	Toluene	Ethylbenzene	Total Xylenes	Napthalene	Pyrene	Benzo (a) anthracene
Construction Worker (on-site)	Soil-Outdoor Inhalation [mg/kg]	RBSL	12	1.92E+03	3.50E+03	2.66E+03	300	2.38E+08	3.14E+10
		On-site Max	ND	ND	ND	ND	0.05	0.048	0.049
	Surficial soil - ingestion, dermal contact, inhalation [mg/kg]	RBSL	2.65E+02	3.52E+04	4.00E+04	3.84E+04	1380	9.28E+04	185
		On-site Max	ND	ND	ND	ND	0.05	0.048	0.049
	Groundwater-Outdoor Inhalation [mg/L]	RBSL	802	5.22E+04	1.33E+05	2.75E+05	3750	3.74E+06	1.35E+07
		On-site Max	24.1	12.3	2.94	8.7	0.313	ND	ND
		Off-site Max	1.6	1.6	0.65	3.29	0.2	ND	ND
Resident (Child)	Soil-Indoor Inhalation [mg/kg]	RBSL	0.022	5.89	15.5	28	0.604	4.79E+05	6.32E+07
		On-site Max	ND	ND	ND	ND	0.05	0.048	0.049
	Surficial soil - ingestion, dermal contact, inhalation [mg/kg]	RBSL	10.5	5.20E+03	2.62E+03	4.53E+04	3.54E+03	3.83E+03	1.02
		On-site Max	ND	ND	ND	ND	0.05	0.048	0.049
	Groundwater-Indoor Inhalation [mg/L]	RBSL	0.042	11.20	27.80	60.1	1.26	2.83E+03	1.03E+04
		On-site Max	24.1	12.3	2.94	8.7	0.313	ND	ND
		Off-site Max	1.6	1.6	0.65	3.29	0.2	ND	ND
Resident (Adult)	Soil-Indoor Inhalation [mg/kg]	RBSL	0.048	65.2	172	287	1.78	1.06E+06	1.40E+08
		On-site Max	ND	ND	ND	ND	0.05	0.048	0.049
	Surficial soil - ingestion, dermal contact, inhalation [mg/kg]	RBSL	13.5	3.34E+04	1.68E+04	3.23E+05	4.68E+04	4.15E+04	2.2
		On-site Max	ND	ND	ND	ND	0.05	0.048	0.049
	Groundwater-Indoor Inhalation [mg/L]	RBSL	0.019	24.70	61.40	133.2	2.78	6.26E+03	2.27E+04
		On-site Max	24.1	12.3	2.94	8.7	0.313	ND	ND
		Off-site Max	1.6	1.6	0.65	3.29	0.2	ND	ND

( ) indicates value exceeds one or more target levels

ND Not Detected

Note several values exceed pure product solubility, or saturation levels. A few values are physically impossible, e.g., soil RBSL for construction worker for Benzo(a) anthracene is 3.4E+10. mg/kg. These values are reported to be consistent with the NYSDEC's "Interim Procedures for Inactivation of Petroleum-Impacted Sites."

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TABLE 4-1(continued)
SUMMARY OF TIER 1 RISK-BASED SCREENING LEVELS FOR SOIL AND GROUNDWATER
BX SERVICE STATION

Receptor	Media-Pathway	Agency	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Dibenzo (a,h) anthracene	Benzo (g,h,i) perylene	Indeno (1,2,3-cd) pyrene
Construction Worker	Soil-Outdoor Inhalation [mg/kg]	RBSL	5.28E+09	1.59E+09	5.03E+08	7.16E+07	4.46E+11	2.18E+11	2.49E+11
		On-site Max	0.061	0.072	0.068	0.077	ND	0.061	0.055
	Surficial soil - ingestion, dermal contact, inhalation [mg/kg]	RBSL	1.85E+04	1.85E+04	1.85E+03	18.3	18.5	1.08E+05	185
		On-site Max	0.061	0.072	0.068	0.077	ND	0.061	0.055
	Groundwater-Outdoor Inhalation [mg/L]	RBSL	1.57E+07	1.76E+06	5.93E+05	1.09E+05	7.98E+07	8.11E+07	9.20E+07
		On-site Max	ND	ND	ND	ND	ND	ND	ND
		Off-site Max	ND	ND	ND	ND	ND	ND	ND
Resident (Child)	Soil-Indoor Inhalation [mg/kg]	RBSL	1.06E+07	3.20E+06	1.01E+06	2.43E+04	8.96E+08	4.38E+08	5.01E+08
		On-site Max	0.061	0.072	0.068	0.077	ND	0.061	0.055
	Surficial soil - ingestion, dermal contact, inhalation [mg/kg]	RBSL	102	1.02	10.2	0.102	0.102	3840	1.02
		On-site Max	0.061	0.072	0.068	0.077	ND	0.061	0.055
	Groundwater-Indoor Inhalation [mg/L]	RBSL	1.19E+04	1.31E+03	4.20E+02	14	6.10E+04	6.19E+04	7.03E+04
		On-site Max	ND	ND	ND	ND	ND	ND	ND
		Off-site Max	ND	ND	ND	ND	ND	ND	ND
Resident (Adult)	Soil-Indoor Inhalation [mg/kg]	RBSL	2.35E+07	7.08E+06	2.24E+06	1.08E+04	1.98E+09	9.68E+08	1.11E+09
		On-site Max	0.061	0.072	0.068	0.077	ND	0.061	0.055
	Surficial soil - ingestion, dermal contact, inhalation [mg/kg]	RBSL	220	2.2	22	0.22	0.22	4.16E+04	2.2
		On-site Max	0.061	0.072	0.068	0.077	ND	0.061	0.055
	Groundwater-Indoor Inhalation [mg/L]	NYSDEC	2.64E+04	2.90E+03	9.28E+02	6.19	1.35E+05	1.37E+05	1.55E+05
		On-site Max	ND	ND	ND	ND	ND	ND	ND
		Off-site Max	ND	ND	ND	ND	ND	ND	ND

( ) indicates value exceeds one or more target levels
ND Not Detected

TABLE 5-1(a)
RESIDENT ADULT - FUTURE CONDITIONS
EXPOSURE FACTORS AND OTHER RELEVANT PARAMETERS

EXPOSURE PARAMETER	Units	Value	Reference
GLOBAL PARAMETERS			
Averaging Time - Carcinogen	yr	70	NYSDEC Interim Guidance, January 1997
Averaging Time - Noncarcinogen	yr	30	NYSDEC Interim Guidance, January 1997
Body Weight	kg	70	NYSDEC Interim Guidance, January 1997
Exposure Duration	yr	30	NYSDEC Interim Guidance, January 1997
Exposure Frequency	days/yr	350	NYSDEC Interim Guidance, January 1997
Soil ingestion rate	mg/day	10.2	NYSDEC Interim Guidance, January 1997
Daily Indoor Inhalation Rate	m^3/day	19.2	NYSDEC Interim Guidance, January 1997
Daily Outdoor Inhalation Rate	m^3/day	0.8	NYSDEC Interim Guidance, January 1997
Daily water ingestion rate	L/day	2	NYSDEC Interim Guidance, January 1997
Soil skin adherence factor	mg/cm^2	0.5	NYSDEC Interim Guidance, January 1997
Oral relative absorption factor	---	1	NYSDEC Interim Guidance, January 1997
Dermal relative absorption factor (volatiles)	---	0.5	NYSDEC Interim Guidance, January 1997
Dermal relative absorption factor (PAHs)	---	0.005	NYSDEC Interim Guidance, January 1997
Skin surface area	cm^2	1700	NYSDEC Interim Guidance, January 1997
Target Hazard Quotient for individual constituents	---	1	NYSDEC Interim Guidance, January 1997
Target Excess Individual Lifetime Cancer Risk	---	1.00E-06	NYSDEC Interim Guidance, January 1997
SOIL, BUILDING, SURFACE AND SUBSURFACE PARAMETERS			
Lower depth of surficial soil zone	cm	100	NYSDEC Interim Guidance, January 1997
Enclosed space air exchange rate	1/s	0.00014	NYSDEC Interim Guidance, January 1997
Fraction of organic carbon in soil	gm-C/gm-soil	0.0237	Site-specific
Thickness of capillary fringe	cm	5	NYSDEC Interim Guidance, January 1997
Thickness of vadose zone	cm	147.4	Site-specific
Infiltration rate of water through soil	cm/yr	13.97	NYSDEC Interim Guidance, January 1997
Enclosed space volume/infiltration area	cm	200	NYSDEC Interim Guidance, January 1997
Enclosed space foundation/wall thickness	cm	15	NYSDEC Interim Guidance, January 1997
Depth to groundwater	cm	152.4	Site-specific
Depth to subsurface impacted soil	cm	60.96	Site-specific
Particulate emission rate	g/cm^2-s	6.90E-14	NYSDEC Interim Guidance, January 1997
Wind speed above ground surface in ambient mixing zone	cm/s	225	NYSDEC Interim Guidance, January 1997
Groundwater Darcy velocity	cm/yr	2500	NYSDEC Interim Guidance, January 1997
Width of source area parallel to wind or gw flow	cm	1500	NYSDEC Interim Guidance, January 1997
Ambient air mixing zone height	cm	200	NYSDEC Interim Guidance, January 1997
Groundwater mixing zone height	cm	200	NYSDEC Interim Guidance, January 1997
Areal fraction of foundation/walls	cm^2/cm^2	0.001	NYSDEC Interim Guidance, January 1997
Volumetric air content in capillary fringe soils	cc/cc	0.038	equal to 10% of porosity
Volumetric air content in found./wall cracks	cc/cc	0.18	equal to air content in vadose zone soils
Volumetric air content in vadose zone soils	cc/cc	0.18	Site-specific
Total soil porosity	cc/cc-soil	0.38	Site-specific
Volumetric water content in capillary fringe soils	cc/cc	0.342	Site-specific
Volumetric water content in found./wall cracks	cc/cc	0.2	equal to water content in vadose zone soils
Volumetric water content in vadose zone soils	cc/cc	0.2	Site-specific
Soil bulk density	gm/cc	1.7	Site-specific
Averaging time for vapor flux	sec	9.46E+08	NYSDEC Interim Guidance, January 1997

Reference : Interim Procedures for Inactivation of Petroleum Impacted Sites, January 1997

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TABLE 5-1(b)
RESIDENT CHILD - FUTURE CONDITIONS
EXPOSURE FACTORS AND OTHER RELEVANT PARAMETERS

EXPOSURE PARAMETER	Units	Value	Reference
GLOBAL PARAMETERS			
Averaging Time - Carcinogen	yr	70	NYSDEC Interim Guidance, January 1997
Averaging Time - Noncarcinogen	yr	6	NYSDEC Interim Guidance, January 1997
Body Weight	kg	15	NYSDEC Interim Guidance, January 1997
Exposure Duration	yr	6	NYSDEC Interim Guidance, January 1997
Exposure Frequency	days/yr	350	NYSDEC Interim Guidance, January 1997
Soil ingestion rate	mg/day	69.7	NYSDEC Interim Guidance, January 1997
Daily Indoor Inhalation Rate	m^3/day	9.1	NYSDEC Interim Guidance, January 1997
Daily Outdoor Inhalation Rate	m^3/day	0.9	NYSDEC Interim Guidance, January 1997
Soil skin adherence factor	mg/cm^2	0.5	NYSDEC Interim Guidance, January 1997
Oral relative absorption factor	—	1	NYSDEC Interim Guidance, January 1997
Dermal relative absorption factor (volatiles)	—	0.5	NYSDEC Interim Guidance, January 1997
Dermal relative absorption factor (PAHs)	—	0.005	NYSDEC Interim Guidance, January 1997
Skin surface area	cm^2	2100	NYSDEC Interim Guidance, January 1997
Target Hazard Quotient for individual constituents	—	1	NYSDEC Interim Guidance, January 1997
Target Excess Indvidual Lifetime Cancer Risk	—	1.00E-06	NYSDEC Interim Guidance, January 1997
SOIL, BUILDING, SURFACE AND SUBSURFACE PARAMETERS			
Lower depth of surficial soil zone	cm	100	NYSDEC Interim Guidance, January 1997
Enclosed space air exchange rate	1/s	0.00014	NYSDEC Interim Guidance, January 1997
Fraction of organic carbon in soil	gm-C/gm-soil	0.0237	ASTM - Guide for RBCA. November 1995
Thickness of capillary fringe	cm	5	NYSDEC Interim Guidance, January 1997
Thickness of vadose zone	cm	147.4	Site-specific
Infiltration rate of water through soil	cm/yr	13.97	ASTM - Guide for RBCA. November 1995
Enclosed space volume/infiltration area	cm	200	NYSDEC Interim Guidance, January 1997
Enclosed space foundation/wall thickness	cm	15	NYSDEC Interim Guidance, January 1997
Depth to groundwater	cm	152.4	Site-specific
Depth to subsurface impacted soil	cm	60.96	Site-specific
Particulate emission rate	g/cm^2-s	6.90E-14	ASTM - Guide for RBCA. November 1995
Wind speed above ground surface in ambient mixing zone	cm/s	225	ASTM - Guide for RBCA. November 1995
Groundwater Darcy velocity	cm/yr	2500	ASTM - Guide for RBCA. November 1995
Width of source area parallel to wind or gw flow	cm	1500	ASTM - Guide for RBCA. November 1995
Ambient air mixing zone height	cm	200	ASTM - Guide for RBCA. November 1995
Groundwater mixing zone height	cm	200	ASTM - Guide for RBCA. November 1995
Areal fraction of foundation/walls	cm^2/cm^2	0.001	NYSDEC Interim Guidance, January 1997
Volumetric air content in capillary fringe soils	cc/cc	0.038	equal to 10% of porosity
Volumetric air content in found./wall cracks	cc/cc	0.18	equal to air content in vadose zone soils
Volumetric air content in vadose zone soils	cc/cc	0.18	Site-specific
Total soil porosity	cc/cc-soil	0.38	Site-specific
Volumetric water content in capillary fringe soils	cc/cc	0.342	Site-specific
Volumetric water content in found./wall cracks	cc/cc	0.2	equal to water content in vadose zone soils
Volumetric water content in vadose zone soils	cc/cc	0.2	Site-specific
Soil bulk density	gm/cc	1.7	Site-specific
Averaging time for vapor flux	sec	1.89E+08	NYSDEC Interim Guidance, January 1997

Reference : Interim Procedures for Inactivation of Petroleum Impacted Sites, January 1997

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TABLE 5-2
TIER 2 SITE-SPECIFIC TARGET LEVELS
AT THE BX SERVICE STATION

Receptor	Media-Pathway	Concentration	Benzene	Toluene
Future On-site Resident Adult	Groundwater-Indoor Inhalation [mg/L]	**Tier 2 SSTL**	**0.29**	**362**
		On-site Average*	(11.55)	4.47
		On-site Max	(24.1)	12.3
Future Off-site Resident Adult	Groundwater-Indoor Inhalation [mg/L]	Off-site Average*	0.16	0.24
		Off-site Max	(1.6)	1.6
Future On-site Resident Child	Groundwater-Indoor Inhalation [mg/L]	**Tier 2 SSTL**	**0.64**	**164**
		On-site Average*	(11.55)	4.47
		On-site Max	(24.1)	12.3
Future Off-site Resident Child	Groundwater-Indoor Inhalation [mg/L]	Off-site Average*	0.16	0.24
		Off-site Max	(1.6)	1.6

( ) indicates value exceeds target level

* arithmetic avarage of values detected in the last two years

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BX6.xls/Sheet-tier 2

TABLE 5-3
SITE-SPECIFIC SOIL VAPOR TARGET LEVELS
AT FORMER BX SERVICE STATION

Chemical	Tier 2 SSTL* Groundwater Concentrations	Soil conc. Converted Soil Conc. wet wt.	Soil conc. Converted Soil Conc. dry wt.	Soil Vapor Target Levels	
	[mg/L]	[mg/kg]	[mg/kg]	[mg/l]	[ppm]
Benzene	2.85E-01	0.53	0.594	0.066	21
Toluene	1.64E+02	1050.10	1173.646	43.402	11522
Ethylbenzene	1.52E+02	3520	3934.67	40.658	9361
Total Xylenes	1.98E+02	1021.25	1141.4	58.0	13350

* lowest of Tier 2 SSTLs

Parameters:		Constituents	Koc
Water content =	0.2 cc/cc	Benzene	83
Air filled porosity =	0.18 cc/cc	Toluene	300
Dry bulk density =	1.7 g/cc	Ethylbenzene	1100
Fractional organic carbon =	0.0237 (g/g)	Total Xylenes	240

TABLE 5-4

MEASURED SOIL VAPOR CONCENTRATIONS AT FORMER BX STATION, PLATTSBURGH AFB

CHEMICAL	SOIL VAPOR SSTLS	BLANKS		SOIL VAPOR CONCENTRATION							
		2335-V-12-TB		2335-V-11-FB		2335-V-09-02-A		2335-V-10-02-AA		2335-V-11-02-A		2335-V-12-02-AA	
	µg/m³	µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³	
Acetone	NA	10.0	U	12.0	U	59.0	U	80.0	U	35.0	U	42.0	U
Methylene Chloride	NA	16.0		14.0	U	15.0	U	15.0	U	14.0	U	20.0	U
Benzene	6.62E+04	3.0		4.0	U	7.0	U	15.0	U	9.0	U	4.0	U
Toluene	4.34E+07	10.0	U	10.0	U	36.0		83.0		28.0		29.0	
Ethylbenzene	4.07E+07	10.0	U	10.0	U	10.0		21.0		17.0	U	47.0	U
Total Xylenes	5.80E+07	10.0	U	10.0	U	65.0		100		82.0	U	10.0	

exceeds target levels

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TABLE 5-5
INDOOR AIR CONCENTRATIONS COMPARED TO TIER 1* INHALATION TARGET LEVELS AT FORMER BX STATION, PLATTSBURGH AFB

CHEMICAL	TIER 1 INDOOR AIR INHALATION TARGETS	TRIP BLANK A-B1-A1-TB		AMBIENT AIR 7009-A-A1-FB		INDOOR AIR in BLDG. 7009 7009-A-A2-AA		7009-A-A1-AA	
	µg/m³	µg/m³		µg/m³		µg/m³		µg/m³	
Chloromethane	NA	1.00	UJ	1.57	J	1.00	UJ	1.00	UJ
Vinyl Chloride	NA	1.00	U	0.98	U	1.00	UJ	1.00	U
Bromomethane	NA	1.00	U	0.98	U	1.00	UJ	1.00	U
Chloroethane	NA	1.00	U	0.98	U	1.00	UJ	1.00	U
1,1-Dichloroethene	NA	1.00	U	0.98	U	1.00	UJ	1.00	U
Acetone	NA	10.0	BJ	44.19	UJ	99.72	UJ	99.90	UJ
Carbon Disulfide	NA	1.00	U	0.98	U	1.00	U	1.00	U
Methylene Chloride	NA	1.00	UJ	108.01	EJ	57.84	J	30.97	J
2-Butanone	NA	1.00	UJ	7.95	J	12.96	J	11.99	J
trans-1,2-Dichloroethene	NA	1.00	U	0.98	U	1.00	U	1.00	U
cis-1,2-Dichloroethene	NA	1.00	U	0.98	U	1.00	U	1.00	U
1,1-Dichloroethane	NA	1.00	U	0.98	U	1.00	U	1.00	U
Chloroform	NA	1.00	U	0.98	U	1.00	U	1.00	U
1,2-Dichloroethane	NA	1.00	U	0.98	U	1.00	U	1.00	U
1,1,1-Trichlorothane	NA	1.00	U	0.98	U	1.00	U	1.00	U
Carbon Tetrachloride	NA	1.00	U	0.98	U	1.00	U	1.00	U
Trichloroethene	NA	1.00	U	0.98	U	1.00	U	1.00	U
Benzene	0.306	0.30	U	0.69		1.20		1.00	
1,2-Dichloropropane	NA	1.00	U	0.98	U	1.00	U	1.00	U
Bromodichloromethane	NA	1.00	U	0.98	U	1.00	U	1.00	U
cis-1,3-Dichloropropene	NA	1.00	U	0.98	U	1.00	U	1.00	U
trans-1,3-Dichloropropene	NA	1.00	U	0.98	U	1.00	U	1.00	U
1,1,2-Trichloroethane	NA	1.00	UJ	0.98	UJ	1.00	UJ	1.00	UJ
4-Methyl-2-Pentanone	NA	1.00	UJ	0.98	UJ	1.00	UJ	1.00	UJ
2-Hexanone	NA	1.00	UJ	0.98	UJ	1.00	UJ	1.00	UJ
Toluene	189	1.00	UJ	1.67	J	2.19	J	2.40	J
Tetrachloroethene	NA	1.00	U	0.98	U	1.00	U	1.00	U
Dibromochloromethane	NA	1.00	U	0.98	U	1.00	U	1.00	U
Chlorobenzene	NA	1.00	U	0.98	U	1.00	U	1.00	U
Ethylbenzene	499	1.00	U	0.98	U	1.00	U	1.00	U
Total Xylenes	148	1.00	U	0.98	U	1.00	U	1.00	U
Styrene	NA	1.00	U	0.98	U	1.00	U	1.00	U
Bromoform	NA	1.00	U	0.98	U	1.00	U	1.00	U
1,1,2,2-Tetrachloroethane	NA	1.00	UJ	0.98	UJ	1.00	UJ	1.00	UJ

* lower of the numbers for adults and child

( ) exceeds target levels

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TABLE 5-6
NATURAL ATTENUATION INDICATOR PARAMETERS ALONG THE PLUME AXIS

INDICATOR	MW-5	MW-7	MW-4	MW-8	Trend Consistent with NA?
ORP [mV]	208	255	386	372	Yes
Sulfate [mg/L]	17.4	9.7	22.3	21.1	No trend
Nitrate [mg/L]	0.02	0.02	0.02	0.02	No trend
Ferrous [mg/L]	20.5	19.9	8.0	0.026	Yes
Alkalinity [mg/L]	225	187	161	147	No
DO* [mg/L]	0.5	0.6	NM	NM	No trend

Note: all measurements were conducted in May 1998 NM not measured * field measurement

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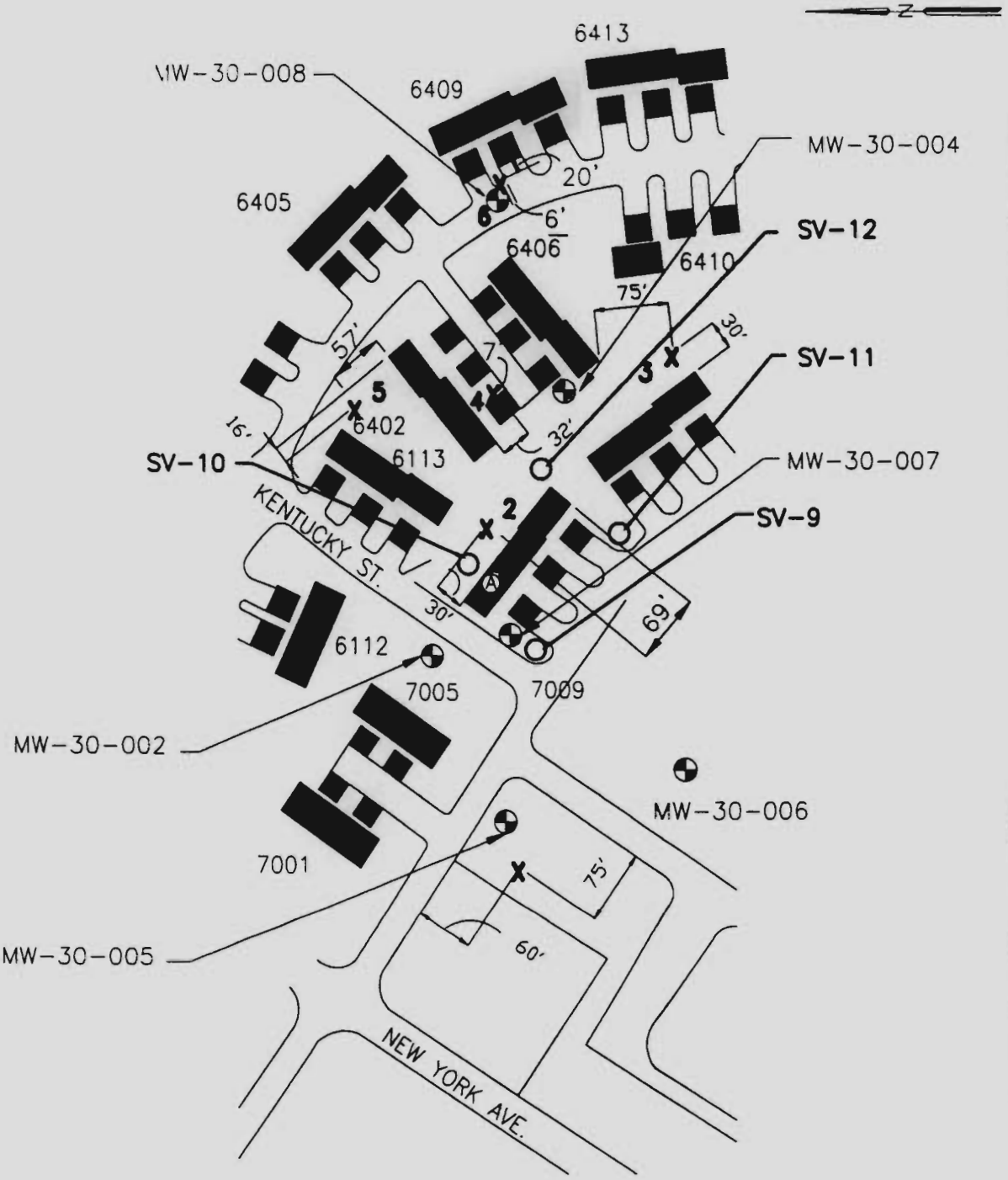
APPENDIX C



APPROXIMATE SCALE: 1" = 100'

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LEGEND

- ⊕ — MONITORING WELLS
- X — LOCATION OF GROUNDWATER MONITORING WELLS
- O — LOCATION OF SOIL VAPOR BORINGS
- SV-9
- Ⓐ — INDOOR AIR SAMPLE (1 PER FLOOR)

Fanning, Phillips & Molnar
Engineers

FIGURE 2-1
SITE MAP
FORMER BX GAS STATION
PLATTSBURGH AFB, N.Y.

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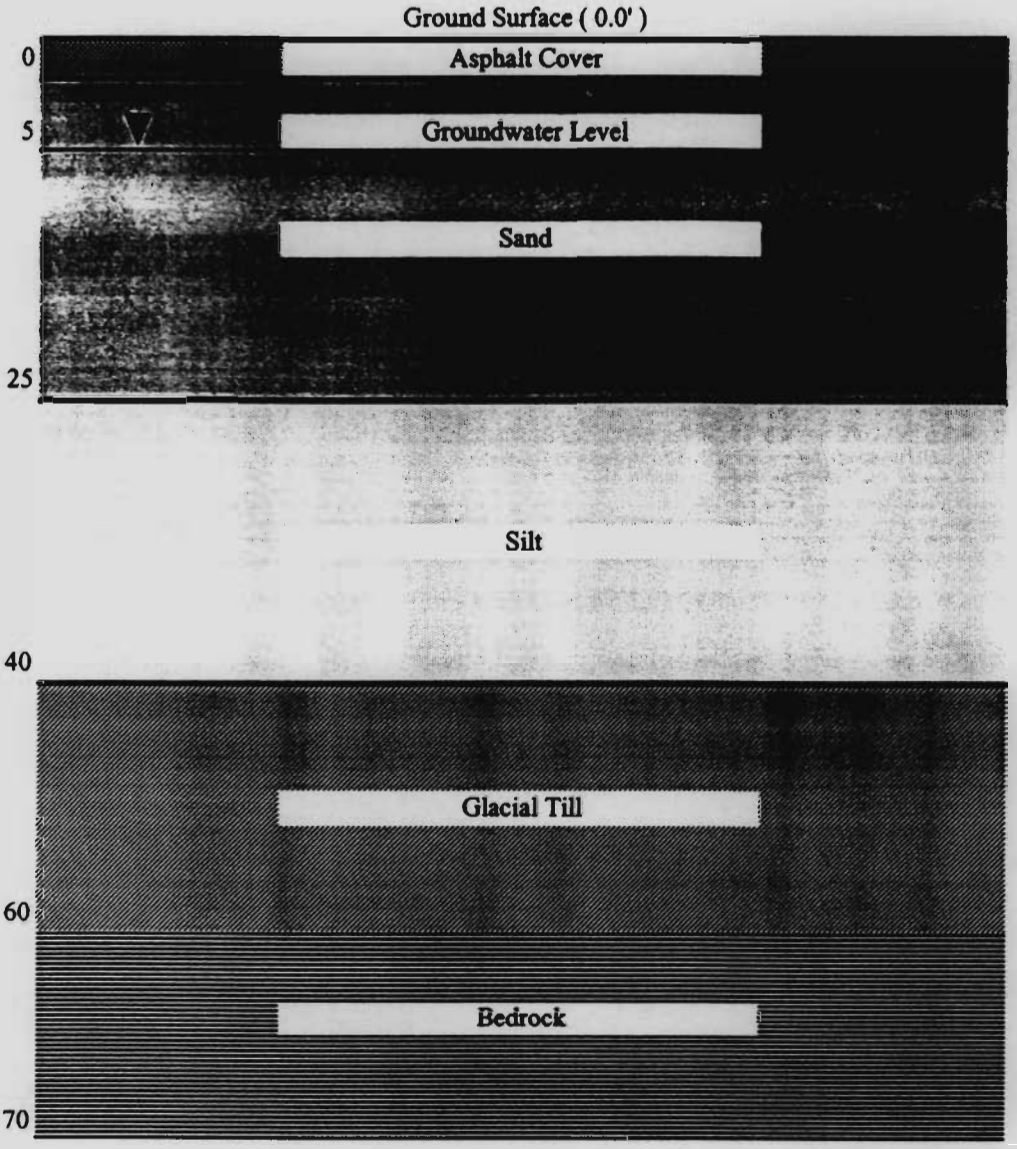

FIGURE 2-2. GENERALIZED SOIL PROFILE AT THE FORMER BX SERVICE STATION

Well	feet	min [mg/L]	max [mg/L]	average [mg/L]
MW-5	5	4.1	24.1	11.55
MW-7	50	0.098	0.30	0.199
MW-4	115	0.028	0.147	0.103

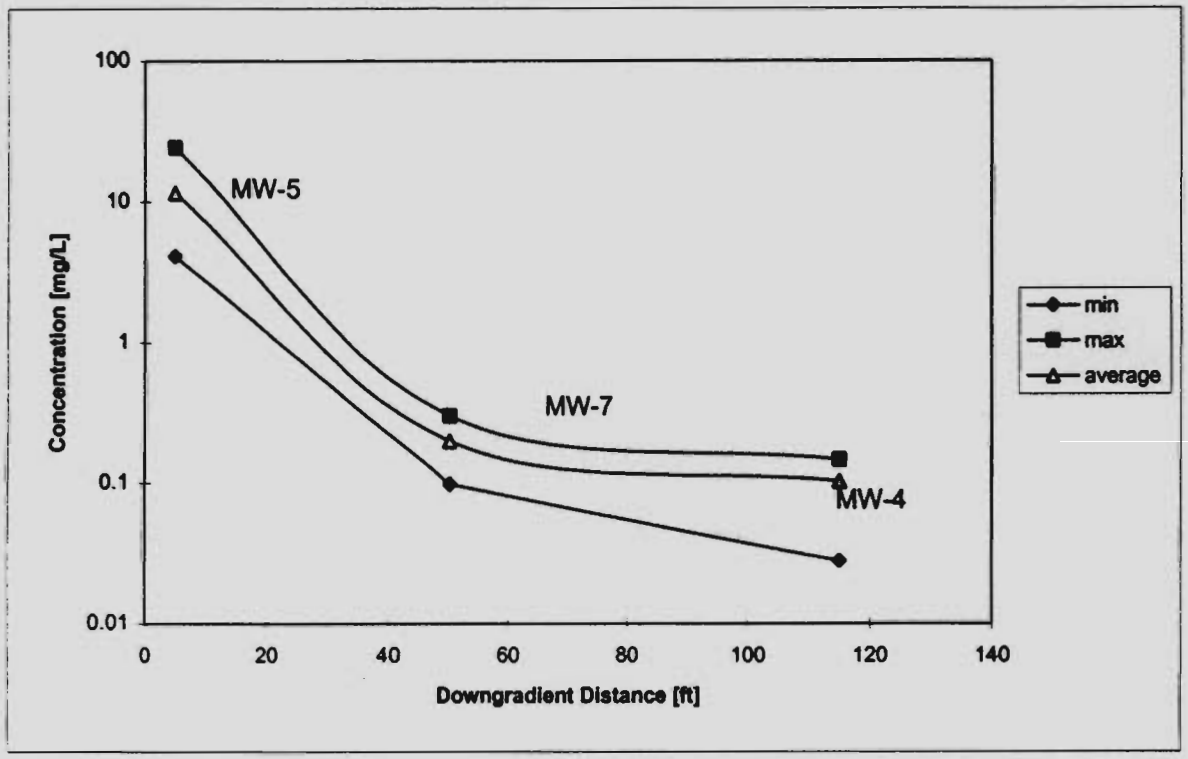

FIGURE 2-3 BENZENE CONCENTRATIONS IN DOWNGRADIENT MONITORING WELLS AT THE FORMER BX SERVICE STATION

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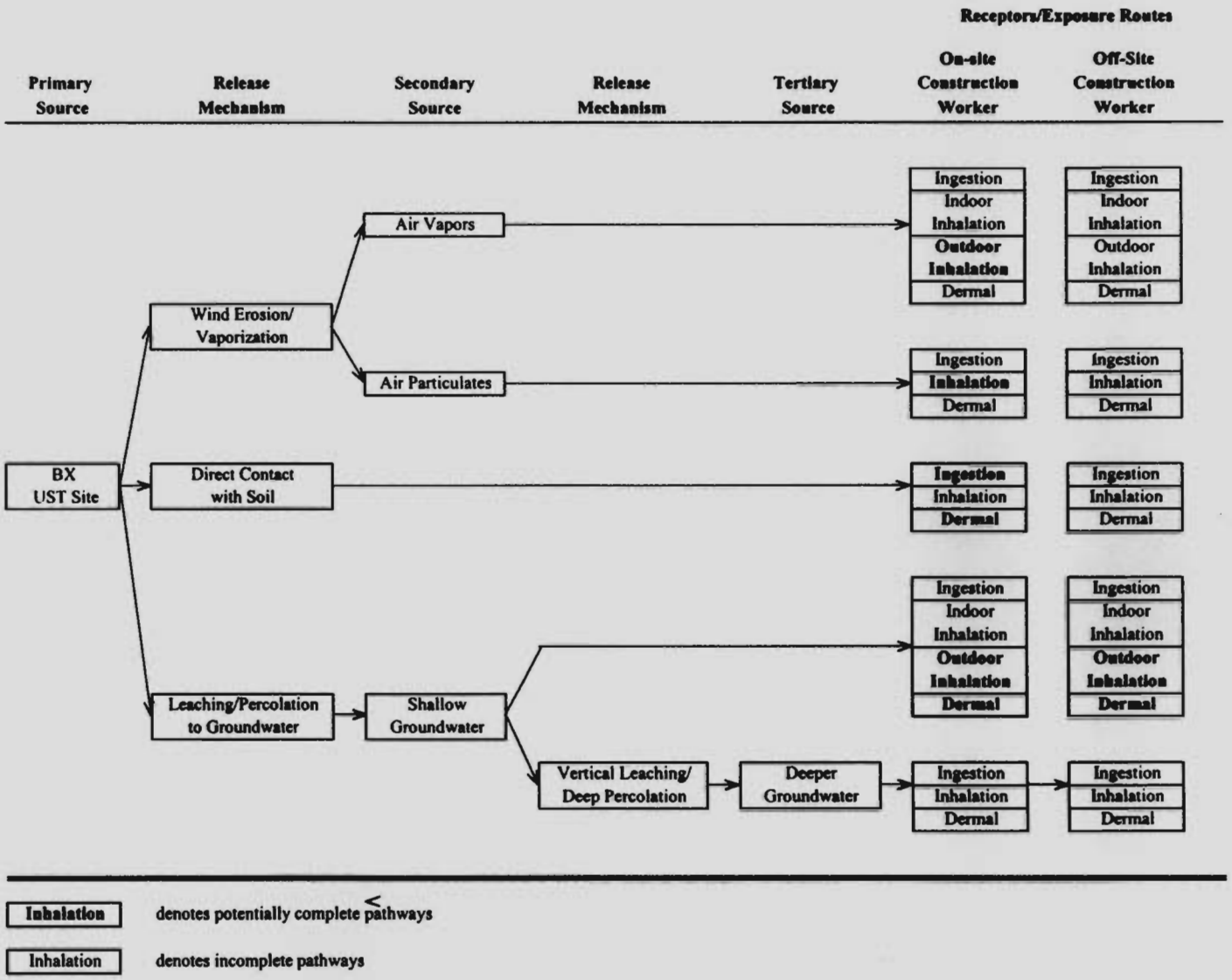

FIGURE 3-1. SITE CONCEPTUAL EXPOSURE MODEL FOR POTENTIAL CONSTRUCTION ACTIVITY AT THE FORMER BX SERVICE STATION

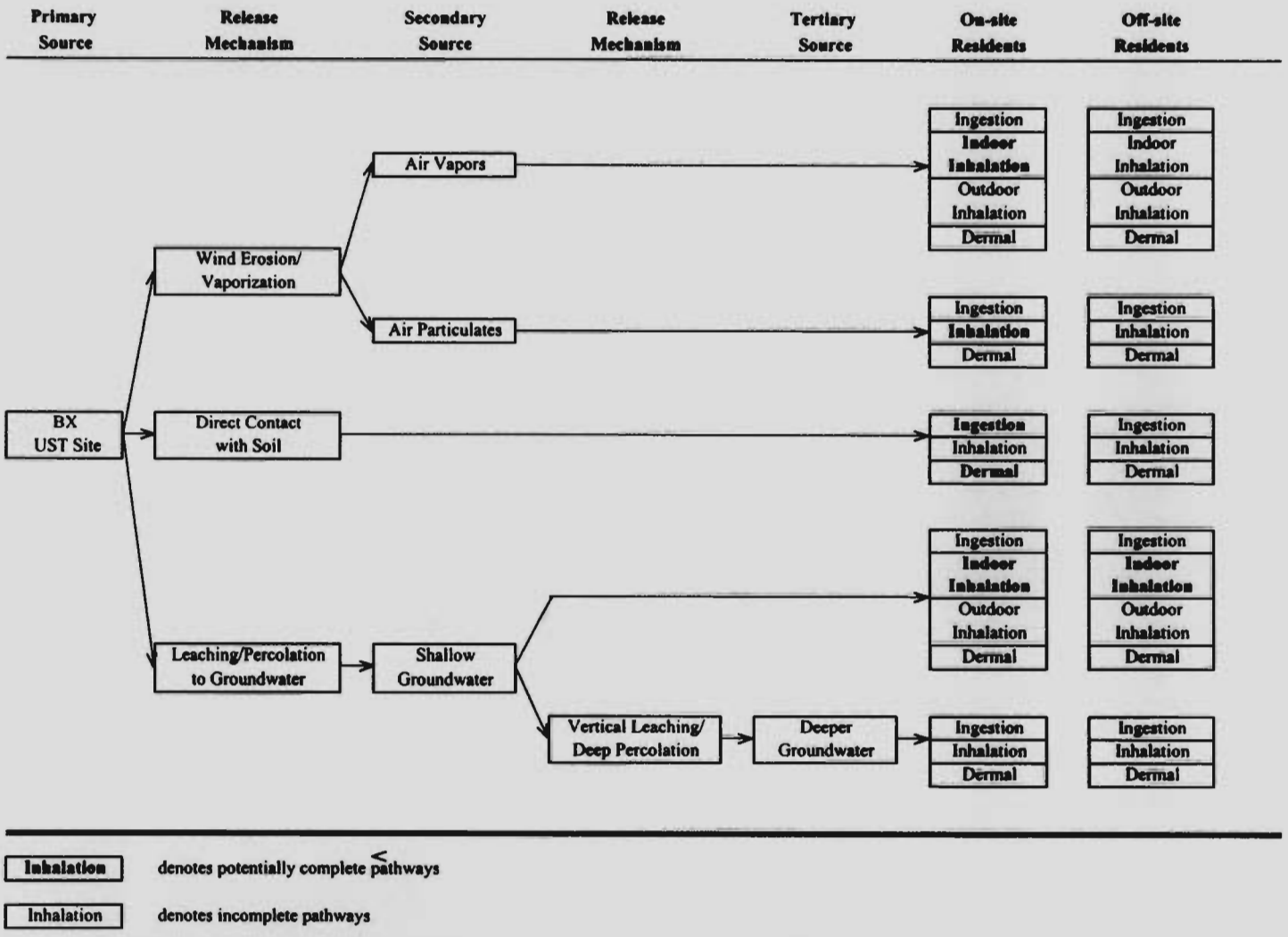

FIGURE 3-2. SITE CONCEPTUAL EXPOSURE MODEL FOR FUTURE CONDITIONS AT THE FORMER BX SERVICE STATION

File H:\Drive\Afcee\Plattsburgh\bx\f3X3.ai

APPENDIX D

Fanning, Phillips and Molnar
Data Validation and Usability Report
Plattsburgh Air Force Base
Plattsburgh, New York
Final Indoor Air and Soil Vapor Surveys
FPM Project No. 444-96-01

Data Review
SDG No. FPM042

Laboratory:	**H2M Labs, Inc.**
Sample Matrix:	**air**
Number of Samples:	**10**
Analysis Performed:	**VOC (TCL or STARS)**
Data Reviewer:	**Joseph Camanzo, Senior Chemist**
Date:	**June 30, 1998**

This validation report pertains to the following samples:

Sample ID

P-7009-A-A2-AA
P-7009-A-A1-AA
P-205-A-B1-AA
P-864-A-A1-AA
P-864-A-B1-AA
P-828-A-A1-AA

QC Samples

Trip Blank (4/16/98)
P-7009-A-A1-FB (Field blank)
P-205-A-B1-FB (Field blank)
P-864-A-B1-FB (Field blank)

Deliverable

The above referenced Sample Delivery Group (SDG) was in a full data deliverable (CLP-like) data package format. The reporting format followed the requirements of the NYSDEC Analytical Service Protocol (ASP), Rev. 10/95. The data package contained backup QA/QC results and raw data to allow for a data validation review.

Analytical Method

The analytical test method used for the air samples was EPA Method T01/T02, Air and Gas Sorbent Tube Method, analyzed for EPA Target Compound List (TCL) or NYSDEC Spill Technology And Remediation Series (STARS) compounds.

Validation Guidance

The data was validated according to the protocols and QC requirements of the analytical method, U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review (revised in February 1994), USEPA Region II CLP Organics Data Review (May 1996), the Air Force Center for Environmental Excellence (AFCEE) Quality Assurance Project Plan (QAPP), Document Version 1.1 (dated February 1996), and the reviewer's professional judgement.

ORGANICS

The following QA/QC criteria were reviewed:

- Quantitation/detection limits
- Holding times
- GC/MS tuning and Performance
- Initial calibrations
- Continuing calibrations
- Method blanks
- Field and trip blanks
- Surrogate spike recoveries
- Internal standard area and retention times
- Data system printouts
- GC chromatograms and mass spectra
- Qualitative and quantitative compound identification
- Case narrative and deliverables compliance

The items listed above were in compliance with USEPA, ASP, and QAPP criteria and protocols with only exceptions discussed in the text below. The data have been validated according to the procedures outlined above and qualified accordingly.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (nondetect), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). The data for all flagged samples are usable with caution, except those with the "R", rejected, qualification.

It should be noted that in the case when the analytical laboratory may have already assigned data qualifiers (e.g., "J", "F", etc.) to some samples/analytical parameters based on internal QC reviews, the laboratory assigned qualifiers continue to apply in all instances that they were made unless expressly over-ridden by data validation flags.

VOLATILES

Data Validation Results

- For sample P-864-A-B1-FB analyzed for the STARS compound list, internal standard (IS) area counts (1,4-difluorobenzene) was below the lower QC limit of –50%. Additionally, the surrogate compound recovery (4-bromofluorobenzene) was above the QC limit at 167%, limit 80-120%. According to the laboratory, this may be a reflection that the sample tube leaked during the desorption, therefore the results are considered estimated with positive results flagged "J" and non-detects flagged "UJ'.

- For sample P-828-A-A1-AA analyzed for the TCL compound list, internal standard area counts for all three IS (bromochloromethane, 1,4-difluorobenzene, chlorobenzene-d5) were below the lower QC limit of –50%. Again according to the lab, this may have been due to a leak in the sample tube during desorption. Therefore, for this sample the results are considered estimated with positive results flagged "J" and non-detects flagged "UJ".

- The following table lists blanks, blank contaminants, concentrations (in ng), and associated samples. In accordance to the EPA National Functional guidelines, based on the concentration of these compounds in the blanks and associated samples, the presence of methylene chloride, acetone, and 2-butanone (common laboratory contaminants) are negated if the concentration in the samples is less than ten times the highest associated blank after taking sample dilution into account. The presence of the remaining compounds are negated in the samples if less than five times the concentration in the highest associated blank is found. The field blank samples (suffix –FB), which were ambient air samples taken outdoors in the vicinity of the buildings being evaluated (indoor air quality), were only used for qualitative purposes and not used to negate concentrations in associated samples. This was

decided because the purpose of these ambient air samples was to establish general background levels on the contaminants of concern.

Blank ID	Compound (Conc. in ng)	Associated Samples
Method Blank 4/21	Acetone (110)	All TCL compound analyses
Trip Blank (4/16/98)	Acetone (100B)	All TCL compound Analyses

- The following table lists compounds that: exhibited percent relative standard deviation (%RSD) for response factors in the initial (I) calibration above the 30% QC criteria; exhibited percent difference (%D) between the initial calibration and continuing (C) calibration response factors greater than the 25% criteria; exhibited response factors (RF) less than the 0.05 criteria. These criteria are based on the EPA National Functional guidelines. Associated sample results for these compounds are considered estimated with positive values flagged "J". For non-detects, %RSD or %D greater than the QC limits but less than 90% are flagged "UJ"; %RSD or %D greater than 90% or RF deficiencies (<0.05) are rejected and flagged "R".

Calibration	Compound	Deficiency	Associated Samples
I – 4/27/98	Naphthalene	%RSD=67.5	All STARS compound analyses
C – 4/28/98	Naphthalene	%D=-121.6	All STARS compound analyses
I – 2/10/98	Acetone	%RSD=40.9	All TCL compound analyses
	Methylene choride	%RSD=33.1	
	2-Butanone	%RSD=36.9	
	2-Hexanone	%RSD=52.3	
C – 4/21/98	Chloromethane	%D=39.0	All TCL compound analyses
	Acetone	%D=-29.4	
	1,1,2-Trichloroethane	%D=-26.4	
	4-Methyl-2-pentanone	%D=-70.9	
	Toluene	%D=-32.0	
	1,1,2,2-Tetrachloroethane	%D=-41.3	

- According to the laboratory, the shipping tube for sample P-202-A-B1-AA in which the sorbent tube is contained arrived broken at the lab. The sample tubes are sealed with

Swagelock fittings, however the shipping tubes serve as additional safeguard to prevent contamination by absorption from ambient air during transit. Therefore, the results from this sample are considered estimated with positive results flagged "J" and non-detects flagged "UJ".

Data Usability Results

Data review for usability is a process that evaluates the validated data in context to the original data quality objectives (DQOs). The formal process of usability determination involves a complex series of editing, screening, auditing, verifying, and reviewing the validated data. It is important to understand the bias associated with "J"-qualified data. The "J" data may have high, low, or indeterminate bias. A low bias means that the reported concentration is most likely an underestimate of the true concentration. For example, data may be biased low when sample holding times are exceeded or when the recovery of QA/QC compounds is significantly less than the true amount originally introduced into the sample. A high bias means that the reported concentration is most likely an overestimate of the true concentration. A bias is indeterminate when it is not possible to ascertain whether the concentration is an overestimate or an underestimate. For example, an indeterminate bias could result when matrix effects obscure QA/QC compounds.

Based on evaluation of all materials in this analytical data group, the data is highly usable with the data validation qualifiers as noted. There were only 4 rejected results (naphthalene non-detects) out of 245 total values in this SDG; therefore, as per the QAPP's completeness criteria (number of valid results/total number of possible results), the results were well above the 95% typical QC requirement.

SDG Summary

All data are valid and usable with qualifications as noted in the data review.

Signed: Joseph Conaway

Dated: 7/2/98

ATTACHMENTS

- Chain-of-Custody
- Laboratory SDG Case Narrative
- Definition of Data Validation Qualifiers (USEPA)
- Definition of AFCEE QAPP Data Qualifiers
- Definition of Lab Qualifiers
- Qualified Results on Lab Form 1s

DATA VALIDATION QUALIFIERS (USEPA)

Organics

U - The analyte was analyzed for, but not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

AFCEE QAPP Data Qualifiers

Qualifier	Description
J	The analyte was positively identified, the quantitation is an estimation.
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F	The analyte was positively identified but the associated numerical value is below the RL.
R	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria.
B	The analyte was found in an associated blank, as well as in the sample.
M	A matrix effect was present.
S	To be applied to all field screening data.
T	Tentatively identified compound (using GC/MS).

1/4 Each SDG#32

AFCEE
CHAIN OF CUSTODY RECORD

COC#: _____

Sample Receiving
H2M Labs, Inc.
575 Broad Hollow Road
Melville, NY 11747

Ship to:	Project Name: Plattsburgh AFB	Send Results to: G Menezo FPM 909 Marconi Pontoukan, MI 11774
Carrier: Airbill #:	Sampler Name: Menezo	
	Sampler Signature:	

Field Sample ID	Date 1998	Time	Matrix	Pres	Filtered /Unfilt.	# of Containers	MS/ MSD	Analyses Requested: VOCs										Comments
Trip Blank	4/16	1240	A	—	—	1	—	1	111								98 1655	
P-7009-A-A2-AA		12:40	A	—	—	1		1✓	TCL	2							5561	
P-7009-A-A1-FB		13:15	A	—	—	1		1	TCL	3							5562	
P-205-A-B1-AA		13:45	A	—	—	1		1	STAR	4							5563	
P-205-A-B1-FB		15:00	A	—	—	1		1	STAR	5							5564	
P-7009-A-A1-AA		13:15	A	—	—	1		1	TCL	6							5560	
P-864-A-A1-AA		16:30	A	—	—	1		1	STAR	7							5561	
P-864-A-B1-FB		16:45	A	—	—	1		1	STAR	8							5562	
P-864-A-B1-AA		16:45	A	—	—	1		1	STAR	9							5563	
P-828-A-A1-AA		17:15	A	—	—	1		1	TCL	10							5564	

Sample Condition Upon Receipt at Laboratory: Cooler temperature:

Special Instructions/Comments:

#1 Released by: (Sig)	Date:	#2 Released by: (Sig)	Date: 4/16/98	#3 Released by: (Sig)	Date:
Company Name:	Time	Company Name: FPM	Time 1800	Company Name:	Time
#1 Received by: (Sig)	Date 4/16/98	#2 Received by: (Sig)	Date	#3 Received by: (Sig)	Date 4-17-98
Company Name: FPM	Time: 1000	Company Name:	Time:	Company Name: H2M	Time 1100

SAMPLES WERE:
1 Shipped ✓ or Hand Delivered ___ Airbill # 5x 19321
2 Ambient ___ or Chilled ✓ 3.7 °C 6154
3 Received in good condition Y ✓ N ___
4 Properly preserved Y ___ N ___
5 Discrepancies between sample labels & COC Record Y ___ N ✓
COC TAPE WAS:
1 Present on outer package Y ___ N ___
2 Unbroken on outer package Y ___ N ___

A 0003

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILES IN AIR ANALYSES
SAMPLES RECEIVED: 4/17/98
SDG #: FPM042

For Samples:

TRIP BLANK	P-7009-A-A1-AA
P-7009-A-A2-AA	P-864-A-A1-AA
P-7009-A-A1-FB	P-864-A-B1-FB
P-205-A-B1-AA	P-864-A-B1-AA
P-205-A-B1-FB	P-828-A-A1-AA

The samples were analyzed according to EPA Methods TO1 / TO2, and the reporting format follows the requirements of the NYSDEC Analytical Service Protocol (ASP), Rev. 10/95.

The samples were reported for either the TCL compounds or the STAR compounds, as requested.

QC DATA

The surrogate and internal standard for tube P-864-A-B1-FB were not within the QC limits,and the internal standards were low in sample P-828-A-A1-AA. This could indicate that the tubes leaked during desorption.

It appears likely that a spare tube from the sampling was used to analyze the instrument ("method") blank on 4/21/98, which would explain the amount of acetone found, which is unusually high. (Acetone was found in the trip blank) Other days show much lower levels of acetone background in the instrument.

Compounds found in the method blanks were flagged with the qualifier "B" in the associated samples, i.e. run on the same day as the blank.

TUNING

Even though no tune criteria are set in methods TO-1 / TO-2, mass calibration (tuning) was checked with BFB against standard EPA acceptance criteria ✓

CALIBRATION FOR TARGETED ANALYTES

Multipoint calibration at three concentration levels from 10 to 1000 ng was performed with internal standard calibration, using three internal standards for the TCL compounds. For calibration of the STAR analytes, 1,4-difluorobenzene was used as internal standard.

SAMPLE ANALYSES

The shipping tube for sample P-205-A-B1-AA, in which the sorbent tube is contained, arrived broken. Sorbent tubes are sealed with Swagelock fittings, and shipping tubes serve as additional safeguard to prevent contamination by absorption from the ambient air.

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILES IN AIR ANALYSES
SAMPLES RECEIVED: 4/17/98
SDG #: FPM042

Estimated values, indicated by the qualifier "J", are reported for the two samples with low internal standard areas.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: May 14, 1998

****
* *
* *
****

Ursula Middel
Technical Manager

H2M LABS, INC.

QUALIFIERS FOR REPORTING ORGANICS DATA

Value - If the result is a value greater than or equal to the quantification limit, report the value.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture. For example, if the sample had 24% moisture and a 1 to 10 dilution factor, the sample quantitation limit for phenol (330 U) would be corrected to

$$\frac{(330\ U)}{D} \times df \quad \text{where } D = \frac{100 - \%\ \text{moisture}}{100}$$

and df = dilution factor

For example, at 24% moisture, $D = \frac{100-24}{100} = 0.76$

$$\frac{(330\ U)}{.76} \times 10 = 4300\ U$$ rounded to the appropriate number of significant figures

For semivolatile soil samples, the extract must be concentrated to 0.5 mL, and the sensitivity of the analysis is not compromised by the cleanup procedures. Similarly, pesticide samples subjected to GPC are concentrated to 5.0 mL. Therefore, the CRQL values in Exhibit C will apply to all samples, regardless of cleanup. However, if a sample extract cannot be concentrated to the protocol-specified volume (see Exhibit C), this fact must be accounted for in reporting the sample quantitation limit.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified quantification limit but greater than zero. (e.g.: If limit of quantification is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.) The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P"

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a Laboratory-defined flag, discussed below

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed according to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of the peak representing the single isomer exceeds 200 ug/l or the peak representing the two coeluting isomers on that GC column exceeds 400 ug/l. Similarly, if the two 1,2-Dichloroethene isomers coelute, a diluted analysis is not required unless the concentration exceeds 400 ug/l.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

X - Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags as needed. For instance, the "X" flag might combine "A", "B", and "D" flags for some samples. The Laboratory defined flags limited to the letters "X", "Y" and "Z"

The combination of flags "BU" or "UB" is expressly prohibited. Blank contaminants are flagged "B" only when they are detected in the sample.

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
TRIP BLANK

MATRIX : AIR

Sample ID. : 9811555 5996 4/21/98
Lab File ID : V3498.D
Date/Time Analyzed: 04/21/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Chloromethane		10	U
Vinyl Chloride		10	U
Bromomethane		10	U
Chloroethane		10	U
1,1-Dichloroethene		10	U
Acetone		100	B
Carbon Disulfide		10	U
Methylene Chloride		10	U
2-Butanone		10	U
trans-1,2-Dichloroethene		10	U
cis-1,2-1,2-Dichloroethene		10	U
1,1-Dichloroethane		10	U
Chloroform		10	U
1,2-Dichloroethane		10	U
1,1,1-Trichloroethane		10	U
Carbon Tetrachloride		10	U
Trichloroethene		10	U
Benzene		3	U
1,2-Dichloropropane		10	U
Bromodichloromethane		10	U
cis-1,3-Dichloropropene		10	U
trans-1,3-Dichloropropene		10	U
1,1,2-Trichloroethane		10	U
4-Methyl-2-Pentanone		10	U
2-Hexanone		10	U
Toluene		10	U
Tetrachloroethene		10	U
Dibromochloromethane		10	U
Chlorobenzene		10	U
Ethylbenzene		10	U
Xylene (total)		10	U
Styrene		10	U
Bromoform		10	U
1,1,2,2-Tetrachloroethane		10	U

5/12/98

6/15/98

1A
VOLATILE ORGANIC ANALYSIS DATA SHEET

Sample No.

H2M LABS INC. P7009AA2AA

MATRIX : AIR

Sample ID. : 9811556 5996 4/21/98
Lab File ID : V3499.D
Date/Time Analyzed: 04/21/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result : ng	
Chloromethane	10	U J
Vinyl Chloride	10	U
Bromomethane	10	U
Chloroethane	10	U
1,1-Dichloroethene	10	U
Acetone	1,000	EB J
Carbon Disulfide	10	U
Methylene Chloride	580	J
2-Butanone	130	J
trans-1,2-Dichloroethene	10	U
cis-1,2-1,2-Dichloroethene	10	U
1,1-Dichloroethane	10	U
Chloroform	10	U
1,2-Dichloroethane	10	U
1,1,1-Trichloroethane	10	U
Carbon Tetrachloride	10	U
Trichloroethene	10	U
Benzene	12	
1,2-Dichloropropane	10	U
Bromodichloromethane	10	U
cis-1,3-Dichloropropene	10	U
trans-1,3-Dichloropropene	10	U
1,1,2-Trichloroethane	10	U J
4-Methyl-2-Pentanone	10	U J
2-Hexanone	10	U J
Toluene	22	J
Tetrachloroethene	10	U
Dibromochloromethane	10	U
Chlorobenzene	10	U
Ethylbenzene	10	U
Xylene (total)	10	U
Styrene	10	U
Bromoform	10	U
1,1,2,2-Tetrachloroethane	10	U J

JW 5/12/98

6/15/98

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P7009AA1FB

MATRIX : AIR

Sample ID. : 9811557 5996 4/21/98
Lab File ID : V3500.D
Date/Time Analyzed: 04/21/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Chloromethane		16	
Vinyl Chloride		10	U
Bromomethane		10	U
Chloroethane		10	U
1,1-Dichloroethene		10	U
Acetone		450	
Carbon Disulfide		10	U
Methylene Chloride		1,100	E
2-Butanone		81	
trans-1,2-Dichloroethene		10	U
cis-1,2-1,2-Dichloroethene		10	U
1,1-Dichloroethane		10	U
Chloroform		10	U
1,2-Dichloroethane		10	U
1,1,1-Trichloroethane		10	U
Carbon Tetrachloride		10	U
Trichloroethene		10	U
Benzene		7	
1,2-Dichloropropane		10	U
Bromodichloromethane		10	U
cis-1,3-Dichloropropene		10	U
trans-1,3-Dichloropropene		10	U
1,1,2-Trichloroethane		10	U
4-Methyl-2-Pentanone		10	U
2-Hexanone		10	U
Toluene		17	
Tetrachloroethene		10	U
Dibromochloromethane		10	U
Chlorobenzene		10	U
Ethylbenzene		10	U
Xylene (total)		10	U
Styrene		10	U
Bromoform		10	U
1,1,2,2-Tetrachloroethane		10	U

1A
VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P7009AA1AA

MATRIX : AIR

Sample ID. : 9811560 5996 4/21/98
Lab File ID : V3501.D
Date/Time Analyzed: 04/21/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng		
Chloromethane		10	U	J
Vinyl Chloride		10	U	
Bromomethane		10	U	
Chloroethane		10	U	
1,1-Dichloroethene		10	U	
Acetone		1,000	~~E~~ U	J
Carbon Disulfide		10	U	
Methylene Chloride		310	J	
2-Butanone		120		J
trans-1,2-Dichloroethene		10	U	
cis-1,2-1,2-Dichloroethene		10	U	
1,1-Dichloroethane		10	U	
Chloroform		10	U	
1,2-Dichloroethane		10	U	
1,1,1-Trichloroethane		10	U	
Carbon Tetrachloride		10	U	
Trichloroethene		10	U	
Benzene		10		
1,2-Dichloropropane		10	U	
Bromodichloromethane		10	U	
cis-1,3-Dichloropropene		10	U	
trans-1,3-Dichloropropene		10	U	
1,1,2-Trichloroethane		10	U	
4-Methyl-2-Pentanone		10	U	
2-Hexanone		10	U	
Toluene		24		
Tetrachloroethene		10	U	
Dibromochloromethane		10	U	
Chlorobenzene		10	U	
Ethylbenzene		10	U	
Xylene (total)		10	U	
Styrene		10	U	
Bromoform		10	U	
1,1,2,2-Tetrachloroethane		10	U	J

5/12/98

6/15/98

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
~~Converted from R~~
P823AA1AM

MATRIX : AIR

Sample ID. : 9811564 5996 4/21/98
Lab File ID : V3502.D
Date/Time Analyzed: 04/21/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Chloromethane		10	U
Vinyl Chloride		10	U
Bromomethane		10	U
Chloroethane		10	U
1,1-Dichloroethene		10	U
Acetone		2,900	EB J
Carbon Disulfide		10	U
Methylene Chloride		400	J
2-Butanone		200	J
trans-1,2-Dichloroethene		10	U
cis-1,2-1,2-Dichloroethene		10	U
1,1-Dichloroethane		10	U
Chloroform		10	U
1,2-Dichloroethane		10	U
1,1,1-Trichloroethane		10	U
Carbon Tetrachloride		10	U
Trichloroethene		10	U
Benzene		18	J
1,2-Dichloropropane		10	U
Bromodichloromethane		10	U
cis-1,3-Dichloropropene		10	U
trans-1,3-Dichloropropene		10	U
1,1,2-Trichloroethane		10	U
4-Methyl-2-Pentanone		10	U
2-Hexanone		10	U
Toluene		150	J
Tetrachloroethene		12	J
Dibromochloromethane		10	U
Chlorobenzene		10	U
Ethylbenzene		10	U
Xylene (total)		10	U
Styrene		10	U
Bromoform		10	U
1,1,2,2-Tetrachloroethane		10	U

J

6/15/98

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P205A-B1AA

MATRIX : AIR

Sample ID. : 9811558 5996 4/28/98
Lab File ID : V3537.D
Date/Time Analyzed: 04/28/19 -1:5:
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Methyl t-butyl ether		49	
Benzene		17	
Toluene		54	
Ethylbenzene		16	
o-Xylene		17	
m/p-Xylene		47	
Isopropylbenzene		10	U
1,3,5-trimethylbenzene		36	
1,2,4-Trimethylbenzene		28	
n-Propylbenzene		10	U
t-Butylbenzene		10	U
sec-Butylbenzene		10	U
4-isopropyltoluene		10	U
n-Butylbenzene		10	U
Napthalene		22	J

J

6/15/98

A 0030

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P205A-B1FB

MATRIX : AIR

Sample ID. : 9811559 5996 4/28/98
Lab File ID : V3538.D
Date/Time Analyzed: 04/28/19 -1:6:
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Methyl t-butyl ether		10	U
Benzene		6	
Toluene		10	U
Ethylbenzene		10	U
o-Xylene		10	U
m/p-Xylene		10	U
Isopropylbenzene		10	U
1,3,5-trimethylbenzene		10	U
1,2,4-Trimethylbenzene		10	U J
n-Propylbenzene		10	U
t-Butylbenzene		10	U
sec-Butylbenzene		10	U
4-isopropyltoluene		10	U
n-Butylbenzene		10	U
Napthalene		10	U R

JK 6/15/98

A 0038

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P864A-A1AA

MATRIX : AIR

Sample ID. : 9811561 5996 4/28/98
Lab File ID : V3539.D
Date/Time Analyzed: 04/28/19 -1:6:
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Methyl t-butyl ether		10	U
Benzene		9	
Toluene		15	
Ethylbenzene		10	U
o-Xylene		10	U
m/p-Xylene		10	U
Isopropylbenzene		10	U
1,3,5-trimethylbenzene		10	U
1,2,4-Trimethylbenzene		10	U J
n-Propylbenzene		10	U
t-Butylbenzene		10	U
sec-Butylbenzene		10	U
4-isopropyltoluene		10	U
n-Butylbenzene		10	U
Napthalene		10	U R

jr 6/15/98

A 0048

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P864A-B1FB

MATRIX : AIR

Sample ID. : 9811562 5996 4/28/98
Lab File ID : V3540.D
Date/Time Analyzed: 04/28/19 -1:7:
Instument ID: 5996

Split Factor : 1 : 1
Quart Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Methyl t-butyl ether		10	U
Benzene		22	J
Toluene		20	J
Ethylbenzene		10	U
o-Xylene		10	U
m/p-Xylene		10	U
Isopropylbenzene		10	U
1,3,5-trimethylbenzene		10	U
1,2,4-Trimethylbenzene		10	U
n-Propylbenzene		10	U
t-Butylbenzene		10	U
sec-Butylbenzene		10	U
4-isopropyltoluene		10	U
n-Butylbenzene		10	U
Napthalene		10	UR

JC
6/15/98

A 0052

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P864A-B1AA

MATRIX : AIR

Sample ID. : 9811563 5996 4/28/98
Lab File ID : V3541.D
Date/Time Analyzed: 04/28/19 -1:7:
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng		
Methyl t-butyl ether		10	U	
Benzene		8		
Toluene		15		
Ethylbenzene		10	U	
o-Xylene		10	U	
m/p-Xylene		10	U	
Isopropylbenzene		10	U	
1,3,5-trimethylbenzene		10	U	
1,2,4-Trimethylbenzene		10	U	J
n-Propylbenzene		10	U	
t-Butylbenzene		10	U	
sec-Butylbenzene		10	U	
4-isopropyltoluene		10	U	
n-Butylbenzene		10	U	
Napthalene		10	U	R

6/15/98

A 0056

Fanning, Phillips and Molnar
Data Validation and Usability Report
Plattsburgh Air Force Base
Plattsburgh, New York
Final Indoor Air and Soil Vapor Surveys
FPM Project No. 444-96-01

Data Review
SDG No. FPM041

Laboratory:	**H2M Labs, Inc.**
Sample Matrix:	**soil vapor**
Number of Samples:	**20**
Analysis Performed:	**VOC (TCL or STARS)**
Data Reviewer:	**Joseph Camanzo, Senior Chemist**
Date:	**June 30, 1998**

This validation report pertains to the following samples:

Sample ID

P-9400-V-02-02-AA	P-2335-V-12-02-AA	P-205-V-02-02-AA
P-9400-V-04-02-AA	P-2335-V-10-02-AA	P-205-V-01-02-AA
P-9400-V-03-02-AA	P-2335-V-11-02-AA	P-205-V-03-02-AA
P-9400-V-01-02-AA	P-2335-V-09-02-AA	P-205-V-04-02-AA
P-9400-V-06-02-AA		P-205-V-05-02-AA
		P-205-V-06-02-AA

QC Samples

P-9400-V-02-02-TB (Trip blank)
P-9400-V-02-02-FB (Field blank)
P-2335-V-12-02-TB (Trip blank)
P-2335-V-11-02-FB (Field blank)
P-205-V-02-02-FB (Field blank)

Deliverable

The above referenced Sample Delivery Group (SDG) was in a full data deliverable (CLP-like) data package format. The reporting format followed the requirements of the NYSDEC Analytical Service Protocol (ASP), Rev. 10/95. The data package contained backup QA/QC results and raw data to allow for a data validation review.

Analytical Method

The analytical test method used for the soil vapor samples was EPA Method 5041, Volatile Organic Sampling Trains (VOST); samples were analyzed for EPA Target Compound List (TCL) or NYSDEC Spill Technology And Remediation Series (STARS) compounds.

Validation Guidance

The data was validated according to the protocols and QC requirements of the analytical method, U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review (revised in February 1994), USEPA Region II CLP Organics Data Review (May 1996), the Air Force Center for Environmental Excellence (AFCEE) Quality Assurance Project Plan (QAPP), Document Version 1.1 (dated February 1996), and the reviewer's professional judgement.

ORGANICS

The following QA/QC criteria were reviewed:

- Quantitation/detection limits
- Holding times
- GC/MS tuning and Performance
- Initial calibrations
- Continuing calibrations
- Method blanks
- Field and trip blanks
- Surrogate spike recoveries
- Internal standard area and retention times
- Data system printouts
- GC chromatograms and mass spectra
- Qualitative and quantitative compound identification
- Case narrative and deliverables compliance

The items listed above were in compliance with USEPA, ASP, and QAPP criteria and protocols with only exceptions discussed in the text below. The data have been validated according to the procedures outlined above and qualified accordingly.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (nondetect), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). The data for all flagged samples are usable with caution, except those with the "R", rejected, qualification.

It should be noted that in the case when the analytical laboratory may have already assigned data qualifiers (e.g., "J", "F", etc.) to some samples/analytical parameters based on internal QC reviews, the laboratory assigned qualifiers continue to apply in all instances that they were made unless expressly over-ridden by data validation flags.

VOLATILES

Data Validation Results

- For sample P-9400-V-02-02-AA analyzed for the STARS compound list, no surrogate compound recovery (4-bromofluorobenzene) or internal standard area (1,4-difluorobenzene) could be reported. According to the laboratory, this sample was obviously skipped by the automated spiking apparatus. Since this event resulted in a lack of QC data, and the concentrations in the sample had to be determined using the external method of calculation, the results are considered estimated with positive results flagged "J" and non-detects flagged "UJ".

- The following table lists blanks, blank contaminants, concentrations (in ng), and associated samples. In accordance to the EPA National Functional guidelines, based on the concentration of these compounds in the blanks and associated samples, the presence of methylene chloride, acetone, and 2-butanone (common laboratory contaminants) are negated if the concentration in the samples is less than ten times the highest associated blank after taking sample dilution into account. The presence of the remaining compounds are negated in the samples if less than five times the concentration in the highest associated blank is found. The field blank samples (suffix –FB), which were ambient air samples taken in the vicinity of the VOST soil vapor samples, were only used for qualitative purposes and not used to negate concentrations in associated samples. This was decided based on the fact that the VOST sampling device is a closed system and that the soil vapor samples taken at a depth of 2 feet have no direct relation to the ambient air at the sampling locations.

Blank ID	Compound (Conc. in ng)	Associated Samples
Method Blank 5/1	Acetone (22)	All TCL compound analyses
P-2335-V-12-02-TB	Methylene chloride (16) Benzene (3)	All TCL compound Analyses
P-9400-V-02-02-TB	Benzene (6)	All STARS compound analyses

- The following table lists compounds that: exhibited percent relative standard deviation (%RSD) for response factors in the initial (I) calibration above the 30% QC criteria; exhibited percent difference (%D) between the initial calibration and continuing (C) calibration response factors greater than the 25% criteria; exhibited response factors (RF) less than the 0.05 criteria. These criteria are based on the EPA National Functional guidelines. Associated sample results for these compounds are considered estimated with positive values flagged "J". For non-detects, %RSD or %D greater than the QC limits but less than 90% are flagged "UJ"; %RSD or %D greater than 90% or RF deficiencies (<0.05) are rejected and flagged "R".

Calibration	Compound	Deficiency	Associated Samples
I – 4/30/98	Naphthalene	%RSD=122	All STARS compound analyses by internal standard method
I – 5/14/98	Naphthalene	%RSD=120.6	P-9400-V-02-02-AA, by external method
I – 3/26/98	Vinyl chloride Chloroethane Bromoform	%RSD=38.5 %RSD=44.8 %RSD=32.0	All TCL compound analyses
C – 5/01/98	Vinyl chloride 2-Butanone	%D=-26.0 %D=33.1	All TCL compound analyses

- According to the laboratory manager, instrument problems were experienced during the analysis of sample P-205-V-03-02-AA and no data can be reported.

Data Usability Results

Data review for usability is a process that evaluates the validated data in context to the original data quality objectives (DQOs). The formal process of usability determination involves a complex series of editing, screening, auditing, verifying, and reviewing the validated data. It is important to understand the bias associated with "J"-qualified data. The "J" data may have high, low, or indeterminate bias. A low bias means that the reported concentration is most likely an underestimate of the true concentration. For example, data may be biased low when sample holding times are exceeded or when the recovery of QA/QC compounds is significantly less than the true amount originally introduced into the sample. A high bias means that the reported concentration is most likely an overestimate of the true concentration. A bias is indeterminate when it is not possible to ascertain whether the concentration is an overestimate or an underestimate. For example, an indeterminate bias could result when matrix effects obscure QA/QC compounds.

Based on evaluation of all materials in this analytical data group, the data is highly usable with the data validation qualifiers as noted. There were only 11 rejected results (naphthalene non-detects) out of 399 total values in this SDG; therefore, as per the QAPP's completeness criteria (number of valid results/total number of possible results), the results were well above the 95% typical QC requirement.

SDG Summary

All data are valid and usable with qualifications as noted in the data review.

Signed: _____

Dated: 7/2/98

ATTACHMENTS

- Chain-of-Custody
- Laboratory SDG Case Narrative
- Definition of Data Validation Qualifiers (USEPA)
- Definition of AFCEE QAPP Data Qualifiers
- Definition of Lab Qualifiers
- Qualified Results on Lab Form 1s

DATA VALIDATION QUALIFIERS (USEPA)

Organics

U - The analyte was analyzed for, but not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

AFCEE QAPP Data Qualifiers

Qualifier	Description
J	The analyte was positively identified, the quantitation is an estimation.
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F	The analyte was positively identified but the associated numerical value is below the RL.
R	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria.
B	The analyte was found in an associated blank, as well as in the sample.
M	A matrix effect was present.
S	To be applied to all field screening data.
T	Tentatively identified compound (using GC/MS).

CUSTODY SEAL Signature

SDG # 32

AFCEE
CHAIN OF CUSTODY RECORD

COC#: _____

Sample Receiving
H2M Labs, Inc.
575 Broad Hollow Road
Melville, NY 11747

Ship to:	Project Name: Plattsburgh AFB	Send Results to: G. Menegio FPM 909 Marconi Ave Ronkonkoma, NY 11779
	Sampler Name: Greg Menegio	
Carrier: FEDEX Airbill #:	Sampler Signature:	

PUSTAR

Field Sample ID	Date 1998 4/15	Time	Matrix	Pres	Filtered /Unfilt.	# of Containers	MS/ MSD	Analyses Requested: VOCs											Comments
P-9400-V-02-02AA		1700	A	-	-	2	-	2		STAR		1			9811	525			
P-9400-V-02-02TB		1500	A	-	-	2	-	2				2				526			
P-9400-V-02-02-FB		1600	A	-	-	2	-	2				3				527			
P-9400-V-04-02AA		1730	A	-	-	2	-	2				4				528			
P-9400-V-03-02AA		1800	A	-	-	2	-	2				5				529			X(TC)
P-9400-V-01-02-AA		1830	A	-	-	2	-	2				6				530			X(T+TC)
P-9400-V-05-02AA		1900	A	-	-	2	-	2				7				531			X(T)
06	KEK	4/17/98																	TC Tube broken

Sample Condition Upon Receipt at Laboratory: Cooler temperature:

Special Instructions/Comments: DO NOT Dilute Samples - RUN & Report low level (and Medium level if nec)
CONTACT CLIENT IF PROBLEM

#1 Released by: (Sig)	Date:	#2 Released by: (Sig)	Date: 4/16/98	#3 Released by: (Sig)	Date
Company Name:	Time	Company Name: FPM	Time 1800	Company Name:	Time
#1 Received by: (Sig)	Date 4/16/98	#2 Received by: (Sig)	Date	#3 Received by: (Sig)	Date 4-17-98
Company Name: FPM	Time: 1000	Company Name:	Time:	Company Name:	Time 1120

SAMPLES WERE:
1. Shipped ✓ or Hand Delivered ____ Airbill # 803514 1
2. Ambient ____ or Chilled ✓ 2.6 °C 0343 2
3. Received in good condition Y ✓ N ____
4. Properly preserved Y ✓ N ____
5. Discrepancies between sample labels & COC Record Y ? N ____
COC TAPE WAS:
1. Present on outer package Y N

B003

1/2

AFCEE
CHAIN OF CUSTODY RECORD

SDG 32

COC#: _____

Ship to: Sample Receiving H2M Labs, Inc. 575 Broad Hollow Road Melville, NY 11747 Carrier:	Project Name: Plattsburgh AFB Sampler Name: G. Menegio Sampler Signature:	Send Results to: G. Menegio FPM 909 Marconi Ave Ronkonkoma, NY 11779

Field Sample ID	Date 1998	Time	Matrix	Preservative	Filtered /Unfilt.	# of Containers	MS/ MSD	Analyses Requested											Comments
								VOCs											
P-2335-V-02-02-TB	4/16	0900	A	-	-	2	-	2	TCL	8		9	8	1153	2				
P-2335-V-12-02-AA	0930		A	-	-	2	-	2	TCL	9					533				
P-2335-V-10-02-AA	0930		A	-	-	2	-	2	TCL	10					534				
P-2335-V-11-02-FB	1000		A	-	-	2	-	2	TCL	11					535				
P-2335-V-11-02-AA	1000		A	-	-	2	-	2	TCL	12					536				X(TC)
P-2335-V-09-02-AA	1050		A	-	-	2	-	2	TCL	13					537				X(T)
P-205-V-02-02-FB	1330		A	-	-	2	-	2	STAR	14					538				
P-205-V-02-02-AA	1330		A	-	-	2	-	2	STAR	15					539				

Sample Condition Upon Receipt at Laboratory: Cooler temperature:

Special Instructions/Comments:

#1 Relinquished by: (Sig)		Date:		#2 Relinquished by: (Sig)		Date:	4/16/98	#3 Relinquished by: (Sig)		Date:	
Company Name:		Time		Company Name:	FPM	Time	1800	Company Name:		Time	
#1 Received by: (Sig)		Date	4/17/98	#2 Received by: (Sig)		Date		#3 Received by: (Sig)		Date	4-17-98
Company Name:	FPM	Time:	1000	Company Name:		Time:		Company Name:	H2M	Time	1100

2/2

AFCEE
CHAIN OF CUSTODY RECORD

SDG 32

COC#: _____

Ship to: Sample Receiving H2M Labs, Inc. 575 Broad Hollow Road Melville, NY 11747 Carrier: F	Project Name: Plattsburgh AFB Sampler Name: G. Menezes Sampler Signature:	Send Results to: G Menezes FPM 909 Marconi Ave Ronkonkoma, NY 11779

Field Sample ID	Date 1998 4/16	Time	Matrix	Pres	Filtered /Unfilt.	# of Containers	MS/ MSD	Analyses Requested: VOCs											Comments
P-205-V-02-02-AA		1400	A	-	-	2	-	2	STAR	16			9811	S40					
P-205-V-03-02-AA		1430	A	-	-	2	-	2	STAR	17				S41					X(T)
P-205-V-04-02-AA		1500	A	-	-	2	-	2	STAR	18				S42					
P-205-V-05-02-AA		1530	A	-	-	2	-	2	STAR	16				S43					X(T+TC)
P-205-V-06-02-AA		1600	A	-	-	2	-	2	STAR	20				S44					

Sample Condition Upon Receipt at Laboratory: Cooler temperature:

Special Instructions/Comments:

#1 Released by: (Sig)	Date:	#2 Released by: (Sig)	Date:	#3 Released by: (Sig)	Date
Company Name:	Time	Company Name:	Time	Company Name:	Time
#1 Received by: (Sig)	Date 4/16/98	#2 Received by: (Sig)	Date 4/16/98	#3 Received by: (Sig)	Date 4-17-98
Company Name: FPM	Time: 1000	Company Name: FPM	Time: 1800	Company Name: H2M	Time 11:30

A0005

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILES IN AIR ANALYSES
SAMPLES RECEIVED: 4/17/98
SDG #: FPM041

For Samples:

P-9400-V-02-02-AA	~~P-2335-V-12-02-TB~~	P-205-V-02-02-FB
~~P-9400-V-02-02-TB~~	P-2335-V-12-02-AA	P-205-V-02-02-AA
P-9400-V-02-02-FB	P-2335-V-10-02-AA	P-205-V-01-02-AA
P-9400-V-04-02-AA	P-2335-V-11-02-FB	P-205-V-03-02-AA ~~not reported~~
~~P-9400-V-03-02-AA~~	P-2335-V-11-02-AA	P-205-V-04-02-AA
P-9400-V-01-02-AA	P-2335-V-09-02-AA	P-205-V-05-02-AA
P-9400-V-06-02-AA		P-205-V-06-02-AA

The samples were analyzed according to EPA Method 5041, and the reporting format follows the requirements of the NYSDEC Analytical Service Protocol (ASP), Rev. 10/95.

The samples were reported for either the TCL compounds or the STAR compounds, as requested.

QC DATA

Surrogate and internal standards were within the QC limits. No surrogate recoveries and internal standard areas could be reported for sample P-9400-V-02-02-AA, because this sample was obviously skipped by the automated spiking apparatus.

A spare tube from the sampling was accidentally used to analyze the instrument ("method") blank on 5/1/98. Since contaminations were picked up during the trip, as evidenced in the (other) trip blank, this run cannot serve to determine method background contamination. The run for BFB tuning was therefore evaluated as method blank, to show instrument background. Since it contains a different amount of internal standard, it had to be quantified with external standard method. — OK

Compounds found in the method blanks were flagged with the qualifier "B" in the associated samples, i.e. run on the same day as the blank.

TUNING

Correct mass calibration (tuning) was checked with BFB against EPA acceptance criteria (Method 5041) in 12 hour intervals. Sample P-9400-V-06-02-A is outside the specified tune period by 15 minutes. This should not affect the acceptability of the data, because tune parameters on the instrument have been found to be very stable. — OK

CALIBRATION FOR TARGETED ANALYTES

Multipoint calibration at three concentration levels from 10 to 1000 ng was performed with internal standard calibration, using three internal standards, specified in Method 5041. For calibration of the STAR analytes, 1,4-difluorobenzene was used as internal standard. By omitting

H2M LABS, INC.

. SDG NARRATIVE FOR VOLATILES IN AIR ANALYSES
SAMPLES RECEIVED: 4/17/98
SDG #: FPM041

Vinyl chloride showed a RSD of 38 %, which exceeds the limit for CCC compounds. No Vinyl chloride was found in the samples
Inconsistent responses were obtained for the late eluting compound naphthalene. The reported results were computed with the average response factor, and the data are flagged with the qualifier "J" as estimated.

The continuous calibration evaluation forms (VII) for 5/1/98 for the TCL compounds are included for the internal standard method and external method. Form VII for the external method indicates some sensitivity change, (three CCC compounds exceed), whereas for the internal standard method all are compliant. The results for the BFB method blank were therefore computed with the response factors of the day for more accurate results.

SAMPLE ANALYSES

Instrument problems were experienced during the analysis of sample P-205-V-03-02-AA, and no data can be reported.

Two samples arrived with broken back tubes (Tenax / charcoal tubes). Only the front Tenax tube was analyzed, which should not affect the data. Only the STAR analytes were to be reported, i. e. low molecular weight analytes, which would break through the Tenax, were not targeted. OK

Sample P-9400-V-02-02-AA was quantified with external standard method, because the sample was not spiked with the internal standard solution, as previously mentioned. The method blank, (BFB run) was quantified with external standard method as well, as discussed above.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: May 14, 1998

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Ursula Middel
Technical Manager

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No. P2335V0902AA

MATRIX : AIR

Sample ID. : @@9811537@@
Lab File ID : V3593.D
Date/Time Analyzed: 05/01/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Chloromethane		10	U
Vinyl Chloride		10	U J
Bromomethane		10	U
Chloroethane		10	U J
1,1-Dichloroethene		10	U
Acetone		59	B U in 5/14/98
Carbon Disulfide		10	U
Methylene Chloride		15	B U
2-Butanone		10	U J
trans-1,2-Dichloroethene		10	U
cis-1,2-Dichloroethene		10	U
1,1-Dichloroethane		10	U
Chloroform		10	U 6/17/97
1,2-Dichloroethane		10	U
1,1,1-Trichloroethane		10	U
Carbon Tetrachloride		10	U
Trichloroethene		10	U
Benzene		7	U 5/12/98
1,2-Dichloropropane		10	U
Bromodichloromethane		10	U
cis-1,3-Dichloropropene		10	U
trans-1,3-Dichloropropene		10	U
1,1,2-Trichloroethane		10	U
4-Methyl-2-Pentanone		10	U
2-Hexanone		10	U
Toluene		36	B
Tetrachloroethene		10	U
Dibromochloromethane		10	U
Chlorobenzene		10	U
Ethylbenzene		10	
Xylene (total)		65	
Styrene		10	U
Bromoform		10	U J
1,1,2,2-Tetrachloroethane		10	U

H2M LABS, INC.

QUALIFIERS FOR REPORTING ORGANICS DATA

Value - If the result is a value greater than or equal to the quantification limit, report the value.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture. For example, if the sample had 24% moisture and a 1 to 10 dilution factor, the sample quantitation limit for phenol (330 U) would be corrected to

$$\frac{(330\ U)}{D} \times df \quad \text{where } D = \frac{100 - \%\ \text{moisture}}{100}$$

and df = dilution factor

For example, at 24% moisture, $D = \frac{100-24}{100} = 0.76$

$$\frac{(330\ U)}{.76} \times 10 = 4300\ U$$ rounded to the appropriate number of significant figures

For semivolatile soil samples, the extract must be concentrated to 0.5 mL, and the sensitivity of the analysis is not compromised by the cleanup procedures. Similarly, pesticide samples subjected to GPC are concentrated to 5.0 mL. Therefore, the CRQL values in Exhibit C will apply to all samples, regardless of cleanup. However, if a sample extract cannot be concentrated to the protocol-specified volume (see Exhibit C), this fact must be accounted for in reporting the sample quantitation limit.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified quantification limit but greater than zero. (e.g.: If limit of quantification is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.) The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P"

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a Laboratory-defined flag, discussed below

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed according to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of the peak representing the single isomer exceeds 200 ug/l or the peak representing the two coeluting isomers on that GC column exceeds 400 ug/l. Similarly, if the two 1,2-Dichloroethene isomers coelute, a diluted analysis is not required unless the concentration exceeds 400 ug/l.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

X - Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags as needed. For instance, the "X" flag might combine "A", "B", and "D" flags for some samples. The Laboratory defined flags limited to the letters "X", "Y" and "Z"

The combination of flags "BU" or "UB" is expressly prohibited. Blank contaminants are flagged "B" only when they are detected in the sample.

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P2335V1202AA

MATRIX : AIR

Sample ID. : @@9811533@@
Lab File ID : V3589.D
Date/Time Analyzed: 05/01/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng		
Chloromethane		10	U	
Vinyl Chloride		10	U	J
Bromomethane		10	U	
Chloroethane		10	U	J
1,1-Dichloroethene		10	U	
Acetone		42	~~B~~ U	
Carbon Disulfide		10	U	
Methylene Chloride		20	~~B~~ U	
2-Butanone		10	U	J
trans-1,2-Dichloroethene		10	U	
cis-1,2-Dichloroethene		10	U	
1,1-Dichloroethane		10	U	
Chloroform		10	U	
1,2-Dichloroethane		10	U	
1,1,1-Trichloroethane		10	U	
Carbon Tetrachloride		10	U	
Trichloroethene		10	U	
Benzene		4	U	
1,2-Dichloropropane		10	U	
Bromodichloromethane		10	U	
cis-1,3-Dichloropropene		10	U	
trans-1,3-Dichloropropene		10	U	
1,1,2-Trichloroethane		10	U	
4-Methyl-2-Pentanone		10	U	
2-Hexanone		10	U	
Toluene		29	~~B~~	
Tetrachloroethene		10	U	
Dibromochloromethane		10	U	
Chlorobenzene		10	U	
Ethylbenzene		10	U	
Xylene (total)		47		
Styrene		10	U	
Bromoform		10	U	J
1,1,2,2-Tetrachloroethane		10	U	

6/17/98

5/12/98

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P2335V1202TB

MATRIX : AIR

Sample ID. : @@9811532@@
Lab File ID : V3588.D
Date/Time Analyzed: 05/01/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Chloromethane		10	U
Vinyl Chloride		10	U
Bromomethane		10	U
Chloroethane		10	U
1,1-Dichloroethene		10	U
Acetone		10	U
Carbon Disulfide		10	U
Methylene Chloride		16	B
2-Butanone		10	U
trans-1,2-Dichloroethene		10	U
cis-1,2-Dichloroethene		10	U
1,1-Dichloroethane		10	U
Chloroform		10	U
1,2-Dichloroethane		10	U
1,1,1-Trichloroethane		10	U
Carbon Tetrachloride		10	U
Trichloroethene		10	U
Benzene		3	
1,2-Dichloropropane		10	U
Bromodichloromethane		10	U
cis-1,3-Dichloropropene		10	U
trans-1,3-Dichloropropene		10	U
1,1,2-Trichloroethane		10	U
4-Methyl-2-Pentanone		10	U
2-Hexanone		10	U
Toluene		10	U
Tetrachloroethene		10	U
Dibromochloromethane		10	U
Chlorobenzene		10	U
Ethylbenzene		10	U
Xylene (total)		10	U
Styrene		10	U
Bromoform		10	U
1,1,2,2-Tetrachloroethane		10	U

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P2335V1202AA

MATRIX : AIR

Sample ID. : @@9811533@@
Lab File ID : V3589.D
Date/Time Analyzed: 05/01/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Chloromethane	10	U	
Vinyl Chloride	10	U	J
Bromomethane	10	U	
Chloroethane	10	U	J
1,1-Dichloroethene	10	U	
Acetone	42	B	U
Carbon Disulfide	10	U	
Methylene Chloride	20	B	U
2-Butanone	10	U	J
trans-1,2-Dichloroethene	10	U	
cis-1,2-Dichloroethene	10	U	
1,1-Dichloroethane	10	U	
Chloroform	10	U	
1,2-Dichloroethane	10	U	
1,1,1-Trichloroethane	10	U	
Carbon Tetrachloride	10	U	
Trichloroethene	10	U	
Benzene	4	U	
1,2-Dichloropropane	10	U	
Bromodichloromethane	10	U	
cis-1,3-Dichloropropene	10	U	
trans-1,3-Dichloropropene	10	U	
1,1,2-Trichloroethane	10	U	
4-Methyl-2-Pentanone	10	U	
2-Hexanone	10	U	
Toluene	29	B	
Tetrachloroethene	10	U	
Dibromochloromethane	10	U	
Chlorobenzene	10	U	
Ethylbenzene	10	U	
Xylene (total)	47		
Styrene	10	U	
Bromoform	10	U	J
1,1,2,2-Tetrachloroethane	10	U	

6/17/98

5/12/98

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P2335V1002AA

MATRIX : AIR

Sample ID. : @@9811534@@
Lab File ID : V3590.D
Date/Time Analyzed: 05/01/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Chloromethane		10	U
Vinyl Chloride		10	U
Bromomethane		10	U
Chloroethane		10	U
1,1-Dichloroethene		10	U
Acetone		80	B
Carbon Disulfide		10	U
Methylene Chloride		15	B
2-Butanone		10	U
trans-1,2-Dichloroethene		10	U
cis-1,2-Dichloroethene		10	U
1,1-Dichloroethane		10	U
Chloroform		10	U
1,2-Dichloroethane		10	U
1,1,1-Trichloroethane		10	U
Carbon Tetrachloride		10	U
Trichloroethene		10	U
Benzene		15	U
1,2-Dichloropropane		10	U
Bromodichloromethane		10	U
cis-1,3-Dichloropropene		10	U
trans-1,3-Dichloropropene		10	U
1,1,2-Trichloroethane		10	U
4-Methyl-2-Pentanone		10	U
2-Hexanone		10	U
Toluene		83	B
Tetrachloroethene		10	U
Dibromochloromethane		10	U
Chlorobenzene		10	U
Ethylbenzene		21	
Xylene (total)		100	
Styrene		10	U
Bromoform		10	U
1,1,2,2-Tetrachloroethane		10	U

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P2335V1102FB

MATRIX : AIR

Sample ID. : @@9811535@@
Lab File ID : V3591.D
Date/Time Analyzed: 05/01/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result : ng	
Chloromethane	10	U
Vinyl Chloride	10	U
Bromomethane	10	U
Chloroethane	10	U
1,1-Dichloroethene	10	U
Acetone	12	~~B~~ U
Carbon Disulfide	10	U
Methylene Chloride	14	~~B~~ U 5/14/98
2-Butanone	10	U
trans-1,2-Dichloroethene	10	U
cis-1,2-Dichloroethene	10	U
1,1-Dichloroethane	10	U
Chloroform	10	U
1,2-Dichloroethane	10	U
1,1,1-Trichloroethane	10	U
Carbon Tetrachloride	10	U
Trichloroethene	10	U
Benzene	4	U
1,2-Dichloropropane	10	U
Bromodichloromethane	10	U
cis-1,3-Dichloropropene	10	U
trans-1,3-Dichloropropene	10	U
1,1,2-Trichloroethane	10	U
4-Methyl-2-Pentanone	10	U
2-Hexanone	10	U
Toluene	10	U
Tetrachloroethene	10	U
Dibromochloromethane	10	U
Chlorobenzene	10	U
Ethylbenzene	10	U
Xylene (total)	10	U
Styrene	10	U
Bromoform	10	U
1,1,2,2-Tetrachloroethane	10	U

6/17/98

5/12/98

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P2335V1102AA

MATRIX : AIR

Sample ID. : @@9811536@@
Lab File ID : V3592.D
Date/Time Analyzed: 05/01/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
Chloromethane		10	U
Vinyl Chloride		10	U J
Bromomethane		10	U
Chloroethane		10	U J
1,1-Dichloroethene		10	U
Acetone		35	U
Carbon Disulfide		10	U
Methylene Chloride		14	U
2-Butanone		10	U J
trans-1,2-Dichloroethene		10	U
cis-1,2-Dichloroethene		10	U
1,1-Dichloroethane		10	U
Chloroform		10	U
1,2-Dichloroethane		10	U
1,1,1-Trichloroethane		10	U
Carbon Tetrachloride		10	U
Trichloroethene		10	U
Benzene		9	U
1,2-Dichloropropane		10	U
Bromodichloromethane		10	U
cis-1,3-Dichloropropene		10	U
trans-1,3-Dichloropropene		10	U
1,1,2-Trichloroethane		10	U
4-Methyl-2-Pentanone		10	U
2-Hexanone		10	U
Toluene		28	
Tetrachloroethene		10	U
Dibromochloromethane		10	U
Chlorobenzene		10	U
Ethylbenzene		10	U
Xylene (total)		10	U
Styrene		10	U
Bromoform		10	U J
1,1,2,2-Tetrachloroethane		10	U

6/17/98

5/12/98

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
~~@@9811526@@~~
P9400V02-02TB

MATRIX : AIR

Sample ID. : P9400V02-02TB 5996 4/30/98
Lab File ID : V3572.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		10	U
benzene		6	
toluene		10	U
ethylbenzene		10	U
m\p-xylene		10	U
o-xylene		10	U
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		10	U
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		10	U
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U ✓

6/17/98

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
P9400V02-02AA

MATRIX : AIR

Sample ID. : @@9811525@@
Lab File ID : V3571.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-t-butyl ether		10	U
benzene		12	U
toluene		49	
ethylbenzene		16	
m\p-xylene		62	
o-xylene		22	
isopropylbenzene		10	U
~~4-bromofluorobenzene~~ n-propylbenzene		10	U
1,3,5-trimethylbenzene		34	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		16	
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	UR

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JK 6/17/98

A 0016

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811527@@

MATRIX : AIR

Sample ID. : P9400V02-02FB 5996 4/30/98
Lab File ID : V3573.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		13	
benzene		10	U
toluene		30	
ethylbenzene		10	U
m\p-xylene		37	
o-xylene		13	
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		23	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		12	
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		30	J

JC 4/17/98

5/14/98

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811528@@

MATRIX : AIR

Sample ID. : P9400V04-02AA 5996 4/30/98
Lab File ID : V3574.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		10	U
benzene		7	U
toluene		35	
ethylbenzene		12	
m\p-xylene		52	
o-xylene		18	
isopropylbenzene		10	U
n-propylbenzene		15	
1,3,5-trimethylbenzene		110	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		91	
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U R

JL 6/17/98

A CC35

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811530@@

MATRIX : AIR

Sample ID. : P9400V01-02AA 5996 4/30/98
Lab File ID : V3576.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		70	
benzene		29	U
toluene		80	
ethylbenzene		18	
m\p-xylene		69	
o-xylene		20	
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		21	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		10	U
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U R

JC 6/17/98

A 0042

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811531@@

MATRIX : AIR

Sample ID. : P9400V06-02AA 5996 4/30/98
Lab File ID : V3577.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		81	
benzene		31	
toluene		120	
ethylbenzene		11	
m\p-xylene		33	
o-xylene		14	
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		43	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		40	
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U R

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811538@@

MATRIX : AIR

Sample ID. : P205V-02-02FB 5996 4/30/98
Lab File ID : V3578.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		10	U
benzene		3	U
toluene		10	U
ethylbenzene		10	U
m\p-xylene		10	U
o-xylene		10	U
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		10	U
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		10	U
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U R

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VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811539@@

MATRIX : AIR

Sample ID. : P205V-02-02AA 5996 4/30/98
Lab File ID : V3579.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		10	U
benzene		5	U
toluene		26	
ethylbenzene		10	U
m\p-xylene		33	
o-xylene		10	
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		19	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		13	
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U R

6/17/98

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811540@@

MATRIX : AIR

Sample ID. : P205V-01-02AA 5996 4/30/98
Lab File ID : V3580.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		44	
benzene		14	U
toluene		55	
ethylbenzene		13	
m\p-xylene		50	
o-xylene		15	
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		19	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		10	U
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U R

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1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811541@@

MATRIX : AIR

Sample ID. : P205V-03-02AA 5996 4/30/98
Lab File ID : V3581.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		320	
benzene		130	
toluene		470	
ethylbenzene		65	
m\p-xylene		250	
o-xylene		92	
isopropylbenzene		10	U
n-propylbenzene		16	
1,3,5-trimethylbenzene		110	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		97	
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		14	J

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811542@@

MATRIX : AIR

Sample ID. : P205V-04-02AA 5996 4/30/98
Lab File ID : V3582.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		54	
benzene		9	U
toluene		66	
ethylbenzene		17	
m\p-xylene		63	
o-xylene		19	
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		30	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		20	
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U R

6/17/98

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811543@@

MATRIX : AIR

Sample ID. : P205V-05-02AA 5996 4/30/98
Lab File ID : V3583.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		10	U
benzene		9	U
toluene		55	
ethylbenzene		15	
m\p-xylene		59	
o-xylene		18	
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		31	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		21	
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U R

6/17/98

1A

VOLATILE ORGANIC ANALYSIS DATA SHEET

H2M LABS INC.

Sample No.
@@9811544@@

MATRIX : AIR

Sample ID. : P205V-06-02AA 5996 4/30/98
Lab File ID : V3584.D
Date/Time Analyzed: 04/30/98
Instument ID: 5996

Split Factor : 1 : 1
Quant Range : 10 to 1000

COMPOUND NAME:	Result :	ng	
methyl-tert-butylether		10	
benzene		8	U
toluene		44	
ethylbenzene		11	
m\p-xylene		45	
o-xylene		13	
isopropylbenzene		10	U
n-propylbenzene		10	U
1,3,5-trimethylbenzene		21	
tert-butylbenzene		10	U
1,2,4-trimethylbenzene		12	
sec-butylbenzene		10	U
4-isopropyltoluene		10	U
n-butylbenzene		10	U
naphthalene		10	U R

6/17/98

A 0095

APPENDIX E

Plattsburgh Air Force Base — Data Validation & Usability
FP&M Project No. 444-96-01

DRAFT DATA ASSESSMENT REPORT
SDG No. PLT27

DATA VALIDATION FOR:	Low Concentration Volatiles and TCL Semi-Volatiles By AFCEE QAPP 2/96 Document
WAM:	Tom Doriski
SITE:	Plattsburgh AFB
SDG NO:	PLT27
CONTRACT LAB:	Recra LabNet
REVIEWER:	Tony Uwakwe, Korlipara Engineering
QA/QC OF REVIEW:	Ravi Korlipara, Korlipara Engineering
DATE REVIEWED:	July 2-5, 1997
MATRIX:	Water

SUMMARY OF DATA VALIDATION RESULTS FOR PLT27

Korlipara Engineering has completed a full validation of Recra LabNet analytical results for Sample Delivery Group (SDG) No. PLT27, volatile and semi-volatile organic fractions.

Evaluation of all available materials was performed to assess the quality of the volatile organics (VOA) and semi-volatile organics (SV) data. All the VOA data was found to be acceptable; there were no major data deficiencies with the following exceptions:

- The analyte methylene chloride was detected in the method blanks VBLKEH, VBLKEU, VBLKDQ, VBLKEJ, VBLKEI, VBLKCV, VBLKET, and VBLKEK. Therefore, positive results for this analyte less than 10X blank concentration but greater than the CRQL were qualified "U" in the associated samples (all samples except field and equipment blanks which are not qualified for blank contamination) in accordance with Region II protocol.

- The analytes 1,3-, 1,4-, 1,2-dichlorobenzenes and naphthalene were detected in the method blank VBLKEU. The concentrations of these analytes were greater than 5X blank concentration in the associated sample P-2774-W-01-05-B. Therefore, the "B" flag for the positive results of these analytes in sample P-2774A-W-01-05-B were crossed out in accordance with Region II protocol. These results represent genuine hits.

- The analyte 1,3- and/or 1,4-xylene was detected in the method blank VBLKEU. Therefore, positive results for this analyte less than 5X blank concentration and less than the CRQL were raised to the

value of the CRQL and qualified "U" in samples P-2763-W-02-05-B and P-2763-W-02-05-C in accordance with Region II SOP.

- The analyte toluene was detected in the field blank P-2774-W-00-00-F collected on 5/21/97. Therefore, positive results for this analyte less than 10X blank concentration and less than the CRQL were raised to the value of the CRQL and qualified "U" in samples P- 2763-W-02-05-B, P-2763-W-02-05-C, P-2774-W-03-05-B, P-2774A-W-01-05-B, P-2774A-W-02-05-B, and P-2774C-W-01-05-B in accordance with Region II SOP.

- Blank spike % recovery was greater than the upper QC limit for 1,3,5-trimethylbenzene in VBLKEJ. Therefore, "J" qualification was given for this analyte in sample P-2335-W-01-05-B.

- Two (2) initial calibrations (ICs) were performed on 5/30/97 and 6/3/97 on instrument 5970K; during the ICs, the % RSD > 30 for methylene chloride. Therefore positive results for this analyte were qualified as estimates ("J" qualification) in all samples. It should be noted that methylene chloride was previously qualified "U" or "B" (in blank samples) for blank contamination in most of the samples in this analytical batch. Analytes previously qualified "U" for blank contamination are also further qualified for calibration criteria. Therefore the positive results for methylene chloride in the samples have "UJ" or "BJ" flags as applicable.

- For the continuing calibrations (CCs) of 5/31/97 and 6/2/97: % D > 25 for methylene chloride, 2,2-dichloropropane, and 1,3- and/or 1,4-xylene. Therefore, "UJ" qualification was given to non-detects and "J" to positive results in the associated samples. The associated samples are P-2335-W-04-05-B, TRIP BLANK 2, and TRIP BLANK 3.

- CC of 6/2/97: % D > 90 for 1,3- and/or 1,4-xylene. Therefore, "R" qualification was given to non-detect result for this analyte in the associated samples TRIP BLANK 2 and TRIP BLANK 3.

- CC of 6/3/97: % D > 25 for 2,2-dichloropropane. Therefore, "UJ" qualification was given to non-detect results for this analyte in samples P-2763-W-02-05-B, P-2763-W-02-05-C, P-2774-W-03-05-B, P-2774A-W-02-05-B, P-2774B-W-01-05-B, P-0774C-W-01-05-B, P-2774-W-00-00-E, P-2774-W-00-00-F, and P-2774C-W-02-B.

- CC of 6/5/97: % D > 25 for trichlorofluoromethane. Therefore, "JB" qualification was given to positive results for this analyte in associated samples TRIP BLANK 12, TRIP BLANK 13, and TRIP BLANK 14; "UJ" qualification was given to non-detect result for this analyte in associated sample MW-30-002-B.

- CC of 6/6/97: % D > 25 for carbon tetrachloride and 1,3- and/or 1,4-xylene. Therefore, "UJ" qualification was given to non-detect results for this analyte in the associated samples TRIP BLANK 11, MW-30-005-F, MW-30-006-B, MW-30-007-B, MW-30-005-B, and MW-30-004-B; and "J" qualification was given to positive result for 1,3- and/or 1,4-xylene in associated samples MW-30-005-B and MW-30-007-B.

- Compound quantitation data were consistent with the required method criteria. However, all TIC

compounds were qualified "JN" except siloxanes (column bleed compounds) which were rejected in all affected samples.

For semi-volatiles, following were the deficiencies:

- The analyte bis(2-ethylhexyl)phthalate was detected in the method blanks SBLKRA and SBLKRR. Therefore, positive results for this analyte less than 10X blank concentration but greater than the CRQL were qualified "U" in samples P-2763-W-01-05-B, P-2763-W-02-05-B and positive results less than the CRQL were raised to the value of the CRQL and qualified "U" in samples P-2774A-W-01-05-B, P-2774C-W-01-05-B, P-2774C-W-02-05-B, P-2335-W-01-05-B, P-2335-W-02-05-B, P-2335-W-02-05-C, P-2335-W-03-05-B, P-2335-W-04-05-B, P-2335-W-05-05-B, and P-2335-W-06-05-B in accordance with Region II SOP.

- The analyte bis(2-ethylhexyl)phthalate was detected in the equipment blank P-2774-W-00-00-E collected on 5/21/97. Therefore, positive results for this analyte with concentration less than 10X blank concentration and less than the CRQL were raised to the value of the CRQL and qualified "U" in samples P-2774C-W-01-05-B, P-2774C-W-02-05-B, and P-2763-W-01-05-B in accordance with Region II protocol.

- Blank spike % recovery was below lower QC limit for benzoic acid and hexachlorocyclopentadiene; blank spike duplicate % recovery was below the lower QC limit for 2,4-dimethylphenol, benzoic acid and hexachlorocyclopentadiene and % RPD > 25 for benzoic acid in SBLKRA. Therefore, "R" qualification was given to non-detect results for these analytes in the associated samples in accordance with the QAPP. The associated samples are samples listed on page 059 of this data package.

- Blank spike % recovery was below the lower QC limit for 1,3-dichlorobenzene, 1,2-dichlorobenzene, 2,4-dimethylphenol, benzoic acid, 1,2,4-trichlorobenzene, naphthalene, hexachlorocyclopentadiene and 2-chloronaphthalene in SBLKRR. Therefore, "R" qualification was given to non-detect results for these analytes in the associated samples in accordance with the QAPP. The associated samples are the samples listed on page 060 of this data package.

- Blank spike % recovery was below the lower QC limit for 2,4-dimethylphenol, 4-chloroaniline, hexachlorocyclopentadiene, 3-chloroaniline, and 3,3'-dichlorobenzidine in SBLKRU. Therefore, "R" qualification was given to non-detect results for these analytes in the associated samples in accordance with the QAPP. The associated samples are samples listed on page 061 of this data package.

- CC of 6/20/97: % D > 25 for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol. Therefore, "UJ" qualification was given to non-detect results for these analytes in associated sample P-2774-W-00-00-E.

- CC of 6/19/97: % D > 25 for 2,4-dinitrophenol and bis(2-ethylhexyl)phthalate. Therefore, "UJ" qualification was given to non-detect results for 2,4-dinitrophenol and "J" to positive results for bis(2-ethylhexyl)phthalate in the associated samples P-2763-W-01-05-B, P-2763-W-02-05-B, P-

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SDG No. PLT27

2763-W-02-05-C, P-2774-W-03-05-B, P-2774A-W-01-05-B, P-2774A-W-02-05-B, P-2774B-W-01-05-B, P-2774B-W-02-05-B, and P-2774C-W-01-05-B.

- Compound quantitation data were consistent with the required method criteria. However, all TIC compounds were qualified "JN" except those that were rejected as TCL compounds listed as TIC in affected samples.

- The MS % recovery was greater than 10% but outside QC limit for hexachloroethane, 1,2,4-trichlorobenzene, hexachlorobutadiene, hexachlorocyclopentadiene (recovery is 3%), 2-chloronaphthalene, 4-chlorophenyl-phenylether, 4-bromophenyl-phenylether, hexachlorobenzene, phenanthrene, anthracene, fluoranthene, pyrene, 3,3'-dichlorobenzidine, benzo(a)anthracene, chrysene, and dibenzo (a,h) anthracene. The MSD % recovery and the % RPD were outside QC limit for several analytes (refer to pages 042 and 044 of this data package for the analytes). Therefore, "UM" qualification was given to non-detects and "M" qualification was given to positive analyte results in the parent sample P-2335-W-01-05-B.

- It is noteworthy that positive results in all samples (volatiles and semi-volatiles) that were analyzed at a secondary dilution were flagged "D" (an indication that the results were obtained after sample dilution).

It should be noted that in the case of both volatile and semi-volatile analytical results, the analytical laboratory may have already assigned data qualifiers (e.g., "J", "UJ", etc.) to some samples/analytical parameters based on internal QC reviews. Unless expressly over-ridden by the present data validation flags, the laboratory assigned qualifiers continue to apply in all instances that they were made.

It should also be noted that the AFCEE QAPP requirement for one (1) LCS per analytical batch was not performed by the laboratory. However, the laboratory analyzed blank spikes to serve an equivalent purpose as LCS. (Standardized analyte-free water is used for LCS, whereas the laboratory used analyte-free water generated internally within the laboratory for the blank spikes.) Therefore, all QAPP QC criteria for LCS were applied to the blank spikes in this assessment.

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SDG No. PLT27

I. PRELIMINARY REMARKS

The data was validated according to the U.S. Environmental Protection Agency (USEPA) National Functional Guidelines for Organic/Inorganic Data Review (revised in February 1995), incorporating the USEPA Region II Standard Operating Procedure (SOP); the USEPA CLP Statement of Work (SOW) protocol, Document OLM01.9 dated March 1990; and the Air Force Center for Environmental Excellence (AFCEE) Quality Assurance Project Plan (QAPP), Document Version 1.1 dated February 1996. The New York State Department of Environmental Protection (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) DSHM-96-03, "Development and Review of Site Analytical Plans," was reviewed for applicability to this project. The TAGM incorporates the USEPA SOP by reference and is essentially identical to the latter. Thus, data validation according to the USEPA SOP and the AFCEE QAPP also satisfies the NYSDEC TAGM.

The volatile organics (VOA) and semi-volatile organics (SV) analytical results were reviewed in terms of:

1. Data completeness
2. Technical holding time (sampling, preservation, shipping, etc.)
3. GC/MS instrument performance checks
4. Initial and continuing calibrations
5. Blanks contamination
6. Matrix spike/matrix spike duplicate
7. Internal standards
8. Surrogate spikes, field duplicates, and laboratory control samples
9. Target compounds
10. Compound quantitation and reported Contract Required Quantitation Limits (CRQLs)

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (nondetects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). The data for all flagged samples are also usable with caution, except those with the "R" (unusable) qualification. All actions are detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant Quality Control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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II. LIST OF DATA VALIDATION SAMPLES AND FRACTIONS

Data validation was performed for 42 volatile organics samples [including two (2) matrix spike/spike duplicate samples] and for 28 semi-volatile organics samples [including four (4) matrix spike/spike duplicate samples]. The validated environmental samples were collected at the Plattsburgh AFB in May, 1997 and shipped to Recra LabNet, to be analyzed following the 2/96 AFCEE QAPP document.

The samples which were validated for volatile and semi-volatile organics fractions are listed below:

Client ID	*Lab Sample ID*	*Volatiles*	*Semi-Volatiles*
Samples collected on 5/21/97:			
P-2763-W-01-05-B	9705L675-001	Yes	Yes
P-2763-W-02-05-B	9705L675-002	Yes	Yes
P-2763-W-02-05-C	9705L675-003	Yes	Yes
P-2774-W-03-05-B	9705L675-004	Yes	Yes
P-2774A-W-01-05-B	9705L675-005	Yes	Yes
P-2774A-W-02-05-B	9705L675-006	Yes	Yes
P-2774B-W-01-05-B	9705L675-007	Yes	Yes
P-2774B-W-02-05-B	9705L675-008	Yes	Yes
P-2774C-W-01-05-B	9705L675-009	Yes	Yes
P-2774-W-00-00-E	9705L675-010	Yes	Yes
P-2774-W-00-00-F	9705L675-011	Yes	No
P-2774C-W-02-05-B	9705L675-012	Yes	Yes
TRIP BLANK 1	9705L675-013	Yes	No
TRIP BLANK 2	9705L675-014	Yes	No
TRIP BLANK 3	9705L675-015	Yes	No
TRIP BLANK 4	9705L675-016	Yes	No
TRIP BLANK 5	9705L675-017	Yes	No
TRIP BLANK 6	9705L675-018	Yes	No

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Client ID	*Lab Sample ID*	*Volatiles*	*Semi-Volatiles*
Samples collected on 5/22/97:			
P-2335-W-01-05-B	9705L707-001	Yes	Yes
P-2335-W-01-05-BMS	9705L707-001MS	No	Yes
P-2335-W-01-05-BMSD	9705L707-001MSD	No	Yes
P-2335-W-02-05-B	9705L707-002	Yes	Yes
P-2335-W-02-05-C	9705L707-003	Yes	Yes
P-2335-W-03-05-B	9705L707-004	Yes	Yes
P-2335-W-04-05-B	9705L707-005	Yes	Yes
P-2335-W-05-05-B	9705L707-006	Yes	Yes
P-2335-W-06-05-B	9705L707-007	Yes	Yes
TRIP BLANK 7	9705L707-008	Yes	No
TRIP BLANK 8	9705L707-009	Yes	No
TRIP BLANK 9	9705L707-010	Yes	No
TRIP BLANK 10	9705L707-011	Yes	No
Sample collected on 5/23/97:			
MW-30-006-B	9705L720-001	Yes	Yes
MW-30-006-BMS	9705L720-001MS	Yes	Yes
MW-30-006-BMSD	9705L720-001MSD	Yes	Yes
MW-30-002-B	9705L720-002	Yes	Yes
MW-30-004-B	9705L720-003	Yes	Yes
MW-30-007-B	9705L720-004	Yes	Yes
MW-30-005-B	9705L720-005	Yes	Yes
MW-30-005-E	9705L720-006	Yes	Yes
MW-30-005-F	9705L720-007	Yes	No
TRIP BLANK 11	9705L720-008	Yes	No
TRIP BLANK 12	9705L720-009	Yes	No

DRAFT DATA ASSESSMENT REPORT
SDG No. PLT27

Client ID	*Lab Sample ID*	*Volatiles*	*Semi-Volatiles*
TRIP BLANK 13	9705L720-010	Yes	No
TRIP BLANK 14	9705L720-011	Yes	No
	TOTAL NUMBER OF SAMPLES:	42	28

III. DATA ASSESSMENT

This section provides a detailed description of the data assessment results for the validated samples. For each assessment criterion, its purpose and scope are described briefly followed by the assessment results for volatile organics (VOA) and semi-volatile organics (SV).

III.1 HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. If the holding times are exceeded and the samples are not properly preserved, the affected data will be qualified as unusable, "R." Otherwise, those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J," and the nondetects (sample quantitation limits) will be flagged as estimated, "UJ."

The following samples were qualified because of holding time:

VOA: All samples were analyzed within the required technical holding time.

SV: All samples were extracted and analyzed within the required technical holding time.

III.2 BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, field (ambient), equipment (rinsate), or trip blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation, field activity, or shipment. Method blanks measure laboratory contamination. Field (ambient) and equipment (rinsate) blanks measure cross-contamination of samples during field operations. Trip blanks measure cross-contamination of samples due to containerization, transportation, or storage. If the concentration of the analyte is less than five (5) times the blank contaminant level [ten (10) times for the common contaminants], the analytes are qualified as nondetects, "U."

The following are the assessment results for the "blank contamination" criterion:

DRAFT DATA ASSESSMENT REPORT
SDG No. PLT27

A) Method blank contamination

VOA: The analyte methylene chloride was detected in the method blanks VBLKEH, VBLKEU, VBLKDQ, VBLKEJ, VBLKEI, VBLKCV, VBLKET, and VBLKEK. Therefore, positive results for this analyte less than 10X blank concentration but greater than the CRQL were qualified "U" in the associated samples (all samples except field and equipment blanks which are not qualified for blank contamination) in accordance with Region II protocol.

The analyte 1,3- and/or 1,4-xylene was detected in the method blank VBLKEU. Therefore, positive results for this analyte less than 5X blank concentration were raised to the value of the CRQL and qualified "U" in samples P-2763-W-02-05-B and P-2763-W-02-05-C in accordance with Region II SOP.

The analytes 1,3-, 1,4-, 1,2-dichlorobenzenes and naphthalene were detected in the method blank VBLKEU. The concentrations of these analytes were greater than 5X blank concentration in the associated sample P-2774-W-01-05-B. Therefore, the "B" flag for the positive results of these analytes in sample P-2774A-W-01-05-B were crossed out in accordance with Region II protocol. These results represent genuine hits.

SV: The analyte bis(2-ethylhexyl)phthalate was detected in the method blanks SBLKRA and SBLKRR. Therefore, positive results for this analyte less than 10X blank concentration but greater than the CRQL were qualified "U" in samples P-2763-W-01-05-B, P-2763-W-02-05-B and positive results less than the CRQL were raised to the value of the CRQL and qualified "U" in samples P-2774A-W-01-05-B, P-2774C-W-01-05-B, P-2774C-W-02-05-B, P-2335-W-01-05-B, P-2335-W-02-05-B, P-2335-W-02-05-C, P-2335-W-03-05-B, P-2335-W-04-05-B, P-2335-W-05-05-B, and P-2335-W-06-05-B in accordance with Region II SOP.

No contamination was found in the method blank SBLKRU.

B) Field (ambient) blank contamination
("Water blanks" or "distilled water blanks" are validated like any other sample)

VOA: The analyte toluene was detected in the field blank P-2774-W-00-00-F collected on 5/21/97. Therefore, positive results for this analyte less than 10X blank concentration and less than the CRQL were raised to the value of the CRQL and qualified "U" in samples P-2763-W-02-05-B, P-2763-W-02-05-C, P-2774-W-03-05-B, P-2774A-W-01-05-B, P-2774A-W-02-05-B, and P-2774C-W-01-05-B in accordance with Region II SOP.

No field blank was collected on 5/22/97.

The analytes methylene chloride and chloroform were detected in the field blank MW-

30-005-F collected on 5/23/97. However, no further action was taken for methylene chloride because it was previously qualified "U" in associated samples under method blank contamination. There were no positive results for chloroform in associated samples, hence no action was taken.

SV: There were no field blanks for semi-volatiles.

C) Equipment (rinsate) blank contamination
("Water blanks" or "distilled water blanks" are validated like any other sample)

VOA: The analytes methylene chloride, chloroform and toluene were detected in the equipment blank P-2774-W-00-00-E collected on 5/2197 and methylene chloride and chloroform in the equipment blank MW-30-005-E collected on 5/23/97. However, the associated samples have no positive results for chloroform, hence no action was taken. The associated samples were previously qualified for methylene chloride and toluene under method and field blanks contamination. Therefore, no further action was taken.

SV: The analyte bis(2-ethylhexyl)phthalate was detected in the equipment blank P-2774-W-00-00-E collected on 5/21/97. Therefore, positive results for this analyte with concentration less than 10X blank concentration and less than the CRQL were raised to the value of the CRQL and qualified "U" in samples P-2774C-W-01-05-B, P-2774C-W-02-05-B, and P-2763-W-01-05-B in accordance with Region II protocol.

No equipment blank was collected on 5/22/97.

D) Trip blank contamination

VOA: A total of fourteen (14) trip blanks (TRIP BLANKS 1 - 14) were collected in this analytical batch. The analyte methylene chloride was detected in all the fourteen trip blanks. The analytes toluene, dichlorofluoromethane and trichlorofluoromethane were also detected in some of the trip blanks. However, no further action was taken for methylene chloride and toluene because these analytes were previously estimated for other blanks contamination in the associated samples. The other analytes had no positive results in the associated samples, hence no action was required.

SV: Semi-volatile samples do not have trip blanks.

III.3 LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) is analyte-free water (for aqueous analysis) or Ottowa sand (for soil analysis) spiked with known concentrations of all target analytes. The LCS is carried through the complete sample preparation and analysis procedure. The LCS is used to evaluate each analytical batch and to determine if the method is in control.

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The AFCEE QAPP requirement for one (1) LCS per analytical batch was not performed by the laboratory. However, the laboratory analyzed blank spikes to serve an equivalent purpose as LCS. (Standardized analyte-free water is used for LCS, whereas the laboratory used analyte-free water generated internally within the laboratory for the blank spikes.) Therefore, all QAPP QC criteria for LCS were applied to the blank spikes in this assessment.

The following are the assessment results for the "laboratory control sample" criterion:

VOA: Blank spike % recovery was greater than the upper QC limit for 1,3,5-trimethylbenzene in VBLKEJ. Therefore, "J" qualification was given to this analyte in sample P-2335-W-01-05-B. Other associated samples have no positive results for 1,3,5-trimethylbenzene, hence no action was taken. Blank spike % recovery was outside QC limit for methylene chloride in VBLKEU, VBLKEH, VBLKEJ, VBLKEI, VBLKET, and VBLKET. However, no further action was taken because methylene chloride was previously estimated for other QC criteria. Also, the analytes 2,2-dichloropropane, and carbon tetrachloride blank spike % recoveries were above the upper QC limit in VBLKET. However, there were no associated samples positive results for these analytes and, therefore, no action was taken.

SV: Blank spike % recovery was below lower QC limit for hexachlorocyclopentadiene and benzoic acid; blank spike duplicate % recovery was below the lower QC limit for 2,4-dimethylphenol, benzoic acid, and hexachlorocyclopentadiene; and % RPD > 25 for benzoic acid in SBLKRA. Therefore, "R" qualification was given to non-detect results for these analytes in the associated samples in accordance with the QAPP. The associated samples are samples listed on page 059 of this data package.

Blank spike % recovery was below the lower QC limit for 1,3-dichlorobenzene, 1,2-dichlorobenzene. 2,4-dimethylphenol, benzoic acid, 1,2,4-trichlorobenzene, naphthalene, hexachlorocyclopentadiene, and 2-chloronaphthalene in SBLKRR. Therefore, "R" qualification was given to non-detect results for these analytes in the associated samples in accordance with the QAPP. The associated samples are the samples listed on page 060 of this data package.

The blank spike duplicate was not analyzed for SBLKRR.

Blank spike % recovery was below the lower QC limit for 2,4-dimethylphenol, 4-chloroaniline, hexachlorocyclopentadiene, 3-chloroaniline and 3,3'-dichlorobenzidine in SBLKRU. Therefore, "R" qualification was given to non-detect results for these analytes in the associated samples in accordance with the QAPP. The associated samples are samples listed on page 061 of this data package.

The blank spike duplicate was not analyzed for SBLKRU.

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III.4 FIELD DUPLICATES

A field duplicate sample is a second sample collected at the same location as the original sample. Duplicate sample results are used to assess precision of the sample collection process.

The following are the assessment results for the "field duplicates" criterion:

VOA: This SDG contained two (2) primary sample/QC field duplicate pairs: sample P-2763-W-02-05-C is a QC field duplicate of the primary sample P-2763-W-02-05-B; sample P-2335-W-02-05-C is a QC field duplicate of the primary sample P-2335-W-02-05-B. The analytical results for these pairs were consistent with method criteria and there were no differences between them.

SV: This SDG contained two (2) primary sample/QC field duplicate pairs: sample P-2763-W-02-05-C is a QC field duplicate of the primary sample P-2763-W-02-05-B; sample P-2335-W-02-05-C is a QC field duplicate of the primary sample P-2335-W-02-05-B. The analytical results for these pairs were consistent with method criteria and there were no differences between them.

No field duplicate was collected on 5/22/97.

III.5 MASS SPECTROMETER TUNING

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard is bromofluorobenzene (BFB) for volatile organics and decafluorotriphenyl-phosphine (DFTPP) for semi-volatile organics.

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R." The following are the assessment results for the "mass spectrometer tuning" criterion:

VOA: All tuning criteria were met.

SV: All tuning criteria were met.

III.6 CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving continuing satisfactory daily performance.

The calibration criterion consists of "Response Factor" and "Percent Relative Standard Deviation (%RSD) and Percent Difference (%D)" sub-criteria. These sub-criteria are discussed separately below.

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A) Response Factor

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/SV Target Compound List (TCL) must be ≥ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean Relative Response Factor (RRF) of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, then the reported results for that analyte will be qualified as estimated, "J," if the analyte is detected in the environmental samples and will be qualified as rejected, "R," if it is not detected in the environmental samples.

The following are the assessment results for the "response factor calibration" criterion:

VOA: Response factor QC criteria were met.

SV: Response factor QC criteria were met.

B) Percent Relative Standard Deviation (%RSD) And Percent Difference (%D)

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean RRF from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25% based on the QAPP and the SOP. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J," and all nondetects are flagged as "UJ."

The following samples were qualified because of %RSD and %D:

Initial Calibration (IC):

VOA: Two (2) ICs were performed on 5/30/97 and 6/3/97 on instrument 5970K; during the ICs, the % RSD > 30 for methylene chloride. Therefore positive results for this analyte were qualified as estimates ("J" qualification) in all samples. It should be noted that methylene chloride was previously qualified "U" or "B" (in blank samples) for blank contamination in most of the samples in this analytical batch. Analytes previously estimated for blank contamination are also further qualified for calibration criteria. Therefore the positive results for methylene chloride in the samples have "UJ" or "BJ" flags as applicable. Other analytes with % RSD > 30 have no positive results for the analytes and, hence, no action was taken.

SV: Three (3) initial calibrations were performed. The first IC was performed on 6/20/97 on instrument 5971a. The second IC was performed on 5/27/97 on instrument 5972d. The third IC was performed on 6/19/97 on instrument 5972e. All initial calibrations QC criteria were met.

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Continuing Calibration (CC):

VOA: CCs of 5/31/97 and 6/2/97: % D > 25 for methylene chloride, 2,2-dichloropropane, and 1,3- and/or 1,4-xylene. Therefore, "UJ" qualification was given to non-detcts and "J" qualification was given to positive results in the associated samples. The associated samples are P-2335-W-04-05-B, TRIP BLANK 2, and TRIP BLANK 3.

CC of 6/2/97: % D > 90 for 1,3- and/or 1,4-xylene. Therefore, "R" qualification was given for non-detect results for this analyte in associated samples TRIP BLANK 2 and TRIP BLANK 3.

CC of 6/3/97: % D > 25 for 2,2-dichloropropane. Therefore, "UJ" qualification was given to non-detect results for this analyte in samples P-2763-W-02-05-B, P-2763-W-02-05-C, P-2774-W-03-05-B, P-2774A-W-02-05-B, P-2774B-W-01-05-B, P-0774C-W-01-05-B, P-2774-W-00-00-E, P-2774-W-00-00-F, and P-2774C-W-02-B.

CC of 6/5/97: % D > 25 for trichlorofluoromethane. Therefore, "JB" qualification was given to positive results for this analyte in associated samples TRIP BLANK 12, TRIP BLANK 13, and TRIP BLANK 14; "UJ" qualification was given to non-detect result for this analyte in associated sample MW-30-002-B.

CC of 6/6/97: % D > 25 for carbon tetrachloride and 1,3- and/or 1,4-xylene. Therefore, "UJ" qualification was given to non-detect results for this analyte in the associated samples TRIP BLANK 11, MW-30-005-F, MW-30-006-B, MW-30-007-B, MW-30-005-B, and MW-30-004-B; and "J" qualification was given to positive result for 1,3- and/or 1,4-xylene in associated samples MW-30-005-B and MW-30-007-B.

It should be noted that methylene chloride had % D > 25 during all the continuing calibrations. However, no further action was taken in the samples that were previously estimated for methylene chloride as a result of other QC criteria.

SV: CC of 6/20/97: % D > 25 for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol. Therefore, "UJ" qualification was given to non-detect results for these analytes in associated sample P-2774-W-00-00-E.

CC of 6/19/97: % D > 25 for 2,4-dinitrophenol and bis(2-ethylhexyl)phthalate. Therefore, "UJ" qualification was given to non-detect results for 2,4-dinitrophenol and "J" for positive bis(2-ethylhexyl)phthalate in the associated samples P-2763-W-01-05-B, P-2763-W-02-05-B, P-2763-W-02-05-C, P-2774-W-03-05-B, P-2774A-W-01-05-B, P-2774A-W-02-05-B, P-2774B-W-01-05-B, P-2774B-W-02-05-B, and P-2774C-W-01-05-B.

It should be noted that there were a total of seven (7) continuing calibrations. The continuing calibrations QC criteria were met in most cases.

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III.7 SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC)

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below:

VOA: Percent recoveries for all surrogates were within QC limits.

SV: In samples P-2774-W-03-05-B, P-2774A-W-01-05-B, P-2774C-W-01-05-B, P-2335-W-01-05-B, P-2335-W-02-05-C, and P-2335-W-05-05-B, recoveries for the surrogate p-terphenyl-d14 were below the lower QC limit but above 10%. However, no action was taken because the % recoveries were greater than 10% and only one surrogate within the base-neutral fraction was outside QC limit; no action was required in accordance with Region II SOP.

III.8 INTERNAL STANDARDS PERFORMANCE

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J," and all nondetects as "UJ" only if IS area is < 50%. Nondetects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following are the assessment results for the "internal standards performance" criterion:

VOA: All internal standards QC criteria were met.

SV: All internal standards QC criteria were met.

III.9 COMPOUND IDENTIFICATION — VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's Relative Retention Time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities with 20% of that in the standard compound. For tentatively identified compounds (TICs), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the

laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

VOA: Compound quantitation data were consistent with the required method criteria. However, all IC compounds were qualified "JN" except siloxanes (column bleed compounds) which were rejected in all affected samples.

SV: Compound quantitation data were consistent with the required method criteria. However, all TIC compounds were qualified "JN" except those that were rejected as TCL compounds listed as TIC in affected samples.

It is noteworthy that positive results in all samples (volatiles and semi-volatiles) that were analyzed at a secondary dilution were flagged "D" (an indication that the results were obtained after sample dilution).

III.10 MATRIX SPIKE/SPIKE DUPLICATE (MS/MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data.

The following are the assessment results for the "MS/MSD" criterion:

VOA: The MS/MSD QC criteria were met with the exceptions of few analytes with recoveries greater than 10% but outside QC limit. No action was taken based on matrix spike data alone and there was no indication of any matrix effects on the analytical results of this SDG.

SV: The MS % recovery was greater than 10% but outside QC limit for hexachloroethane, 1,2,4-trichlorobenzene, hexachlorobutadiene, hexachlorocyclopentadiene (3% recovery), 2-chloronaphthalene, 4-chlorophenyl-phenylether, 4-bromophenyl-phenylether, phenanthrene, hexachlorobenzene, anthracene, fluoranthene, pyrene, 3,3'-dichlorobenzidine, benzo(a)anthracene, chrysene, and dibenzo (a,h) anthracene. The MSD % recovery and the % RPD were outside QC limit for several analytes (refer to pages 042 and 044 of this data package for the analytes). Therefore, "UM" qualification was given to non-detects and "M" qualification was given to positive analyte results in the parent sample P-2335-W-01-05-B.

III.11 OTHER QC DATA OUT OF SPECIFICATION

VOA: No other QC data was out of specification.

SV: No other QC data was out of specification.

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III.12 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

VOA: All samples were analyzed within the required technical holding time. There were several instances of blank contamination for Method, Field, Equipment, and Trip Blanks. Details and data qualifications are provided in Section III.2. Blank spike % recovery was greater than the upper QC limit for 1,3,5-trimethylbenzene in VBLKEJ. Therefore, "J" qualification was given for this analyte in sample P-2335-W-01-05-B. Two (2) ICs were performed on 5/30/97 and 6/3/97 on instrument 5970K; during the ICs, the % RSD > 30 for methylene chloride. Therefore, positive results for this analyte were qualified as estimates ("J" qualification) in all samples. It should be noted that methylene chloride was previously qualified "U" or "B" (in blank samples) for blank contamination in most of the samples in this analytical batch. Analytes previously estimated for blank contamination are also further qualified for calibration criteria. Therefore, the positive results for methylene chloride in the samples have "UJ" or "BJ" flags as applicable. CCs of 5/31/97 and 6/2/97: % D > 25 for methylene chloride, 2,2-dichloropropane, and 1,3- and/or 1,4-xylene. Therefore, "UJ" qualification was given for non-detects and "J" qualification for positive results in the associated samples. The associated samples are P-2335-W-04-05-B, TRIP BLANK 2, and TRIP BLANK 3. CC of 6/2/97: % D > 90 for 1,3- and/or 1,4-xylene. Therefore, "R" qualification was given for non-detect result for this analyte in the associated samples TRIP BLANK 2 and TRIP BLANK 3. CC of 6/3/97: % D > 25 for 2,2-dichloropropane. Therefore, "UJ" qualification was given to non-detect results for this analyte in samples P-2763-W-02-05-B, P-2763-W-02-05-C, P-2774-W-03-05-B, P-2774A-W-02-05-B, P-2774B-W-01-05-B, P-0774C-W-01-05-B, P-2774-W-00-00-E, P-2774-W-00-00-F, and P-2774C-W-02-B. CC of 6/5/97: % D > 25 for trichlorofluoromethane. Therefore, "JB" qualification was given to positive results for this analyte in associated samples TRIP BLANK 12, TRIP BLANK 13, and TRIP BLANK 14; "UJ" qualification was given to non-detect result for this analyte in associated sample MW-30-002-B. CC of 6/6/97: % D > 25 for carbon tetrachloride and 1,3- and/or 1,4-xylene. Therefore, "UJ" qualification was given to non-detect results for this analyte in the associated samples TRIP BLANK 11, MW-30-005-F, MW-30-006-B, MW-30-007-B, MW-30-005-B, and MW-30-004-B; and "J" qualification was given to positive 1,3- and/or 1,4-xylene in associated samples MW-30-005-B and MW-30-007-B. Compound quantitation data were consistent with the required method criteria. However, all TIC compounds were qualified "JN" except siloxanes (column bleed compounds) which were rejected in all affected samples.

SV: All samples were extracted and analyzed within the required technical holding time. The analyte bis(2-ethylhexyl)phthalate was detected in the method blanks SBLKRA and SBLKRR. Therefore, positive results for this analyte less than 10X blank concentration but greater than the CRQL were qualified "U" in samples P-2763-W-01-05-B, P-2763-W-02-05-B and positive results less than the CRQL were raised to the value of the CRQL and qualified "U" in samples P-2774A-W-01-05-B, P-2774C-W-01-05-B, P-2774C-W-02-05-B, P-2335-W-01-05-B, P-2335-W-02-05-B, P-2335-W-02-05-C, P-2335-W-03-05-B, P-2335-W-04-05-B, P-2335-W-05-05-B, and P-2335-W-06-05-B in accordance with Region II SOP. The analyte bis(2-ethylhexyl)phthalate was detected in the equipment blank P-2774-W-00-00-E collected on 5/21/97. Therefore, positive results for this analyte with concentration less than 10X blank concentration and less than the CRQL were raised to the value of the CRQL and qualified "U" in samples P-2774C-W-01-05-B, P-2774C-W-02-05-B and P-2763-W-01-05-B in accordance with Region II protocol.

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Blank spike % recovery was below the lower QC limit for benzoic acid and hexachlorocyclopentadiene: blank spike duplicate % recovery was below the lower QC limit for 2,4-dimethylphenol, benzoic acid, and hexachlorocyclopentadiene; and % RPD > 25 for benzoic acid in SBLKRA. Therefore, "R" qualification was given to non-detect results for these analytes in the associated samples in accordance with the QAPP. The associated samples are samples listed on page 059 of this data package. Blank spike % recovery was below the lower QC limit for 1,3-dichlorobenzene, 1,2-dichlorobenzene, 2,4-dimethylphenol, benzoic acid, 1,2,4-trichlorobenzene, naphthalene, hexachlorocyclopentadiene, and 2-chloronaphthalene in SBLKRR. Therefore, "R" qualification was given to non-detect results for these analytes in the associated samples in accordance with the QAPP. The associated samples are the samples listed on page 60 of this data package. Blank spike % recovery was below the lower QC limit for 2,4-dimethylphenol, 4-chloroaniline, hexachlorocyclopentadiene, 3-chloroaniline, and 3,3'-dichlorobenzidine in SBLKRU. Therefore, "R" qualification was given to non-detect results for these analytes in the associated samples in accordance with the QAPP. The associated samples are samples listed on page 061 of this data package. CC of 6/20/97: % D > 25 for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol. Therefore, "UJ" qualification was given to non-detect results for these analytes in associated sample P-2774-W-00-00-E. CC of 6/19/97: % D > 25 for 2,4-dinitrophenol and bis(2-ethylhexyl)phthalate. Therefore, "UJ" qualification was given to non-detect results for 2,4-dinitrophenol and "J" for positive bis(2-ethylhexyl)phthalate in the associated samples P-2763-W-01-05-B, P-2763-W-02-05-B, P-2763-W-02-05-C, P-2774-W-03-05-B, P-2774A-W-01-05-B, P-2774A-W-02-05-B, P-2774B-W-01-05-B, P-2774B-W-02-05-B, and P-2774C-W-01-05-B. Compound quantitation data were consistent with the required method criteria. However, all TIC compounds were qualified "JN" except those that were rejected as TCL compounds listed as TIC in affected samples. The MS % recovery was greater than 10% but outside QC limit for hexachloroethane, 1,2,4-trichlorobenzene, hexachlorobutadiene, hexachlorocyclopentadiene (3% recovery), 2-chloronaphthalene, 4-chlorophenyl-phenylether, 4-bromophenyl-phenylether, hexachlorobenzene, phenanthrene, anthracene, fluoranthene, pyrene, 3,3'-dichlorobenzidine, benzo(a)anthracene, chrysene, and dibenzo(a,h)anthracene. The MSD % recovery and the % RPD were outside QC limit for several analytes (refer to pages 042 and 044 of this data package for the analytes). Therefore, "UM" qualification was given to non-detects and "M" qualification was given to positive analyte results in the parent sample P-2335-W-01-05-B.

Important Note: It should be noted that in the case of both volatile and semi-volatile analytical results, the analytical laboratory may have already assigned data qualifiers (e.g., "J", "UJ", etc.) to some samples/analytical parameters based on internal QC reviews. Unless expressly over-ridden by the present data validation flags, the laboratory assigned qualifiers continue to apply in all instances that they were made.

III.13 CONTRACTUAL NON-CONFORMANCE

As defined in the Plattsburgh AFCEE QAPP Version 1.1 (page 4-7), an AFCEE analytical batch should

contain less than or equal to 20 samples plus the associated laboratory QC samples. This analytical batch (SDG No. PLT27) exceeded 20 samples; there were 40 volatile and 24 semi-volatile samples in this SDG, excluding QC samples. However, this deviation has no impact on data quality because the laboratory performed daily continuing calibrations and all samples were analyzed within the required technical holding time.

The "B" flag was not assigned by the laboratory to some of the positive results in the blank samples. The "D" flag was not assigned to positive results in samples that were analyzed at a secondary dilution. Corrective action was taken by the reviewer.

III.14 RE-EXTRACTION, RE-ANALYSIS, OR DILUTION SAMPLES

This package contains re-extraction, re-analysis, or dilution samples. Upon reviewing the QA results, the following Form I's are identified to be used:

VOA: All samples are usable as validated.

SV: All samples are usable as validated.

III.15 MISCELLANEOUS OBSERVATIONS

Numbers are rounded-off inconsistently within the data sheets. However, this did not impact the results of the data validation.

IV. DATA USABILITY

Data review for usability is a process that evaluates the validated data in context to the original data quality objectives (DQOs). The formal process of usability determination involves a complex series of editing, screening, auditing, verifying, and reviewing the validated data.

The technical holding times for all samples in SDG PLT27 were met. The QC criteria for GC/MS tune, internal standards, method blanks, field blanks, trip blanks, matrix spike/matrix spike duplicates, laboratory control samples, and field duplicates were met with the exceptions noted in this narrative.

It is important to understand the bias associated with "J"-qualified data. The "J" data may have high, low, or indeterminate bias. A low bias means that the reported concentration is most likely an underestimate of the true concentration. For example, data may be biased low when sample holding times for volatile organics (VOCs) are exceeded or when the recovery of QA/QC compounds is significantly less than the true amount originally introduced into the sample. A high bias means that the reported concentration is most likely an overestimate of the true concentration. A bias is indeterminate when it is not possible to ascertain whether the concentration is an overestimate or an underestimate. For example, an indeterminate bias could result when matrix effects obscure QA/QC compounds.

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For the volatile fraction, the analyte methylene chloride and toluene were estimated in several samples. These analytes are common laboratory contaminants. Hence the estimated results for these two analytes in the affected samples are more likely to be of low bias. Positive results for 1,3- and/or 1,4-xylene with concentration less than 5X blank concentration were raised to the value of the CRQL and qualified "U" in samples P-2763-W-02-05-B and P-2763-W-02-05-C. These results are more likely to be of indeterminate bias. 1,3- and/or 1,4-xylene is not a common laboratory contaminant. In the cases of analytes that were estimated in several samples due to blank spikes recoveries and calibration QC criteria, these estimated results are more likely to have indeterminate bias.

For the semi-volatile fraction, the analyte bis(2-ethylhexyl)phthalate positive results less than 10X blank concentration were qualified "CRQL U" in some samples. This analyte is a common laboratory contaminant. Hence, the estimated results for this analyte in the affected samples are more likely to be of low bias. In the case of several analytes that were estimated due to calibration QC outliers in several samples along with results in sample P-2335-W-01-05-B which were qualified "M" for matrix effects are likely to have indeterminate bias.

Based on evaluation of all materials in this analytical data (SDG PLT27), the data is highly usable with the data validation qualifiers.

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ORGANIC DATA ASSESSMENT SUMMARY

SDG NO.: PLT27 **LABORATORY:** Recra LabNet **SOW:** AFB QAPP

DATA USER: Fanning, Phillips and Molnar **REVIEW COMPLETION DATE:** 7/7/97

NO. OF VOLATILE ORGANICS SAMPLES (All Water): 42
[including two (2) matrix spike/spike duplicate samples]

NO. OF SEMI-VOLATILE ORGANICS SAMPLES (All Water): 28
[including four (4) matrix spike/spike duplicate samples]

DATA VALIDATION CONTRACTOR: Korlipara Engineering

		VOA	SV
1.	Holding Times	O	O
2.	GC/MS Tune/GC Performance	O	O
3.	Initial Calibrations	X	O
4.	Continuing Calibrations	X	X
5.	Field, Equipment, and Trip Blanks	X	O
6.	Laboratory Blanks	X	X
7.	Surrogates	O	O
8.	Matrix Spike Duplicates and LCS	O	X
9.	AFCEE QC (Blind and Perf. Eval. Samples)	F	F
10.	Internal Standards	O	O
11.	Compound Identification	X	X
12.	Compound Quantitation	O	O
13.	System Performance	O	X
14.	Overall Assessment*	X	X

O = No problems or minor problems that do not affect data usability.
X = No more than *about 5 %* of the data points are qualified as either estimated or unusable.
M = More than *about 5 %* of the data points are qualified as estimated.
Z = More than *about 5 %* of the data points are qualified as unusable ("R").
F = Not applicable.
* The assessments for this criterion are qualitative only.

PROJECT MANAGER ACTION ITEMS: See Data Assessment and Data Usability sections

AREAS OF CONCERN: None

DRAFT DATA ASSESSMENT REPORT
SDG No. PLT27

REJECTION SUMMARY FORM **SOP NO.: HW-6**

[No. of Compounds/No. of Fractions (Samples)]

Type of Review: RAS **Date:** July 7, 1997 **SDG #:** PLT27

Project: Plattsburgh AFB **Lab Name:** Recra LabNet

Reviewer's Initials: AU

NO. OF VOLATILE ORGANICS SAMPLES (All Water): 42
[including two (2) matrix spike/spike duplicate samples]

NO. OF SEMI-VOLATILE ORGANICS SAMPLES (All Water): 28
[including four (4) matrix spike/spike duplicate samples]

Analytes Rejected Due to Exceeding Review Criteria*

Fraction (# Analytes)	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
SV(65)						111	28	111/1820
VOA (59)			2				42	2/2478

Analytes Estimated Due to Exceeding Review Criteria*

Fraction (# Analytes)	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Estimated/ Total # in all Samples
SV(65)			22	13		16	28	51/1820
VOA (59)			66	62		39	42	167/2478

* Analytes may be counted for multiple criteria.

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client FPZM

~~Est. Final Proj. Sampling Date~~ Sampler Thomas Doriski

Work Order # ____

Project Contact/Phone # Thomas Doriski, 516 777-200

AD Project Manager ____

QC ____ Del ____ TAT ____

Date Rec'd ____ Date Due ____

Account # ____

Refrigerator #										
#/Type Container	Liquid	3	2							
	Solid									
Volume	Liquid	Voa.	1 liter							
	Solid									
Preservatives										
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb			INORG: Metal	CN	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA		pH
	~~[crossed out]~~			~~W~~	5/21/97		~~3~~	~~2~~		
	P-277AW-00-00-E			W	5/21/97	1445	3	2		—
	P-2774W-00-00-F			W	5/21/97	1445	3	—		—
	P-2774C-W-02-B			W	5-21-97	1500	3	2		7.0
	05									
	Temperature Blank			Water	5-21					—
	Trip Blank			Water	5-21		12	—		—

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

Run full 8260/8270 analyte list from AFCEE QAPP

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

WESTON Analytics Use Only

Samples were:
1) Shipped __ or Hand Delivered __
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
	T. Doriski	5-16	1030				
Thomas P Doriski	Fed Ex	5-21	1700				

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

Custody of [illegible] [illegible] list 8260/8270

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ___ of ___

Client: FPRM
~~Est. Final Proj. Sampling Date~~ Sampler: Thomas P. Driski
Work Order #
Project Contact/Phone #: Tom D. 5167376203
AD Project Manager
QC ___ Del ___ TAT ___
Date Rec'd ___ Date Due ___
Account #

	Liquid	Solid
Refrigerator #		
#/Type Container	3, 2	
Volume	VOA, Liter	
Preservatives		

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA		
	MW-30-006-B	✓	✓	W	5-23	0910	9	6		7.2
	MW-30-002-B			W	5-23	0900	3	2		7.1
	MW-30-004-B			W	5-23	0930	3	2		7.2
	MW-30-007-B			W	5-23	0950	3	2		7.0
	MW-30-005-B			W	5-23	1000	3	2		7.0
	MW-30-005-E			W	5-23	1000	3	2		
	MW-30-005-F			W	5-23	1000	3			
	Trip Blanks 11, 12, 13, 14			W	5-23	–	8			
	Temperature Blanks			W	5-20		4			

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Full AFCEE list for 8260/8270

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___ Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
	T. Driski	5-6	1030				
Thomas P. Driski	Fed Ex	5-22	1400				

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___ 381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client FPSM
Est. Final Prof. Sampling Date 6/4/05 Thomas P. Doroski
Work Order # ____
Project Contact/Phone # Tom Doroski 516 797 6200
AD Project Manager ____
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator # ____

#/Type Container	Liquid	3	2															
	Solid																	
Volume	Liquid	40ml	1 liter															
	Solid																	
Preservatives																		

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only											RAW pH
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish		P-2335-W-01-05-B			W	5/19/10	1030	3	2										6.5
		P-2335-W-02-05-B			W	5/19/10	1015	3	2										7.0
		P-2335-W-02-05-C			W	5/19/10	1020	3	2										7.0
		P-2335-W-03-05-B			W	5/19/10	0915	3	2										6.5
		P-2335-W-04-05-B			W	5/19/10	1000	3	2										6.5
		P-2335-W-05-05-B			W	5/19/10	0945	3	2										7.0
		P-2335-W-06-05-B			W	5/19/10	0850	3	2										7.0
		Trip blanks 7,8,9,10			W	5/22		8											—
		Trip blanks			W	5/22		4											—
																			—

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Full AFCEE list for 8260/8270.

DATE/REVISIONS:

1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

WESTON Analytics Use Only

Samples were
1) Shipped ____ or Hand Delivered
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer [illegible] Y or N
[illegible] on Outer [illegible] Y or N
[illegible] on Sample [illegible] Y or N
[illegible] Y or N
[illegible] Y or N

Relinquished by	Received by	Date	Time
	T. Doroski	5/16	1070
T. Doroski	FedEx	5-22	1700

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

506 #21 full list 8260 8270

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client FPdm

Est. Final Proj. Sampling Date (sample) T. Durski

Work Order # ____

Project Contact/Phone # Tom Durski (FPdm) 516-737-6200

AD Project Manager ____

QC ____ Del ____ TAT ____

Date Rec'd ____ Date Due ____

Account # ____

		VOA	BNA	Pest/PCB	Herb				Metal	CN
Refrigerator #										
#/Type Container	Liquid	3	2							
	Solid									
Volume	Liquid	VOA	1 liter							
	Solid									
Preservatives										
ANALYSES REQUESTED →		ORGANIC							INORG	

WESTON Analytics Use Only

MATRIX CODES:
- S - Soil
- SE - Sediment
- SO - Solid
- SL - Sludge
- W - Water
- O - Oil
- A - Air
- DS - Drum Solids
- DL - Drum Liquids
- L - EP/TCLP Leachate
- WI - Wipe
- X - Other
- F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 5/21/97	Time Collected	VOA	BNA	Raw pH
	P-2763-W-01-05-B	—	—	W	↓	1515	3	2	7.0
	P-2763-W-02-05-B	—	—	W		1520	3	2	7.0
	P-2763-W-02-05-C	—	—	W		1525	3	2	7.0
	P-2774-W-03-05-B	—	—	W		1415	3	2	7.0
	P-2774A-W-01-05-B	—	—	W		1430	3	2	7.0
	P-2774A-W-02-05-B	—	—	W		1435	3	2	7.0
	P-2774B-W-01-05-B	—	—	W		1445	3	2	6.5
	P-2774B-W-02-05-B	—	—	W		1450	3	2	6.5
	P-2774[redacted]-01-05-B	—	—	W	↓	1455	3	2	7.0
	[redacted]								

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: [redacted]

Run full 8260 and 8270 analyte list (AFCEE list)

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

WESTON Analytics Use Only

Samples were:
1) Shipped or Hand Delivered ____ Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

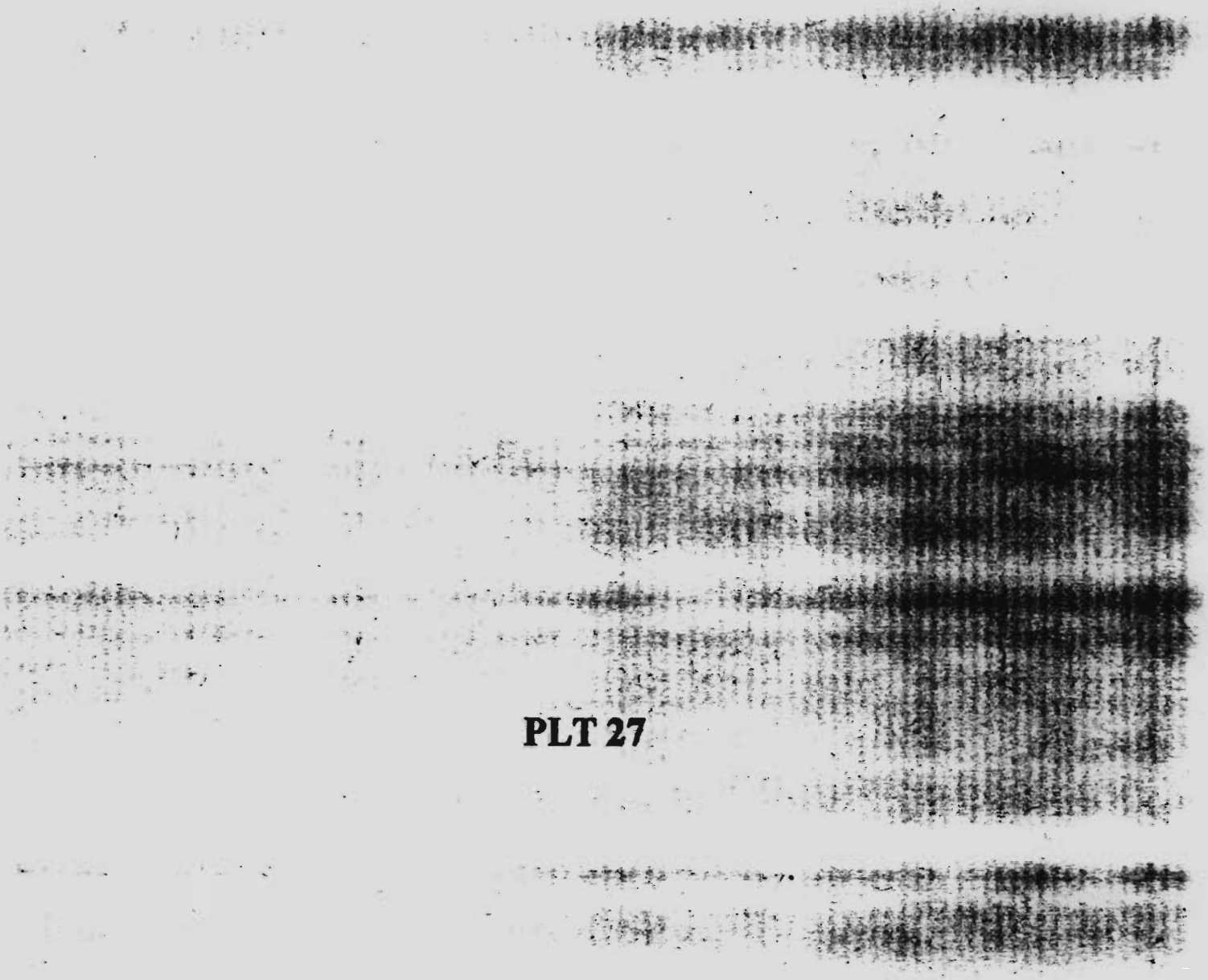
COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
	G. Menego	5/16/97	1030				
M. Kuz	FEDEX	5/21/97	1700				

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

RFW 21-21-001/A 7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a


PLT 27

VOCs

1.00014

		Cust ID:	P-2763-W-01-05-B		P-2763-W-02-05-B		P-2763-W-02-05-C		P-2774-W-03-05-B		P-2774A-W-01-05-B		P-2774A-W-02-05-B	
Sample Information		RFW#:	001		002		003		004		005		005	
		Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
		D.F.:	1.00		1.00		1.00		1.00		2.00		1.00	
		Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
	Toluene-d8		100	%	115	%	106	%	104	%	97	%	105	%
Surrogate	Bromofluorobenzene		96	%	114	%	102	%	101	%	106	%	104	%
Recovery	1,2-Dichloroethane-d4		105	%	119	%	118	%	107	%	102	%	109	%
				fl		fl		fl		fl		fl		fl
Dichlorodifluoromethane			1	U	1	U	1	U	1	U	2	U	1	U
Chloromethane			1	U	1	U	1	U	1	U	2	U	1	U
Vinyl Chloride			1	U	1	U	1	U	1	U	2	J	0.8	J
Bromomethane			1	U	1	U	1	U	1	U	2	U	1	U
Chloroethane			1	U	1	U	1	U	1	U	2	U	1	U
Trichlorofluoromethane			1	U	1	U	1	U	1	U	2	U	1	U
1,1-Dichloroethene			1	U	1	U	1	U	1	U	2	U	1	U
Methylene Chloride			1	~~BJ~~ UJ	1	~~BJ~~ UJ	1	~~BJ~~ UJ	1	~~BJ~~ UJ	3	~~BJ~~ UJ	1	~~BJ~~ UJ
Trans-1,2-dichloroethene			0.2	J	1	U	1	U	1	U	2	U	1	U
1,1-Dichloroethane			1	U	1	U	1	U	0.2	J	0.5	JD	0.5	J
Cis-1,2-dichloroethene			2		0.5	J	0.5	J	0.3	J	0.6	JD	1	
2,2-Dichloropropane			1	U	1	UJ	1	UJ	1	UJ	2	U	1	UJ
Bromochloromethane			1	U	1	U	1	U	1	U	2	U	1	U
Chloroform			1	U	1	U	1	U	1	U	2	U	1	U
1,1,1-Trichloroethane			1	U	1	U	1	U	1	U	2	U	1	U
Carbon Tetrachloride			1	U	1	U	1	U	1	U	2	U	1	U
1,1-dichloropropene			1	U	1	U	1	U	1	U	2	U	1	U
Benzene			1	U	1	U	1	U	1	U	0.3	JD	0.9	J
1,2-Dichloroethane			1	U	1	U	1	U	1	U	2	U	1	U
Trichloroethene			5		1		1		0.7	J	0.4	JD	2	
1,2-Dichloropropane			1	U	1	U	1	U	1	U	2	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U	2	U	1	U
Bromodichloromethane			1	U	1	U	1	U	1	U	2	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	2	U	1	U
Toluene			1	U	1 ~~0.2~~	~~J~~ U	1 ~~0.2~~	~~J~~ U	1 ~~0.2~~	~~J~~ U	1 ~~0.3~~	~~J~~ UD	1 ~~0.2~~	~~J~~ U
Trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	2	U	1	U
1,1,2-Trichloroethane			1	U	1	U	1	U	1	U	2	U	1	U
Tetrachloroethene			1		2		2		1	U	2	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	2	U	1	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9705L675 Client: PLATTSBURGH AFB Work Order: 116040004001 Page: 1b

Cust ID:	P-2763-W-01-05-B	P-2763-W-02-05-B	P-2763-W-02-05-C	P-2774-W-03-05-B	P-2774A-W-01-05-B	P-2774A-W-02-05-B
RFW#:	001	002	003	004	005	006
Dibromochloromethane	1 U	1 U	1 U	1 U	2 U	1 U
1,2-Dibromoethane	1 U	1 U	1 U	1 U	2 U	1 U
Chlorobenzene	1 U	1 U	1 U	1 U	2 U	1 U
1,1,1,2-Tetrachloroethane	1 U	1 U	1 U	1 U	2 U	1 U
Ethylbenzene	1 U	1 U	1 U	1 U	2 U	1 U
1,3- and 1,4-Xylene	1 U	~~1~~ 2 U	~~1~~ 2 U	1 U	2 U	1 U
1,2-Xylene	1 U	1 U	1 U	1 U	2 U	1 U
Styrene	1 U	1 U	1 U	1 U	2 U	1 U
Bromoform	1 U	1 U	1 U	1 U	2 U	1 U
Isopropylbenzene	1 U	1 U	1 U	1 U	2 U	1 U
Bromobenzene	1 U	1 U	1 U	1 U	2 U	1 U
1,2,3-Trichloropropane	1 U	1 U	1 U	1 U	2 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U	2 U	1 U
N-propylbenzene	1 U	1 U	1 U	1 U	2 U	1 U
2-Chlorotoluene	1 U	1 U	1 U	1 U	2 U	1 U
4-Chlorotoluene	1 U	1 U	1 U	1 U	2 U	1 U
1,3,5-Trimethylbenzene	1 U	1 U	1 U	1 U	0.4 J D	1 U
Tert-butylbenzene	1 U	1 U	1 U	1 U	2 U	1 U
1,2,4-Trimethylbenzene	1 U	1 U	1 U	1 U	2 J	1 U
Sec-butylbenzene	1 U	1 U	1 U	1 U	2 U	1 U
1,3-Dichlorobenzene	1 U	1 U	1 U	1 U	5 ~~D~~ D	1 U
1,4-Dichlorobenzene	1 U	1 U	1 U	1 U	10 ~~D~~ D	1 U
4-Isopropyltoluene	1 U	1 U	1 U	1 U	0.7 J D	1 U
1,2-Dichlorobenzene	1 U	1 U	1 U	1 U	9 ~~D~~ D	1 U
N-butylbenzene	1 U	1 U	1 U	1 U	2 U	1 U
1,2-Dibromo-3-chloropropane	1 U	1 U	1 U	1 U	2 U	1 U
1,2,4-Trichlorobenzene	1 U	1 U	1 U	1 U	2 U	1 U
Hexachlorobutadiene	1 U	1 U	1 U	1 U	2 U	1 U
Naphthalene	1 U	1 U	1 U	1 U	3 ~~D~~ D	1 U
1,2,3-Trichlorobenzene	1 U	1 U ↑	1 U ↑	1 U	2 U ↑	1 U

*= Outside of EPA CLP QC limits.

1-00-15

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS

Report Date: 06/23/97 11:32

RFW Batch Number: 9705L675 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 2a

1.00=16

	Cust ID:	P-2774B-W-01-05-B		P-2774B-W-02-05-B		P-2774C-W-01-05-B		P-2774-W-00-00-E		P-2774-W-00-00-F		P-2774C-W-02-05-B	
Sample Information	RFW#:	007		008		009		010		011		012	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		2.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Toluene-d8	113	%	91	%	108	%	105	%	102	%	107	%
	Bromofluorobenzene	112	%	90	%	104	%	101	%	99	%	99	%
	1,2-Dichloroethane-d4	113	%	106	%	116	%	112	%	111	%	113	%
			fl		fl		fl		fl		fl		fl
Dichlorodifluoromethane		1	U	2	U	1	U	1	U	1	U	1	U
Chloromethane		1	U	2	U	1	U	1	U	1	U	1	U
Vinyl Chloride		1	U	2	U	1	U	1	U	1	U	1	U
Bromomethane		1	U	2	U	1	U	1	U	1	U	1	U
Chloroethane		1	U	2	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane		1	U	2	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene		1	U	2	U	1	U	1	U	1	U	1	U
Methylene Chloride		1	→UJ	3	→UJ	2	→UJ	3	BJ	4	BJ	2	→UJ
Trans-1,2-dichloroethene		1	U	2	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		0.5	J	2	U	1	U	1	U	1	U	1	U
Cis-1,2-dichloroethene		3		0.8	JD	0.3	J	1	U	1	U	1	U
2,2-Dichloropropane		1	UJ	2	U	1	UJ	1	UJ	1	UJ	1	UJ
Bromochloromethane		1	U	2	U	1	U	1	U	1	U	1	U
Chloroform		1	U	2	U	1	U	0.1	JB	0.1	JB	1	U
1,1,1-Trichloroethane		0.1	J	2	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride		1	U	2	U	1	U	1	U	1	U	1	U
1,1-dichloropropene		1	U	2	U	1	U	1	U	1	U	1	U
Benzene		0.5	J	2	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane		1	U	2	U	1	U	1	U	1	U	1	U
Trichloroethene		5		5	D	2		1	U	1	U	1	
1,2-Dichloropropane		1	U	2	U	1	U	1	U	1	U	1	U
Dibromomethane		1	U	2	U	1	U	1	U	1	U	1	U
Bromodichloromethane		1	U	2	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene		1	U	2	U	1	U	1	U	1	U	1	U
Toluene		1	U	2	U	1	→JU	0.2	JB	0.2	JB	1	U
Trans-1,3-Dichloropropene		1	U	2	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane		1	U	2	U	1	U	1	U	1	U	1	U
Tetrachloroethene		1	U	2	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane		1	U	2	U	1	U	1	U	1	U	1	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9705L675 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 2b

Cust ID:	P-2774B-W-01 -05-B	P-2774B-W-02 -05-B	P-2774C-W-01 -05-B	P-2774-W-00- 00-E	P-2774-W-00- 00-F	P-2774C-W-02 -05-B
RFW#:	007	008	009	010	011	012
Dibromochloromethane	1 U	2 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	1 U	2 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	2 U	1 U	1 U	1 U	1 U
1,1,1,2-Tetrachloroethane	1 U	2 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	0.6 JD	1 U	1 U	1 U	1 U
1,3- and 1,4-Xylene	1 U	2 D	1 U	1 U	0.1 JB	1 U
1,2-Xylene	1 U	0.4 JD	1 U	1 U	1 U	1 U
Styrene	1 U	2 U	1 U	1 U	1 U	1 U
Bromoform	1 U	2 U	1 U	1 U	1 U	1 U
Isopropylbenzene	1 U	2 U	1 U	1 U	1 U	1 U
Bromobenzene	1 U	2 U	1 U	1 U	1 U	1 U
1,2,3-Trichloropropane	1 U	2 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	2 U	1 U	1 U	1 U	1 U
N-propylbenzene	1 U	2 U	1 U	1 U	1 U	1 U
2-Chlorotoluene	1 U	2 U	1 U	1 U	1 U	1 U
4-Chlorotoluene	1 U	2 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	1 U	2 U	1 U	1 U	1 U	1 U
Tert-butylbenzene	1 U	2 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	1 U	2 U	1 U	1 U	1 U	1 U
Sec-butylbenzene	1 U	2 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	2 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	2 U	1 U	1 U	1 U	1 U
4-Isopropyltoluene	1 U	2 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	1 U	2 U	1 U	1 U	1 U	1 U
N-butylbenzene	1 U	2 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	1 U	2 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	1 U	2 U	1 U	1 U	1 U	1 U
Hexachlorobutadiene	1 U	2 U	1 U	1 U	1 U	1 U
Naphthalene	1 U	2 J	1 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	1 U	2 U	1 U	1 U	1 U	1 U

*= Outside of EPA CLP QC limits.

1:00:17

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS

Report Date: 06/23/97 11:32

RFW Batch Number: 9705L675 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 3a

1.00,18

	Cust ID:	TRIP BLANK 1		TRIP BLANK 2		TRIP BLANK 3		TRIP BLANK 4		TRIP BLANK 5		TRIP BLANK 6	
Sample Information	RFW#:	013		014		015		016		017		018	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Toluene-d8	93	%	95	%	94	%	95	%	96	%	98	%
	Bromofluorobenzene	89	%	90	%	89	%	89	%	93	%	94	%
	1,2-Dichloroethane-d4	95	%	98	%	103	%	104	%	111	%	106	%
			fl		fl		fl		fl		fl		fl
Dichlorodifluoromethane		1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane		1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride		1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane		1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane		1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
Methylene Chloride		2	BJ	2	BJ	2	BJ	2	BJ	2	BJ	2	BJ
Trans-1,2-dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Cis-1,2-dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane		1	U	1	UJ	1	UJ	1	U	1	U	1	U
Bromochloromethane		1	U	1	U	1	U	1	U	1	U	1	U
Chloroform		1	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride		1	U	1	U	1	U	1	U	1	U	1	U
1,1-dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U
Benzene		1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane		1	U	1	U	1	U	1	U	1	U	1	U
Dibromomethane		1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane		1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U
Toluene		1	U	1	U	1	U	1	U	1	U	1	U
Trans-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene		1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane		1	U	1	U	1	U	1	U	1	U	1	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 2705L675 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 3b

1.00-19

Cust ID:	TRIP BLANK 1		TRIP BLANK 2		TRIP BLANK 3		TRIP BLANK 4		TRIP BLANK 5		TRIP BLANK 6	
RFW#:	013		014		015		016		017		018	
Dibromochloromethane	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,1,1,2-Tetrachloroethane	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,3- and 1,4-Xylene	1	U	1	UR	1	UR	1	U	1	U	1	U
1,2-Xylene	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
Bromobenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	1	U	1	U	1	U	1	U	1	U	1	U
N-propylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
2-Chlorotoluene	1	U	1	U	1	U	1	U	1	U	1	U
4-Chlorotoluene	1	U	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
Tert-butylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
Sec-butylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U
4-Isopropyltoluene	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U
N-butylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U

*= Outside of EPA CLP QC limits.

[redacted] Volatiles by GC/MS Report Date: 06/23/97 11:32

RFW Batch Number: 9705L675 Client: PLATTSBURGH AFB Work Order: 116040040001 Page: 4a

	Cust ID:	VBLKEH	VBLKEH BS	VBLKEU	VBLKEU BS	VBLKDQ
Sample Information	RFW#:	97LVK114-MB1	97LVK114-MB1	97LVK113-MB1	97LVK113-MB1	97LVK112-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Toluene-d8	94 %	88 %	97 %	99 %	96 %
	Bromofluorobenzene	89 %	82 %	92 %	98 %	90 %
	1,2-Dichloroethane-d4	100 %	108 %	100 %	102 %	86 %
Dichlorodifluoromethane		1 U	NS	1 U	94 %	1 U
Chloromethane		1 U	NS	1 U	94 %	1 U
Vinyl Chloride		1 U	NS	1 U	99 %	1 U
Bromomethane		1 U	NS	0.7 J	95 %	1 U
Chloroethane		1 U	NS	1 U	99 %	1 U
Trichlorofluoromethane		1 U	NS	1 U	100 %	1 U
1,1-Dichloroethene		1 U	110 %	1 U	102 %	1 U
Methylene Chloride		1 J	55 * %	1 J	60 * %	2
Trans-1,2-dichloroethene		1 U	97 %	1 U	99 %	1 U
1,1-Dichloroethane		1 U	101 %	1 U	105 %	1 U
Cis-1,2-dichloroethene		1 U	98 %	1 U	103 %	1 U
2,2-Dichloropropane		1 U	92 %	1 U	105 %	1 U
Bromochloromethane		1 U	99 %	1 U	104 %	1 U
Chloroform		1 U	102 %	1 U	105 %	1 U
1,1,1-Trichloroethane		1 U	105 %	1 U	109 %	1 U
Carbon Tetrachloride		1 U	103 %	1 U	106 %	1 U
1,1-dichloropropene		1 U	105 %	1 U	104 %	1 U
Benzene		1 U	99 %	1 U	107 %	1 U
1,2-Dichloroethane		1 U	113 %	1 U	105 %	1 U
Trichloroethene		1 U	100 %	1 U	102 %	1 U
1,2-Dichloropropane		1 U	99 %	1 U	105 %	1 U
Dibromomethane		1 U	95 %	1 U	102 %	1 U
Bromodichloromethane		1 U	99 %	1 U	105 %	1 U
cis-1,3-Dichloropropene		1 U	91 %	1 U	105 %	1 U
Toluene		1 U	90 %	1 U	103 %	1 U
Trans 1,3-Dichloropropene		1 U	91 %	1 U	105 %	1 U
1,1,2-Trichloroethane		1 U	92 %	1 U	98 %	1 U
Tetrachloroethene		1 U	93 %	1 U	99 %	1 U
1,3-Dichloropropane		1 U	96 %	1 U	105 %	1 U

*= Outside of EPA CLP QC limits.

	Cust ID: VBLKEH	VBLKEH BS	VBLKEU	VBLKEU BS	VBLKDQ
	RFW#: 97LVK114-MB1	97LVK114-MB1	97LVK113-MB1	97LVK113-MB1	97LVK112-MB1
Dibromochloromethane	1 U	96 %	1 U	100 %	1 U
1,2-Dibromoethane	1 U	99 %	1 U	107 %	1 U
Chlorobenzene	1 U	90 %	1 U	101 %	1 U
1,1,1,2-Tetrachloroethane	1 U	95 %	1 U	99 %	1 U
Ethylbenzene	1 U	93 %	1 U	105 %	1 U
1,3- and 1,4-Xylene	1 U	91 %	0.1 J	102 %	1 U
1,2-Xylene	1 U	95 %	1 U	99 %	1 U
Styrene	1 U	85 %	1 U	100 %	1 U
Bromoform	1 U	90 %	1 U	99 %	1 U
Isopropylbenzene	1 U	96 %	1 U	104 %	1 U
Bromobenzene	1 U	86 %	1 U	103 %	1 U
1,2,3-Trichloropropane	1 U	96 %	1 U	104 %	1 U
1,1,2,2-Tetrachloroethane	1 U	92 %	1 U	101 %	1 U
N-propylbenzene	1 U	88 %	1 U	102 %	1 U
2-Chlorotoluene	1 U	90 %	1 U	102 %	1 U
4-Chlorotoluene	1 U	87 %	1 U	104 %	1 U
1,3,5-Trimethylbenzene	1 U	94 %	1 U	99 %	1 U
Tert-butylbenzene	1 U	91 %	1 U	100 %	1 U
1,2,4-Trimethylbenzene	1 U	93 %	1 U	102 %	1 U
Sec-butylbenzene	1 U	92 %	1 U	100 %	1 U
1,3-Dichlorobenzene	1 U	85 %	0.1 J	101 %	1 U
1,4-Dichlorobenzene	1 U	83 %	0.1 J	102 %	1 U
4-Isopropyltoluene	1 U	92 %	1 U	102 %	1 U
1,2-Dichlorobenzene	1 U	87 %	0.1 J	101 %	1 U
N-butylbenzene	1 U	88 %	1 U	105 %	1 U
1,2-Dibromo-3-chloropropane	1 U	88 %	1 U	102 %	1 U
1,2,4-Trichlorobenzene	1 U	86 %	0.2 J	97 %	1 U
Hexachlorobutadiene	1 U	94 %	0.1 J	98 %	1 U
Naphthalene	1 U	87 %	0.2 J	97 %	1 U
1,2,3-Trichlorobenzene	1 U	88 %	0.1 J	97 %	1 U

*= Outside of EPA CLP QC limits.

1-001-21

Recra LabNet - Lionville Laboratory
Volatiles by GC/MS
Report Date: 06/23/97 11:43

RFW Batch Number: 97054707 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 1a

1.00.22

	Cust ID:	P-2335-W-01-05-B		P-2335-W-02-05-B		P-2335-W-02-05-C		P-2335-W-03-05-B		P-2335-W-04-05-B		P-2335-W-05-05-B	
Sample Information	RFW#:	001		002		003		004		005		006	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	200		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Toluene-d8	92	%	94	%	112	%	91	%	112	%	94	%
	Bromofluorobenzene	88	%	87	%	108	%	86	%	103	%	90	%
	1,2-Dichloroethane-d4	113	%	119	%	136	%	119	%	102	%	113	%
			fl		fl		fl		fl		fl		fl
Dichlorodifluoromethane		200	U	1	U	1	U	1	U	1	U	1	U
Chloromethane		200	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride		200	U	1	U	1	U	1	U	1	U	1	U
Bromomethane		200	U	1	U	1	U	1	U	1	U	1	U
Chloroethane		200	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane		32	J D	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene		200	U	1	U	1	U	1	U	1	U	1	U
Methylene Chloride		800	U J D	1	U J	1	U J	3	U J	2	U J	1	U J
Trans-1,2-dichloroethene		200	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		200	U	1	U	1	U	1	U	1	U	1	U
Cis-1,2-dichloroethene		200	U	1		1		1	J	3		1	U
2,2-Dichloropropane		200	U	1	U	1	U	1	U	1	U J	1	U
Bromochloromethane		200	U	1	U	1	U	1	U	1	U	1	U
Chloroform		200	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane		200	U	1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride		200	U	1	U	1	U	1	U	1	U	1	U
1,1-dichloropropene		200	U	1	U	1	U	1	U	1	U	1	U
Benzene		1600	D	1		2		0.9	J	1		1	U
1,2-Dichloroethane		200	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene		200	U	0.4	J	0.5	J	0.5	J	1		1	U
1,2-Dichloropropane		200	U	1	U	1	U	1	U	1	U	1	U
Dibromomethane		200	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane		200	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene		200	U	1	U	1	U	1	U	1	U	1	U
Toluene		1600	D	1	U	1	U	1	U	1	U	1	U
Trans-1,3-Dichloropropene		200	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane		200	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene		200	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane		200	U	1	U	1	U	1	U	1	U	1	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 97054707 Client: [redacted] Or[redacted] 11[redacted]2040[redacted] Pa[redacted] 1b

	Cust ID:	P-2335-W-01-05-B		P-2335-W-02-05-B		P-2338-W-02-05-C		P-2335-W-03-05-B		P-2335-W-04-05-B		P-2335-W-05-05-B	
	RFW#:	001		002		003		004		005		006	
Dibromochloromethane		200	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane		200	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene		200	U	1	U	1	U	1	U	1	U	1	U
1,1,1,2-Tetrachloroethane		200	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene		650	D	1	U	1	U	1	U	1	U	1	U
1,3- and 1,4-Xylene		2700	D	1	U	1	U	1	U	1	UJ	1	U
1,2-Xylene		590	D	1	U	1	U	1	U	1	U	1	U
Styrene		200	U	1	U	1	U	1	U	1	U	1	U
Bromoform		200	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene		52	JD	1	U	1	U	1	U	1	U	1	U
Bromobenzene		200	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		200	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane		200	U	1	U	1	U	1	U	1	U	1	U
N-propylbenzene		87	J	1	U	1	U	1	U	1	U	1	U
2-Chlorotoluene		200	U	1	U	1	U	1	U	1	U	1	U
4-Chlorotoluene		200	U	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene		1200	JD	1	U	1	U	1	U	1	U	1	U
Tert-butylbenzene		200	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene		1200	D	1	U	1	U	1	U	1	U	1	U
Sec-butylbenzene		200	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		200	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene		200	U	1	U	1	U	1	U	1	U	1	U
4-Isopropyltoluene		130	JD	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene		200	U	1	U	1	U	1	U	1	U	1	U
N-butylbenzene		200	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane		200	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene		200	U	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		200	U	1	U	1	U	1	U	1	U	1	U
Naphthalene		200	D	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene		200	U	1	U	1	U	1	U	1	U	1	U

*= Outside of EPA CLP QC limits.

1.00.23

Recra LabNet - Lionville Laboratory
Volatiles by GC/MS
Report Date: 06/23/97 11:43

RFW Batch Number: 9705L707 Client: PLATTSBURGH AFB Work Order: 116040040001 Page: 2a

	Cust ID:	P-2335-W-06-05-B		TRIP BLANK 7		TRIP BLANK 8		TRIP BLANK 9		TRIP BLANK 10		VBLKEJ	
Sample Information	RFW#:	007		008		009		010		011		97LVK115-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Toluene-d8	92	%	91	%	93	%	88	%	88	%	90	%
	Bromofluorobenzene	88	%	86	%	90	%	84	%	86	%	86	%
	1,2-Dichloroethane-d4	108	%	107	%	111	%	111	%	114	%	108	%
Dichlorodifluoromethane		1	U	1	U	1	U	1	U	0.3	JB	1	U
Chloromethane		1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride		1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane		1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane		1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
Methylene Chloride		1	~~B~~ UJ	2	BJ	3	BJ	3	BJ	3	BJ	1	J
Trans-1,2-dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Cis-1,2-dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane		1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane		1	U	1	U	1	U	1	U	1	U	1	U
Chloroform		1	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride		1	U	1	U	1	U	1	U	1	U	1	U
1,1-dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U
Benzene		1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane		1	U	1	U	1	U	1	U	1	U	1	U
Dibromomethane		1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane		1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U
Toluene		1	U	1	U	0.1	J	0.1	JB	0.1	J	1	U
Trans-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene		1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane		1	U	1	U	1	U	1	U	1	U	1	U

*= Outside of EPA CLP QC limits.

Cust ID:	P-2335-W-06-05-B		TRIP BLANK 7		TRIP BLANK 8		TRIP BLANK 9		TRIP BLANK 10		VBLKEJ	
RFW#:	007		008		009		010		011		97LVK115-MB1	
Dibromochloromethane	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,1,1,2-Tetrachloroethane	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,3- and 1,4-Xylene	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Xylene	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
Bromobenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	1	U	1	U	1	U	1	U	1	U	1	U
N-propylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
2-Chlorotoluene	1	U	1	U	1	U	1	U	1	U	1	U
4-Chlorotoluene	1	U	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
Tert-butylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
Sec-butylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	0.1	J
1,4-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	0.1	J
4-Isopropyltoluene	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U
N-butylbenzene	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	1	U	1	U	1	U	1	U	1	U	0.1	J
Hexachlorobutadiene	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene	1	U	1	U	1	U	1	U	1	U	0.2	J

*= Outside of EPA CLP QC limits.

Volatiles by GC/MS

Report Date: 06/23/97 11:43

RFW Batch Number: 9705L707 Client: PLATTSBURGH AFB Work Order: 116040040001 Page: 3a

	Cust ID:	VBLKEJ BS		VBLKEI		VBLKEI BS		VBLKCV		VBLKEH		VBLKEH BS	
Sample Information	RFW#:	97LVK115-MB1		97LVK116-MB1		97LVK116-MB1		97LVK111-MB1		97LVK114-MB1		97LVK114-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Toluene-d8	104	%	92	%	94	%	93	%	94	%	88	%
	Bromofluorobenzene	101	%	86	%	87	%	87	%	89	%	82	%
	1,2-Dichloroethane-d4	128	%	105	%	107	%	94	%	100	%	108	%
Dichlorodifluoromethane		104	%	1	U	NS		1	U	1	U	NS	
Chloromethane		99	%	1	U	118	%	1	U	1	U	NS	
Vinyl Chloride		99	%	1	U	110	%	1	U	1	U	NS	
Bromomethane		97	%	1	U	96	%	1	U	1	U	NS	
Chloroethane		102	%	1	U	105	%	1	U	1	U	NS	
Trichlorofluoromethane		105	%	1	U	NS		1	U	1	U	NS	
1,1-Dichloroethene		108	%	1	U	106	%	1	U	1	U	110	%
Methylene Chloride		65 *	%	1	J	61 *	%	2		1	J	55 *	%
Trans-1,2-dichloroethene		106	%	1	U	102	%	1	U	1	U	97	%
1,1-Dichloroethane		105	%	1	U	100	%	1	U	1	U	101	%
Cis-1,2-dichloroethene		108	%	1	U	97	%	1	U	1	U	98	%
2,2-Dichloropropane		90	%	1	U	113	%	1	U	1	U	92	%
Bromochloromethane		116	%	1	U	103	%	1	U	1	U	99	%
Chloroform		110	%	1	U	107	%	1	U	1	U	102	%
1,1,1-Trichloroethane		110	%	1	U	110	%	1	U	1	U	105	%
Carbon Tetrachloride		102	%	1	U	120	%	1	U	1	U	103	%
1,1-dichloropropene		110	%	1	U	101	%	1	U	1	U	105	%
Benzene		104	%	1	U	99	%	1	U	1	U	99	%
1,2-Dichloroethane		127	%	1	U	113	%	1	U	1	U	113	%
Trichloroethene		107	%	1	U	103	%	1	U	1	U	100	%
1,2-Dichloropropane		108	%	1	U	99	%	1	U	1	U	99	%
Dibromomethane		115	%	1	U	106	%	1	U	1	U	95	%
Bromodichloromethane		109	%	1	U	110	%	1	U	1	U	99	%
cis-1,3-Dichloropropene		106	%	1	U	97	%	1	U	1	U	91	%
Toluene		102	%	1	U	99	%	1	U	1	U	90	%
Trans-1,3-Dichloropropene		106	%	1	U	105	%	1	U	1	U	91	%
1,1,2-Trichloroethane		113	%	1	U	100	%	1	U	1	U	92	%
Tetrachloroethene		107	%	1	U	99	%	1	U	1	U	93	%
1,3-Dichloropropane		116	%	1	U	104	%	1	U	1	U	96	%

* = Outside of EPA CLP QC limits.

9705L707

[redacted] Number: [redacted] Client: [redacted] Work Order: [redacted] Project: [redacted]

	Cust ID:	VBLKEJ BS		VBLKEI		VBLKEI BS		VBLKCV		VBLKEH		VBLKEH BS	
	RFW#:	97LVK115-MB1		97LVK116-MB1		97LVK116-MB1		97LVK111-MB1		97LVK114-MB1		97LVK114-MB1	
Dibromochloromethane		112	%	1	U	113	%	1	U	1	U	96	%
1,2-Dibromoethane		117	%	1	U	105	%	1	U	1	U	99	%
Chlorobenzene		102	%	1	U	103	%	1	U	1	U	90	%
1,1,1,2-Tetrachloroethane		106	%	1	U	111	%	1	U	1	U	95	%
Ethylbenzene		105	%	1	U	99	%	1	U	1	U	93	%
1,3- and 1,4-Xylene		100	%	1	U	103	%	1	U	1	U	91	%
1,2-Xylene		109	%	1	U	102	%	1	U	1	U	95	%
Styrene		97	%	1	U	102	%	1	U	1	U	85	%
Bromoform		108	%	1	U	113	%	1	U	1	U	90	%
Isopropylbenzene		113	%	1	U	100	%	1	U	1	U	96	%
Bromobenzene		105	%	1	U	93	%	1	U	1	U	86	%
1,2,3-Trichloropropane		127	* %	1	U	97	%	1	U	1	U	96	%
1,1,2,2-Tetrachloroethane		118	%	1	U	90	%	1	U	1	U	92	%
N-propylbenzene		103	%	1	U	92	%	1	U	1	U	88	%
2-Chlorotoluene		107	%	1	U	93	%	1	U	1	U	90	%
4-Chlorotoluene		104	%	1	U	101	%	1	U	1	U	87	%
1,3,5-Trimethylbenzene		113	* %	1	U	89	%	1	U	1	U	94	%
Tert-butylbenzene		113	%	1	U	89	%	1	U	1	U	91	%
1,2,4-Trimethylbenzene		110	%	1	U	97	%	1	U	1	U	93	%
Sec-butylbenzene		110	%	1	U	89	%	1	U	1	U	92	%
1,3-Dichlorobenzene		100	%	1	U	102	%	1	U	1	U	85	%
1,4-Dichlorobenzene		98	%	1	U	102	%	1	U	1	U	83	%
4-Isopropyltoluene		110	%	1	U	89	%	1	U	1	U	92	%
1,2-Dichlorobenzene		106	%	1	U	99	%	1	U	1	U	87	%
N-butylbenzene		108	%	1	U	97	%	1	U	1	U	88	%
1,2-Dibromo-3-chloropropane		113	%	1	U	97	%	1	U	1	U	88	%
1,2,4-Trichlorobenzene		106	%	1	U	100	%	1	U	1	U	86	%
Hexachlorobutadiene		115	%	1	U	92	%	1	U	1	U	94	%
Naphthalene		114	%	1	U	100	%	1	U	1	U	87	%
1,2,3-Trichlorobenzene		111	%	1	U	98	%	1	U	1	U	88	%

*= Outside of EPA CLP QC limits.

1.00.27

Recra LabNet - Lionville Laboratory
Volatiles by GC/MS
Report Date: 06/23/97 11:50

RFW Batch Number: 9705L720 Client: PLATTSBURGH AFB Work Order: 116040040001 Page: 1a

1.00:28

	Cust ID:	MW-30-006-B	MW-30-006-B	MW-30-006-B	MW-30-002-B	MW-30-004-B	MW-30-007-B
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	10.0
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Toluene-d8	85 %	103 %	92 %	106 %	93 %	95 %
	Bromofluorobenzene	76 %	94 %	81 %	94 %	82 %	88 %
	1,2-Dichloroethane-d4	108 %	131 %	115 %	128 %	110 %	125 %
Dichlorodifluoromethane		1 U	NS %	NS %	1 U	1 U	10 U
Chloromethane		1 U	125 %	121 %	1 U	1 U	10 U
Vinyl Chloride		1 U	121 %	117 %	1 U	1 U	10 U
Bromomethane		1 U	115 %	108 %	1 U	1 U	10 U
Chloroethane		1 U	109 %	111 %	1 U	1 U	10 U
Trichlorofluoromethane		1 U	NS %	NS %	1 UJ	1 U	10 U
1,1-Dichloroethene		1 U	114 %	106 %	1 U	1 U	10 U
Methylene Chloride		~~1~~ ~~U~~UJ	72 * %	68 * %	1 ~~U~~UJ	2 ~~U~~UJ	11 ~~U~~UJ
Trans-1,2-dichloroethene		1 U	107 %	107 %	1 U	1 U	1 JD
1,1-Dichloroethane		1 U	104 %	109 %	1 U	1 U	10 U
Cis-1,2-dichloroethene		1 U	106 %	100 %	0.5 J	1 J	10 D
2,2-Dichloropropane		1 U	124 %	131 * %	1 U	1 U	10 U
Bromochloromethane		1 U	113 %	112 %	1 U	1 U	10 U
Chloroform		1 U	118 %	117 %	1 U	1 U	10 U
1,1,1-Trichloroethane		1 U	133 * %	129 * %	1 U	1 U	10 U
Carbon Tetrachloride		1 UJ	144 * %	144 * %	1 U	1 UJ	10 UJ
1,1-dichloropropene		1 U	114 %	110 %	1 U	1 U	10 U
Benzene		1 U	102 %	103 %	6	28	300 D
1,2-Dichloroethane		1 U	126 * %	128 * %	1 U	1 U	10 U
Trichloroethene		1 U	113 %	111 %	0.6 J	0.2 J	10 U
1,2-Dichloropropane		1 U	101 %	100 %	1 U	1 U	10 U
Dibromomethane		1 U	115 %	113 %	1 U	1 U	10 U
Bromodichloromethane		1 U	112 %	114 %	1 U	1 U	10 U
cis-1,3-Dichloropropene		1 U	97 %	99 %	1 U	1 U	10 U
Toluene		1 U	101 %	101 %	1 U	1 U	29 D
Trans-1,3-Dichloropropene		1 U	105 %	108 %	1 U	1 U	10 U
1,1,2-Trichloroethane		1 U	102 %	99 %	1 U	1 U	10 U
Tetrachloroethene		1 U	114 %	108 %	1 U	1 U	10 U
1,3-Dichloropropane		1 U	106 %	106 %	1 U	1 U	10 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 97054720 Client: [redacted] Work Order: [redacted] Page [redacted]

Cust ID:	MW-30-006-B	MW-30-006-B	MW-30-006-B	MW-30-002-B	MW-30-004-B	MW-30-007-B	
RFW#:	001	001 MS	001 MSD	002	003	004	
Dibromochloromethane	1 U	117 %	117 %	1 U	1 U	10 U	
1,2-Dibromoethane	1 U	109 %	113 %	1 U	1 U	10 U	
Chlorobenzene	1 U	100 %	102 %	1 U	1 U	10 U	
1,1,1,2-Tetrachloroethane	1 U	116 %	116 %	1 U	1 U	10 U	
Ethylbenzene	1 U	102 %	102 %	1 U	1 U	41 D	
1,3- and 1,4-Xylene	1 U	100 %	100 %	1 U	1 U	35 D	
1,2-Xylene	1 U	103 %	101 %	1 U	1 U	55 D	
Styrene	1 U	92 %	94 %	1 U	1 U	10 U	
Bromoform	1 U	115 %	116 %	1 U	1 U	10 U	
Isopropylbenzene	1 U	106 %	104 %	1 U	1 U	2 J D	
Bromobenzene	1 U	89 %	86 %	1 U	1 U	10 U	
1,2,3-Trichloropropane	1 U	104 %	98 %	1 U	1 U	10 U	
1,1,2,2-Tetrachloroethane	1 U	89 %	85 %	1 U	1 U	10 U	
N-propylbenzene	1 U	91 %	89 %	1 U	1 U	1 J D	
2-Chlorotoluene	1 U	96 %	91 %	1 U	1 U	10 U	
4-Chlorotoluene	1 U	95 %	94 %	1 U	1 U	10 U	
1,3,5-Trimethylbenzene	1 U	96 %	89 %	1 U	1 U	2 J D	
Tert-butylbenzene	1 U	99 %	90 %	1 U	1 U	10 U	
1,2,4-Trimethylbenzene	1 U	98 %	95 %	1 U	1 U	10 U	
Sec-butylbenzene	1 U	96 %	90 %	1 U	1 U	10 U	
1,3-Dichlorobenzene	1 U	99 %	97 %	1 U	1 U	10 U	
1,4-Dichlorobenzene	1 U	96 %	101 %	1 U	1 U	10 U	
4-Isopropyltoluene	1 U	94 %	90 %	1 U	1 U	10 U	
1,2-Dichlorobenzene	1 U	99 %	97 %	1 U	1 U	10 U	
N-butylbenzene	1 U	98 %	96 %	1 U	1 U	10 U	
1,2-Dibromo-3-chloropropane	1 U	94 %	96 %	1 U	1 U	10 U	
1,2,4-Trichlorobenzene	1 U	102 %	101 %	1 U	1 U	10 U	
Hexachlorobutadiene	1 U	99 %	102 %	1 U	1 U	10 U	
Naphthalene	1 U	97 %	101 %	1 U	1 U	10 U	
1,2,3-Trichlorobenzene	1 U	101 %	99 %	1 U	1 U	10 U	

*= Outside of EPA CLP QC limits.

62100129

1:00:30

	Cust ID:	MW-30-005-B	MW-30-005-E	MW-30-005-F	TRIP BLANKS 11	TRIP BLANKS 12	TRIP BLANKS 13
Sample Information	RFW#:	005	006	007	008	009	010
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	200	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Toluene-d8	95 %	90 %	90 %	88 %	92 %	90 %
	Bromofluorobenzene	84 %	78 %	80 %	81 %	80 %	83 %
	1,2-Dichloroethane-d4	118 %	112 %	113 %	118 %	115 %	115 %
Dichlorodifluoromethane		200 U	1 U	1 U	1 U	1 U	1 U
Chloromethane		200 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride		200 U	1 U	1 U	1 U	1 U	1 U
Bromomethane		200 U	1 U	1 U	1 U	1 U	1 U
Chloroethane		200 U	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane		200 U	1 U	1 U	1 U	0.6 JB	0.2 JB
1,1-Dichloroethene		200 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride		320 UJ	2 BJ	2 BJ	2 BJ	2 BJ	2 BJ
Trans-1,2-dichloroethene		200 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane		200 U	1 U	1 U	1 U	1 U	1 U
Cis-1,2-dichloroethene		200 U	1 U	1 U	1 U	1 U	1 U
2,2-Dichloropropane		200 U	1 U	1 U	1 U	1 U	1 U
Bromochloromethane		200 U	1 U	1 U	1 U	1 U	1 U
Chloroform		200 U	0.3 JB	0.3 JB	1 U	1 U	1 U
1,1,1-Trichloroethane		200 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride		200 UJ	1 U	1 UJ	1 UJ	1 U	1 U
1,1-dichloropropene		200 U	1 U	1 U	1 U	1 U	1 U
Benzene		4100 D	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane		200 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene		200 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane		200 U	1 U	1 U	1 U	1 U	1 U
Dibromomethane		200 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane		200 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene		200 U	1 U	1 U	1 U	1 U	1 U
Toluene		280 D	1 U	1 U	1 U	1 U	1 U
Trans-1,3-Dichloropropene		200 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane		200 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene		200 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichloropropane		200 U	1 U	1 U	1 U	1 U	1 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9705L720 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 2b

Cust ID:	MW-30-005-B		MW-30-005-E		MW-30-005-F		TRIP BLANKS		TRIP BLANKS		TRIP BLANKS	
RFW#:	005		006		007		11 008		12 009		13 010	
Dibromochloromethane	200	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane	200	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	200	U	1	U	1	U	1	U	1	U	1	U
1,1,1,2-Tetrachloroethane	200	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	990	JD	1	U	1	U	1	U	1	U	1	U
1,3- and 1,4-Xylene	1600	JD	1	U	1	U	1	U	1	U	1	U
1,2-Xylene	110	JD	1	U	1	U	1	U	1	U	1	U
Styrene	200	U	1	U	1	U	1	U	1	U	1	U
Bromoform	200	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	55	JD	1	U	1	U	1	U	1	U	1	U
Bromobenzene	200	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane	200	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	200	U	1	U	1	U	1	U	1	U	1	U
N-propylbenzene	95	JD	1	U	1	U	1	U	1	U	1	U
2-Chlorotoluene	200	U	1	U	1	U	1	U	1	U	1	U
4-Chlorotoluene	200	U	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	170	JD	1	U	1	U	1	U	1	U	1	U
Tert-butylbenzene	200	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	650	JD	1	U	1	U	1	U	1	U	1	U
Sec-butylbenzene	200	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	200	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	200	U	1	U	1	U	1	U	1	U	1	U
4-Isopropyltoluene	200	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	200	U	1	U	1	U	1	U	1	U	1	U
N-butylbenzene	200	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	200	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	200	U	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene	200	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	120	JD	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene	200	U	1	U	1	U	1	U	1	U	1	U

*= Outside of EPA CLP QC limits.

1-00131

1:00:32

Sample Information	Cust ID:	TRIP BLANKS 14	VBLKET	VBLKET BS	VBLKEK	VBLKEK BS
	RFW#:	011	97LVK118-MB1	97LVK118-MB1	97LVK117-MB1	97LVK117-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Toluene-d8	89 %	96 %	95 %	94 %	98 %
	Bromofluorobenzene	80 %	88 %	86 %	88 %	92 %
	1,2-Dichloroethane-d4	112 %	122 %	119 %	116 %	116 %
Dichlorodifluoromethane		1 U	1 U	NS	1 U	101 %
Chloromethane		1 U	1 U	125 %	1 U	86 %
Vinyl Chloride		1 U	1 U	114 %	1 U	92 %
Bromomethane		1 U	1 U	102 %	0.3 J	94 %
Chloroethane		1 U	1 U	108 %	1 U	94 %
Trichlorofluoromethane		0.2 JB	1 U	NS	1 U	116 %
1,1-Dichloroethene		1 U	1 U	104 %	1 U	105 %
Methylene Chloride		2 BJ	1 J	61 * %	1 J	60 * %
Trans-1,2-dichloroethene		1 U	1 U	103 %	1 U	98 %
1,1-Dichloroethane		1 U	1 U	103 %	1 U	98 %
Cis-1,2-dichloroethene		1 U	1 U	98 %	1 U	102 %
2,2-Dichloropropane		1 U	1 U	131 * %	1 U	100 %
Bromochloromethane		1 U	1 U	107 %	1 U	109 %
Chloroform		1 U	1 U	112 %	1 U	108 %
1,1,1-Trichloroethane		1 U	1 U	123 %	1 U	112 %
Carbon Tetrachloride		1 U	1 U	139 * %	1 U	113 %
1,1-dichloropropene		1 U	1 U	106 %	1 U	108 %
Benzene		1 U	1 U	100 %	1 U	99 %
1,2-Dichloroethane		1 U	1 U	120 %	1 U	119 %
Trichloroethene		1 U	1 U	106 %	1 U	106 %
1,2-Dichloropropane		1 U	1 U	96 %	1 U	96 %
Dibromomethane		1 U	1 U	110 %	1 U	108 %
Bromodichloromethane		1 U	1 U	110 %	1 U	104 %
cis-1,3-Dichloropropene		1 U	1 U	94 %	1 U	97 %
Toluene		1 U	1 U	97 %	1 U	100 %
Trans-1,3-Dichloropropene		1 U	1 U	104 %	1 U	96 %
1,1,2-Trichloroethane		1 U	1 U	93 %	1 U	102 %
Tetrachloroethene		1 U	1 U	106 %	1 U	113 %
1,3-Dichloropropane		1 U	1 U	99 %	1 U	104 %

*= Outside of EPA CLP QC limits.

	Cust ID: TRIP BLANKS		VBLKET		VBLKET BS		VBLKEK		VBLKEK BS	
	RFW#: 14 011		97LVK118-MB1		97LVK118-MB1		97LVK117-MB1		97LVK117-MB1	
Dibromochloromethane	1	U	1	U	113	%	1	U	108	%
1,2-Dibromoethane	1	U	1	U	103	%	1	U	106	%
Chlorobenzene	1	U	1	U	98	%	1	U	100	%
1,1,1,2-Tetrachloroethane	1	U	1	U	110	%	1	U	109	%
Ethylbenzene	1	U	1	U	98	%	1	U	100	%
1,3- and 1,4-Xylene	1	U	1	U	97	%	1	U	101	%
1,2-Xylene	1	U	1	U	97	%	1	U	106	%
Styrene	1	U	1	U	98	%	1	U	93	%
Bromoform	1	U	1	U	112	%	1	U	105	%
Isopropylbenzene	1	U	1	U	98	%	1	U	108	%
Bromobenzene	1	U	1	U	84	%	1	U	95	%
1,2,3-Trichloropropane	1	U	1	U	91	%	1	U	110	%
1,1,2,2-Tetrachloroethane	1	U	1	U	81	%	1	U	99	%
N-propylbenzene	1	U	1	U	86	%	1	U	98	%
2-Chlorotoluene	1	U	1	U	85	%	1	U	103	%
4-Chlorotoluene	1	U	1	U	87	%	1	U	99	%
1,3,5-Trimethylbenzene	1	U	1	U	84	%	1	U	104	%
Tert-butylbenzene	1	U	1	U	83	%	1	U	108	%
1,2,4-Trimethylbenzene	1	U	1	U	89	%	1	U	101	%
Sec-butylbenzene	1	U	1	U	83	%	1	U	103	%
1,3-Dichlorobenzene	1	U	1	U	93	%	1	U	100	%
1,4-Dichlorobenzene	1	U	1	U	92	%	1	U	101	%
4-Isopropyltoluene	1	U	1	U	83	%	1	U	100	%
1,2-Dichlorobenzene	1	U	1	U	90	%	1	U	100	%
N-butylbenzene	1	U	1	U	91	%	1	U	105	%
1,2-Dibromo-3-chloropropane	1	U	1	U	89	%	1	U	96	%
1,2,4-Trichlorobenzene	1	U	1	U	91	%	1	U	107	%
Hexachlorobutadiene	1	U	1	U	91	%	1	U	116	%
Naphthalene	1	U	1	U	92	%	1	U	101	%
1,2,3-Trichlorobenzene	1	U	1	U	90	%	1	U	108	%

*= Outside of EPA CLP QC limits.

1-00-33

SVOCs

Roora LabNet - Lionville Laboratory
Semivolatiles by GC/MS, HSL List
Report Date: 06/23/97 16:34

RFW Batch Number: 9705L675 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 1a

	Cust ID:	P-2763-W-01-05-B		P-2763-W-02-05-B		P-2763-W-02-05-C		P-2774-W-03-05-B		P-2774A-W-01-05-B		P-2774A-W-02-05-B	
Sample Information	RFW#:	001		002		003		004		005		006	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Nitrobenzene-d5	61	%	59	%	61	%	65	%	65	%	64	%
	2-Fluorobiphenyl	63	%	59	%	64	%	65	%	58	%	66	%
	p-Terphenyl-d14	56	%	63	%	70	%	35 *	%	13 *	%	45	%
	Phenol-d5	64	%	60	%	60	%	63	%	70	%	69	%
	2-Fluorophenol	56	%	53	%	54	%	58	%	64	%	64	%
	2,4,6-Tribromophenol	56	%	53	%	49	%	39	%	71	%	67	%
			fl		fl		fl		fl		fl		fl
Phenol		10	U	10	U	10	U	10	U	11		10	U
bis(2-Chloroethyl)ether		10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
2-Chlorophenol		10	U	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene		10	U	10	U	10	U	10	U	3	J	10	U
1,4-Dichlorobenzene		10	U	10	U	10	U	10	U	4	J	10	U
Benzyl alcohol		20	U	20	U	20	U	20	U	20	U	20	U
1,2-Dichlorobenzene		10	U	10	U	10	U	10	U	6	J	10	U
2-Methylphenol		10	U	10	U	10	U	10	U	10		10	U
bis(2-Chloroisopropyl)ether		10	U	10	U	10	U	10	U	10	U	10	U
4-Methylphenol		10	U	10	U	10	U	10	U	110		10	U
N-Nitroso-Di-n-propylamine		10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Nitrobenzene		10	U	10	U	10	U	10	U	10	U	10	U
Isophorone		10	U	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol		10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol		10	UR	10	UR	10	UR	10	UR	42	J	10	UR
Benzoic acid		50	UR	50	UR	50	UR	50	UR	50	UR	50	UR
bis(2-Chloroethoxy)methane		10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol		10	U	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene		10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene		10	U	10	U	10	U	10	U	4	J	10	U
4-Chloroaniline		20	U	20	U	20	U	20	U	20	U	20	U
Hexachlorobutadiene		10	U	10	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol		20	U	20	U	20	U	20	U	20	U	20	U
2-Methylnaphthalene		10	U	10	U	10	U	10	U	6	J	10	U
Hexachlorocyclopentadiene		10	UR	10	UR	10	UR	10	UR	10	UR	10	UR

*= Outside of EPA CLP QC limits.

014

Cust ID:	P-2763-W-01-05-B		P-2763-W-02-05-B		P-2763-W-02-05-C		P-2774-W-03-05-B		P-2774A-W-01-05-B		P-2774A-W-02-05-B	
RFW#:	001		002		003		004		005		006	
2,4,6-Trichlorophenol	10	U	10	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	50	U	50	U	50	U	50	U	50	U	50	U
2-Chloronaphthalene	10	U	10	U	10	U	10	U	10	U	10	U
2-Nitroaniline	50	U	50	U	50	U	50	U	50	U	50	U
Dimethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	10	U	10	U	10	U	10	U	10	U	10	U
3-Nitroaniline	50	U	50	U	50	U	50	U	50	U	50	U
Acenaphthene	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ
4-Nitrophenol	50	U	50	U	50	U	50	U	50	U	50	U
Dibenzofuran	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	10	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline	50	U	50	U	50	U	50	U	50	U	50	U
4,6-Dinitro-2-methylphenol	50	U	50	U	50	U	50	U	50	U	50	U
N-Nitrosodiphenylamine (1)	10	U	10	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	50	U	50	U	50	U	50	U	50	U	50	U
Phenanthrene	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-Butylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U	10	U	10	U	10	U
Butylbenzylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	20	U	20	U	20	U	20	U	20	U	20	U
Benzo(a)anthracene	10	U	10	U	10	U	10	U	10	U	10	U
Chrysene	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	19	→U	24	→U	10	U	10	U	10→	→U	10	U
Di-n-Octyl phthalate	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(a)pyrene	10	U	10	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	10	U	10	U	10	U
Dibenzo(a,h)anthracene	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	10	U	10	U	10	U	10	U	10	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

015

	Cust ID:	P-2774B-W-01 -05-B		P-2774B-W-02 -05-B		P-2774C-W-01 -05-B		P-2774-W-00-00-E		P-2774C-W-02 -05-B		SBLKRA	
Sample	RFW#:	007		008		009		010		012		97LK0897-MB1	
Information	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
	Nitrobenzene-d5	57	%	57	%	59	%	49	%	54	%	61	%
Surrogate	2-Fluorobiphenyl	56	%	59	%	58	%	44	%	53	%	50	%
Recovery	p-Terphenyl-d14	77	%	59	%	41 *	%	68	%	42	%	82	%
	Phenol-d5	63	%	64	%	60	%	53	%	57	%	64	%
	2-Fluorophenol	58	%	59	%	52	%	46	%	45	%	61	%
	2,4,6-Tribromophenol	63	%	54	%	52	%	57	%	58	%	63	%
Phenol		10	U	10	U	10	U	11	U	10	U	10	U
bis(2-Chloroethyl)ether		10	UJ	10	UJ	10	UJ	11	U	10	U	10	U
2-Chlorophenol		10	U	10	U	10	U	11	U	10	U	10	U
1,3-Dichlorobenzene		10	U	10	U	10	U	11	U	10	U	10	U
1,4-Dichlorobenzene		10	U	10	U	10	U	11	U	10	U	10	U
Benzyl alcohol		20	U	20	U	20	U	22	U	20	U	20	U
1,2-Dichlorobenzene		10	U	10	U	10	U	11	U	10	U	10	U
2-Methylphenol		10	U	10	U	10	U	11	U	10	U	10	U
bis(2-Chloroisopropyl)ether		10	U	10	U	10	U	11	U	10	U	10	U
4-Methylphenol		10	U	10	U	10	U	11	U	10	U	10	U
N-Nitroso-Di-n-propylamine		10	U	10	U	10	U	11	U	10	U	10	U
Hexachloroethane		10	U	10	U	10	U	11	U	10	U	10	U
Nitrobenzene		10	U	10	U	10	U	11	U	10	U	10	U
Isophorone		10	U	10	U	10	U	11	U	10	U	10	U
2-Nitrophenol		10	U	10	U	10	U	11	U	10	U	10	U
2,4-Dimethylphenol		10	UR	10	UR	10	UR	11	U	10	U	10	U
Benzoic acid		50	UR	50	UR	50	UR	55	U	50	U	50	U
bis(2-Chloroethoxy)methane		10	U	10	U	10	U	11	U	10	U	10	U
2,4-Dichlorophenol		10	U	10	U	10	U	11	U	10	U	10	U
1,2,4-Trichlorobenzene		10	U	10	U	10	U	11	U	10	U	10	U
Naphthalene		10	U	10	U	10	U	11	U	10	U	10	U
4-Chloroaniline		20	U	20	U	20	U	22	U	20	U	20	U
Hexachlorobutadiene		10	U	10	U	10	U	11	U	10	U	10	U
4-Chloro-3-methylphenol		20	U	20	U	20	U	22	U	20	U	20	U
2-Methylnaphthalene		10	U	10	U	10	U	11	U	10	U	10	U
Hexachlorocyclopentadiene		10	UR	10	UR	10	UR	11	U	10	U	10	U

* = Outside of EPA CLP QC limits.

RFW Batch Number: 9705L675 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 2b

Cust ID:	P-2774B-W-01 -05-B		P-2774B-W-02 -05-B		P-2774C-W-01 -05-B		P-2774-W-00- 00-E		P-2774C-W-02 -05-B		SBLKRA	
RFW#:	007		008		009		010		012		97LK0897-MB1	
2,4,6-Trichlorophenol	10	U	10	U	10	U	11	U	10	U	10	U
2,4,5-Trichlorophenol	50	U	50	U	50	U	55	U	50	U	50	U
2-Chloronaphthalene	10	U	10	U	10	U	11	U	10	U	10	U
2-Nitroaniline	50	U	50	U	50	U	55	U	50	U	50	U
Dimethylphthalate	10	U	10	U	10	U	11	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U	11	U	10	U	10	U
2,6-Dinitrotoluene	10	U	10	U	10	U	11	U	10	U	10	U
3-Nitroaniline	50	U	50	U	50	U	55	U	50	U	50	U
Acenaphthene	10	U	10	U	10	U	11	U	10	U	10	U
2,4-Dinitrophenol	50	UJ	50	UJ	50	UJ	55	UJ	50	U	50	U
4-Nitrophenol	50	U	50	U	50	U	55	U	50	U	50	U
Dibenzofuran	10	U	10	U	10	U	11	U	10	U	10	U
2,4-Dinitrotoluene	10	U	10	U	10	U	11	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U	11	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	10	U	10	U	11	U	10	U	10	U
Fluorene	10	U	10	U	10	U	11	U	10	U	10	U
4-Nitroaniline	50	U	50	U	50	U	55	U	50	U	50	U
4,6-Dinitro-2-methylphenol	50	U	50	U	50	U	55	UJ	50	U	50	U
N-Nitrosodiphenylamine (1)	10	U	10	U	10	U	11	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	10	U	10	U	11	U	10	U	10	U
Hexachlorobenzene	10	U	10	U	10	U	11	U	10	U	10	U
Pentachlorophenol	50	U	50	U	50	U	55	U	50	U	50	U
Phenanthrene	10	U	10	U	10	U	11	U	10	U	10	U
Anthracene	10	U	10	U	10	U	11	U	10	U	10	U
Di-n-Butylphthalate	10	U	10	U	10	U	11	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	11	U	10	U	10	U
Pyrene	10	U	10	U	10	U	11	U	10	U	10	U
Butylbenzylphthalate	10	U	10	U	10	U	11	U	10	U	10	U
3,3'-Dichlorobenzidine	20	U	20	U	20	U	22	U	20	U	20	U
Benzo(a)anthracene	10	U	10	U	10	U	11	U	10	U	10	U
Chrysene	10	U	10	U	10	U	11	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	~~10~~ JB-U		6	JB	~~10~~ JB-U		5	J
Di-n-Octyl phthalate	10	U	10	U	10	U	11	U	10	U	10	U
Benzo(b)fluoranthene	10	U	10	U	10	U	11	U	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U	10	U	11	U	10	U	10	U
Benzo(a)pyrene	10	U	10	U	10	U	11	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	11	U	10	U	10	U
Dibenzo(a,h)anthracene	10	U	10	U	10	U	11	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	10	U	10	U	11	U	10	U	10	U

(1) - Cannot be separated from Diphenylamine. * = Outside of EPA CLP QC limits.

017

		Cust ID:	SBLKRA BS	SBLKRA BSD
Sample Information		RFW#:	97LE0897-MB1	97LE0897-MB1
		Matrix:	WATER	WATER
		D.F.:	1.00	1.00
		Units:	UG/L	UG/L
Surrogate Recovery	Nitrobenzene-d5		70 %	58 %
	2-Fluorobiphenyl		70 %	61 %
	p-Terphenyl-d14		81 %	79 %
	Phenol-d5		72 %	59 %
	2-Fluorophenol		67 %	53 %
	2,4,6-Tribromophenol		81 %	70 %
Phenol			75 %	62 %
bis(2-Chloroethyl)ether			72 %	59 %
2-Chlorophenol			76 %	64 %
1,3-Dichlorobenzene			72 %	60 %
1,4-Dichlorobenzene			72 %	60 %
Benzyl alcohol			84 %	72 %
1,2-Dichlorobenzene			73 %	61 %
2-Methylphenol			76 %	63 %
bis(2-Chloroisopropyl)ether			73 %	62 %
4-Methylphenol			73 %	63 %
N-Nitroso-Di-n-propylamine			81 %	72 %
Hexachloroethane			76 %	61 %
Nitrobenzene			75 %	65 %
Isophorone			61 %	55 %
2-Nitrophenol			76 %	68 %
2,4-Dimethylphenol			51 %	41 * %
Benzoic acid			13 * %	9 * %
bis(2-Chloroethoxy)methane			81 %	72 %
2,4-Dichlorophenol			75 %	68 %
1,2,4-Trichlorobenzene			74 %	64 %
Naphthalene			74 %	64 %
4-Chloroaniline			70 %	62 %
Hexachlorobutadiene			80 %	68 %
4-Chloro-3-methylphenol			83 %	73 %
2-Methylnaphthalene			78 %	67 %
Hexachlorocyclopentadiene			14 * %	15 * %

* = Outside of EPA CLP QC limits.

018

Cust ID: SBLKRA BS SBLKRA BSD

RFW#: 97LE0897-MB1 97LE0897-MB1

2,4,6-Trichlorophenol	81	%	76	%
2,4,5-Trichlorophenol	81	%	76	%
2-Chloronaphthalene	77	%	70	%
2-Nitroaniline	88	%	82	%
Dimethylphthalate	82	%	78	%
Acenaphthylene	78	%	70	%
2,6-Dinitrotoluene	85	%	81	%
3-Nitroaniline	85	%	80	%
Acenaphthene	79	%	72	%
2,4-Dinitrophenol	58	%	58	%
4-Nitrophenol	88	%	85	%
Dibenzofuran	82	%	74	%
2,4-Dinitrotoluene	87	%	82	%
Diethylphthalate	85	%	78	%
4-Chlorophenyl-phenylether	80	%	73	%
Fluorene	82	%	75	%
4-Nitroaniline	90	%	82	%
4,6-Dinitro-2-methylphenol	85	%	85	%
N-Nitrosodiphenylamine (1)	80	%	74	%
4-Bromophenyl-phenylether	73	%	68	%
Hexachlorobenzene	84	%	78	%
Pentachlorophenol	76	%	75	%
Phenanthrene	83	%	76	%
Anthracene	82	%	75	%
Di-n-Butylphthalate	87	%	79	%
Fluoranthene	85	%	73	%
Pyrene	83	%	84	%
Butylbenzylphthalate	88	%	87	%
3,3'-Dichlorobenzidine	79	%	71	%
Benzo(a)anthracene	82	%	78	%
Chrysene	84	%	78	%
bis(2-Ethylhexyl)phthalate	86	%	85	%
Di-n-Octyl phthalate	96	%	96	%
Benzo(b)fluoranthene	86	%	80	%
Benzo(k)fluoranthene	79	%	75	%
Benzo(a)pyrene	80	%	75	%
Indeno(1,2,3-cd)pyrene	76	%	73	%
Dibenzo(a,h)anthracene	78	%	75	%
Benzo(g,h,i)perylene	73	%	71	%

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

019

Recra LabNet - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9705L707 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 1a

Report Date: 06/23/97 15:36

	Cust ID:	P-2335-W-01-05-B	P-2335-W-01-05-B	P-2335-W-01-05-B	P-2335-W-02-05-B	P-2335-W-02-05-C	P-2335-W-03-05-B
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Nitrobenzene-d5	60 %	61 %	58 %	61 %	54 %	54 %
	2-Fluorobiphenyl	47 %	54 %	57 %	61 %	54 %	54 %
	p-Terphenyl-d14	26 * %	23 * %	44 %	50 %	38 * %	62 %
	Phenol-d5	71 %	69 %	63 %	64 %	62 %	58 %
	2-Fluorophenol	65 %	65 %	60 %	56 %	57 %	53 %
	2,4,6-Tribromophenol	79 %	73 %	70 %	57 %	62 %	55 %
Phenol		10	70 %	61 %	10 U	10 U	10 U
bis(2-Chloroethyl)ether		10 U	65 %	57 %	10 U	10 U	10 U
2-Chlorophenol		10 U	69 %	61 %	10 U	10 U	10 U
1,3-Dichlorobenzene		10 UR	41 %	37 %	10 UR	10 UR	10 UR
1,4-Dichlorobenzene		10 U	43 %	37 %	10 U	10 U	10 U
Benzyl alcohol		20 U	72 %	63 %	20 U	20 U	20 U
1,2-Dichlorobenzene		10 UR	45 %	39 * %	10 UR	10 UR	10 UR
2-Methylphenol		10 U	72 %	66 %	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	48 %	45 %	10 U	10 U	10 U
4-Methylphenol		18	73 %	64 %	10 U	10 U	10 U
N-Nitroso-Di-n-propylamine		10 U	72 %	65 %	10 U	10 U	10 U
Hexachloroethane		10 UM	261 * %	261 * %	10 U	10 U	10 U
Nitrobenzene		10 U	68 %	63 %	10 U	10 U	10 U
Isophorone		2 J	55 %	47 %	10 U	10 U	10 U
2-Nitrophenol		10 U	70 %	63 %	10 U	10 U	10 U
2,4-Dimethylphenol		10 UR	78 %	68 %	10 UR	10 UR	10 UR
Benzoic acid		50 UR	93 %	75 %	50 UR	50 UR	50 UR
bis(2-Chloroethoxy)methane		10 U	71 %	63 %	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	71 %	61 %	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 UMR	37 * %	36 * %	10 UR	10 UR	10 UR
Naphthalene		160 MJ	57 %	46 * %	10 UR	10 UR	10 UR
4-Chloroaniline		20 U	56 %	46 %	20 U	20 U	20 U
Hexachlorobutadiene		10 UM	21 * %	28 %	10 U	10 U	10 U
4-Chloro-3-methylphenol		20 U	72 %	63 %	20 U	20 U	20 U
2-Methylnaphthalene		59	52 %	46 %	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 UMR	3 * %	5 * %	10 UR	10 UR	10 UR

*= Outside of EPA CLP QC limits.

020

RFW Batch Number: 97054707 Client: PLATTSBURGH AFB Work Order: 116041004001 Page: 10

	Cust ID:	P-2335-W-01-05-B	P-2335-W-01-05-B	P-2335-W-01-05-B	P-2335-W-02-05-B	P-2335-W-02-05-C	P-2335-W-03-05-B
	RFW#:	001	001 MS	001 MSD	002	003	004
2,4,6-Trichlorophenol		10 U	73 %	70 %	10 U	10 U	10 U
2,4,5-Trichlorophenol		50 U	71 %	65 %	50 U	50 U	50 U
2-Chloronaphthalene		10 ~~UN~~ R	44 * %	45 * %	10 UR	10 UR	10 UR
2-Nitroaniline		50 U	73 %	67 %	50 U	50 U	50 U
Dimethylphthalate		10 U	73 %	66 %	10 U	10 U	10 U
Acenaphthylene		10 U	52 %	49 %	10 U	10 U	10 U
2,6-Dinitrotoluene		10 U	77 %	69 %	10 U	10 U	10 U
3-Nitroaniline		50 U	72 %	61 %	50 U	50 U	50 U
Acenaphthene		10 U	51 %	52 %	10 U	10 U	10 U
2,4-Dinitrophenol		50 U	112 %	100 %	50 U	50 U	50 U
4-Nitrophenol		50 U	71 %	64 %	50 U	50 U	50 U
Dibenzofuran		10 U	52 %	54 %	10 U	10 U	10 U
2,4-Dinitrotoluene		10 U	82 %	72 %	10 U	10 U	10 U
Diethylphthalate		10 U	69 %	61 %	10 U	10 U	10 U
4-Chlorophenyl-phenylether		10 UM	41 * %	47 * %	10 U	10 U	10 U
Fluorene		10 U	51 %	54 %	10 U	10 U	10 U
4-Nitroaniline		50 U	83 %	67 %	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol		50 U	99 %	93 %	50 U	50 U	50 U
N-Nitrosodiphenylamine (1)		10 U	70 %	68 %	10 U	10 U	10 U
4-Bromophenyl-phenylether		10 UM	38 * %	47 * %	10 U	10 U	10 U
Hexachlorobenzene		10 UM	41 * %	53 %	10 U	10 U	10 U
Pentachlorophenol		1 J	65 %	65 %	50 U	50 U	50 U
Phenanthrene		10 UM	46 * %	55 %	10 U	10 U	10 U
Anthracene		10 UM	43 * %	53 %	10 U	10 U	10 U
Di-n-Butylphthalate		10 U	46 %	55 %	10 U	10 U	10 U
Fluoranthene		10 UM	41 * %	52 %	10 U	10 U	10 U
Pyrene		10 UM	44 * %	54 %	10 U	10 U	10 U
Butylbenzylphthalate		10 U	47 %	57 %	10 U	10 U	10 U
3,3'-Dichlorobenzidine		20 UM	21 * %	17 * %	20 U	20 U	20 U
Benzo(a)anthracene		10 UM	43 * %	54 %	10 U	10 U	10 U
Chrysene		10 UM	44 * %	54 * %	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate		10 ~~UB~~ U	44 %	53 %	10 ~~UB~~ U	10 ~~UB~~ U	10 ~~UB~~ U
Di-n-Octyl phthalate		10 U	44 %	57 %	10 U	10 U	10 U
Benzo(b)fluoranthene		10 U	44 %	56 %	10 U	10 U	10 U
Benzo(k)fluoranthene		10 U	42 %	53 %	10 U	10 U	10 U
Benzo(a)pyrene		10 U	43 %	54 %	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene		10 U	41 %	52 %	10 U	10 U	10 U
Dibenzo(a,h)anthracene		10 UM	41 * %	51 %	10 U	10 U	10 U
Benzo(g,h,i)perylene		10 U	40 %	52 %	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

021

022

	Cust ID:	P-2335-W-04-05-B		P-2335-W-05-05-B		P-2335-W-06-05-B		SBLKRR		SBLKRR BS	
Sample Information	RFW#:	005		006		007		97LE0907-MB1		97LE0907-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Nitrobenzene-d5	67	%	54	%	50	%	70	%	59	%
	2-Fluorobiphenyl	59	%	54	%	53	%	53	%	63	%
	p-Terphenyl-d14	60	%	34 *	%	55	%	75	%	70	%
	Phenol-d5	77	%	55	%	52	%	76	%	64	%
	2-Fluorophenol	69	%	46	%	45	%	69	%	57	%
	2,4,6-Tribromophenol	67	%	52	%	63	%	65	%	73	%
Phenol		10	U	10	U	10	U	10	U	63	%
bis(2-Chloroethyl)ether		10	U	10	U	10	U	10	U	59	%
2-Chlorophenol		10	U	10	U	10	U	10	U	61	%
1,3-Dichlorobenzene		10	UR	10	UR	10	UR	10	U	34 *	%
1,4-Dichlorobenzene		10	U	10	U	10	U	10	U	35	%
Benzyl alcohol		20	U	20	U	20	U	20	U	64	%
1,2-Dichlorobenzene		10	UR	10	UR	10	UR	10	U	37 *	%
2-Methylphenol		10	UR	10	UR	10	UR	10	U	61	%
bis(2-Chloroisopropyl)ether		10	U	10	U	10	U	10	U	49	%
4-Methylphenol		10	U	10	U	10	U	10	U	60	%
N-Nitroso-Di-n-propylamine		10	U	10	U	10	U	10	U	65	%
Hexachloroethane		10	U	10	U	10	U	10	U	32	%
Nitrobenzene		10	U	10	U	10	U	10	U	57	%
Isophorone		10	U	10	U	10	U	10	U	50	%
2-Nitrophenol		10	U	10	U	10	U	10	U	65	%
2,4-Dimethylphenol		10	UR	10	UR	10	UR	10	U	32 *	%
Benzoic acid		50	U	50	U	50	U	50	U	18 *	%
bis(2-Chloroethoxy)methane		10	U	10	U	10	U	10	U	65	%
2,4-Dichlorophenol		10	U	10	U	10	U	10	U	65	%
1,2,4-Trichlorobenzene		10	UR	10	UR	10	UR	10	U	37 *	%
Naphthalene		10	UR	10	UR	10	UR	10	U	42 *	%
4-Chloroaniline		20	U	20	U	20	U	20	U	55	%
Hexachlorobutadiene		10	U	10	U	10	U	10	U	37	%
4-Chloro-3-methylphenol		20	U	20	U	20	U	20	U	65	%
2-Methylnaphthalene		10	U	10	U	10	U	10	U	44	%
Hexachlorocyclopentadiene		10	UR	10	UR	10	UR	10	U	5 *	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9705L707 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 2b

	Cust ID:	P-2335-W-04-05-B		P-2335-W-05-05-B		P-2335-W-06-05-B		SBLKRR		SBLKRR BS	
	RFW#:	005		006		007		97LE0907-MB1		97LE0907-MB1	
2,4,6-Trichlorophenol		10	U	10	U	10	U	10	U	71	%
2,4,5-Trichlorophenol		50	U	50	U	50	U	50	U	70	%
2-Chloronaphthalene		10	UR	10	UR	10	UR	10	U	51 *	%
2-Nitroaniline		50	U	50	U	50	U	50	U	69	%
Dimethylphthalate		10	U	10	U	10	U	10	U	70	%
Acenaphthylene		10	U	10	U	10	U	10	U	55	%
2,6-Dinitrotoluene		10	U	10	U	10	U	10	U	73	%
3-Nitroaniline		50	U	50	U	50	U	50	U	75	%
Acenaphthene		10	U	10	U	10	U	10	U	54	%
2,4-Dinitrophenol		50	U	50	U	50	U	50	U	77	%
4-Nitrophenol		50	U	50	U	50	U	50	U	62	%
Dibenzofuran		10	U	10	U	10	U	10	U	61	%
2,4-Dinitrotoluene		10	U	10	U	10	U	10	U	77	%
Diethylphthalate		10	U	10	U	10	U	10	U	67	%
4-Chlorophenyl-phenylether		10	U	10	U	10	U	10	U	58	%
Fluorene		10	U	10	U	10	U	10	U	62	%
4-Nitroaniline		50	U	50	U	50	U	50	U	80	%
4,6-Dinitro-2-methylphenol		50	U	50	U	50	U	50	U	95	%
N-Nitrosodiphenylamine (1)		10	U	10	U	10	U	10	U	73	%
4-Bromophenyl-phenylether		10	U	10	U	10	U	10	U	56	%
Hexachlorobenzene		10	U	10	U	10	U	10	U	68	%
Pentachlorophenol		50	U	50	U	50	U	50	U	72	%
Phenanthrene		10	U	10	U	10	U	10	U	64	%
Anthracene		10	U	10	U	10	U	10	U	63	%
Di-n-Butylphthalate		10	U	10	U	10	U	10	U	62	%
Fluoranthene		10	U	10	U	10	U	10	U	63	%
Pyrene		10	U	10	U	10	U	10	U	66	%
Butylbenzylphthalate		10	U	10	U	10	U	10	U	67	%
3,3'-Dichlorobenzidine		20	U	20	U	20	U	20	U	57	%
Benzo(a)anthracene		10	U	10	U	10	U	10	U	65	%
Chrysene		10	U	10	U	10	U	10	U	66	%
bis(2-Ethylhexyl)phthalate		10 ~~B~~	U	10 ~~B~~	U	10 ~~B~~	U	1	J	62	%
Di-n-Octyl phthalate		10	U	10	U	10	U	10	U	64	%
Benzo(b)fluoranthene		10	U	10	U	10	U	10	U	68	%
Benzo(k)fluoranthene		10	U	10	U	10	U	10	U	65	%
Benzo(a)pyrene		10	U	10	U	10	U	10	U	64	%
Indeno(1,2,3-cd)pyrene		10	U	10	U	10	U	10	U	61	%
Dibenzo(a,h)anthracene		10	U	10	U	10	U	10	U	61	%
Benzo(g,h,i)perylene		10	U	10	U	10	U	10	U	62	%

(1) - Cannot be separated from Diphenylamine. * = Outside of EPA CLP QC limits.

023

Recra LabNet - Lionville Laboratory
Semivolatiles by GC/MS, HSL List
Report Date: 06/23/97 15:17

RFW Batch Number: 9705L720 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 1a

	Cust ID:	MW-30-006-B	MW-30-006-B	MW-30-006-B	MW-30-002-B	MW-30-004-B	MW-30-007-B
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Nitrobenzene-d5	61 %	64 %	59 %	57 %	58 %	54 %
	2-Fluorobiphenyl	58 %	64 %	57 %	59 %	56 %	50 %
	p-Terphenyl-d14	60 %	72 %	67 %	70 %	60 %	52 %
	Phenol-d5	68 %	71 %	64 %	64 %	63 %	62 %
	2-Fluorophenol	67 %	65 %	59 %	60 %	56 %	56 %
	2,4,6-Tribromophenol	74 %	81 %	77 %	66 %	65 %	65 %
Phenol		10 U	70 %	63 %	10 U	5 J	7 J
bis(2-Chloroethyl)ether		10 U	63 %	64 %	10 U	10 U	10 U
2-Chlorophenol		10 U	73 %	62 %	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	47 %	43 %	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	48 %	45 %	10 U	10 U	10 U
Benzyl alcohol		20 U	75 %	72 %	20 U	20 U	20 U
1,2-Dichlorobenzene		10 U	50 %	46 %	10 U	10 U	10 U
2-Methylphenol		10 U	74 %	70 %	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	53 %	49 %	10 U	10 U	10 U
4-Methylphenol		10 U	74 %	69 %	10 U	10 U	10 U
N-Nitroso-Di-n-propylamine		10 U	61 %	64 %	10 U	10 U	10 U
Hexachloroethane		10 U	47 %	41 %	10 U	10 U	10 U
Nitrobenzene		10 U	62 %	57 %	10 U	10 U	10 U
Isophorone		10 U	53 %	48 %	10 U	10 U	10 U
2-Nitrophenol		10 U	73 %	67 %	10 U	10 U	10 U
2,4-Dimethylphenol		10 UMR	55 %	44 * %	10 UR	10 UR	10 UR
Benzoic acid		1 JM	83 %	57 %	50 U	50 U	50 U
bis(2-Chloroethoxy)methane		10 U	69 %	68 %	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	72 %	66 %	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 UM	49 %	43 * %	10 U	10 U	10 U
Naphthalene		10 UM	51 %	44 * %	10 U	10 U	2 J
4-Chloroaniline		20 UR	67 %	59 %	20 UR	20 UR	20 UR
Hexachlorobutadiene		10 U	50 %	45 %	10 U	10 U	10 U
4-Chloro-3-methylphenol		20 U	74 %	67 %	20 U	20 U	20 U
2-Methylnaphthalene		10 U	56 %	48 %	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 UMR	23 * %	23 * %	10 UR	10 UR	10 UR

*= Outside of EPA CLP QC limits.

024

RFW Batch Number: 97051720 Client: PLATTSBURGH AFB Work Order: 116041004001 Page: 1b

	Cust ID:	MW-30-006-B	MW-30-006-B	MW-30-006-B	MW-30-002-B	MW-30-004-B	MW-30-007-B
	RFW#:	001	001 MS	001 MSD	002	003	004
2,4,6-Trichlorophenol		10 U	79 %	72 %	10 U	10 U	10 U
2,4,5-Trichlorophenol		50 U	74 %	71 %	50 U	50 U	50 U
2-Chloronaphthalene		10 UM	59 * %	55 * %	10 U	10 U	10 U
2-Nitroaniline		50 U	70 %	64 %	50 U	50 U	50 U
Dimethylphthalate		10 U	80 %	75 %	10 U	10 U	10 U
Acenaphthylene		10 U	62 %	58 %	10 U	10 U	10 U
2,6-Dinitrotoluene		10 U	85 %	83 %	10 U	10 U	10 U
3-Nitroaniline		50 UR	76 %	76 %	50 UR	50 UR	50 UR
Acenaphthene		10 U	68 %	65 %	10 U	10 U	10 U
2,4-Dinitrophenol		50 U	113 %	111 %	50 U	50 U	50 U
4-Nitrophenol		50 U	66 %	67 %	50 U	50 U	50 U
Dibenzofuran		10 U	74 %	68 %	10 U	10 U	10 U
2,4-Dinitrotoluene		10 U	91 %	86 %	10 U	10 U	10 U
Diethylphthalate		10 U	78 %	74 %	10 U	10 U	10 U
4-Chlorophenyl-phenylether		10 U	76 %	72 %	10 U	10 U	10 U
Fluorene		10 U	73 %	69 %	10 U	10 U	10 U
4-Nitroaniline		50 U	87 %	86 %	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol		50 U	112 %	107 %	50 U	50 U	50 U
N-Nitrosodiphenylamine (1)		10 U	42 %	36 %	10 U	10 U	10 U
4-Bromophenyl-phenylether		10 U	64 %	60 %	10 U	10 U	10 U
Hexachlorobenzene		10 U	73 %	72 %	10 U	10 U	10 U
Pentachlorophenol		50 U	82 %	81 %	50 U	50 U	50 U
Phenanthrene		10 U	73 %	72 %	10 U	10 U	10 U
Anthracene		10 U	70 %	69 %	10 U	10 U	10 U
Di-n-Butylphthalate		10 U	76 %	72 %	10 U	10 U	10 U
Fluoranthene		10 U	73 %	73 %	10 U	10 U	10 U
Pyrene		10 U	79 %	80 %	10 U	10 U	10 U
Butylbenzylphthalate		10 U	80 %	83 %	10 U	10 U	10 U
3,3'-Dichlorobenzidine		20 UMR	13 * %	15 * %	20 UR	20 UR	20 UR
Benzo(a)anthracene		10 U	70 %	68 %	10 U	10 U	10 U
Chrysene		10 U	72 %	70 %	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate		10 U	75 %	73 %	10 U	1 J	2 J
Di-n-Octyl phthalate		10 U	77 %	74 %	10 U	10 U	10 U
Benzo(b)fluoranthene		10 U	73 %	72 %	10 U	10 U	10 U
Benzo(k)fluoranthene		10 U	73 %	69 %	10 U	10 U	10 U
Benzo(a)pyrene		10 U	71 %	69 %	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene		10 U	72 %	72 %	10 U	10 U	10 U
Dibenzo(a,h)anthracene		10 U	69 %	71 %	10 U	10 U	10 U
Benzo(g,h,i)perylene		10 U	71 %	70 %	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

025

Recra LabNet - Lionville Laboratory
Semivolatiles by GC/MS, HSL List
Report Date: 06/23/97 15:17

RFW Batch Number: 9705L720 Client: PLATTSBURGH AFB Work Order: 116040040001 Page: 2a

026

	Cust ID:	MW-30-005-B	MW-30-005-E	SBLKRU	SBLKRU BS
Sample Information	RFW#:	005	006	97LE0920-MB1	97LE0920-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Nitrobenzene-d5	59 %	57 %	59 %	61 %
	2-Fluorobiphenyl	57 %	45 %	48 %	54 %
	p-Terphenyl-d14	56 %	71 %	73 %	73 %
	Phenol-d5	69 %	64 %	63 %	68 %
	2-Fluorophenol	68 %	55 %	62 %	69 %
	2,4,6-Tribromophenol	75 %	59 %	62 %	76 %
Phenol		50	10 U	10 U	68 %
bis(2-Chloroethyl)ether		10 U	10 U	10 U	68 %
2-Chlorophenol		10 U	10 U	10 U	70 %
1,3-Dichlorobenzene		10 U	10 U	10 U	62 %
1,4-Dichlorobenzene		10 U	10 U	10 U	63 %
Benzyl alcohol		20 U	20 U	20 U	73 %
1,2-Dichlorobenzene		10 U	10 U	10 U	64 %
2-Methylphenol		10 U	10 U	10 U	70 %
bis(2-Chloroisopropyl)ether		10 U	10 U	10 U	60 %
4-Methylphenol		10 U	10 U	10 U	69 %
N-Nitroso-Di-n-propylamine		10 U	10 U	10 U	55 %
Hexachloroethane		10 U	10 U	10 U	64 %
Nitrobenzene		10 U	10 U	10 U	62 %
Isophorone		10 U	10 U	10 U	50 %
2-Nitrophenol		10 U	10 U	10 U	69 %
2,4-Dimethylphenol		10 UR	10 UR	10 U	43 * %
Benzoic acid		50 U	50 U	50 U	57 %
bis(2-Chloroethoxy)methane		10 U	10 U	10 U	67 %
2,4-Dichlorophenol		10 U	10 U	10 U	70 %
1,2,4-Trichlorobenzene		10 U	10 U	10 U	64 %
Naphthalene		93	10 U	10 U	62 %
4-Chloroaniline		20 UR	20 UR	20 U	6 * %
Hexachlorobutadiene		10 U	10 U	10 U	66 %
4-Chloro-3-methylphenol		20 U	20 U	20 U	64 %
2-Methylnaphthalene		7 J	10 U	10 U	61 %
Hexachlorocyclopentadiene		10 UR	10 UR	10 U	21 * %

*= Outside of EPA CLP QC limits.

RFW Batch Number: 97051720 Client: PLATTSBURGH AFB Work Order: 11604004001 Page: 2b

Cust ID:	MW-30-005-B	MW-30-005-K	SBLKRU	SBLKRU BS	
RFW#:	005	006	97LE0920-MB1	97LE0920-MB1	
2,4,6-Trichlorophenol	10 U	10 U	10 U	71	%
2,4,5-Trichlorophenol	50 U	50 U	50 U	70	%
2-Chloronaphthalene	10 U	10 U	10 U	64	%
2-Nitroaniline	50 U	50 U	50 U	65	%
Dimethylphthalate	10 U	10 U	10 U	75	%
Acenaphthylene	10 U	10 U	10 U	63	%
2,6-Dinitrotoluene	10 U	10 U	10 U	75	%
3-Nitroaniline	50 U	50 U	50 U	32 *	%
Acenaphthene	10 U	10 U	10 U	67	%
2,4-Dinitrophenol	50 U	50 U	50 U	98	%
4-Nitrophenol	50 U	50 U	50 U	63	%
Dibenzofuran	10 U	10 U	10 U	69	%
2,4-Dinitrotoluene	10 U	10 U	10 U	83	%
Diethylphthalate	10 U	10 U	10 U	74	%
4-Chlorophenyl-phenylether	10 U	10 U	10 U	69	%
Fluorene	10 U	10 U	10 U	67	%
4-Nitroaniline	50 U	50 U	50 U	68	%
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	96	%
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	55	%
4-Bromophenyl-phenylether	10 U	10 U	10 U	60	%
Hexachlorobenzene	10 U	10 U	10 U	70	%
Pentachlorophenol	50 U	50 U	50 U	80	%
Phenanthrene	10 U	10 U	10 U	73	%
Anthracene	10 U	10 U	10 U	72	%
Di-n-Butylphthalate	10 U	10 U	10 U	74	%
Fluoranthene	10 U	10 U	10 U	75	%
Pyrene	10 U	10 U	10 U	76	%
Butylbenzylphthalate	10 U	10 U	10 U	76	%
3,3'-Dichlorobenzidine	20 UR	20 UR	20 U	21 *	%
Benzo(a)anthracene	10 U	10 U	10 U	73	%
Chrysene	10 U	10 U	10 U	74	%
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U	76	%
Di-n-Octyl phthalate	10 U	10 U	10 U	77	%
Benzo(b)fluoranthene	10 U	10 U	10 U	77	%
Benzo(k)fluoranthene	10 U	10 U	10 U	73	%
Benzo(a)pyrene	10 U	10 U	10 U	74	%
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	75	%
Dibenzo(a,h)anthracene	10 U	10 U	10 U	72	%
Benzo(g,h,i)perylene	10 U	10 U	10 U	73	%

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

120 027

Plattsburgh Air Force Base — Data Validation & Usability
FP&M Project No. 444-96-01

DRAFT DATA ASSESSMENT REPORT FOR ORGANICS
SDG No. 04L428

DATA VALIDATION FOR:	Client Specified TCL By AFCEE QAPP 2/96 Document
WAM:	Gaby A. Atik
SITE:	Plattsburgh AFB
SDG NO:	04L428
CONTRACT LAB:	RECRA LabNet
REVIEWER:	Joseph Camanzo, Fanning, Phillips and Molnar
QA/QC OF REVIEW:	Ravi Korlipara, Korlipara Engineering
DATE REVIEWED:	August 11-13, 1998
MATRIX:	Water

SUMMARY OF DATA VALIDATION RESULTS FOR SDG 04L428

Korlipara Engineering has completed a data validation review of RECRA LabNet analytical results for Sample Delivery Group (SDG) No. 04L428, volatile and semi-volatile organic fractions.

Evaluation of all available materials was performed to assess the quality of the volatile organics (VOA) and semi-volatile organics (SV) data. All the VOA data was found to be acceptable; there were no major data deficiencies with the following exceptions:

- All method blanks VBLKUJ, VBLKSD, and VBLKQZ had methylene chloride contamination. Therefore, in all samples in this analytical batch [except for trip blanks (AT series), equipment blanks (AE series), and field blanks (AF series)] either CRQL "U" qualification or "U" qualification was given to methylene chloride depending on reported concentration levels. All these results thus qualified were subsequently rejected for blank spike (LCS).

- In blank spike VBLKUJ BS, percent recoveries for methylene chloride and cis-1,2-dichloroethene were below the lower control limit. Therefore, in all associated samples, i.e., in samples MW30-004AT, MW30-004AA, MW30-008AA, MW30-008AE, MW30-008AF, MW30-007AT, MW30-002AA, MW30-002AC, and MW30-006AA, all nondetect results for methylene chloride and cis-1,2-dichloroethene were rejected and detects were qualified with "J" as appropriate for each sample.

- In blank spike VBLKSD BS, percent recoveries for methylene chloride were below the lower control limit. Therefore, in all associated samples, i.e., in samples P-2335-X-00-00-AA, MW30-007AA, MW30-005AT, MW30-005AF, MW30-001AA, MW30-003AA, and MW30-003AE, all nondetect

results for methylene chloride were rejected and detects were qualified with "J" as appropriate for each sample.

- In blank spike VBLKQZ BS, percent recoveries for methylene chloride were below the lower control limit. Therefore, in the associated sample MW30-005AA, the nondetect result for methylene chloride was rejected.

- In the initial calibration, RSDs exceed control limit for 1,2-dibromo-3-chloropropane and naphthalene. Therefore, in all samples in this analytical batch, all results (nondetects) were qualified with "UJ" for 1,2-dibromo-3-chloropropane and naphthalene.

- TICs were found in samples P-2335-X-00-00-AA and MW30-005AA. In sample P-2335-X-00-00-AA, library search compounds C3-alkylbenzene and C4-alkylbenzene were qualified "JN." In sample MW30-005AA, library search compound C3-alkylbenzene was qualified "JN."

- MS and MSD % recoveries were above upper control limit for dichlorodifluoromethane, chloromethane, and bromomethane. Therefore, "M" flag was assigned to parent sample MW30-008AA for compounds dichlorodifluoromethane, chloromethane, and bromomethane.

For semi-volatiles, the following were the deficiencies:

- All samples were extracted within the required technical holding time, but were analyzed beyond the holding time. Therefore, all samples in this analytical batch were qualified "J" for positives and "UJ" for nondetects.

- Method blank SBLKXC was contaminated with bis(2-ethylhexyl)phthalate. Therefore, this compound was qualified with CRQL "U" in all associated samples (all samples in batch except blanks).

- Equipment blanks MW30-008AE and MW30-003AE were contaminated with bis(2-ethylhexyl)phthalate. However, this compound was previously qualified with CRQL "U" in all associated samples (all samples in batch except blanks) for method blank and, hence, no further action was taken here.

- In blank spike SBLKXC BS, percent recoveries were below the lower control limit for bis(2-chloroethoxy)methane, 4-chloroaniline, hexachlorocyclopentadiene, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, N-nitrosodiphenylamine, 3,3'-dichlorobenzidine, and pyridine. Therefore, for all samples in this SDG all results (nondetects) for these compounds were rejected ("R" qualification).

- TICs were found in samples MW30-008AA, MW30-008AE, MW30-007AA, and MW30-005AA. In samples MW30-008AA and MW30-008AE, the aldol condensate was qualified as "JA." In sample MW30-007AA, library search compound C3-alkylbenzene was qualified as "JN." In sample MW30-005AA, library search compounds C2-benzene, C3-benzene, C4-benzene, benzothiophene, and dimethyl benzoic acid were qualified "JN."

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

- Percent recoveries and/or RPDs were outside of QC limits in MS and/or MSD samples for 20 compounds: benzyl alcohol, bis(2-chloroisopropyl)ether, benzoic acid, bis(2-chloroethoxy)methane, 4-chloroaniline, hexachlorocyclopentadiene, 2-nitroaniline, acenaphthylene, 3-nitroaniline, 4-nitroaniline, N-nitrosodiphenylamine, pyrene, butylbenzylphthalate, 3,3'-dichlorobenzidine, di-n-octyl phthalate, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, and pyridine. Therefore, "M" flag was assigned to parent sample MW30-008AA for all of above compounds which were not previously rejected ("R") for blank spike (LCS).

It should be noted that in the case of both volatile and semi-volatile analytical results, the analytical laboratory may have already assigned data qualifiers (e.g., "J", "UJ", etc.) to some samples/analytical parameters based on internal QC reviews. Unless expressly over-ridden by the present data validation flags, the laboratory assigned qualifiers continue to apply in all instances that they were made.

It should also be noted that the AFCEE QAPP requirement for one (1) LCS per analytical batch was not performed by the laboratory. However, the laboratory analyzed blank spikes to serve an equivalent purpose as LCS. (Standardized analyte-free water is used for LCS, whereas the laboratory used analyte-free water generated internally within the laboratory for the blank spikes.) Therefore, all QAPP QC criteria for LCS were applied to the blank spikes in this assessment.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

I. PRELIMINARY REMARKS

The data was validated according to the U.S. Environmental Protection Agency (USEPA) National Functional Guidelines for Organic/Inorganic Data Review (revised in February 1995), incorporating the USEPA Region II Standard Operating Procedure (SOP); the USEPA CLP Statement of Work (SOW) protocol, Document OLM01.9 dated March 1990; and the Air Force Center for Environmental Excellence (AFCEE) Quality Assurance Project Plan (QAPP), Document Version 1.1 dated February 1996. The New York State Department of Environmental Protection (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) DSHM-96-03, "Development and Review of Site Analytical Plans," was reviewed for applicability to this project. The TAGM incorporates the USEPA SOP by reference and is essentially identical to the latter. Thus, data validation according to the USEPA SOP and the AFCEE QAPP also satisfies the NYSDEC TAGM.

The volatile organics (VOA) and semi-volatile organics (SV) analytical results were reviewed in terms of:

1. Data completeness
2. Technical holding time (sampling, preservation, shipping, etc.)
3. GC/MS instrument performance checks
4. Initial and continuing calibrations
5. Blanks contamination
6. Matrix spike/matrix spike duplicate
7. Internal standards
8. Surrogate spikes, field duplicates, and laboratory control samples
9. Target compounds
10. Compound quantitation and reported Contract Required Quantitation Limits (CRQLs)

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (nondetects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). The data for all flagged samples are also usable with caution, except those with the "R" (unusable) qualification. All actions are detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant Quality Control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

II. LIST OF DATA VALIDATION SAMPLES AND FRACTIONS

Data validation was performed for 19 volatile organics [including two (2) matrix spike and matrix spike duplicate samples] and for 13 semi-volatile organics samples [including two (2) matrix spike and matrix spike duplicate samples]. The validated environmental samples were collected at the Plattsburgh AFB in April, 1998 and shipped to RECRA LabNet to be analyzed following the 2/96 AFCEE QAPP document.

The samples which were validated for volatile and semi-volatile organics fractions are listed below:

Client ID	*Lab Sample ID*	*Volatiles*	*Semi-Volatiles*
Samples collected on 4/13/98			
MW30-004AT	9804L428-001	Yes	No
MW30-004AA	9804L428-002	Yes	Yes
MW30-008AA	9804L428-003	Yes	Yes
MW30-008AA MS	9804L428-003 MS	Yes	Yes
MW30-008AA MSD	9804L428-003 MSD	Yes	Yes
MW30-008AE	9804L428-004	Yes	Yes
MW30-008AF	9804L428-005	Yes	No
P-2335-X-00-00-AA	9804L428-006	Yes	No
Samples collected on 4/14/98			
MW30-007AT	9804L428-007	Yes	No
MW30-007AA	9804L428-008	Yes	Yes
MW30-002AA	9804L428-009	Yes	Yes
MW30-002AC	9804L428-010	Yes	Yes
MW30-006AA	9804L428-011	Yes	Yes
MW30-005AT	9804L428-012	Yes	No
MW30-005AA	9804L428-013	Yes	Yes
MW30-005AF	9804L428-014	Yes	No
MW30-001AA	9804L428-015	Yes	Yes
MW30-003AA	9804L428-016	Yes	Yes
MW30-003AE	9804L428-017	Yes	Yes
	TOTAL NUMBER OF SAMPLES:	19	13

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

III. DATA ASSESSMENT

This section provides a detailed description of the data assessment results for the validated samples. For each assessment criterion, its purpose and scope are described briefly followed by the assessment results for volatile organics (VOA) and semi-volatile organics (SV).

III.1 HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. If the holding times are exceeded and the samples are not properly preserved, the affected data will be qualified as unusable, "R." Otherwise, those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J," and the nondetects (sample quantitation limits) will be flagged as estimated, "UJ."

The following samples were qualified because of holding time:

VOA: All samples were analyzed within the required technical holding time.

SV: All samples were extracted within the required technical holding time, but were analyzed beyond the holding time. Therefore, all samples in this analytical batch were qualified "J" for positives and "UJ" for nondetects.

III.2 BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, field (ambient), equipment (rinsate), or trip blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation, field activity, or shipment. Method blanks measure laboratory contamination. Field (ambient) and equipment (rinsate) blanks measure cross-contamination of samples during field operations. Trip blanks measure cross-contamination of samples due to containerization, transportation, or storage. If the concentration of the analyte is less than five (5) times the blank contaminant level [ten (10) times for the common contaminants], the analytes are qualified as nondetects, "U."

The following are the assessment results for the "blank contamination" criterion:

A) Method blank contamination

VOA: All method blanks VBLKUJ, VBLKSD, and VBLKQZ had methylene chloride contamination. Therefore, in all samples in this analytical batch [except for trip blanks (AT series), equipment blanks (AE series), and field blanks (AF series)] either CRQL "U" qualification or "U" qualification was given to methylene chloride depending on

reported concentration levels, in accordance with Region II SOP. All these results thus qualified were subsequently rejected for blank spike (LCS).

SV: Method blank SBLKXC was contaminated with bis(2-ethylhexyl)phthalate. Therefore, this compound was qualified with CRQL "U" in all associated samples (all samples in batch except blanks).

B) Field (ambient) blank contamination
("Water blanks" or "distilled water blanks" are validated like any other sample)

VOA: Field blanks MW30-008AF and MW30-005AF were both contaminated with methylene chloride and chloroform. However, no further action was taken since in all associated samples (except blanks) methylene chloride results were previously rejected ("R") for blank spike contamination and chloroform results were already nondetects.

SV: There were no field blanks for semi-volatiles.

C) Equipment (rinsate) blank contamination
("Water blanks" or "distilled water blanks" are validated like any other sample)

VOA: Equipment blank MW30-008AE was contaminated with methylene chloride and chloroform. However, no further action was taken since in all associated samples (except blanks) methylene chloride results were previously rejected ("R") for blank spike contamination and chloroform results were already nondetects.

Equipment blank MW30-003AE was contaminated with methylene chloride, chloroform, and 1,1,1-trichloroethane. However, no further action was taken since in all associated samples (except blanks) methylene chloride results were previously rejected ("R") for blank spike contamination, and chloroform and 1,1,1-trichloroethane results were already nondetects.

SV: Equipment blanks MW30-008AE and MW30-003AE were contaminated with bis(2-ethylhexyl)phthalate. However, this compound was previously qualified with CRQL "U" in all associated samples (all samples in batch except blanks) for method blank and, hence, no further action was taken here.

D) Trip blank contamination

VOA: Trip blank MW30-004AT was contaminated with methylene chloride and benzene. However, no further action was taken since in all associated samples (except blanks) methylene chloride results were previously rejected ("R") for blank spike contamination and benzene results were either nondetects or did not need qualification because the concentrations were greater than CRQL and greater than five (5) times blank contamination.

Trip blanks MW30-007AT and MW30-005AT were contaminated with methylene chloride. However, no action was taken since in all associated samples (except blanks) methylene chloride results were previously rejected ("R") for blank spike contamination.

SV: Semi-volatile samples do not have trip blanks.

III.3 LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) is analyte-free water (for aqueous analysis) or Ottowa sand (for soil analysis) spiked with known concentrations of all target analytes. The LCS is carried through the complete sample preparation and analysis procedure. The LCS is used to evaluate each analytical batch and to determine if the method is in control.

The AFCEE QAPP requirement for one (1) LCS per analytical batch was not performed by the laboratory. However, the laboratory analyzed blank spikes to serve an equivalent purpose as LCS. (Standardized analyte-free water is used for LCS, whereas the laboratory used analyte-free water generated internally within the laboratory for the blank spikes.) Therefore, all QAPP QC criteria for LCS were applied to the blank spikes in this assessment.

The following are the assessment results for the "laboratory control sample" criterion:

VOA: In blank spikes VBLKUJ BS, VBLKSD BS, and VBLKQZ BS, percent recoveries for dichlorodifluoromethane and bromomethane were above the upper control limit. However, since results for these compounds in the associated samples were all nondetects, no action was taken.

In blank spike VBLKUJ BS, percent recoveries for methylene chloride and cis-1,2-dichloroethene were below the lower control limit. Therefore, in all associated samples, i.e., in samples MW30-004AT, MW30-004AA, MW30-008AA, MW30-008AE, MW30-008AF, MW30-007AT, MW30-002AA, MW30-002AC, and MW30-006AA, all nondetect results for methylene chloride and cis-1,2-dichloroethene were rejected and detects were qualified with "J" as appropriate for each sample. Here, methylene chloride results which were previously qualified "U" for method blank contamination are assumed to be nondetects.

In blank spike VBLKSD BS, percent recoveries for methylene chloride were below the lower control limit. Therefore, in all associated samples, i.e., in samples P-2335-X-00-00-AA, MW30-007AA, MW30-005AT, MW30-005AF, MW30-001AA, MW30-003AA, and MW30-003AE, all nondetect results for methylene chloride were rejected and detects were qualified with "J" as appropriate for each sample. Here, methylene chloride results which were previously qualified "U" for method blank contamination are assumed to be nondetects.

In blank spike VBLKQZ BS, percent recoveries for methylene chloride were below the lower control limit. Therefore, in the associated sample MW30-005AA, the nondetect result for methylene chloride was rejected. Here, methylene chloride results which were previously qualified "U" for method blank contamination are assumed to be nondetects.

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SV: In blank spike SBLKXC BS, percent recoveries were below the lower control limit for bis(2-chloroethoxy)methane, 4-chloroaniline, hexachlorocyclopentadiene, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, N-nitrosodiphenylamine, 3,3'-dichlorobenzidine, and pyridine. Therefore, for all samples in this SDG all results (nondetects) for these compounds were rejected ("R" qualification). Blank spike duplicates (BSD) were not analyzed.

III.4 FIELD DUPLICATES

A field duplicate sample is a second sample collected at the same location as the original sample. Duplicate sample results are used to assess precision of the sample collection process.

The following are the assessment results for the "field duplicates" criterion:

VOA: This SDG contained one (1) primary sample/QC field duplicate pair: sample MW30-002AC is a QC field duplicate of the primary sample MW30-002AA. The analytical results for this pair were consistent with method criteria and there were no differences between them.

SV: This SDG contained one (1) primary sample/QC field duplicate pair: sample MW30-002AC is a QC field duplicate of the primary sample MW30-002AA. The analytical results for this pair were consistent with method criteria and there were no differences between them.

III.5 MASS SPECTROMETER TUNING

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard is bromofluorobenzene (BFB) for volatile organics and decafluorotriphenyl-phosphine (DFTPP) for semi-volatile organics.

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R." The following are the assessment results for the "mass spectrometer tuning" criterion:

VOA: All tuning criteria were met.

SV: All tuning criteria were met.

III.6 CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving

acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving continuing satisfactory daily performance.

The calibration criterion consists of "Response Factor" and "Percent Relative Standard Deviation (%RSD) and Percent Difference (%D)" sub-criteria. These sub-criteria are discussed separately below.

A) Response Factor

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/SV Target Compound List (TCL) must be ≥ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean Relative Response Factor (RRF) of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, then the reported results for that analyte will be qualified as estimated, "J," if the analyte is detected in the environmental samples and will be qualified as rejected, "R," if it is not detected in the environmental samples.

The following are the assessment results for the "response factor calibration" criterion:

VOA: Response factor QC criteria were met.

SV: Response factor QC criteria were met.

B) Percent Relative Standard Deviation (%RSD) And Percent Difference (%D)

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean RRF from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25% based on the QAPP and the SOP. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J," and all nondetects are flagged as "UJ."

The following samples were qualified because of %RSD and %D:

Initial Calibration (IC):

VOA: There was one (1) initial calibration which was performed on 4/17/98 on instrument 5972H. RSD was 38.2% for methylene chloride, 31.4% for 1,2-dibromo-3-chloropropane, and 61% for naphthalene, which all exceeded the control limit. No action was taken for methylene chloride since all results were previously rejected ("R") or already qualified as "J." In all samples in this analytical batch, all results (nondetects) were qualified with "UJ" for 1,2-dibromo-3-chloropropane and naphthalene.

SV: There was one (1) initial calibration which was performed on 6/4/98 on instrument 5971a. All initial calibration QC criteria were met.

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Continuing Calibration (CC):

VOA: Three (3) continuing calibrations were performed on 4/25/98 (0722 hr), 4/25/98 (2028 hr), and 4/27/98. For the first and second CC, %D was 34.1 and 32.4, respectively, for methylene chloride, both of which exceed the control limit. However, no action was taken because methylene chloride results were previously either rejected ("R") or qualified as estimated ("J") in associated samples. Continuing calibration QC criteria were met for the third CC.

SV: Two (2) continuing calibrations were performed on 6/4/98 and 6/5/98. In the 6/4/98 CC, %D was 28.6 for benzyl alcohol and 26.5 for 4,6-dinitro-2-methylphenol, both of which exceed the control limit. These compounds were nondetect in the associated samples and, hence, no action was taken in accordance with the Functional Guidelines. In the 6/5/98 CC, %D was 31.6 for benzyl alcohol, which exceeds the control limit. These compounds were nondetect in the associated samples and, hence, no action was taken in accordance with the Functional Guidelines.

III.7 SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC)

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below:

VOA: Surrogate recovery criteria were met for volatiles.

SV: Surrogate recovery for phenol-d5 was below lower control limit but above 10% in sample MW30-006AA and for 2,4,6-tribromophenol was below lower control limit but above 10% in sample MW30-003AE. However, only one (1) surrogate was out of specification in each case and, hence, no action was taken in accordance with Region II SOP.

III.8 INTERNAL STANDARDS PERFORMANCE

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J," and all nondetects as "UJ" only if IS area is < 50%. Nondetects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following are the assessment results for the "internal standards performance" criterion:

VOA: All internal standards QC criteria were met.

SV: In samples MW30-008-AA and MW30-008-AA MS, area counts for internal standard perylene-d12 (IS6) were below the lower 50% limit (but above 25%). However, no action was taken because all associated compounds in these samples are nondetects, which were already qualified "UJ" for holding time.

III.9 COMPOUND IDENTIFICATION — VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's Relative Retention Time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities with 20% of that in the standard compound. For tentatively identified compounds (TICs), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

VOA: Compound quantitation data were consistent with the required method criteria.

TICs were found in samples P-2335-X-00-00-AA and MW30-005AA. In sample P-2335-X-00-00-AA, library search compounds C3-alkylbenzene and C4-alkylbenzene were qualified "JN." In sample MW30-005AA, library search compound C3-alkylbenzene was qualified "JN."

SV: Compound quantitation data were consistent with the required method criteria.

TICs were found in samples MW30-008AA, MW30-008AE, MW30-007AA, and MW30-005AA. In samples MW30-008AA and MW30-008AE, the aldol condensate was qualified as "JA." In sample MW30-007AA, library search compound C3-alkylbenzene was qualified as "JN." In sample MW30-005AA, library search compounds C2-benzene, C3-benzene, C4-benzene, benzothiophene, and dimethyl benzoic acid were qualified "JN."

III.10 MATRIX SPIKE/SPIKE DUPLICATE (MS/MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data.

The following are the assessment results for the "MS/MSD" criterion:

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VOA: MS % recoveries were above upper control limit for dichlorodifluoromethane, chloromethane, and bromomethane. MSD % recoveries were above upper control limit for dichlorodifluoromethane and bromomethane, and below lower control limit for methylene chloride. Therefore, "M" flag was assigned to parent sample MW30-008AA for compounds dichlorodifluoromethane, chloromethane, and bromomethane. No action was taken for methylene chloride because it was previously rejected in this sample.

SV: Percent recoveries and/or RPDs were outside of QC limits in MS and/or MSD samples for 20 compounds: benzyl alcohol, bis(2-chloroisopropyl)ether, benzoic acid, bis(2-chloroethoxy)methane, 4-chloroaniline, hexachlorocyclopentadiene, 2-nitroaniline, acenaphthylene, 3-nitroaniline, 4-nitroaniline, N-nitrosodiphenylamine, pyrene, butylbenzylphthalate, 3,3'-dichlorobenzidine, di-n-octyl phthalate, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, and pyridine. Therefore, "M" flag was assigned to parent sample MW30-008AA for all of above compounds which were not previously rejected ("R") for blank spike (LCS).

III.11 OTHER QC DATA OUT OF SPECIFICATION

VOA: No other QC data was out of specification.

SV: No other QC data was out of specification.

III.12 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

VOA: All method blanks VBLKUJ, VBLKSD, and VBLKQZ had methylene chloride contamination. Therefore, in all samples in this analytical batch [except for trip blanks (AT series), equipment blanks (AE series), and field blanks (AF series)] either CRQL "U" qualification or "U" qualification was given to methylene chloride depending on reported concentration levels. All these results thus qualified were subsequently rejected for blank spike (LCS). In blank spike VBLKUJ BS, percent recoveries for methylene chloride and cis-1,2-dichloroethene were below the lower control limit. Therefore, in all associated samples, i.e., in samples MW30-004AT, MW30-004AA, MW30-008AA, MW30-008AE, MW30-008AF, MW30-007AT, MW30-002AA, MW30-002AC, and MW30-006AA, all nondetect results for methylene chloride and cis-1,2-dichloroethene were rejected and detects were qualified with "J" as appropriate for each sample. In blank spike VBLKSD BS, percent recoveries for methylene chloride were below the lower control limit. Therefore, in all associated samples, i.e., in samples P-2335-X-00-00-AA, MW30-007AA, MW30-005AT, MW30-005AF, MW30-001AA, MW30-003AA, and MW30-003AE, all nondetect results for methylene chloride were rejected and detects were qualified with "J" as appropriate for each sample. In blank spike VBLKQZ BS, percent recoveries for methylene chloride were below the lower control limit. Therefore, in the associated sample MW30-005AA, the nondetect result for methylene chloride was rejected. In the initial calibration, RSDs exceed control limit for 1,2-dibromo-3-chloropropane and naphthalene. Therefore, in all samples in this

analytical batch, all results (nondetects) were qualified with "UJ" for 1,2-dibromo-3-chloropropane and naphthalene. TICs were found in samples P-2335-X-00-00-AA and MW30-005AA. In sample P-2335-X-00-00-AA, library search compounds C3-alkylbenzene and C4-alkylbenzene were qualified "JN." In sample MW30-005AA, library search compound C3-alkylbenzene was qualified "JN." MS and MSD % recoveries were above upper control limit for dichlorodifluoromethane, chloromethane, and bromomethane. Therefore, "M" flag was assigned to parent sample MW30-008AA for compounds dichlorodifluoromethane, chloromethane, and bromomethane.

SV: All samples were extracted within the required technical holding time, but were analyzed beyond the holding time. Therefore, all samples in this analytical batch were qualified "J" for positives and "UJ" for nondetects. Method blank SBLKXC was contaminated with bis(2-ethylhexyl)phthalate. Therefore, this compound was qualified with CRQL "U" in all associated samples (all samples in batch except blanks). Equipment blanks MW30-008AE and MW30-003AE were contaminated with bis(2-ethylhexyl)phthalate. However, this compound was previously qualified with CRQL "U" in all associated samples (all samples in batch except blanks) for method blank and, hence, no further action was taken here. In blank spike SBLKXC BS, percent recoveries were below the lower control limit for bis(2-chloroethoxy)methane, 4-chloroaniline, hexachlorocyclopentadiene, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, N-nitrosodiphenylamine, 3,3'-dichlorobenzidine, and pyridine. Therefore, for all samples in this SDG all results (nondetects) for these compounds were rejected ("R" qualification). TICs were found in samples MW30-008AA, MW30-008AE, MW30-007AA, and MW30-005AA. In samples MW30-008AA and MW30-008AE, the aldol condensate was qualified as "JA." In sample MW30-007AA, library search compound C3-alkylbenzene was qualified as "JN." In sample MW30-005AA, library search compounds C2-benzene, C3-benzene, C4-benzene, benzothiophene, and dimethyl benzoic acid were qualified "JN." Percent recoveries and/or RPDs were outside of QC limits in MS and/or MSD samples for 20 compounds: benzyl alcohol, bis(2-chloroisopropyl)ether, benzoic acid, bis(2-chloroethoxy)methane, 4-chloroaniline, hexachlorocyclopentadiene, 2-nitroaniline, acenaphthylene, 3-nitroaniline, 4-nitroaniline, N-nitrosodiphenylamine, pyrene, butylbenzylphthalate, 3,3'-dichlorobenzidine, di-n-octyl phthalate, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, and pyridine. Therefore, "M" flag was assigned to parent sample MW30-008AA for all of above compounds which were not previously rejected ("R") for blank spike (LCS).

Important Note: It should be noted that in the case of both volatile and semi-volatile analytical results, the analytical laboratory may have already assigned data qualifiers (e.g., "J", "UJ", etc.) to some samples/analytical parameters based on internal QC reviews. Unless expressly over-ridden by the present data validation flags, the laboratory assigned qualifiers continue to apply in all instances that they were made.

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III.13 CONTRACTUAL NON-CONFORMANCE

Blank spike duplicates were not analyzed.

III.14 RE-EXTRACTION, RE-ANALYSIS, OR DILUTION SAMPLES

This package contains re-extraction, re-analysis, or dilution samples. Upon reviewing the QA results, the following Form I's are identified to be used:

VOA: There were no re-analyses. All samples are usable as validated.

SV: There were no re-analyses. All samples are usable as validated.

III.15 MISCELLANEOUS OBSERVATIONS

None.

IV. DATA USABILITY

Data review for usability is a process that evaluates the validated data in context to the original data quality objectives (DQOs). The formal process of usability determination involves a complex series of editing, screening, auditing, verifying, and reviewing the validated data.

The technical holding times for all samples in this SDG were met, except as noted in the report. The QC criteria for GC/MS tune, internal standards, method blanks, field blanks, trip blanks, matrix spike/matrix spike duplicates, laboratory control samples, and field duplicates were met with the exceptions noted in this narrative.

It is important to understand the bias associated with "J"-qualified data. The "J" data may have high, low, or indeterminate bias. A low bias means that the reported concentration is most likely an underestimate of the true concentration. For example, data may be biased low when sample holding times for volatile organics (VOCs) are exceeded or when the recovery of QA/QC compounds is significantly less than the true amount originally introduced into the sample. A high bias means that the reported concentration is most likely an overestimate of the true concentration. A bias is indeterminate when it is not possible to ascertain whether the concentration is an overestimate or an underestimate. For example, an indeterminate bias could result when matrix effects obscure QA/QC compounds.

For the volatile fraction, in blank spike VBLKUJ BS, percent recoveries for methylene chloride and cis-1,2-dichloroethene were below the lower control limit. Therefore, in all associated samples, i.e., in samples MW30-004AT, MW30-004AA, MW30-008AA, MW30-008AE, MW30-008AF, MW30-007AT, MW30-002AA, MW30-002AC, and MW30-006AA, all detects were qualified with "J" as appropriate for each sample. In blank spike VBLKSD BS, percent recoveries for methylene chloride

were below the lower control limit. Therefore, in all associated samples, i.e., in samples P-2335-X-00-00-AA, MW30-007AA, MW30-005AT, MW30-005AF, MW30-001AA, MW30-003AA, and MW30-003AE, all detects were qualified with "J" as appropriate for each sample. All of above results are likely to have low bias.

For the semi-volatile fraction, all samples were extracted within the required technical holding time, but were analyzed beyond the holding time. These results are likely to have low bias.

Based on evaluation of this analytical data, the data is highly usable with the data validation qualifiers.

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ORGANIC DATA ASSESSMENT SUMMARY

SDG NO.: 04L428 **LABORATORY:** RECRA LabNet **SOW:** AFB QAPP

DATA USER: Fanning, Phillips and Molnar **REVIEW COMPLETION DATE:** 8/13/98

NO. OF VOLATILE ORGANICS SAMPLES (All Water): 19
[including two (2) matrix spike/spike duplicate samples]

NO. OF SEMI-VOLATILE ORGANICS SAMPLES (All Water): 13
[including two (2) matrix spike/spike duplicate samples]

DATA VALIDATION CONTRACTOR: Korlipara Engineering

		VOA	SV
1.	Holding Times	O	M
2.	GC/MS Tune/GC Performance	O	O
3.	Initial Calibrations	X	O
4.	Continuing Calibrations	X	X
5.	Field, Equipment, and Trip Blanks	X	O
6.	Laboratory Blanks	M	X
7.	Surrogates	O	O
8.	Matrix Spike Duplicates and LCS	M	Z
9.	AFCEE QC (Blind and Perf. Eval. Samples)	F	F
10.	Internal Standards	O	O
11.	Compound Identification	O	O
12.	Compound Quantitation	O	O
13.	System Performance	O	O
14.	Overall Assessment*	X	M

O = No problems or minor problems that do not affect data usability.
X = No more than *about 5 %* of the data points are qualified as either estimated or unusable.
M = More than *about 5 %* of the data points are qualified as estimated.
Z = More than *about 5 %* of the data points are qualified as unusable ("R").
F = Not applicable.
* The assessments for this criterion are qualitative only.

PROJECT MANAGER ACTION ITEMS: See Data Assessment and Data Usability sections

AREAS OF CONCERN: None

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REJECTION SUMMARY FORM **SOP NO.: HW-6**

[No. of Compounds/No. of Fractions (Samples)]

Type of Review: RAS **Date:** August 13, 1998 **SDG #:** 04L428

Project: Plattsburgh AFB **Lab Name:** RECRA LabNet

Reviewer's Initials: JC/RK

NO. OF VOLATILE ORGANICS SAMPLES (All Water): 19
[including two (2) matrix spike/spike duplicate samples]

NO. OF SEMI-VOLATILE ORGANICS SAMPLES (All Water): 13
[including two (2) matrix spike/spike duplicate samples]

Analytes Rejected Due to Exceeding Review Criteria*

Fraction (# Analytes)	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
SV(67)						99	13	99/871
VOA (59)						16	19	16/1121

Analytes Estimated Due to Exceeding Review Criteria*

Fraction (# Analytes)	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Estimated/ Total # in all Samples
SV(67)		871					13	871/871
VOA (59)			34			10	19	44/1121

* Analytes may be counted for multiple criteria.

	Cust ID:	MW30-004AT	MW30-004AA	MW30-008AA	MW30-008AA	MW30-008AA	MW30-008AE
Sample Information	RFW#:	001	002	003	003 MS	003 MSD	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Toluene-d8	95 %	93 %	96 %	100 %	92 %	97 %
	Bromofluorobenzene	98 %	98 %	99 %	100 %	92 %	100 %
	1,2-Dichloroethane-d4	104 %	98 %	106 %	110 %	98 %	100 %
Dichlorodifluoromethane		1 U	1 U	1 U M	140 * %	132 * %	1 U
Chloromethane		1 U	1 U	1 U M	130 * %	125 %	1 U
Vinyl Chloride		1 U	1 U	1 U	128 %	123 %	1 U
Bromomethane		1 U	1 U	1 U M	136 * %	131 * %	1 U
Chloroethane		1 U	1 U	1 U	118 %	111 %	1 U
Trichlorofluoromethane		(see J) 1 U	1 U	1 U	113 %	107 %	1 U
1,1-Dichloroethene		2 BJ 1 U	1 U	1 U	112 %	107 %	1 U
Methylene Chloride		~~2~~ BJR	1 ~~0.9~~ JB	1 ~~0.8~~ JB	75 %	69 * %	4 BJ
Trans-1,2-dichloroethene		1 U	1 U	1 U	102 %	97 %	1 U
1,1-Dichloroethane		1 U	1 U	1 U	116 %	107 %	1 U
Cis-1,2-dichloroethene		1 UR	2 J	1 UR	109 %	102 %	1 UR
2,2-Dichloropropane		1 U	1 U	1 U	95 %	86 %	1 U
Bromochloromethane		1 U	1 U	1 U	115 %	105 %	1 U
Chloroform		1 U	1 U	1 U	107 %	100 %	5
1,1,1-Trichloroethane		1 U	1 U	1 U	105 %	98 %	1 U
Carbon Tetrachloride		1 U	1 U	1 U	112 %	106 %	1 U
1,1-dichloropropene		1 U	1 U	1 U	100 %	94 %	1 U
Benzene		0.4 J	36	1 U	107 %	100 %	1 U
1,2-Dichloroethane		1 U	1 U	1 U	112 %	101 %	1 U
Trichloroethene		1 U	0.2 J	1 U	107 %	102 %	1 U
1,2-Dichloropropane		1 U	1 U	1 U	117 %	108 %	1 U
Dibromomethane		1 U	1 U	1 U	116 %	105 %	1 U
Bromodichloromethane		1 U	1 U	1 U	104 %	95 %	1 U
cis-1,3-Dichloropropene		1 U	1 U	1 U	97 %	87 %	1 U
Toluene		1 U	1 U	1 U	99 %	93 %	1 U
Trans-1,3-Dichloropropene		1 U	1 U	1 U	98 %	88 %	1 U
1,1,2-Trichloroethane		1 U	1 U	1 U	106 %	96 %	1 U
Tetrachloroethene		1 U	1 U	1 U	95 %	90 %	1 U
1,3-Dichloropropane		1 U	1 U	1 U	103 %	92 %	1 U

*= Outside of EPA CLP QC limits.

7/7/98

013

Cust ID:	MW30-004AT	MW30-004AA	MW30-008AA	MW30-008AA	MW30-008AA	MW30-008AE
RFW#:	001	002	003	003 MS	003 MSD	004
Dibromochloromethane	1 U	1 U	1 U	104 %	93 %	1 U
1,2-Dibromoethane	1 U	1 U	1 U	109 %	99 %	1 U
Chlorobenzene	1 U	1 U	1 U	99 %	93 %	1 U
1,1,1,2-Tetrachloroethane	1 U	1 U	1 U	104 %	95 %	1 U
Ethylbenzene	1 U	1 U	1 U	98 %	93 %	1 U
1,3- and 1,4-Xylene	1 U	1 U	1 U	98 %	93 %	1 U
1,2-Xylene	1 U	1 U	1 U	103 %	97 %	1 U
Styrene	1 U	1 U	1 U	97 %	92 %	1 U
Bromoform	1 U	1 U	1 U	114 %	99 %	1 U
Isopropylbenzene	1 U	1 U	1 U	89 %	84 %	1 U
Bromobenzene	1 U	1 U	1 U	99 %	92 %	1 U
1,2,3-Trichloropropane	1 U	1 U	1 U	109 %	97 %	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	106 %	94 %	1 U
N-propylbenzene	1 U	1 U	1 U	94 %	88 %	1 U
2-Chlorotoluene	1 U	1 U	1 U	98 %	93 %	1 U
4-Chlorotoluene	1 U	1 U	1 U	100 %	94 %	1 U
1,3,5-Trimethylbenzene	1 U	1 U	1 U	91 %	89 %	1 U
Tert-butylbenzene	1 U	1 U	1 U	97 %	92 %	1 U
1,2,4-Trimethylbenzene	1 U	1 U	1 U	96 %	91 %	1 U
Sec-butylbenzene	1 U	1 U	1 U	97 %	90 %	1 U
1,3-Dichlorobenzene	1 U	1 U	1 U	100 %	93 %	1 U
1,4-Dichlorobenzene	1 U	1 U	1 U	96 %	88 %	1 U
4-Isopropyltoluene	1 U	1 U	1 U	92 %	88 %	1 U
1,2-Dichlorobenzene	1 U	1 U	1 U	104 %	95 %	1 U
N-butylbenzene	1 U	1 U	1 U	100 %	94 %	1 U
1,2-Dibromo-3-chloropropane	1 UJ	1 UJ	1 UJ	117 %	105 %	1 UJ
1,2,4-Trichlorobenzene	1 U	1 U	1 U	109 %	101 %	1 U
Hexachlorobutadiene	1 U	1 U	1 U	101 %	92 %	1 U
Naphthalene	1 UJ	1 UJ	1 UJ	120 %	122 %	1 UJ
1,2,3-Trichlorobenzene	1 U	1 U	1 U	110 %	102 %	1 U

*= Outside of EPA CLP QC limits.

014

JC
7/7/93

Sample Information		Cust ID: MW30-008AF		P-2335-X-00-00-AA		MW30-007AT		MW30-007AA		MW30-002AA		MW30-002AC	
	RFW#:	005		006		007		008		009		010	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		5.00		1.00		5.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Toluene-d8	99	%	94	%	93	%	95	%	92	%	94	%
	Bromofluorobenzene	102	%	94	%	98	%	97	%	96	%	98	%
	1,2-Dichloroethane-d4	99	%	105	%	101	%	97	%	100	%	99	%
			fl		fl		fl		fl		fl		fl
Dichlorodifluoromethane		1	U	5	U	1	U	5	U	1	U	1	U
Chloromethane		1	U	5	U	1	U	5	U	1	U	1	U
Vinyl Chloride		1	U	5	U	1	U	5	U	1	U	1	U
Bromomethane		1	U	5	U	1	U	5	U	1	U	1	U
Chloroethane		1	U	5	U	1	U	5	U	1	U	1	U
Trichlorofluoromethane		1	U	5	U	1	U	5	U	1	U	1	U
1,1-Dichloroethene		1	U	5	U	1	U	5	U	1	U	1	U
Methylene Chloride		4	BJ	12	R	2	BJ R	9	R	1	UB R	1	UB R
Trans-1,2 dichloroethene		1	U	5	U	1	U	5	U	1	U	1	U
1,1-Dichloroethane		1	U	5	U	1	U	5	U	1	U	1	U
Cis-1,2-dichloroethene		1	R	5	U	1	R	5	U	1	J	1	J
2,2-Dichloropropane		1	U	5	U	1	U	5	U	1	U	1	U
Bromochloromethane		1	U	5	U	1	U	5	U	1	U	1	U
Chloroform		6		5	U	1	U	5	U	1	U	1	U
1,1,1-Trichloroethane		1	U	5	U	1	U	5	U	1	U	1	U
Carbon Tetrachloride		1	U	5	U	1	U	5	U	1	U	1	U
1,1-dichloropropene		1	U	5	U	1	U	5	U	1	U	1	U
Benzene		1	U	5	U	1	U	140		11		11	
1,2-Dichloroethane		1	U	5	U	1	U	5	U	1	U	1	U
Trichloroethene		1	U	5	U	1	U	5	U	0.7	J	0.7	J
1,2-Dichloropropane		1	U	5	U	1	U	5	U	1	U	1	U
Dibromomethane		1	U	5	U	1	U	5	U	1	U	1	U
Bromodichloromethane		1	U	5	U	1	U	5	U	1	U	1	U
cis-1,3-Dichloropropene		1	U	5	U	1	U	5	U	1	U	1	U
Toluene		1	U	5	U	1	U	5	U	1	U	1	U
Trans-1,3-Dichloropropene		1	U	5	U	1	U	5	U	1	U	1	U
1,1,2-Trichloroethane		1	U	5	U	1	U	5	U	1	U	1	U
Tetrachloroethene		1	U	5	U	1	U	5	U	1	U	1	U
1,3-Dichloropropane		1	U	5	U	1	U	5	U	1	U	1	U

*= Outside of EPA CLP QC limits.

7/1/98

015

RF[illegible] Client [illegible] PLU[illegible] BUR[illegible]B [illegible] Work Order: [illegible]001 Page: [illegible]

	Cust ID:	MW30-008AF	P-2335-X-00-00-AA	MW30-007AT	MW30-007AA	MW30-002AA	MW30-002AC
	RFW#:	005	006	007	008	009	010
Dibromochloromethane		1 U	5 U	1 U	5 U	1 U	1 U
1,2-Dibromoethane		1 U	5 U	1 U	5 U	1 U	1 U
Chlorobenzene		1 U	5 U	1 U	5 U	1 U	1 U
1,1,1,2-Tetrachloroethane		1 U	5 U	1 U	5 U	1 U	1 U
Ethylbenzene		1 U	23	1 U	11	1 U	1 U
1,3- and 1,4-Xylene		1 U	41	1 U	10	1 U	1 U
1,2-Xylene		1 U	5 U	1 U	4 J	1 U	1 U
Styrene		1 U	5 U	1 U	5 U	1 U	1 U
Bromoform		1 U	5 U	1 U	5 U	1 U	1 U
Isopropylbenzene		1 U	5 U	1 U	5 U	0.4 J	0.4 J
Bromobenzene		1 U	5 U	1 U	5 U	1 U	1 U
1,2,3-Trichloropropane		1 U	5 U	1 U	5 U	1 U	1 U
1,1,2,2-Tetrachloroethane		1 U	5 U	1 U	5 U	1 U	1 U
N-propylbenzene		1 U	11	1 U	0.6 J	1 U	1 U
2-Chlorotoluene		1 U	5 U	1 U	5 U	1 U	1 U
4-Chlorotoluene		1 U	5 U	1 U	5 U	1 U	1 U
1,3,5-Trimethylbenzene		1 U	5 U	1 U	2 J	1 U	1 U
Tert-butylbenzene		1 U	5 U	1 U	5 U	1 U	1 U
1,2,4-Trimethylbenzene		1 U	120	1 U	3 J	1 U	1 U
Sec-butylbenzene		1 U	2 J	1 U	5 U	1 U	1 U
1,3-Dichlorobenzene		1 U	5 U	1 U	5 U	1 U	1 U
1,4-Dichlorobenzene		1 U	5 U	1 U	5 U	1 U	1 U
4-Isopropyltoluene		1 U	5 U	1 U	5 U	1 U	1 U
1,2-Dichlorobenzene		1 U	5 U	1 U	5 U	1 U	1 U
N-butylbenzene		1 U	13	1 U	5 U	1 U	1 U
1,2-Dibromo-3-chloropropane		1 U J	5 U J	1 U J	5 U J	1 U J	1 U J
1,2,4-Trichlorobenzene		1 U	5 U	1 U	5 U	1 U	1 U
Hexachlorobutadiene		1 U	5 U	1 U	5 U	1 U	1 U
Naphthalene		1 U J	40 J	1 U J	5 U J	1 U J	1 U J
1,2,3-Trichlorobenzene		1 U	5 U	1 U	5 U	1 U	1 U

*= Outside of EPA CLP QC limits.

7/7/93

Xecra LabNet - Lionville Laboratory
Volatiles by GC/MS

RFW Batch Number: 9804L428 Client: PLATTSBURG AFB Work Order: 11604601001 Page: 3a

Report Date: 06/30/98 15:06

	Cust ID:	MW30-006AA	MW30-005AT	MW30-005AA	MW30-005AF	MW30-001AA	MW30-003AA
Sample Information	RFW#:	011	012	013	014	015	016
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	125	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Toluene-d8	90 %	95 %	99 %	96 %	95 %	96 %
	Bromofluorobenzene	91 %	98 %	98 %	98 %	98 %	99 %
	1,2-Dichloroethane-d4	98 %	98 %	94 %	94 %	98 %	100 %
Dichlorodifluoromethane		1 U	1 U	120 U	1 U	1 U	1 U
Chloromethane		1 U	1 U	120 U	1 U	1 U	1 U
Vinyl Chloride		1 U	1 U	120 U	1 U	1 U	1 U
Bromomethane		1 U	1 U	120 U	1 U	1 U	1 U
Chloroethane		1 U	1 U	120 U	1 U	1 U	1 U
Trichlorofluoromethane		1 U	1 U	120 U	1 U	1 U	1 U
1,1-Dichloroethene		1 U	1 U	120 U	1 U	1 U	1 U
Methylene Chloride		1	2	430	5 B	1	1
Trans-1,2-dichloroethene		1 U	1 U	120 U	1 U	1 U	1 U
1,1-Dichloroethane		1 U	1 U	120 U	1 U	1 U	1 U
Cis-1,2 dichloroethene		1 U	1 U	120 U	1 U	1 U	1 U
2,2-Dichloropropane		1 U	1 U	120 U	1 U	1 U	1 U
Bromochloromethane		1 U	1 U	120 U	1 U	1 U	1 U
Chloroform		1 U	1 U	120 U	5	1 U	1 U
1,1,1-Trichloroethane		1 U	1 U	120 U	1 U	1 U	1 U
Carbon Tetrachloride		1 U	1 U	120 U	1 U	1 U	1 U
1,1-dichloropropene		1 U	1 U	120 U	1 U	1 U	1 U
Benzene		1 U	1 U	3000	1 U	1 U	1 U
1,2-Dichloroethane		1 U	1 U	120 U	1 U	1 U	1 U
Trichloroethene		1 U	1 U	120 U	1 U	1 U	4
1,2-Dichloropropane		1 U	1 U	120 U	1 U	1 U	1 U
Dibromomethane		1 U	1 U	120 U	1 U	1 U	1 U
Bromodichloromethane		1 U	1 U	120 U	1 U	1 U	1 U
cis-1,3-Dichloropropene		1 U	1 U	120 U	1 U	1 U	1 U
Toluene		1 U	1 U	160	1 U	1 U	1 U
Trans-1,3-Dichloropropene		1 U	1 U	120 U	1 U	1 U	1 U
1,1,2-Trichloroethane		1 U	1 U	120 U	1 U	1 U	1 U
Tetrachloroethene		1 U	1 U	120 U	1 U	1 U	1
1,3-Dichloropropane		1 U	1 U	120 U	1 U	1 U	1 U

* Outside of EPA CLP QC limits.

1/1/13

Cust ID: MW30-006AA MW30-005AT MW30-005AA MW30-005AF MW30-001AA MW30-003AA

RFW#:	011		012		013		014		015		016	
Dibromochloromethane	1	U	1	U	120	U	1	U	1	U	1	U
1,2-Dibromoethane	1	U	1	U	120	U	1	U	1	U	1	U
Chlorobenzene	1	U	1	U	120	U	1	U	1	U	1	U
1,1,1,2-Tetrachloroethane	1	U	1	U	120	U	1	U	1	U	1	U
Ethylbenzene	1	U	1	U	920	*	1	U	1	U	1	U
1,3- and 1,4-Xylene	1	U	1	U	2700		1	U	1	U	1	U
1,2-Xylene	1	U	1	U	48	J	1	U	1	U	1	U
Styrene	1	U	1	U	120	U	1	U	1	U	1	U
Bromoform	1	U	1	U	120	U	1	U	1	U	1	U
Isopropylbenzene	1	U	1	U	41	J	1	U	1	U	1	U
Bromobenzene	1	U	1	U	120	U	1	U	1	U	1	U
1,2,3-Trichloropropane	1	U	1	U	120	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	1	U	1	U	120	U	1	U	1	U	1	U
N-propylbenzene	1	U	1	U	91	J	1	U	1	U	1	U
2-Chlorotoluene	1	U	1	U	120	U	1	U	1	U	1	U
4-Chlorotoluene	1	U	1	U	120	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	1	U	1	U	190	*	1	U	1	U	1	U
Tert-butylbenzene	1	U	1	U	120	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	1	U	1	U	760		1	U	1	U	1	U
Sec-butylbenzene	1	U	1	U	120	U	1	U	1	U	1	U
1,3-Dichlorobenzene	1	U	1	U	120	U	1	U	1	U	1	U
1,4-Dichlorobenzene	1	U	1	U	120	U	1	U	1	U	1	U
4-Isopropyltoluene	1	U	1	U	120	U	1	U	1	U	1	U
1,2-Dichlorobenzene	1	U	1	U	120	U	1	U	1	U	1	U
N-butylbenzene	1	U	1	U	120	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	1	U J	1	U J	120	U J	1	U J	1	U J	1	U J
1,2,4-Trichlorobenzene	1	U	1	U	120	U	1	U	1	U	1	U
Hexachlorobutadiene	1	U	1	U	120	U	1	U	1	U	1	U
Naphthalene	1	U J	1	U J	120	U J	1	U J	1	U J	1	U J
1,2,3-Trichlorobenzene	1	U	1	U	120	U	1	U	1	U	1	U

* Outside of EPA CLP QC limits.

018

7/7/98

Sample Information		Cust ID: MW30-003AE	VBLKUJ	VBLKUJ BS	VBLKSD	VBLKSD BS	VBLKQZ
	RFW#:	017	98LVH143-MB1	98LVH143-MB1	98LVH144-MB1	98LVH144-MB1	98LVH147-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Toluene-d8	95 %	97 %	97 %	96 %	96 %	101 %
	Bromofluorobenzene	100 %	100 %	94 %	98 %	95 %	104 %
	1,2-Dichloroethane-d4	96 %	100 %	98 %	94 %	102 %	95 %
Dichlorodifluoromethane		1 U	1 U	144 * %	1 U	145 * %	1 U
Chloromethane		1 U	1 U	121 %	1 U	125 %	1 U
Vinyl Chloride		1 U	1 U	129 %	1 U	131 %	1 U
Bromomethane		1 U	1 U	140 * %	1 U	156 * %	1 U
Chloroethane		1 U	1 U	115 %	1 U	118 %	1 U
Trichlorofluoromethane		1 U	1 U	113 %	1 U	112 %	1 U
1,1-Dichloroethene		1 U	1 U	114 %	1 U	112 %	1 U
Methylene Chloride		6 BJ	0.4 J	71 * %	0.3 J	67 * %	1 J
Trans-1,2-dichloroethene		1 U	1 U	104 %	1 U	100 %	1 U
1,1-Dichloroethane		1 U	1 U	109 %	1 U	109 %	1 U
Cis-1,2-dichloroethene		1 U	1 U	61 * %	1 U	103 %	1 U
2,2-Dichloropropane		1 U	1 U	107 %	1 U	107 %	1 U
Bromochloromethane		1 U	1 U	106 %	1 U	107 %	1 U
Chloroform		5	1 U	100 %	1 U	101 %	1 U
1,1,1-Trichloroethane		0.2 J	1 U	104 %	1 U	104 %	1 U
Carbon Tetrachloride		1 U	1 U	90 %	1 U	100 %	1 U
1,1-dichloropropene		1 U	1 U	103 %	1 U	103 %	1 U
Benzene		1 U	1 U	102 %	1 U	104 %	1 U
1,2-Dichloroethane		1 U	1 U	102 %	1 U	103 %	1 U
Trichloroethene		1 U	1 U	107 %	1 U	108 %	1 U
1,2-Dichloropropane		1 U	1 U	109 %	1 U	110 %	1 U
Dibromomethane		1 U	1 U	106 %	1 U	108 %	1 U
Bromodichloromethane		1 U	1 U	96 %	1 U	98 %	1 U
cis-1,3-Dichloropropene		1 U	1 U	96 %	1 U	94 %	1 U
Toluene		1 U	1 U	100 %	1 U	98 %	1 U
Trans-1,3-Dichloropropene		1 U	1 U	96 %	1 U	95 %	1 U
1,1,2-Trichloroethane		1 U	1 U	101 %	1 U	99 %	1 U
Tetrachloroethene		1 U	1 U	102 %	1 U	97 %	1 U
1,3-Dichloropropane		1 U	1 U	95 %	1 U	95 %	1 U

*= Outside of EPA CLP QC limits.

7/7/98

Cust ID:	MW30-003AE	VBLKUJ	VBLKUJ BS	VBLKSD	VBLKSD BS	VBLKQZ
RFW#:	017	98LVH143-MB1	98LVH143-MB1	98LVH144-MB1	98LVH144-MB1	98LVH147-MB1
Dibromochloromethane	1 U	1 U	99 %	1 U	95 %	1 U
1,2-Dibromoethane	1 U	1 U	102 %	1 U	103 %	1 U
Chlorobenzene	1 U	1 U	99 %	1 U	96 %	1 U
1,1,1,2-Tetrachloroethane	1 U	1 U	102 %	1 U	96 %	1 U
Ethylbenzene	1 U	1 U	102 %	1 U	99 %	1 U
1,3- and 1,4-Xylene	1 U	1 U	100 %	1 U	99 %	1 U
1,2-Xylene	1 U	1 U	104 %	1 U	102 %	1 U
Styrene	1 U	1 U	103 %	1 U	101 %	1 U
Bromoform	1 U	1 U	106 %	1 U	100 %	1 U
Isopropylbenzene	1 U	1 U	93 %	1 U	90 %	1 U
Bromobenzene	1 U	1 U	99 %	1 U	94 %	1 U
1,2,3-Trichloropropane	1 U	1 U	104 %	1 U	100 %	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	101 %	1 U	96 %	1 U
N-propylbenzene	1 U	1 U	100 %	1 U	94 %	1 U
2-Chlorotoluene	1 U	1 U	102 %	1 U	97 %	1 U
4-Chlorotoluene	1 U	1 U	104 %	1 U	98 %	1 U
1,3,5-Trimethylbenzene	1 U	1 U	100 %	1 U	96 %	1 U
Tert-butylbenzene	1 U	1 U	102 %	1 U	97 %	1 U
1,2,4-Trimethylbenzene	1 U	1 U	101 %	1 U	96 %	1 U
Sec-butylbenzene	1 U	1 U	102 %	1 U	97 %	1 U
1,3-Dichlorobenzene	1 U	1 U	101 %	1 U	96 %	1 U
1,4-Dichlorobenzene	1 U	1 U	99 %	1 U	93 %	1 U
4-Isopropyltoluene	1 U	1 U	98 %	1 U	94 %	1 U
1,2-Dichlorobenzene	1 U	1 U	104 %	1 U	101 %	1 U
N-butylbenzene	1 U	1 U	107 %	1 U	101 %	1 U
1,2-Dibromo-3-chloropropane	1 UJ	1 U	110 %	1 U	112 %	1 U
1,2,4-Trichlorobenzene	1 U	1 U	104 %	1 U	103 %	1 U
Hexachlorobutadiene	1 U	1 U	100 %	1 U	100 %	1 U
Naphthalene	1 UJ	1 U	99 %	1 U	111 %	1 U
1,2,3-Trichlorobenzene	1 U	1 U	102 %	1 U	102 %	1 U

*= Outside of EPA CLP QC limits.

020

7/7/13

Cust ID: VBLKQZ BS

Sample Information

RFW#: 98LVH147-MB1
Matrix: WATER
D.F.: 1.00
Units: UG/L

021

Surrogate Recovery	Toluene-d8	97	%
	Bromofluorobenzene	95	%
	1,2-Dichloroethane-d4	103	%
Dichlorodifluoromethane		138 *	%
Chloromethane		122	%
Vinyl Chloride		128	%
Bromomethane		160 *	%
Chloroethane		115	%
Trichlorofluoromethane		108	%
1,1-Dichloroethene		110	%
Methylene Chloride		74 *	%
Trans-1,2-dichloroethene		96	%
1,1-Dichloroethane		108	%
Cis 1,2 dichloroethene		100	%
2,2-Dichloropropane		96	%
Bromochloromethane		104	%
Chloroform		99	%
1,1,1-Trichloroethane		100	%
Carbon Tetrachloride		102	%
1,1-dichloropropene		99	%
Benzene		103	%
1,2-Dichloroethane		101	%
Trichloroethene		105	%
1,2-Dichloropropane		110	%
Dibromomethane		103	%
Bromodichloromethane		96	%
cis-1,3-Dichloropropene		94	%
Toluene		100	%
Trans-1,3-Dichloropropene		94	%
1,1,2-Trichloroethane		100	%
Tetrachloroethene		96	%
1,3-Dichloropropane		97	%

*= Outside of EPA CLP QC limits.

Cust ID: **VBLKQZ BS**

RFW#: **98LVH147-MB1**

Dibromochloromethane	97	%
1,2-Dibromoethane	103	%
Chlorobenzene	97	%
1,1,1,2-Tetrachloroethane	98	%
Ethylbenzene	98	%
1,3- and 1,4-Xylene	97	%
1,2-Xylene	102	%
Styrene	102	%
Bromoform	102	%
Isopropylbenzene	90	%
Bromobenzene	95	%
1,2,3-Trichloropropane	101	%
1,1,2,2-Tetrachloroethane	99	%
N-propylbenzene	95	%
2-Chlorotoluene	97	%
4-Chlorotoluene	100	%
1,3,5-Trimethylbenzene	96	%
Tert-butylbenzene	96	%
1,2,4-Trimethylbenzene	98	%
Sec-butylbenzene	98	%
1,3-Dichlorobenzene	98	%
1,4-Dichlorobenzene	97	%
4-Isopropyltoluene	94	%
1,2-Dichlorobenzene	102	%
N-butylbenzene	102	%
1,2-Dibromo-3-chloropropane	111	%
1,2,4-Trichlorobenzene	106	%
Hexachlorobutadiene	97	%
Naphthalene	109	%
1,2,3-Trichlorobenzene	106	%

*= Outside of EPA CLP QC limits.

022

	Cust ID:	MW30-004AA	MW30-008AA	MW30-008AA	MW30-008AA	MW30-008AE	MW30-007AA
Sample Information	RFW#:	002	003	003 MS	003 MSD	004	008
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Nitrobenzene d5	75 %	70 %	80 %	70 %	[illegible] %	[illegible] %
	2 Fluorobiphenyl	65 %	80 %	66 %	64 %	[illegible] %	[illegible] %
	p Terphenyl-d14	75 %	70 %	73 %	70 %	71 %	[illegible] %
	Phenol d5	33 %	33 %	64 %	51 %	70 %	[illegible] %
	2 Fluorophenol	76 %	73 %	75 %	71 %	[illegible] %	[illegible] %
	2,4,6 Tribromophenol	69 %	90 %	76 %	79 %	[illegible] %	[illegible] %
Phenol		10 U	10 U	73 %	66 %	10 U J	5 J
bis(2-Chloroethyl)ether		10 U	10 U	71 %	66 %	10 U	10 U
2-Chlorophenol		10 U	10 U	73 %	65 %	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	72 %	62 %	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	68 %	62 %	10 U	10 U
Benzyl alcohol		10 U	10 U	47 %	31 * %	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	71 %	62 %	10 U	10 U
2 Methylphenol		10 U	10 U	72 %	66 %	10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	10 U	68 %	38 %	10 U	10 U
4 Methylphenol		10 U	10 U	74 %	68 %	10 U	10 U
N Nitroso Di n propylamine		10 U	10 U	81 %	74 %	10 U	10 U
Hexachloroethane		10 U	10 U	75 %	64 %	10 U	10 U
Nitrobenzene		10 U	10 U	77 %	65 %	10 U	10 U
Isophorone		10 U	10 U	74 %	64 %	10 U	10 U
2 Nitrophenol		10 U	10 U	76 %	62 %	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	80 %	67 %	10 U	10 U
Benzoic acid		26 U	26 U	68 %	52 %	26 U	26 U
bis(2-Chloroethoxy)methane		10 U R	10 U R	31 * %	16 * %	10 U R	10 U R
2,4-Dichlorophenol		10 U J	10 U J	74 %	61 %	10 U J	10 U J
1,2,4-Trichlorobenzene		10 U	10 U	67 %	56 %	10 U	10 U
Naphthalene		10 U	10 U	68 %	57 %	10 U	10 U
4-Chloroaniline		10 U R	10 U R	25 * %	22 * %	10 U R	10 U R
Hexachlorobutadiene		10 U J	10 U J	77 %	66 %	10 U J	10 U J
4-Chloro-3-methylphenol		10 U	10 U	70 %	63 %	10 U	10 U
2-Methylnaphthalene		10 U	10 U	71 %	59 %	10 U	10 U
Hexachlorocyclopentadiene		10 U R	10 U R	24 * %	21 * %	10 U R	10 U R

* Outside of EPA CLP QC limits.

JC 7/7/98

010

Batch Number: 98[illegible]128 Client: PLATTSBURG AFB Work Order: [illegible]901

	Cust. ID:	MW30-004AA	MW30-008AA	MW30-008AA	MW30-008AA	MW30-008AE	MW30-007AA
	RFW#:	002	003	003 MS	003 MSD	004	008
2,4,6-Trichlorophenol		10 U J	10 U J	69 %	63 %	10 U J	10 U J
2,4,5-Trichlorophenol		26 U	26 U	63 %	62 %	26 U	26 U
2-Chloronaphthalene		10 U	10 U	67 %	61 %	10 U	10 U
2-Nitroaniline		26 UJ R	26 UJ R	40 * %	54 %	26 UJ R	26 UJ R
Dimethylphthalate		10 U J	10 U J	71 %	62 %	10 U J	10 U J
Acenaphthylene		10 U	10 U M	52 %	28 * %	10 U	10 U
2,6-Dinitrotoluene		10 U	10 U	74 %	68 %	10 U	10 U
3-Nitroaniline		26 UJ R	26 UJ R	1 * %	1 * %	26 UJ R	26 UJ R
Acenaphthene		10 U J	10 U J	70 %	61 %	10 U J	10 U J
2,4-Dinitrophenol		26 U	26 U	72 %	78 %	26 U	26 U
4-Nitrophenol		26 U	26 U	74 %	71 %	26 U	26 U
Dibenzofuran		10 U	10 U	72 %	64 %	10 U	10 U
2,4-Dinitrotoluene		10 U	10 U	79 %	74 %	10 U	10 U
Diethylphthalate		10 U	10 U	72 %	61 %	10 U	10 U
4-Chlorophenyl-phenylether		10 U	10 U	74 %	64 %	10 U	10 U
Fluorene		10 U	10 U	72 %	63 %	10 U	10 U
4-Nitroaniline		26 UJ R	26 UJ R	4 * %	2 * %	26 UJ R	26 UJ R
4,6-Dinitro-2-methylphenol		26 U J	26 U J	78 %	76 %	26 U J	26 U J
N-Nitrosodiphenylamine (1)		10 UJ R	10 UJ R	2 * %	12 * %	10 UJ R	10 UJ R
4-Bromophenyl-phenylether		10 U J	10 U J	60 %	59 %	10 U J	10 U J
Hexachlorobenzene		10 U	10 U	72 %	71 %	10 U	10 U
Pentachlorophenol		26 U	26 U	67 %	69 %	26 U	26 U
Phenanthrene		10 U	10 U	71 %	66 %	10 U	10 U
Anthracene		10 U	10 U	65 %	60 %	10 U	10 U
Di-n-Butylphthalate		10 U	10 U	71 %	59 %	10 U	10 U
Fluoranthene		10 U	10 U	69 %	65 %	10 U	10 U
Pyrene		10 U	10 U M J	70 %	55 %	10 U	10 U
Butylbenzylphthalate		10 U	10 U M	71 %	47 %	10 U	10 U
3,3'-Dichlorobenzidine		10 UJ R	10 UJ R	0 * %	0 * %	10 UJ R	10 UJ R
Benzo(a)anthracene		10 U J	10 U J	71 %	61 %	10 U J	10 U J
Chrysene		10 U	10 U	74 %	68 %	10 U	10 U
bis(2-Ethylhexyl)phthalate		~~10 4 JB~~ 4 J	~~10 4 JB~~ 4 J	71 %	58 %	4 JB	~~10 9 JB~~ 9 J
Di-n-Octyl phthalate		10 U J	10 U M J	99 %	76 %	10 U J	10 U J
Benzo(b)fluoranthene		10 U	10 U	94 %	79 %	10 U	10 U
Benzo(k)fluoranthene		10 U	10 U M	94 %	74 %	10 U	10 U
Benzo(a)pyrene		10 U	10 U M	78 %	54 %	10 U	10 U
Indeno(1,2,3-cd)pyrene		10 U	10 U M	96 %	75 %	10 U	10 U
Dibenzo(a,h)anthracene		10 U	10 U	98 %	83 %	10 U	10 U
Benzo(g,h,i)perylene		10 U	10 U M	91 %	73 %	10 U	10 U
N-Nitrosodimethylamine		10 U	10 U	68 %	69 %	10 U	10 U

* - Outside of EPA CLP QC limits.

7/1/93

RFW Batch Number: 9804L428 Client: PLATTSBURG AFB Work Order #: 1[illegible]601

Cust ID:	MW30-004AA	MW30-008AA	MW30-008AA	MW30-008AA	MW30-008AE	MW30-007AA
RFW#:	002	003	003 MS	003 MSD	004	008
Pyridine	10 UR✓	10 UR	0 * %	2 * %	10 UR	10 UR

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

012

JL 7/7/98

013

	Cust ID:	MW30-002AA		MW30-002AC		MW30-006AA		MW30-005AA		MW30-001AA		MW30-003AA	
Sample Information	RFW#:	009		010		011		013		015		016	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		2.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Nitrobenzene-d5	68	%	67	%	60	%	56	%	60	%	59	%
	2-Fluorobiphenyl	64	%	61	%	56	%	51	%	54	%	60	%
	p-Terphenyl-d14	72	%	67	%	57	%	58	%	64	%	67	%
	Phenol-d5	68	%	56	%	16 *	%	46	%	41	%	53	%
	2-Fluorophenol	68	%	60	%	61	%	121	%	57	%	64	%
	2,4,6-Tribromophenol	70	%	56	%	66	%	56	%	58	%	59	%
Phenol		10	U J	10	U J	10	U J	53	J	10	U J	10	U J
bis(2-Chloroethyl)ether		10	U	10	U	10	U	20	U	10	U	10	U
2-Chlorophenol		10	U	10	U	10	U	20	U	10	U	10	U
1,3-Dichlorobenzene		10	U	10	U	10	U	20	U	10	U	10	U
1,4-Dichlorobenzene		10	U	10	U	10	U	20	U	10	U	10	U
Benzyl alcohol		10	U	10	U	10	U	20	U	10	U	10	U
1,2-Dichlorobenzene		10	U	10	U	10	U	20	U	10	U	10	U
2-Methylphenol		10	U	10	U	10	U	20	U	10	U	10	U
bis(2-Chloroisopropyl)ether		10	U	10	U	10	U	20	U	10	U	10	U
4-Methylphenol		10	U	10	U	10	U	20	U	10	U	10	U
N-Nitroso-Di-n-propylamine		10	U	10	U	10	U	20	U	10	U	10	U
Hexachloroethane		10	U	10	U	10	U	20	U	10	U	10	U
Nitrobenzene		10	U	10	U	10	U	20	U	10	U	10	U
Isophorone		10	U	10	U	10	U	20	U	10	U	10	U
2-Nitrophenol		10	U	10	U	10	U	20	U	10	U	10	U
2,4-Dimethylphenol		10	U	10	U	10	U	20	U	10	U	10	U
Benzoic acid		26	U	26	U	26	U	51	U	26	U	26	U
bis(2-Chloroethoxy)methane		10	U R	10	U R	10	U R	20	U R	10	U R	10	U R
2,4-Dichlorophenol		10	U J	10	U J	10	U J	20	U J	10	U J	10	U J
1,2,4-Trichlorobenzene		10	U	10	U	10	U	20	U	10	U	10	U
Naphthalene		10	U	10	U	10	U	110	J	10	U	10	U
4-Chloroaniline		10	U R	10	U R	10	U R	20	U R	10	U R	10	U R
Hexachlorobutadiene		10	U J	10	U J	10	U J	20	U J	10	U J	10	U J
4-Chloro-3-methylphenol		10	U	10	U	10	U	20	U	10	U	10	U
2-Methylnaphthalene		10	U	10	U	10	U	10	J	10	U	10	U
Hexachlorocyclopentadiene		10	U R	10	U R	10	U R	20	U R	10	U R	10	U R

* Outside of EPA CLP QC limits.

11/11/98

RFW Batch Number: 9804428 [illegible] PLATTSBURGH [illegible] Water [illegible]

	Cust ID:	MW30-002AA	MW30-002AC	MW30-006AA	MW30-005AA	MW30-001AA	MW30-003AA
	RFW#:	009	010	011	013	015	016
2,4,6-Trichlorophenol		10 U J	10 U J	10 U J	20 U J	10 U J	10 U J
2,4,5-Trichlorophenol		26 U	26 U	26 U	51 U	26 U	26 U
2-Chloronaphthalene		10 U	10 U	10 U	20 U	10 U	10 U
2-Nitroaniline		26 UJ R	26 UJ R	26 UJ R	51 UJ R	26 UJ R	26 UJ R
Dimethylphthalate		10 U J	10 U J	10 U J	20 U J	10 U J	10 U J
Acenaphthylene		10 U	10 U	10 U	20 U	10 U	10 U
2,6-Dinitrotoluene		10 U	10 U	10 U	20 U	10 U	10 U
3-Nitroaniline		26 UJ R	26 UJ R	26 UJ R	51 UJ R	26 UJ R	26 UJ R
Acenaphthene		10 U J	10 U J	10 U J	20 U J	10 U J	10 U J
2,4-Dinitrophenol		26 U	26 U	26 U	51 U	26 U	26 U
4-Nitrophenol		26 U	26 U	26 U	51 U	26 U	26 U
Dibenzofuran		10 U	10 U	10 U	20 U	10 U	10 U
2,4-Dinitrotoluene		10 U	10 U	10 U	20 U	10 U	10 U
Diethylphthalate		10 U	10 U	10 U	20 U	10 U	10 U
4-Chlorophenyl-phenylether		10 U	10 U	10 U	20 U	10 U	10 U
Fluorene		10 U	10 U	10 U	20 U	10 U	10 U
4-Nitroaniline		26 UJ R	26 UJ R	26 UJ R	51 UJ R	26 UJ R	26 UJ R
4,6-Dinitro-2-methylphenol		26 U J	26 U J	26 U J	51 U J	26 U J	26 U J
N-Nitrosodiphenylamine (1)		10 UJ R	10 UJ R	10 UJ R	20 UJ R	10 UJ R	10 UJ R
4-Bromophenyl-phenylether		10 U J	10 U J	10 U J	20 U J	10 U J	10 U J
Hexachlorobenzene		10 U	10 U	10 U	20 U	10 U	10 U
Pentachlorophenol		26 U	26 U	26 U	51 U	26 U	26 U
Phenanthrene		10 U	10 U	10 U	20 U	10 U	10 U
Anthracene		10 U	10 U	10 U	20 U	10 U	10 U
Di-n-Butylphthalate		10 U	10 U	10 U	20 U	10 U	10 U
Fluoranthene		10 U	10 U	10 U	20 U	10 U	10 U
Pyrene		10 U	10 U	10 U	20 U	10 U	10 U
Butylbenzylphthalate		10 U	10 U	10 U	20 U	10 U	10 U
3,3'-Dichlorobenzidine		10 UJ R	10 UJ R	10 UJ R	20 UJ R	10 UJ R	10 UJ R
Benzo(a)anthracene		10 U J	10 U J	10 U J	20 U J	10 U J	10 U J
Chrysene		10 U	10 U	10 U	20 U	10 U	10 U
bis(2-Ethylhexyl)phthalate		10 ~~JB~~ UJ	10 ~~JB~~ UJ	10 ~~JB~~ UJ	10 ~~JB~~ UJ	10 ~~JB~~ UJ	10 ~~JB~~ UJ
Di-n-Octyl phthalate		10 U J	10 U J	10 U J	20 U J	10 U J	10 U J
Benzo(b)fluoranthene		10 U	10 U	10 U	20 U	10 U	10 U
Benzo(k)fluoranthene		10 U	10 U	10 U	20 U	10 U	10 U
Benzo(a)pyrene		10 U	10 U	10 U	20 U	10 U	10 U
Indeno(1,2,3-cd)pyrene		10 U	10 U	10 U	20 U	10 U	10 U
Dibenzo(a,h)anthracene		10 U	10 U	10 U	20 U	10 U	10 U
Benzo(g,h,i)perylene		10 U	10 U	10 U	20 U	10 U	10 U
N-Nitrosodimethylamine		10 U	10 U	10 U	20 U	10 U	10 U

*- Outside of EPA CLP QC limits.

4 PIC

JC 1/7/13

RFW Batch Number: 9804L428 Client: PLATTSBURG AFB Work Order: [illegible]601

Cust ID:	MW30-002AA	MW30-002AC	MW30-006AA	MW30-005AA	MW30-001AA	MW30-003AA
RFW#:	009	010	011	013	015	016
Pyridine	10 UR	10 UR	10 UR	20 UR	10 UR	10 UR

(1) Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

015

1/7/18

016

	Cust ID:	MW30-003AE	SBLKXC	SBLKXC BS
Sample Information	RFW#:	017	98LE0640-MB1	98LE0640-MB1
	Matrix:	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L
Surrogate Recovery	Nitrobenzene-d5	66 %	79 %	76 %
	2-Fluorobiphenyl	55 %	66 %	68 %
	p-Terphenyl-d14	62 %	79 %	75 %
	Phenol-d5	41 %	74 %	45 %
	2-Fluorophenol	25 %	76 %	57 %
	2,4,6-Tribromophenol	18 * %	72 %	57 %
Phenol		10 U J	10 U	57 %
bis(2-Chloroethyl)ether		10 U	10 U	65 %
2-Chlorophenol		10 U	10 U	56 %
1,3-Dichlorobenzene		10 U	10 U	64 %
1,4-Dichlorobenzene		10 U	10 U	65 %
Benzyl alcohol		10 U	10 U	60 %
1,2-Dichlorobenzene		10 U	10 U	65 %
2-Methylphenol		10 U	10 U	60 %
bis(2-Chloroisopropyl)ether		10 U	10 U	62 %
4-Methylphenol		10 U	10 U	63 %
N-Nitroso-Di-n-propylamine		10 U	10 U	68 %
Hexachloroethane		10 U	10 U	73 %
Nitrobenzene		10 U	10 U	70 %
Isophorone		10 U	10 U	73 %
2-Nitrophenol		10 U	10 U	53 %
2,4-Dimethylphenol		10 U	10 U	71 %
Benzoic acid		26 U	25 U	46 %
bis(2-Chloroethoxy)methane		10 U R	10 U	17 * %
2,4-Dichlorophenol		10 U J	10 U	55 %
1,2,4-Trichlorobenzene		10 U	10 U	69 %
Naphthalene		10 U	10 U	69 %
4-Chloroaniline		10 U R	10 U	25 * %
Hexachlorobutadiene		10 U J	10 U	74 %
4-Chloro-3-methylphenol		10 U	10 U	64 %
2-Methylnaphthalene		10 U	10 U	66 %
Hexachlorocyclopentadiene		10 U R	10 U	13 * %

*- Outside of EPA CLP QC limits.

1/7/98

Ba[redacted] Num[redacted] 98[redacted]428[redacted] Client: PLATTSBURG AFB Work Order: [redacted]

	Cust ID:	MW30-003AE	SBLKXC	SBLKXC BS
	RFW#:	017	98LE0640-MB1	98LE0640-MB1
2,4,6 Trichlorophenol		10 U J	10 U	51 %
2,4,5-Trichlorophenol		26 U	25 U	48 %
2-Chloronaphthalene		10 U	10 U	67 %
2-Nitroaniline		26 U R	25 U	22 * %
Dimethylphthalate		10 U J	10 U	67 %
Acenaphthylene		10 U	10 U	49 %
2,6-Dinitrotoluene		10 U	10 U	70 %
3-Nitroaniline		26 U R	25 U	1 * %
Acenaphthene		10 U J	10 U	66 %
2,4-Dinitrophenol		26 U	25 U	56 %
4-Nitrophenol		26 U	25 U	47 %
Dibenzofuran		10 U	10 U	65 %
2,4-Dinitrotoluene		10 U	10 U	71 %
Diethylphthalate		10 U	10 U	68 %
4-Chlorophenyl-phenylether		10 U	10 U	64 %
Fluorene		10 U	10 U	67 %
4-Nitroaniline		26 U R	25 U	1 * %
4,6-Dinitro-2-methylphenol		26 U J	25 U	55 %
N-Nitrosodiphenylamine (1)		10 U R	10 U	10 * %
4-Bromophenyl-phenylether		10 U J	10 U	59 %
Hexachlorobenzene		10 U	10 U	69 %
Pentachlorophenol		26 U	25 U	50 %
Phenanthrene		10 U	10 U	69 %
Anthracene		10 U	10 U	65 %
Di-n-Butylphthalate		10 U	10 U	67 %
Fluoranthene		10 U	10 U	70 %
Pyrene		10 U	10 U	69 %
Butylbenzylphthalate		10 U	10 U	69 %
3,3'-Dichlorobenzidine		10 U R	10 U	0 * %
Benzo(a)anthracene		10 U J	10 U	69 %
Chrysene		10 U	10 U	70 %
bis(2-Ethylhexyl)phthalate		~~10~~ ~~3~~ ~~J~~ ~~U~~	5 J	69 %
Di-n-Octyl phthalate		10 U J	10 U	80 %
Benzo(b)fluoranthene		10 U	10 U	79 %
Benzo(k)fluoranthene		10 U	10 U	75 %
Benzo(a)pyrene		10 U	10 U	70 %
Indeno(1,2,3-cd)pyrene		10 U	10 U	85 %
Dibenzo(a,h)anthracene		10 U	10 U	89 %
Benzo(g,h,i)perylene		10 U	10 U	84 %
N-Nitrosodimethylamine		10 U	10 U	56 %

* Outside of EPA CLP QC limits.

017

JC 7/7/15

RFW Batch Number: 9804L428 Client: PLATTSBURG AFB Work Order #: 116246012

Cust ID:	MW30-003AE	SBLKXC	SBLKXC BS
RFW#:	017	98LE0640-MB1	98LE0640-MB1

Pyridine	10	U R	10	U	1 * %

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

7/7/98

018

Plattsburgh Air Force Base __ Data Validation & Usability
FP&M Project No. 444-96-01

DRAFT DATA ASSESSMENT REPORT FOR METALS
SDG No. 04L428

DATA VALIDATION FOR:	Client Specified TAL (Iron) By AFCEE QAPP 2/96 Document
WAM:	Gaby A. Atik
SITE:	Plattsburgh AFB
SDG NO:	04L428
CONTRACT LAB:	RECRA LabNet
REVIEWER:	Joseph Camanzo, Fanning, Phillips and Molnar
QA/QC OF REVIEW:	Ravi Korlipara, Korlipara Engineering
DATE REVIEWED:	August 11-13, 1998
MATRIX:	Water

SUMMARY OF DATA VALIDATION RESULTS FOR SDG 04L428

Korlipara Engineering has completed a full validation of RECRA LabNet analytical results for Sample Delivery Group (SDG) No. 04L428, inorganic fraction (metals). This SDG was analyzed only for total iron.

Evaluation of all available materials was performed to assess the quality of the metals (total iron) inorganics data. The data was found to be acceptable except for the major data deficiencies below:

The MS recovery was 145.8% and MSD recovery was 146.3%. Hence, all samples in this SDG with positive results (not flagged with "U") for iron are qualified as estimated "J."

The duplicate analysis for iron (Sample ID MW30-008AA Dupl./EPA Sample No. 0008AD) was outside the control limits. However, no action was taken because the samples were already qualified above as estimated ("J") for MS/MSD recovery.

It should be noted that in the case of both volatile and semi-volatile analytical results, the analytical laboratory may have already assigned data qualifiers (e.g., "J", "UJ", etc.) to some samples/analytical parameters based on internal QC reviews. Unless expressly over-ridden by the present data validation flags, the laboratory assigned qualifiers continue to apply in all instances that they were made.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

I. PRELIMINARY REMARKS

The data was validated according to the U.S. Environmental Protection Agency (USEPA) National Functional Guidelines for Organic/Inorganic Data Review (revised in February 1995); and the Air Force Center for Environmental Excellence (AFCEE) Quality Assurance Project Plan (QAPP), Document Version 1.1 dated January 1997. The New York State Department of Environmental Protection (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) DSHM-96-03, "Development and Review of Site Analytical Plans," was reviewed for applicability to this project. The TAGM incorporates the USEPA SOP by reference and is essentially identical to the latter. Thus, data validation according to the USEPA SOP and the AFCEE QAPP also satisfies the NYSDEC TAGM.

The inorganic (metals) analytical results were reviewed in terms of:

Data completeness
1. Technical holding time (sampling, preservation, shipping, etc.)
2. Initial multipoint calibration
3. Initial and continuing calibration verification
4. Blank contamination
5. Interference checks
6. Laboratory control samples
7. Matrix spike/matrix spike duplicate
8. Post digestion spike
9. Serial dilution
10. Field duplicates, and
11. Compound quantitation and Reporting Limits (RLs)
12. Overall Assessment

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (nondetects), "R" (unusable), or "M" (matrix effect). The data for all flagged samples are also usable with caution, except those with the "R" (unusable) qualification. All actions are detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant Quality Control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

II. LIST OF DATA VALIDATION SAMPLES AND FRACTIONS

Data validation was performed for 14 inorganic samples [including two (2) matrix spike/spike duplicate samples and one (1) re-analysis (duplicate analysis) sample]. The validated environmental samples were collected at the Plattsburgh AFB in March 1998 and shipped to RECRA LabNet to be analyzed following the 1/97 AFCEE QAPP document.

The samples validated for inorganic (metals) are listed below:

Client ID	*Lab Sample ID*	*EPA Sample No.*	*Analysis for Iron*
Samples Collected on 04/13/98:			
MW30-004AA	9804L428-002	0004AA	Yes
MW30-008AA	9804L428-003	0008AA	Yes
MW30-008AA Dupl.	9804L428-003 REP	0008AD	Yes
MW30-008AA MS	9804L428-003 MS	0008AS	Yes
MW30-008AA MSD	9804L428-003 MSD	0008AT	Yes
MW30-008AE	9804L428-004	0008AE	Yes
Samples Collected on 04/14/98:			
MW30-007AA	9804L428-008	0007AA	Yes
MW30-002AA	9804L428-009	0002AA	Yes
MW30-002AC	9804L428-010	0002AC	Yes
MW30-006AA	9804L428-011	0006AA	Yes
MW30-005AA	9804L428-013	0005AA	Yes
MW30-001AA	9804L428-015	0001AA	Yes
MW30-003AA	9804L428-016	0003AA	Yes
MW30-003AE	9804L428-017	0003AE	Yes
		TOTAL NUMBER OF SAMPLES:	14

III. DATA ASSESSMENT

This section provides a detailed description of the data assessment results for the validated samples. For

each assessment criterion, its purpose and scope are described briefly followed by the assessment results for inorganics.

III.1 HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. If the holding times are exceeded and the samples are not properly preserved, the affected data will be qualified as unusable, "R." Otherwise, those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J," and the nondetects (sample quantitation limits) will be flagged as estimated, "UJ." The following samples were qualified because of holding time:

All samples were analyzed within the required technical holding time.

III.2 INITIAL CALIBRATION

Method requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of providing acceptable quantitative data. Prior to analysis the instrument must be calibrated using the appropriate number of standards in a range of concentration bracketing the expected range of results. The linearity of the calibration is measured by the correlation coefficient which must be equal to or greater than 0.995. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances.

If the initial calibration correlation coefficient is less than 0.990 then non-detect results for the associated data will be classified as unusable, "R". Data associated with correlation coefficients less than 0.995 are considered as estimated "J". The following are the assessment results:

The initial calibration requirements were met.

III.3 CALIBRATION VERIFICATIONS

The continuing calibration verifies (CCV) that the instrument is giving continuing satisfactory daily performance. The initial calibration verification (ICV) uses an independent standard to measure the accuracy of the initial calibration.

The calibration criterion consists of "Percent Recovery (%R). The CCV criterion is 90-110%. CCV outliers between 75 and 89 percent result in estimation "J" of all results, outliers between 111 and 125 percent result in estimation of positive results, and positive are rejected if the recovery is above 125 percent or below 75 percent. The following samples were qualified because of %R:

All CCV QC requirements were met.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

III.4 BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, field (ambient), equipment (rinsate), or calibration blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation, analysis, field activity, or shipment. Method and calibration blanks measure laboratory contamination. Field (ambient) and equipment (rinsate) blanks measure cross-contamination of samples during field operations. When the blank's analyte concentration is greater than the RL, that analyte is considered as a blank contaminant. If the concentration of any analyte in the associated samples are greater than the method detection limit (MDL) and less than five (5) times the blank contaminant, the analytes are qualified as nondetects, "U." Negative balnk results are also evaluated for their effect on the data.

The following are the assessment results for the "blank contamination" criterion:

A) Method blank

The preparation/method blank was within method criteria.

B) Field (ambient) blank contamination
("Water blanks" or "distilled water blanks" are validated like any other sample)

No field blanks were identified in this SDG.

C) Equipment (rinsate) blank contamination
("Water blanks" or "distilled water blanks" are validated like any other sample)

There were two equipment blanks, MW30-008AE and MW30-003AE. There was no contamination in MW30-008AE. Equipment blank MW30-003AE had iron contamination at 7 ug/l. However, in all associated samples (all samples collected on 4/14/98), iron concentrations were greater than five (5) times the blank value. Hence, no action is needed for blank contamination.

D) Calibration blank contamination

There was no contamination in the initial and continuing calibration blanks.

III.5 ICP INTERFERENCE CHECK SAMPLE

Interference check samples (ICS) verifies the laboratory's inter-element and background correction factors. Recoveries between 80 and 120 percent are required. The following is the result for this criterion:

All ICP interference check standards were within control limits.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

III.6 LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) is analyte-free water (for aqueous analysis) or Ottowa sand (for soil analysis) spiked with known concentrations of all target analytes. The LCS is carried through the complete sample preparation and analysis procedure. The LCS is used to evaluate each analytical batch and to determine if the method is in control. The following are the assessment results for the LCS criterion:

The LCS was within the laboratory derived control limits.

III.7 MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

Duplicate sample determinations are also made to demonstrate acceptable method precision by the laboratory at the time of analysis. The contractual criteria are 15 percent relative percent difference (RPD) for aqueous matrices and 25 RPD for soil matrices. "M" flags are applied to the parent sample by the laboratory to show that a matrix effect may be occurring. "J" qualifications are applied to all samples of the same matrix in the SDG when the RPD is above 50 for aqueous media and above 100 for soil media.

The spiked sample analysis is designed to provide information on the effect of each sample matrix on the sample preparation procedures and the measurement methodology. The SOP criterion is 75 to 125 percent recovery. If the recoveries are in the range 126-150%, positive results for all associated aqueous samples are qualified as estimated "J."

The following are the assessment results for the "MS/MSD" criterion:

The MS recovery was 145.8% and MSD recovery was 146.3%. Hence, all samples in this SDG with positive results (not flagged with "U") for iron are qualified as estimated "J."

The duplicate analysis for iron (EPA Sample No. 0008AD) was outside the control limits. However, no action was taken because the samples were already qualified above as estimated ("J") for MS/MSD recovery.

III.8 SAMPLE POST DIGESTION SPIKE SAMPLE

Post digestion spike sample recovery was within control limits.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

III.9 SERIAL DILUTION

Significant physical or chemical interferences due to sample matrix are determined through the analysis of serial dilution samples.

The serial dilution percent difference was within control limits.

III.10 FIELD DUPLICATES

A field duplicate is a second sample collected at the same location as the original sample. Duplicate sample results are used to assess precision of the sample collection process. Positive data for samples collected on the same day are considered as estimated when the RPD is greater than twenty-five (25) percent. Non-detect results are rejected when the RPD is greater than one hundred percent for soils and fifty percent for aqueous matrix.

The following are the assessment results for the "field duplicates" criterion:

> This SDG contained one (1) primary sample/QC field duplicate pair: sample MW30-002AC is a field duplicate of primary sample MW30-002AA. The results for this pair were within control limits.

III.11 COMPOUND QUANTITATION AND REPORTING LIMITS

The data package was subjected to a Level C review in which the raw data was not examined.. As a result, the quantitation levels and reporting limits cannot be verified.

III.12 OTHER QC DATA OUT OF SPECIFICATION

No other QC data was out of specification.

III.13 OVERALL ASSESSMENT

The MS recovery was 145.8% and MSD recovery was 146.3%. Hence, all samples in this SDG with positive results (not flagged with "U") for iron are qualified as estimated "J."

The duplicate analysis for iron (EPA Sample No. 0008AD) was outside the control limits. However, no action was taken because the samples were already qualified above as estimated ("J") for MS/MSD recovery.

Important Note: It should be noted that the analytical laboratory may have already assigned data

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

qualifiers (e.g., "J", "UJ", etc.) to some samples/analytical parameters based on internal QC reviews. Unless expressly over-ridden by the present data validation flags, the laboratory assigned qualifiers continue to apply in all instances that they were made.

III.14 CONTRACTUAL NON-CONFORMANCE

None noted.

III.15 RE-EXTRACTION, RE-ANALYSIS, OR DILUTION SAMPLES

This package does not contain re-extraction, re-analysis, or dilution samples, except the one for dilution analysis.

III.16 MISCELLANEOUS OBSERVATIONS

None.

IV. DATA USABILITY

Data review for usability is a process that evaluates the validated data in context to the original data quality objectives (DQOs). The formal process of usability determination involves a complex series of editing, screening, auditing, verifying, and reviewing the validated data.

Matrix spike, laboratory control samples, and field duplicates exceeded the QC criteria. Appropriate validation action was taken. The QC criteria for holding times calibration, al standards, method blanks, equipment blanks, calibration blanks, matrix spike duplicates, were met with the exceptions noted in this narrative.

It is important to understand the bias associated with J -qualified data. The J data may have high, low, or indeterminate bias. A low bias means that the reported concentration is most likely an underestimate of the true concentration. For example, the cadmium and antimony data may be biased low due to low recoveries of the QA/QC compounds. In this case the obtained value is less than the true amount originally introduced into the sample. A high bias means that the reported concentration is most likely an overestimate of the true concentration. A bias is indeterminate when it is not possible to ascertain whether the concentration is an overestimate or an underestimate. For example, an indeterminate bias could result when matrix effects obscure QA/QC compounds.

Based on evaluation of all materials in this analytical data (SDG 04L428), the data is highly usable with the data validation qualifiers.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

ORGANIC DATA ASSESSMENT SUMMARY

SDG NO.: 04L428 **LABORATORY:** RECRA LabNet **SOW:** AFCEE QAPP2.0

DATA USER: Fanning, Phillips and Molnar **REVIEW COMPLETION DATE:** 8/13/98

NO. OF INORGANICS SAMPLES (All Water): 14
[including one (1) re-analyzed sample and two (2) matrix spike/spike duplicate samples]

DATA VALIDATION CONTRACTOR: Korlipara Engineering

		Iron
1.	Holding Times	O
2.	Initial Calibrations	O
3.	Continuing Calibrations	O
4.	Field and Equipment Blanks	O
5.	Laboratory Blank	O
6.	Matrix Spike	X
7.	Matrix Spike Duplicates	O
8.	LCS	O
9.	AFCEE QC (Blind and Perf. Eval. Samples)	F
10.	Interference Check Samples	O
11.	Compound Identification	O
12.	Compound Quantitation	O
13.	System Performance	O
14.	Overall Assessment*	O

O = No problems or minor problems that do not affect data usability.
X = No more than *about 5 %* of the data points are qualified as either estimated or unusable.
M = More than *about 5 %* of the data points are qualified as estimated.
Z = More than *about 5 %* of the data points are qualified as unusable ("R").
F = Not applicable.
* The assessments for this criterion are qualitative only.

PROJECT MANAGER ACTION ITEMS: See Data Assessment and Data Usability sections

AREAS OF CONCERN: None

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L428

REJECTION SUMMARY FORM **SOP NO.: HW-6**

[No. of Compounds/No. of Fractions (Samples)]

Type of Review: RAS **Date:** August 13, 1998 **SDG #:** 04L428
Project: Plattsburgh AFB **Lab Name:** RECRA LabNet
Reviewer's Initials: JC/RK

NO. OF INORGANIC SAMPLES (All Water): 14

[including one (1) re-analyzed and two (2) matrix spike/spike duplicate samples]

Analytes Estimated Due to Exceeding Review Criteria*

Fraction (# Analytes)	Spikes	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Estimated/ Total # in all Samples
ICP (1)	10						14	10/14

U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0001AA

Lab Name: RECRA_LABNET Contract: 11604-6

Lab Code: RECRA Case No.: AFB SAS No.: SDG No.: 0001AA

Matrix (soil/water): WATER Lab Sample ID: 9804L428-015

Level (low/med): LOW Date Received: 04/17/98

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	20800		N*	P

7/3/98

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

MW30-001AA

FORM I - IN

U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0002AA

Lab Name: RECRA_LABNET_____ Contract: 11604-6___

Lab Code: RECRA_ Case No.: AFB__ SAS No.: _____ SDG No.: 0001AA

Matrix (soil/water): WATER Lab Sample ID: 9804L428-005

Level (low/med): LOW__ Date Received: 04/17/98

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	1530	J	N*	P

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

MW30-002AA

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021

U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0002AC

Lab Name: RECRA_LABNET_____ Contract: 11604-6___

Lab Code: RECRA_ Case No.: AFB__ SAS No.: _____ SDG No.: 0001AA

Matrix (soil/water): WATER Lab Sample ID: 9804L428-010

Level (low/med): LOW__ Date Received: 04/17/98

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	4080	J	N*	P

J
7/3/98

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

MW30-002AC

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U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0002AC

Lab Name: RECRA_LABNET Contract: 11604-6

Lab Code: RECRA Case No.: AFB SAS No.: SDG No.: 0001AA

Matrix (soil/water): WATER Lab Sample ID: 9804L428-010

Level (low/med): LOW Date Received: 04/17/98

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	4080		N*	P

JL 7/3/98

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

MW30-002AC

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U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0003AA

Lab Name: RECRA_LABNET Contract: 11604-6

Lab Code: RECRA Case No.: AFB SAS No.: SDG No.: 0001AA

Matrix (soil/water): WATER Lab Sample ID: 9804L428-016

Level (low/med): LOW Date Received: 04/17/98

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	15800	J	N*	P

jr 7/1/98

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

MW30-003AA

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U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0003AE

Lab Name: RECRA_LABNET Contract: 11604-6
Lab Code: RECRA Case No.: AFB SAS No.: SDG No.: 0001AA
Matrix (soil/water): WATER Lab Sample ID: 9804L428-017
Level (low/med): LOW Date Received: 04/17/98
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	[illegible]		N*	P

7/3/98

Color Before: Clarity Before: Texture:
Color After: Clarity After: Artifacts:

Comments:
MW30-003AE

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U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0004AA

Lab Name: RECRA_LABNET Contract: 11604-6

Lab Code: RECRA Case No.: AFB SAS No.: SDG No.: 0001AA

Matrix (soil/water): WATER Lab Sample ID: 9804L428-002

Level (low/med): LOW Date Received: 04/17/98

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	7960	J	N*	P

7/3/98

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

MW30-004AA

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U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0005AA

Lab Name: RECRA_LABNET Contract: 11604-6___ SDG No.: 0001AA

Lab Code: RECRA_ Case No.: AFB__ SAS No.: _____

Matrix (soil/water): WATER Lab Sample ID: 9804L428-013

Level (low/med): LOW__ Date Received: 04/17/98

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	[redacted]		N*	P

7/1/98

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

MW30-005AA

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U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0006AA

Lab Name: RECRA_LABNET Contract: 11604-6

Lab Code: RECRA Case No.: AFB SAS No.: SDG No.: 0001AA

Matrix (soil/water): WATER Lab Sample ID: 9804L428-011

Level (low/med): LOW Date Received: 04/17/98

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	10500	J	N*	P

7/3/98

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

MW30-006AA

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U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0007AA

Lab Name: RECRA_LABNET Contract: 11604-6
Lab Code: RECRA Case No.: AFB SAS No.: SDG No.: 0001AA
Matrix (soil/water): WATER Lab Sample ID: 9804L428-008
Level (low/med): LOW Date Received: 04/17/98
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	[illegible]	J	N*	P

7/8/98

Color Before: Clarity Before: Texture:
Color After: Clarity After: Artifacts:

Comments:
MW30-007AA

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U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0008AA

Lab Name: RECRA_LABNET Contract: 11604-6

Lab Code: RECRA Case No.: AFB SAS No.: SDG No.: 0001AA

Matrix (soil/water): WATER Lab Sample ID: 9804L428-003

Level (low/med): LOW Date Received: 04/17/98

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	26.0		N*	P

7/3/97

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

MW30-008AA

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U.S. EPA

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0008AE

Lab Name: RECRA_LABNET_____ Contract: 11604-6___

Lab Code: RECRA_ Case No.: AFB__ SAS No.: _____ SDG No.: 0001AA

Matrix (soil/water): WATER Lab Sample ID: 9804L428-0

Level (low/med): LOW__ Date Received: 04/17/98

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	4.5	U	N*	P

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

MW30-008AE

FORM I - IN

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 05/16/98

CLIENT: PLATTSBURG AFB
WORK ORDER: 11604-601-001-9999-00

RECRA LOT #: 9804L428

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	MW30-004AA	Alkalinity	161	MG/L	2.0	1.0
		Chloride	97.3	MG/L	25.0	100
		Ferrous Iron	0.020u J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Oxidation-Reduction Pot	386	mV	-1000.	1.0
		Sulfate	22.3 J	MG/L	2.5	1.0
-003	MW30-008AA	Alkalinity	147	MG/L	2.0	1.0
		Chloride	31.8	MG/L	2.5	10.0
		Ferrous Iron	0.020u J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	2.4	MG/L	0.50	1.0
		Oxidation-Reduction Pot	372	mV	-1000.	1.0
		Sulfate	[redacted]		2.5	1.0
-004	MW30-008AB	Alkalinity	1.0 u	MG/L	1.0	1.0
		Chloride	0.25 u	MG/L	0.25	1.0
		Ferrous Iron	0.020u J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	0.59	MG/L	0.50	1.0
		Oxidation-Reduction Pot	379	mV	-1000.	1.0
		Sulfate	[redacted]		2.5	1.0
-008	MW30-007AA	Alkalinity	187	MG/L	2.0	1.0
		Chloride	80.3	MG/L	25.0	100
		Ferrous Iron	0.020u J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	1.8	MG/L	0.50	1.0
		Oxidation-Reduction Pot	[redacted]	mV	-1000.	1.0
		Sulfate	3.7	MG/L	2.5	1.0
-009	MW30-002AA	Alkalinity	153	MG/L	2.0	1.0
		Chloride	22.7	MG/L	25.0	100
		Ferrous Iron	0.020u J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	6.4	MG/L	0.50	1.0
		Oxidation-Reduction Pot	289	mV	-1000.	1.0
		Sulfate	55.2	MG/L	10.0	4.0
-010	MW30-002AC	Alkalinity	153	MG/L	2.0	1.0

7/9/98

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 05/16/98

CLIENT: PLATTSBURG AFB

RECRA LOT #: 9804L428

WORK ORDER: 11604-601-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	MW30-002AC	Chloride	78.3	MG/L	25.0	100
		Ferrous Iron	0.020u J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	8.6	MG/L	0.50	1.0
		Oxidation-Reduction Pot	386	mV	-1000.	1.0
		Sulfate	54.5	MG/L	5.0	2.0

K
7/9/98

Recra LabNet - Lionville Laboratory
Nonhalogenated Volatiles by GC, Method 8015 Report Date: 05/10/98 12:09

RFW Batch Number: 9804L428 Client: PLATTSBURG AFB Work Order: 11604601001 Page: 2

	Cust ID:	MW30-001AA	MW30-003AA	MW30-003AE	TBLKBG	TBLKBG BS
Sample Information	RFW#:	015 REP	016	017	98LVE423-MB1	98LVE423-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	MG/L	MG/L	MG/L	MG/L	MG/L
Methane		0.033	0.018	0.0050 U	0.0050 U	117 %

012

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Recra LabNet - Lionville Laboratory

Nonhalogenated Volatiles by GC, Method 8015 Report Date: 05/10/98 12:09

RFW Batch Number: 9804L428 Client: PLATTSBURG AFB Work Order: 11604601001 Page: 1

	Cust ID:	MW30-004AA	MW30-008AA	MW30-008AA	MW30-008AA	MW30-008AE	MW30-007AA
Sample Information	RFW#:	002	003	003 MS	003 MSD	004	008
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	2.00
	Units:	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Methane		0.029	0.0050 U	120 %	115 %	0.0050 U	2.6

	Cust ID:	MW30-002AA	MW30-002AA	MW30-002AC	MW30-006AA	MW30-005AA	MW30-001AA
Sample Information	RFW#:	009	009 REP	010	011	013	015
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	12.0	1.00
	Units:	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Methane		0.033	0.031	0.064	0.11	10	0.034

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

7/3/98

05-13-98

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 05/16/98

CLIENT: PLATTSBURG AFB

RECRA LOT #: 9804L428

WORK ORDER: 11604-601-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	MW30-006AA	Alkalinity	111	MG/L	2.0	1.0
		Chloride	79.3	MG/L	25.0	100
		Ferrous Iron	0.020u J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	3.9	MG/L	0.50	1.0
		Oxidation-Reduction Pot	382	mV	-1000.	1.0
		Sulfate	35.7	MG/L	2.5	1.0
-013	MW30-005AA	Alkalinity	225	MG/L	2.0	1.0
		Chloride	55.2	MG/L	2.5	10.0
		Ferrous Iron	1.0 J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	11.9	MG/L	0.50	1.0
		Oxidation-Reduction Pot	208	mV	-1000.	1.0
		Sulfate	17.4	MG/L	2.5	1.0
-015	MW30-001AA	Alkalinity	173	MG/L	2.0	1.0
		Chloride	66.0	MG/L	2.5	10.0
		Ferrous Iron	0.020u J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	6.7	MG/L	0.50	1.0
		Oxidation-Reduction Pot	859	mV	-1000.	1.0
		Sulfate	92.9	MG/L	2.5	1.0
-016	MW30-003AA	Alkalinity	83.1	MG/L	1.0	1.0
		Chloride	49.1	MG/L	2.5	10.0
		Ferrous Iron	0.0 J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	7.3	MG/L	0.50	1.0
		Oxidation-Reduction Pot	226	mV	-1000.	1.0
		Sulfate	35.7	MG/L	2.5	1.0
-017	MW30-003AB	Alkalinity	3.3	MG/L	0.50	1.0
		Chloride	0.25 u	MG/L	0.25	1.0
		Ferrous Iron	0.020u J	MG/L	0.020	1.0
		Nitrate, as N	0.02 u	MG-N/L	0.02	1.0
		Total Organic Carbon	0.86	MG/L	0.50	1.0
		Oxidation-Reduction Pot	334	mV	-1000.	1.0
		Sulfate	2.5 u	MG/L	2.5	1.0

JC
7/9/98

Plattsburgh Air Force Base — Data Validation & Usability
FP&M Project No. 444-96-01

DRAFT DATA ASSESSMENT REPORT FOR ORGANICS
SDG No. 04L453

DATA VALIDATION FOR:	Client Specified TCL By AFCEE QAPP 2/96 Document
WAM:	Gaby A. Atik
SITE:	Plattsburgh AFB
SDG NO:	04L453
CONTRACT LAB:	RECRA LabNet
REVIEWER:	Joseph Camanzo, Fanning, Phillips and Molnar
QA/QC OF REVIEW:	Ravi Korlipara, Korlipara Engineering
DATE REVIEWED:	August 5-13, 1998
MATRIX:	Soil

SUMMARY OF DATA VALIDATION RESULTS FOR SDG 04L453

Korlipara Engineering has completed a data validation review of RECRA LabNet analytical results for Sample Delivery Group (SDG) No. 04L453, volatile and semi-volatile organic fractions.

Evaluation of all available materials was performed to assess the quality of the volatile organics (VOA) and semi-volatile organics (SV) data. All the VOA data was found to be acceptable; there were no major data deficiencies with the following exceptions:

- Method blank VBLKUX was contaminated with bromomethane, methylene chloride, 1,2,4-trichlorobenzene, naphthalene, and 1,2,3-trichlorobenzene. Therefore, in associated sample P-2335-S-00-00-AA, positive result for methylene chloride was qualified as "U."

- Method blank VBLKZF was contaminated with methylene chloride. Therefore, in associated sample P-2335-S-00-00-AA DL, positive result for methylene chloride was qualified as "U."

- Methylene chloride was detected in the trip blank. However, no action was taken because the associated samples P-2335-S-00-00-AA and P-2335-S-00-00-AA DL were previously qualified for method blank with "U" for methylene chloride.

- RSD for methylene chloride exceeded the control limit during initial calibration. Therefore, positive results for methylene chloride in associated samples P-2335-S-00-00-AA, P-2335-S-00-00-AA DL, and TRIP BLANK were qualified as estimated "J."

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L453

- Two (2) continuing calibrations were performed on 4/30/98 and 5/1/98. In the first CC, %D for 1,1,2,2-tetrachloroethane, 1,2-dibromo-3-chloropropane, and naphthalene exceeded the control limit. Therefore, these compounds were qualified "UJ" in associated samples P-2335-S-00-00-AA and TRIP BLANK. In the second CC, %D for 1,1,2,2-tetrachloroethane exceeded the control limit. Therefore, this compound was qualified "UJ" in associated sample P-2335-S-00-00-AA DL.

- The analyte 1,2,4-trimethylbenzene exceeded the instrument calibration range in sample P-2335-S-00-00-AA. Therefore, this sample was re-analyzed at a secondary dilution. The dilution result for this analyte was transferred to the original reported values in accordance with Region II SOP.

- Tentatively Identified Compounds (TICs) were found in samples P-2335-S-00-00-AA and TRIP BLANK. In sample P-2335-S-00-00-AA, library search compounds C3-alkylbenzene and C4-alkylbenzene were qualified "JN." Only generic compound silane was found in TRIP BLANK and, hence, no action was taken.

For semi-volatiles, following were the deficiencies:

- Method blank SBLKYA was contaminated with bis(2-ethylhexyl)phthalate. Therefore, this compound was qualified with CRQL "U" in associated sample P-2335-S-00-00-AA.

- One (1) continuing calibration was performed on 6/5/98. In sample P-2335-S-00-00-AA, area counts for internal standards 1,4-dichlorobenzene-d4 (IS1), naphthalene-d8 (IS2), acenaphthene-d10 (IS3), and phenanthrene-d10 (IS4) all exceeded the upper control limit (> 100%). Therefore, positive results for benzoic acid and naphthalene (associated with IS2) and positive result for fluoranthene (associated with IS3) were qualified "J."

- TICs were found in sample P-2335-S-00-00-AA. In this sample, library search compounds benzeneacetic acid, hexadecanoic acid, and octadecanoic acid were qualified "JN."

- MS % recoveries were below the lower control limit for 4-chloroaniline, 3,3'-dichlorobenzidine, and pyridine. % RPD were above the control limit for compounds 4-chloroaniline, 3-nitroaniline, 3,3'-dichlorobenzidine, and pyridine. Therefore, "M" flag was given to compounds 4-chloroaniline, 3-nitroaniline, 3,3'-dichlorobenzidine, and pyridine in parent sample P-2335-S-00-00-AA.

It should be noted that in the case of both volatile and semi-volatile analytical results, the analytical laboratory may have already assigned data qualifiers (e.g., "J", "UJ", etc.) to some samples/analytical parameters based on internal QC reviews. Unless expressly over-ridden by the present data validation flags, the laboratory assigned qualifiers continue to apply in all instances that they were made.

It should also be noted that the AFCEE QAPP requirement for one (1) LCS per analytical batch was not performed by the laboratory. However, the laboratory analyzed blank spikes to serve an equivalent purpose as LCS. (Standardized analyte-free water is used for LCS, whereas the laboratory used analyte-free water generated internally within the laboratory for the blank spikes.) Therefore, all QAPP QC criteria for LCS were applied to the blank spikes in this assessment.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L453

I. PRELIMINARY REMARKS

The data was validated according to the U.S. Environmental Protection Agency (USEPA) National Functional Guidelines for Organic/Inorganic Data Review (revised in February 1995), incorporating the USEPA Region II Standard Operating Procedure (SOP); the USEPA CLP Statement of Work (SOW) protocol, Document OLM01.9 dated March 1990; and the Air Force Center for Environmental Excellence (AFCEE) Quality Assurance Project Plan (QAPP), Document Version 1.1 dated February 1996. The New York State Department of Environmental Protection (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) DSHM-96-03, "Development and Review of Site Analytical Plans," was reviewed for applicability to this project. The TAGM incorporates the USEPA SOP by reference and is essentially identical to the latter. Thus, data validation according to the USEPA SOP and the AFCEE QAPP also satisfies the NYSDEC TAGM.

The volatile organics (VOA) and semi-volatile organics (SV) analytical results were reviewed in terms of:

1. Data completeness
2. Technical holding time (sampling, preservation, shipping, etc.)
3. GC/MS instrument performance checks
4. Initial and continuing calibrations
5. Blanks contamination
6. Matrix spike/matrix spike duplicate
7. Internal standards
8. Surrogate spikes, field duplicates, and laboratory control samples
9. Target compounds
10. Compound quantitation and reported Contract Required Quantitation Limits (CRQLs)

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (nondetects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). The data for all flagged samples are also usable with caution, except those with the "R" (unusable) qualification. All actions are detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant Quality Control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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II. LIST OF DATA VALIDATION SAMPLES AND FRACTIONS

Data validation was performed for three (3) volatile organics [including one (1) dilution sample] and for three (3) semi-volatile organics samples [including two (2) matrix spike and matrix spike duplicate samples]. The validated environmental samples were collected at the Plattsburgh AFB in April, 1998 and shipped to RECRA LabNet to be analyzed following the 2/96 AFCEE QAPP document.

The samples which were validated for volatile and semi-volatile organics fractions are listed below:

Client ID	*Lab Sample ID*	*Volatiles*	*Semi-Volatiles*
All Samples were collected on 4/17/98.			
P-2335-S-00-00-AA	9804L453-001	Yes	Yes
P-2335-S-00-00-AA MS	9804L453-001 MS	No	Yes
P-2335-S-00-00-AA MSD	9804L453-001 MSD	No	Yes
P-2335-S-00-00-AA DL	9804L453-001 DL	Yes	No
TRIP BLANK	9804L453-002	Yes	No
	TOTAL NUMBER OF SAMPLES:	3	3

III. DATA ASSESSMENT

This section provides a detailed description of the data assessment results for the validated samples. For each assessment criterion, its purpose and scope are described briefly followed by the assessment results for volatile organics (VOA) and semi-volatile organics (SV).

III.1 HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. If the holding times are exceeded and the samples are not properly preserved, the affected data will be qualified as unusable, "R." Otherwise, those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J," and the nondetects (sample quantitation limits) will be flagged as estimated, "UJ."

The following samples were qualified because of holding time:

VOA: All samples were analyzed within the required technical holding time.

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SV: All samples were extracted and analyzed within the required technical holding time.

III.2 BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, field (ambient), equipment (rinsate), or trip blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation, field activity, or shipment. Method blanks measure laboratory contamination. Field (ambient) and equipment (rinsate) blanks measure cross-contamination of samples during field operations. Trip blanks measure cross-contamination of samples due to containerization, transportation, or storage. If the concentration of the analyte is less than five (5) times the blank contaminant level [ten (10) times for the common contaminants], the analytes are qualified as nondetects, "U."

The following are the assessment results for the "blank contamination" criterion:

A) Method blank contamination

VOA: Method blank VBLKUX was contaminated with bromomethane, methylene chloride, 1,2,4-trichlorobenzene, naphthalene, and 1,2,3-trichlorobenzene. Therefore, in associated sample P-2335-S-00-00-AA, positive result for methylene chloride was qualified as "U" and no qualification was needed for positive result for naphthalene.

Method blank VBLKZF was contaminated with methylene chloride. Therefore, in associated sample P-2335-S-00-00-AA DL, positive result for methylene chloride was qualified as "U."

Method blank VBLKZE was contaminated with methylene chloride. However, no action was taken since the associated sample was a trip blank.

SV: Method blank SBLKYA was contaminated with bis(2-ethylhexyl)phthalate. Therefore, this compound was qualified with CRQL "U" in associated sample P-2335-S-00-00-AA.

B) Field (ambient) blank contamination
("Water blanks" or "distilled water blanks" are validated like any other sample)

VOA: There were no field blanks for volatiles.

SV: There were no field blanks for semi-volatiles.

C) Equipment (rinsate) blank contamination
("Water blanks" or "distilled water blanks" are validated like any other sample)

VOA: There were no equipment blanks for volatiles.

SV: There were no equipment blanks for semi-volatiles.

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D) Trip blank contamination

VOA: Methylene chloride was detected in the trip blank. However, no action was taken because the associated samples P-2335-S-00-00-AA and P-2335-S-00-00-AA DL were previously qualified for method blank with "U" for methylene chloride, as is needed here.

SV: Semi-volatile samples do not have trip blanks.

III.3 LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) is analyte-free water (for aqueous analysis) or Ottowa sand (for soil analysis) spiked with known concentrations of all target analytes. The LCS is carried through the complete sample preparation and analysis procedure. The LCS is used to evaluate each analytical batch and to determine if the method is in control.

The AFCEE QAPP requirement for one (1) LCS per analytical batch was not performed by the laboratory. However, the laboratory analyzed blank spikes to serve an equivalent purpose as LCS. (Standardized analyte-free water is used for LCS, whereas the laboratory used analyte-free water generated internally within the laboratory for the blank spikes.) Therefore, all QAPP QC criteria for LCS were applied to the blank spikes in this assessment.

The following are the assessment results for the "laboratory control sample" criterion:

VOA: There were no blank spikes in this SDG for volatiles.

SV: Blank spike recoveries were within QC limits. Blank spike duplicates (BSD) were not analyzed.

III.4 FIELD DUPLICATES

A field duplicate sample is a second sample collected at the same location as the original sample. Duplicate sample results are used to assess precision of the sample collection process.

The following are the assessment results for the "field duplicates" criterion:

VOA: There were no field duplicates in this SDG for volatiles.

SV: There were no field duplicates in this SDG for semi-volatiles.

III.5 MASS SPECTROMETER TUNING

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample

specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard is bromofluorobenzene (BFB) for volatile organics and decafluorotriphenyl-phosphine (DFTPP) for semi-volatile organics.

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R." The following are the assessment results for the "mass spectrometer tuning" criterion:

VOA: All tuning criteria were met.

SV: All tuning criteria were met.

III.6 CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving continuing satisfactory daily performance.

The calibration criterion consists of "Response Factor" and "Percent Relative Standard Deviation (%RSD) and Percent Difference (%D)" sub-criteria. These sub-criteria are discussed separately below.

A) Response Factor

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/SV Target Compound List (TCL) must be ≥ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean Relative Response Factor (RRF) of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, then the reported results for that analyte will be qualified as estimated, "J," if the analyte is detected in the environmental samples and will be qualified as rejected, "R," if it is not detected in the environmental samples.

The following are the assessment results for the "response factor calibration" criterion:

VOA: Response factor QC criteria were met.

SV: Response factor QC criteria were met.

B) Percent Relative Standard Deviation (%RSD) And Percent Difference (%D)

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean RRF from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be $< 30\%$ and %D must be $< 25\%$ based on the QAPP and the SOP. A value outside of these limits indicates potential detection and quantitation errors.

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For these reasons, all positive results are flagged as estimated, "J," and all nondetects are flagged as "UJ." The following samples were qualified because of %RSD and %D:

Initial Calibration (IC):

VOA: There was one (1) initial calibration which was performed on 4/18/98 on instrument 5970X. RSD for methylene chloride was 33.5%, which exceeded the control limit. Therefore, positive results for methylene chloride in associated samples P-2335-S-00-00-AA, P-2335-S-00-00-AA DL, and TRIP BLANK were qualified as estimated "J."

SV: There was one (1) initial calibration which was performed on 6/4/98 on instrument 5971a. All initial calibration QC criteria were met.

Continuing Calibration (CC):

VOA: Two (2) continuing calibrations were performed on 4/30/98 and 5/1/98. In the first CC, %D was 51.9 for 1,1,2,2-tetrachloroethane, 26.7 for 1,2-dibromo-3-chloropropane, 26.2 for naphthalene, all of which exceed the control limit. Therefore, these compounds were qualified "UJ" in associated samples P-2335-S-00-00-AA and TRIP BLANK. In the second CC, %D was 66.8 for 1,1,2,2-tetrachloroethane, which exceeds the control limit. Therefore, this compound was qualified "UJ" in associated sample P-2335-S-00-00-AA DL.

SV: One (1) continuing calibration was performed on 6/5/98. In this CC, %D was 31.6 for benzyl alcohol, which exceeds the control limit. This compound was nondetect in the associated sample P-2335-S-00-00-AA and, hence, no action was taken in accordance with the Functional Guidelines.

III.7 SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC)

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below:

VOA: Surrogate recovery criteria were met for volatiles.

SV: Surrogate recovery criteria were met for semi-volatiles.

III.8 INTERNAL STANDARDS PERFORMANCE

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal

standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J," and all nondetects as "UJ" only if IS area is < 50%. Nondetects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following are the assessment results for the "internal standards performance" criterion:

VOA: All internal standards QC criteria were met.

SV: In sample P-2335-S-00-00-AA, area counts for internal standards 1,4-dichlorobenzene-d4 (IS1), naphthalene-d8 (IS2), acenaphthene-d10 (IS3), and phenanthrene-d10 (IS4) all exceeded the upper control limit (> 100%). Therefore, positive results for benzoic acid and naphthalene (associated with IS2) and positive result for fluoranthene (associated with IS3) were qualified "J" and no action was taken for nondetects in accordance with Region II SOP.

Area counts exceeded the upper limit (> 100%) in matrix spike sample P-2335-S-00-00-AA MS for internal standards IS1, IS2, IS3, IS4, chrysene-d12 (IS5), and perylene-d12 (IS6). However, the matrix spike sample was not qualified for internal standards.

III.9 COMPOUND IDENTIFICATION — VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's Relative Retention Time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary m/e intensities with 20% of that in the standard compound. For tentatively identified compounds (TICs), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

VOA: Compound quantitation data were consistent with the required method criteria. However, the analyte 1,2,4-trimethylbenzene exceeded the instrument calibration range in sample P-2335-S-00-00-AA. Therefore, this sample was re-analyzed at a secondary dilution. The dilution result for this analyte was transferred to the original reported values in accordance with Region II SOP.

TICs were found in samples P-2335-S-00-00-AA and TRIP BLANK. In sample P-2335-S-00-00-AA, library search compounds C3-alkylbenzene and C4-alkylbenzene were qualified "JN." Only generic compound silane was found in TRIP BLANK and, hence, no action was taken.

SV: Compound quantitation data were consistent with the required method criteria.

TICs were found in sample P-2335-S-00-00-AA. In this sample, library search compounds benzeneacetic acid, hexadecanoic acid, and octadecanoic acid were qualified "JN."

III.10 MATRIX SPIKE/SPIKE DUPLICATE (MS/MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data.

The following are the assessment results for the "MS/MSD" criterion:

VOA: There were no MS/MSD samples in this SDG.

SV: MS % recoveries were below the lower control limit for compounds 4-chloroaniline, 3,3'-dichlorobenzidine, and pyridine. % RPD were above the control limit for compounds 4-chloroaniline, 3-nitroaniline, 3,3'-dichlorobenzidine, and pyridine. Therefore, "M" flag was assigned to parent sample P-2335-S-00-00-AA for compounds 4-chloroaniline, 3-nitroaniline, 3,3'-dichlorobenzidine, and pyridine.

III.11 OTHER QC DATA OUT OF SPECIFICATION

VOA: No other QC data was out of specification.

SV: No other QC data was out of specification.

III.12 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

VOA: Method blank VBLKUX was contaminated with bromomethane, methylene chloride, 1,2,4-trichlorobenzene, naphthalene, and 1,2,3-trichlorobenzene. Therefore, in associated sample P-2335-S-00-00-AA, positive result for methylene chloride was qualified as "U." Method blank VBLKZF was contaminated with methylene chloride. Therefore, in associated sample P-2335-S-00-00-AA DL, positive result for methylene chloride was qualified as "U." Methylene chloride was detected in the trip blank. However, no action was taken because the associated samples P-2335-S-00-00-AA and P-2335-S-00-00-AA DL were previously qualified for method blank with "U" for methylene chloride. RSD for methylene chloride exceeded the control limit during initial calibration. Therefore, positive results for methylene chloride in associated samples P-2335-S-00-00-AA, P-2335-S-00-00-AA DL, and TRIP BLANK were qualified as estimated "J." Two (2) continuing calibrations were performed on 4/30/98 and 5/1/98. In the first CC, %D for 1,1,2,2-tetrachloroethane, 1,2-dibromo-3-chloropropane, and naphthalene exceeded the control limit. Therefore, these compounds were qualified "UJ" in associated samples P-2335-S-00-00-AA and TRIP BLANK. In the second CC, %D for 1,1,2,2-tetrachloroethane exceeded the control limit. Therefore, this compound was qualified "UJ" in associated sample P-2335-S-00-00-AA DL. The analyte 1,2,4-trimethylbenzene exceeded the instrument calibration range in sample P-2335-

S-00-00-AA. Therefore, this sample was re-analyzed at a secondary dilution. The dilution result for this analyte was transferred to the original reported values in accordance with Region II SOP. Tentatively Identified Compounds (TICs) were found in samples P-2335-S-00-00-AA and TRIP BLANK. In sample P-2335-S-00-00-AA, library search compounds C3-alkylbenzene and C4-alkylbenzene were qualified "JN." Only generic compound silane was found in TRIP BLANK and, hence, no action was taken.

SV: Method blank SBLKYA was contaminated with bis(2-ethylhexyl)phthalate. Therefore, this compound was qualified with CRQL "U" in associated sample P-2335-S-00-00-AA. One (1) continuing calibration was performed on 6/5/98. In sample P-2335-S-00-00-AA, area counts for internal standards 1,4-dichlorobenzene-d4 (IS1), naphthalene-d8 (IS2), acenaphthene-d10 (IS3), and phenanthrene-d10 (IS4) all exceeded the upper control limit (> 100%). Therefore, positive results for benzoic acid and naphthalene (associated with IS2) and positive result for fluoranthene (associated with IS3) were qualified "J." TICs were found in sample P-2335-S-00-00-AA. In this sample, library search compounds benzeneacetic acid, hexadecanoic acid, and octadecanoic acid were qualified "JN." MS % recoveries were below the lower control limit for compounds 4-chloroaniline, 3,3'-dichlorobenzidine, and pyridine. % RPD were above the control limit for compounds 4-chloroaniline, 3-nitroaniline, 3,3'-dichlorobenzidine, and pyridine. Therefore, "M" flag was assigned to parent sample P-2335-S-00-00-AA for compounds 4-chloroaniline, 3-nitroaniline, 3,3'-dichlorobenzidine, and pyridine.

Important Note: It should be noted that in the case of both volatile and semi-volatile analytical results, the analytical laboratory may have already assigned data qualifiers (e.g., "J", "UJ", etc.) to some samples/analytical parameters based on internal QC reviews. Unless expressly over-ridden by the present data validation flags, the laboratory assigned qualifiers continue to apply in all instances that they were made.

III.13 CONTRACTUAL NON-CONFORMANCE

There were no MS/MSD and blank spikes for volatiles. For the semi-volatile fraction, blank spike duplicate was not analyzed. Only the blank spike was analyzed. Therefore, the percent recoveries for the blank spikes were not ascertained.

III.14 RE-EXTRACTION, RE-ANALYSIS, OR DILUTION SAMPLES

This package contains re-extraction, re-analysis, or dilution samples. Upon reviewing the QA results, the following Form I's are identified to be used:

VOA: Use Form I of the sample P-2335-S-00-00-AA with result for 1,2,4-trimethylbenzene transferred from P-2335-S-00-00-AA DL. All samples are usable as validated.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L453

SV: There were no re-analyses. All samples are usable as validated.

III.15 MISCELLANEOUS OBSERVATIONS

None.

IV. DATA USABILITY

Data review for usability is a process that evaluates the validated data in context to the original data quality objectives (DQOs). The formal process of usability determination involves a complex series of editing, screening, auditing, verifying, and reviewing the validated data.

The technical holding times for all samples in this SDG were met. The QC criteria for GC/MS tune, internal standards, method blanks, field blanks, trip blanks, matrix spike/matrix spike duplicates, laboratory control samples, and field duplicates were met with the exceptions noted in this narrative.

It is important to understand the bias associated with "J"-qualified data. The "J" data may have high, low, or indeterminate bias. A low bias means that the reported concentration is most likely an underestimate of the true concentration. For example, data may be biased low when sample holding times for volatile organics (VOCs) are exceeded or when the recovery of QA/QC compounds is significantly less than the true amount originally introduced into the sample. A high bias means that the reported concentration is most likely an overestimate of the true concentration. A bias is indeterminate when it is not possible to ascertain whether the concentration is an overestimate or an underestimate. For example, an indeterminate bias could result when matrix effects obscure QA/QC compounds.

For the volatile fraction, RSD for methylene chloride exceeded the control limit. Therefore, positive results for methylene chloride in associated samples P-2335-S-00-00-AA and P-2335-S-00-00-AA DL were qualified as estimated "J." Two (2) continuing calibrations were performed on 4/30/98 and 5/1/98. In the first CC, %D for 1,1,2,2-tetrachloroethane, 1,2-dibromo-3-chloropropane, and naphthalene exceeded the control limit. Therefore, these compounds were qualified "UJ" in associated samples P-2335-S-00-00-AA and TRIP BLANK. In the second CC, %D for 1,1,2,2-tetrachloroethane exceeded the control limit. Therefore, this compound was qualified "UJ" in associated sample P-2335-S-00-00-AA DL. The analyte 1,2,4-trimethylbenzene exceeded the instrument calibration range in sample P-2335-S-00-00-AA. Therefore, this sample was re-analyzed at a secondary dilution. The dilution result for this analyte was transferred to the original reported values in accordance with Region II SOP. All these results have an indeterminate bias.

For the semi-volatile fraction, in sample P-2335-S-00-00-AA, area counts for internal standards 1,4-dichlorobenzene-d4 (IS1), naphthalene-d8 (IS2), acenaphthene-d10 (IS3), and phenanthrene-d10 (IS4) all exceeded the upper control limit (> 100%). Therefore, positive results for benzoic acid and naphthalene (associated with IS2) and positive result for fluoranthene (associated with IS3) were qualified "J." These results are likely to have a low bias.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L453

Based on evaluation of this analytical data, the data is highly usable with the data validation qualifiers.

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L453

ORGANIC DATA ASSESSMENT SUMMARY

SDG NO.: 04L453 **LABORATORY:** RECRA LabNet **SOW:** AFB QAPP

DATA USER: Fanning, Phillips and Molnar **REVIEW COMPLETION DATE:** 8/13/98

NO. OF VOLATILE ORGANICS SAMPLES (All Water): 3
[including one (1) dilution sample]

NO. OF SEMI-VOLATILE ORGANICS SAMPLES (All Water): 3
[including two (2) matrix spike/spike duplicate samples]

DATA VALIDATION CONTRACTOR: Korlipara Engineering

		VOA	SV
1.	Holding Times	O	O
2.	GC/MS Tune/GC Performance	O	O
3.	Initial Calibrations	X	O
4.	Continuing Calibrations	X	O
5.	Field, Equipment, and Trip Blanks	O	O
6.	Laboratory Blanks	O	O
7.	Surrogates	O	O
8.	Matrix Spike Duplicates and LCS	O	X
9.	AFCEE QC (Blind and Perf. Eval. Samples)	F	F
10.	Internal Standards	O	X
11.	Compound Identification	O	O
12.	Compound Quantitation	O	O
13.	System Performance	O	O
14.	Overall Assessment*	O	O

O = No problems or minor problems that do not affect data usability.
X = No more than *about 5 %* of the data points are qualified as either estimated or unusable.
M = More than *about 5 %* of the data points are qualified as estimated.
Z = More than *about 5 %* of the data points are qualified as unusable ("R").
F = Not applicable.
* The assessments for this criterion are qualitative only.

PROJECT MANAGER ACTION ITEMS: See Data Assessment and Data Usability sections

AREAS OF CONCERN: None

DRAFT DATA ASSESSMENT REPORT
SDG No. 04L453

REJECTION SUMMARY FORM **SOP NO.: HW-6**

[No. of Compounds/No. of Fractions (Samples)]

Type of Review: RAS **Date:** August 13, 1998 **SDG #:** 04L453

Project: Plattsburgh AFB **Lab Name:** RECRA LabNet

Reviewer's Initials: JC/RK

NO. OF VOLATILE ORGANICS SAMPLES (All Water): 3
[including one (1) dilution sample]

NO. OF SEMI-VOLATILE ORGANICS SAMPLES (All Water): 3
[including two (2) matrix spike/spike duplicate samples]

Analytes Rejected Due to Exceeding Review Criteria*

Fraction (# Analytes)	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
SV(67)							3	0/201
VOA (59)							3	0/177

Analytes Estimated Due to Exceeding Review Criteria*

Fraction (# Analytes)	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Estimated/ Total # in all Samples
SV(67)						3	3	3/201
VOA (59)			10				3	10/177

* Analytes may be counted for multiple criteria.

Recra LabNet - Lionville Laboratory

Volatiles By GC/MS, Special List

Report Date: 06/25/98 22:59

RFW Batch Number: 9804L453 Client: PLATTSBURG AFB Work Order: 11604601001 Page: 1a

	Cust ID:	P-2335-S-00-00-AA	P-2335-S-00-00-AA	TRIP BLANK	VBLKUX	VBLKZF	VBLKZE
Sample Information	RFW#:	001	001 DL	002	98LVX232-MB1	98LVX236-MB1	98LVX233-MB1
	Matrix:	SOIL	SOIL	WATER	SOIL	SOIL	WATER
	D.F.:	3.33	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/L
	Level:	LOW	MED	LOW	LOW	MED	LOW
Surrogate Recovery	Toluene-d8	99 %	88 %	99 %	97 %	102 %	95 %
	Bromofluorobenzene	118 %	93 %	105 %	102 %	111 %	100 %
	1,2-Dichloroethane-d4	98 %	88 %	94 %	94 %	99 %	95 %
		fl	fl	fl	fl	fl	fl
Dichlorodifluoromethane		20 U	760 U	5 U	5 U	620 U	5 U
Chloromethane		20 U	760 U	5 U	5 U	620 U	5 U
Vinyl Chloride		20 U	760 U	5 U	5 U	620 U	5 U
Bromomethane		20 U	760 U	5 U	3 J	620 U	5 U
Chloroethane		20 U	760 U	5 U	5 U	620 U	5 U
Trichlorofluoromethane		20 U	760 U	5 U	5 U	620 U	5 U
1,1-Dichloroethene		20 U	760 U	5 U	5 U	620 U	5 U
Methylene Chloride		28 B	1400 B	7 B	7	2300	7
Trans-1,2-dichloroethene		20 U	760 U	5 U	5 U	620 U	5 U
1,1-Dichloroethane		20 U	760 U	5 U	5 U	620 U	5 U
Cis-1,2-dichloroethene		20 U	760 U	5 U	5 U	620 U	5 U
2,2-Dichloropropane		20 U	760 U	5 U	5 U	620 U	5 U
Bromochloromethane		20 U	760 U	5 U	5 U	620 U	5 U
Chloroform		20 U	760 U	5 U	5 U	620 U	5 U
1,1,1-Trichloroethane		20 U	760 U	5 U	5 U	620 U	5 U
Carbon Tetrachloride		20 U	760 U	5 U	5 U	620 U	5 U
1,1-dichloropropene		20 U	760 U	5 U	5 U	620 U	5 U
Benzene		20 U	760 U	5 U	5 U	620 U	5 U
1,2-Dichloroethane		20 U	760 U	5 U	5 U	620 U	5 U
Trichloroethene		20 U	760 U	5 U	5 U	620 U	5 U
1,2-Dichloropropane		20 U	760 U	5 U	5 U	620 U	5 U
Dibromomethane		20 U	760 U	5 U	5 U	620 U	5 U
Bromodichloromethane		20 U	760 U	5 U	5 U	620 U	5 U
cis-1,3-Dichloropropene		20 U	760 U	5 U	5 U	620 U	5 U
Toluene		20 U	760 U	5 U	5 U	620 U	5 U
Trans 1,3 Dichloropropene		20 U	760 U	5 U	5 U	620 U	5 U
1,1,2-Trichloroethane		20 U	760 U	5 U	5 U	620 U	5 U
Tetrachloroethene		20 U	760 U	5 U	5 U	620 U	5 U
1,3 Dichloropropane		20 U	760 U	5 U	5 U	620 U	5 U

* = Outside of EPA CLP QC limits.

JC 7/7/98

007

RFW Batch Number: 9804L453 Client: PLATTSBURG AFB Work Order: 11604601001 Page: 1b

Cust ID:	P-2335-S-00-00-AA	P-2335-S-00-00-AA	TRIP BLANK	VBLKUX	VBLKZF	VBLKZE
RFW#:	001	001 DL	002	98LVX232-MB1	98LVX236-MB1	98LVX233-MB1
Level:	LOW	MED	LOW	LOW	MED	LOW
Dibromochloromethane	20 U	760 U	5 U	5 U	620 U	5 U
1,2-Dibromoethane	20 U	760 U	5 U	5 U	620 U	5 U
Chlorobenzene	20 U	760 U	5 U	5 U	620 U	5 U
1,1,1,2-Tetrachloroethane	20 U	760 U	5 U	5 U	620 U	5 U
Ethylbenzene	120	760 U	5 U	5 U	620 U	5 U
1,3- and 1,4-Xylene	370	360 JD	5 U	5 U	620 U	5 U
1,2-Xylene	13 J	760 U	5 U	5 U	620 U	5 U
Styrene	20 U	760 U	5 U	5 U	620 U	5 U
Bromoform	20 U	760 U	5 U	5 U	620 U	5 U
Isopropylbenzene	24	760 U	5 U	5 U	620 U	5 U
Bromobenzene	20 U	760 U	5 U	5 U	620 U	5 U
1,2,3-Trichloropropane	20 U	760 U	5 U	5 U	620 U	5 U
1,1,2,2-Tetrachloroethane	20 U J	760 U J	5 U J	5 U	620 U	5 U
N-propylbenzene	74	760 U	5 U	5 U	620 U	5 U
2-Chlorotoluene	20 U	760 U	5 U	5 U	620 U	5 U
4-Chlorotoluene	20 U	760 U	5 U	5 U	620 U	5 U
1,3,5-Trimethylbenzene	300	190 JD	5 U	5 U	620 U	5 U
Tert-butylbenzene	20 U	760 U	5 U	5 U	620 U	5 U
1,2,4-Trimethylbenzene	1000 E	720 JD	5 U	5 U	620 U	5 U
Sec-butylbenzene	20 U	760 U	5 U	5 U	620 U	5 U
1,3-Dichlorobenzene	20 U	760 U	5 U	5 U	620 U	5 U
1,4-Dichlorobenzene	20 U	760 U	5 U	5 U	620 U	5 U
4-Isopropyltoluene	20 U	760 U	5 U	5 U	620 U	5 U
1,2 Dichlorobenzene	20 U	760 U	5 U	5 U	620 U	5 U
N-butylbenzene	20 U	760 U	5 U	5 U	620 U	5 U
1,2-Dibromo-3-chloropropane	20 U J	760 U	5 U J	5 U	620 U	5 U
1,2,4-Trichlorobenzene	20 U	760 U	5 U	1 J	620 U	5 U
Hexachlorobutadiene	20 U	760 U	5 U	5 U	620 U	5 U
Naphthalene	[redacted]	760 U	5 U J	2 J	620 U	5 U
1,2,3-Trichlorobenzene	20 U	760 U	5 U	1 J	620 U	5 U

*= Outside of EPA CLP QC limits.

use only the result from the medium level analysis

7/7/93

Recra LabNet - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

Report Date: 06/10/98 19:41

RFW Batch Number: 9804L453 Client: PLATTSBURG AFB Work Order: 11604601001 Page: 1a

Sample Information	Cust ID:	P-2335-S-00-00-AA		P-2335-S-00-00-AA		P-2335-S-00-00-AA		SBLKYA		SBLKYA BS	
	RFW#:	001		001 MS		001 MSD		98LE0707-MB1		98LE0707-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	78	%	79	%	81	%	70	%	74	%
	2-Fluorobiphenyl	84	%	83	%	83	%	73	%	78	%
	p-Terphenyl-d14	98	%	85	%	86	%	90	%	85	%
	Phenol-d5	80	%	82	%	77	%	71	%	79	%
	2-Fluorophenol	74	%	76	%	70	%	60	%	72	%
	2,4,6-Tribromophenol	93	%	85	%	87	%	58	%	88	%
			fl		fl		fl		fl		fl
Phenol		400	U	80	%	77	%	330	U	79	%
bis(2-Chloroethyl)ether		400	U	77	%	85	%	330	U	82	%
2-Chlorophenol		400	U	78	%	73	%	330	U	72	%
1,3-Dichlorobenzene		400	U	61	%	63	%	330	U	63	%
1,4-Dichlorobenzene		400	U	61	%	62	%	330	U	65	%
Benzyl alcohol		400	U	96	%	87	%	330	U	87	%
1,2-Dichlorobenzene		400	U	65	%	65	%	330	U	64	%
2-Methylphenol		400	U	80	%	76	%	330	U	72	%
bis(2-Chloroisopropyl)ether		400	U	70	%	64	%	330	U	42	%
4-Methylphenol		400	U	84	%	77	%	330	U	77	%
N-Nitroso-Di-n-propylamine		400	U	103	%	90	%	330	U	99	%
Hexachloroethane		400	U	61	%	60	%	330	U	67	%
Nitrobenzene		400	U	73	%	77	%	330	U	67	%
Isophorone		400	U	77	%	82	%	330	U	79	%
2-Nitrophenol		400	U	78	%	79	%	330	U	76	%
2,4-Dimethylphenol		400	U J	87	%	86	%	330	U	75	%
Benzoic acid		[redacted]		71	%	54	%	840	U	57	%
bis(2-Chloroethoxy)methane		400	U	79	%	79	%	330	U	78	%
2,4-Dichlorophenol		400	U	76	%	76	%	330	U	72	%
1,2,4-Trichlorobenzene		400	U	69	%	71	%	330	U	69	%
Naphthalene		[redacted]	J	70	%	71	%	330	U	70	%
4-Chloroaniline		400	U M	17 *	%	41	%	330	U	45	%
Hexachlorobutadiene		400	U	76	%	83	%	330	U	78	%
4-Chloro-3-methylphenol		400	U	79	%	77	%	330	U	76	%
2-Methylnaphthalene		400	U	71	%	75	%	330	U	74	%
Hexachlorocyclopentadiene		400	U	37	%	31	%	330	U	61	%

*= Outside of EPA CLP QC limits.

For holding time {UJ for ND, J for +ve} field
For continuing calib Joe didn't do for benzyl alcohol

JC 7/3/98

007

Cust ID:	P-2335-S-00-00-AA	P-2335-S-00-00-AA	P-2335-S-00-00-AA	SBLKYA	SBLKYA BS
RFW#:	001	001 MS	001 MSD	98LE0707-MB1	98LE0707-MB1

2,4,6-Trichlorophenol	400	U		85	%	88	%	330	U	79	%
2,4,5-Trichlorophenol	1000	U		80	%	82	%	840	U	76	%
2-Chloronaphthalene	400	U		80	%	84	%	330	U	76	%
2-Nitroaniline	1000	U		84	%	84	%	840	U	83	%
Dimethylphthalate	400	U		82	%	83	%	330	U	76	%
Acenaphthylene	400	U		81	%	83	%	330	U	77	%
2,6-Dinitrotoluene	400	U		85	%	87	%	330	U	80	%
3-Nitroaniline	1000	U	M	43	%	64	%	840	U	60	%
Acenaphthene	400	U		81	%	85	%	330	U	78	%
2,4-Dinitrophenol	1000	U		103	%	83	%	840	U	101	%
4-Nitrophenol	1000	U		78	%	86	%	840	U	81	%
Dibenzofuran	400	U		79	%	83	%	330	U	76	%
2,4-Dinitrotoluene	400	U		91	%	92	%	330	U	84	%
Diethylphthalate	400	U		79	%	80	%	330	U	76	%
4-Chlorophenyl-phenylether	400	U		80	%	81	%	330	U	75	%
Fluorene	400	U		80	%	81	%	330	U	77	%
4-Nitroaniline	1000	U		55	%	67	%	840	U	69	%
4,6-Dinitro-2-methylphenol	1000	U		101	%	92	%	840	U	97	%
N-Nitrosodiphenylamine (1)	400	U		86	%	92	%	330	U	81	%
4-Bromophenyl-phenylether	400	U		75	%	80	%	330	U	74	%
Hexachlorobenzene	400	U		92	%	95	%	330	U	87	%
Pentachlorophenol	1000	U		81	%	89	%	840	U	80	%
Phenanthrene	400	U		84	%	88	%	330	U	82	%
Anthracene	400	U		79	%	84	%	330	U	75	%
Di-n-Butylphthalate	400	U		79	%	87	%	330	U	80	%
Fluoranthene	[redacted]			80	%	82	%	330	U	83	%
Pyrene	[redacted]			82	%	88	%	330	U	82	%
Butylbenzylphthalate	400	U		83	%	91	%	330	U	81	%
3,3'-Dichlorobenzidine	400	U	M	20	* %	54	%	330	U	57	%
Benzo(a)anthracene	400	U		83	%	89	%	330	U	80	%
Chrysene	400	U		87	%	91	%	330	U	81	%
bis(2-Ethylhexyl)phthalate	400 ~~60~~	~~JB~~	4	79	%	88	%	55	J	73	%
Di-n-Octyl phthalate	400	U		82	%	92	%	330	U	78	%
Benzo(b)fluoranthene	400	U		85	%	89	%	330	U	81	%
Benzo(k)fluoranthene	400	U		84	%	87	%	330	U	77	%
Benzo(a)pyrene	400	U		78	%	83	%	330	U	79	%
Indeno(1,2,3-cd)pyrene	400	U		90	%	90	%	330	U	86	%
Dibenzo(a,h)anthracene	400	U		92	%	88	%	330	U	87	%
Benzo(g,h,i)perylene	400	U		84	%	85	%	330	U	85	%
N-Nitrosodimethylamine	400	U		80	%	86	%	330	U	75	%

*= Outside of EPA CLP QC limits.

T.S.

1/3/98

808

Cust ID:	P-2335-S-00-00-AA	P-2335-S-00-00-AA	P-2335-S-00-00-AA	SBLKYA	SBLKYA BS
RFW#:	001	001 MS	001 MSD	98LE0707-MB1	98LE0707-MB1

Pyridine	400	UM(1)	1 *	%	64	%	330	U	47	%

(1) - Cannot be separated from Diphenylamine. * = Outside of EPA CLP QC limits.

7/3/98

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 05 16/98

CLIENT: PLATTSBURG AFB

RECRA LOT #: 9804L453

WORK ORDER: 11604-601-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	P-2335-S-00-00-AA	% Moisture	17.6	%	0.01	1.0
		% Solids	82.4	%	0.01	1.0
-003	MW30-004-X	Total Organic Carbon	6.2	MG/L	0.50	1.0

05