A5G270116

MEMORANDUM

TO: Tim Northam

FROM: Tim Davis

DATE: October 17, 1996

SUBJECT: Data Validation of the Sample Data from Samples Collected July 26, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed below is the data validation of water samples collected on July 26, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) located in North Canton, Ohio.

Samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for volatile organic compounds (VOCs) following method 8240A, semivolatile organic compounds following method 8270A. The analytical results are contained in the Quanterra data package referred to as A5G270116.

Data review followed the quality assurance/quality control (QA/QC) criteria set forth in the Quality Assurance Project Plan (QAPP), September 28, 1994, the USEPA Contract Laboratory Program (CLP) Draft Document Titled "National Functional Guidelines for Organics Data Review" December 1990, revised June, 1991, and the USEPA Document Titled "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" July 1, 1988.

VOLATILE AND SEMIVOLATILE DATA SUMMARY

The VOC and SVOC results of samples FMGWMW11D and FMGWMW12D are contained in one data package identified as A5G270116. This data package was validated with the results discussed below.

HOLDING TIMES

Volatile Organic Compounds:

All samples analyzed within holding time criteria.

Semivolatile Organic Compounds: All samples were extracted within seven days from collection and analyzed within forty days from the date of extraction. Due to an out of control QA parameter, the samples were reextracted and reanalyzed outside of the specified holding time. Data are qualified as estimated (J).

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

Volatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

Semivolatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

Volatile Organic Compounds: Due to the large target compound list requested, the initial calibration was broken up into two separate calibrations, which will be referred to as an initial calibration pair. The calibration pair was performed for this sample set on June 14, 1995, and July 7, 1995. Below are compounds that are outside the acceptance criteria for Relative Response Factor (RRF) and percent Relative Standard Deviation (%RSD).

Calibration date: 6/14/95 Instrument: A3UX3

Compound	RRF	%RSD
Acetone		40%

Associated samples: All samples.

Calibration date: 7/7/95 Instrument: A3UX3

Compound	RRF	%RSD
Isobutanol	0.0079	---
1,4-Dioxane	0.0015	---
n-Butanol	0.0042	---
Cyclohexanone	0.0083	---

Associated samples: All samples.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J).

Semivolatile Organic Compounds: All RRFs were greater than 0.050, and all %RSDs were less than 30%, with the following exceptions.

Calibration date: 4/25/95 Instrument: A4EXT3

Compound	RRF	%RSD
2,4-Toluenediamine	---	45
Famphur	---	69

Associated samples: All samples.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J).

CONTINUING CALIBRATION

Volatile Organic Compounds: Due to the target compound list requested, the continuing calibration was broken up into two separate calibrations, which will be referred to as a continuing calibration pair. The calibration pair was performed with the samples from this sample set on July 31, 1995. All RRFs were greater than 0.050, and all percent differences (%Ds) were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 7/31/95
Instrument: A3UX3

Compound	RRF	%D
Chloromethane	----	29

Associated samples: FMGWMW11D and FMGWMW12D.

Calibration Date: 7/31/95
Instrument: A3UX3

Compound	RRF	%D
Isobutanol	0.01	26
1,4-Dioxane	0.0018	---
n-Butanol	0.0052	---
Cyclohexanone	0.01	---
Ethyl ether	---	27
Tetrahydrofuran	---	27

Associated samples: FMGWMW11D and FMGWMW12D.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J).

Semivolatile Organic Compounds: All compound RRFs were greater than 0.050, and all compound %Ds were less than 25% with the following exceptions:

Calibration Date: 8/12/95
Instrument: A4EXT3

Compound	RRF	%D
Benzidine	0.03	87
1,3,5-Trinitrobenzene	0.028	---
a,a-Dimethyl-phenethylamine	---	28
1,4-Naphthoquinone	---	68
p-Chlorobenzilate	---	34
Famphur	---	44

Associated sample: All Samples.

Calibration Date: 8/14/95
Instrument: A4EXT3

Compound	RRF	%D
1,3,5-Trinitrobenzene	0.029	---
Benzidine	0.03	87
Benzoic Acid	---	52
4-Nitroquinoline 1-oxide	---	36
1,4-Naphthoquinone	---	69
Famphur	---	55

Associated samples: Check sample and duplicate.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J).

Calibration Date: 8/17/95
Instrument: A4EXT3

Compound	RRF	%D
1,3,5-Trinitrobenzene	0.028	---
Benzidine	0.02	91
Benzoic Acid	---	28
Dimethoate	---	30
1,4-Naphthoquinone	---	77
Famphur	---	61
p-Chlorobenzilate	---	33

Associated samples: Reanalyzed samples.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J).

BLANKS

Volatile Organic Compounds: A method blank was analyzed along with the samples from this sample set. No compounds were detected in the method blank. Qualification of the data was not necessary.

A trip blank was analyzed along with the samples in this sample set. No compounds were detected in the trip blank. Qualification of the data was not necessary.

Equipment blanks were not included in this sample set.

Semivolatile Organic Compounds: Two method blanks are associated with the samples from this sample set. No compounds were detected in either method blank..

Equipment blanks were not included in this sample set.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Volatile Organic Compounds: All surrogate spike compounds were within the set criteria.

Semivolatile Organic Compounds: All surrogate spike recoveries were within the set criteria

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Volatile Organic Compounds: The MS/MSD sample data reported with this SDG is part of a batch QC run. All MS/MSD spike recoveries were within quality control (QC) limits. Qualification of the data based on the MS/MSD results is not necessary.

Semivolatile Organic Compounds: An MS and MSD were not analyzed with this sample set, however, a laboratory control sample (LCS) and duplicate control sample (DCS) were analyzed. The LCS\DCS recoveries were within quality control (QC) limits. Therefore, in this data reviewer's opinion, qualification of the data was not necessary.

LABORATORY CONTROL SAMPLES

Volatile Organic Compounds: Laboratory control sample results were within the QC limits.

Semivolatile Organic Compounds: Laboratory control sample results were within the QC limits.

INTERNAL STANDARDS

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

Semivolatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

Volatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

Semivolatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

A5G270116

MEMORANDUM

TO: Tim Northam

FROM: Tim Davis

DATE: October 18, 1996

SUBJECT: Validation of the Water Samples for both "Total" and "Dissolved" Metals, Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed below is the data validation of the water samples collected July 26, 1995 at the Federated Metals Site, Hammond, Indiana. Samples were analyzed for total and dissolved metals at Quanterra-North Canton.

Samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for metals following method 6010 for trace metals and furnace atomic absorption methods 7421, 7470, 7740, 7060, and 7841. The analytical results are contained in the Quanterra data package referred to as A5G270116.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Quality Assurance Project Plan (QAPP), September 28, 1994, and the USEPA Document Titled "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" July 1, 1988.

INORGANIC DATA SUMMARY

TOTAL METALS

HOLDING TIME

The samples were analyzed within the proper holding times.

INITIAL AND CONTINUING CALIBRATION

All initial and continuing calibration criteria were met.

BLANKS

Several elements were detected at trace levels in calibration blanks and preparation blanks. The detected levels do not impact the analytical sample results. No qualification of data was required.

ICP INTERFERENCE CHECK SAMPLE

All inductively coupled plasma spectroscopy (ICP) interference check sample results were within the control criteria.

LABORATORY CONTROL SAMPLE

All laboratory control sample results were within control limits.

DUPLICATE SAMPLE ANALYSIS

No laboratory duplicate was in this SDG package.

MATRIX SPIKE SAMPLE ANALYSIS

Acceptable.

FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Some QA parameters were outside acceptance limits. Data associated with these were qualified as estimated (J).

ICP SERIAL DILUTION

All results were acceptable.

SAMPLE RESULT VERIFICATION

All sample results were correctly reported.

FIELD DUPLICATES

No field duplicates were included with this SDG.

OVERALL ASSESSMENT OF DATA FOR A CASE

The data are acceptable within the limits of the qualifiers.

A5G200131

MEMORANDUM

TO: Tim Davis

FROM: Mark Radecke

DATE: October 7, 1996

SUBJECT: Data Validation of the Water Sample Data Collected July 18, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.109)

Detailed below is the data validation of three water samples collected on July 18, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) located in North Canton, Ohio.

The samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for volatile organic compounds (VOCs) following method 8240A, semivolatile organic compounds following method 8270A, and metals following method 6010A (including mercury, lead, selenium, arsenic, and thallium following methods 7470, 7421, 7740, 7060, and 7841, respectively); cyanide following method 9012; fluoride following USEPA method 340.2; and sulfide following USEPA method 376.1. The analytical results are contained in the Quanterra data package referred to as A5G200131.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Quality Assurance Project Plan (QAPP), September 28, 1994, the USEPA Contract Laboratory Program (CLP) Draft Document Titled "National Functional Guidelines for Organics Data Review" December 1990, revised June, 1991, and the USEPA Document Titled "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" July 1, 1988.

ORGANIC DATA SUMMARY

The organic results of samples FMGWMW6D and FMGWMW6S and QC sample Trip Blank (VOCs only) are contained in one data package identified as A5G200131. This data package was validated with the results discussed below.

HOLDING TIMES

Volatile Organic Compounds: A 14 day holding time (from time of collection) is listed in the QAPP. All samples were analyzed within holding time.

Semivolatile Organic Compounds: All samples were extracted within seven days from collection and analyzed within forty days from the date of extraction.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

Volatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

Semivolatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

Volatile Organic Compounds: Two initial calibrations were performed with the samples from this sample set on November 4, 1994, and July 2, 1995; all using instrument A3I503. All compound relative response factors (RRFs) were greater than 0.050: and, all percent relative standard deviations (%RSDs) were less then 30% for these initial calibrations, with the following exceptions:

Calibration date: 11/4/94 Instrument: A3I503

Compound	RRF	%RSD
Isobutanol	0.012	----
1,4-Dioxane	0.003	----

Associated samples: FMGWMW6D, FMGWMW6S and Trip Blank.

Calibration date: 7/2/95 Instrument: A3I503

Compound	RRF	%RSD
Acrolein	0.023	32.14
2-Chloroethyl vinyl ether	----	33.48

Associated samples: FMGWMW6D, FMGWMW6S, and Trip Blank.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

Semivolatile Organic Compounds: One initial calibration was performed for the samples in this sample set on April 25, 1995 on instrument A4EXT3. All RRFs were greater than 0.050 and all %RSDs were less than 30% with the following exceptions:

Compound	RRF	%D
Benzidine	----	30.4
2,4-Toluenediamene	----	45.0
a,a-Dimethyl-phenethylamine	----	34.8
Famphur	----	69.2
1,3,5-Trinitrobenzene	0.031	----

Associated samples: FMGWMW6D and FMGWMW6S.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

CONTINUING CALIBRATION

Volatile Organic Compounds: Two continuing calibrations were performed on July 25, 1995 with the samples from this sample set. All RRFs were greater than 0.050, and all percent differences (%Ds) were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 7/25/95
Time: 1237
Instrument: A3I503

Compound	RRF	%D
Chloromethane	----	42.52
Dichlorodifluoromethane	----	39.18
Acrolein	0.001	95.73
Bromomethane	----	28.93
Trichlorofluoromethane	----	37.80
Vinyl acetate	----	49.08

Associated samples: Trip Blank, FMGWMW6D, and FMGWMW6S.

Calibration Date: 7/25/95
Time: 1302
Instrument: A3I503

Compound	RRF	%D
Isobutanol	0.008	35.59
1,4-Dioxane	0.002	32.14
1,4-Dichloro-2-butene	0.014	73.08
1,2-Dibromo-3-chloropropane	----	39.17

Associated samples: FMGWMW6D, FMGWMW6S and Trip Blank.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable(R) if not detected in the associated samples.

Semivolatile Organic Compounds: One continuing calibration was performed with the samples from this sample set on August 10, 1995. All compound RRFs were greater than 0.050, and all compound %Ds were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 8/10/95
Time: 0841
Instrument: A4EXT3

Compound	RRF	%D
bis-(2-Chloroethyl)ether	----	25.53
Hexachlorocyclopentadiene	----	38.93
4-Nitroaniline	----	31.28
Benzidine	0.000	100.0
Dimethoate	----	43.99
1,3-Dichloro-2-propanol	----	32.34
4-Napthoquinone	----	71.32
4-Nitroquinoline-1-oxide	0.044	48.42
Famphur	----	62.29
1,3,5-Trinitrobenzene	0.032	----

Associated sample: FMGWMW6D and FMGWMW6S.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compound listed above was qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

BLANKS

Volatile Organic Compounds: Method blank A5G270000-097 was analyzed along with the samples from this sample set. Compounds were not detected in this method blank sample and Trip Blank.

Other blank samples were not analyzed along with the samples in this sample set.

Semivolatile Organic Compounds: Method blank A5G240000-089 is associated with the samples from this sample set. No target compounds were detected in this method blank. Qualification of the data was not necessary based on the method blank data.

Other blank samples were not analyzed along with the samples in this sample set.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Volatile Organic Compounds: All surrogate spike compounds were within the set criteria.

Semivolatile Organic Compounds: All surrogate spike recoveries were within the set criteria

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Volatile Organic Compounds: The water matrix spike/matrix spike duplicate (MS/MSD)analyses were performed on laboratory batch specific water sample A5G030004-004S. All MS/MSD spike recoveries and relative percent difference values (RPDs) were within QC limits. Qualification of the data based on the matrix spike results was not necessary.

Semivolatile Organic Compounds: The results of a batch specific water MS/MSD were not provided. Qualification of the data based on the matrix spike results, therefore, was not performed.

LABORATORY CONTROL SAMPLES

Volatile Organic Compounds: Laboratory control sample results were within the QC limits.

Semivolatile Organic Compounds: Laboratory control sample results were within the QC limits.

REGIONAL QUALITY ASSURANCE AND QUALITY CONTROL

Volatile Organic Compounds: Duplicate samples were not contained in this data package.

Semivolatile Organic Compounds: Duplicate samples were not contained in this data package.

INTERNAL STANDARDS

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

Semivolatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

Volatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

Semivolatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

INORGANIC DATA SUMMARY

The inorganic results of samples FMGWMW6D and FMGWMW6S are also contained in the Quanterra data package identified as A5G200131. This data package was validated with the results discussed below.

HOLDING TIME

The samples were analyzed within the proper holding times.

INITIAL AND CONTINUING CALIBRATION

The initial calibration criteria and continuing calibration criteria were met.

BLANKS

No analytes were detected in the initial calibration blanks. Several metals (barium, beryllium, cadmium, cobalt, selenium and thallium) were detected in the continuing calibration blanks. Because these six metals were not detected in the associate samples or were detected in these samples at concentrations above the action limit, qualification of the data based on the continuing calibration blank results was not necessary. Analytes, however, were not detected in the associated method blank samples.

ICP INTERFERENCE CHECK SAMPLE

All inductively coupled plasma spectroscopy (ICP) interference check sample results were within the control criteria.

LABORATORY CONTROL SAMPLE

All laboratory control sample results were within control limits.

DUPLICATE SAMPLE ANALYSIS

Duplicate sample results were not provided.

MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike recoveries were within control limits.

CRDL STANDARD

The initial CRDL recovery for cadmium (123.3%) and final CRDL recovery for chromium (134.4%) were above the upper control limit (120%). Because cadmium was not detected in the associated samples and these two samples were not in the affected range for chromium, the data for these two metals were not qualified.

FURNACE ATOMIC ABSORPTION QUALITY CONTROL

All selenium and thallium post-digestion spike recoveries were below the control limits of 85%-115% but above 40%. Therefore, all selenium and thallium sample results were qualified as estimated (J) if detected and estimated (UJ) if not detected.

ICP SERIAL DILUTION

All results were acceptable.

SAMPLE RESULT VERIFICATION

All sample results were correctly reported.

FIELD DUPLICATES

Field duplicates were not contained in this data package.

OVERALL ASSESSMENT OF DATA FOR A CASE

The data are acceptable with the qualifiers discussed above.

A5 H030106

MEMORANDUM

TO: Tim Davis

FROM: Lisa Horton and Lauren Sjogren

DATE: April 18, 1996

SUBJECT: Data Validation of the Water Sample Data Collected August 1, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed below is the data validation of two water samples and one trip blank collected on August 1, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) located in North Canton, Ohio.

Sample FMGWMW8S was analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for volatile organic compounds (VOCs) following method 8240A, semivolatile organic compounds following method 8270A, and metals following method 6010A (including mercury, lead, selenium, arsenic, and thallium following methods 7470, 7421, 7740, 7060, and 7841, respectively); cyanide following method 9012, fluoride following USEPA method 340.2, pesticides/PCBs following method 8080, organophosphorous pesticides following method 8141, and chlorinated herbicides following method 8150A. Sample FMGWMW8D was analyzed only for metals and a trip blank was analyzed only for VOCs. The analytical results are contained in the Quanterra data package referred to as A5H030106.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Quality Assurance Project Plan (QAPP), September 28, 1994, the USEPA Contract Laboratory Program (CLP) Draft Document Titled "National Functional Guidelines for Organics Data Review" December 1990, revised June, 1991, and the USEPA Document Titled "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" July 1, 1988.

VOLATILE AND SEMIVOLATILE DATA SUMMARY

The organic results of sample FMGWMW8S and a trip blank (volatile analysis only) are contained in one data package identified as A5H030106. The case narrative of this SDG reported that some of the sample containers for sample FMGWMW8S were compromised during shipping (vials broken, lids off, and/or lids broken); however, the laboratory was able to complete all of the analyses requested in lieu of the damaged containers.

HOLDING TIMES

Volatile Organic Compounds: Sample FMGWMW8S and the trip blank were analyzed within a 14-day holding time (from time of collection).

Semivolatile Organic Compounds: Sample FMGWMW8S was extracted within seven days from collection and analyzed within forty days from the date of extraction.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

Volatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

Semivolatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

Volatile Organic Compounds: Due to the large target compound list requested, the initial calibration was broken up into two separate calibrations, which will be referred to as an initial calibration pair. Two initial calibration pairs were performed. The calibration pairs were performed for this sample set on November 4, 1994/July 2, 1995, and on March 27, 1995/August 2, 1995. All compound relative response factors (RRFs) were greater than 0.050, and all percent relative standard deviations (%RSDs) were less then 30% for these initial calibrations with the exceptions listed below.

Calibration date: 11/4/94 Instrument: A3I503

Compound	RRF	%RSD
Isobutanol	0.012	---
1,4-Dioxane	0.003	---

Associated sample: FMGWMW8S.

Calibration date: 7/2/95 Instrument: A3I503

Compound	RRF	%RSD
Acrolein	0.0234	32.14

Associated sample: FMGWMW8S.

Calibration date: 3/27/95 Instrument: A3I502

Compound	RRF	%RSD
Propionitrile	----	35.16
Isobutanol	0.0124	----
1,4-Dioxane	0.0023	31.10

Associated sample: Trip blank.

Calibration date: 8/2/95 Instrument: A3I502

Compound	RRF	%RSD
Acrolein	0.0269	35.32

Associated sample: Trip blank.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

Semivolatile Organic Compounds: Due to the large target compound list requested, the initial calibration was broken up into two separate calibrations, which will be referred to as an initial calibration pair. One initial calibration pair was performed on April 25, 1995, on instrument A4EXT3. All RRFs were greater than 0.050, and all %RSDs were less than 30%, with the following exceptions.

Calibration date: 4/25/95

Compound	RRF	%RSD
a,a-Dimethyl-phenethylamine	---	34.8
1,3,5-Trinitrobenzene	0.031	---

Associated sample: FMGWMW8S.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

CONTINUING CALIBRATION

Volatile Organic Compounds: Due to the large target compound list requested, the continuing calibration was broken up into two separate calibrations, which will be referred to as a continuing calibration pair. Two initial calibration pairs were performed. Both calibration pairs were performed with the samples from this sample set on August 7, 1995. All RRFs were greater than 0.050, and all percent differences (%Ds) were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 8/7/95
Time: 0842
Instrument: A3I502

Compound	RRF	%D
Bromomethane	----	25.641
Acetone	----	40.484
2-Butanone	----	48.640
2-Hexanone	----	38.063
Dichlorodifluoromethane	----	27.780
Acrolein	0.0246	----
Acrylonitrile	----	29.278
Vinyl Acetate	----	29.372

Associated sample: Trip blank.

Calibration Date: 8/7/95
Time: 0913
Instrument: A3I502

Compound	RRF	%D
Propionitrile	0.0297	58.750
Methacrylonitrile	----	32.231
Isobutanol	0.0053	57.258
Methyl methacrylate	----	46.040
1,4-Dioxane	0.0016	33.333

Associated sample: Trip blank.

Calibration Date: 8/7/95
Time: 0817
Instrument: A3I503

Compound	RRF	%D
Dichlorodifluoromethane	----	29.366
Acrolein	0.0225	----
Vinyl acetate	----	65.657

Associated sample: FMGWMW8S.

Calibration Date: 8/7/95
Time: 0844
Instrument: A3I503

Compound	RRF	%D
Isobutanol	0.0082	30.508
1,4-Dioxane	0.0020	28.571

Associated sample: FMGWMW8S.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable(R) if not detected in the associated samples.

Semivolatile Organic Compounds: Due to the large target compound list requested, the continuing calibration was broken up into two separate calibrations, which will be referred to as a continuing calibration pair. Two initial calibration pairs were performed. The calibration pairs were performed with the samples from this sample set on August 17and August 21, 1995. All compound RRFs were greater than 0.050, and all compound %Ds were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 8/17/95
Time: 0903
Instrument: A4EXT3

Compound	RRF	%D
1,3,5-Trinitrobenzene	0.0286	----
p-Chlorobenzilate	----	33.345

Associated samples: FMGWMW8S and FMGWMW8S MS.

Calibration Date: 8/21/95
Time: 1001
Instrument: A4EXT3

Compound	RRF	%D
4-Nitroaniline	----	25.729
1,3,5-Trinitrobenzene	0.0332	----
4-Nitroquinoline 1-oxide	----	28.253
3,3'Dimethylbenzidine		25.998

Associated sample: FMGWMW8S MSD.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable(R) if not detected in the associated samples.

BLANKS

Volatile Organic Compounds: Two method blanks (091 and 065) were analyzed along with the samples in this sample set. Compounds were not detected in either method blank. Therefore, based on the method blanks, qualification of the data was not necessary.

One trip blank was analyzed along with the samples in this sample set. Acetone was detected in the trip blank at an estimated concentration of 14 ug/L. Acetone was not detected in the associated sample, therefore qualification of the data was not necessary.

Equipment blanks were not included in this sample set.

Semivolatile Organic Compounds: One method blank (032) is associated with the sample from this sample set. Compounds were not detected in the method blank. Therefore, based on the method blank, qualification of the data was not necessary.

Equipment blanks were not included in this sample set.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Volatile Organic Compounds: All surrogate spike compounds were within the set criteria.

Semivolatile Organic Compounds: All surrogate spike recoveries were within the set criteria

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Volatile Organic Compounds: Sample FMGWMW8S was designated as a matrix spike/matrix spike duplicate (MS/MSD). All MS/MSD spike recoveries were within quality control (QC) limits. Qualification of the data based on the MS/MSD results is not necessary.

Semivolatile Organic Compounds: Sample FMGWMW8S was designated the MS/MSDS. All MS/MSD spike recoveries were within quality control (QC) limits. Qualification of the data based on the MS/MSD results is not necessary.

LABORATORY CONTROL SAMPLES

Volatile Organic Compounds: Laboratory control sample results were within the QC limits.

Semivolatile Organic Compounds: Laboratory control sample results were within the QC limits.

REGIONAL QUALITY ASSURANCE AND QUALITY CONTROL

Volatile Organic Compounds: Field duplicates were not contained in this SDG.

Semivolatile Organic Compounds: Field duplicates were not contained in this SDG.

INTERNAL STANDARDS

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

Semivolatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

Volatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

Semivolatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

PESTICIDES, PCBS, AND HERBICIDES DATA SUMMARY

Sample FMGWMW8S was analyzed for pesticides/PCBs, organophosphate pesticides, and chlorinated herbicides with the results also contained data package A5H030106. These data were validated with the results discussed below.

HOLDING TIMES

Sample FMGWMW8S was analyzed within the proper holding times.

INSTRUMENT PERFORMANCE

The performance of the instruments during the analyses was acceptable.

CALIBRATION

All calibration criteria were met.

BLANKS

No compounds were detected in any of the blanks.

SURROGATE RECOVERY

All samples met surrogate recovery criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A batch matrix spike/matrix spike duplicate (MS/MSD) was provided by the laboratory in the data package. All spike recoveries and relative percent differences (RPDs) for this MS/MSD met QC limits with one exception. The spike recoveries for chlorinated herbicide dinoseb were below QC limits. Laboratory control samples were also analyzed with all results found to be within QC limits except for dinoseb. The dinoseb laboratory control sample spike recoveries were below QC limits. Therefore, the non-detect dinoseb result for sample FMGWMW8S was qualified as estimated (UJ).

FIELD DUPLICATES

Field duplicates were not contained in this SDG.

COMPOUND IDENTIFICATION

No compounds were detected in sample FMGWMW8S.

COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No compounds were detected in sample FMGWMW8S. All detection limits were reported correctly.

OVERALL ASSESSMENT OF DATA FOR A CASE

The quality of the data presented in the QC data package is acceptable with the appropriate qualifications specified above.

INORGANIC DATA SUMMARY

The inorganic results of samples FMGWMW8D and FMGWMW8S are also contained in the Quanterra data package identified as A5H030106. This data package was validated with the results discussed below.

HOLDING TIME

All analyses were conducted within the proper holding times.

INITIAL AND CONTINUING CALIBRATION

All calibration criteria were met.

BLANKS

The 28 ug/L of arsenic reported as detected in sample FMGWMW8D was qualified as not detected (U) because of the arsenic detected in the associated continuing calibration blank. Further qualification of the data was not necessary either because the analytes detected in the blanks were not detected in the samples or were detected in the samples at concentrations over five times the blank concentrations.

ICP INTERFERENCE CHECK SAMPLE

All inductively coupled plasma spectroscopy (ICP) interference check sample results were within the control criteria.

LABORATORY CONTROL SAMPLE

All laboratory control sample results were within control limits.

DUPLICATE SAMPLE ANALYSIS

All duplicate sample results were within control limits.

MATRIX SPIKE SAMPLE ANALYSIS

The selenium matrix spike recoveries were below the control limits of 75%-125% but above 30%. Therefore, all positive selenium sample results were qualified as estimated (J) and all non-detect selenium sample results were qualified as estimated (UJ). All other matrix spike sample results were within control limits.

FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Selenium post-digestion spike recoveries were outside the control limits for samples. Because the selenium sample results have been qualified based on the matrix spike recovery results, further qualification based on the post-digestion spike recoveries was not necessary. The dissolved thallium post-digestion spike recovery for sample FMGWMW8D was below the control limits of 85%-115%.

Therefore, the non-detect thallium result for this sample was qualified as estimated (UJ). All other furnace atomic absorption quality control results were acceptable.

ICP SERIAL DILUTION

All ICP serial dilution results were acceptable.

SAMPLE RESULT VERIFICATION

Mercury was originally reported as not detected in sample FMGWMW8S. However, after reviewing the raw data and confirming this result with the laboratory, mercury was detected in sample FMGWMW8S at a concentration of 4.3 ug/L. The laboratory provided a new report sheet that listed this correction. All other sample results were correctly reported.

FIELD DUPLICATES

Field duplicates were not contained in this data package.

OVERALL ASSESSMENT OF DATA FOR A CASE

The data are acceptable with the qualifiers discussed above.

f:\chemical\data-val\indy\fedmetal\030106.doc

Thomas M. Himes
Project Manager

Quanterra
Environmental Services

A 5H030106

RECEIVED
APR 19 1996
GERAGHTY & MILLER, INC.
INDIANAPOLIS, INDIANA

April 17, 1996

Lauren Sjogren
Geraghty & Miller, Inc.
125 East Bethpage Road
Plainview, NY 11803

Re: Revised Data Validation Response / Laboratory ID A5H030106

Dear Lauren:

In response to your April 10, 1996 facsimile transmission, this correspondence serves to address those issues regarding the above referenced laboratory report. The metals data that was provided with the telefax was reviewed, and was found to be complete except for the following:

The original data for total mercury on sample FMGWMW8S has been reviewed, and was found to be incorrect. The actual value for total mercury on this sample is 4.3 ug/L, and not ND as originally reported. This was a data entry error that took place when the incorrect units were entered (ie: 4.3 mg/L instead of 4.3 ug/L) yielding a value that the LIMS thought was below the PQL. The dissolved mercury value remains as ND. A corrected result page will be provided for this sample.

The actual blank and check sample information for sample FMGWMW8S can be found on page 1405 of the data package. The identification number assigned is C0QR5-Q.

I apologize for any inconvenience that the correction discussed above may have caused. Should any of the above information require further clarification or if you have any questions, please contact me at (330) 966-9785.

Sincerely,

Thomas M. Himes

Thomas M. Himes
Project Manager

Enclosures

cc: Tim Northam, Geraghty & Miller
Opal Davis-Johnson, Quanterra
Chris Oprandi, Quanterra

Geraghty & Miller

FMGWMW8S (MS/MSD)

WO # : C0GMT
LAB # : A5H030106-002
MATRIX: WATER

DATE SAMPLED : 8/01/95
TIME SAMPLED : 11:50
DATE RECEIVED: 8/02/95

- - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Silver	ND	10.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Barium	532	10.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Beryllium	ND	5.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Cadmium	42.0	10.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Cobalt	ND	50.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Chromium	90.0	20.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Copper	9,950	10.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Iron	68,200	100	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Manganese	2,280	15.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Sodium	31,200	5,000	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Nickel	1,240	40.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Antimony	714	300	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Tin	2,310	1,000	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Vanadium	73.0	50.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Zinc	16,100	50.0	ug/L	SW846 6010A	8/17- 9/20/95	5229009
Arsenic	114	25.0	ug/L	SW846 7060	8/17- 8/21/95	5229009
Lead	10,400	1,500	ug/L	SW846 7421	8/17- 8/22/95	5229009
Mercury	4.3	0.20	ug/L	SW846 7470	8/23- 8/24/95	5235005
Selenium	ND W	5.0	ug/L	SW846 7740	8/17- 8/21/95	5229009
Thallium	ND	10.0	ug/L	SW846 7841	8/17- 8/18/95	5229009

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
W - POST DIGESTION SPIKE RECOVERY FELL BETWEEN 40 - 85% WHILE SAMPLE RESULT WAS LESS THAN ONE-HALF THE REPORTING LIMIT.

A5H 030125 ✓

MEMORANDUM

TO: Tim Davis

FROM: Lisa Horton and Lauren Sjogren

DATE: June 19, 1996

SUBJECT: Data Validation of the Water Sample Data Collected August 2, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed below is the data validation of four water samples and one trip blank collected on August 2, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) located in North Canton, Ohio.

The samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for volatile organic compounds (VOCs) following method 8240A, semivolatile organic compounds following method 8270A, pesticides/PCBs following method 8080, organophosphorous pesticides following method 8141, and chlorinated herbicides following method 8150A. Indicated in the data packages was that the samples were also analyzed for some inorganic parameters. However, these results were not included with the data we received and therefore, were not validated.

The analytical results are contained in the Quanterra data package referred to as A5H030125.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Quality Assurance Project Plan (QAPP), September 28, 1994, the USEPA Contract Laboratory Program (CLP) Draft Document Titled "National Functional Guidelines for Organics Data Review" December 1990, revised June, 1991, and the USEPA Document Titled "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" July 1, 1988.

VOLATILE AND SEMIVOLATILE DATA SUMMARY

The organic results of samples FMGWMW60, FMGWMW9S, FMGWMW61, FMGWMW9D, and a trip blank (volatile analysis only) are contained in one data package identified as A5H030125. These data were validated with the results discussed below.

HOLDING TIMES

Volatile Organic Compounds: All samples were analyzed within seven days of the date of collection.

Semivolatile Organic Compounds: All samples were extracted within seven days from collection and analyzed within forty days from the date of extraction.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

Volatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

Semivolatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

Volatile Organic Compounds: Due to the large target compound list requested, the initial calibration was broken up into two separate calibrations, which will be referred to as an initial calibration pair. Two initial calibration pairs were performed. The calibration pairs were performed for this sample set on November 4, 1994/July 2, 1995, and on January 17, 1995/June 6, 1995. All compound relative response factors (RRFs) were greater than 0.050, and all percent relative standard deviations (%RSDs) were less then 30% for these initial calibration pairs with the exceptions listed below.

Calibration date: 11/4/94 Instrument: A3I503

Compound	RRF	%RSD
Isobutanol	0.012	----
1,4-Dioxane	0.003	----

Associated samples: FMGWMW60, FMGWMW9S, FMGWMW61, FMGWMW9D, and the trip blank.

Calibration date: 7/2/95 Instrument: A3I503

Compound	RRF	%RSD
Acrolein	0.0234	32.14

Associated samples: FMGWMW60, FMGWMW9S, FMGWMW61, FMGWMW9D, and the trip blank.

Calibration date: 1/17/95 Instrument: A3UX1

Compound	RRF	%RSD
Isobutanol	1.0198	31.28
1,4-Dioxane	0.0038	----

Associated samples: FMGWMW9SMS, and FMGWMW9SMSD.

Calibration date: 6/6/95 Instrument: A3UX1

Compound	RRF	%RSD
Acetone	----	43.68

Associated samples: FMGWMW9SMS, and FMGWMW9SMSD.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above with %RSDs above 30% were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above with RRFs below 0.05 were qualified as estimated (J) if detected and unusable (R) if not detected.

Semivolatile Organic Compounds: Due to the large target compound list requested, the initial calibration was broken up into two separate calibrations, which will be referred to as an initial calibration pair. One initial calibration pair was performed on April 25, 1995, on instrument A4EXT3. All RRFs were greater than 0.050, and all %RSDs were less than 30%, with the following exceptions.

Calibration date: 4/25/95

Compound	RRF	%RSD
a,a-Dimethyl-phenethylamine	----	34.8
1,3,5-Trinitrobenzene	0.031	----

Associated samples: all samples.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above with %RSDs above 30% were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above with RRFs below 0.05 were qualified as estimated (J) if detected and unusable (R) if not detected.

CONTINUING CALIBRATION

Volatile Organic Compounds: Due to the large target compound list requested, the continuing calibration was broken up into two separate calibrations, which will be referred to as a continuing calibration pair. Two continuing calibration pairs were performed. The calibration pairs were performed with this sample set on August 7 and August 15, 1995. All RRFs were greater than 0.050, and all percent differences (%Ds) were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 8/7/95
Time: 0817
Instrument: A3I503

Compound	RRF	%D
Dichlorodifluoromethane	----	29.366
Acrolein	0.0225	----
Vinyl acetate	----	65.657

Associated samples: FMGWMW60, FMGWMW9S, FMGWMW61, FMGWMW9D, and the trip blank.

Calibration Date: 8/7/95
Time: 0844
Instrument: A3I503

Compound	RRF	%D
Isobutanol	0.0082	30.508
1,4-Dioxane	0.0020	28.571
1,4-Dichloro-2-butene	0.0151	70.334

Associated samples: FMGWMW60, FMGWMW9S, FMGWMW61, FMGWMW9D, and the trip blank.

Calibration Date: 8/15/95
Time: 0827
Instrument: A3UX1

Compound	RRF	%D
Acetone	----	37.313
Dichlorodifluoromethane	----	27.438
Acrolein	0.0425	50.753

Associated samples: FMGWMW9SMS, and FMGWMW9SMSD.

Calibration Date: 8/15/95
Time: 0855
Instrument: A3UX1

Compound	RRF	%D
Isobutanol	0.0005	97.475
Methyl methacrylate	----	27.333
1,4-Dioxane	0.0029	----
1,4-Dichloro-2-butene	----	35.880
1,2-Dibromo-3-chloropropane	----	44.295
n-Butanol	0.0078	----
Cyclohexanone	0.0129	31.746

Associated samples: FMGWMW9SMS, and FMGWMW9SMSD.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable (R) if not detected in the associated samples.

Semivolatile Organic Compounds: Due to the large target compound list requested, the continuing calibration was broken up into two separate calibrations, which will be referred to as a continuing calibration pair. One initial calibration pair was performed on August 21, 1995. All compound RRFs were greater than 0.050, and all compound %Ds were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 8/21/95
Time: 1001
Instrument: A4EXT3

Compound	RRF	%D
4-Nitroaniline	----	25.729
1,4-Naphthoquinone	----	69.419
1,3,5-Trinitrobenzene	0.0332	----
4-Nitroquinoline 1-oxide	----	28.253
3,3'Dimethylbenzidine		25.998

Associated sample: All samples.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable(R) if not detected in the associated samples.

BLANKS

Volatile Organic Compounds: One method blank (065) was analyzed along with the samples in this sample set. Compounds were not detected in this method blank, therefore, qualification of the data based on the method blank results was not necessary.

One trip blank was analyzed along with the samples in this sample set. Compounds were not detected in the trip blank. Therefore, qualification of the data based on the trip blank was not necessary.

Equipment blanks were not included in this sample set.

Semivolatile Organic Compounds: One method blank (003) is associated with the samples from this sample set. Target compounds were not detected in this method blank, however one unknown tentatively identified compound (TIC) was found with a retention time (RT) of 18.809 minutes. Each sample was also found to have an unknown TIC with a RT comparable to this method blank. Therefore, the unknown TIC detected in every sample was qualified as unusable (R).

Equipment blanks were not included in this sample set.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Volatile Organic Compounds: All surrogate spike compounds were within the set criteria.

Semivolatile Organic Compounds: All surrogate spike recoveries were within the set criteria

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Volatile Organic Compounds: Sample FMGWMW9D was designated as a matrix spike/matrix spike duplicate (MS/MSD). All MS/MSD spike recoveries were within quality control (QC) limits. Qualification of the data based on the MS/MSD results is not necessary.

Semivolatile Organic Compounds: Sample FMGWMW9D was designated the MS/MSD. All MS/MSD spike recoveries were within QC limits. Qualification of the data based on the MS/MSD results is not necessary.

LABORATORY CONTROL SAMPLES

Volatile Organic Compounds: Laboratory control sample results were within the QC limits.

Semivolatile Organic Compounds: Laboratory control sample results were within the QC limits.

REGIONAL QUALITY ASSURANCE AND QUALITY CONTROL

Volatile Organic Compounds: Field duplicates were not contained in this SDG.

Semivolatile Organic Compounds: Field duplicates were not contained in this SDG.

INTERNAL STANDARDS

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

Semivolatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

Volatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

Semivolatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

PESTICIDES, PCBS, AND HERBICIDES DATA SUMMARY

Samples FMGWMW60, FMGWMW9S, FMGWMW61, and FMGWMW9D were analyzed for pesticides/PCBs, organophosphate pesticides, and chlorinated herbicides with the results also contained data package A5H030125. These data were validated with the results discussed below.

HOLDING TIMES

All samples were analyzed within the proper holding times.

INSTRUMENT PERFORMANCE

The performance of the instruments during the analyses was acceptable.

CALIBRATION

All calibration criteria were met.

BLANKS

No compounds were detected in any of the blanks.

SURROGATE RECOVERY

All samples met surrogate recovery criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample FMGWMW9D was spiked and analyzed as the matrix spike/matrix spike duplicate (MS/MSD). All spike recoveries and relative percent differences (RPDs) for this MS/MSD met QC limits with a few exceptions. The spike recoveries for lindane and endrin were above QC limits. The spike recoveries for dinoseb were below QC limits, but above 10%. Laboratory control samples were also analyzed with all results found to be within QC limits except for a low

dinoseb spike recovery. Because lindane and/or endrin were not detected in any of the samples, qualification of these results based on the MS/MSD results was not necessary. Because dinoseb was not detected in any of the samples, all non-detect dinoseb results were qualified as estimated (UJ).

FIELD DUPLICATES

Field duplicates were not contained in this SDG.

COMPOUND IDENTIFICATION

No compounds were detected in any of the samples.

COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No compounds were detected in any of the samples. All detection limits were reported correctly.

OVERALL ASSESSMENT OF DATA FOR A CASE

The quality of the data presented in the QC data package is acceptable with the appropriate qualifications specified above.

A5H010101 ✓

MEMORANDUM

TO: Tim Davis

FROM: Will Huskie

DATE: April 15, 1996

SUBJECT: Data Validation for Groundwater Samples Collected July 27 and 28, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

The volatile organic compound (VOC) and semi-volatile organic compound (SVOC) data validation for five groundwater samples and one associated quality control sample collected July 27 and 28, 1995 at the Federated Metals Site, Hammond, Indiana is presented in the attachments to this memorandum. The samples were analyzed by the Quanterra Inc. (Quanterra) laboratory located in North Canton, Ohio.

The samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for VOCs using Method 8240A and for SVOCs using Method 8270A. The analytical results are contained in the Quanterra data package referred to as A5H010101 dated October 17, 1995.

Review of these data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Federated Metals Quality Assurance Project Plan (QAPP) dated September 28, 1994, and the USEPA Contract Laboratory Program (CLP) document titled "National Functional Guidelines for Organic Data Review" (Draft - Revised) dated June 1991.

ORGANIC DATA SUMMARY

Validation of Volatile and Semi-Volatile Organic Compound Results
Federated Metals Facility Groundwater Sampling

Analyses Performed by Quanterra, Inc.
Quanterra Inc. Report # A5H010101 Dated October 17, 1995
Sample Delivery Group H0101

SAMPLE DESCRIPTION

The following five groundwater samples were collected at the Federated Metals Facility and submitted to Quanterra Inc. in North Canton, Ohio for analysis of VOCs by Method 8240A and for SVOCs by Method 8270A. A trip blank was also submitted for analysis of VOCs as a quality control (QC) sample.

FMGWMW7S	FMGWMW7D	FMGWMW12S
FMGWMW58	FMGWMW59	Trip blank

These samples are referred to as MW7S, MW7D, MW12S, MW58, and MW59, and trip blank in this data evaluation.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The five groundwater samples submitted under this chain of custody for VOCs and SVOC analysis were analyzed, as requested. The trip blank was analyzed for VOCs, as requested.

HOLDING TIME COMPLIANCE

The samples were collected on July 27 and 28, 1995 and were received by the laboratory on July 29, 1995.

VOCs: The VOC samples were preserved with hydrochloric acid at the time of collection. All VOC analyses were performed August 7, 1995, within the required 14 day holding time.

SVOCs: Samples submitted for SVOC analysis were extracted on August 3 and 4, 1995, within the required 7 day extraction holding time and were analyzed on August 14 and 16, 1995, within the required 40 day holding time after extraction. Sample MW12S was re-extracted, due to QC failure, on August 17, outside of allowable holding time, and re-

analyzed on August 22, 1995. The SVOC results for this re-extraction are considered to be estimated and no compounds were detected (UJ).

SAMPLE BATCHING

VOC analyses were performed within the following QC batch:

MW10S, MW10D MW7S, MW7D, MW12S, MW58, and MW59, and Trip Blank - Batch 5221089.

SVOC analyses were performed within the following QC batch(es):

MW12S - Batch 5215091;
MW7S, MW58, MW7D, MW59 - Batch 5216001
MW12S Re-run, Batch 5229108

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

VOCs: Each set of tuning data associated with calibration and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

SVOCs: Each set of tuning data associated with calibration and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

VOCs: The analyses for this sample delivery group were performed under an initial calibration dated January 17, 1995 (partial compound list) and June 6, 1995 for the remaining compounds. Compound relative response factors (RRFs) were greater than 0.050 and percent relative standard deviations (%RSDs) were less then 30% for the initial calibration, with the exceptions listed below.

Calibration dates: 01/17/95 (Appendix 9 compounds) and 06/06/95
Instrument: A3UX1
Associated samples: MW7S, MW7D, MW12S, MW58, and MW59.

Compound	RRF	%RSD
Isobutanol	0.019	31.3
1,4-Dioxane	0.0038	----
n-Butanol	0.0095	----
Cyclohexanone	0.019	----
Acetone	----	43.7

Based on the low relative response factors (RRFs) in the initial calibration data, the associated sample results for the compounds listed in the RRF column would be qualified as estimated (J), if detected and rejected (R), if not detected. Only results for 1,4-dioxane were reported for this sample delivery order. Concentrations of 1,4-dioxane were not reported above the detection limit in any of the samples; therefore, 1,4-dioxane results are validated as rejected (R).

Based on the high percent relative standard deviation (%RSD) in the initial calibration data, the associated sample results for the compounds listed in the %RSD column were qualified as estimated if not detected (UJ) and estimated if detected (J). Only results for acetone were reported for this sample delivery order. Acetone concentrations did not exceed the reporting limit for any of the samples. Therefore, acetone results are validated as estimated and not detected (UJ).

SVOCs: One initial calibration was performed in conjunction with the environmental samples. RRFs were greater than 0.050 and %RSDs were less than 30%, with the following exceptions.

Calibration date: 4/25/95
Instrument: A4EXT3
Associated samples: MW7S, MW7D, MW12S, MW58, and MW59.

Compound	RRF	%RSD
2,4-toluenediamine	----	45.0
a,a-Dimethylphenethylamine	----	34.79
1,3,5-Trinitrobenzene	0.031	----
Famphur	----	69.22

Based on the RRF initial calibration data, the associated 1,3,5-trinitrobenzene sample results are qualified rejected (R), since the compound was not detected above the reporting limits.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated if not detected (UJ) and estimated (J) if detected. Only results for a,a-dimethylphenethylamine were reported. Concentrations of a,a-dimethylphenethylamine did not exceed the reporting limit, so results are qualified as UJ.

CONTINUING CALIBRATION

VOCs: Results from one continuing calibration check were provided in support of the VOC results. RRFs were greater than 0.050, and percent differences (%Ds) from the initial calibration were less than 25 percent for the continuing calibrations, with the following exceptions.

Calibration Date: 8/07/95 Time: 0748
Instrument: A3UX1
Associated samples: MW7S, MW7D, MW12S, MW58, and MW59.

Compound	RRF	%D
Acetone	----	33.8
Acrolein	0.029	51.3
2-Chloro-1,3-butadiene	----	25.95
Isobutanol	0.018	----
1,4-dioxane	0.003	----
1,4-Dichloro-4-butene	----	35.2
1,2-Dibromo-3-chloropropane	----	44.4
n-Butanol	0.0087	----
Cyclohexanone	0.0167	----

Based on the RRF continuing calibration check data, the associated sample results would be qualified as estimated (J) if detected and rejected (R) if not detected. Only acrolein and 1,4-dioxane results were reported for associated samples. Neither acrolein nor 1,4-dioxane concentrations were reported above the reporting limit. Therefore, acrolein and 1,4-dioxane results are validated as rejected (R).

Based on the %D continuing calibration data, the compounds listed above would be qualified as estimated if detected (J) and estimated if not detected (UJ) in the associated samples. However, only acetone, acrolein, and 1,2-dibromo-3-chloropropane results were reported. Acrolein results have already been validated as rejected (R). Acetone and 1,2-dibromo-3-chloropropane results are validated as estimated and not detected (UJ).

SVOCs: Results from four continuing calibration checks were provided with the samples. RRFs were greater than 0.050, and compound %Ds were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 8/08/95
Time: 1214
Instrument: A4EXT3
Associated sample: Method blank

Compound	RRF	%D
Hexachlorocyclopentadiene	----	33.9
Benzidine	0.0 (RRF50)	100
1,4-Naphthoquinone	----	75.9
Zinophos	----	28.5
Dimethoate	----	38.1
1,3,5-trinitrobenzene	0.03	----
4-Nitroquinoline 1-oxide	0.04(RRF50)	47.2

p-Chlorobenzilate	----	28.5
Famphur	----	41.5

Based on the RRF continuing calibration data, the compounds listed above would be qualified as estimated (J) and if detected and rejected (R), if they were reported in samples. However, the method blank is a QC sample and method blank results are not qualified.

Based on the %D continuing calibration data, the compounds listed above would be qualified as estimated (J) if detected and estimated (UJ) if not detected, if these compounds were reported in samples. However, the method blank is a QC sample and generally, method blank results are not qualified.

Calibration Date: 8/14/95
Time: 0952
Instrument: A4EXT3
Associated samples: MW7S, MW7D, MW58, and MW59

Compound	RRF	%D
Benzoic Acid	----	52.4
Benzidine	0.03	87.3
a,a-Dimethylphenethylamine	----	26.7
1,4-Naphthoquinone	----	69.6
1,3,5-Trinitrobenzene	0.029	----
4-Nitroquinoline-1-oxide	----	36.2
Famphur	----	55.5

Based on the RRF continuing calibration data, the compounds listed above would be qualified as estimated (J) and if detected and rejected (R) if not detected in the associated samples. However, only 1,3,5-trinitrobenzene results were reported for samples. The 1,3,5-trinitrobenzene results are already qualified as rejected (R) based on the initial calibration RRF.

Based on the %D continuing calibration data, the compounds listed above would be qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples. However, only a,a-dimethylphenethylamine, 1,4-naphthoquinone, and 4-nitroquinoline-1-oxide results were reported. The a,a-dimethylphenethylamine results were already qualified as not detected and estimated based on the %RSD initial calibration results. The 1,4-napthoquinone and the 4-nitroquinoline-1-oxide results are also qualified as not detected and estimated (UJ) based on the %D continuing calibration data for the associated samples.

Calibration Date: 8/16/95
Time: 1035

Instrument: A4EXT3
Associated sample: MW12S initial run

Compound	RRF	%D
Benzidine	0.03	87.0
1,4-Naphthoquinone	----	65.7
1,3,5-Trinitrobenzene	0.029	----
Famphur	----	33.9

Based on the RRF continuing calibration data, the compounds listed above would have be qualified as estimated (J) and if detected and rejected (R) if not detected in the associated sample. A benzidine result was not reported for the sample. The 1,3,5-trinitrobenzene results are already qualified as rejected (R) based on the initial calibration RRF.

Based on the %D continuing calibration data, the compounds listed above would be qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated sample. However, only 1,4-napthoquinone was reported with sample results. The 1,4-naphthoquinone result would be validated as not detected and estimated for the initial run for MW12S. However, this result is rejected (R) because of precision problems discussed in a later section of this validation.

Calibration Date: 8/22/95
Time: 1207
Instrument: A4EXT3..
Associated sample: MW12S re-run

Compound	RRF	%D
Benzidine	----	74.4
1,4-Naphthoquinone	----	70.4
1,3,5-Trinitrobenzene	0.029	----
Pentachloronitrobenzene	----	32.9
Famphur	----	52.3

The 1,3,5-trinitrobenzene results are already qualified as rejected (R) based on the initial calibration RRF and the holding time was missed for the associated sample.

Based on the %D continuing calibration data, the compounds listed above would be qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated sample. However, only 1,4-naphthoquinone and pentachloronitrobenzene results were reported for the sample. Additionally, this sample analysis was completed outside of the holding time. Therefore, these results are validated as rejected (R).

BLANKS

VOCs: The results for one method blank (A5H090000-089) were provided with the samples. No VO Cs were detected in the method blank above reporting limits and no action is required. One trip blank was submitted with the samples. No VOCs were quantified in the trip blank.

SVOCs: The results for three method blanks analyses were provided in association with the samples in this sample delivery group. The method blanks, associated samples, and any analytes detected in the blank are as follows:

Blank	Associated Samples	Analytes Detected (micrograms per Liter (µg/L))
A5H040000-001	MW7S, MW7D, MW58, MW59	None
A5H030000-091	MW12S (initial run)	Phenol 2.1 (J)
A5H170000-108	MW12S (re-run)	Bis(ethylhexyl)phthalate 4.8 (J)

Phenol was not reported for the initial run of MW12S. Therefore no action is taken. Bis(ethylhexyl)phthalate was reported as estimated at 3.2 µg/L in the rerun for sample MW12S. The laboratory added the blank and estimated qualifier (B J) for this result. The bis(ethylhexyl)phthalate result is considered to be not detected (U) and estimated at the reported value. Since the analysis for this sample was completed outside of holding times, the bis(ethylhexyl)phthalate result is validated as rejected (R).

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

VOCs: Surrogate spike compound recoveries were within the prescribed control limits, ranging from 99 to 104 percent.

SVOCs: Surrogate spike compound recoveries were within prescribed control limits for each of the specific surrogate compounds, ranging from 20 to 137 percent.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

VOCs: Results from a blank spike analysis and from a matrix spike/matrix spike duplicate (MS/MSD) analysis of another client's sample in the batch were provided. All MS/MSD spike recoveries were within prescribed QC limits, ranging from 86 to 90 percent. Relative percent differences between the MS and MSD recoveries ranged from 1 to 2 percent and precision criteria are satisfied. Blank spike recoveries ranged from 102 to 109 percent, and were acceptable.

SVOCs: Results from a blank spike analysis (check sample) were provided. Recoveries ranged from 56 to 96 percent and were within prescribed QC limits.

LABORATORY CONTROL SAMPLES

VOCs: The laboratory control sample is the same sample as the blank spike discussed in the MS/MSD section. This sample is identified as a check sample in the Quanterra reports. Prescribed QC limits were met.

SVOCs: Results from two sets of laboratory control sample (LCS) and laboratory control sample duplicates (LCSDs) were provided. The LCS and LCSD recoveries for the control samples extracted on August 3, 1995 and analyzed on August 16, 1995 were acceptable. Precision between the LCS and LCSD recoveries for the control samples extracted on August 3, 1995 and analyzed on August 16, 1995 were out of control limits, thus requiring the re-analysis of MW12S. The initial results for MW12S (analyzed on August 16, 1995) are validated as rejected (R). Recoveries and precision for the LCS and LCSD analyses extracted on 8/17/95 and analyzed on 8/22/95 were acceptable but holding times were not met.

DUPLICATE SAMPLE ANALYSES

VOCs: Duplicate samples were not submitted or analyzed with this sample delivery group. Precision is evaluated based on the relative percent difference between MS and MSD analyses.

SVOCs: Duplicate samples were not submitted or analyzed with this sample delivery group. Precision is evaluated based on the relative percent difference between MS and MSD analyses.

INTERNAL STANDARDS

VOCs: All three internal standard area counts and retention times met QC requirements for the groundwater samples and the trip blank.

SVOCs: All six internal standard area counts and retention times met QC requirements for the groundwater samples analyzed.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

The quality of the VOC and SVOC data presented in the Quanterra data package A5H010101 dated October 17, 1995 is acceptable, and data are determined to be quantitative, with the exceptions noted in the following table.

Sample Identification	Analyte(s) Qualified	Data Qualifier	Reason
FMGWMW12S (initial run)	SVOCs	R	Precision between the LCS and LCSD recoveries for the control samples extracted on August 3, 1995 and analyzed on August 16, 1995 were out of control limits.
FMGWMW12S (re-run)	SVOCs, except for 2,4-toluenediamine, a,a-dimethylphenethylamine, 1,3,5-trinitrobenzene, 1,4-napthoquinone, pentachloro- nitrobenzene, and bis(ethylhexyl)phthalate	UJ and R	SVOCs are validated as UJ because re-extraction for this sample occurred outside of holding times and no compounds were detected above the reporting limit in the re-run results. The SVOC exceptions are validated as rejected because of other qualifications (problems with initial calibrations, continuing calibration checks, or blank contamination).
FMGWMW7S FMGWMW7DFM GWMW12S FMGWMW58 FMGWMW59	VOCs 1,4-Dioxane acrolein	R	Initial Calibration RRF and/or continuing calibration was low. Neither acrolein nor 1,4-Dioxane was detected, so the qualification is R.
FMGWMW7S FMGWMW7DFM GWMW12S FMGWMW58 FMGWMW59	VOCs acetone 1,2-dibromo-3-chloropropane	UJ	%RSD in the initial calibration was high and/or %D continuing calibration was high. Neither compound was detected, so results are considered to estimated and not detected.
FMGWMW7S FMGWMW7DFM GWMW12S FMGWMW58 FMGWMW59	SVOCs - 1,3,5-Trinitrobenzene	R	Initial Calibration and Continuing RRF was low and analyte was not detected above the reporting limit.
FMGWMW7S FMGWMW7D FMGWMW58 FMGWMW59	SVOCs a,a-Dimethyl-phenethylamine	UJ	Initial Calibration %RSD greater than 30 percent and concentrations of the analyte did not exceed the reporting limit.

Sample Identification	Analyte(s) Qualified	Data Qualifier	Reason
FMGWMW7S FMGWMW7D FMGWMW58 FMGWMW59	SVOCs a,a-dimethyl-phenethylamine 1,4-naphthoquinone 4-nitroquinoline-1-oxide	UJ	Percent difference in continuing calibration is greater than 25 percent from initial calibration. None of the analytes were detected in samples.

Prepared By:_____

Susan Gallagher
Project Scientist

5/30/96
Date

A5G210121

MEMORANDUM

TO: Tim Davis

FROM: Lisa Horton and Lauren Sjogren

DATE: April 3, 1996

SUBJECT: Data Validation of the Water Sample Data Collected July 19 and July 20, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed below is the data validation of three water samples and two trip blanks collected on July 19 and July 20, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) located in North Canton, Ohio.

Samples FMGWMW13D, FMGWMW13S and FMGWMW8D were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for volatile organic compounds (VOCs) following method 8240A, semivolatile organic compounds following method 8270A, and metals following method 6010A (including mercury, lead, selenium, arsenic, and thallium following methods 7470, 7421, 7740, 7060, and 7841, respectively); cyanide following method 9012; and fluoride following USEPA method 340.2. In addition, sample FMGWMW8D was analyzed for pesticides/PCBs following method 8080, organophosphorous pesticides following method 8141, and chlorinated herbicides following method 8150A. The analytical results are contained in the Quanterra data package referred to as A5G210121.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Quality Assurance Project Plan (QAPP), September 28, 1994, the USEPA Contract Laboratory Program (CLP) Draft Document Titled "National Functional Guidelines for Organics Data Review" December 1990, revised June, 1991, and the USEPA Document Titled "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" July 1, 1988.

VOLATILE AND SEMIVOLATILE DATA SUMMARY

The VOC and SVOC results of samples FMGWMW13D, FMGWMW13S, FMGWMW8D, Trip Blank Cooler B45 (VOC analysis only), and Trip Blank Cooler 287 (VOC analysis only) are contained in one data package identified as A5G210121. This data package was validated with the results discussed below.

HOLDING TIMES

Volatile Organic Compounds: All samples were analyzed within a 14-day holding time (from time of collection). Samples FMGWMW13D and FMGWMW8D were found to have a pH greater than 2, and were treated as unpreserved samples. However, both of these samples were analyzed within seven days from date of collection, therefore qualification of the data based on the pH was not necessary.

Semivolatile Organic Compounds: All samples were extracted within seven days from collection and analyzed within forty days from the date of extraction.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

Volatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

Semivolatile Organic Compounds: Each set of tuning data meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

Volatile Organic Compounds: Due to the large target compound list requested, the initial calibration was broken up into two separate calibrations, which will be referred to as an initial calibration pair. One initial calibration pair was performed. The calibration pair was performed for this sample set on November 4, 1994, and July 2, 1995. All compound relative response factors (RRFs) were greater than 0.050 and all percent relative standard deviations (%RSDs) were less then 30% for this initial calibration pair with the exceptions listed below.

Calibration date: 11/4/94 Instrument: A3I503

Compound	RRF	%RSD
Isobutanol	0.012	----
1,4-Dioxane	0.003	----

Associated samples: All samples.

Calibration date: 7/2/95 Instrument: A3I503

Compound	RRF	%RSD
Acrolein	0.0234	32.14

Associated samples: All samples.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

Semivolatile Organic Compounds: Due to the large target compound list requested, the initial calibration was broken up into two separate calibrations, which will be referred to as an initial calibration pair. One initial calibration pair was performed on instrument A4EXT3. All RRFs were greater than 0.050, and all %RSDs were less than 30%, with the following exceptions.

Calibration date: 4/25/95 Instrument: A4EXT3

Compound	RRF	%RSD
a,a-Dimethyl-phenethylamine	---	34.8
1,3,5-Trinitrobenzene	0.031	----

Associated samples: All samples.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

CONTINUING CALIBRATION

Volatile Organic Compounds: Due to the target compound list requested, the continuing calibration was broken up into two separate calibrations, which will be referred to as a continuing calibration pair. Two initial calibration pairs were performed. The calibration pairs were performed with the samples from this sample set on July 25 and July 27, 1995. All RRFs were greater than 0.050, and all percent differences (%Ds) were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 7/25/95
Time: 1237
Instrument: A3I503

Compound	RRF	%D
Chloromethane	----	42.524
Bromomethane	----	28.930
Dichlorodifluoromethane	----	39.183
Trichlorofluoromethane	----	37.804
Acrolein	0.010	95.726
Vinyl Acetate	----	49.077

Associated samples: FMGWMW13D and FMGWMW13S.

Calibration Date: 7/25/95
Time: 1302
Instrument: A3I503

Compound	RRF	%D
Isobutanol	0.0076	----
1,4-Dioxane	0.0019	32.143
1,4-Dichloro-2-butene	0.0137	73.084
1,2-Dibromo-3-chloropropane	----	39.173

Associated samples: FMGWMW13D and FMGWMW13S.

Calibration Date: 7/27/95
Time: 1029
Instrument: A3I503

Compound	RRF	%D
Chloroethane	----	27.053
Acetone	----	33.699
2-Butanone	----	26.276
Acrolein	0.0221	----
Vinyl acetate	----	51.269

Associated sample: FMGWMW8D.

Calibration Date: 7/27/95
Time: 1058
Instrument: A3I503

Compound	RRF	%D
Propionitrile	0.0442	----
Isobutanol	0.0064	45.763
1,4-Dioxane	0.0016	42.857
1,4-Dichloro-2-butene	0.0115	77.407
1,2-Dibromo-3-chloropropane	----	45.058

Associated sample: FMGWMW8D.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable(R) if not detected in the associated samples.

Semivolatile Organic Compounds: Due to the large target compound list requested, the continuing calibration was broken up into two separate calibrations, which will be referred to as an continuing calibration pair. Two continuing calibration pairs were analyzed with the samples from this sample set on August 2 and 10, 1995. All compound RRFs were greater than 0.050, and all compound %Ds were less than 25% with the following exceptions:

Calibration Date: 8/2/95
Time: 1521
Instrument: A4EXT3

Compound	RRF	%D
4-Nitroaniline	----	29.579

Associated sample: FMGWMW8D.

Calibration Date: 8/10/95
Time: 0841
Instrument: A4EXT3

Compound	RRF	%D
bis(2-Chloroethyl)ether	----	25.529
Hexachlorocyclopentadiene	----	38.929
4-Nitroaniline	----	31.280
4-Nitroquinoline 1-oxide	----	48.417

Associated samples: FMGWMW13D and FMGWMW13S.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable(R) if not detected in the associated samples.

BLANKS

Volatile Organic Compounds: Two method blanks (019 and 097) were analyzed along with the samples from this sample set. No compounds were detected in either method blank. Therefore, based on the method blanks, qualification of the data was not necessary.

Two trip blanks (Cooler B45 and Cooler 287) analyzed along with the samples in this sample set. No compounds were detected in either trip blank. Therefore, qualification of the data was not necessary.

Equipment blanks were not included in this sample set.

Semivolatile Organic Compounds: Two method blanks (089 and 053) are associated with the samples from this sample set. No compounds were detected in the method blank 089. bis(2-Ethylhexyl) phthalate was detected in method blank 053 at an estimated concentration of 3.6 ug/L. However, bis(2-ethylhexyl) phthalate was not detected in associated sample FMGWMW8D; therefore, qualification of the data was not necessary.

Equipment blanks were not included in this sample set.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Volatile Organic Compounds: All surrogate spike compounds were within the set criteria.

Semivolatile Organic Compounds: All surrogate spike recoveries were within the set criteria

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Volatile Organic Compounds: The MS/MSD sample data reported with this SDG is part of a batch QC run. All MS/MSD spike recoveries were within quality control (QC) limits. Qualification of the data based on the MS/MSD results is not necessary.

Semivolatile Organic Compounds: An MS and MSD were not analyzed with this sample set, however, a laboratory control sample (LCS) and duplicate control sample (DCS) were analyzed. The LCS\DCS recoveries were within quality control (QC) limits. Therefore, in this data reviewer's opinion, qualification of the data was not necessary.

LABORATORY CONTROL SAMPLES

Volatile Organic Compounds: Laboratory control sample results were within the QC limits.

Semivolatile Organic Compounds: Laboratory control sample results were within the QC limits.

REGIONAL QUALITY ASSURANCE AND QUALITY CONTROL

Volatile Organic Compounds: Field duplicates were not contained in this SDG.

Semivolatile Organic Compounds: Field duplicates were not contained in this SDG.

INTERNAL STANDARDS

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

Semivolatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

Volatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

Semivolatile Organic Compounds: The quality of the volatile organic data presented in the QC data package is acceptable with the appropriate qualifications specified above.

PESTICIDES, PCBS, AND HERBICIDES DATA SUMMARY

Sample FMGWMW8D was analyzed for pesticides/PCBs, organophosphate pesticides, and chlorinated herbicides with the results contained data package A5G210121. These data were validated with the results discussed below.

HOLDING TIMES

Sample FMGWMW8D was analyzed within the proper holding times.

INSTRUMENT PERFORMANCE

The performance of the instruments during the analyses was acceptable.

CALIBRATION

All calibration criteria were met.

BLANKS

No compounds were detected in any of the blanks.

SURROGATE RECOVERY

All samples met surrogate recovery criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A batch matrix spike/matrix spike duplicate (MS/MSD) was provided by the laboratory in the data package. All spike recoveries and relative percent differences (RPDs) for this MS/MSD met QC limits with one exception. The spike recoveries for chlorinated herbicide dinoseb were below QC limits. Laboratory control samples were also analyzed with all results found to be within QC limits except for dinoseb. The dinoseb laboratory control sample spike recoveries were below QC limits. Therefore, the non-detect dinoseb result for sample FMGWMW8D was qualified as estimated (UJ).

FIELD DUPLICATES

Field duplicates were not contained in this SDG.

COMPOUND IDENTIFICATION

No compounds were detected in sample FMGWMW8D.

COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No compounds were detected in sample FMGWMW8D. All detection limits were reported correctly.

OVERALL ASSESSMENT OF DATA FOR A CASE

The quality of the data presented in the QC data package is acceptable with the appropriate qualifications specified above.

INORGANIC DATA SUMMARY

The inorganic results of samples FMGWMW13D, FMGWMW13S, and FMGWMW8D are also contained in the Quanterra data package identified as A5G210121. This data package was validated with the results discussed below.

HOLDING TIME

All analyses were conducted within the proper holding times.

INITIAL AND CONTINUING CALIBRATION

All calibration criteria were met.

BLANKS

A few analytes were detected in the blanks. However, qualification of the data was not necessary either because the analytes detected in the blanks were not detected in the samples or were detected in the samples at concentrations over five times the blank concentrations.

ICP INTERFERENCE CHECK SAMPLE

All inductively coupled plasma spectroscopy (ICP) interference check sample results were within the control criteria.

LABORATORY CONTROL SAMPLE

All laboratory control sample results were within control limits.

DUPLICATE SAMPLE ANALYSIS

All duplicate sample results were within control limits.

MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike recoveries for selenium (total), selenium (dissolved), and thallium (total) were below the control limits of 75% to 125% but above 30%. Therefore, all positive sample results were qualified as estimated (J) and all non-detect sample results were qualified as estimated (UJ) for these analytes. All other matrix spike sample results were within control limits.

FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Selenium post-digestion spike recoveries were outside the control limits for all samples. Because all of the selenium results have been qualified based on the matrix spike recovery results, further qualification based on the post-digestion spike recoveries was not necessary. The lead post-digestion spike recovery for sample FMGWMW13D (dissolved) was above the control limits of 85%-115%. Because lead was not detected in this sample, the lead result was not qualified. Thallium post-digestion spike recoveries for samples FMGWMW13D (total), FMGWMW8D (total), and FMGWMW8D (dissolved) were below the control limits of 85%-115% but above 30%. Therefore, the non-detect thallium results for these three samples were qualified as estimated (UJ).

All other furnace atomic absorption quality control results were acceptable.

ICP SERIAL DILUTION

All results were acceptable.

SAMPLE RESULT VERIFICATION

All sample results were correctly reported.

FIELD DUPLICATES

Field duplicates were not contained in this data package.

OVERALL ASSESSMENT OF DATA FOR A CASE

The data are acceptable with the qualifiers discussed above.

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A5G200131

MEMORANDUM

TO: Tim Northam

FROM: Tim Davis

DATE: October 18, 1996

SUBJECT: Validation of the Water Samples Collected July 18, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed below is the data validation of water samples collected on July 18, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) located in North Canton, Ohio.

Samples FMGWMW6D and FMGWMW6S were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for pesticides/PCBs following method 8080, organophosphorous pesticides following method 8141, and chlorinated herbicides following method 8150A. The analytical results are contained in the Quanterra data package referred to as A5G200131.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Quality Assurance Project Plan (QAPP), September 28, 1994, the USEPA Contract Laboratory Program (CLP) Draft Document Titled "National Functional Guidelines for Organics Data Review" December 1990, revised June, 1991, and the USEPA Draft Document Titled "Functional Guidelines for Evaluating Pesticide/Aroclor Analyses" September, 1991.

PESTICIDES, PCBS, AND HERBICIDES DATA SUMMARY

Sample FMGWMW6D and FMGMMW6S were analyzed for pesticides/PCBs, organophosphate pesticides, and chlorinated herbicides with the results contained data package A5G200131. These data were validated with the results discussed below.

HOLDING TIMES

Samples were analyzed within the proper holding times.

INSTRUMENT PERFORMANCE

The performance of the instruments during the analyses was acceptable.

CALIBRATION

All calibration criteria were met.

BLANKS

No compounds were detected in any of the blanks.

SURROGATE RECOVERY

All samples met surrogate recovery criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A batch matrix spike/matrix spike duplicate (MS/MSD) was provided by the laboratory in the data package. All spike recoveries and relative percent differences (RPDs) for this MS/MSD met QC limits with one exception. The spike recoveries for chlorinated herbicide dinoseb were below QC limits. Laboratory control samples were also analyzed with all results found to be within QC limits except for dinoseb. The dinoseb laboratory control sample spike recoveries were below QC limits. Therefore, the non-detect dinoseb results for samples FMGWMW6D and FMGMMW6S were qualified as rejected (R).

FIELD DUPLICATES

Field duplicates were not contained in this SDG.

COMPOUND IDENTIFICATION

Acceptable.

COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No compounds were detected in samples. All detection limits were reported correctly.

OVERALL ASSESSMENT OF DATA FOR A CASE

The quality of the data presented in the QC data package is acceptable with the appropriate qualifications specified above.

A5G250105

MEMORANDUM

TO: Tim Davis

FROM: Will Huskie

DATE: April 9, 1996

SUBJECT: Data Validation for Groundwater Samples Collected July 24, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed in the following pages is the volatile organic compound (VOC) and semi-volatile organic compound (SVOC) data validation for one groundwater sample collected July 24, 1995 at the Federated Metals Site, Hammond, Indiana. The sample was analyzed by Quanterra Inc. (Quanterra) Laboratory located in North Canton, Ohio.

The sample was analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for VOCs using Method 8240A and for SVOCs using Method 8270A. The analytical results are contained in the Quanterra data package referred to as A5G250105.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Federated Metals Quality Assurance Project Plan (QAPP) dated September 28, 1994, and the USEPA Contract Laboratory Program (CLP) Document Titled "National Functional Guidelines for Organic Data Review" (Draft - Revised) dated June 1991.

ORGANIC DATA SUMMARY

Validation of Volatile and Semi-Volatile Organic Compound Results
Federated Metals Groundwater

Analyses Performed by Quanterra Laboratory
Quanterra Report # A5G250105 Dated 09/28/95
Sample Delivery Group G2505

SAMPLE DESCRIPTION

The following groundwater sample was collected at the Federated Metals Facility and submitted to Quanterra Laboratory in Canton, Ohio for analysis of VOCs by Method 8240A and for SVOCs by Method 8270A. A trip blank was also submitted for analysis of VOCs as a quality control sample.

FMGWMW11S

NOTE: The chain of custody was difficult to read, and the laboratory reported the sample identification incorrectly in to be "EMGWMW11S". This transcription error should be noted during any data entry or data review concerning this sample.

These sample is referred to as MW11S in this report.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The groundwater sample and the trip blank submitted under this chain of custody for VOC and SVOC analysis were analyzed as requested.

HOLDING TIME COMPLIANCE

The sample was collected on July 24, 1995 and was received by the laboratory on July 25, 1995. The VOC sample was preserved with hydrochloric acid at the time of collection. All VOC analyses were performed July 28, 1995 within the required 14 day holding time. The sample submitted for SVOC analysis was extracted on July 29, 1995 within the required 7 day holding time and was analyzed on August 12, 1995, within the required 40 day holding time after extraction.

The sample for SVOC analysis was re-extracted on August 15, outside of holding times, and was re-analyzed on August 17. The results for this analysis will be qualified as estimated due to exceeded holding time before extraction.

SAMPLE BATCHING

VOC analyses were performed within the following Quality Control (QC) batch(es): MW11S and Trip blank - All analyses batch 5213104.

SVOC analyses were performed within the following Quality Control (QC) batch(es): MW11S - First extraction - batch 5210002
Re-extraction - batch 5227011

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

Volatile Organic Compounds: Each set of tuning data associated with initial calibration, continuing calibration, and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

Semivolatile Organic Compounds: Each set of tuning data associated with initial calibration, continuing calibration, sample analysis and re-analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

Volatile Organic Compounds: The analyses for this sample delivery group were performed under an initial calibration dated November 4, 1994 (partial compound list) and July 2, 1995 (remaining compounds). All compound relative response factors (RRFs) were greater than 0.050 and all percent relative standard deviations (%RSDs) were less then 30% for the initial calibration, with the exceptions listed below.

Calibration date: 11/4/94 Instrument: A3I503

Compound	RRF	%RSD
Isobutanol	0.012	----
1,4-Dioxane	0.003	----
Acrolein	0.023	----

Associated samples: MW11S and trip blank.

Based on the low RRFs in the initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

Semivolatile Organic Compounds: One initial calibration was performed for the samples in this sample set on instrument A4EXT3 on April 25, 1995. All RRFs were greater than 0.050. All %RSDs were less than 30%, with the following exceptions.

Calibration date: 4/25/95 Instrument: A4EXT3

Compound	RRF	%RSD
1,2-diphenylhydrazine	----	30.4
2,4-toluenediamine	----	45.0
a,a-Dimethyl-phenethylamine	----	34.79
1,3,5-Trinitrobenzene	0.031	----
Famphur	----	69.22

Associated samples: MW11S.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

CONTINUING CALIBRATION

Volatile Organic Compounds: Results from one continuing calibration were provided in support of the VOC results. All RRFs were greater than 0.050, and all percent differences (%Ds) from the initial calibration were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 7/28/95
Time: 0936
Instrument: A3I503

Compound	RRF	%D
Acetone	----	27.6
2-Butanone	----	25.2
Acrolein	0.0256	----
Vinyl Acetate	----	52.6

Associated samples: MW11S and Trip blank

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

Semivolatile Organic Compounds: Results from continuing calibrations associated with the initial sample analysis and the sample re-analysis were provided. The continuing calibrations were performed on August 12, 1995 and on August 17, 1995. All compound RRFs were greater than 0.050, and all compound %Ds were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 8/12/95
Time: 0940
Instrument: A4EXT3

Compound	RRF	%D
4-Nitroalinine	----	33.3
Benzidine	0.030	87.8
a,a-Dimethyl-phenylamine	----	28.4
1,4-Naphthoquinone	----	68.2
1,3,5-Trinitrobenzene	0.0278	----
p-Chlorobenzilate	----	34.1
Famphur	----	44.5

Associated sample: MW11S - Initial analysis.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable (R) if not detected in the associated samples.

Time: 0903
Instrument: A4EXT3

Compound	RRF	%D
Benzoic Acid	----	27.9
Benzidine	0.022	91.0
1,4-Naphthoquinone	----	76.7
1,3,5-Trinitrobenzene	0.029	----
p-Chlorobenzilate	----	33.3
Famphur	----	61.4

Associated sample: MW11S - Re-analysis.

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable (R) if not detected in the associated samples.

BLANKS

Volatile Organic Compounds: One method blank (A5H010000-104) was analyzed along with the samples from this sample set. No VOCs were detected in the method blank above reporting limits and no action is required. One trip blank was submitted with the samples as well. No VOCs were quantified in the trip blank.

Semivolatile Organic Compounds: Method blank results were provided for both the initial analysis (A5G290000-002) and the re-analysis (A5H150000-011). No SVOC compounds were identified in either of the method blanks and no action is required.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Volatile Organic Compounds: All surrogate spike compound recoveries were within prescribed control limits, ranging from 100 to 103 percent.

Semivolatile Organic Compounds: All surrogate spike compound recoveries for the initial sample analysis and for the re-analysis were within prescribed control limits, ranging from 49 to 107 percent.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Volatile Organic Compounds: Results from a blank spike analysis and from a matrix spike/matrix spike duplicate (MS/MSD) analysis of another client's sample were provided. The MS/MSD analytical sample was a sample run on the previous day, within 20 samples of the MW11S sample. The spike sample original results were not provided in this report. All MS/MSD spike recoveries were within prescribed quality control (QC) limits, ranging from 99 to 110 percent. Relative percent differences between the MS and MSD recoveries ranged from 1 - 2 percent and precision criteria are satisfied. Qualification of the data based on the MS/MSD results is not necessary. The blank spike recoveries range from 88 to 99 percent.

Semivolatile Organic Compounds: Results from matrix spike analyses were not provided. Laboratory control sample results were provided and are discussed below.

LABORATORY CONTROL SAMPLES

Volatile Organic Compounds: The laboratory control sample is the same sample as the blank spike discussed above. This sample is identified as a check sample in the Quanterra reports.

Semivolatile Organic Compounds: Results from laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) analyses were provided, apparently in lieu of matrix spike results. Recoveries from the original LCSD were low resulting in RPDs between the LCS and LCSD that were out of control limits. As a result, the initial analysis of MW11S was determined to be out of control, and the sample was re-extracted out of holding time and re-analyzed. The LCS/LCSD analyses associated with the re-extraction and re-analysis were within prescribed control limits.

DUPLICATE SAMPLE ANALYSES

Volatile Organic Compounds: Duplicate samples were not submitted or analyzed with this SDG. Precision is evaluated based on the relative percent difference between MS and MSD analyses.

Semivolatile Organic Compounds: Duplicate samples were not submitted or analyzed with this SDG. Precision is evaluated based on the relative percent difference between MS and MSD analyses.

INTERNAL STANDARDS

Volatile Organic Compounds: All three internal standard area counts and retention times met QC requirements for the groundwater samples and the trip blank.

Semivolatile Organic Compounds: All six internal standard area counts and retention times met QC requirements for the original and re-analysis of the groundwater sample analyzed.

RESULTS QUANTITATION AND TENTATIVELY IDENTIFIED COMPOUNDS

Results are correctly quantified for the analyses performed. Several SVOC base neutral compounds were identified at concentrations below reporting limits. The laboratory flagged the concentrations as "J" estimated and they are identified as estimated in the table on the following page. Several unknown and unidentified compounds were found as tentatively identified compounds (TIC) in the SVOC analysis. Concentrations for these compounds ranged from 8 to 15 micrograms per liter. These TIC results are validated as estimated by definition.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

The quality of the VOC and SVOC data presented in the Quanterra data package is acceptable, and all data are determined to be quantitative, with the following exceptions. The SVOC data is in question because non-matrix specific control sample analyses associated with the original analysis did not meet acceptance criteria. The sample was re-extracted approximately two weeks out of holding time and re-analyzed. Control sample recoveries for the re-extraction were acceptable. Results from both analyses have been compared, and there is not a significant difference between either set. Several target compound were quantified below reporting limits in each analysis, and these data are estimated in either case. Therefore, the validation results presented in the table on the following page are based on the original SVOC analysis, and not on the re-run, which is out of holding time compliance.

Sample ID	Analyte Qualified	Data Qualifier	Reason
FMGWMW11S	**VOCs** - Isobutanol	R	Initial Calibration RRF low and analytes were not detected
	1,4-Dioxane	R	
	Acrolein	R	
	SVOCs -		
FMGWMW11S	2,4-toluenediamine	UJ	Initial Calibration %RSD greater than 30 percent.
	1,2-diphenylhydrazine	UJ	
	a,a-Dimethyl-phenethylamine	UJ	
	Famphur	UJ	
FMGWMW11S	**SVOCs** - 1,3,5-Trinitrobenzene	R	Initial Calibration RRF low and analytes were not detected
FMGWMW11S	**VOCs** - 2-Butanone	UJ	Percent difference in continuing calibration is greater than % 25 from initial calibration
	Acetone	UJ	
	Vinyl Acetate	UJ	
FMGWMW11S	**VOCs** - Acrolein	R	Continuing calibration RRF low and analytes were not detected
FMGWMW11S	**SVOCs** - 4-Nitroalinine	UJ	Percent difference in continuing calibration is greater than % 25 from initial calibration
	a,a-Dimethyl-phenylamine	UJ	
	1,4-Naphthoquinone	UJ	
	p-Chlorobenzilate	UJ	
	Famphur	UJ	
FMGWMW11S	**SVOCs** - Benzidine	R	Continuing calibration RRF low and analytes were not detected
	1,3,5-Trinitrobenzene	R	
FMGWMW11S	**SVOCs** - Acenaphthene	UJ	
	Anthracene	UJ	Compounds detected at concentrations below the practical quantitation limit.
	Benzo(a)anthracene	UJ	
	Chrysene	UJ	
	Fluoranthene	UJ	
	Naphthalene	UJ	
	Phenanthrene	UJ	
	Pyrene	UJ	

Prepared By: _____
William W. Huskie
Geochemist

4/9/96
Date

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A5G25 0105

MEMORANDUM

TO: Tim Davis

FROM: Will Huskie

DATE: March 26, 1996

SUBJECT: Data Validation for one Groundwater Sample Collected July 24, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed in the following pages is the data validation for one groundwater sample collected July 24, 1995 at the Federated Metals Site, Hammond, Indiana. The sample was analyzed by Quanterra Inc. (Quanterra) Laboratory located in North Canton, Ohio.

The sample was analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for total metals following ICP method 6010A; and for mercury, lead, selenium, arsenic, and thallium following AA methods 7470, 7421, 7740, 7060, and 7841, respectively. The analytical results are contained in the Quanterra data package referred to as A5G250105.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Federated Metals Quality Assurance Project Plan (QAPP) dated September 28, 1994, and the USEPA Contract Laboratory Program (CLP) Document Titled "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" July 1, 1988.

INORGANIC DATA SUMMARY

Validation of Total and Dissolved Metals
Federated Metals Groundwater

Analyses Performed by Quanterra Laboratory
Quanterra Report # A5G250105 Dated 7/28/95
Sample Delivery Group G2505

SAMPLE DESCRIPTION

The following groundwater sample was collected at the Federated Metals Facility and submitted to Quanterra Laboratory in Canton, Ohio for analysis of total metals:

FMGWMW11S

NOTE: The chain of custody was difficult to read, and the laboratory reported the sample identification incorrectly in to be "EMGWMW11S". This transcription error should be noted during any data entry or data review concerning this sample.

This sample is referred to as MW11S in this report. Analysis for the following metals was performed:

ICP Metals Silver, Barium, Beryllium, Cadmium, Cobalt, Chromium, Copper, Iron, Manganese, Sodium, Nickel, Antimony, Tin, Vanadium, and Zinc

AA Metals Arsenic, Lead, Mercury, Selenium, and Thallium

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

One sample was submitted under this chain of custody for total and dissolved metals analysis. The sample analyses were performed as requested, with the transcription error noted above.

HOLDING TIME COMPLIANCE

The sample was collected on July 24, 1995 and was received by the laboratory on July 25, 1995. Total metals analyses were performed in August and September of 1995. All metals analyses were performed within the required six month holding time. All mercury analyses were performed within the required 28 day holding time and were completed by August 5, 1995. All holding time requirements were satisfied.

SAMPLE BATCHING

The metals analyses were performed within the following Quality Control (QC) batches:

MW11S - All analyses except selenium, batch 5215051. Selenium was analyzed in batch 5220109.

INITIAL AND CONTINUING CALIBRATION

All initial and continuing calibration standard recoveries were with the prescribed control limits of 90 - 100 percent (80 to 120 percent for mercury), ranging from 90 to 104 percent. All calibration criteria were met.

BLANKS

Results from one method blank analyses performed for each analyte of sample analysis were provided. No metals were detected above reporting limits in the blank and no action is required. Results from initial and continuing calibration blank analyses were also provided. No metals were detected in these blank analyses at concentrations above reporting limits.

CRDL CHECK STANDARD ANALYSES

CRDL check standards were analyzed at appropriate frequencies. All CRDL recoveries were evaluated against an acceptable recovery range 80-120 %. All recoveries were within this range, with the following exceptions.

Chromium (ICP)	Final CRDL = 134 %
Mercury (AA)	CRDL = 130 %

Action - No action was taken because the results reported for mercury and chromium were each greater than the true value of the CRDL standard ± CRDL.

ICP INTERFERENCE CHECK SAMPLE

Initial and final ICP interference check sample analyses were performed. All standard recoveries were within ± 20 % of the true value, ranging from 86 to 96 percent, and no action is required.

LABORATORY CONTROL SAMPLE ANALYSIS

Results from one laboratory control sample analysis (LCS) were provided for each batch of samples analyzed for total metals. LCS recoveries ranged from 83 to 103 percent and were within prescribed control limits.

DUPLICATE SAMPLE ANALYSIS

No laboratory duplicate sample was analyzed. Precision is evaluated based on the results of sample specific matrix spike (MS) and matrix spike duplicate (MSD) analyses.

MATRIX SPIKE ANALYSES

A sample specific MS/MSD analysis was performed for the total metals on sample MW11S. MS and MSD recoveries ranged from 59 to 132 percent. The following metals had spike recoveries and/or relative percent differences (RPDs) between the MS and MSD results that were outside the control limits presented in the project specific QAPP or in the laboratory provided control limits. The data were judged against whichever was the tighter of the two sets of recovery criteria.

Metal	MS % recovery	MSD % recovery	RPD %	**Validation Action**
Total				
Arsenic	65	60	9	MSD recovery below QAPP criteria of 62 - 114 %. Arsenic detect flagged as J.
Lead	300	140	73	None - Initial sample result is more than 4 times the spike amount added.
Zinc	132	125	5	MS recovery high. All detected zinc results flagged as J

FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Total selenium data are qualified as UJ due to low post-digestion spike recoveries (between 40 and 85 %) while the sample result was less than half the analytical spike level.

ICP SERIAL DILUTION

Results from an ICP serial dilution analysis were not provided with this data package. Serial dilution analysis is not a requirement of the Federated Metal's QAPP and no action is taken.

SAMPLE RESULTS VERIFICATION

All sample results were correctly reported, with the exception of the sample identification transcription error noted on page one of this letter.

FIELD DUPLICATES

No field duplicate samples were collected or submitted for analysis with this sample delivery group.

COMPARISON OF TOTAL VERSUS DISSOLVED RESULTS

Analysis was performed for total metals only and no dissolved results are available for comparison.

OVERALL ASSESSMENT OF DATA FOR A CASE

The analytical results for total metals analyses of one groundwater sample listed on page one of this report are determined to be quantitative, with the exceptions noted below.

Sample ID	Analyte Qualified	Data Qualifier	Reason
FMGWM11S	Total Arsenic	J	MSD recovery low and below QAPP specified control limits
	Total Zinc	J	MS recovery high and exceeds QAPP and Quanterra control limits.
	Total Selenium	UJ	Analytical spike less than 85 percent and sample concentration less than reporting limit.

Prepared By:_____

William W. Huskie
Geochemist

3/31/96
Date

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GERAGHTY & MILLER

EMGWMW11S

WO #: C0CHQ
LAB #: A5G250105-001
MATRIX: WATER

DATE SAMPLED: 7/24/95
TIME SAMPLED: 11:30
DATE RECEIVED: 7/25/95

- - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT		REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Silver	ND		10.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Barium	ND		200	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Beryllium	ND		5.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Cadmium	53.1		5.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Cobalt	ND		50.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Chromium	25.6		10.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Copper	543		25.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Nickel	215		40.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Antimony	ND		60.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Tin	537		100	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Vanadium	ND		50.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Zinc	4,220	J	50.0	ug/L	SW846 6010A	8/03- 9/13/95	5215051
Arsenic	25.5	J	10.0	ug/L	SW846 7060	8/03- 8/07/95	5215051
Lead	1,360		150	ug/L	SW846 7421	8/03- 8/07/95	5215051
Mercury	0.59		0.20	ug/L	SW846 7470	8/03- 8/05/95	5215051
Selenium	ND	W WJ	5.0	ug/L	SW846 7740	8/09- 8/11/95	5220109
Thallium	ND		10.0	ug/L	SW846 7841	8/03- 8/07/95	5215051

NH
3/31/96

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
W - POST DIGESTION SPIKE RECOVERY FELL BETWEEN 40 - 85% WHILE SAMPLE RESULT WAS LESS THAN ONE-HALF THE REPORTING LIMIT.

MEMORANDUM

TO: Tim Davis

FROM: Will Huskie

DATE: April 1, 1996

SUBJECT: Data Validation for Groundwater Samples Collected July 21, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed in the following pages is the data validation for two groundwater samples collected July 21, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) Laboratory located in North Canton, Ohio.

The samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for VOCs using Method 8240A and for SVOCs using Method 8270A. The analytical results are contained in the Quanterra data package referred to as A5G220128.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Federated Metals Quality Assurance Project Plan (QAPP) dated September 28, 1994, and the USEPA Contract Laboratory Program (CLP) Document Titled "National Functional Guidelines for Organic Data Review" (Draft - Revised) dated June 1991.

ORGANIC DATA SUMMARY

Validation of Volatile and Semi-Volatile Organic Compound Results
Federated Metals Groundwater

Analyses Performed by Quanterra Laboratory
Quanterra Report # A5G220128 Dated 10/03/95
Sample Delivery Group G22281

SAMPLE DESCRIPTION

The following two groundwater samples were collected at the Federated Metals Facility and submitted to Quanterra Laboratory in Canton, Ohio for analysis of VOCs by Method 8240A and for SVOCs by Method 8270A. A trip blank was also submitted for analysis of VOCs as a quality control sample.

FMGWMW10S FMGWMW10D

These samples are referred to as MW10S and MW10D, respectively, in this report. Analysis for the following metals was performed:

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The two groundwater samples and the trip blank submitted under this chain of custody for VOC and SVOC analysis were analyzed as requested.

HOLDING TIME COMPLIANCE

The samples were collected on July 21, 1995 and were received by the laboratory on July 22, 1995. The VOC samples were preserved with hydrochloric acid at the time of collection. All VOC analyses were performed July 27, 1995 within the required 14 day holding time. Samples submitted for SVOC analysis were extracted on July 26, 1995 within the required 7 day holding time and were analyzed on August 2, 1995, within the required 40 day holding time after extraction.

SAMPLE BATCHING

VOC analyses were performed within the following Quality Control (QC) batch(es): MW10S, MW10D, and Trip Blank - All analyses batch 5210019.

SVOC analyses were performed within the following Quality Control (QC) batch(es): MW10S and MW10D - All analyses batch 5207053.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

Volatile Organic Compounds: Each set of tuning data associated with calibration and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

Semivolatile Organic Compounds: Each set of tuning data associated with calibration and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

Volatile Organic Compounds: The analyses for this sample delivery group were performed under an initial calibration dated November 04, 1994 (partial compound list) and July 2, 1995 (for the remaining compounds). All compound relative response factors (RRFs) were greater than 0.050 and all percent relative standard deviations (%RSDs) were less then 30% for the initial calibration, with the exceptions listed below.

Calibration dates: 11/04/94 (Appendix 9 compounds) and 07/02/95
Instrument: A3I503

Compound	RRF	%RSD
Isobutanol	0.012	31.3
1,4-Dioxane	0.003	----
Acrolein	0.0234	----
2-Chloroethyl vinyl ether	---	33.48

Associated samples: MW10S and MW10D.

Based on the high %RSD in the initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the low RRFs in the initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

Semivolatile Organic Compounds: One initial calibration was performed for the samples in this sample set on instrument A4EXT3. All RRFs were greater than 0.050. All %RSDs were less than 30%, with the following exceptions.

Calibration date: 4/25/95	Instrument: A4EXT3	
Compound	RRF	%RSD
2,4-toluenediamine	----	45.0
a,a-Dimethyl-phenethylamine	----	34.79
1,3,5-Trinitrobenzene	0.031	----
Famphur	----	69.22

Associated samples: MW10S and MW10D.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

CONTINUING CALIBRATION

Volatile Organic Compounds: Results from one continuing calibration were provided in support of the VOC results. All RRFs were greater than 0.050, and all percent differences (%Ds) from the initial calibration were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 07/27/95
Time: 1029
Instrument: A3I503

Compound	RRF	%D
Chloroethane	---	27.1
Acetone	---	33.7
2-Butanone	---	26.3
Vinyl Acetate	---	51.3

Associated samples: MW10S and MW10D

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Semivolatile Organic Compounds: Results from one continuing calibration performed on August 2, 1995, were provided with the samples from this sample set. All compound RRFs

were greater than 0.050, and all compound %Ds were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 8/2/95
Time: 1521
Instrument: A4EXT3

Compound	RRF	%D
4-Nitroaniline	---	29.6
1,2-Dinitrobenzene	----	32.8
1,3,5-Trinitrobenzene	0.0314	---
1,3-Dichloro-2-propanol	---	31.9
2,4-Toluenediamine	0.0316	54.3
Famphur	---	41.5

Associated sample: MW10S and MW10D

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable (R) if not detected in the associated samples.

BLANKS

Volatile Organic Compounds: One method blank was analyzed along with the samples from this sample set. No VOCs were detected in the method blank above reporting limits and no action is required. One trip blank was submitted with the samples as well. No VOCs were quantified in the trip blank.

Semivolatile Organic Compounds: One method blank analysis was performed in association with the samples in this sample delivery group. The method blank, associated samples, and any analytes detected in the blank are as follows:

Blank - A5G260000-053 - MW10S and MW10D - Bis(ethylhexyl)phthalate = 3.8 J

Bis(ethylhexyl)phthalate was not detected above reporting limits in the associated samples, and no action is required.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Volatile Organic Compounds: All surrogate spike compound recoveries were within prescribed control limits, ranging from 89 to 107 percent.

Semivolatile Organic Compounds: All surrogate spike compound recoveries were within prescribed control limits for each of the specific surrogate compounds, ranging from 36 to 92 percent.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Volatile Organic Compounds: Results from a blank spike analysis and from a matrix spike/matrix spike duplicate (MS/MSD) analysis of another client's sample in the batch were provided. Blank spike recoveries ranged from 99 to 107 percent, and were acceptable. All MS/MSD spike recoveries were within prescribed quality control (QC) limits, ranging from 99 to 110 percent. Relative percent differences between the MS and MSD recoveries ranged from 1 - 2 percent and precision criteria are satisfied. Qualification of the data based on the MS/MSD results is not necessary.

Semivolatile Organic Compounds: Results from a blank spike analysis were provided. Recoveries ranged from 53 to 81 percent and were within prescribed quality control (QC) limits. All MS/MSD spike recoveries were within prescribed quality control (QC) limits, ranging from 73 to 97 percent. Relative percent differences between the MS and MSD recoveries ranged from 0 - 13 percent and precision criteria are satisfied. Qualification of the data based on the MS/MSD results is not necessary.

LABORATORY CONTROL SAMPLES

Volatile Organic Compounds: The laboratory control sample is the same sample as the blank spike discussed above. This sample is identified as a check sample in the Quanterra reports.

Semivolatile Organic Compounds:

Results from one laboratory control sample (blank spike) were provided. Recoveries ranged from 52 to 81 percent and were acceptable.

INTERNAL STANDARDS

Volatile Organic Compounds: All three internal standard area counts and retention times met QC requirements for the groundwater samples and the trip blank.

Semivolatile Organic Compounds: All six internal standard area counts and retention times met QC requirements for the groundwater samples analyzed.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

The quality of the VOC and SVOC data presented in the Quanterra data package is acceptable, and all data are determined to be quantitative, with the exceptions noted in the following table.

Sample ID	Analyte Qualified	Data Qualifier	Reason
FMGWMW10S FMGWMW10D	**VOCs** - Isobutanol 1,4-Dioxane Acrolein	R R R	Initial Calibration RRF low and analytes were not detected
FMGWMW10S FMGWMW10D	**SVOCs** - 2,4-toluenediamine a,a-Dimethyl-phenethylamine Famphur	 UJ UJ UJ	Initial Calibration %RSD greater than 30 percent.
FMGWMW10S FMGWMW10D	**SVOCs** - 1,3,5-Trinitrobenzene	R	Initial Calibration RRF low and analytes were not detected
FMGWMW10S FMGWMW10D	**VOCs** - Chloroethane 2-Butanone Acetone Vinyl Acetate	UJ UJ UJ UJ	Percent difference in continuing calibration is greater than % 25 from initial calibration
FMGWMW10S FMGWMW10D	**SVOCs** - 4-Nitroalinine 1,2-Dinitrobenzene 1,3-Dichloro-2-propanol Famphur	UJ UJ UJ UJ	Percent difference in continuing calibration is greater than % 25 from initial calibration
FMGWMW10S FMGWMW10D	**SVOCs** - 2,4-Toluenediamine 1,3,5-Trinitrobenzene	R R	Continuing calibration RRF low and analytes were not detected

Prepared By: _____
William W. Huskie
Geochemist

4/3/96

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A5H030125

MEMORANDUM

TO: Tim Davis

FROM: Will Huskie

DATE: March 26, 1996

SUBJECT: Data Validation for Groundwater Samples Collected August 2, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed in the following pages is the data validation for four groundwater samples collected August 2, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) Laboratory located in North Canton, Ohio.

The samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for total and dissolved metals following ICP method 6010A; and for mercury, lead, selenium, arsenic, and thallium following AA methods 7470, 7421, 7740, 7060, and 7841, respectively. The analytical results are contained in the Quanterra data package referred to as A5H030125.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Federated Metals Quality Assurance Project Plan (QAPP) dated September 28, 1994, and the USEPA Contract Laboratory Program (CLP) Document Titled "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" July 1, 1988.

INORGANIC DATA SUMMARY

Validation of Total and Dissolved Metals
Federated Metals Groundwater

Analyses Performed by Quanterra Laboratory
Quanterra Report # A5H030125 Dated 10/10/95
Sample Delivery Group H0325

SAMPLE DESCRIPTION

The following four samples were collected at the Federated Metals Facility and submitted to Quanterra Laboratory in Canton, Ohio for analysis of total and dissolved metals.

FMGWMW60	FMGWMW9S
FMGWMW61	FMGWMW9D (MS/MSD)

These samples are referred to as MW60, MW9S, MW61, and MW9D, respectively, in this report. Analysis for the following metals was performed:

ICP Metals Silver, Barium, Beryllium, Cadmium, Cobalt, Chromium, Copper, Iron, Manganese, Sodium, Nickel, Antimony, Tin, Vanadium, and Zinc

AA Metals Arsenic, Lead, Mercury, Selenium, and Thallium

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

Four samples were submitted under this chain of custody for total and dissolved metals analysis. The sample analyses were performed as requested.

HOLDING TIME COMPLIANCE

The samples were collected on August 2, 1995 and were received by the laboratory on August 3, 1995. Total and dissolved metals analyses were performed in August and September of 1995. All metals analyses were performed within the required six month holding time. All mercury analyses were performed within the required 28 day holding time and were completed by August 23, 1995. All holding time requirements were satisfied.

SAMPLE BATCHING

The metals analyses were performed within the following Quality Control (QC) batches.

MW60 - All analyses batch 5229008

MW9S - All analyses batch 5229008

MW61 - All analyses batch 5229008

MW9D (MS/MSD) - All total and dissolved analyses batch 5229008 except for dissolved mercury (5234009) and dissolved selenium (5235005).

INITIAL AND CONTINUING CALIBRATION

All initial and continuing calibration standard recoveries were with the prescribed control limits of 90 - 100 % (80 to 120 % for mercury). All calibration criteria were met.

BLANKS

Results from method blank analyses performed for each day of sample analysis were provided. No metals were detected above reporting limits in the blanks and no action is required.

CRDL CHECK STANDARD ANALYSES

CRDL check standards were analyzed at appropriate frequencies. All CRDL recoveries were within the acceptable 80-120 % recovery range with the following exceptions.

Cadmium (ICP)	Initial CRDL = 123 %
Arsenic (AA)	CRDL = 134 %, 126 %, and 110 %

Action - The following Cadmium sample results are validated as J/estimated because they are within the range of the check standard true value ± CRDL. These results are subject to influence of possible positive bias near the CRDL.

MW9S (total cadmium) and MW61 (total cadmium)

No Arsenic data were affected by the CRDL bias.

ICP INTERFERENCE CHECK SAMPLE

Initial and final ICP interference check sample analyses were performed. All standard recoveries were within ± 20 % of the true value and no action is required.

LABORATORY CONTROL SAMPLE ANALYSIS

Results from one laboratory control sample analysis (LCS) were provided for each batch of samples analyzed for total metals. LCS recoveries ranged from 93 to 112 percent and were within prescribed control limits.

DUPLICATE SAMPLE ANALYSIS

No laboratory duplicate sample was analyzed. Precision is evaluated based on the results of sample specific MS and MSD analyses.

MATRIX SPIKE ANALYSES

Both batch specific and matrix specific spike analyses were performed for the total and dissolved metals. Batch specific MS/MSD recoveries ranged from 93 to 112 percent and were within prescribed limits.

Sample specific MS/MSD analyses were performed on groundwater water sample MW9D. The following metals had spike recoveries and/or relative percent differences (RPDs) between the MS and MSD results that were outside the control limits presented in the project specific QAPP or in the laboratory provided control limits. The data were judged against whichever was the tighter of the two sets of recovery criteria.

Metal	MS % recovery	MSD % recovery	RPD %	**Validation Action**
Total				
Iron	744	55	93	None - Sample result greater than 4 times spike added
Manganese	107	146	31	None - Sample result greater than 4 times spike added
Sodium	152	176	15	None - Matrix spike analysis not required
Zinc	49	53	6	***All total zinc sample results are J or UJ***
DISSOLVED				
Sodium	57	50	14	None - Matrix spike analysis not required
Selenium	60	46	25	***MS/MSD RPD out - Dissolved selenium UJ for MW60, MW9S, MW61, MW9D***

FURNACE ATOMIC ABSORPTION QUALITY CONTROL

All dissolved selenium data are already qualified as UJ due to pre-digestion matrix spike deficiencies and no further evaluation is required. The following results are qualified as estimated non-detects at the reporting limits provided due to low post-digestion spike recoveries (between 40 and 85 %) while the sample result was less than half the analytical spike level.

Total Selenium - MW9S, MW61, and MW9D = UJ

Total Thallium - MW9D = UJ

ICP SERIAL DILUTION

An ICP serial dilution analysis was performed for total metals on groundwater sample MW61. Evaluation of the serial dilution criteria is applicable to metals that were quantified at a concentration of greater than 50 times the instrument detection limit in the original analysis. Percent differences between the result of the original analysis and the serial dilution analysis were less than 10 % for metals meeting evaluation criteria. No action is required.

SAMPLE RESULTS VERIFICATION

All sample results were correctly reported.

FIELD DUPLICATES

No field duplicate samples were collected or submitted for analysis with this sample delivery group.

COMPARISON OF TOTAL VERSUS DISSOLVED RESULTS

The following samples have dissolved results that exceed the associated total result. If dissolved exceeds total by more than 10 percent, both the total and dissolved results are considered suspect and both are validated as J/estimated.

Sample Id and Metal	Total Result	Dissolved Result	Percent Difference	Action
MW9S - Sodium	138,000	151,000	8.6	none
MW61 - Sodium	126,000	147,000	14.2	***both J/estimated***
MW9D - Sodium	361,000	441,000	18.1	***both J/estimated***

OVERALL ASSESSMENT OF DATA FOR A CASE

The analytical results for total and dissolved metals analyses of the four groundwater samples listed on page one of this report are determined to be quantitative, with the exceptions noted. All sample results validated to be less that quantitative are identified in ***bold italics*** in the text sections above. These qualified results are summarized in the following table.

Sample ID	Analyte Qualified	Data Qualifier	Reason
FMGWMW9S FMGWMW61	Total Cadmium	J	CRDL check standard out.
FMGWMW60	Total Zinc	UJ	Low MS recovery
FMGWMW9S FMGWMW61 FMGWMW9S	Total Zinc	J	Low MS recovery
FMGWMW60 FMGWMW9S FMGWMW61 FMGWMW9D	Dissolved Selenium	UJ	Poor MS/MSD precision
FMGWMW9S FMGWMW61 FMGWMW9D	Total Selenium	UJ	Furnace QC - Low analytical spike recovery
FMGWMW9D	Total Thallium	UJ	Furnace QC - Low analytical spike recovery
FMGWMW9D FMGWMW61	Total and Dissolved Sodium	J	Dissolved result exceeds total result by more than 10 percent.

Prepared By: _____
William W. Huskie
Geochemist

3/26/96
Date

INORGANIC DATA SUMMARY

Validation of Total and Dissolved Metals and Wet Chemistry Analytical Results
Federated Metals Facility Groundwater Sampling

Analyses Performed by Quanterra Environmental Services
Quanterra Report # A5H010101 Dated 10/17/95
Sample Delivery Group H0101

SAMPLE DESCRIPTION

The following five groundwater samples were collected at the Federated Metals Facility in Hammond, Indiana and submitted to Quanterra Environmental Services in North Canton, Ohio for analysis of total and dissolved metals, and wet chemistry parameters.

FMGWMW7S FMGWMW7D FMGWMW12S
FMGWMW58 FMGWMW59

These samples are referred to as MW7S, MW7D, MW12S, MW58, and MW59, respectively, in this validation summary.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The five groundwater samples were submitted for total and dissolved metals, and wet chemistry parameters and were analyzed as requested on the chain-of-custody. Total and dissolved metals analyses were performed by EPA Methods 6010A Inductively Coupled Plasma ((ICP) metals include silver, barium, beryllium, cadmium, cobalt, chromium, copper, iron, manganese, sodium, nickel, antimony, tin, vanadium, and zinc), Method 7060 for arsenic by graphite furnace atomic absorption (GFAA), Method 7421 for lead by GFAA, Method 7470 for mercury by manual cold-vapor atomic absorption, Method 7740 for selenium by GFAA, and Method 7841 for thallium by GFAA. Wet chemistry analyses included fluoride by Method 340.2, sulfide by Method 376.1, and cyanide by Method 9012.

HOLDING TIME COMPLIANCE

The samples were collected on July 28, 1995 and were received by the laboratory on July 29, 1995. Dissolved metals samples were filtered in the field. Total and dissolved metals samples were preserved with nitric acid at the time of collection. Sulfide samples were preserved with sodium hydroxide and zinc acetate at time of collection. Cyanide samples were preserved with sodium hydroxide at time of collection.

Total and dissolved metals analyses by GFAA were performed August 16, 17, and 18, 1995, and by ICP on September 13, 1995 within the required 180 day holding time. Total and dissolved mercury analyses were performed on August 16 and 18, 1995 within the required 28 day holding time. Fluoride analyses were performed on August 14 and 15, 1995 within the required 28 day holding time; sulfide analyses were performed on August 2 and 4, 1995 within the specified 7 day holding time; and cyanide analyses were performed on August 9 and 10, 1995 within the required 14 day holding time.

SAMPLE BATCHING

Metals and wet chemistry analyses for the groundwater samples were performed within the following Quality Control (QC) batch(es):

QC Batch 5226019 for ICP and GFAA metals: Samples MW7S, MW7D, MW12S, MW58, and MW59

QC Batch 5229056 for mercury: Samples MW7S, MW7D, MW12S, MW58, and MW59

QC Batch 5227025 for fluoride: Samples MW7S, MW7D, MW12S, and MW58

QC Batch 5227026 for fluoride: Sample MW59

QC Batch 5214107 for sulfide: Sample MW12S

QC Batch 5219022 for sulfide: Samples MW7S, MW7D, MW58, and MW59

QC Batch 5220026 for cyanide: Samples MW7S, MW7D, MW58, and MW59

QC Batch 5220026 for cyanide: Sample MW12S

Work order identifications were used as sample identifications on preparation and run logs, and raw data for metals analyses. Samples were assigned the following work order identifications:

MW7S - C0FHM	MW58 - C0FHN
MW7D - C0FHP	MW59 - C0FHQ
MW12S - C0FHK	

INITIAL CALIBRATION

ICP Metals. The analyses for this sample delivery group were performed under an initial calibration dated September 13, 1995. Initial calibration blank and standard results were acceptable. Initial calibration verification (ICV) recoveries ranged from 90.8 to 107 percent and were within prescribed control limits.

GFAA. Sample analyses for arsenic, lead, selenium, and thallium were performed under analyte specific five point initial calibrations dated August 16, 17, and 18, 1995. ICV recoveries ranged from 96.4 to 107 percent and were within prescribed control limits.

Mercury. QC batch 5229056 mercury analyses by cold vapor atomic absorption were performed under seven point (blank and six standards) initial calibrations dated August 16 and 18, 1995. ICV recoveries were 87.5 and 96.3 percent, respectively, and were within prescribed control limits.

Wet Chemistry. Samples were analyzed for fluoride under four point initial calibrations dated August 14, 1995 for QC batch 5227025 and August 15, 1995 for QC batch 5227026. Sulfide analyses were performed under three point initial calibrations dated August 2, 1995 for QC batch 5214107 and August 4, 1995 for QC batch 5219022. Cyanide analyses were performed under four point initial calibrations dated August 9, 1995 for QC batch 5220026 and August 10, 1995 for QC batch 5220066. ICV recoveries for fluoride and cyanide ranged from 99 to 102 percent and were within acceptable limits. ICV samples were not analyzed after the initial calibrations for sulfide.

CONTINUING CALIBRATION

ICP Metals. A continuing calibration verification (CCV) standard for ICP metals was analyzed at the required frequency of every tenth sample or every two hours. CCV recoveries ranged from 92.4 to 103 percent and were within prescribed control limits.

GFAA Metals. CCV analyses for GFAA metals were performed at the required frequency. CCV recoveries ranged from 92.4 to 103 percent and were within prescribed control limits.

Mercury. CCV analyses for mercury were performed at the required frequency. CCV recoveries ranged from 96.8 to 103 percent and were within prescribed control limits.

Wet Chemistry. CCV standards for fluoride and cyanide were analyzed with the groundwater samples at the required frequency. CCV recoveries ranged from 96.8 to 103 percent and were within prescribed control limits.

BLANKS

ICP Metals. Results for one initial calibration blank (ICB), continuing calibration blanks (CCB) analyzed before, during, and after groundwater sample, and one method blank were provided for total and dissolved ICP metals. No target analytes were detected in the ICB or method blank. Barium, beryllium, cadmium, iron and sodium were detected in the CCBs at concentrations less than the contract required detection limit (CRDL). As such, no action was taken.

GFAA Metals. Results for one initial calibration blank (ICB), continuing calibration blanks (CCB) analyzed before, during, and after groundwater sample, and one method blank were provided for total and dissolved GFAA metals. No target analytes were detected in the ICB or method blank. Arsenic and thallium were detected in the CCBs at concentrations less than the contract required detection limit (CRDL). As such, no action was taken.

Mercury. Results for one method blank associated with sample analyses was provided. Mercury was not detected in the blank.

Wet Chemistry. Six method blanks, one for each associated QC batch, were analyzed for wet chemistry parameters. No target analytes were detected in the blanks.

ICP INTERFERENCE CHECK SAMPLE

Interference check samples (ICS) were analyzed at the beginning and end of the sample QC batch 5226019 ICP analyses. ICS recoveries ranged from 84.4 to 96.7 percent and were within prescribed control limits of ±20 percent of the true value.

LABORATORY CONTROL SAMPLE

ICP Metals. One laboratory control sample (LCS) was analyzed for ICP metals in association with groundwater samples in QC batch 5226019. LCS recoveries ranged from 94.4 to 107 percent and were within prescribed control limits.

GFAA Metals. One LCS was analyzed for GFAA metals with samples in QC batch 5226019. LCS recoveries ranged from 83.0 to 102 percent and were within prescribed control limits.

Mercury. Results were provided for two LCS analyses for mercury in association with QC batch 5229056. LCS recoveries were 85.8 and 81.4, and were within prescribed control limits.

Wet Chemistry. One LCS was analyzed for each QC batch. The LCS recoveries ranged from 88 to 104 and were within prescribed control limits.

DUPLICATE SAMPLE ANALYSES

ICP Metals. Results for duplicate samples analyses for ICP metals were not provided.

GFAA Metals. Duplicate sample analysis for arsenic was performed on sample MW58. The relative percent difference between the sample and duplicate analyses was 1.2 percent. Precision criteria for arsenic analysis by GFAA was satisfied. Duplicate sample analyses results were not provided for the other GFAA metals.

Mercury. Results for duplicate samples analyses for mercury were not provided.

Wet Chemistry. Results for duplicate samples analyses for wet chemistry parameters were not provided.

MATRIX SPIKE ANALYSES

ICP Metals. QC batch 5226019 matrix spike and spike duplicate analyses of total and dissolved ICP metals were performed on sample MW12S. Matrix spike and spike duplicate recoveries for total metals ranged from 88 to 118 percent and were within the prescribed control limits. Copper, manganese and zinc matrix spike recoveries exceeded the upper control limits; copper and zinc spike duplicate recoveries also exceeded the upper control limits. The laboratory did not flag sample results. The relative percent differences (RPD) between the matrix spike and spike duplicate results ranged from 0.29 to 13 percent and were within prescribed limits with the exception of manganese which had a RPD of 27 percent. Total copper, total manganese, and total zinc results for associated samples MW7S, MW7D, MW12S, and MW58 are qualified as estimated (J) based on the matrix spike and spike duplicate results. Target analytes were not detected in sample MW59 and results were not affected.

Matrix spike and spike duplicate recoveries for dissolved ICP metals ranged from 65 to 104 percent and were within the prescribed control limits. The RPDs between the matrix spike and spike duplicate results ranged from 1.8 to 9.0 percent and were within prescribed limits.

GFAA Metals. QC batch 5226019 matrix spike and spike duplicate analyses of total and dissolved GFAA metals were performed on sample MW12S. Matrix spike and spike duplicate recoveries for total metals ranged from 19 to 124 percent and were within the prescribed control limits. Lead matrix spike and spike duplicate recoveries exceeded the upper control limits. The laboratory did not flag sample results. The RPDs between the matrix spike and spike duplicate results ranged from 0.29 to 12 percent and were within prescribed limits. Total lead results for associated samples MW7S, MW7D, MW12S, and MW58 are qualified as estimated (J) based on the matrix spike results. Target analytes were not detected in sample MW59 and results were not affected.

Matrix spike and spike duplicate recoveries for dissolved GFAA metals ranged from 65 to 97 percent and were within the prescribed control limits. The RPDs between the matrix spike and spike duplicate results ranged from 1.9 to 6.8 percent and were within prescribed limits.

Mercury. QC batch 5229056 matrix spike and spike duplicate analyses of total and dissolved mercury were performed on sample MW12S. Matrix spike and spike duplicate recoveries for total and dissolved mercury ranged from 90 to 106 percent and were within the prescribed control limits. The RPDs between the matrix spike and spike duplicate results were 0.28 and 14 percent, respectively for total and dissolved mercury, and were within prescribed limits.

Wet Chemistry. Results for batch matrix spike and spike duplicate analyses performed on another client's samples were provided for QC batches 5214107 for sulfide, 5219022 for sulfide, and 5220026 for cyanide. Matrix spike and spike duplicate recoveries ranged form 72 to 104 percent; RPDs between the matrix spike and spike duplicate results ranged from 3.9 to 12 percent. Matrix spike and spike duplicate results were within prescribed ocntrol limits.

FURNACE ATOMIC ABSORPTION

Matrix spike and (post-digestion) spike duplicate analyses were performed for GFAA metals analyses. Results are discussed in the preceding section.

ICP SERIAL DILUTION

ICP serial dilution analysis was performed on sample MW7S for QC batch 5226019. Percent difference of serial dilution results from undiluted results for ICP metals detected in sample MW7S, with concentrations at least five times the instrument detection limit , were below the control limit of ten percent, with the exception of antimony. Although the percent difference for antimony was 16.3 percent, the laboratory did not flag the sample result as it was below the CRDL. Antimony was not detected in associated samples above hte CRDL and no action was taken.

OVERALL ASSESSMENT OF THE DATA

The quality of the total and dissolved metals data presented in the Quanterra data package is acceptable, and all data are determined to be quantitative, with the exceptions noted in the following table.

Sample ID	Analyte Qualified	Data Qualifier	Reason
MW7S	Total copper	J	Matrix spike and matrix spike duplicate recoveries exceeded prescribed control limits.
MW7D	Total lead	J	
MW12S	Total manganese	J	
MW58	Total zinc		

Prepared By:_____

Eumy F. Hung
Staff Scientist

Date:_____

PESTICIDE AND PCB DATA SUMMARY

Validation of Chlorinated Pesticide and PCB Analytical Results
Federated Metals Facility Groundwater Sampling

Analyses Performed by Quanterra Environmental Services
Quanterra Report # A5H010101 Dated 10/17/95
Sample Delivery Group H0101

SAMPLE DESCRIPTION

The following four groundwater samples were collected at the Federated Metals Facility in Hammond, Indiana and submitted to Quanterra Environmental Services in North Canton, Ohio for analysis of chlorinated pesticide and polychlorinated biphenyl (PCB) compounds.

FMGWMW7S	FMGWMW7D
FMGWMW58	FMGWMW59

These samples are referred to as MW7S, MW7D, MW58, and MW59, respectively, in this validation summary.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The four groundwater samples were submitted for chlorinated pesticide and PCBs, and were analyzed as requested on the chain-of-custody. Chlorinated pesticide and PCB analyses were performed using EPA Method 8080.

HOLDING TIME COMPLIANCE

The samples were collected on July 28, 1995 and were received by the laboratory on July 29, 1995. Samples were extracted on August 3, 1995 and analyzed on August 9, 1995 within the required 7 day extraction holding time and 40 day analysis holding time for pesticides and PCBs.

SAMPLE BATCHING

Chlorinated pesticide and PCB analyses for the groundwater samples were performed within the following Quality Control (QC) batch(es):

QC Batch 5215009 for chlorinated pesticides and PCBs: Samples MW7S, MW7D, MW58, and MW59

INSTRUMENT PERFORMANCE

Chromatographic resolution and sensitivity were acceptable for Method 8080 analyses by gas chromatography (GC). DDT retention time was greater than 12 minutes. Retention time windows were not specified or reported by the laboratory.

4,4'-DDT and endrin degradation for pesticides analyses continuing calibrations were below 20 percent. Retention time shift for dibutylchlorendate between the initial and continuing calibrations was less than 1.5 percent difference.

INITIAL CALIBRATION

Results for initial calibrations were provided for both primary and confirmation analyses on instrument a2hpy GC columns GC-W and GC-Y on August 15 and 3, 1995, respectively. Percent relative standard deviations (%RSD) for aldrin, endrin, DDT, and dibutylchlorendate were less than 10 percent. The required standards were analyzed at the beginning of each 72-hour analytical sequesnce for primary and confirmatory analyses.

CONTINUING CALIBRATION

Results for continuing calibrations were provided for primary and confirmatory analyses. Quantitation standard percent differences (%D) were less than 15 percent for compounds being quantitated and less than 20 percent for compounds being confirmed.

BLANKS

One method blank was analyzed for QC batch 5215003 on August 17, 1995. Chlorinated pesticide and PCB compounds were not detected above the reporting limits in the method blank.

SURROGATE RECOVERY

Surrogate recoveries for the samples analyzed were within prescribed QC limits. Surrogates dibutylchlorendate and tetrachloro-m-xylene recoveries for the method blank exceeded the prescribed control limits. Chlorinated pesticide and PCB compounds were not detected in the method blank and qualification was not necessary.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSES

Results for matrix spike and matrix spike duplicate (MS/MSD) analyses were not provided by the laboratory. Laboratory control sample and duplicate control sample analyses were performed instead of MS/MSD analyses. The results are discussed in the following section.

LABORATORY CONTROL SAMPLE ANALYSES

Results for laboratory control sample (LCS) and duplicate control sample (DCS) analyses were provided by the laboratory. LCS and DCS recoveries were within the prescribed QC limits. Precision between the LCS and DCS results was also acceptable.

COMPOUND IDENTIFICATION AND QUANTITATION

Retention times of reported compounds were within ± 0.75 percent of the initial retention times for primary and confirmatory analyses. Separation of peaks was at least 25 percent resolution for GC chromatograms. GC/MS confirmation was performed for samples concentrations exceeding 0.1 μg/ml. Quantitation of compounds was calculated from the confirmatory analyses.

OVERALL ASSESSMENT OF THE DATA

The quality of the chlorinated pesticide and PCB analytical data presented in the Quanterra data package is acceptable, and all data are determined to be quantitative. Data meet all data validation criteria.

Prepared By:_____
Eumy F. Hung
Staff Scientist

Date:_____

ORGANIC DATA SUMMARY

Validation of Pesticide and Herbicide Analytical Results
Federated Metals Facility Groundwater Sampling

Analyses Performed by Quanterra Environmental Services
Quanterra Report # A5H010101 Dated 10/17/95
Sample Delivery Group H0101

SAMPLE DESCRIPTION

The following four groundwater samples were collected at the Federated Metals Facility in Hammond, Indiana and submitted to Quanterra Environmental Services in North Canton, Ohio for analysis of organophosphorous pesticides and chlorinated herbicides.

FMGWMW7S	FMGWMW7D
FMGWMW58	FMGWMW59

These samples are referred to as MW7S, MW7D, MW58, and MW59, respectively, in this validation summary.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The four groundwater samples were submitted for organophosphorous pesticides and chlorinated herbicides and were analyzed as requested on the chain-of-custody. Organophosphorous pesticides analyses were performed using EPA Method 8140 and chlorinated herbicides analyses were performed using EPA Method 8150.

HOLDING TIME COMPLIANCE

The samples were collected on July 28, 1995 and were received by the laboratory on July 29, 1995. Samples were extracted on August 3, 1995 and analyzed on August 9, 1995 for pesticides; samples were extracted on August 2, 1995 and analyzed on August 7 and 8, 1995 for herbicides. Samples were extracted within the required 7 day holding time and analyzed within the required 40 day holding time for pesticides and herbicides.

SAMPLE BATCHING

Organophosphorous pesticide and chlorinated herbicide analyses for the groundwater samples were performed within the following Quality Control (QC) batch(es):

QC Batch 5215009 for organophosphorous pesticides: Samples MW7S, MW7D, MW58, and MW59

QC Batch 5214070 for chlorinated herbicides: Samples MW7S, MW7D, and MW58

QC Batch 5213083 for chlorinated herbicides: Sample MW59

Work order identifications were used as sample identifications on preparation and run logs, and raw data for metals analyses. Samples were assigned the following work order identifications:

MW7S - C0FHM	MW58 - C0FHN
MW7D - C0FHP	MW59 - C0FHQ

INITIAL CALIBRATION

Organophosphorous Pesticides. Sample analyses were performed on instrument a2hpo1 under a seven point initial calibration dated July 31, 1995. Linear correlation coefficients (r^2) for the calibration curve were acceptable with r^2 values greater than 0.995. Percent relative standard deviations (%RSD) for the initial calibration were less than 10 percent.

Chlorinated Herbicides. Sample analyses were performed on instrument a2hph under a five point initial calibration dated July 15, 1995. Linear correlation coefficients for the calibration curve were acceptable with r^2 values greater than 0.995. Percent RSDs were less than 30 percent for the initial calibration.

CONTINUING CALIBRATION

Organophosphorous Pesticides. Results for continuing calibration verifications (CCV) associated with sample analyses performed on instrument a2hpo1 were provided. CCV recoveries ranged from 82.4 to 115 percent and were within prescribed control limits.

Chlorinated Herbicides. Results for CCVs associated with sample analyses performed on instrument a2hph were provided. CCV recoveries ranged from 76.5 to 94.9 percent and were within prescribed control limits, with the following exceptions. Dinoseb and 6,2,4-DB recoveries were slightly below control limits for CCVs analyzed on August 7 and 8, 1995, respectively.

BLANKS

Organophosphorous Pesticides. One method blank, A5H030000-009 in QC batch 5215009, was extracted with samples on August 3, 1995 and analyzed on August

9, 1995. No organophosphorous pesticide compounds were detected in the method blank.

Chlorinated Herbicides. One method blank, A5H020000-070 in QC batch 5214070, was prepared with samples in QC batch 5214070 on August 2, 1995 and analyzed on August 7, 1995. No chlorinated herbicide compounds were detected in the method blank.

SURROGATE RECOVERY

Organophosphorous Pesticides. Surrogate triphenyl phosphate recoveries for the groundwater samples ranged from 50 to 85 percent and were within the prescribed control limits.

Chlorinated Herbicides. Surrogate 2,4-dichlorophenylacetic acid (DCAA) recoveries for the groundwater samples ranged from 53.2 to 65.0 percent and were within the prescribed control limits. Surrogate tetrachloro-m-xylene for the method blank was outside of prescribed control limits. However, surrogate dibutylchlorendate was within control limits for the method blank and as a laboratory QC sample, qualification of method blank results was not appropriate.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSES

Organophosphorous Pesticides. Matrix spike and matrix spike duplicate (MS/MSD) results for QC batch 5205001 were provided. MS/MSD samples were prepared on July 24, 1995 and analyzed on August 2, 1995. MS/MSD recoveries ranged from 62 to 90 percent and were within prescribed control limits. Precision, as measured by the relative percent difference (RPD) between the MS and MSD results, was also acceptable.

Chlorinated Herbicides. MS and MSD results associated with QC batch 5214070 were provided. MS/MSD analysis was performed on another client's sample. MS/MSD recoveries ranged from 77 to 98 percent and were within prescribed control limits. Precision, as measured by the RPD, was also acceptable.

LABORATORY CONTROL SAMPLE ANALYSES

Organophosphorous Pesticides. Laboratory control sample (LCS) and duplicate control sample (DCS) results associated with QC batch 5215009 were provided. LCS and DCS recoveries ranged from 83 to 98 percent and were within prescribed control limits. Precision between the LCS and DCS results was also acceptable, with RPD values ranging from 2.4 to 16 percent.

Chlorinated Herbicides. LCS and DCS results associated with samples in QC batch 5214070 were provided. LCS and DCS recoveries ranged from 62 to 81

percent and were within prescribed control limits, with the exception of Dinoseb. Dinoseb recoveries for both the LCS and DCS were below the control limits. The laboratory flagged these results as "Dinoseb limits are advisory". Precision between the LCS and DCS results was acceptable with RPD values ranging from 0.48 to 3.4 percent.

COMPOUND IDENTIFICATION AND QUANTITATION

Organophosphorous Pesticides. Identification and quantitation of target analytes were consistent with sample chromatograms and instrument calibration data.

Chlorinated Herbicides. Identification and quantitation of target analytes were consistent with sample chromatograms and instrument calibration data.

OVERALL ASSESSMENT OF THE DATA

The quality of the organophosphorous pesticides and chlorinated herbicides data presented in the Quanterra data package is acceptable, and all data are determined to be quantitative. Data meet all data validation criteria.

Prepared By:_____

Eumy F. Hung
Staff Scientist

Date:_____

A5G220128

MEMORANDUM

TO: Tim Davis

FROM: Will Huskie

DATE: April 1, 1996

SUBJECT: Data Validation for Groundwater Samples Collected July 21, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed in the following pages is the data validation for two groundwater samples collected July 21, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) Laboratory located in North Canton, Ohio.

The samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for total and dissolved metals following ICP method 6010A; and for mercury, lead, selenium, arsenic, and thallium following AA methods 7470, 7421, 7740, 7060, and 7841, respectively. The analytical results are contained in the Quanterra data package referred to as A5G220128.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Federated Metals Quality Assurance Project Plan (QAPP) dated September 28, 1994, and the USEPA Contract Laboratory Program (CLP) Document Titled "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" July 1, 1988.

INORGANIC DATA SUMMARY

Validation of Total and Dissolved Metals
Federated Metals Groundwater

Analyses Performed by Quanterra Laboratory
Quanterra Report # A5G220128 Dated 10/03/95
Sample Delivery Group G2228

SAMPLE DESCRIPTION

The following two groundwater samples were collected at the Federated Metals Facility and submitted to Quanterra Laboratory in Canton, Ohio for analysis of total and dissolved metals.

FMGWMW10S FMGWMW10D

These samples are referred to as MW10S and MW10D, respectively, in this report. Analysis for the following metals was performed:

ICP Metals Silver, Barium, Beryllium, Cadmium, Cobalt, Chromium, Copper, Iron, Manganese, Sodium, Nickel, Antimony, Tin, Vanadium, and Zinc

AA Metals Arsenic, Lead, Mercury, Selenium, and Thallium

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

Two samples were submitted under this chain of custody for total and dissolved metals analysis. The sample analyses were performed as requested, with the following exception. The analysis for dissolved metals was canceled by the client after the samples were received by the laboratory. Therefore, analyses for dissolved metals were not performed.

HOLDING TIME COMPLIANCE

The samples were collected on July 21, 1995 and were received by the laboratory on July 22, 1995. Total metals analyses were performed in August and September of 1995. All metals analyses were performed within the required six month holding time. All mercury analyses were performed within the required 28 day holding time and were completed by August 10, 1995. All holding time requirements were satisfied.

SAMPLE BATCHING

The metals analyses were performed within the following Quality Control (QC) batch(es).

MW10S and MW10D - All analyses batch 5221046.

INITIAL AND CONTINUING CALIBRATION

All initial and continuing calibration standard recoveries were with the prescribed control limits of 90 - 100 percent (80 to 120 percent for mercury), ranging from 91 to 107 percent. All calibration criteria were met.

BLANKS

Results from one method blank analysis and from initial and continuing calibration analyses performed for each day of sample analysis were provided. No metals were detected above reporting limits in the blanks and no action is required.

CRDL CHECK STANDARD ANALYSES

CRDL check standards were analyzed at appropriate frequencies. All CRDL recoveries were within the acceptable 80-120 % recovery range with the following exceptions.

Cadmium (ICP)	Initial CRDL = 123 %
Chromium (ICP)	Final CRDL = 134 %
Lead (AA)	Final CRDL = 127 %

Action - The following total cadmium sample results are validated as J/estimated because they are within the range of the check standard true value ± CRDL. These results are subject to influence of possible positive bias near the CRDL.

MW10S (total cadmium)

No chromium or lead data are affected by the CRDL bias.

ICP INTERFERENCE CHECK SAMPLE

Initial and final ICP interference check sample analyses were performed. All standard recoveries were within ± 20 % of the true value and no action is required.

LABORATORY CONTROL SAMPLE ANALYSIS

Results from one laboratory control sample analysis (LCS) were provided for each batch of samples analyzed for total metals. LCS recoveries ranged from 92 to 108 percent and were within prescribed control limits.

DUPLICATE SAMPLE ANALYSIS

No laboratory duplicate sample was analyzed. Precision is evaluated based on the results of sample specific MS and MSD analyses.

MATRIX SPIKE ANALYSES

Results from a batch specific matrix specific spike analyses were provided. Batch specific MS recoveries ranged from 92 to 108 percent and were within prescribed limits. Sample specific MS/MSD results were not provided.

FURNACE ATOMIC ABSORPTION QUALITY CONTROL

The following results are qualified as estimated non-detects at the reporting limits provided due to low post-digestion spike recoveries (between 40 and 85 %) while the sample result was less than half the analytical spike level.

Total Selenium - MW10S and MW10D = UJ

Total Thallium - MW10S and MW10D = UJ

ICP SERIAL DILUTION

An ICP serial dilution analysis was performed for total metals on groundwater sample MW10D. Evaluation of the serial dilution criteria is applicable to metals that were quantified at a concentration of greater than 50 times the instrument detection limit in the original analysis. Percent differences between the result of the original analysis and the serial dilution analysis were less than 10 % for metals meeting evaluation criteria. No action is required.

SAMPLE RESULTS VERIFICATION

All sample results were correctly reported.

FIELD DUPLICATES

No field duplicate samples were collected or submitted for analysis with this sample delivery group.

COMPARISON OF TOTAL VERSUS DISSOLVED RESULTS

Analysis for dissolved metals was canceled and no total versus dissolved results comparison is available.

OVERALL ASSESSMENT OF DATA FOR A CASE

The analytical results for total metals analyses of the two groundwater samples listed on page one of this report are determined to be quantitative, with the exceptions noted. All sample results validated to be less that quantitative are identified in ***bold italics*** in the text sections above. These qualified results are summarized in the following table.

Sample ID	Analyte Qualified	Data Qualifier	Reason
FMGWMW10S	Total Cadmium	J	CRDL check standard recovery exceeds upper control limit and sample result is in effected CRDL range.
FMGWMW10S	Total Selenium Total Thallium	UJ	Low post digestion spike recovery while sample result is less than half the sample reporting limit.
FMGWMW10D	Total Selenium Total Thallium	UJ	Low post digestion spike recovery while sample result is less than half the sample reporting limit.

Prepared By: _____
William W. Huskie
Geochemist

3/26/96

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GERAGHTY & MILLER

FMGWMW10S

WO #: C0C01
LAB #: A5G220128-001
MATRIX: WATER

DATE SAMPLED: 7/21/95
TIME SAMPLED: 9:30
DATE RECEIVED: 7/22/95

- - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT		REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Silver	ND		10.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Barium	509		10.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Beryllium	ND		5.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Cadmium	10.5	J	10.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Cobalt	ND		50.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Chromium	85.7		20.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Copper	4,910		10.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Nickel	210		40.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Antimony	ND		300	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Tin	ND		1,000	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Vanadium	113		50.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Zinc	6,740		50.0	ug/L	SW846 6010A	8/09- 9/13/95	5221046
Arsenic	131		10.0	ug/L	SW846 7060	8/09- 8/11/95	5221046
Lead	2,230		300	ug/L	SW846 7421	8/09- 8/14/95	5221046
Mercury	0.90		0.20	ug/L	SW846 7470	8/09- 8/10/95	5221046
Selenium	ND W	UJ	5.0	ug/L	SW846 7740	8/09- 8/11/95	5221046
Thallium	ND W	UJ	10.0	ug/L	SW846 7841	8/09- 8/11/95	5221046

WH
3/26/96

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
W - POST DIGESTION SPIKE RECOVERY FELL BETWEEN 40 - 85% WHILE SAMPLE RESULT WAS LESS THAN ONE-HALF THE REPORTING LIMIT.

MEMORANDUM

TO: Tim Davis

FROM: Will Huskie

DATE: April 1, 1996

SUBJECT: Data Validation for Groundwater Samples Collected July 21, 1995 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

Detailed in the following pages is the data validation for two groundwater samples collected July 21, 1995 at the Federated Metals Site, Hammond, Indiana. The samples were analyzed by Quanterra Inc. (Quanterra) Laboratory located in North Canton, Ohio.

The samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for VOCs using Method 8240A and for SVOCs using Method 8270A. The analytical results are contained in the Quanterra data package referred to as A5G220128.

Review of this data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Federated Metals Quality Assurance Project Plan (QAPP) dated September 28, 1994, and the USEPA Contract Laboratory Program (CLP) Document Titled "National Functional Guidelines for Organic Data Review" (Draft - Revised) dated June 1991.

ORGANIC DATA SUMMARY

Validation of Volatile and Semi-Volatile Organic Compound Results
Federated Metals Groundwater

Analyses Performed by Quanterra Laboratory
Quanterra Report # A5G220128 Dated 10/03/95
Sample Delivery Group G22281

SAMPLE DESCRIPTION

The following two groundwater samples were collected at the Federated Metals Facility and submitted to Quanterra Laboratory in Canton, Ohio for analysis of VOCs by Method 8240A and for SVOCs by Method 8270A. A trip blank was also submitted for analysis of VOCs as a quality control sample.

FMGWMW10S FMGWMW10D

These samples are referred to as MW10S and MW10D, respectively, in this report. Analysis for the following metals was performed:

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The two groundwater samples and the trip blank submitted under this chain of custody for VOC and SVOC analysis were analyzed as requested.

HOLDING TIME COMPLIANCE

The samples were collected on July 21, 1995 and were received by the laboratory on July 22, 1995. The VOC samples were preserved with hydrochloric acid at the time of collection. All VOC analyses were performed July 27, 1995 within the required 14 day holding time. Samples submitted for SVOC analysis were extracted on July 26, 1995 within the required 7 day holding time and were analyzed on August 2, 1995, within the required 40 day holding time after extraction.

SAMPLE BATCHING

VOC analyses were performed within the following Quality Control (QC) batch(es): MW10S, MW10D, and Trip Blank - All analyses batch 5210019.

SVOC analyses were performed within the following Quality Control (QC) batch(es): MW10S and MW10D - All analyses batch 5207053.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

Volatile Organic Compounds: Each set of tuning data associated with calibration and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

Semivolatile Organic Compounds: Each set of tuning data associated with calibration and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

Volatile Organic Compounds: The analyses for this sample delivery group were performed under an initial calibration dated November 04, 1994 (partial compound list) and July 2, 1995 (for the remaining compounds). All compound relative response factors (RRFs) were greater than 0.050 and all percent relative standard deviations (%RSDs) were less then 30% for the initial calibration, with the exceptions listed below.

Calibration dates: 11/04/94 (Appendix 9 compounds) and 07/02/95
Instrument: A3I503

Compound	RRF	%RSD
Isobutanol	0.012	31.3
1,4-Dioxane	0.003	----
Acrolein	0.0234	----
2-Chloroethyl vinyl ether	---	33.48

Associated samples: MW10S and MW10D.

Based on the high %RSD in the initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the low RRFs in the initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

Semivolatile Organic Compounds: One initial calibration was performed for the samples in this sample set on instrument A4EXT3. All RRFs were greater than 0.050. All %RSDs were less than 30%, with the following exceptions.

Calibration date: 4/25/95 Instrument: A4EXT3

Compound	RRF	%RSD

2,4-toluenediamine	----	45.0
a,a-Dimethyl-phenethylamine	----	34.79
1,3,5-Trinitrobenzene	0.031	----
Famphur	----	69.22

Associated samples: MW10S and MW10D.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (UJ) if not detected and estimated (J) if detected.

Based on the RRF initial calibration data, the associated sample results for the compounds listed above were qualified as estimated (J) if detected and unusable (R) if not detected.

CONTINUING CALIBRATION

Volatile Organic Compounds: Results from one continuing calibration were provided in support of the VOC results. All RRFs were greater than 0.050, and all percent differences (%Ds) from the initial calibration were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 07/27/95
Time: 1029
Instrument: A3I503

Compound	RRF	%D
Chloroethane	---	27.1
Acetone	---	33.7
2-Butanone	---	26.3
Vinyl Acetate	---	51.3

Associated samples: MW10S and MW10D

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Semivolatile Organic Compounds: Results from one continuing calibration performed on August 2, 1995, were provided with the samples from this sample set. All compound RRFs were greater than 0.050, and all compound %Ds were less than 25% for the continuing calibrations with the following exceptions:

Calibration Date: 8/2/95

Time: 1521
Instrument: A4EXT3

Compound	RRF	%D
4-Nitroaniline	---	29.6
1,2-Dinitrobenzene	----	32.8
1,3,5-Trinitrobenzene	0.0314	---
1,3-Dichloro-2-propanol	---	31.9
2,4-Toluenediamine	0.0316	54.3
Famphur	---	41.5

Associated sample: MW10S and MW10D

Based on the %D continuing calibration data, the compounds listed above were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

Based on the RRF continuing calibration data, the compounds listed above were qualified as estimated (J) and if detected and unusable (R) if not detected in the associated samples.

BLANKS

Volatile Organic Compounds: One method blank was analyzed along with the samples from this sample set. No VOCs were detected in the method blank above reporting limits and no action is required. One trip blank was submitted with the samples as well. No VOCs were quantified in the trip blank.

Semivolatile Organic Compounds: One method blank analysis was performed in association with the samples in this sample delivery group. The method blank, associated samples, and any analytes detected in the blank are as follows:

Blank - A5G260000-053 - MW10S and MW10D - Bis(ethylhexyl)phthalate = 3.8 J

Bis(ethylhexyl)phthalate was not detected above reporting limits in the associated samples, and no action is required.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Volatile Organic Compounds: All surrogate spike compound recoveries were within prescribed control limits, ranging from 89 to 107 percent.

Semivolatile Organic Compounds: All surrogate spike compound recoveries were within prescribed control limits for each of the specific surrogate compounds, ranging from 36 to 92 percent.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Volatile Organic Compounds: Results from a blank spike analysis and from a matrix spike/matrix spike duplicate (MS/MSD) analysis of another client's sample in the batch were provided. Blank spike recoveries ranged from 99 to 107 percent, and were acceptable. All MS/MSD spike recoveries were within prescribed quality control (QC) limits, ranging from 99 to 110 percent. Relative percent differences between the MS and MSD recoveries ranged from 1 - 2 percent and precision criteria are satisfied. Qualification of the data based on the MS/MSD results is not necessary.

Semivolatile Organic Compounds: Results from a blank spike analysis were provided. Recoveries ranged from 53 to 81 percent and were within prescribed quality control (QC) limits. All MS/MSD spike recoveries were within prescribed quality control (QC) limits, ranging from 73 to 97 percent. Relative percent differences between the MS and MSD recoveries ranged from 0 - 13 percent and precision criteria are satisfied. Qualification of the data based on the MS/MSD results is not necessary.

LABORATORY CONTROL SAMPLES

Volatile Organic Compounds: The laboratory control sample is the same sample as the blank spike discussed above. This sample is identified as a check sample in the Quanterra reports.

Semivolatile Organic Compounds:

Results from one laboratory control sample (blank spike) were provided. Recoveries ranged from 52 to 81 percent and were acceptable.

INTERNAL STANDARDS

Volatile Organic Compounds: All three internal standard area counts and retention times met QC requirements for the groundwater samples and the trip blank.

Semivolatile Organic Compounds: All six internal standard area counts and retention times met QC requirements for the groundwater samples analyzed.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

The quality of the VOC and SVOC data presented in the Quanterra data package is acceptable, and all data are determined to be quantitative, with the exceptions noted in the following table.

Sample ID	Analyte Qualified	Data Qualifier	Reason
FMGWMW10S FMGWMW10D	**VOCs** - Isobutanol 1,4-Dioxane Acrolein	R R R	Initial Calibration RRF low and analytes were not detected
FMGWMW10S FMGWMW10D	**SVOCs** - 2,4-toluenediamine a,a-Dimethyl-phenethylamine Famphur	 UJ UJ UJ	Initial Calibration %RSD greater than 30 percent.
FMGWMW10S FMGWMW10D	**SVOCs** - 1,3,5-Trinitrobenzene	R	Initial Calibration RRF low and analytes were not detected
FMGWMW10S FMGWMW10D	**VOCs** - Chloroethane 2-Butanone Acetone Vinyl Acetate	UJ UJ UJ UJ	Percent difference in continuing calibration is greater than % 25 from initial calibration
FMGWMW10S FMGWMW10D	**SVOCs** - 4-Nitroalinine 1,2-Dinitrobenzene 1,3-Dichloro-2-propanol Famphur	UJ UJ UJ UJ	Percent difference in continuing calibration is greater than % 25 from initial calibration
FMGWMW10S FMGWMW10D	**SVOCs** - 2,4-Toluenediamine 1,3,5-Trinitrobenzene	R R	Continuing calibration RRF low and analytes were not detected

Prepared By:_____

William W. Huskie
Geochemist

4/3/96

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A6E310136

MEMORANDUM

TO: Tim Davis

FROM: Susan Gallagher

DATE: July 30, 1996

SUBJECT: Data Validation for Groundwater Samples Collected May 30, 1996 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.109)

The data evaluation for volatile organic compound (VOC), total metals, and fluoride groundwater results for samples collected from nine monitoring wells on May 30, 1996 at the Federated Metals Site, Hammond, Indiana is presented in the attachments to this memorandum. The samples were analyzed by the Quanterra Inc. (Quanterra) laboratory located in North Canton, Ohio. The fluoride analyses were completed by Quanterra in Tampa, Florida.

The samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodologies for VOCs using Method 8240B, total metals using Method 6010A (except for mercury, for which Method 7470 was used), and for fluoride using Method 340.2. The analytical results are contained in the Quanterra data package referred to as A6E310136 dated June 28, 1996.

Review of these data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Federated Metals Quality Assurance Project Plan (QAPP) dated September 28, 1994, and the USEPA Contract Laboratory Program (CLP) document titled "National Functional Guidelines for Organic Data Review" (Draft - Revised) dated June 1991.

ORGANIC DATA SUMMARY

Validation of Volatile Organic Compound Results
Federated Metals Facility Groundwater Sampling

Analyses Performed by Quanterra, Inc.
Quanterra Inc. Report # A6E310136 Dated June 28, 1996
Work Order # C48

SAMPLE DESCRIPTION

The following two groundwater samples were collected at the Federated Metals Facility and submitted to Quanterra Inc. in North Canton, Ohio for analysis of VOCs using U.S. Environmental Protection Agency (USEPA) Method 8240B. A trip blank was also submitted for analysis of VOCs as a quality control (QC) sample.

FMGWMW12S
FMGWMW15S
Trip blank

The groundwater samples are referred to as MW12S, MW15S, and trip blank in this data evaluation.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The groundwater samples and trip blank submitted under this chain of custody for VOCs analyses were analyzed, as requested.

HOLDING TIME COMPLIANCE

The samples were collected on May 29 and 30, 1996 and were received by the laboratory on May 31, 1996. The VOC samples were preserved with hydrochloric acid at the time of collection. All VOC analyses were performed June 11, 1996, within the required 14 day holding time.

SAMPLE BATCHING

VOC analyses were performed within the following QC batch: 6165145.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

Each set of tuning data associated with calibration and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

The analyses for this sample delivery group were performed under an initial calibration dated June 5, 1996. Compound relative response factors (RRFs) were greater than 0.050 and percent relative standard deviations (%RSDs) were less then 30% for the initial calibration, with the exceptions listed below.

Calibration date: June 5, 1996
Instrument: a3i502
Associated samples: MW12S and MW15S

Compound	RRF	%RSD
acrolein	0.01615	
isobutanol	0.00786	
1,4-dioxane	0.00305	----
ethanol	0.01798	----
n-butanol	0.00487	
cyclohexanone	0.01464	----

Based on the low relative response factors (RRFs) in the initial calibration data, the associated sample results for the compounds listed in the RRF column would be qualified as estimated (J), if detected and rejected (R), if not detected. Only results for acrolein and 1,4-dioxane were reported for this sample delivery order. Concentrations of acrolein and 1,4-dioxane were not reported above the detection limit in any of the samples; therefore, these results are validated as rejected (R).

CONTINUING CALIBRATION

Results from one continuing calibration check were provided in support of the VOC results. RRFs were greater than 0.050, and percent differences (%Ds) from the initial calibration were less than 25 percent for the continuing calibrations, with the following exceptions.

Calibration date: June 5, 1996
Instrument: a3i502
Associated samples: MW12S and MW15S

Compound	RRF	%D
bromomethane	----	38.5
acrolein	0.012	26.0
ethanol	0.015	----

trichlorofluoromethane	----	34.5
iodomethane	----	29.6
1,4-dioxane	0.002	----
n-butanol	0.001	N/A
isobutanol	0.006	N/A
2-nitropropane	----	52.5
cyclohexanone	0.004	N/A

Based on the RRF continuing calibration check data, the associated sample results would be qualified as estimated (J) if detected and rejected (R) if not detected. Only acrolein and 1,4-dioxane results were reported for associated samples. None of these compounds were reported above the reporting limit. Therefore, the acrolein and 1,4-dioxane results are validated as rejected (R).

Based on the %D continuing calibration data, the compounds listed above would be qualified as estimated if detected (J) and estimated if not detected (UJ) in the associated samples. However, only bromomethane, acrolein, iodomethane, and trichlorofluoro-methane results were reported. Acrolein results have already been validated as rejected (R). Bromomethane, iodomethane, and trichlorofluoromethane results are validated as estimated and not detected (UJ).

BLANKS

The results for one method blank (A6F130000-145) were provided with the samples. No VO Cs were detected in the method blank above reporting limits and no action is required. One trip blank was submitted with the samples. No VOCs were quantified in the trip blank.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Surrogate spike compound recoveries were within the prescribed control limits, ranging from 97 to 114 percent.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Results from a blank spike analysis and from matrix spike (MS) and matrix spike duplicate (MSD) analyses of MW12S were provided. All MS and MSD spike recoveries were within prescribed QC limits, ranging from 85 to 98 percent. Relative percent differences between the MS and MSD recoveries ranged from 0.22 to 3 percent and precision criteria are satisfied.

LABORATORY CONTROL SAMPLES

Results for a laboratory control sample spiked with MS/MSD compounds were provided. Recoveries were acceptable, ranging from 104 to 109 percent.

DUPLICATE SAMPLE ANALYSES

Duplicate samples were not submitted or analyzed with this sample delivery group. Precision is evaluated based on the relative percent difference between MS and MSD analyses.

INTERNAL STANDARDS

All three internal standard area counts and retention times met QC requirements for the groundwater samples and the trip blank.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

The quality of the VOC data presented in the Quanterra data package A6E310136 dated June 28, 1996 is acceptable, and data are determined to be quantitative, with the exceptions noted in the following table.

Sample Identification	Analyte(s) Qualified	Data Qualifier	Reason
FMGWMW12S FMGWMW15S	acrolein 1,4-dioxane	R	Initial Calibration RRF and/or continuing calibration was low. Neither acrolein nor 1,4-Dioxane was detected, so the qualification is R.
FMGWMW12S FMGWMW15S	bromomethane iodomethane trichlorofluoromethane	UJ	%RSD in the initial calibration was high and/or %D continuing calibration was high. None of the compounds were detected, so results are considered to estimated and not detected.

Prepared By:_____

Susan Gallagher
Project Scientist

7/30/96
Date

G:\APROJECT\FEDMETAL\DATA\310136.DOC

APPENDIX N

LOW FLOW GROUNDWATER LABORATORY ANALYTICAL RESULTS AND DATA VALIDATION SUMMARY REPORTS

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

Quanterra
Environmental Services

RECEIVED
JUL 1 1996
GERAGHTY & MILLER, INC.
INDIANAPOLIS, INDIANA

ANALYTICAL REPORT

PROJECT NO. IN0144.109

FEDERATED METALS
Lot#: A6E310136

Tim Northam

Geraghty & Miller

QUANTERRA INCORPORATED

Thomas M. Himes
Project Manager

June 28, 1996

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Inorganic Sample Data
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Inorganic Prep Logs

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Wet Chemistry Sample Data
Wet Chemistry Log Sheets

Organic Instrument Log Sheets

Internal Chain-of-Custody

Chain-of-Custody

CASE NARRATIVE

CASE NARRATIVE

The following report contains the analytical results for thirteen water samples and one quality control sample submitted to Quanterra-North Canton by Geraghty & Miller from the Federated Metals Site, project number IN0144.109. The samples were received May 31, 1996, according to documented sample acceptance procedures.

The Fluoride analyses presented in this report were performed at the Quanterra-Tampa facility

Quanterra utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated. Results were provided by facsimile transmission to Tim Northam on June 24, 1996.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with the exception of those items noted

The metals MS/MSD performed on sample "FMGWMW-11D" exhibited percent recoveries outside laboratory acceptance criteria for mercury. The laboratory performs MATRIX SPIKES (MS) and MATRIX SPIKE DUPLICATES (MSD) to indicate any matrix effects within a given sample. They also allow the laboratory to gather precision and bias data for a specific method and matrix. Since matrix effects may bias percent recovery, the laboratory performs corrective action if the precision (RPD) criteria of the MS/MSD is not met.

Due to insufficient sample volume, the requested fluoride matrix spike/matrix spike duplicate (MS/MSD) could not be performed on sample "FMGWMW-11D". The laboratory attempted to run a sample/sample duplicate on sample "FMGWMW-11D", however, there was insufficient sample volume to perform this analysis as well.

QA/QC PROGRAM ELEMENTS

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

Quanterra Incorporated conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. Quanterra requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable. Consultation with the client should take place.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). Failure of the RPDs to fall within the laboratory-generated acceptance windows requires the repreparation and reanalysis of all samples in the QC batch.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) except for the common laboratory contaminants indicated below.

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

* *for analyses run on TJA Trace ICP or GFAA only*

The listed volatile and semivolatile compounds may be present in concentrations up to 5 times the reporting limits. All other organic analyte concentrations must be below the reporting limits. The listed metals may be present in concentrations up to 2 times the reporting limit or must be twenty fold less than the results of the environmental samples. Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (cont.)

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When evaluating the MS/MSD data, special attention is given to the RPD values. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. Otherwise, the MS/MSD and the environmental sample used to prepare them are reprepared and reanalyzed.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

The Pesticide/PCB, PAH, TPH and Herbicide analytical methods require that one of two surrogate compounds meet acceptance criteria. All other organic analytical methods require every surrogate recovery to be within the established control limit. The acceptance criteria does not apply to samples that are diluted. If the dilution is more than 5X, the recoveries will be reported as diluted out. All other surrogate recoveries will be reported. If the LCS or the Method Blank surrogates fail to meet recovery criteria (except for dilutions), the entire batch of samples is reprepared and reanalyzed. If the surrogates in an environmental sample do not meet the recovery criteria, only the sample is reprepared and reanalyzed to confirm the matrix effect.

SAMPLE SUMMARY

SAMPLE SUMMARY

The analytical results of the samples listed below are presented on the following pages.

WO #	LABORATORY ID	SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	
C489W	A6E310136-001	FMGWMW-15S	5/29/96	10:00
C48A1	A6E310136-002	FMGWMW-16S	5/29/96	11:00
C48A2	A6E310136-003	FMGWMW-16D	5/29/96	12:00
C48A3	A6E310136-004	FMGWMW-Z	5/29/96	12:00
C48A4	A6E310136-005	FMGWMW-17S	5/29/96	12:30
C48A7	A6E310136-006	FMGWMW-17D	5/29/96	13:00
C48A8	A6E310136-007	FMGWMW-Y	5/29/96	13:30
C48A9	A6E310136-008	FMGWMW-12S	5/29/96	16:00
C48AD	A6E310136-009	FMGWMW-10S	5/30/96	9:30
C48AE	A6E310136-010	FMGWMW-10D	5/30/96	10:00
C48AF	A6E310136-011	FMGWMW-11S	5/30/96	11:00
C48AJ	A6E310136-012	FMGWMW-11D (MS/MSD)	5/30/96	11:30
C48AM	A6E310136-013	FMGWMW-15S	5/30/96	12:30
C48AN	A6E310136-014	TRIP BLANK	5/30/96	0:00

METHOD REFERENCE

ANALYTICAL METHODS SUMMARY
A6E310136

Parameters	Methods
Volatile Organics by GC/MS	SW846 8240B
Fluoride (Potentiometric, Ion Selective Electrode)	MCAWW 340.2
Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

GC/MS VOLATILE SAMPLE DATA

Geraghty & Miller

FMGWMW-12S

WO # : C48A910L
LAB # : A6E310136-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 5/29/96
TIME SAMPLED : 16:00
DATE RECEIVED: 5/31/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/11/96	6165145
Acetonitrile	ND	50	SW846 8240B	06/11/96	6165145
Acrolein	ND	100	SW846 8240B	06/11/96	6165145
Acrylonitrile	ND	50	SW846 8240B	06/11/96	6165145
Allyl chloride	ND	5.0	SW846 8240B	06/11/96	6165145
Benzene	ND	5.0	SW846 8240B	06/11/96	6165145
Bromodichloromethane	ND	5.0	SW846 8240B	06/11/96	6165145
Bromoform	ND	10	SW846 8240B	06/11/96	6165145
Bromomethane	ND	10	SW846 8240B	06/11/96	6165145
2-Butanone (MEK)	ND	50	SW846 8240B	06/11/96	6165145
Carbon disulfide	ND	5.0	SW846 8240B	06/11/96	6165145
Carbon tetrachloride	ND	10	SW846 8240B	06/11/96	6165145
Chlorobenzene	ND	5.0	SW846 8240B	06/11/96	6165145
Chloroethane	ND	10	SW846 8240B	06/11/96	6165145
Chloroform	ND	5.0	SW846 8240B	06/11/96	6165145
Chloromethane	ND	10	SW846 8240B	06/11/96	6165145
Chloroprene	ND	5.0	SW846 8240B	06/11/96	6165145
Dibromochloromethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/11/96	6165145
Dibromomethane	ND	5.0	SW846 8240B	06/11/96	6165145
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/11/96	6165145

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	97	(76 - 114)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	100	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-12S

WO # : C48A910L
LAB # : A6E310136-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 5/29/96
TIME SAMPLED : 16:00
DATE RECEIVED: 5/31/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/11/96	6165145
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dichloroethene (total)	**53**	**5.0**	**SW846 8240B**	**06/11/96**	**6165145**
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/11/96	6165145
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/11/96	6165145
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/11/96	6165145
1,4-Dioxane	ND	1,000	SW846 8240B	06/11/96	6165145
Ethylbenzene	ND	5.0	SW846 8240B	06/11/96	6165145
Ethyl methacrylate	ND	5.0	SW846 8240B	06/11/96	6165145
2-Hexanone	ND	50	SW846 8240B	06/11/96	6165145
Iodomethane	ND	5.0	SW846 8240B	06/11/96	6165145
Isobutyl alcohol	ND	500	SW846 8240B	06/11/96	6165145
Methacrylonitrile	ND	20	SW846 8240B	06/11/96	6165145
Methylene chloride	ND	5.0	SW846 8240B	06/11/96	6165145
Methyl methacrylate	ND	5.0	SW846 8240B	06/11/96	6165145
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/11/96	6165145
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/11/96	6165145
Propionitrile	ND	20	SW846 8240B	06/11/96	6165145
Styrene	ND	5.0	SW846 8240B	06/11/96	6165145

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	97	(76 - 114)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	100	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-12S

WO # : C48A910L
LAB # : A6E310136-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 5/29/96
TIME SAMPLED : 16:00
DATE RECEIVED: 5/31/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
Tetrachloroethene	ND	5.0	SW846 8240B	06/11/96	6165145
Toluene	ND	5.0	SW846 8240B	06/11/96	6165145
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
Trichloroethene	**4.5 J**	**5.0**	**SW846 8240B**	**06/11/96**	**6165145**
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/11/96	6165145
Vinyl acetate	ND	50	SW846 8240B	06/11/96	6165145
Vinyl chloride	ND	10	SW846 8240B	06/11/96	6165145
Xylenes (total)	ND	5.0	SW846 8240B	06/11/96	6165145

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	97	(76 - 114)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	100	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
J ESTIMATED VALUE. (DETECTED). BUT BELOW QUANTITATION LIMIT.

Geraghty & Miller

FMGWMW-12S

WO #: C48A910L
LAB #: A6E310136-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED: 5/29/96
DATE RECEIVED: 5/31/96
DATE EXTRACTED: 6/11/96
DATE ANALYZED: 6/11/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		ug/L	6165145

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		ug/L	6165145

Geraghty & Miller

FMGWMW-15S

WO # : C48AM101
LAB # : A6E310136-013
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 5/30/96
TIME SAMPLED : 12:30
DATE RECEIVED: 5/31/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	**60**	**50**	**SW846 8240B**	**06/11/96**	**6165145**
Acetonitrile	ND	50	SW846 8240B	06/11/96	6165145
Acrolein	ND	100	SW846 8240B	06/11/96	6165145
Acrylonitrile	ND	50	SW846 8240B	06/11/96	6165145
Allyl chloride	ND	5.0	SW846 8240B	06/11/96	6165145
Benzene	ND	5.0	SW846 8240B	06/11/96	6165145
Bromodichloromethane	ND	5.0	SW846 8240B	06/11/96	6165145
Bromoform	ND	10	SW846 8240B	06/11/96	6165145
Bromomethane	ND	10	SW846 8240B	06/11/96	6165145
2-Butanone (MEK)	ND	50	SW846 8240B	06/11/96	6165145
Carbon disulfide	ND	5.0	SW846 8240B	06/11/96	6165145
Carbon tetrachloride	ND	10	SW846 8240B	06/11/96	6165145
Chlorobenzene	ND	5.0	SW846 8240B	06/11/96	6165145
Chloroethane	ND	10	SW846 8240B	06/11/96	6165145
Chloroform	ND	5.0	SW846 8240B	06/11/96	6165145
Chloromethane	ND	10	SW846 8240B	06/11/96	6165145
Chloroprene	ND	5.0	SW846 8240B	06/11/96	6165145
Dibromochloromethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/11/96	6165145
Dibromomethane	ND	5.0	SW846 8240B	06/11/96	6165145
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/11/96	6165145

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	97	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	100	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-15S

WO # : C48AM101
LAB # : A6E310136-013
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 5/30/96
TIME SAMPLED : 12:30
DATE RECEIVED: 5/31/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/11/96	6165145
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/11/96	6165145
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/11/96	6165145
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/11/96	6165145
1,4-Dioxane	ND	1,000	SW846 8240B	06/11/96	6165145
Ethylbenzene	ND	5.0	SW846 8240B	06/11/96	6165145
Ethyl methacrylate	ND	5.0	SW846 8240B	06/11/96	6165145
2-Hexanone	ND	50	SW846 8240B	06/11/96	6165145
Iodomethane	ND	5.0	SW846 8240B	06/11/96	6165145
Isobutyl alcohol	ND	500	SW846 8240B	06/11/96	6165145
Methacrylonitrile	ND	20	SW846 8240B	06/11/96	6165145
Methylene chloride	ND	5.0	SW846 8240B	06/11/96	6165145
Methyl methacrylate	ND	5.0	SW846 8240B	06/11/96	6165145
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/11/96	6165145
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/11/96	6165145
Propionitrile	ND	20	SW846 8240B	06/11/96	6165145
Styrene	ND	5.0	SW846 8240B	06/11/96	6165145

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	97	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	100	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-15S

WO # : C48AM101
LAB # : A6E310136-013
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 5/30/96
TIME SAMPLED : 12:30
DATE RECEIVED: 5/31/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
Tetrachloroethene	ND	5.0	SW846 8240B	06/11/96	6165145
Toluene	ND	5.0	SW846 8240B	06/11/96	6165145
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
Trichloroethene	ND	5.0	SW846 8240B	06/11/96	6165145
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/11/96	6165145
Vinyl acetate	ND	50	SW846 8240B	06/11/96	6165145
Vinyl chloride	ND	10	SW846 8240B	06/11/96	6165145
Xylenes (total)	ND	5.0	SW846 8240B	06/11/96	6165145

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	97	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	100	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-15S

WO #: C48AM101
LAB #: A6E310136-013
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED: 5/30/96
DATE RECEIVED: 5/31/96
DATE EXTRACTED: 6/11/96
DATE ANALYZED: 6/11/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		ug/L	6165145

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		ug/L	6165145

Geraghty & Miller

TRIP BLANK

WO # : C48AN101
LAB # : A6E310136-014
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 5/30/96
TIME SAMPLED :
DATE RECEIVED: 5/31/96

GC/MS Volatiles

1 OF 3

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/11/96	6165145
Acetonitrile	ND	50	SW846 8240B	06/11/96	6165145
Acrolein	ND	100	SW846 8240B	06/11/96	6165145
Acrylonitrile	ND	50	SW846 8240B	06/11/96	6165145
Allyl chloride	ND	5.0	SW846 8240B	06/11/96	6165145
Benzene	ND	5.0	SW846 8240B	06/11/96	6165145
Bromodichloromethane	ND	5.0	SW846 8240B	06/11/96	6165145
Bromoform	ND	10	SW846 8240B	06/11/96	6165145
Bromomethane	ND	10	SW846 8240B	06/11/96	6165145
2-Butanone (MEK)	ND	50	SW846 8240B	06/11/96	6165145
Carbon disulfide	ND	5.0	SW846 8240B	06/11/96	6165145
Carbon tetrachloride	ND	10	SW846 8240B	06/11/96	6165145
Chlorobenzene	ND	5.0	SW846 8240B	06/11/96	6165145
Chloroethane	ND	10	SW846 8240B	06/11/96	6165145
Chloroform	ND	5.0	SW846 8240B	06/11/96	6165145
Chloromethane	ND	10	SW846 8240B	06/11/96	6165145
Chloroprene	ND	5.0	SW846 8240B	06/11/96	6165145
Dibromochloromethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/11/96	6165145
Dibromomethane	ND	5.0	SW846 8240B	06/11/96	6165145
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/11/96	6165145

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	99	(76 - 114)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	99	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO # : C48AN101
LAB # : A6E310136-014
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 5/30/96
TIME SAMPLED :
DATE RECEIVED: 5/31/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/11/96	6165145
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/11/96	6165145
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/11/96	6165145
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/11/96	6165145
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/11/96	6165145
1,4-Dioxane	ND	1,000	SW846 8240B	06/11/96	6165145
Ethylbenzene	ND	5.0	SW846 8240B	06/11/96	6165145
Ethyl methacrylate	ND	5.0	SW846 8240B	06/11/96	6165145
2-Hexanone	ND	50	SW846 8240B	06/11/96	6165145
Iodomethane	ND	5.0	SW846 8240B	06/11/96	6165145
Isobutyl alcohol	ND	500	SW846 8240B	06/11/96	6165145
Methacrylonitrile	ND	20	SW846 8240B	06/11/96	6165145
Methylene chloride	ND	5.0	SW846 8240B	06/11/96	6165145
Methyl methacrylate	ND	5.0	SW846 8240B	06/11/96	6165145
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/11/96	6165145
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/11/96	6165145
Propionitrile	ND	20	SW846 8240B	06/11/96	6165145
Styrene	ND	5.0	SW846 8240B	06/11/96	6165145

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	99	(76 - 114)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	99	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO # : C48AN101
LAB # : A6E310136-014
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 5/30/96
TIME SAMPLED :
DATE RECEIVED: 5/31/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
Tetrachloroethene	ND	5.0	SW846 8240B	06/11/96	6165145
Toluene	ND	5.0	SW846 8240B	06/11/96	6165145
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/11/96	6165145
Trichloroethene	ND	5.0	SW846 8240B	06/11/96	6165145
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/11/96	6165145
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/11/96	6165145
Vinyl acetate	ND	50	SW846 8240B	06/11/96	6165145
Vinyl chloride	ND	10	SW846 8240B	06/11/96	6165145
Xylenes (total)	ND	5.0	SW846 8240B	06/11/96	6165145

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	99	(76 - 114)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	99	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO #: C48AN101
LAB #: A6E310136-014
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED: 5/30/96
DATE RECEIVED: 5/31/96
DATE EXTRACTED: 6/11/96
DATE ANALYZED: 6/11/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		ug/L	6165145

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		ug/L	6165145

INORGANIC SAMPLE DATA

Geraghty & Miller

FMGWMW-15S

WO # : C489W
LAB # : A6E310136-001
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 10:00
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**9.5**	**5.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Lead	**4.1**	**3.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	**133**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Copper	**106**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	**587**	**50.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Mercury	ND	0.20	ug/L	SW846 7470	6/06/96	6157160

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-16S

WO # : C48A1
LAB # : A6E310136-002
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 11:00
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**9.1**	**5.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Lead	ND	3.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	**102**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Copper	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	**180**	**50.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Mercury	ND	0.20	ug/L	SW846 7470	6/06/96	6157160

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-16D

WO # : C48A2
LAB # : A6E310136-003
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 12:00
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**49.9**	**5.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Lead	ND	3.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	**56.0**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Copper	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	**580**	**50.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Mercury	**0.71**	**0.20**	**ug/L**	**SW846 7470**	**6/06/96**	**6157160**

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-Z

WO # : C48A3
LAB # : A6E310136-004
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 12:00
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**65.7**	**5.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Lead	ND	3.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	**64.9**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
opper	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	**333**	**50.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Mercury	**0.79**	**0.20**	**ug/L**	**SW846 7470**	**6/06/96**	**6157160**

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-17S

WO # : C48A4
LAB # : A6E310136-005
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 12:30
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**37.4**	**5.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Lead	ND	3.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	**63.9**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Copper	**21.7**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	**261**	**50.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Mercury	ND	0.20	ug/L	SW846 7470	6/06/96	6157160

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-17D

WO # : C48A7
LAB # : A6E310136-006
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 13:00
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**599**	**5.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Lead	ND	3.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	**124**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Copper	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Mercury	ND	0.20	ug/L	SW846 7470	6/06/96	6157160

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-4

WO # : C48A8
LAB # : A6E310136-007
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 13:30
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Lead	ND	3.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Copper	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	**191**	**50.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Mercury	ND	0.20	ug/L	SW846 7470	6/06/96	6157160

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-10S

WO # : C48AD
LAB # : A6E310136-009
MATRIX: WATER

DATE SAMPLED : 5/30/96
TIME SAMPLED : 9:30
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Lead	ND	3.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	**89.1**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Copper	**22.0**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	**324**	**50.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Mercury	ND	0.20	ug/L	SW846 7470	6/06/96	6157160

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-10D

WO # : C48AE
LAB # : A6E310136-010
MATRIX: WATER

DATE SAMPLED : 5/30/96
TIME SAMPLED : 10:00
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**56.5**	**5.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Lead	ND	3.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	**49.7**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Copper	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	**382**	**50.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Mercury	ND	0.20	ug/L	SW846 7470	6/06/96	6157160

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-11S

WO # : C48AF
LAB # : A6E310136-011
MATRIX: WATER

DATE SAMPLED : 5/30/96
TIME SAMPLED : 11:00
DATE RECEIVED: 5/31/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Lead	**68.5**	**3.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Selenium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Thallium	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Silver	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Barium	**53.2**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Cadmium	**464**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Cobalt	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Chromium	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Copper	**60.0**	**10.0**	**ug/L**	**SW846 6010A**	**6/06- 6/10/96**	**6157160**
Nickel	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Antimony	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Tin	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
Vanadium	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
Zinc	**14,800**	**50.0**	**ug/L**	**SW846 6010A**	**6/06- 6/14/96**	**6157160**
Mercury	ND	0.20	ug/L	SW846 7470	6/06/96	6157160

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-11D (MS/MSD)

: C48AJ
: A6E310136-012
X: WATER

DATE SAMPLED : 5/30/96
TIME SAMPLED : 11:30
DATE RECEIVED: 5/31/96

REQUESTED METALS

TER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
.c	938	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
	ND	3.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
um	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
um	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
	23.5	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
ium	ND	5.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
m	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
um	ND	20.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
	ND	10.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
	ND	40.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
ny	ND	300	ug/L	SW846 6010A	6/06- 6/10/96	6157160
	ND	1,000	ug/L	SW846 6010A	6/06- 6/14/96	6157160
um	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
	ND	50.0	ug/L	SW846 6010A	6/06- 6/10/96	6157160
	2.4	0.20	ug/L	SW846 7470	6/06/96	6157160

EIVED
OT DETECTED AT THE STATED REPORTING LIMIT

WET CHEMISTRY SAMPLE DATA

Geraghty & Miller

FMGWMW-15S

WO # : C489W
LAB # : A6E310136-001
MATRIX: WATER

DATE SAMPLED : 5/29 96
TIME SAMPLED : 10:00
DATE RECEIVED: 5/31 96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	1,400	1,200	ug/L	MCAWW 340.2	6/12/96	616419

NOTE: AS RECEIVED

Geraghty & Miller

FMGWMW-16S

WO # : C48A1
LAB # : A6E310136-002
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 11:00
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	5,200	1,200	ug/L	MCAWW 340.2	6/12/96	6164199

NOTE: AS RECEIVED

Geraghty & Miller

FMGWMW-16D

WO # : C48A2
LAB # : A6E310136-003
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 12:00
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	4,000	1,200	ug/L	MCAWW 340.2	6/12/96	616419

NOTE: AS RECEIVED

Geraghty & Miller

FMGWMW-Z

WO # : C48A3
LAB # : A6E310136-004
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 12:00
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	4,400	1,300	ug/L	MCAWW 340.2	6/12/96	6164199

NOTE: AS RECEIVED

Geraghty & Miller

FMGWMW-17S

WO # : C48A4
LAB # : A6E310136-005
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 12:30
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	2,000	1,200	ug/L	MCAWW 340.2	6/12/96	6164199

NOTE: AS RECEIVED

Geraghty & Miller

FMGWMW-17D

WO # : C48A7
LAB # : A6E310136-006
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 13:00
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	7,400	2,400	ug/L	MCAWW 340.2	6/12/96	6164199

NOTE: AS RECEIVED

Geraghty & Miller

FMGWMW-Y

WO # : C48A8
LAB # : A6E310136-007
MATRIX: WATER

DATE SAMPLED : 5/29/96
TIME SAMPLED : 13:30
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	ND	1,200	ug/L	MCAWW 340.2	6/12/96	6164199

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMGWMW-10S

WO # : C48AD
LAB # : A6E310136-009
MATRIX: WATER

DATE SAMPLED : 5/30/96
TIME SAMPLED : 9:30
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	3,800	1,200	ug/L	MCAWW 340.2	6/12/96	6164199

NOTE: AS RECEIVED

Geraghty & Miller

FMGWMW-10D

WO # : C48AE
LAB # : A6E310136-010
MATRIX: WATER

DATE SAMPLED : 5/30/96
TIME SAMPLED : 10:00
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	8,700	2,400	ug/L	MCAWW 340.2	6/12/96	616419

NOTE: AS RECEIVED

Geraghty & Miller

FMGWMW-11S

WO # : C48AF
LAB # : A6E310136-011
MATRIX: WATER

DATE SAMPLED : 5/30/96
TIME SAMPLED : 11:00
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	5,500	1,200	ug/L	MCAWW 340.2	6/12/96	6164199

NOTE: AS RECEIVED

Geraghty & Miller

FMGWMW-11D (MS/MSD)

WO # : C48AJ
LAB # : A6E310136-012
MATRIX: WATER

DATE SAMPLED : 5/30/96
TIME SAMPLED : 11:30
DATE RECEIVED: 5/31/96

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	6,100	1,200	ug/L	MCAWW 340.2	6/12/96	6164199

NOTE: AS RECEIVED

CHAIN-OF-CUSTODY

GERAGHTY & MILLER, INC.
Environmental Services
femij company

Laboratory Task Order No. _____

CHAIN-OF-CUSTODY RECORD

Page ___ of ___

Project Number IN0144.109

Project Location Federated Metals

Laboratory Quanterra

Sampler(s)/Affiliation Blake Fahl - G+M
Jamie Yater - G+M

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	* Total Metals 1L plas - HNO3	Fluoride 500ml plas (EPA 340.2)	VOCs (8240) 3 40 ml vials - HCl	MS/MSD						TOTAL
FMGWMW-15S		5.29.96 10A		1	1								2
FMGWMW-16S		5.29.96 11A		1	1								2
FMGWMW-16D		5.29.96 12P		1	1								2
FMGWMW-Z		5.29.96 12P		1	1								2
FMGWMW-17S		5.29.96 1230P		1	1								2
FMGWMW-17D		5.29.96 1P		1	1								2
FMGWMW-Y		5.29.96 130P		1	1								2
FMGWMW-12S		5.29.96 4P				3							3
FMGWMW-10S		5.30.96 930A		1	1								2
FMGWMW-10D		5.30.96 10A		1	1								2
FMGWMW-11S		5.30.96 11A		1	1								2
FMGWMW-11D		5.30.96 1130A		1	1		*						2
FMGWMW-15S		5.30.96 1230P				3							3
TRIP BLANK		5.30.96				1							1

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 29

Relinquished by: Jamie Yater	Organization: Geraghty & Miller	Date 5/30/96	Time 3P	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by: [illegible]	Organization: Quanterra	Date 5/31/96	Time 1205p	

Special Instructions/Remarks:
Prep SOP - Metals - LM-WALN-2520 > SW-846 3010A/6010A
Anal SOP - Metals - CORP-MT-0001

Tom -
Call Tim Northam to verify VOCs 8240? 8260?

Delivery Method: ☐ In Person ☒ Common Carrier Fed X ☐ Lab Courier ☐ Other

INORGANIC DATA SUMMARY

Validation of Total Metals and Fluoride Analytical Results
Federated Metals Facility Groundwater Sampling

Analyses Performed by Quanterra Environmental Services
Quanterra, Inc. Report # A6E310136 Dated June 28, 1996
Work Order # C48

SAMPLE DESCRIPTION

The following groundwater samples were collected at the Federated Metals Facility in Hammond, Indiana and submitted to Quanterra Environmental Services (Quanterra) in North Canton, Ohio for analysis of total metals and fluoride. The sample location or reference is also given below.

Sample	Sample Location or Reference
FMGWMW10S	MW-10S
FMGWMW10D	MW-10D
FMGWMW11S	MW-11S
FMGWMW11D	MW-11D (Matrix Spike /Matrix Spike Duplicate)
FMGWMW15S	MW-15S
FMGWMW16S	MW-16S
FMGWMW16D	MW-16D
FMGWMWZ	MW-16D (Blind Duplicate Sample)
FMGWMW17S	MW-17S
FMGWMW17D	MW-17D
FMGWMWY	Equipment Blank

The laboratory incorrectly transcribed sample FMGWMWY as "FMGWMW4". No action is taken on this transcription error.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The groundwater samples were submitted to Quanterra in North Canton, Ohio for total metals and fluoride analyses. The fluoride analyses were completed by Quanterra in Tampa, Florida. Total metals analyses were performed using U.S. Environmental Protection Agency (USEPA) Method 6010A. (Inductively Coupled Plasma ((ICP) metals include arsenic, lead, selenium, thallium, silver, barium, beryllium, cadmium, cobalt, chromium, copper, nickel, antimony, tin, vanadium, and zinc). USEPA Method 7470 (manual cold-vapor atomic absorption) was used to analyze for mercury. Wet chemistry analyses included analyzing for fluoride using USEPA Method 340.2.

HOLDING TIME COMPLIANCE

The samples were collected on May 29 and 30, 1996 and were received at the North Canton Quanterra laboratory May 31, 1996. Total metals samples were preserved with nitric acid at the time of collection.

Total metals analyses using ICP were prepared on June 6, 1996 and analyzed on June 10 and 14, 1996, within the required 180 day holding time. Total mercury analyses were performed on June 6, 1996, within the required 28 day holding time. Fluoride analyses were performed on June 12, 1996, within the required 28 day holding time.

SAMPLE BATCHING

Metals and wet chemistry analyses for the groundwater samples were performed within the following Quality Control (QC) batch(es):

For USEPA 6010A ICP metals and USEPA 7470 cold vapor mercury, all samples were analyzed in QC Batch 6157160 (Work order identification C49NN).

For fluoride, samples were analyzed in batch 6164199 (Work order identification C489W).

INITIAL CALIBRATION

ICP Metals. The analyses for this sample delivery group were performed under initial calibrations dated June 10, 1996 and June 14, 1996. Initial calibration blank and standard results were acceptable. Initial calibration verification (ICV) recoveries ranged from 98.5 to 108.7 percent and were within prescribed control limits.

Mercury. Mercury analyses using cold vapor atomic absorption were performed under six point (blank and five standards) initial calibration dated June 5, 1996. ICV recoveries were 91.6 and 99.2 percent, respectively, and were within prescribed control limits.

Wet Chemistry. Samples were analyzed for fluoride under four point initial calibration dated June 12, 1996. The ICV recovery for fluoride was 102 percent and was within acceptable limits.

CONTINUING CALIBRATION

ICP Metals. A continuing calibration verification (CCV) standard for ICP metals was analyzed at the required frequency of every tenth sample or every two hours. CCV recoveries ranged from 92.4 to 103 percent and were within prescribed control limits.

Mercury. CCV analyses for mercury were performed at the required frequency. CCV recoveries ranged from 94.4 to 98.8 percent and were within prescribed control limits.

Wet Chemistry. CCV standards for fluoride were analyzed with the groundwater samples at the required frequency. CCV recoveries ranged from 102 to 105 percent and were within prescribed control limits.

BLANKS

ICP Metals. Results for initial calibration blanks (ICB), continuing calibration blanks (CCB) analyzed before, during, and after groundwater samples, and one method blank were provided for total ICP metals. No target analytes were detected in the ICBs or method blank. Zinc, thallium, and tin were detected in the CCBs at concentrations less than the contract required detection limit (CRDL). As such, no action was taken. An equipment blank was prepared in the field (FMGWMWY) and analyzed for total metals. Zinc was reported in the equipment blank at a concentration of 191 micrograms per liter (µg/L). The positive zinc results that are below 1910 µg/L are validated as not detected at the concentration reported. The samples are validated as follows:

Location	Zinc Concentration (µg/L)	Validation Code
MW-10S	324	U
MW-10D	382	U
MW-11S	14,800	
MW-11D	<50.0	
MW-15S	587	U
MW-16S	180	U
MW-16D	580	U
MW-16D (Duplicate)	333	U
MW-17S	261	U
MW-17D	<50.0	

Mercury. Results for one ICB, CCBs, and one method blank associated with sample analyses were provided. An equipment blank was prepared in the field (FMGWMWY) and analyzed for mercury. Mercury was not quantified in any of the blanks.

Wet Chemistry. One ICB, CCBs, and one method blank were analyzed for fluoride. An equipment blank was prepared in the field (FMGWMWY) and analyzed for fluoride. Fluoride was not quantified in any of the blanks.

ICP INTERFERENCE CHECK SAMPLE

Interference check samples (ICS) were analyzed at the beginning and end of the sample QC batch ICP analyses. ICS recoveries ranged from 91.0 to 113.5 percent and were within prescribed control limits of ±20 percent of the true value.

LABORATORY CONTROL SAMPLE

ICP Metals. The results for one laboratory control sample (LCS) (laboratory nomenclature is "check sample") was analyzed for ICP metals in association with groundwater samples. LCS recoveries ranged from 98 to 113 percent and were within prescribed control limits.

Mercury. Results were provided for an LCS analysis for mercury. The check sample recovery for mercury was 89 percent, and was within prescribed control limits.

Wet Chemistry. LCS and LCS duplicate results were reported. The LCS recoveries ranged from 85 to 90 percent and were within prescribed control limits.

DUPLICATE SAMPLE ANALYSES

Sample FMGWMWZ was prepared as a blind duplicate of the groundwater sample from monitoring well MW-16D. The relative percent difference (RPD) comparisons of quantified compounds in the primary and primary and blind duplicate samples follows:

Location	Arsenic	Barium	Zinc	Mercury	Fluoride
		Concentrations are in µg/L			
MW-16D	49.9	56.0	580	0.71	4,000
MW-16D (Duplicate)	65.7	64.9	333	0.79	4,400
RPD (percent)	19	15	54	11	10

Sampling and analytical precision is acceptable, with the exception of zinc. All zinc results are qualified as estimated.

MATRIX SPIKE ANALYSES

ICP Metals. Matrix spike (MS) and matrix spike duplicate (MSD) analyses of total ICP metals were performed on sample MW11D. MS and MSD recoveries for total

metals ranged from 90 to 118 percent and were within the prescribed control limits. The RPDs between the MS and MSD results ranged from 0.49 to 4.9 percent and were within prescribed limits.

Mercury. MS and MSD analyses of total mercury were performed on sample MW11D. Matrix spike and spike duplicate recoveries for total mercury were 86 and 72 percent, respectively and were within the Quality Assurance Project Plan (QAPP) prescribed control limits. The MSD recovery was below laboratory and National Functional Guideline (NFG) prescribed limits (80 and 75 percent). No action is taken, as the QAPP criterion was met. The RPDs between the MS and MSD results was 4.3 percent and was within prescribed limits.

Wet Chemistry. The laboratory states in its narrative that there was insufficient sample to complete MS and MSD analyses on the MW11D sample. The laboratory provided LCS and LCS duplicate results instead. LCS recoveries and RPDs were acceptable and within prescribed limits.

ICP SERIAL DILUTION

An ICP serial dilution analysis was performed on sample MW-10S. The percent differences between the serial dilution results and the undiluted results for ICP metals detected in sample MW-10S or with concentrations at least five times the instrument detection limit were below the control limit of 10 percent.

OVERALL ASSESSMENT OF THE DATA

The quality of the total metals and fluoride data presented in the Quanterra data package A6E310136 dated June 28, 1996 is acceptable, and data are determined to be quantitative, with the exceptions noted in the following table.

Sample ID	Analyte Qualified	Data Qualifier	Reason
MW-10S MW-10D MW-15S MW-16S MW-16D MW-16D (Duplicate) MW-17S	total zinc	UJ	Concentrations in samples were similar to concentration reported in the equipment blank and poor precision between primary and blind duplicate results.
MW-11S MW-11D MW-17D	total zinc	J	Poor precision between primary and duplicate results.

Prepared By:_____
Susan Gallagher
Project Scientist

Date: 7/30/96

G:\APROJECT\FEDMETAL\DATA\M310136.DOC

APPENDIX O

OFF-SITE GROUNDWATER ANALYTICAL REPORTS

Microbac Laboratories, Inc.

SEAWAY INDUSTRIAL DIVISION
542-544 Conkey Street
Hammond, IN. 46324-1153
(219) 932-1770

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CERTIFICATE OF ANALYSIS

CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street,Suite 1010
Indianapolis, IN 46204

Date Reported: 9/12/96
Date Received: 9/6/96,18:00
Lab ID.: 20776
Page 1 of 2

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech.
PROJECT: IN0144.205; Federated Metals					
20776A: FMGWTSP-6S, 9/6/96 @ 10:55 by JY					
Fluoride	0.69	0.2	mg/l	340.2	9/12/96 CS
Arsenic	<0.005	0.005	mg/l	3113B	9/11/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/9/96 KR
20776B: FMGWTSP-6D, 9/6/96 @ 12:20 by JY					
Fluoride	0.30	0.2	mg/l	340.2	9/12/96 CS
Ar ic	0.0344	0.005	mg/l	3113B	9/11/96 KR
Zi.	<0.05	0.05	mg/l	3111B	9/9/96 KR
20776C: FMGWTSP-7S, 9/6/96 @ 14:50 by JY					
Fluoride	0.62	0.2	mg/l	340.2	9/12/96 CS
Arsenic	<0.005	0.005	mg/l	3113B	9/11/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/9/96 KR
20776D: FMGWTSP-7D, 9/6/96 @ 15:30 by JY					
Fluoride	0.24	0.2	mg/l	340.2	9/12/96 CS
Arsenic	0.0305	0.005	mg/l	3113B	9/11/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/9/96 KR
20776E: FMGWTSP-8S, 9/6/96 @ 14:33 by JY					
Fluoride	0.62	0.2	mg/l	340.2	9/12/96 CS
Arsenic	<0.005	0.005	mg/l	3113B	9/11/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/9/96 KR

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CERTIFICATE OF ANALYSIS

CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street,Suite 1010
Indianapolis, IN 46204

Date Reported: 9/12/96
Date Received: 9/6/96,18:00
Lab ID.: 20776
Page 2 of 2

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech
PROJECT: IN0144.205; Federated Metals					
20776F: FMGWTSP-8D, 9/4/96 @ 17:40 by JY					
Fluoride	0.34	0.2	mg/l	340.2	9/12/96 CS
Arsenic	0.0213	0.005	mg/l	3113B	9/11/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/9/96 KR

	% Spike Rec	% Std Rec	% Diff Dup Spike
Fluoride	90	101	6.7
Arsenic	91.5	111	6.2
Zinc	103	99	0.8

Respectfully Submitted,

Karen A. Ziolkowski
Laboratory Director

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Environmental Infrastructure
Heidemij company

Laboratory Task Order No._____

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number 1N0144.205

Project Location Federated Metals

Laboratory Microbac

Sampler(s)/Affiliation Jamie Yater - G+M

20776

SAMPLE BOTTLE / CONTAINER DESCRIPTION

	SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	Fluoride	Mcdonald Method 340.2	Arsenic, Zinc SW846 M 7060							TOTAL
A	FMGWTSP-6S		9.6.96 1055A		1	1								2
B	FMGWTSP-6D		9.6.96 1220P		1	1								2
C	FMGWTSP-7S		9.6.96 250P		1	1								2
D	FMGWTSP 7D		9.6.96 330P		1	1								2
E	FMGWTSP-8S		9.6.96 515P		1	1								2
F	FMGWTSP-8D		9.6.96 540P		1	1								2

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers

Relinquished by: Jamie Yater	Organization: Geraghty & Miller	Date 9/6/96	Time	Seal Intact? Yes No N/A
Received by: [signature]	Organization: Microbac Laboratories	Date 9/6/96	Time 18:00	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
* SAMPLE RESULTS BY WED. 9/11 @ 9AM * - Tim Northam - G+M

Delivery Method: ☒ In Person ☐ Common Carrier ☐ Lab Courier ☐ Other

Microbac Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street, Suite 1010
Indianapolis, IN 46204

Date Reported: 9/5/96
Date Received: 9/4/96, 15:55
Lab ID.: 20751

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech
PROJECT: IN0144.205; Federated Metals					
20751A: FMGWTSP-2S, 9/4/96 @ 09:30 by JY					
Fluoride	0.57	0.2	mg/l	340.2	9/5/96 CS
Arsenic	0.0369	0.005	mg/l	3113B	9/5/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/5/96 KR
20751B: FMGWTSP-2D, 9/4/96 @ 10:45 by JY					
Fl[illegible]ide	0.37	0.2	mg/l	340.2	9/5/96 CS
Ar[illegible]ic	0.0886	0.005	mg/l	3113B	9/5/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/5/96 KR
20751C: FMGWTSP-3S, 9/4/96 @ 12:20 by JY					
Fluoride	0.53	0.2	mg/l	340.2	9/5/96 CS
Arsenic	0.0282	0.005	mg/l	3113B	9/5/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/5/96 KR
20751D: FMGWTSP-99S, 9/4/96 @ 13:17 by JY					
Fluoride	0.62	0.2	mg/l	340.2	9/5/96 CS
Arsenic	0.0278	0.005	mg/l	3113B	9/5/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/5/96 KR
20751E: FMGWTSP-3D, 9/4/96 @ 14:33 by JY					
Fluoride	0.37	0.2	mg/l	340.2	9/5/96 CS
Arsenic	0.0303	0.005	mg/l	3113B	9/5/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/5/96 KR
20751F: FMGWTSP-4S, 9/4/96 @ 09:30 by JY					
Fluoride	0.53	0.2	mg/l	340.2	9/5/96 CS
Arsenic	0.0082	0.005	mg/l	3113B	9/5/96 KR
Zi[illegible]	<0.05	0.05	mg/l	3111B	9/5/96 KR

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Geraghty & Miller Inc.
251 East Ohio Street, Suite 1010
Indianapolis, IN 46204

Date Reported: 9/5/96
Date Received: 9/4/96, 15:55
Lab ID.: 20751
Page 2 of 2

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech.
PROJECT: IN0144.205; Federated Metals					
20751G: FMGWTSP-4D, 9/4/96 @ 15:30 by JY					
Fluoride	0.45	0.2	mg/l	340.2	9/5/96 CS
Arsenic	0.0309	0.005	mg/l	3113B	9/5/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/5/96 KR

	% Spike Rec	% Std Rec	% Diff Dup Spike
Fluoride	99	94	3.0
Arsenic	105.3	118.4	3.0
Zinc	101.2	100.2	0.5

Respectfully Submitted,

Karen A. Ziolkowski

Karen A. Ziolkowski
Laboratory Director

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Laboratory Task Order No. 20571 **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

Project Number IN0144 205

Project Location Federated Metals, Hammond

Laboratory Microbac

Sampler(s)/Affiliation Jamie Yater - G&M

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	DATE Code	Date/Time Sampled	Lab ID	Fluoride MCAWW Method 340.2	Arsenic, Zinc * SW-846 Method 7010								TOTAL
FMGWTSP-2S	9.4.96	930A		1	1								2
FMGWTSP 2D	9.4.96	1045A		1	1								2
FMGWTSP-3S	9.4.96	1220P		1	1								2
FMGWTSP-99S	9.4.96	1220P		1	1								2
FMGWTSP-3D	9.4.96	1:17P		1	1								2
FMGWTSP-4S	9.4.96	2:33P		1	1								2
FMGWTSP 4D	9.4.96	330P		1	1								

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers

Relinquished by: Jamie Yater	Organization: G&M	Date 9/4/96	Time	Seal Intact? Yes No N/A
Received by: [signature]	Organization: MICROBAC	Date 9/4/96	Time 1555	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:

* Metals samples filtered in the field w/ a 0.45 micron filter

Delivery Method: ☒ In Person ☐ Common Carrier ☐ Lab Courier ☐ Other

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CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street, Suite 1010
Indianapolis, IN 46204

Date Reported: 9/6/96
Date Received: 9/5/96, 14:25
Lab ID.: 20761
Page 1 of 1

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech.
PROJECT: IN0144.205; Federated Metals					
20761A: FMGWTSP-5S, 9/5/96 @ 09:15 by JY					
Fluoride	0.58	0.2	mg/l	340.2	9/6/96 CS
Arsenic	<0.005	0.005	mg/l	3113B	9/5/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/5/96 KR
20761B: FMGWTSP-5D, 9/5/96 @ 10:50 by JY					
Fluoride	0.34	0.2	mg/l	340.2	9/6/96 CS
Arsenic	0.0235	0.005	mg/l	3113B	9/5/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/5/96 KR

	% Spike Rec	% Std Rec	% Diff Dup Spike
Fluoride	86	103	5.8
Arsenic	113.4	97.9	0.4
Zinc	100.8	102.5	1.2

Respectfully Submitted,

Karen A. Ziolkowski

Karen A. Ziolkowski
Laboratory Director

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GERAGHTY & MILLER, INC.
Environmental Infrastructure
Heidemij company

Laboratory Task Order No. 20761

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number IN0144.205

Project Location Federated Metals, Hammond

Laboratory Microbac

Sampler(s)/Affiliation Jamie Yater G&M

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	Fluoride McAlloy Method 340.3	Arsenic, Zinc SW-846 M. 7060								TOTAL
FMGWTSP-5S		9-5-96/915A		1	1								2
FMGWTSP-5D		9-5-96/1050A		1	1								2

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers

Relinquished by: Jamie Yater	Organization: G&M	Date 9/5/96	Time	Seal Intact?
Received by: [signature]	Organization: MICROBAC	Date 9/5/96	Time 1425	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:

Delivery Method: ☒ In Person ☐ Common Carrier ☐ Lab Courier ☐ Other

Microbac Laboratories, Inc.

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CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street, Suite 1010
Indianapolis, IN 46204

Date Reported: 9/5/96
Date Received: 9/3/96, 14:25
Lab ID.: 20733(retest)
Page 1 of 1

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech.
PROJECT: IN0144.205; Federated Metals					
20733A: FMGWTSP-1S					
Arsenic	<0.005	0.005	mg/l	3113B	9/5/96 KR
20733B: FMGWTSP-1D					
Arsenic	0.0235	0.005	mg/l	3113B	9/5/96 KR

	% Spike Rec	% Std Rec	% Diff Dup Spike
Arsenic	105.3	118.4	3.0

Respectfully Submitted,

Karen A. Ziolkowski
Laboratory Director

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CERTIFICATE OF ANALYSIS

CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street, Suite 1010
Indianapolis, IN 46204

Date Reported: 9/4/96
Date Received: 9/3/96, 14:25
Lab ID.: 20733
Page 1 of 1

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech.
PROJECT: IN0144.205; Federated Metals					
20733A: FMGWTSP-1S					
Fluoride	0.36	0.2	mg/l	340.2	9/4/96 CS
Arsenic	<0.05	0.05	mg/l	3113B	9/3/96 KR
Zi	0.05	0.05	mg/l	3111B	9/4/96 KR
20733B: FMGWTSP-1D					
Fluoride	0.53	0.2	mg/l	340.2	9/4/96 CS
Arsenic	<0.05	0.05	mg/l	3113B	9/3/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/4/96 KR

	% Spike Rec	% Std Rec	% Diff Dup Spike
Fluoride	91	110	4.4
Arsenic	107.2	113,2	30%(Sample Dup Rec)
Zinc	99.0	103.2	1.6

Respectfully Submitted,

Karen A. Zielkowski
Laboratory Director

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MEMBER AOAC

GERAGHTY & MILLER, INC.
Environm[illegible] [illegible]d Infrastructure
[illegible]idemij company

Laboratory Task Order No._____

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number 1N0144.205

Project Location Federated Metals, Hammond

Laboratory Microbac

Sampler(s)/Affiliation Tim Northam
Jamie Yater

20733

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	Fluoride MCAWW Method 340.2	Arsenic, Zinc * SW-846 Method 7060								TOTAL
A FMGWTSP-1S		1220P		1	1								2
B FMGWTSP-1D		2P		1	1								2

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 4

Relinquished by: Jamie Yater	Organization: Geraghty & Miller, Inc.	Date 9/3/96	Time	Seal Intact? Yes No N/A
Received by: Kevin J. Riley	Organization: Microbac Laboratories	Date 9/3/96	Time 14:25	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
* Metals samples filtered in the field w/ a 0.45 micron filter
12hr Turn

Delivery Method: ☐ In Person ☐ Common Carrier ☐ Lab Courier ☐ Other

Microbac Laboratories, Inc.

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542-544 Conkey Street
Hammond, IN. 46324-1153
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CERTIFICATE OF ANALYSIS

CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street,Suite 1010
Indianapolis, IN 46204

Date Reported: 9/27/96
Date Received: 9/25/96,16:15
Lab ID.: 20950
Page 1 of 1

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech.
PROJECT: IN0144.205; Federated Metals					
20950A: FMGWTSP-11S, 9/24/96 @ 15:21 by TN					
Fluoride	0.84	0.2	mg/l	340.2	9/27/96 CS
Arsenic	<0.005	0.005	mg/l	3113B	9/27/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/27/96 EM
20950B: FMGWTSP-11D, 9/24/96 @ 14:02 by TN					
Fluoride	0.20	0.2	mg/l	340.2	9/27/96 CS
Arsenic	0.0141	0.005	mg/l	3113B	9/27/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/27/96 EM
20950C: FMGWTSP-12D, 9/24/96 @ 18:32 by TN					
Fluoride	<0.20	0.2	mg/l	340.2	9/27/96 CS
Arsenic	0.0204	0.005	mg/l	3113B	9/27/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/27/96 EM
20950D: FMGWTSP-13D, 9/25/96 @ 13:45 by TN					
Fluoride	0.27	0.2	mg/l	340.2	9/27/96 CS
Arsenic	0.0233	0.005	mg/l	3113B	9/27/96 KR
Zinc	<0.05	0.05	mg/l	3111B	9/27/96 EM

	% Spike Rec	% Std Rec	% Diff Dup Spike
Fluoride	112	110	2.7
Arsenic	90.8	103.1	5.1
Zinc	94.8	99.0	2.1

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INDIANAPOLIS INDIANA

Respectfully Submitted,

Karen A. Ziolkowski
Laboratory Director

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GERAGHTY & MILLER, INC.
Environmental Services
...mij company

Laboratory Task Order No._____

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number IN0144205 FEDERATED

Project Location HAMMOND, IN

Laboratory MICROBAC

Sampler(s)/Affiliation Tim Northam
Geraghty & Miller

.0950 9-25-96 18:15 L

SAMPLE BOTTLE / CONTAINER DESCRIPTION

	SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	FLUORIDE MCAWW method 340.2	Arsenic, Zinc SW-846 M. 7000								TOTAL
A	FMGWTSP-11S	L	9/24/96 3:21 PM		1	1								2
B	FMGWTSP-11D	L	9/24/96 2:02 PM		1	1								2
C	FMGWTSP-12D	L	9/24/96 6:32 PM		1	1								2
D	FMGWTSP-13D	L	9/25/96 1:45 PM		1	1								2

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 8

Relinquished by: TR Northam	Organization: G&M	Date 9/25/96	Time 3:50 PM	Seal Intact? Yes No N/A
Received by: [signature]	Organization: Microbac Labs Inc	Date 9/25/96	Time 15:50	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
Results by 9:00 AM - 9/27/96

Delivery Method: ☐ In Person ☐ Common Carrier ☒ Lab Courier ☐ Other

Microbac Laboratories, Inc.

SEAWAY INDUSTRIAL DIVISION
542-544 Conkey Street
Hammond, IN. 46324-1153
(219) 932-1770

AIR • FUEL • WATER • FOOD • WASTES

CERTIFICATE OF ANALYSIS

CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street,Suite 1010
Indianapolis, IN 46204

Date Reported: 10/1/96
Date Received: 9/27/96,08:00
Lab ID.: 20965
Page 1 of 2

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech
PROJECT: IN0144.205; Federated Metals					
20965A: FMGWTSP-14D, 9/25/96 @ 16:56 by TN					
Fluoride	0.35	0.2	mg/l	340.2	9/27/96 CS
Arsenic	0.0114	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM
20965B: FMGWTSP-15D, 9/25/96 @ 19:59 by TN					
Fluoride	0.20	0.2	mg/l	340.2	9/27/96 CS
Arsenic	0.0196	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM
20965C: FMGWTSP-17S, 9/26/96 @ 17:46 by TN					
Fluoride	0.84	0.2	mg/l	340.2	9/27/96 CS
Arsenic	<0.005	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM
20965D: FMGWTSP-17D, 9/26/96 @ 18:30 by TN					
Fluoride	0.44	0.2	mg/l	340.2	9/27/96 CS
Arsenic	0.0124	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM
20965E: FMGWTSP-19s, 9/26/96 @ 15:03 by TN					
Fluoride	0.31	0.2	mg/l	340.2	9/27/96 CS
Arsenic	<0.005	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM

CERTIFICATE CONTINUES ON PAGE -2-

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CERTIFICATE OF ANALYSIS

CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street,Suite 1010
Indianapolis, IN 46204

Date Reported: 10/1/96
Date Received: 9/27/96,08:00
Lab ID.: 20965
Page 2 of 2

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech.
PROJECT: IN0144.205; Federated Metals					
20965F: FMGWTSP-19D, 9/26/96 @ 16:39 by TN					
Fluoride	0.55	0.2	mg/l	340.2	9/27/96 CS
Arsenic	0.0078	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM
20965G: FMGWTSP-98D, 9/26/96 @ 18:30 by TN					
Fl ride	0.41	0.2	mg/l	340.2	9/27/96 CS
Ar ic	0.0124	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM

	% Spike Rec	% Std Rec	% Diff Dup Spike
Fluoride	113	110	0.0
Arsenic	95.4	86.6	3.0
Zinc	102.6	102	3.2

Respectfully Submitted,

Karen A. Ziolkowski

Karen A. Ziolkowski
Laboratory Director

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Environmental Services
mij company

Laboratory Task Order No. 20965

CHAIN-OF-CUSTODY RECORD

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Project Number IN0144.205 FEDERATED

Project Location HAMMOND, IN

Laboratory MICROBAC

Sampler(s)/Affiliation TIM NORTHAM
GERAGHTY & MILLER

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	FLUORIDE MCALLEN 340.2	DISSOLVED ARSENIC & ZINC SW-846 M. 7060								TOTAL
FMGWTSP-14D	L	9/25/96 4:56	A	1	1								2
FMGWTSP-15D	L	9/25/96 7:59 PM	B	1	1								2
FMGWTSP-17S	L	9/26/96 5:46 PM	C	1	1								2
FMGWTSP-17D	L	9/26/96 6:30 PM	D	1	1								2
FMGWTSP-19S	L	9/26/96 3:03 PM	E	1	1								2
FMGWTSP-19D	L	9/26/96 4:39 PM	F	1	1								2
FMGWTSP-98D	L	9/26/96 6:30 PM	G	1	1								2

Results by Tuesday AM 10/1/96

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 14

Relinquished by: TR Northam	Organization: Geraghty & Miller	Date 9/26/96	Time 0800	Seal Intact? Yes No N/A
Received by: [signature]	Organization: MICROBAC	Date 9/27/96	Time 0800	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
* Metals Field-Filtered w/ 0.45 micron Filter

Delivery Method: ☒ In Person ☐ Common Carrier ☐ Lab Courier ☐ Other

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CERTIFICATE OF ANALYSIS

CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street,Suite 1010
Indianapolis, IN 46204

Date Reported: 10/1/96
Date Received: 9/30/96,12:30
Lab ID.: 20982

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech.
PROJECT: IN0144.205; Federated Metals					
20982A: FMGWTSP-16S, 9/27/96 @ 09:09 by TN					
Fluoride	0.52	0.2	mg/l	340.2	10/1/96 CS
Arsenic	<0.005	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM
20982B: FMGWTSP-16D, 9/27/96 @ 10:049 by TN					
Fl ide	0.34	0.2	mg/l	340.2	10/1/96 CS
Ar ic	0.0355	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM
20982C: FMGWTSP-18S, 9/27/96 @ 11:17 by TN					
Fluoride	0.54	0.2	mg/l	340.2	10/1/96 CS
Arsenic	0.054	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM
20982D: FMGWTSP-18D, 9/27/96 @ 12:02 by TN					
Fluoride	0.27	0.2	mg/l	340.2	10/1/96 CS
Arsenic	0.0357	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM
20982E: FMGWTSP-20s, 9/27/96 @ 14:44 by TN					
Fluoride	0.54	0.2	mg/l	340.2	10/1/96 CS
Arsenic	<0.005	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	10/1/96 EM

CERTIFICATE CONTINUES ON PAGE -2-

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CERTIFICATE OF ANALYSIS

CLIENT: Tim Northham
Geraghty & Miller Inc.
251 East Ohio Street,Suite 1010
Indianapolis, IN 46204

Date Reported: 10/1/96
Date Received: 9/30/96,12:30
Lab ID.: 20982

Sample I.D.

Parameters	Result	MDL	Units	EPA Method	Test Date/Tech.
PROJECT: IN0144.205; Federated Metals					
20982F: FMGWTSP-20D, 9/27/96 @ 15:32 by TN					
Fluoride	0.20	0.2	mg/l	340.2	10/1/96 CS
Arsenic	0.0415	0.005	mg/l	3113B	9/30/96 KR
Zinc	<0.05	0.05	mg/l	3111B	

	% Spike Rec	% Std Rec	% Diff Dup Spike
Fluoride	97	105	4.0
Arsenic	95.4	86.6	3.0
Zinc	102.6	102	3.2

Respectfully Submitted,

Karen A. Ziolkowski

Karen A. Ziolkowski
Laboratory Director

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MEMBER ACIL

GERAGHTY & MILLER, INC.
Environmental Services
a company

Laboratory Task Order No. 20982

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number IN0144205 Federated

Project Location Hammond IN

Laboratory Microbac

Sampler(s)/Affiliation Tim Northam
Geraghty & Miller

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	Fluoride	MCAWW 340.2 Arsenic, Zinc (Dissolved)* SW-846 M. 7060								TOTAL
FMGWTSP-16S	L	9-27-96 9:09 AM	A	1	1								2
FMGWTSP-16D	L	9-27-96 10:04 AM	B	1	1								2
FMGWTSP-18S	L	9-27-96 11:12 AM	C	1	1								2
FMGWTSP-18D	L	9-27-96 12:02 PM	D	1	1								2
FMGWTSP-20S	L	9-27-96 2:44 PM	E	1	1								2
FMGWTSP-20D	L	9-27-96 3:32 PM	F	1	1								2

Results by 10/1/96 AM

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 12

Relinquished by: TR Northam	Organization: G&M	Date 9/27/96	Time 6:20 PM	Seal Intact?
Received by: [signature]	Organization: MICROBAC	Date 9/30/96	Time 1230	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:
* Metals field filtered w/ 0.45 micron filter

Delivery Method: ☐ In Person ☐ Common Carrier ☒ Lab Courier ☐ Other

- FINAL -
RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT FEDERATED METALS CORPORATION HAMMOND, INDIANA

VOLUME IV
APPENDICES P - S

July 3, 1997

Prepared for

Bridgeview Management Company
1160 State Street
Perth Amboy, New Jersey 08861

Prepared by

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251 East Ohio St., Suite 800
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GERAGHTY & MILLER, INC.
Environmental Services
a heidemij company

-FINAL -
RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT FEDERATED METALS CORPORATION HAMMOND, INDIANA

VOLUME IV
APPENDICES P - S

July 3, 1997

GERAGHTY & MILLER, INC.

APPENDIX P

SURFACE WATER LABORATORY ANALYTICAL RESULTS AND DATA VALIDATION SUMMARY REPORTS

RECEIVED
DEC 24 1996
Enforcement & Compliance Assurance Branch
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

Quanterra
Environmental Services

RECEIVED
JUL 23 1996
GERAGHTY & MILLER, INC.
INDIANAPOLIS, INDIANA

ANALYTICAL REPORT

PROJECT NO. IN0144.107

FEDERATED METALS, HAMMOND
Lot#: A6F070137

Tim Northam

Geraghty & Miller

QUANTERRA INCORPORATED

Thomas M. Himes
Project Manager

July 22, 1996

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GC/MS Semivolatile Sample Data
GC/MS Semivolatile Standard Data
GC/MS Semivolatile Raw QC Data

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Inorganic Calibration Data
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Wet Chemistry QC Summary Data
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Wet Chemistry Calibration Data
Wet Chemistry Log Sheets

Organic Instrument Log Sheets

Organic Extraction Log Sheets

Internal Chain-of-Custody

Chain-of-Custody

CASE NARRATIVE

CASE NARRATIVE

The following report contains the analytical results for nine water samples and one quality control sample submitted to Quanterra-North Canton by Geraghty & Miller from the Federated Metals Site, project number IN0144.107. The samples were received June 7, 1996, according to documented sample acceptance procedures.

The Fluoride analyses presented in this report were performed at the Quanterra-Tampa facility.

As requested by Tim Northam of Geraghty & Miller on June 11, 1996, sample specific MS/MSDs were performed on sample "FMSWNS45+80".

Quanterra utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with the exception of those items noted.

<u>GC/MS Semi-Volatile Organics, SW846 8270</u>

Sample "FMSWNS44+40 exhibited surrogate recoveries outside laboratory acceptance criteria. Upon re-extraction and reanalysis, surrogate recoveries were within acceptance criteria; however, sample holding times had been exceeded. Both the original and reanalysis data have been provided.

Bis(2-Ethylhexyl) phthalate, a common laboratory contaminant, is present in the GC/MS Semi-Volatiles Method Blank associated with QC batch 6163102. This commonly detected laboratory contaminant may be present if the concentration of the analyte is less than five times the reporting limit.

The GC/MS Semi-Volatiles MS/MSD associated with QC batch 6162104 failed to meet acceptable RPD criteria for pentachlorophenol, phenol, 2-Chlorophenol, and 4-Nitrophenol. In addition, the GC/MS Semi-Volatiles MS/MSD associated with QC batch 6163102 failed to meet acceptable RPD criteria for 4-Nitrophenol. Since the associated check samples met acceptance criteria, the batches were determined to be in control and corrective action was not necessary.

The client requested GC/MS Semi-Volatiles MS/MSD for sample "FMSWNS45+80" was not performed. The sample extraction procedure had been initiated prior to notification of MS/MSD requirement.

CASE NARRATIVE (cont.)

Wet Chemistry

The cyanide MS/MSD performed on sample "FMSWNS45+80" failed to meet acceptable RPD criteria. Upon reprep and reanalysis, the RPD was within acceptance criteria.

The cyanide MS/MSD performed on sample "FMSWNS45+80" exhibited percent recoveries outside laboratory acceptance criteria. The laboratory performs MATRIX SPIKES (MS) and MATRIX SPIKE DUPLICATES (MSD) to indicate any matrix effects within a given sample. They also allow the laboratory to gather precision and bias data for a specific method and matrix. Since matrix effects may bias percent recovery, the laboratory performs corrective action if the precision (RPD) criteria of the MS/MSD is not met.

QA/QC PROGRAM ELEMENTS

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

Quanterra Incorporated conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. Quanterra requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable. Consultation with the client should take place.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). Failure of the RPDs to fall within the laboratory-generated acceptance windows requires the repreparation and reanalysis of all samples in the QC batch.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) except for the common laboratory contaminants indicated below.

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

** for analyses run on TJA Trace ICP or GFAA only*

The listed volatile and semivolatile compounds may be present in concentrations up to 5 times the reporting limits. All other organic analyte concentrations must be below the reporting limits. The listed metals may be present in concentrations up to 2 times the reporting limit or must be twenty fold less than the results of the environmental samples. Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (cont.)

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When evaluating the MS/MSD data, special attention is given to the RPD values. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. Otherwise, the MS/MSD and the environmental sample used to prepare them are reprepared and reanalyzed.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

The Pesticide/PCB, PAH, TPH and Herbicide analytical methods require that one of two surrogate compounds meet acceptance criteria. All other organic analytical methods require every surrogate recovery to be within the established control limit. The acceptance criteria does not apply to samples that are diluted. If the dilution is more than 5X, the recoveries will be reported as diluted out. All other surrogate recoveries will be reported. If the LCS or the Method Blank surrogates fail to meet recovery criteria (except for dilutions), the entire batch of samples is reprepared and reanalyzed. If the surrogates in an environmental sample do not meet the recovery criteria, only the sample is reprepared and reanalyzed to confirm the matrix effect.

SAMPLE SUMMARY

SAMPLE SUMMARY

The analytical results of the samples listed below are presented on the following pages.

WO #	LABORATORY ID	SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	
C4AN8	A6F070137-001	FMSWNS44+5	6/05/96	14:15
C4ANC	A6F070137-002	FMSWNS44+40	6/05/96	15:00
C4ANE	A6F070137-003	FMSWNS44+80	6/05/96	15:30
C4ANG	A6F070137-004	FMSWNS46+5	6/05/96	16:20
C4ANK	A6F070137-005	FMSWNS46+40	6/05/96	16:45
C4ANN	A6F070137-006	FMSWNS100+5	6/05/96	16:20
C4ANQ	A6F070137-007	FMSWNS45+80	6/05/96	17:20
C4ANT	A6F070137-008	FMSWNS45+40	6/05/96	17:45
C4ANW	A6F070137-009	FMSWNS45+5	6/05/96	18:15
C4AP0	A6F070137-010	TRIP BLANK	6/05/96	0:00

METHOD REFERENCE

ANALYTICAL METHODS SUMMARY

A6F070137

Parameters	Methods
Semivolatile Organic Compounds by GC/MS	SW846 8270B
Volatile Organics by GC/MS	SW846 8240B
Fluoride (Potentiometric, Ion Selective Electrode)	MCAWW 340.2
Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Total Cyanide	SW846 9012

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

GC/MS VOLATILE SAMPLE DATA

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8101
LAB # : A6F070137-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6170122
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	91	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	95	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8101
LAB # : A6F070137-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	91	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	95	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8101
LAB # : A6F070137-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	91	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	95	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+5

WO #: C4AN8101		**DATE SAMPLED:**	6/05/96
LAB #: A6F070137-001		**DATE RECEIVED:**	6/07/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC101
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6170122
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC101
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC101
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO #: C4ANC101
LAB #: A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED: 6/05/96
DATE RECEIVED: 6/07/96
DATE EXTRACTED: 6/18/96
DATE ANALYZED: 6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE101
LAB # : A6F070137-003
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6170122
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	91	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	95	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE101
LAB # : A6F070137-003
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	91	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	95	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE101
LAB # : A6F070137-003
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

GC/MS Volatiles

3 OF 3

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	91	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	95	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO #: C4ANE101		**DATE SAMPLED:**	6/05/96
LAB #: A6F070137-003		**DATE RECEIVED:**	6/07/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG101
LAB # : A6F070137-004
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- **GC/MS Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	**40 J**	**50**	**SW846 8240B**	**06/18/96**	**6170122**
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
J ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG101
LAB # : A6F070137-004
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG101
LAB # : A6F070137-004
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO #: C4ANG101		**DATE SAMPLED:**	6/05/96
LAB #: A6F070137-004		**DATE RECEIVED:**	6/07/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK101
LAB # : A6F070137-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6170122
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	92	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	94	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK101
LAB # : A6F070137-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	92	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	94	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK101
LAB # : A6F070137-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	92	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	94	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+40

WO #: C4ANK101		**DATE SAMPLED:**	6/05/96
LAB #: A6F070137-005		**DATE RECEIVED:**	6/07/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN101
LAB # : A6F070137-006
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6170122
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN101
LAB # : A6F070137-006
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN101
LAB # : A6F070137-006
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS100+5

WO #: C4ANN101		**DATE SAMPLED:**	6/05/96
LAB #: A6F070137-006		**DATE RECEIVED:**	6/07/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ101
LAB # : A6F070137-007
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:20
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6170122
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	92	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ101
LAB # : A6F070137-007
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:20
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	92	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ101
LAB # : A6F070137-007
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:20
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	92	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO #: C4ANQ101		**DATE SAMPLED:**	6/05/96
LAB #: A6F070137-007		**DATE RECEIVED:**	6/07/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT101
LAB # : A6F070137-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:45
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6170122
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT101
LAB # : A6F070137-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:45
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT101
LAB # : A6F070137-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:45
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO #: C4ANT101		**DATE SAMPLED:**	6/05/96
LAB #: A6F070137-008		**DATE RECEIVED:**	6/07/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW101
LAB # : A6F070137-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6170122
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW101
LAB # : A6F070137-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW101
LAB # : A6F070137-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO #: C4ANW101		**DATE SAMPLED:**	6/05/96
LAB #: A6F070137-009		**DATE RECEIVED:**	6/07/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

Geraghty & Miller

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WO # : C4AP0101
LAB # : A6F070137-010
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED :
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6170122
Acetonitrile	ND	50	SW846 8240B	06/18/96	6170122
Acrolein	ND	100	SW846 8240B	06/18/96	6170122
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6170122
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Benzene	ND	5.0	SW846 8240B	06/18/96	6170122
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
Bromoform	ND	10	SW846 8240B	06/18/96	6170122
Bromomethane	ND	10	SW846 8240B	06/18/96	6170122
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6170122
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6170122
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6170122
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Chloroethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroform	ND	5.0	SW846 8240B	06/18/96	6170122
Chloromethane	ND	10	SW846 8240B	06/18/96	6170122
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6170122
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO # : C4AP0101
LAB # : A6F070137-010
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED :
DATE RECEIVED: 6/07/96

- **GC/MS Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6170122
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6170122
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6170122
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6170122
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6170122
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
2-Hexanone	ND	50	SW846 8240B	06/18/96	6170122
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6170122
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6170122
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6170122
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6170122
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6170122
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6170122
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6170122
Propionitrile	ND	20	SW846 8240B	06/18/96	6170122
Styrene	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO # : C4AP0101
LAB # : A6F070137-010
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED :
DATE RECEIVED: 6/07/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Toluene	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6170122
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6170122
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6170122
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6170122
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6170122
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6170122
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6170122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO #: C4AP0101		**DATE SAMPLED:**	6/05/96
LAB #: A6F070137-010		**DATE RECEIVED:**	6/07/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6170122**

NOTE:
ND (NONE DETECTED)

GC/MS SEMIVOLATILE SAMPLE DATA

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8102
LAB # : A6F070137-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/10-06/13/96	6162104
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/10-06/13/96	6162104
Hexachloropropene	ND	100	SW846 8270B	06/10-06/13/96	6162104
Phenacetin	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pronamide	ND	20	SW846 8270B	06/10-06/13/96	6162104
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/10-06/13/96	6162104
Diallate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Chlorobenzilate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acenaphthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acenaphthylene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acetophenone	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Acetylaminofluorene	ND	20	SW846 8270B	06/10-06/13/96	6162104
Aniline	ND	10	SW846 8270B	06/10-06/13/96	6162104
Anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(a)anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(ghi)perylene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(a)pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzyl alcohol	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	63	(53 - 135)
Phenol-d5	74	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	85	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8102
LAB # : A6F070137-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Ethylhexyl) phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
Butyl benzyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chloroaniline	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Chloronaphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Chlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
Chrysene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dibenzofuran	ND	10	SW846 8270B	06/10-06/13/96	6162104
Di-n-butyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4-Dichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,6-Dichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	63	(53 - 135)
Phenol-d5	74	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	85	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8102
LAB # : A6F070137-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
2,4-Dimethylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dimethyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Di-n-octyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
2,4-Dinitrophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/10-06/13/96	6162104
Diphenylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
Ethyl methanesulfonate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Fluorene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorobutadiene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachloroethane	ND	10	SW846 8270B	06/10-06/13/96	6162104
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Isophorone	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	63	(53 - 135)
Phenol-d5	74	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	85	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8102
LAB # : A6F070137-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/10-06/13/96	6162104
Methapyrilene	ND	100	SW846 8270B	06/10-06/13/96	6162104
o-Toluidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
3-Methylcholanthrene	ND	100	SW846 8270B	06/10-06/13/96	6162104
Methyl methanesulfonate	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Methylnaphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
3-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
Naphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,4-Naphthoquinone	ND	200	SW846 8270B	06/10-06/13/96	6162104
1-Naphthylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Naphthylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
3-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
4-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
Nitrobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Nitrophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Nitrophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	63	(53 - 135)
Phenol-d5	74	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	85	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8102
LAB # : A6F070137-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosomorpholine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosopiperidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
Pentachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Pentachloroethane	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pentachloronitrobenzene	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pentachlorophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
Phenanthrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Phenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
p-Phenylene diamine	ND	50	SW846 8270B	06/10-06/13/96	6162104
2-Picoline	ND	20	SW846 8270B	06/10-06/13/96	6162104
Pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Pyridine	ND	10	SW846 8270B	06/10-06/13/96	6162104
Safrole	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	63	(53 - 135)
Phenol-d5	74	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	85	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8102
LAB # : A6F070137-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

6 OF 6

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/10-06/13/96	6162104
Aramite	ND	50	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	63	(53 - 135)
Phenol-d5	74	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	85	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC104
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/10-06/13/96	6162104
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/10-06/13/96	6162104
Hexachloropropene	ND	100	SW846 8270B	06/10-06/13/96	6162104
Phenacetin	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pronamide	ND	20	SW846 8270B	06/10-06/13/96	6162104
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/10-06/13/96	6162104
Diallate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Chlorobenzilate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acenaphthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acenaphthylene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acetophenone	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Acetylaminofluorene	ND	20	SW846 8270B	06/10-06/13/96	6162104
Aniline	ND	10	SW846 8270B	06/10-06/13/96	6162104
Anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(a)anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(ghi)perylene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(a)pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzyl alcohol	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	39	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	69	(53 - 135)
Phenol-d5	22	(10 - 149)
2-Fluorophenol	3.0 *	(10 - 104)
2,4,6-Tribromophenol	7.0 *	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC104
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Ethylhexyl) phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
Butyl benzyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chloroaniline	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Chloronaphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Chlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
Chrysene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dibenzofuran	ND	10	SW846 8270B	06/10-06/13/96	6162104
Di-n-butyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4-Dichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,6-Dichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	39	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	69	(53 - 135)
Phenol-d5	22	(10 - 149)
2-Fluorophenol	3.0 *	(10 - 104)
2,4,6-Tribromophenol	7.0 *	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC104
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
2,4-Dimethylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dimethyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Di-n-octyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
2,4-Dinitrophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/10-06/13/96	6162104
Diphenylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
Ethyl methanesulfonate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Fluorene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorobutadiene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachloroethane	ND	10	SW846 8270B	06/10-06/13/96	6162104
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Isophorone	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	39	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	69	(53 - 135)
Phenol-d5	22	(10 - 149)
2-Fluorophenol	3.0 *	(10 - 104)
2,4,6-Tribromophenol	7.0 *	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC104
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/10-06/13/96	6162104
Methapyrilene	ND	100	SW846 8270B	06/10-06/13/96	6162104
o-Toluidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
3-Methylcholanthrene	ND	100	SW846 8270B	06/10-06/13/96	6162104
Methyl methanesulfonate	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Methylnaphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
3-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
Naphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,4-Naphthoquinone	ND	200	SW846 8270B	06/10-06/13/96	6162104
1-Naphthylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Naphthylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
3-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
4-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
Nitrobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Nitrophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Nitrophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	39	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	69	(53 - 135)
Phenol-d5	22	(10 - 149)
2-Fluorophenol	3.0 *	(10 - 104)
2,4,6-Tribromophenol	7.0 *	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC104
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosomorpholine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosopiperidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
Pentachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Pentachloroethane	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pentachloronitrobenzene	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pentachlorophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
Phenanthrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Phenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
p-Phenylene diamine	ND	50	SW846 8270B	06/10-06/13/96	6162104
2-Picoline	ND	20	SW846 8270B	06/10-06/13/96	6162104
Pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Pyridine	ND	10	SW846 8270B	06/10-06/13/96	6162104
Safrole	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	39	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	69	(53 - 135)
Phenol-d5	22	(10 - 149)
2-Fluorophenol	3.0 *	(10 - 104)
2,4,6-Tribromophenol	7.0 *	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC104
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/10-06/13/96	6162104
Aramite	ND	50	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	39	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	69	(53 - 135)
Phenol-d5	22	(10 - 149)
2-Fluorophenol	3.0 *	(10 - 104)
2,4,6-Tribromophenol	7.0 *	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC204
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/15-06/21/96	6167104
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/15-06/21/96	6167104
Hexachloropropene	ND	100	SW846 8270B	06/15-06/21/96	6167104
Phenacetin	ND	50	SW846 8270B	06/15-06/21/96	6167104
Pronamide	ND	20	SW846 8270B	06/15-06/21/96	6167104
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/15-06/21/96	6167104
Diallate	ND	10	SW846 8270B	06/15-06/21/96	6167104
Chlorobenzilate	ND	10	SW846 8270B	06/15-06/21/96	6167104
Acenaphthene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Acenaphthylene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Acetophenone	ND	10	SW846 8270B	06/15-06/21/96	6167104
2-Acetylaminofluorene	ND	20	SW846 8270B	06/15-06/21/96	6167104
Aniline	ND	10	SW846 8270B	06/15-06/21/96	6167104
Anthracene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Benzo(a)anthracene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Benzo(ghi)perylene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Benzo(a)pyrene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Benzyl alcohol	ND	10	SW846 8270B	06/15-06/21/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	73	(53 - 135)
Phenol-d5	63	(10 - 149)
2-Fluorophenol	35	(10 - 104)
2,4,6-Tribromophenol	81	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC204
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/15-06/21/96	6167104
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/15-06/21/96	6167104
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/15-06/21/96	6167104
bis(2-Ethylhexyl) phthalate	ND	10	SW846 8270B	06/15-06/21/96	6167104
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/15-06/21/96	6167104
Butyl benzyl phthalate	ND	10	SW846 8270B	06/15-06/21/96	6167104
4-Chloroaniline	ND	10	SW846 8270B	06/15-06/21/96	6167104
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
2-Chloronaphthalene	ND	10	SW846 8270B	06/15-06/21/96	6167104
2-Chlorophenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/15-06/21/96	6167104
Chrysene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Dibenzofuran	ND	10	SW846 8270B	06/15-06/21/96	6167104
Di-n-butyl phthalate	ND	10	SW846 8270B	06/15-06/21/96	6167104
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/15-06/21/96	6167104
2,4-Dichlorophenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
2,6-Dichlorophenol	ND	10	SW846 8270B	06/15-06/21/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	73	(53 - 135)
Phenol-d5	63	(10 - 149)
2-Fluorophenol	35	(10 - 104)
2,4,6-Tribromophenol	81	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC204 | **DATE SAMPLED** : 6/05/96
LAB # : A6F070137-002 | **TIME SAMPLED** : 15:00
MATRIX: WATER | **DATE RECEIVED:** 6/07/96
DILUTION FACTOR: 1.00

- - - - - - - - - - - - - - - - - - **GC/MS Semi-Volatiles** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/15-06/21/96	6167104
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/15-06/21/96	6167104
2,4-Dimethylphenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
Dimethyl phthalate	ND	10	SW846 8270B	06/15-06/21/96	6167104
Di-n-octyl phthalate	ND	10	SW846 8270B	06/15-06/21/96	6167104
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/15-06/21/96	6167104
2,4-Dinitrophenol	ND	50	SW846 8270B	06/15-06/21/96	6167104
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/15-06/21/96	6167104
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/15-06/21/96	6167104
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/15-06/21/96	6167104
Diphenylamine	ND	10	SW846 8270B	06/15-06/21/96	6167104
Ethyl methanesulfonate	ND	10	SW846 8270B	06/15-06/21/96	6167104
Fluoranthene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Fluorene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Hexachlorobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Hexachlorobutadiene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Hexachloroethane	ND	10	SW846 8270B	06/15-06/21/96	6167104
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Isophorone	ND	10	SW846 8270B	06/15-06/21/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	73	(53 - 135)
Phenol-d5	63	(10 - 149)
2-Fluorophenol	35	(10 - 104)
2,4,6-Tribromophenol	81	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC204
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/15-06/21/96	6167104
Methapyrilene	ND	100	SW846 8270B	06/15-06/21/96	6167104
o-Toluidine	ND	20	SW846 8270B	06/15-06/21/96	6167104
3-Methylcholanthrene	ND	100	SW846 8270B	06/15-06/21/96	6167104
Methyl methanesulfonate	ND	10	SW846 8270B	06/15-06/21/96	6167104
2-Methylnaphthalene	ND	10	SW846 8270B	06/15-06/21/96	6167104
2-Methylphenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
3-Methylphenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
4-Methylphenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
Naphthalene	ND	10	SW846 8270B	06/15-06/21/96	6167104
1,4-Naphthoquinone	ND	200	SW846 8270B	06/15-06/21/96	6167104
1-Naphthylamine	ND	10	SW846 8270B	06/15-06/21/96	6167104
2-Naphthylamine	ND	10	SW846 8270B	06/15-06/21/96	6167104
2-Nitroaniline	ND	50	SW846 8270B	06/15-06/21/96	6167104
3-Nitroaniline	ND	50	SW846 8270B	06/15-06/21/96	6167104
4-Nitroaniline	ND	50	SW846 8270B	06/15-06/21/96	6167104
Nitrobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104
2-Nitrophenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
4-Nitrophenol	ND	50	SW846 8270B	06/15-06/21/96	6167104
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/15-06/21/96	6167104
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/15-06/21/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	73	(53 - 135)
Phenol-d5	63	(10 - 149)
2-Fluorophenol	35	(10 - 104)
2,4,6-Tribromophenol	81	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC204 | **DATE SAMPLED** : 6/05/96
LAB # : A6F070137-002 | **TIME SAMPLED** : 15:00
MATRIX: WATER | **DATE RECEIVED:** 6/07/96
DILUTION FACTOR: 1.00

- - - - - - - - - - - - - - - - - - **GC/MS Semi-Volatiles** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/15-06/21/96	6167104
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/15-06/21/96	6167104
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/15-06/21/96	6167104
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/15-06/21/96	6167104
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/15-06/21/96	6167104
N-Nitrosomorpholine	ND	10	SW846 8270B	06/15-06/21/96	6167104
N-Nitrosopiperidine	ND	10	SW846 8270B	06/15-06/21/96	6167104
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/15-06/21/96	6167104
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/15-06/21/96	6167104
Pentachlorobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Pentachloroethane	ND	50	SW846 8270B	06/15-06/21/96	6167104
Pentachloronitrobenzene	ND	50	SW846 8270B	06/15-06/21/96	6167104
Pentachlorophenol	ND	50	SW846 8270B	06/15-06/21/96	6167104
Phenanthrene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Phenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
p-Phenylene diamine	ND	50	SW846 8270B	06/15-06/21/96	6167104
2-Picoline	ND	20	SW846 8270B	06/15-06/21/96	6167104
Pyrene	ND	10	SW846 8270B	06/15-06/21/96	6167104
Pyridine	ND	10	SW846 8270B	06/15-06/21/96	6167104
Safrole	ND	10	SW846 8270B	06/15-06/21/96	6167104
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	73	(53 - 135)
Phenol-d5	63	(10 - 149)
2-Fluorophenol	35	(10 - 104)
2,4,6-Tribromophenol	81	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC204
LAB # : A6F070137-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **GC/MS Semi-Volatiles** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/15-06/21/96	6167104
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/15-06/21/96	6167104
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/15-06/21/96	6167104
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/15-06/21/96	6167104
Aramite	ND	50	SW846 8270B	06/15-06/21/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	73	(53 - 135)
Phenol-d5	63	(10 - 149)
2-Fluorophenol	35	(10 - 104)
2,4,6-Tribromophenol	81	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE102
LAB # : A6F070137-003
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/10-06/13/96	6162104
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/10-06/13/96	6162104
Hexachloropropene	ND	100	SW846 8270B	06/10-06/13/96	6162104
Phenacetin	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pronamide	ND	20	SW846 8270B	06/10-06/13/96	6162104
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/10-06/13/96	6162104
Diallate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Chlorobenzilate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acenaphthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acenaphthylene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acetophenone	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Acetylaminofluorene	ND	20	SW846 8270B	06/10-06/13/96	6162104
Aniline	ND	10	SW846 8270B	06/10-06/13/96	6162104
Anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(a)anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(ghi)perylene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(a)pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzyl alcohol	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	72	(54 - 116)
Terphenyl-d14	62	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	42	(10 - 104)
2,4,6-Tribromophenol	71	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE102
LAB # : A6F070137-003
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Ethylhexyl) phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
Butyl benzyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chloroaniline	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Chloronaphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Chlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
Chrysene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dibenzofuran	ND	10	SW846 8270B	06/10-06/13/96	6162104
Di-n-butyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4-Dichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,6-Dichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	72	(54 - 116)
Terphenyl-d14	62	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	42	(10 - 104)
2,4,6-Tribromophenol	71	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE102
LAB # : A6F070137-003
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **GC/MS Semi-Volatiles** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
2,4-Dimethylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dimethyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Di-n-octyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
2,4-Dinitrophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/10-06/13/96	6162104
Diphenylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
Ethyl methanesulfonate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Fluorene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorobutadiene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachloroethane	ND	10	SW846 8270B	06/10-06/13/96	6162104
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Isophorone	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	72	(54 - 116)
Terphenyl-d14	62	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	42	(10 - 104)
2,4,6-Tribromophenol	71	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE102
LAB # : A6F070137-003
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/10-06/13/96	6162104
Methapyrilene	ND	100	SW846 8270B	06/10-06/13/96	6162104
o-Toluidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
3-Methylcholanthrene	ND	100	SW846 8270B	06/10-06/13/96	6162104
Methyl methanesulfonate	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Methylnaphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
3-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
Naphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,4-Naphthoquinone	ND	200	SW846 8270B	06/10-06/13/96	6162104
1-Naphthylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Naphthylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
3-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
4-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
Nitrobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Nitrophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Nitrophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	72	(54 - 116)
Terphenyl-d14	62	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	42	(10 - 104)
2,4,6-Tribromophenol	71	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE102
LAB # : A6F070137-003
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - - **GC/MS Semi-Volatiles** - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosomorpholine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosopiperidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
Pentachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Pentachloroethane	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pentachloronitrobenzene	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pentachlorophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
Phenanthrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Phenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
p-Phenylene diamine	ND	50	SW846 8270B	06/10-06/13/96	6162104
2-Picoline	ND	20	SW846 8270B	06/10-06/13/96	6162104
Pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Pyridine	ND	10	SW846 8270B	06/10-06/13/96	6162104
Safrole	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	72	(54 - 116)
Terphenyl-d14	62	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	42	(10 - 104)
2,4,6-Tribromophenol	71	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE102
LAB # : A6F070137-003
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/10-06/13/96	6162104
Aramite	ND	50	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	72	(54 - 116)
Terphenyl-d14	62	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	42	(10 - 104)
2,4,6-Tribromophenol	71	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG104
LAB # : A6F070137-004
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/10-06/13/96	6162104
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/10-06/13/96	6162104
Hexachloropropene	ND	100	SW846 8270B	06/10-06/13/96	6162104
Phenacetin	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pronamide	ND	20	SW846 8270B	06/10-06/13/96	6162104
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/10-06/13/96	6162104
Diallate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Chlorobenzilate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acenaphthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acenaphthylene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Acetophenone	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Acetylaminofluorene	ND	20	SW846 8270B	06/10-06/13/96	6162104
Aniline	ND	10	SW846 8270B	06/10-06/13/96	6162104
Anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(a)anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(ghi)perylene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzo(a)pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Benzyl alcohol	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	86	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	69	(10 - 149)
2-Fluorophenol	38	(10 - 104)
2,4,6-Tribromophenol	93	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG104
LAB # : A6F070137-004
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
bis(2-Ethylhexyl) phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
Butyl benzyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chloroaniline	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Chloronaphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Chlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/10-06/13/96	6162104
Chrysene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dibenzofuran	ND	10	SW846 8270B	06/10-06/13/96	6162104
Di-n-butyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,4-Dichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,6-Dichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	86	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	69	(10 - 149)
2-Fluorophenol	38	(10 - 104)
2,4,6-Tribromophenol	93	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG104
LAB # : A6F070137-004
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
2,4-Dimethylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
Dimethyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Di-n-octyl phthalate	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
2,4-Dinitrophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/10-06/13/96	6162104
Diphenylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
Ethyl methanesulfonate	ND	10	SW846 8270B	06/10-06/13/96	6162104
Fluoranthene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Fluorene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorobutadiene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Hexachloroethane	ND	10	SW846 8270B	06/10-06/13/96	6162104
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Isophorone	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	86	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	69	(10 - 149)
2-Fluorophenol	38	(10 - 104)
2,4,6-Tribromophenol	93	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG104
LAB # : A6F070137-004
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/10-06/13/96	6162104
Methapyrilene	ND	100	SW846 8270B	06/10-06/13/96	6162104
o-Toluidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
3-Methylcholanthrene	ND	100	SW846 8270B	06/10-06/13/96	6162104
Methyl methanesulfonate	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Methylnaphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
3-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Methylphenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
Naphthalene	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,4-Naphthoquinone	ND	200	SW846 8270B	06/10-06/13/96	6162104
1-Naphthylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Naphthylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
3-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
4-Nitroaniline	ND	50	SW846 8270B	06/10-06/13/96	6162104
Nitrobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
2-Nitrophenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
4-Nitrophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	86	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	69	(10 - 149)
2-Fluorophenol	38	(10 - 104)
2,4,6-Tribromophenol	93	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG104
LAB # : A6F070137-004
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosomorpholine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosopiperidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/10-06/13/96	6162104
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/10-06/13/96	6162104
Pentachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Pentachloroethane	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pentachloronitrobenzene	ND	50	SW846 8270B	06/10-06/13/96	6162104
Pentachlorophenol	ND	50	SW846 8270B	06/10-06/13/96	6162104
Phenanthrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Phenol	ND	10	SW846 8270B	06/10-06/13/96	6162104
p-Phenylene diamine	ND	50	SW846 8270B	06/10-06/13/96	6162104
2-Picoline	ND	20	SW846 8270B	06/10-06/13/96	6162104
Pyrene	ND	10	SW846 8270B	06/10-06/13/96	6162104
Pyridine	ND	10	SW846 8270B	06/10-06/13/96	6162104
Safrole	ND	10	SW846 8270B	06/10-06/13/96	6162104
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	6162104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	86	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	69	(10 - 149)
2-Fluorophenol	38	(10 - 104)
2,4,6-Tribromophenol	93	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG104
LAB # : A6F070137-004
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/10-06/13/96	616210
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/10-06/13/96	616210
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	616210
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/10-06/13/96	616210
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/10-06/13/96	616210
Aramite	ND	50	SW846 8270B	06/10-06/13/96	616210

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	86	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	69	(10 - 149)
2-Fluorophenol	38	(10 - 104)
2,4,6-Tribromophenol	93	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWES46+40

WO # : C4ANK102
LAB # : A6F070137-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/11-06/18/96	616310
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/11-06/18/96	616310
Hexachloropropene	ND	100	SW846 8270B	06/11-06/18/96	616310
Phenacetin	ND	50	SW846 8270B	06/11-06/18/96	616310
Pronamide	ND	20	SW846 8270B	06/11-06/18/96	616310
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/11-06/18/96	616310
Diallate	ND	10	SW846 8270B	06/11-06/18/96	616310
Chlorobenzilate	ND	10	SW846 8270B	06/11-06/18/96	616310
Acenaphthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Acenaphthylene	ND	10	SW846 8270B	06/11-06/18/96	616310
Acetophenone	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Acetylaminofluorene	ND	20	SW846 8270B	06/11-06/18/96	616310
Aniline	ND	10	SW846 8270B	06/11-06/18/96	616310
Anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(a)anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(ghi)perylene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(a)pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzyl alcohol	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	67	(30 - 122)
2-Fluorobiphenyl	74	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	60	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK102 | **DATE SAMPLED** : 6/05/96
LAB # : A6F070137-005 | **TIME SAMPLED** : 16:45
MATRIX: WATER | **DATE RECEIVED**: 6/07/96
DILUTION FACTOR: 1.00

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Ethylhexyl) phthalate	**6.7 J**	**10**	**SW846 8270B**	**06/11-06/18/96**	**616310**
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	616310
Butyl benzyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chloroaniline	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Chloronaphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Chlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	616310
Chrysene	ND	10	SW846 8270B	06/11-06/18/96	616310
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Dibenzofuran	ND	10	SW846 8270B	06/11-06/18/96	616310
Di-n-butyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2,6-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	67	(30 - 122)
2-Fluorobiphenyl	74	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	60	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED

ND NOT DETECTED AT THE STATED REPORTING LIMIT

J ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK102
LAB # : A6F070137-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/11-06/18/96	616310
2,4-Dimethylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
Dimethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
Di-n-octyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/11-06/18/96	616310
2,4-Dinitrophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	616310
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/11-06/18/96	616310
Diphenylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
Ethyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	616310
Fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Fluorene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorobutadiene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachloroethane	ND	10	SW846 8270B	06/11-06/18/96	616310
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Isophorone	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	67	(30 - 122)
2-Fluorobiphenyl	74	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	60	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK102
LAB # : A6F070137-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/11-06/18/96	616310
Methapyrilene	ND	100	SW846 8270B	06/11-06/18/96	616310
o-Toluidine	ND	20	SW846 8270B	06/11-06/18/96	616310
3-Methylcholanthrene	ND	100	SW846 8270B	06/11-06/18/96	616310
Methyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Methylnaphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
3-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
Naphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,4-Naphthoquinone	ND	200	SW846 8270B	06/11-06/18/96	616310
1-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
3-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
4-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
Nitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Nitrophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Nitrophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	67	(30 - 122)
2-Fluorobiphenyl	74	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	60	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK102
LAB # : A6F070137-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomorpholine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopiperidine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/11-06/18/96	616310
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/11-06/18/96	616310
Pentachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pentachloroethane	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachloronitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
Phenanthrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Phenol	ND	10	SW846 8270B	06/11-06/18/96	616310
p-Phenylene diamine	ND	50	SW846 8270B	06/11-06/18/96	616310
2-Picoline	ND	20	SW846 8270B	06/11-06/18/96	616310
Pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pyridine	ND	10	SW846 8270B	06/11-06/18/96	616310
Safrole	ND	10	SW846 8270B	06/11-06/18/96	616310
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	67	(30 - 122)
2-Fluorobiphenyl	74	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	60	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK102
LAB # : A6F070137-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	6163102
Aramite	ND	50	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	67	(30 - 122)
2-Fluorobiphenyl	74	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	60	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN102
LAB # : A6F070137-006
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/11-06/18/96	616310
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/11-06/18/96	616310
Hexachloropropene	ND	100	SW846 8270B	06/11-06/18/96	616310
Phenacetin	ND	50	SW846 8270B	06/11-06/18/96	616310
Pronamide	ND	20	SW846 8270B	06/11-06/18/96	616310
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/11-06/18/96	616310
Diallate	ND	10	SW846 8270B	06/11-06/18/96	616310
Chlorobenzilate	ND	10	SW846 8270B	06/11-06/18/96	616310
Acenaphthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Acenaphthylene	ND	10	SW846 8270B	06/11-06/18/96	616310
Acetophenone	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Acetylaminofluorene	ND	20	SW846 8270B	06/11-06/18/96	616310
Aniline	ND	10	SW846 8270B	06/11-06/18/96	616310
Anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(a)anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(ghi)perylene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(a)pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzyl alcohol	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	60	(53 - 135)
Phenol-d5	53	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN102
LAB # : A6F070137-006
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Ethylhexyl) phthalate	**7.1 J**	**10**	**SW846 8270B**	**06/11-06/18/96**	**616310**
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	616310
Butyl benzyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chloroaniline	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Chloronaphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Chlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	616310
Chrysene	ND	10	SW846 8270B	06/11-06/18/96	616310
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Dibenzofuran	ND	10	SW846 8270B	06/11-06/18/96	616310
Di-n-butyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2,6-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	60	(53 - 135)
Phenol-d5	53	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
J ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN102
LAB # : A6F070137-006
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/11-06/18/96	616310
2,4-Dimethylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
Dimethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
Di-n-octyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/11-06/18/96	616310
2,4-Dinitrophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	616310
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/11-06/18/96	616310
Diphenylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
Ethyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	616310
Fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Fluorene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorobutadiene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachloroethane	ND	10	SW846 8270B	06/11-06/18/96	616310
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Isophorone	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	60	(53 - 135)
Phenol-d5	53	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

PMSWNS100+5

WO # : C4ANN102
LAB # : A6F070137-006
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/11-06/18/96	616310
Methapyrilene	ND	100	SW846 8270B	06/11-06/18/96	616310
o-Toluidine	ND	20	SW846 8270B	06/11-06/18/96	616310
3-Methylcholanthrene	ND	100	SW846 8270B	06/11-06/18/96	616310
Methyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Methylnaphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
3-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
Naphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,4-Naphthoquinone	ND	200	SW846 8270B	06/11-06/18/96	616310
1-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
3-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
4-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
Nitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Nitrophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Nitrophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	60	(53 - 135)
Phenol-d5	53	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN102
LAB # : A6F070137-006
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomorpholine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopiperidine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/11-06/18/96	616310
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/11-06/18/96	616310
Pentachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pentachloroethane	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachloronitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
Phenanthrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Phenol	ND	10	SW846 8270B	06/11-06/18/96	616310
p-Phenylene diamine	ND	50	SW846 8270B	06/11-06/18/96	616310
2-Picoline	ND	20	SW846 8270B	06/11-06/18/96	616310
Pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pyridine	ND	10	SW846 8270B	06/11-06/18/96	616310
Safrole	ND	10	SW846 8270B	06/11-06/18/96	616310
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	60	(53 - 135)
Phenol-d5	53	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN102
LAB # : A6F070137-006
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	61631(
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	61631(
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	61631(
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	61631(
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	61631(
Aramite	ND	50	SW846 8270B	06/11-06/18/96	61631(

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	74	(30 - 122)
2-Fluorobiphenyl	75	(54 - 116)
Terphenyl-d14	60	(53 - 135)
Phenol-d5	53	(10 - 149)
2-Fluorophenol	26	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ102
LAB # : A6F070137-007
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:20
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/11-06/18/96	61631
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/11-06/18/96	61631
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/11-06/18/96	61631
Hexachloropropene	ND	100	SW846 8270B	06/11-06/18/96	61631
Phenacetin	ND	50	SW846 8270B	06/11-06/18/96	61631
Pronamide	ND	20	SW846 8270B	06/11-06/18/96	61631
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/11-06/18/96	61631
Diallate	ND	10	SW846 8270B	06/11-06/18/96	61631
Chlorobenzilate	ND	10	SW846 8270B	06/11-06/18/96	61631
Acenaphthene	ND	10	SW846 8270B	06/11-06/18/96	61631
Acenaphthylene	ND	10	SW846 8270B	06/11-06/18/96	61631
Acetophenone	ND	10	SW846 8270B	06/11-06/18/96	61631
2-Acetylaminofluorene	ND	20	SW846 8270B	06/11-06/18/96	61631
Aniline	ND	10	SW846 8270B	06/11-06/18/96	61631
Anthracene	ND	10	SW846 8270B	06/11-06/18/96	61631
Benzo(a)anthracene	ND	10	SW846 8270B	06/11-06/18/96	61631
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	61631
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	61631
Benzo(ghi)perylene	ND	10	SW846 8270B	06/11-06/18/96	61631
Benzo(a)pyrene	ND	10	SW846 8270B	06/11-06/18/96	61631
Benzyl alcohol	ND	10	SW846 8270B	06/11-06/18/96	61631

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	57	(53 - 135)
Phenol-d5	70	(10 - 149)
2-Fluorophenol	47	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ102
LAB # : A6F070137-007
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:20
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Ethylhexyl) phthalate	**6.7 J**	**10**	**SW846 8270B**	**06/11-06/18/96**	**6163102**
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
Butyl benzyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chloroaniline	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Chloronaphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Chlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
Chrysene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dibenzofuran	ND	10	SW846 8270B	06/11-06/18/96	6163102
Di-n-butyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,6-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	57	(53 - 135)
Phenol-d5	70	(10 - 149)
2-Fluorophenol	47	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
J ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ102
LAB # : A6F070137-007
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:20
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/11-06/18/96	616310
2,4-Dimethylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
Dimethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
Di-n-octyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/11-06/18/96	616310
2,4-Dinitrophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	616310
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/11-06/18/96	616310
Diphenylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
Ethyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	616310
Fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Fluorene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorobutadiene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachloroethane	ND	10	SW846 8270B	06/11-06/18/96	616310
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Isophorone	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	57	(53 - 135)
Phenol-d5	70	(10 - 149)
2-Fluorophenol	47	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ102
LAB # : A6F070137-007
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:20
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **GC/MS Semi-Volatiles** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/11-06/18/96	616310
Methapyrilene	ND	100	SW846 8270B	06/11-06/18/96	616310
o-Toluidine	ND	20	SW846 8270B	06/11-06/18/96	616310
3-Methylcholanthrene	ND	100	SW846 8270B	06/11-06/18/96	616310
Methyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Methylnaphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
3-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
Naphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,4-Naphthoquinone	ND	200	SW846 8270B	06/11-06/18/96	616310
1-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
3-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
4-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
Nitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Nitrophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Nitrophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	57	(53 - 135)
Phenol-d5	70	(10 - 149)
2-Fluorophenol	47	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ102 | **DATE SAMPLED** : 6/05/96
LAB # : A6F070137-007 | **TIME SAMPLED** : 17:20
MATRIX: WATER | **DATE RECEIVED**: 6/07/96
DILUTION FACTOR: 1.00

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomorpholine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopiperidine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/11-06/18/96	616310
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/11-06/18/96	616310
Pentachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pentachloroethane	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachloronitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
Phenanthrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Phenol	ND	10	SW846 8270B	06/11-06/18/96	616310
p-Phenylene diamine	ND	50	SW846 8270B	06/11-06/18/96	616310
2-Picoline	ND	20	SW846 8270B	06/11-06/18/96	616310
Pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pyridine	ND	10	SW846 8270B	06/11-06/18/96	616310
Safrole	ND	10	SW846 8270B	06/11-06/18/96	616310
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	57	(53 - 135)
Phenol-d5	70	(10 - 149)
2-Fluorophenol	47	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ102
LAB # : A6F070137-007
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
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- - - - - - - - - - - - - - - - - - - **GC/MS Semi-Volatiles** - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	616310
Aramite	ND	50	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	78	(54 - 116)
Terphenyl-d14	57	(53 - 135)
Phenol-d5	70	(10 - 149)
2-Fluorophenol	47	(10 - 104)
2,4,6-Tribromophenol	73	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT102
LAB # : A6F070137-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:45
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/11-06/18/96	616310
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/11-06/18/96	616310
Hexachloropropene	ND	100	SW846 8270B	06/11-06/18/96	616310
Phenacetin	ND	50	SW846 8270B	06/11-06/18/96	616310
Pronamide	ND	20	SW846 8270B	06/11-06/18/96	616310
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/11-06/18/96	616310
Diallate	ND	10	SW846 8270B	06/11-06/18/96	616310
Chlorobenzilate	ND	10	SW846 8270B	06/11-06/18/96	616310
Acenaphthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Acenaphthylene	ND	10	SW846 8270B	06/11-06/18/96	616310
Acetophenone	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Acetylaminofluorene	ND	20	SW846 8270B	06/11-06/18/96	616310
Aniline	ND	10	SW846 8270B	06/11-06/18/96	616310
Anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(a)anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(ghi)perylene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(a)pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzyl alcohol	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	69	(30 - 122)
2-Fluorobiphenyl	79	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	79	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT102
LAB # : A6F070137-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
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- - - - - - - - - - - - - - - - - - **GC/MS Semi-Volatiles** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Ethylhexyl) phthalate	**6.7 J**	**10**	**SW846 8270B**	**06/11-06/18/96**	**616310**
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	616310
Butyl benzyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chloroaniline	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Chloronaphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Chlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	616310
Chrysene	ND	10	SW846 8270B	06/11-06/18/96	616310
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Dibenzofuran	ND	10	SW846 8270B	06/11-06/18/96	616310
Di-n-butyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2,6-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	69	(30 - 122)
2-Fluorobiphenyl	79	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	79	(20 - 143)

NOTE: AS RECEIVED

ND NOT DETECTED AT THE STATED REPORTING LIMIT

J ESTIMATED VALUE. (DETECTED). BUT BELOW QUANTITATION LIMIT.

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT102
LAB # : A6F070137-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
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DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/11-06/18/96	616310
2,4-Dimethylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
Dimethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
Di-n-octyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/11-06/18/96	616310
2,4-Dinitrophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	616310
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/11-06/18/96	616310
Diphenylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
Ethyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	616310
Fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Fluorene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorobutadiene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/11-06/18/96	616310
Hexachloroethane	ND	10	SW846 8270B	06/11-06/18/96	616310
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Isophorone	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	69	(30 - 122)
2-Fluorobiphenyl	79	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	79	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT102
LAB # : A6F070137-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
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- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/11-06/18/96	616310
Methapyrilene	ND	100	SW846 8270B	06/11-06/18/96	616310
o-Toluidine	ND	20	SW846 8270B	06/11-06/18/96	616310
3-Methylcholanthrene	ND	100	SW846 8270B	06/11-06/18/96	616310
Methyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Methylnaphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
3-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
Naphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,4-Naphthoquinone	ND	200	SW846 8270B	06/11-06/18/96	616310
1-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
3-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
4-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	616310
Nitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Nitrophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Nitrophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	69	(30 - 122)
2-Fluorobiphenyl	79	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	79	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT102
LAB # : A6F070137-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
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GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomorpholine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopiperidine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/11-06/18/96	616310
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/11-06/18/96	616310
Pentachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pentachloroethane	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachloronitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
Phenanthrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Phenol	ND	10	SW846 8270B	06/11-06/18/96	616310
p-Phenylene diamine	ND	50	SW846 8270B	06/11-06/18/96	616310
2-Picoline	ND	20	SW846 8270B	06/11-06/18/96	616310
Pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pyridine	ND	10	SW846 8270B	06/11-06/18/96	616310
Safrole	ND	10	SW846 8270B	06/11-06/18/96	616310
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	69	(30 - 122)
2-Fluorobiphenyl	79	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	79	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT102
LAB # : A6F070137-008
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:45
DATE RECEIVED: 6/07/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	616310
Aramite	ND	50	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	69	(30 - 122)
2-Fluorobiphenyl	79	(54 - 116)
Terphenyl-d14	71	(53 - 135)
Phenol-d5	66	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	79	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW102
LAB # : A6F070137-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/11-06/18/96	616310
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/11-06/18/96	616310
Hexachloropropene	ND	100	SW846 8270B	06/11-06/18/96	616310
Phenacetin	ND	50	SW846 8270B	06/11-06/18/96	616310
Pronamide	ND	20	SW846 8270B	06/11-06/18/96	616310
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/11-06/18/96	616310
Diallate	ND	10	SW846 8270B	06/11-06/18/96	616310
Chlorobenzilate	ND	10	SW846 8270B	06/11-06/18/96	616310
Acenaphthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Acenaphthylene	ND	10	SW846 8270B	06/11-06/18/96	616310
Acetophenone	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Acetylaminofluorene	ND	20	SW846 8270B	06/11-06/18/96	616310
Aniline	ND	10	SW846 8270B	06/11-06/18/96	616310
Anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(a)anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(ghi)perylene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzo(a)pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Benzyl alcohol	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	83	(30 - 122)
2-Fluorobiphenyl	89	(54 - 116)
Terphenyl-d14	76	(53 - 135)
Phenol-d5	72	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	86	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW102
LAB # : A6F070137-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **GC/MS Semi-Volatiles** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	616310
bis(2-Ethylhexyl) phthalate	**6.7 J**	**10**	**SW846 8270B**	**06/11-06/18/96**	**616310**
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	616310
Butyl benzyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chloroaniline	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Chloronaphthalene	ND	10	SW846 8270B	06/11-06/18/96	616310
2-Chlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	616310
Chrysene	ND	10	SW846 8270B	06/11-06/18/96	616310
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/11-06/18/96	616310
Dibenzofuran	ND	10	SW846 8270B	06/11-06/18/96	616310
Di-n-butyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	616310
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2,6-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	83	(30 - 122)
2-Fluorobiphenyl	89	(54 - 116)
Terphenyl-d14	76	(53 - 135)
Phenol-d5	72	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	86	(20 - 143)

NOTE: AS RECEIVED

ND NOT DETECTED AT THE STATED REPORTING LIMIT

J ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW102 | **DATE SAMPLED** : 6/05/96
LAB # : A6F070137-009 | **TIME SAMPLED** : 18:15
MATRIX: WATER | **DATE RECEIVED:** 6/07/96
DILUTION FACTOR: 1.00

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
2,4-Dimethylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dimethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Di-n-octyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
2,4-Dinitrophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/11-06/18/96	6163102
Diphenylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
Ethyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Fluorene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorobutadiene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachloroethane	ND	10	SW846 8270B	06/11-06/18/96	6163102
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Isophorone	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	83	(30 - 122)
2-Fluorobiphenyl	89	(54 - 116)
Terphenyl-d14	76	(53 - 135)
Phenol-d5	72	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	86	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW102
LAB # : A6F070137-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isosafrole	ND	10	SW846 8270B	06/11-06/18/96	6163102
Methapyrilene	ND	100	SW846 8270B	06/11-06/18/96	6163102
o-Toluidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
3-Methylcholanthrene	ND	100	SW846 8270B	06/11-06/18/96	6163102
Methyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Methylnaphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
3-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
Naphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,4-Naphthoquinone	ND	200	SW846 8270B	06/11-06/18/96	6163102
1-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
3-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
4-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
Nitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Nitrophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Nitrophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	83	(30 - 122)
2-Fluorobiphenyl	89	(54 - 116)
Terphenyl-d14	76	(53 - 135)
Phenol-d5	72	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	86	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW102
LAB # : A6F070137-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosomorpholine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopiperidine	ND	10	SW846 8270B	06/11-06/18/96	616310
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/11-06/18/96	616310
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/11-06/18/96	616310
Pentachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pentachloroethane	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachloronitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	616310
Pentachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
Phenanthrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Phenol	ND	10	SW846 8270B	06/11-06/18/96	616310
p-Phenylene diamine	ND	50	SW846 8270B	06/11-06/18/96	616310
2-Picoline	ND	20	SW846 8270B	06/11-06/18/96	616310
Pyrene	ND	10	SW846 8270B	06/11-06/18/96	616310
Pyridine	ND	10	SW846 8270B	06/11-06/18/96	616310
Safrole	ND	10	SW846 8270B	06/11-06/18/96	616310
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	83	(30 - 122)
2-Fluorobiphenyl	89	(54 - 116)
Terphenyl-d14	76	(53 - 135)
Phenol-d5	72	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	86	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW102
LAB # : A6F070137-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	616310
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	616310
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	616310
Aramite	ND	50	SW846 8270B	06/11-06/18/96	616310

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	83	(30 - 122)
2-Fluorobiphenyl	89	(54 - 116)
Terphenyl-d14	76	(53 - 135)
Phenol-d5	72	(10 - 149)
2-Fluorophenol	46	(10 - 104)
2,4,6-Tribromophenol	86	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

INORGANIC SAMPLE DATA

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8
LAB # : A6F070137-001
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**6.7**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/19/96**	**616911**
Lead	**295**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Barium	**53.9**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cadmium	**25.5**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Copper	**333**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	616911
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	616911
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Zinc	**3,090**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	616911

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC
LAB # : A6F070137-002
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**14.4**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Lead	**303**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Barium	**54.0**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cadmium	**20.4**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Copper	**391**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	616911
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	616911
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Zinc	**2,210**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	616911

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE
LAB # : A6F070137-003
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**5.5**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Lead	**35.0**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Barium	**38.2**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cadmium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Copper	**113**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	616911
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	616911
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Zinc	**670**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	616911

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG
LAB # : A6F070137-004
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**20.5**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**61691**
Lead	**557**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**61691**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/19/96	61691
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	61691
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	61691
Barium	**79.1**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**61691**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	61691
Cadmium	**26.4**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**61691**
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	61691
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	61691
Copper	**626**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**61691**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	61691
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	61691
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	61691
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	61691
Zinc	**3,130**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**61691**
Mercury	**0.31**	**0.20**	**ug/L**	**SW846 7470**	**6/17/96**	**61691**

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK
LAB # : A6F070137-005
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**6.6**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Lead	**198**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Barium	**63.1**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cadmium	**10.4**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Copper	**340**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	616911
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	616911
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Zinc	**1,230**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	616911

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN
LAB # : A6F070137-006
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**21.0**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Lead	**776**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Barium	**76.2**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Cadmium	**24.6**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Copper	**726**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	6169115
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Zinc	**2,900**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Mercury	**0.38**	**0.20**	**ug/L**	**SW846 7470**	**6/17/96**	**6169115**

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ
LAB # : A6F070137-007
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:20
DATE RECEIVED: 6/07/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**11.6**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Lead	**201**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Barium	**65.8**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cadmium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Copper	**211**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	616911
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	616911
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Zinc	**804**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	616911

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT
LAB # : A6F070137-008
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:45
DATE RECEIVED: 6/07/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**10.2**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Lead	**178**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Barium	**59.9**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Cadmium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Copper	**159**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	6169115
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Zinc	**594**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	6169115

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW
LAB # : A6F070137-009
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

- **REQUESTED METALS** -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**11.9**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616913**
Lead	**67.9**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616913**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616913
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616913
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616913
Barium	**66.9**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616913**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616913
Cadmium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616913
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616913
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	616913
Copper	**100**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616913**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	616913
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	616913
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616913
Zinc	**991**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	616913

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

560A

WET CHEMISTRY SAMPLE DATA

Geraghty & Miller

FMSWNS44+5

WO # : C4AN8
LAB # : A6F070137-001
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 14:15
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**6,700**	**2,400**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**616520**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/12- 6/13/96	616414

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+40

WO # : C4ANC
LAB # : A6F070137-002
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:00
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**8,000**	**2,500**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**616520**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/12- 6/13/96	616414

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS44+80

WO # : C4ANE
LAB # : A6F070137-003
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 15:30
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**7,900**	**2,400**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**616520**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	616515

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+5

WO # : C4ANG
LAB # : A6F070137-004
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**9,800**	**2,600**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**616520**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	616515

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+80

WO # : C4ANQ
LAB # : A6F070137-007
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:20
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**1,800**	**1,200**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**61652(**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/17- 6/18/96	61691-

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS46+40

WO # : C4ANK
LAB # : A6F070137-005
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:45
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**5,100**	**1,200**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**616520**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	616515

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS100+5

WO # : C4ANN
LAB # : A6F070137-006
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 16:20
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**9,300**	**2,400**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**61652**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	61651

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+40

WO # : C4ANT
LAB # : A6F070137-008
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 17:45
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**4,600**	**1,300**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**616520**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	616515

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS45+5

WO # : C4ANW
LAB # : A6F070137-009
MATRIX: WATER

DATE SAMPLED : 6/05/96
TIME SAMPLED : 18:15
DATE RECEIVED: 6/07/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**5,100**	**1,200**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**616520**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	616515

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

GERAGHTY & MILLER, INC.
Environmental Services
idemij company

Laboratory Task Order No. 10731
Client code: G 11092

CHAIN-OF-CUSTODY RECORD

Page ___ of ___

Project Number: IN0144.107
Project Location: Federated Metals, Hammond
Laboratory: Quanterra
Sampler(s)/Affiliation: Blake Fahl / Jamie Yater } G&M

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	VOCs 40ml - HCl	Total Metals 1LP - HNO3	Fluoride 250ml - NP	CN 250ml - NaOH	SVOCs 1L glass - NP					TOTAL
FMSWN544+5		6-5-96 215P		3	1	1	1	2					8
FMSWN544+40		6-5-96 300P		3	1	1	1	2					8
FMSWN544+80		6-5-96 330P		3	1	1	1	2					8
FMSWN546+5		6-5-96 420P		3	1	1	1	2					8
FMSWN546+40		6-5-96 445P		3	1	1	1	2					8
FMSWN5100+5		6-5-96 420P		3	1	1	1	2					8
FMSWN545+80		6-5-96 520P		3	1	1	1	2					8
FMSWN545+40		6-5-96 545P		3	1	1	1	2					8
FMSWN545+5		6-5-96 615P		3	1	1	1	2					8
TRIP BLANK		6-5-96		3									3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 75

Relinquished by: Jamie Yater	Organization: Geraghty & Miller	Date 6/6/96	Time 10A	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by: Ross Epps	Organization: Quanterra	Date 6/7/96	Time 150 P	

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☒ Common Carrier Fed X ☐ Lab Courier ☐ Other

000000

5W

Quanterra
Environmental Services

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

RECEIVED
JUL 25 1996
GERAGHTY & MILLER, INC.
INDIANAPOLIS, INDIANA

ANALYTICAL REPORT

PROJECT NO. IN0144.107

FEDERATED METALS
Lot#: **A6F130119**

Tim Northam

Geraghty & Miller

QUANTERRA INCORPORATED

Thomas M. Himes

Thomas M. Himes
Project Manager

July 22, 1996

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Internal Chain-of-Custody

Chain-of-Custody

CASE NARRATIVE

CASE NARRATIVE

The following report contains the analytical results for fourteen solid samples, one water sample, and one quality control sample submitted to Quanterra-North Canton by Geraghty & Miller from the Federated Metals Site, project number IN0144.107. The samples were received June 13, 1996, according to documented sample acceptance procedures.

The Fluoride analysis for sample "FMSWNS105" was performed at the Quanterra-Tampa facility.

Quanterra utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with the exception of those items noted.

Base/Neutrals and Acids, SW846 8270

The surrogates added to sample "FMSEDNS43+5(0-0.5)" were diluted out and could not be quantitated due to high analyte concentration in the sample.

Sample "FMSWNS105" exhibited surrogate recoveries outside laboratory acceptance criteria. Upon re-extraction and reanalysis, surrogate recoveries were within acceptance criteria; however, sample holding times had been exceeded. Both the original and reanalysis data have been provided.

Bis(2-Ethylhexyl) phthalate, a common laboratory contaminant, is present in the GC/MS Semi-Volatiles Method Blank associated with QC batch 6167104. This commonly detected laboratory contaminant may be present if the concentration of the analyte is less than five times the reporting limit.

Inorganics-Metals

The copper, mercury, lead, tin, and zinc MS/MSDs performed on sample "FMSEDNS45+80(0-0.5)" were diluted out and could not be quantitated due to high analyte concentration in the sample.

The metals MS/MSD performed on sample "FMSEDNS45+80(0-0.5)" exhibited percent recoveries outside laboratory acceptance criteria for arsenic, selenium, and thallium. The laboratory performs MATRIX SPIKES (MS) and MATRIX SPIKE DUPLICATES (MSD) to indicate any matrix effects within a given sample. They also allow the laboratory to gather precision and bias data for a specific method and matrix. Since matrix effects may bias percent recovery, the laboratory performs corrective action if the precision (RPD) criteria of the MS/MSD is not met.

CASE NARRATIVE (cont.)

Wet Chemistry

The fluoride MS/MSD performed on sample "FMSEDNS45+80(0-0.5)" exhibited percent recoveries outside laboratory acceptance criteria. The laboratory performs MATRIX SPIKES (MS) and MATRIX SPIKE DUPLICATES (MSD) to indicate any matrix effects within a given sample. They also allow the laboratory to gather precision and bias data for a specific method and matrix. Since matrix effects may bias percent recovery, the laboratory performs corrective action if the precision (RPD) criteria of the MS/MSD is not met.

The cyanide MS/MSD performed on sample "FMSEDNS45+80(0-0.5)" failed to meet acceptable RPD criteria. Upon reprep and reanalysis, the RPD was within acceptance criteria.

QA/QC PROGRAM ELEMENTS

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

Quanterra Incorporated conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. Quanterra requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable. Consultation with the client should take place.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). Failure of the RPDs to fall within the laboratory-generated acceptance windows requires the repreparation and reanalysis of all samples in the QC batch.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) except for the common laboratory contaminants indicated below.

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

** for analyses run on TJA Trace ICP or GFAA only*

The listed volatile and semivolatile compounds may be present in concentrations up to 5 times the reporting limits. All other organic analyte concentrations must be below the reporting limits. The listed metals may be present in concentrations up to 2 times the reporting limit or must be twenty fold less than the results of the environmental samples. Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (cont.)

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When evaluating the MS/MSD data, special attention is given to the RPD values. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. Otherwise, the MS/MSD and the environmental sample used to prepare them are reprepared and reanalyzed.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

The Pesticide/PCB, PAH, TPH and Herbicide analytical methods require that one of two surrogate compounds meet acceptance criteria. All other organic analytical methods require every surrogate recovery to be within the established control limit. The acceptance criteria does not apply to samples that are diluted. If the dilution is more than 5X, the recoveries will be reported as diluted out. All other surrogate recoveries will be reported. If the LCS or the Method Blank surrogates fail to meet recovery criteria (except for dilutions), the entire batch of samples is reprepared and reanalyzed. If the surrogates in an environmental sample do not meet the recovery criteria, only the sample is reprepared and reanalyzed to confirm the matrix effect.

SAMPLE SUMMARY

SAMPLE SUMMARY

The analytical results of the samples listed below are presented on the following pages.

WO #	LABORATORY ID	SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	
C4DVP	A6F130119-001	FMSEDNS43+5(0-0.5)	6/11/96	13:15
C4DW1	A6F130119-002	FMSEDNS45+5(0-0.5)	6/11/96	13:45
C4DW6	A6F130119-003	FMSEDNS45+20(0-0.5)	6/11/96	14:00
C4DW8	A6F130119-004	FMSEDNS45+40(0-0.5)	6/11/96	14:10
C4DW9	A6F130119-005	FMSEDNS45+80(0-0.5) (MS/MSD)	6/11/96	14:30
C4DWH	A6F130119-006	FMSEDNS46+5(0-0.5)	6/11/96	15:00
C4DWL	A6F130119-007	FMSEDNS46+20(0-0.5)	6/11/96	15:15
C4DWN	A6F130119-008	FMSEDNS46+40(0-0.5)	6/11/96	15:30
C4DWP	A6F130119-009	FMSEDNS46+80(0-0.5)	6/11/96	15:45
C4DWQ	A6F130119-010	FMSEDNS44+5(0-0.5)	6/11/96	16:00
C4DWR	A6F130119-011	FMSEDNS44+20(0-0.5)	6/11/96	16:15
C4DWT	A6F130119-012	FMSEDNS44+40(0-0.5)	6/11/96	16:30
C4DX0	A6F130119-013	FMSEDNS44+80(0-0.5)	6/11/96	16:45
C4DX2	A6F130119-014	FMSEDNS104+20(0-0.5)	6/11/96	15:15
C4DX3	A6F130119-015	FMSWNS105	6/11/96	17:00
C4DX4	A6F130119-016	TRIP BLANK	6/11/96	0:00

METHOD REFERENCE

ANALYTICAL METHODS SUMMARY

A6F130119

Parameters	Methods
Semivolatile Organic Compounds by GC/MS	SW846 8270B
Volatile Organics by GC/MS	SW846 8240B
Fluoride (Potentiometric, Ion Selective Electrode)	MCAWW 340.2
Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Total Residue as Percent Solids	MCAWW 160.3 MOD
Total Cyanide	SW846 9012

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

GC/MS VOLATILE SAMPLE DATA

Geraghty & Miller

FMSWNS105

WO # : C4DX3101
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	**20 J**	**50**	**SW846 8240B**	**06/24/96**	**6177168**
Acetonitrile	ND	50	SW846 8240B	06/24/96	6177168
Acrolein	ND	100	SW846 8240B	06/24/96	6177168
Acrylonitrile	ND	50	SW846 8240B	06/24/96	6177168
Allyl chloride	ND	5.0	SW846 8240B	06/24/96	6177168
Benzene	ND	5.0	SW846 8240B	06/24/96	6177168
Bromodichloromethane	ND	5.0	SW846 8240B	06/24/96	6177168
Bromoform	ND	10	SW846 8240B	06/24/96	6177168
Bromomethane	ND	10	SW846 8240B	06/24/96	6177168
2-Butanone (MEK)	ND	50	SW846 8240B	06/24/96	6177168
Carbon disulfide	ND	5.0	SW846 8240B	06/24/96	6177168
Carbon tetrachloride	ND	10	SW846 8240B	06/24/96	6177168
Chlorobenzene	ND	5.0	SW846 8240B	06/24/96	6177168
Chloroethane	ND	10	SW846 8240B	06/24/96	6177168
Chloroform	ND	5.0	SW846 8240B	06/24/96	6177168
Chloromethane	ND	10	SW846 8240B	06/24/96	6177168
Chloroprene	ND	5.0	SW846 8240B	06/24/96	6177168
Dibromochloromethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/24/96	6177168
Dibromomethane	ND	5.0	SW846 8240B	06/24/96	6177168
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/24/96	6177168

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	95	(86 - 115)
1,2-Dichloroethane-d4	95	(76 - 114)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.

Geraghty & Miller

FMSWNS105

WO # : C4DX3101
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/24/96	6177168
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/24/96	6177168
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/24/96	6177168
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/24/96	6177168
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/24/96	6177168
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/24/96	6177168
1,4-Dioxane	ND	1,000	SW846 8240B	06/24/96	6177168
Ethylbenzene	ND	5.0	SW846 8240B	06/24/96	6177168
Ethyl methacrylate	ND	5.0	SW846 8240B	06/24/96	6177168
2-Hexanone	ND	50	SW846 8240B	06/24/96	6177168
Iodomethane	ND	5.0	SW846 8240B	06/24/96	6177168
Isobutyl alcohol	ND	500	SW846 8240B	06/24/96	6177168
Methacrylonitrile	ND	20	SW846 8240B	06/24/96	6177168
Methylene chloride	ND	5.0	SW846 8240B	06/24/96	6177168
Methyl methacrylate	ND	5.0	SW846 8240B	06/24/96	6177168
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/24/96	6177168
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/24/96	6177168
Propionitrile	ND	20	SW846 8240B	06/24/96	6177168
Styrene	ND	5.0	SW846 8240B	06/24/96	6177168

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	95	(86 - 115)
1,2-Dichloroethane-d4	95	(76 - 114)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS105

WO # : C4DX3101
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
Tetrachloroethene	ND	5.0	SW846 8240B	06/24/96	6177168
Toluene	ND	5.0	SW846 8240B	06/24/96	6177168
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
Trichloroethene	ND	5.0	SW846 8240B	06/24/96	6177168
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/24/96	6177168
Vinyl acetate	ND	50	SW846 8240B	06/24/96	6177168
Vinyl chloride	ND	10	SW846 8240B	06/24/96	6177168
Xylenes (total)	ND	5.0	SW846 8240B	06/24/96	6177168

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	95	(86 - 115)
1,2-Dichloroethane-d4	95	(76 - 114)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS105

WO #: C4DX3101
LAB #: A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED: 6/11/96
DATE RECEIVED: 6/13/96
DATE EXTRACTED: 6/24/96
DATE ANALYZED: 6/24/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6177168**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
E		**ug/L**	**6177168**

Geraghty & Miller

TRIP BLANK

WO # : C4DX4101
LAB # : A6F130119-016
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED :
DATE RECEIVED: 6/13/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/24/96	6177168
Acetonitrile	ND	50	SW846 8240B	06/24/96	6177168
Acrolein	ND	100	SW846 8240B	06/24/96	6177168
Acrylonitrile	ND	50	SW846 8240B	06/24/96	6177168
Allyl chloride	ND	5.0	SW846 8240B	06/24/96	6177168
Benzene	ND	5.0	SW846 8240B	06/24/96	6177168
Bromodichloromethane	ND	5.0	SW846 8240B	06/24/96	6177168
Bromoform	ND	10	SW846 8240B	06/24/96	6177168
Bromomethane	ND	10	SW846 8240B	06/24/96	6177168
2-Butanone (MEK)	ND	50	SW846 8240B	06/24/96	6177168
Carbon disulfide	ND	5.0	SW846 8240B	06/24/96	6177168
Carbon tetrachloride	ND	10	SW846 8240B	06/24/96	6177168
Chlorobenzene	ND	5.0	SW846 8240B	06/24/96	6177168
Chloroethane	ND	10	SW846 8240B	06/24/96	6177168
Chloroform	ND	5.0	SW846 8240B	06/24/96	6177168
Chloromethane	ND	10	SW846 8240B	06/24/96	6177168
Chloroprene	ND	5.0	SW846 8240B	06/24/96	6177168
Dibromochloromethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/24/96	6177168
Dibromomethane	ND	5.0	SW846 8240B	06/24/96	6177168
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/24/96	6177168

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	97	(76 - 114)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	95	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO # : C4DX4101
LAB # : A6F130119-016
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED :
DATE RECEIVED: 6/13/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/24/96	6177168
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/24/96	6177168
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/24/96	6177168
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/24/96	6177168
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/24/96	6177168
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/24/96	6177168
1,4-Dioxane	ND	1,000	SW846 8240B	06/24/96	6177168
Ethylbenzene	ND	5.0	SW846 8240B	06/24/96	6177168
Ethyl methacrylate	ND	5.0	SW846 8240B	06/24/96	6177168
2-Hexanone	ND	50	SW846 8240B	06/24/96	6177168
Iodomethane	ND	5.0	SW846 8240B	06/24/96	6177168
Isobutyl alcohol	ND	500	SW846 8240B	06/24/96	6177168
Methacrylonitrile	ND	20	SW846 8240B	06/24/96	6177168
Methylene chloride	ND	5.0	SW846 8240B	06/24/96	6177168
Methyl methacrylate	ND	5.0	SW846 8240B	06/24/96	6177168
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/24/96	6177168
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/24/96	6177168
Propionitrile	ND	20	SW846 8240B	06/24/96	6177168
Styrene	ND	5.0	SW846 8240B	06/24/96	6177168

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	97	(76 - 114)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	95	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO # : C4DX4101
LAB # : A6F130119-016
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED :
DATE RECEIVED: 6/13/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
Tetrachloroethene	ND	5.0	SW846 8240B	06/24/96	6177168
Toluene	ND	5.0	SW846 8240B	06/24/96	6177168
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/24/96	6177168
Trichloroethene	ND	5.0	SW846 8240B	06/24/96	6177168
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/24/96	6177168
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/24/96	6177168
Vinyl acetate	ND	50	SW846 8240B	06/24/96	6177168
Vinyl chloride	ND	10	SW846 8240B	06/24/96	6177168
Xylenes (total)	ND	5.0	SW846 8240B	06/24/96	6177168

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	97	(76 - 114)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	95	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO #: C4DX4101		**DATE SAMPLED:**	6/11/96
LAB #: A6F130119-016		**DATE RECEIVED:**	6/13/96
MATRIX: WATER		**DATE EXTRACTED:**	6/24/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/24/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6177168**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NE		**ug/L**	**6177168**

GC/MS SEMIVOLATILE SAMPLE DATA

Geraghty & Miller

FMSWNS105

WO # : C4DX3102
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/15-06/24/96	6167104
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/15-06/24/96	6167104
Hexachloropropene	ND	100	SW846 8270B	06/15-06/24/96	6167104
Phenacetin	ND	50	SW846 8270B	06/15-06/24/96	6167104
Pronamide	ND	20	SW846 8270B	06/15-06/24/96	6167104
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/15-06/24/96	6167104
Diallate	ND	10	SW846 8270B	06/15-06/24/96	6167104
Chlorobenzilate	ND	10	SW846 8270B	06/15-06/24/96	6167104
Acenaphthene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Acenaphthylene	ND	10	SW846 8270B	06/15-06/24/96	6167104
tophenone	ND	10	SW846 8270B	06/15-06/24/96	6167104
2-Acetylaminofluorene	ND	20	SW846 8270B	06/15-06/24/96	6167104
Aniline	ND	10	SW846 8270B	06/15-06/24/96	6167104
Anthracene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Benzo(a)anthracene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Benzo(ghi)perylene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Benzo(a)pyrene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Benzyl alcohol	ND	10	SW846 8270B	06/15-06/24/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	103	(54 - 116)
Terphenyl-d14	110	(53 - 135)
Phenol-d5	12	(10 - 149)
2-Fluorophenol	9.0 *	(10 - 104)
2,4,6-Tribromophenol	36	(20 - 143)

NOTE: AS RECEIVED
D NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS105

WO # : C4DX3102
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/15-06/24/96	6167104
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/15-06/24/96	6167104
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/15-06/24/96	6167104
bis(2-Ethylhexyl) phthalate	**8.2 J**	**10**	**SW846 8270B**	**06/15-06/24/96**	**6167104**
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/15-06/24/96	6167104
Butyl benzyl phthalate	ND	10	SW846 8270B	06/15-06/24/96	6167104
4-Chloroaniline	ND	10	SW846 8270B	06/15-06/24/96	6167104
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
2-Chloronaphthalene	ND	10	SW846 8270B	06/15-06/24/96	6167104
2-Chlorophenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/15-06/24/96	6167104
ysene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Dibenzofuran	ND	10	SW846 8270B	06/15-06/24/96	6167104
Di-n-butyl phthalate	ND	10	SW846 8270B	06/15-06/24/96	6167104
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/15-06/24/96	6167104
2,4-Dichlorophenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
2,6-Dichlorophenol	ND	10	SW846 8270B	06/15-06/24/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	103	(54 - 116)
Terphenyl-d14	110	(53 - 135)
Phenol-d5	12	(10 - 149)
2-Fluorophenol	9.0 *	(10 - 104)
2,4,6-Tribromophenol	36	(20 - 143)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL
J ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.

Geraghty & Miller

FMSWNS105

WO # : C4DX3102
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/15-06/24/96	6167104
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/15-06/24/96	6167104
2,4-Dimethylphenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
Dimethyl phthalate	ND	10	SW846 8270B	06/15-06/24/96	6167104
Di-n-octyl phthalate	ND	10	SW846 8270B	06/15-06/24/96	6167104
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/15-06/24/96	6167104
2,4-Dinitrophenol	ND	50	SW846 8270B	06/15-06/24/96	6167104
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/15-06/24/96	6167104
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/15-06/24/96	6167104
2-sec-Butyl-4,6-dinitrophenol	ND	20	SW846 8270B	06/15-06/24/96	6167104
Diphenylamine	ND	10	SW846 8270B	06/15-06/24/96	6167104
Ethyl methanesulfonate	ND	10	SW846 8270B	06/15-06/24/96	6167104
Fluoranthene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Fluorene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Hexachlorobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Hexachlorobutadiene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Hexachloroethane	ND	10	SW846 8270B	06/15-06/24/96	6167104
Hexachlorophene	ND		SW846 8270B	06/15-06/24/96	6167104
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/15-06/24/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	103	(54 - 116)
Terphenyl-d14	110	(53 - 135)
Phenol-d5	12	(10 - 149)
2-Fluorophenol	9.0 *	(10 - 104)
2,4,6-Tribromophenol	36	(20 - 143)

NOTE: AS RECEIVED
D NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS105

WO # : C4DX3102
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isophorone	ND	10	SW846 8270B	06/15-06/24/96	6167104
Isosafrole	ND	10	SW846 8270B	06/15-06/24/96	6167104
Methapyrilene	ND	100	SW846 8270B	06/15-06/24/96	6167104
o-Toluidine	ND	20	SW846 8270B	06/15-06/24/96	6167104
3-Methylcholanthrene	ND	100	SW846 8270B	06/15-06/24/96	6167104
Methyl methanesulfonate	ND	10	SW846 8270B	06/15-06/24/96	6167104
2-Methylnaphthalene	ND	10	SW846 8270B	06/15-06/24/96	6167104
2-Methylphenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
3-Methylphenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
4-Methylphenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
Naphthalene	ND	10	SW846 8270B	06/15-06/24/96	6167104
1,4-Naphthoquinone	ND	200	SW846 8270B	06/15-06/24/96	6167104
1-Naphthylamine	ND	10	SW846 8270B	06/15-06/24/96	6167104
2-Naphthylamine	ND	10	SW846 8270B	06/15-06/24/96	6167104
2-Nitroaniline	ND	50	SW846 8270B	06/15-06/24/96	6167104
3-Nitroaniline	ND	50	SW846 8270B	06/15-06/24/96	6167104
4-Nitroaniline	ND	50	SW846 8270B	06/15-06/24/96	6167104
Nitrobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
2-Nitrophenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
4-Nitrophenol	ND	50	SW846 8270B	06/15-06/24/96	6167104
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/15-06/24/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	103	(54 - 116)
Terphenyl-d14	110	(53 - 135)
Phenol-d5	12	(10 - 149)
2-Fluorophenol	9.0 *	(10 - 104)
2,4,6-Tribromophenol	36	(20 - 143)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS105

WO # : C4DX3102
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

- - - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/15-06/24/96	6167104
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/15-06/24/96	6167104
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/15-06/24/96	6167104
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/15-06/24/96	6167104
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/15-06/24/96	6167104
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/15-06/24/96	6167104
N-Nitrosomorpholine	ND	10	SW846 8270B	06/15-06/24/96	6167104
N-Nitrosopiperidine	ND	10	SW846 8270B	06/15-06/24/96	6167104
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/15-06/24/96	6167104
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/15-06/24/96	6167104
Pentachlorobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Pentachloroethane	ND	50	SW846 8270B	06/15-06/24/96	6167104
Pentachloronitrobenzene	ND	50	SW846 8270B	06/15-06/24/96	6167104
Pentachlorophenol	ND	50	SW846 8270B	06/15-06/24/96	6167104
Phenanthrene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Phenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
p-Phenylene diamine	ND	50	SW846 8270B	06/15-06/24/96	6167104
2-Picoline	ND	20	SW846 8270B	06/15-06/24/96	6167104
Pyrene	ND	10	SW846 8270B	06/15-06/24/96	6167104
Pyridine	ND	10	SW846 8270B	06/15-06/24/96	6167104
Safrole	ND	10	SW846 8270B	06/15-06/24/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	103	(54 - 116)
Terphenyl-d14	110	(53 - 135)
Phenol-d5	12	(10 - 149)
2-Fluorophenol	9.0 *	(10 - 104)
2,4,6-Tribromophenol	36	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS105

WO # : C4DX3102
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/15-06/24/96	6167104
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/15-06/24/96	6167104
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/15-06/24/96	6167104
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/15-06/24/96	6167104
Aramite	ND	50	SW846 8270B	06/15-06/24/96	6167104

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	72	(30 - 122)
2-Fluorobiphenyl	103	(54 - 116)
Terphenyl-d14	110	(53 - 135)
Phenol-d5	12	(10 - 149)
2-Fluorophenol	9.0 *	(10 - 104)
2,4,6-Tribromophenol	36	(20 - 143)

NOTE: AS RECEIVED
D NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATES OUT OF CONTROL

Geraghty & Miller

FMSWNS105

WO # : C4DX3202
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/26/96	6178124
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/26/96	6178124
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/26/96	6178124
Hexachloropropene	ND	100	SW846 8270B	06/26/96	6178124
Phenacetin	ND	50	SW846 8270B	06/26/96	6178124
Pronamide	ND	20	SW846 8270B	06/26/96	6178124
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/26/96	6178124
Diallate	ND	10	SW846 8270B	06/26/96	6178124
Chlorobenzilate	ND	10	SW846 8270B	06/26/96	6178124
Acenaphthene	ND	10	SW846 8270B	06/26/96	6178124
Acenaphthylene	ND	10	SW846 8270B	06/26/96	6178124
tophenone	ND	10	SW846 8270B	06/26/96	6178124
2-Acetylaminofluorene	ND	20	SW846 8270B	06/26/96	6178124
Aniline	ND	10	SW846 8270B	06/26/96	6178124
Anthracene	ND	10	SW846 8270B	06/26/96	6178124
Benzo(a)anthracene	ND	10	SW846 8270B	06/26/96	6178124
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/26/96	6178124
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/26/96	6178124
Benzo(ghi)perylene	ND	10	SW846 8270B	06/26/96	6178124
Benzo(a)pyrene	ND	10	SW846 8270B	06/26/96	6178124
Benzyl alcohol	ND	10	SW846 8270B	06/26/96	6178124

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	87	(54 - 116)
Terphenyl-d14	100	(53 - 135)
Phenol-d5	21	(10 - 149)
2-Fluorophenol	34	(10 - 104)
2,4,6-Tribromophenol	76	(20 - 143)

NOTE: AS RECEIVED
) NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS105

WO # : C4DX3202
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/26/96	6178124
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/26/96	6178124
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/26/96	6178124
bis(2-Ethylhexyl) phthalate	ND	10	SW846 8270B	06/26/96	6178124
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/26/96	6178124
Butyl benzyl phthalate	ND	10	SW846 8270B	06/26/96	6178124
4-Chloroaniline	ND	10	SW846 8270B	06/26/96	6178124
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/26/96	6178124
2-Chloronaphthalene	ND	10	SW846 8270B	06/26/96	6178124
2-Chlorophenol	ND	10	SW846 8270B	06/26/96	6178124
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/26/96	6178124
ysene	ND	10	SW846 8270B	06/26/96	6178124
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/26/96	6178124
Dibenzofuran	ND	10	SW846 8270B	06/26/96	6178124
Di-n-butyl phthalate	ND	10	SW846 8270B	06/26/96	6178124
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/26/96	6178124
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/26/96	6178124
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/26/96	6178124
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/26/96	6178124
2,4-Dichlorophenol	ND	10	SW846 8270B	06/26/96	6178124
2,6-Dichlorophenol	ND	10	SW846 8270B	06/26/96	6178124

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	87	(54 - 116)
Terphenyl-d14	100	(53 - 135)
Phenol-d5	21	(10 - 149)
2-Fluorophenol	34	(10 - 104)
2,4,6-Tribromophenol	76	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS105

WO # : C4DX3202
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/26/96	6178124
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/26/96	6178124
2,4-Dimethylphenol	ND	10	SW846 8270B	06/26/96	6178124
Dimethyl phthalate	ND	10	SW846 8270B	06/26/96	6178124
Di-n-octyl phthalate	ND	10	SW846 8270B	06/26/96	6178124
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/26/96	6178124
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/26/96	6178124
2,4-Dinitrophenol	ND	50	SW846 8270B	06/26/96	6178124
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/26/96	6178124
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/26/96	6178124
2-sec-Butyl-4,6-dinitrophenol	ND	20	SW846 8270B	06/26/96	6178124
Diphenylamine	ND	10	SW846 8270B	06/26/96	6178124
Ethyl methanesulfonate	ND	10	SW846 8270B	06/26/96	6178124
Fluoranthene	ND	10	SW846 8270B	06/26/96	6178124
Fluorene	ND	10	SW846 8270B	06/26/96	6178124
Hexachlorobenzene	ND	10	SW846 8270B	06/26/96	6178124
Hexachlorobutadiene	ND	10	SW846 8270B	06/26/96	6178124
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/26/96	6178124
Hexachloroethane	ND	10	SW846 8270B	06/26/96	6178124
Hexachlorophene	ND		SW846 8270B	06/26/96	6178124
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/26/96	6178124

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	87	(54 - 116)
Terphenyl-d14	100	(53 - 135)
Phenol-d5	21	(10 - 149)
2-Fluorophenol	34	(10 - 104)
2,4,6-Tribromophenol	76	(20 - 143)

NOTE: AS RECEIVED
) NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS105

WO # : C4DX3202
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isophorone	ND	10	SW846 8270B	06/26/96	6178124
Isosafrole	ND	10	SW846 8270B	06/26/96	6178124
Methapyrilene	ND	100	SW846 8270B	06/26/96	6178124
o-Toluidine	ND	20	SW846 8270B	06/26/96	6178124
3-Methylcholanthrene	ND	100	SW846 8270B	06/26/96	6178124
Methyl methanesulfonate	ND	10	SW846 8270B	06/26/96	6178124
2-Methylnaphthalene	ND	10	SW846 8270B	06/26/96	6178124
2-Methylphenol	ND	10	SW846 8270B	06/26/96	6178124
3-Methylphenol	ND	10	SW846 8270B	06/26/96	6178124
4-Methylphenol	ND	10	SW846 8270B	06/26/96	6178124
Naphthalene	ND	10	SW846 8270B	06/26/96	6178124
1,4-Naphthoquinone	ND	200	SW846 8270B	06/26/96	6178124
1-Naphthylamine	ND	10	SW846 8270B	06/26/96	6178124
2-Naphthylamine	ND	10	SW846 8270B	06/26/96	6178124
2-Nitroaniline	ND	50	SW846 8270B	06/26/96	6178124
3-Nitroaniline	ND	50	SW846 8270B	06/26/96	6178124
4-Nitroaniline	ND	50	SW846 8270B	06/26/96	6178124
Nitrobenzene	ND	10	SW846 8270B	06/26/96	6178124
2-Nitrophenol	ND	10	SW846 8270B	06/26/96	6178124
4-Nitrophenol	ND	50	SW846 8270B	06/26/96	6178124
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/26/96	6178124

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	87	(54 - 116)
Terphenyl-d14	100	(53 - 135)
Phenol-d5	21	(10 - 149)
2-Fluorophenol	34	(10 - 104)
2,4,6-Tribromophenol	76	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS105

WO # : C4DX3202
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/26/96	6178124
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/26/96	6178124
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/26/96	6178124
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/26/96	6178124
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/26/96	6178124
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/26/96	6178124
N-Nitrosomorpholine	ND	10	SW846 8270B	06/26/96	6178124
N-Nitrosopiperidine	ND	10	SW846 8270B	06/26/96	6178124
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/26/96	6178124
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/26/96	6178124
Pentachlorobenzene	ND	10	SW846 8270B	06/26/96	6178124
Pentachloroethane	ND	50	SW846 8270B	06/26/96	6178124
Pentachloronitrobenzene	ND	50	SW846 8270B	06/26/96	6178124
Pentachlorophenol	ND	50	SW846 8270B	06/26/96	6178124
Phenanthrene	ND	10	SW846 8270B	06/26/96	6178124
Phenol	ND	10	SW846 8270B	06/26/96	6178124
p-Phenylene diamine	ND	50	SW846 8270B	06/26/96	6178124
2-Picoline	ND	20	SW846 8270B	06/26/96	6178124
Pyrene	ND	10	SW846 8270B	06/26/96	6178124
Pyridine	ND	10	SW846 8270B	06/26/96	6178124
Safrole	ND	10	SW846 8270B	06/26/96	6178124

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	87	(54 - 116)
Terphenyl-d14	100	(53 - 135)
Phenol-d5	21	(10 - 149)
2-Fluorophenol	34	(10 - 104)
2,4,6-Tribromophenol	76	(20 - 143)

NOTE: AS RECEIVED

D NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS105

WO # : C4DX3202
LAB # : A6F130119-015
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/26/96	6178124
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/26/96	6178124
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/26/96	6178124
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/26/96	6178124
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/26/96	6178124
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/26/96	6178124
Aramite	ND	50	SW846 8270B	06/26/96	6178124

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	87	(54 - 116)
Terphenyl-d14	100	(53 - 135)
Phenol-d5	21	(10 - 149)
2-Fluorophenol	34	(10 - 104)
2,4,6-Tribromophenol	76	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

INORGANIC SAMPLE DATA

Geraghty & Miller

FMSWNS105

WO # : C4DX3
LAB # : A6F130119-015
MATRIX: WATER

DATE SAMPLED : 6/11/96
TIME SAMPLED : 17:00
DATE RECEIVED: 6/13/96

- - - - - - - - - - - - - - - - - - INORGANIC ANALYTICAL REPORT - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	ND	1,200	ug/L	MCAWW 340.2	6/19/96	6171155
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/20/96	6172167

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

CHAIN-OF-CUSTODY

1442A

Environmental Services
a heidemij company

Laboratory Task Order No._____

CHAIN-OF-CUSTODY RECORD

Page_____ of_____

Project Nu IN0144.107

Project Location Federated Metals

Laboratory Quanterra

Sampler(s)/Affiliation Blake Fahl, Jamie Yater } G+M

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	VOCs 2oz jar	Metals (Total), BNAs Fluoride, CN 8oz j	VOCs HCl 40ml vials	Total Metals 1L plas - HNO3	CN 250ml NaOH	Fl 250ml	BNAs 1L glass			TOTAL
FMSEDNS43+5(0-0.5)		6-11-96 115P		1	1								2
FMSEDNS45+5(0-0.5)		145P		1	1								2
FMSEDNS45+20(0-0.5)		2P		1	1								2
FMSEDNS45+40(0-0.5)		210P		1	1								2
* FMSEDNS45+80(0-0.5)		230P		1	1								2
FMSEDNS46+5(0-0.5)		3P		1	1								2
FMSEDNS46+20(0-0.5)		315P		1	1								2
FMSEDNS46+40(0-0.5)		330P		1	1								2
FMSEDNS46+80(0-0.5)		345P		1	1								2
FMSEDNS44+5(0-0.5)		4P		1	1								2
FMSEDNS44+20(0-0.5)		415P		1	1								2
FMSEDNS44+40(0-0.5)		430P		1	1								2
FMSEDNS44+80(0-0.5)		445P		1	1								2
FMSEDNS104+20(0-0.5)		315P		1	1								2
FMSWNS 109 TRIP BLANK		6-11-96 5P				3 3	1	1	1	2			8 +

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 39

Relinquished by: Jamie Yater	Organization: Geraghty & Miller	Date 6/12/96	Time 6P	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by: [signature]	Organization: Quanterra	Date 6/13/96	Time 1200p	

Special Instructions/Remarks:

* Also run MS/MSD on this sample

Delivery Method: ☐ In Person ☒ Common Carrier Fed X (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

rm 09-9-91

001442A

5W

Quanterra
Environmental Services

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

RECEIVED
JUL 25 1996
GERAGHTY & MILLER, INC.
INDIANAPOLIS, INDIANA

ANALYTICAL REPORT

PROJECT NO. IN0144.107

FEDERATED METALS
Lot#: A6F080118

Tim Northam

Geraghty & Miller

QUANTERRA INCORPORATED

Thomas M. Himes

Thomas M. Himes
Project Manager

July 22, 1996

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Internal Chain-of-Custody

Chain-of-Custody

CASE NARRATIVE

CASE NARRATIVE

The following report contains the analytical results for five water samples, eighteen solid samples, and one quality control sample submitted to Quanterra-North Canton by Geraghty & Miller from the Federated Metals Site, project number IN0144.107. The samples were received June 8, 1996, according to documented sample acceptance procedures.

Sample "Trip Blank 6/7/96", as listed on the chain-of-custody, was not received at the laboratory.

The sample depth for "FMSEDS43+5" was changed from 0-0.5 feet to 1-1.5 feet. This revision was based on revisions from Geraghty & Miller on July 10, 1996.

The water matrix Fluoride analyses presented in this report were performed at the Quanterra-Tampa facility.

Quanterra utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with the exception of those items noted.

<u>GC/MS Volatile Organics, SW846 8240</u>

Sample "FMSEDNS43+20(0.5-2)" exhibited internal standard areas outside laboratory acceptance criteria due to demonstrated matrix effect.

<u>GC/MS Semi-Volatile Organics, SW846 8270</u>

Bis(2-Ethylhexyl) phthalate, a common laboratory contaminant, is present in the GC/MS Semi-Volatile Organics Method Blanks associated with QC batches 6163102 and 6164106. This commonly detected laboratory contaminant may be present if the concentration of the analyte is less than five times the reporting limit.

The GC/MS Semi-Volatile Organics MS/MSD associated with QC batch 6163102 failed to meet acceptable RPD criteria for 4-Nitrophenol Since the associated check sample, method blank, and surrogates met acceptance criteria, the batch was determined to be in control and corrective action was not necessary.

CASE NARRATIVE (cont.)

Inorganics - Metals

The Metals MS/MSD performed on sample "FMSEDNS43+80(1-1.5)" exhibited percent recoveries outside laboratory acceptance criteria for beryllium, lead, antimony, selenium, thallium, and zinc. The laboratory performs MATRIX SPIKES (MS) and MATRIX SPIKE DUPLICATES (MSD) to indicate any matrix effects within a given sample. They also allow the laboratory to gather precision and bias data for a specific method and matrix. Since matrix effects may bias percent recovery, the laboratory performs corrective action if the precision (RPD) criteria of the MS/MSD is not met.

Wet Chemistry

The laboratory performs MATRIX SPIKES (MS) and MATRIX SPIKE DUPLICATES (MSD) to indicate any matrix effects within a given sample. They also allow the laboratory to gather precision and bias data for a specific method and matrix. Since matrix effects may bias percent recovery, the laboratory performs corrective action only if the precision (RPD) criteria of the MS/MSD is not met.

The Cyanide MS/MSD performed on sample "FMSEDNS43+80(1-1.5)" failed to meet acceptable RPD criteria. Upon reprep and reanalysis, the RPD was within acceptance criteria.

QA/QC PROGRAM ELEMENTS

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

Quanterra Incorporated conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. Quanterra requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable. Consultation with the client should take place.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). Failure of the RPDs to fall within the laboratory-generated acceptance windows requires the repreparation and reanalysis of all samples in the QC batch.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) except for the common laboratory contaminants indicated below.

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

* *for analyses run on TJA Trace ICP or GFAA only*

The listed volatile and semivolatile compounds may be present in concentrations up to 5 times the reporting limits. All other organic analyte concentrations must be below the reporting limits. The listed metals may be present in concentrations up to 2 times the reporting limit or must be twenty fold less than the results of the environmental samples. Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (cont.)

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When evaluating the MS/MSD data, special attention is given to the RPD values. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. Otherwise, the MS/MSD and the environmental sample used to prepare them are reprepared and reanalyzed.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

The Pesticide/PCB, PAH, TPH and Herbicide analytical methods require that one of two surrogate compounds meet acceptance criteria. All other organic analytical methods require every surrogate recovery to be within the established control limit. The acceptance criteria does not apply to samples that are diluted. If the dilution is more than 5X, the recoveries will be reported as diluted out. All other surrogate recoveries will be reported. If the LCS or the Method Blank surrogates fail to meet recovery criteria (except for dilutions), the entire batch of samples is reprepared and reanalyzed. If the surrogates in an environmental sample do not meet the recovery criteria, only the sample is reprepared and reanalyzed to confirm the matrix effect.

SAMPLE SUMMARY

SAMPLE SUMMARY

The analytical results of the samples listed below are presented on the following pages.

WO #	LABORATORY ID	SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	
C4C3Q	A6F080118-001	FMSWNS43+80(0-1)	6/06/96	10:30
C4C44	A6F080118-002	FMSWNS43+80(1.5-2.5)	6/06/96	11:00
C4C45	A6F080118-003	FMSEDNS43+80(0-1)	6/06/96	11:15
C4C47	A6F080118-004	FMSEDNS43+80(1-1.5)	6/06/96	11:45
C4C48	A6F080118-005	FMSWNS43+40	6/06/96	14:40
C4C49	A6F080118-006	FMSEDNS43+5(1-1.5)	6/06/96	15:15
C4C4A	A6F080118-007	FMSEDNS43+20(0.5-2)	6/06/96	15:40
C4C4D	A6F080118-008	FMSEDNS43+40(0-1)	6/06/96	16:00
C4C4F	A6F080118-009	FMSWNS101	6/06/96	17:15
C4C4K	A6F080118-010	TRIP BLANK	6/06/96	0:00
C4C4M	A6F080118-011	FMSEDNS45+80(0.5-1.5)	6/07/96	9:15
C4C4P	A6F080118-012	FMSEDNS45+40(0.5-1.5)	6/07/96	9:30
C4C4Q	A6F080118-013	FMSEDNS45+20(0.5-1.5)	6/07/96	10:00
C4C4R	A6F080118-014	FMSEDNS45+103(0.5-1.5)	6/07/96	10:00
C4C4T	A6F080118-015	FMSEDNS45+5(0.5-1.5)	6/07/96	10:15
C4C4V	A6F080118-016	FMSEDNS46+80(0.5-1.5)	6/07/96	10:30
C4C4W	A6F080118-017	FMSEDNS46+40(0.5-1.5)	6/07/96	10:45
C4C4X	A6F080118-018	FMSEDNS46+20(0.5-1.5)	6/07/96	11:00
C[illegible]	A6F080118-019	FMSEDNS46+5(0.5-1.5)	6/07/96	11:15
C4C51	A6F080118-020	FMSEDNS44+80(0.5-1.5)	6/07/96	11:45
C4C52	A6F080118-021	FMSEDNS44+40(0.5-1.5)	6/07/96	12:00
C4C53	A6F080118-022	FMSEDNS44+20(0.5-1.5)	6/07/96	12:15
C4C54	A6F080118-023	FMSEDNS44+5(0.5-1.5)	6/07/96	12:30
C4C55	A6F080118-024	FMSWNS102	6/07/96	13:00

METHOD REFERENCE

ANALYTICAL METHODS SUMMARY

A6F080118

Parameters	Methods
Semivolatile Organic Compounds by GC/MS	SW846 8270B
Volatile Organics by GC/MS	SW846 8240B
Fluoride (Potentiometric, Ion Selective Electrode)	MCAWW 340.2
Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Total Residue as Percent Solids	MCAWW 160.3 MODIFIED
Total Cyanide	SW846 9012

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

GC/MS VOLATILE SAMPLE DATA

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q101
LAB # : A6F080118-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6171141
Acetonitrile	ND	50	SW846 8240B	06/18/96	6171141
Acrolein	ND	100	SW846 8240B	06/18/96	6171141
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6171141
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6171141
Benzene	ND	5.0	SW846 8240B	06/18/96	6171141
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6171141
Bromoform	ND	10	SW846 8240B	06/18/96	6171141
Bromomethane	ND	10	SW846 8240B	06/18/96	6171141
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6171141
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6171141
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6171141
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6171141
Chloroethane	ND	10	SW846 8240B	06/18/96	6171141
Chloroform	ND	5.0	SW846 8240B	06/18/96	6171141
Chloromethane	ND	10	SW846 8240B	06/18/96	6171141
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6171141
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6171141
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6171141
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	97	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q101
LAB # : A6F080118-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6171141
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6171141
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6171141
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6171141
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6171141
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6171141
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6171141
2-Hexanone	ND	50	SW846 8240B	06/18/96	6171141
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6171141
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6171141
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6171141
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6171141
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6171141
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6171141
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6171141
Propionitrile	ND	20	SW846 8240B	06/18/96	6171141
Styrene	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	97	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q101
LAB # : A6F080118-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
Toluene	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6171141
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6171141
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6171141
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	97	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(0-1)

WO #: C4C3Q101		**DATE SAMPLED:**	6/06/96
LAB #: A6F080118-001		**DATE RECEIVED:**	6/08/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6171141**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NE		**ug/L**	**6171141**

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44101
LAB # : A6F080118-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6171141
Acetonitrile	ND	50	SW846 8240B	06/18/96	6171141
Acrolein	ND	100	SW846 8240B	06/18/96	6171141
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6171141
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6171141
Benzene	ND	5.0	SW846 8240B	06/18/96	6171141
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6171141
Bromoform	ND	10	SW846 8240B	06/18/96	6171141
Bromomethane	ND	10	SW846 8240B	06/18/96	6171141
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6171141
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6171141
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6171141
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6171141
Chloroethane	ND	10	SW846 8240B	06/18/96	6171141
Chloroform	ND	5.0	SW846 8240B	06/18/96	6171141
Chloromethane	ND	10	SW846 8240B	06/18/96	6171141
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6171141
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6171141
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6171141
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44101
LAB # : A6F080118-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

- GC/MS Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6171141
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6171141
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6171141
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6171141
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6171141
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6171141
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6171141
2-Hexanone	ND	50	SW846 8240B	06/18/96	6171141
›domethane	ND	5.0	SW846 8240B	06/18/96	6171141
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6171141
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6171141
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6171141
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6171141
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6171141
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6171141
Propionitrile	ND	20	SW846 8240B	06/18/96	6171141
Styrene	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44101
LAB # : A6F080118-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

- GC/MS Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
Toluene	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6171141
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6171141
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6171141
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	95	(76 - 114)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO #: C4C44101		**DATE SAMPLED:**	6/06/96
LAB #: A6F080118-002		**DATE RECEIVED:**	6/08/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6171141**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6171141**

Geraghty & Miller

FMSWNS43+40

WO # : C4C48101
LAB # : A6F080118-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6171141
Acetonitrile	ND	50	SW846 8240B	06/18/96	6171141
Acrolein	ND	100	SW846 8240B	06/18/96	6171141
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6171141
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6171141
Benzene	ND	5.0	SW846 8240B	06/18/96	6171141
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6171141
Bromoform	ND	10	SW846 8240B	06/18/96	6171141
Bromomethane	ND	10	SW846 8240B	06/18/96	6171141
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6171141
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6171141
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6171141
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6171141
Chloroethane	ND	10	SW846 8240B	06/18/96	6171141
Chloroform	ND	5.0	SW846 8240B	06/18/96	6171141
Chloromethane	ND	10	SW846 8240B	06/18/96	6171141
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6171141
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6171141
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6171141
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+40

WO # : C4C48101
LAB # : A6F080118-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6171141
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6171141
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6171141
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6171141
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6171141
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6171141
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6171141
2-Hexanone	ND	50	SW846 8240B	06/18/96	6171141
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6171141
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6171141
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6171141
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6171141
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6171141
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6171141
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6171141
Propionitrile	ND	20	SW846 8240B	06/18/96	6171141
Styrene	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+40

WO # : C4C48101
LAB # : A6F080118-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
Toluene	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6171141
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6171141
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6171141
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+40

WO #: C4C48101		**DATE SAMPLED:**	6/06/96
LAB #: A6F080118-005		**DATE RECEIVED:**	6/08/96
MATRIX: WATER		**DATE EXTRACTED:**	6/18/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6171141**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NE		**ug/L**	**6171141**

Geraghty & Miller

FMSWNS101

WO # : C4C4F101
LAB # : A6F080118-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/19/96	6172151
Acetonitrile	ND	50	SW846 8240B	06/19/96	6172151
Acrolein	ND	100	SW846 8240B	06/19/96	6172151
Acrylonitrile	ND	50	SW846 8240B	06/19/96	6172151
Allyl chloride	ND	5.0	SW846 8240B	06/19/96	6172151
Benzene	ND	5.0	SW846 8240B	06/19/96	6172151
Bromodichloromethane	ND	5.0	SW846 8240B	06/19/96	6172151
Bromoform	ND	10	SW846 8240B	06/19/96	6172151
Bromomethane	ND	10	SW846 8240B	06/19/96	6172151
2-Butanone (MEK)	ND	50	SW846 8240B	06/19/96	6172151
Carbon disulfide	ND	5.0	SW846 8240B	06/19/96	6172151
Carbon tetrachloride	ND	10	SW846 8240B	06/19/96	6172151
Chlorobenzene	ND	5.0	SW846 8240B	06/19/96	6172151
Chloroethane	ND	10	SW846 8240B	06/19/96	6172151
Chloroform	ND	5.0	SW846 8240B	06/19/96	6172151
Chloromethane	ND	10	SW846 8240B	06/19/96	6172151
Chloroprene	ND	5.0	SW846 8240B	06/19/96	6172151
Dibromochloromethane	ND	5.0	SW846 8240B	06/19/96	6172151
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/19/96	6172151
Dibromomethane	ND	5.0	SW846 8240B	06/19/96	6172151
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/19/96	6172151

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	98	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS101

WO # : C4C4F101
LAB # : A6F080118-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/19/96	6172151
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/19/96	6172151
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/19/96	6172151
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/19/96	6172151
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/19/96	6172151
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/19/96	6172151
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/19/96	6172151
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/19/96	6172151
1,4-Dioxane	ND	1,000	SW846 8240B	06/19/96	6172151
Ethylbenzene	ND	5.0	SW846 8240B	06/19/96	6172151
Ethyl methacrylate	ND	5.0	SW846 8240B	06/19/96	6172151
2-Hexanone	ND	50	SW846 8240B	06/19/96	6172151
Iodomethane	ND	5.0	SW846 8240B	06/19/96	6172151
Isobutyl alcohol	ND	500	SW846 8240B	06/19/96	6172151
Methacrylonitrile	ND	20	SW846 8240B	06/19/96	6172151
Methylene chloride	ND	5.0	SW846 8240B	06/19/96	6172151
Methyl methacrylate	ND	5.0	SW846 8240B	06/19/96	6172151
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/19/96	6172151
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/19/96	6172151
Propionitrile	ND	20	SW846 8240B	06/19/96	6172151
Styrene	ND	5.0	SW846 8240B	06/19/96	6172151

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	98	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS101

WO # : C4C4F101
LAB # : A6F080118-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/19/96	6172151
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/19/96	6172151
Tetrachloroethene	ND	5.0	SW846 8240B	06/19/96	6172151
Toluene	ND	5.0	SW846 8240B	06/19/96	6172151
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/19/96	6172151
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/19/96	6172151
Trichloroethene	ND	5.0	SW846 8240B	06/19/96	6172151
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/19/96	6172151
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/19/96	6172151
Vinyl acetate	ND	50	SW846 8240B	06/19/96	6172151
Vinyl chloride	ND	10	SW846 8240B	06/19/96	6172151
Xylenes (total)	ND	5.0	SW846 8240B	06/19/96	6172151

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	98	(76 - 114)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS101

WO #: C4C4F101		**DATE SAMPLED:**	6/06/96
LAB #: A6F080118-009		**DATE RECEIVED:**	6/08/96
MATRIX: WATER		**DATE EXTRACTED:**	6/19/96
DILUTION FACTOR:	1.00	**DATE ANALYZED:**	6/19/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6172151**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NE		**ug/L**	**6172151**

Geraghty & Miller

TRIP BLANK

WO # : C4C4K101
LAB # : A6F080118-010
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED :
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	50	SW846 8240B	06/18/96	6171141
Acetonitrile	ND	50	SW846 8240B	06/18/96	6171141
Acrolein	ND	100	SW846 8240B	06/18/96	6171141
Acrylonitrile	ND	50	SW846 8240B	06/18/96	6171141
Allyl chloride	ND	5.0	SW846 8240B	06/18/96	6171141
Benzene	ND	5.0	SW846 8240B	06/18/96	6171141
Bromodichloromethane	ND	5.0	SW846 8240B	06/18/96	6171141
Bromoform	ND	10	SW846 8240B	06/18/96	6171141
Bromomethane	ND	10	SW846 8240B	06/18/96	6171141
2-Butanone (MEK)	ND	50	SW846 8240B	06/18/96	6171141
Carbon disulfide	ND	5.0	SW846 8240B	06/18/96	6171141
Carbon tetrachloride	ND	10	SW846 8240B	06/18/96	6171141
Chlorobenzene	ND	5.0	SW846 8240B	06/18/96	6171141
Chloroethane	ND	10	SW846 8240B	06/18/96	6171141
Chloroform	ND	5.0	SW846 8240B	06/18/96	6171141
Chloromethane	ND	10	SW846 8240B	06/18/96	6171141
Chloroprene	ND	5.0	SW846 8240B	06/18/96	6171141
Dibromochloromethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dibromoethane (EDB)	ND	5.0	SW846 8240B	06/18/96	6171141
Dibromomethane	ND	5.0	SW846 8240B	06/18/96	6171141
trans-1,4-Dichloro-2-butene	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO # : C4C4K101
LAB # : A6F080118-010
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED :
DATE RECEIVED: 6/08/96

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	ND	20	SW846 8240B	06/18/96	6171141
1,1-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1-Dichloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloroethene (total)	ND	5.0	SW846 8240B	06/18/96	6171141
1,2-Dichloropropane	ND	5.0	SW846 8240B	06/18/96	6171141
cis-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6171141
trans-1,3-Dichloropropene	ND	5.0	SW846 8240B	06/18/96	6171141
1,4-Dioxane	ND	1,000	SW846 8240B	06/18/96	6171141
Ethylbenzene	ND	5.0	SW846 8240B	06/18/96	6171141
Ethyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6171141
2-Hexanone	ND	50	SW846 8240B	06/18/96	6171141
Iodomethane	ND	5.0	SW846 8240B	06/18/96	6171141
Isobutyl alcohol	ND	500	SW846 8240B	06/18/96	6171141
Methacrylonitrile	ND	20	SW846 8240B	06/18/96	6171141
Methylene chloride	ND	5.0	SW846 8240B	06/18/96	6171141
Methyl methacrylate	ND	5.0	SW846 8240B	06/18/96	6171141
4-Methyl-2-pentanone (MIBK)	ND	50	SW846 8240B	06/18/96	6171141
1,2-Dibromo-3-chloro-propane	ND	10	SW846 8240B	06/18/96	6171141
Propionitrile	ND	20	SW846 8240B	06/18/96	6171141
Styrene	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO # : C4C4K101
LAB # : A6F080118-010
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED :
DATE RECEIVED: 6/08/96

- **GC/MS Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
Tetrachloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
Toluene	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,1-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,1,2-Trichloroethane	ND	5.0	SW846 8240B	06/18/96	6171141
Trichloroethene	ND	5.0	SW846 8240B	06/18/96	6171141
Trichlorofluoromethane	ND	5.0	SW846 8240B	06/18/96	6171141
1,2,3-Trichloropropane	ND	5.0	SW846 8240B	06/18/96	6171141
Vinyl acetate	ND	50	SW846 8240B	06/18/96	6171141
Vinyl chloride	ND	10	SW846 8240B	06/18/96	6171141
Xylenes (total)	ND	5.0	SW846 8240B	06/18/96	6171141

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	101	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

TRIP BLANK

WO #: C4C4K101
LAB #: A6F080118-010
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED: 6/06/96
DATE RECEIVED: 6/08/96
DATE EXTRACTED: 6/18/96
DATE ANALYZED: 6/18/96

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6171141**

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
Volatile Organics, GC/MS (8240)			
NONE		**ug/L**	**6171141**

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q102
LAB # : A6F080118-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/11-06/18/96	6163102
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/11-06/18/96	6163102
Hexachloropropene	ND	100	SW846 8270B	06/11-06/18/96	6163102
Phenacetin	ND	50	SW846 8270B	06/11-06/18/96	6163102
Pronamide	ND	20	SW846 8270B	06/11-06/18/96	6163102
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/11-06/18/96	6163102
Diallate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Chlorobenzilate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Acenaphthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Acenaphthylene	ND	10	SW846 8270B	06/11-06/18/96	6163102
etophenone	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Acetylaminofluorene	ND	20	SW846 8270B	06/11-06/18/96	6163102
Aniline	ND	10	SW846 8270B	06/11-06/18/96	6163102
Anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(a)anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(ghi)perylene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(a)pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzyl alcohol	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	76	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	81	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q102
LAB # : A6F080118-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Ethylhexyl) phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
Butyl benzyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chloroaniline	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Chloronaphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Chlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
hrysene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dibenzofuran	ND	10	SW846 8270B	06/11-06/18/96	6163102
Di-n-butyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,6-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	76	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	81	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q102
LAB # : A6F080118-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
2,4-Dimethylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dimethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Di-n-octyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
2,4-Dinitrophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/11-06/18/96	6163102
Diphenylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
Ethyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Fluorene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorobutadiene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachloroethane	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorophene	--		**SW846 8270B**	**06/11-06/18/96**	**6163102**
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	76	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	81	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
-- (NOT ANALYZED)

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q102
LAB # : A6F080118-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isophorone	ND	10	SW846 8270B	06/11-06/18/96	6163102
Isosafrole	ND	10	SW846 8270B	06/11-06/18/96	6163102
Methapyrilene	ND	100	SW846 8270B	06/11-06/18/96	6163102
o-Toluidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
3-Methylcholanthrene	ND	100	SW846 8270B	06/11-06/18/96	6163102
Methyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Methylnaphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
3-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
Naphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,4-Naphthoquinone	ND	200	SW846 8270B	06/11-06/18/96	6163102
1-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
3-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
4-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
Nitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Nitrophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Nitrophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	76	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	81	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q102
LAB # : A6F080118-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosomorpholine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosopiperidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
Pentachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Pentachloroethane	ND	50	SW846 8270B	06/11-06/18/96	6163102
Pentachloronitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	6163102
Pentachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
Phenanthrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Phenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
p-Phenylene diamine	ND	50	SW846 8270B	06/11-06/18/96	6163102
2-Picoline	ND	20	SW846 8270B	06/11-06/18/96	6163102
Pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Pyridine	ND	10	SW846 8270B	06/11-06/18/96	6163102
Safrole	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	76	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	81	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q102
LAB # : A6F080118-001
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	6163102
Aramite	ND	50	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	76	(30 - 122)
2-Fluorobiphenyl	81	(54 - 116)
Terphenyl-d14	81	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44102
LAB # : A6F080118-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/11-06/18/96	6163102
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/11-06/18/96	6163102
Hexachloropropene	ND	100	SW846 8270B	06/11-06/18/96	6163102
Phenacetin	ND	50	SW846 8270B	06/11-06/18/96	6163102
Pronamide	ND	20	SW846 8270B	06/11-06/18/96	6163102
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/11-06/18/96	6163102
Diallate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Chlorobenzilate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Acenaphthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Acenaphthylene	ND	10	SW846 8270B	06/11-06/18/96	6163102
cetophenone	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Acetylaminofluorene	ND	20	SW846 8270B	06/11-06/18/96	6163102
Aniline	ND	10	SW846 8270B	06/11-06/18/96	6163102
Anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(a)anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(ghi)perylene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(a)pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzyl alcohol	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	78	(30 - 122)
2-Fluorobiphenyl	92	(54 - 116)
Terphenyl-d14	74	(53 - 135)
Phenol-d5	68	(10 - 149)
2-Fluorophenol	57	(10 - 104)
2,4,6-Tribromophenol	83	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44102
LAB # : A6F080118-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Ethylhexyl) phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
Butyl benzyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chloroaniline	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Chloronaphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Chlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
ırysene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dibenzofuran	ND	10	SW846 8270B	06/11-06/18/96	6163102
Di-n-butyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,6-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	78	(30 - 122)
2-Fluorobiphenyl	92	(54 - 116)
Terphenyl-d14	74	(53 - 135)
Phenol-d5	68	(10 - 149)
2-Fluorophenol	57	(10 - 104)
2,4,6-Tribromophenol	83	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44102
LAB # : A6F080118-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
2,4-Dimethylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dimethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Di-n-octyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
2,4-Dinitrophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/11-06/18/96	6163102
Diphenylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
Ethyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Fluorene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorobutadiene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachloroethane	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorophene	--		**SW846 8270B**	**06/11-06/18/96**	**6163102**
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	78	(30 - 122)
2-Fluorobiphenyl	92	(54 - 116)
Terphenyl-d14	74	(53 - 135)
Phenol-d5	68	(10 - 149)
2-Fluorophenol	57	(10 - 104)
2,4,6-Tribromophenol	83	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
-- (NOT ANALYZED)

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44102
LAB # : A6F080118-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isophorone	ND	10	SW846 8270B	06/11-06/18/96	6163102
Isosafrole	ND	10	SW846 8270B	06/11-06/18/96	6163102
Methapyrilene	ND	100	SW846 8270B	06/11-06/18/96	6163102
o-Toluidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
3-Methylcholanthrene	ND	100	SW846 8270B	06/11-06/18/96	6163102
Methyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Methylnaphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
3-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
Naphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,4-Naphthoquinone	ND	200	SW846 8270B	06/11-06/18/96	6163102
1-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
3-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
4-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
Nitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Nitrophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Nitrophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	78	(30 - 122)
2-Fluorobiphenyl	92	(54 - 116)
Terphenyl-d14	74	(53 - 135)
Phenol-d5	68	(10 - 149)
2-Fluorophenol	57	(10 - 104)
2,4,6-Tribromophenol	83	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44102
LAB # : A6F080118-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosomorpholine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosopiperidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
Pentachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Pentachloroethane	ND	50	SW846 8270B	06/11-06/18/96	6163102
Pentachloronitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	6163102
Pentachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
Phenanthrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Phenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
p-Phenylene diamine	ND	50	SW846 8270B	06/11-06/18/96	6163102
2-Picoline	ND	20	SW846 8270B	06/11-06/18/96	6163102
Pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Pyridine	ND	10	SW846 8270B	06/11-06/18/96	6163102
Safrole	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	78	(30 - 122)
2-Fluorobiphenyl	92	(54 - 116)
Terphenyl-d14	74	(53 - 135)
Phenol-d5	68	(10 - 149)
2-Fluorophenol	57	(10 - 104)
2,4,6-Tribromophenol	83	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44102
LAB # : A6F080118-002
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	6163102
Aramite	ND	50	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	78	(30 - 122)
2-Fluorobiphenyl	92	(54 - 116)
Terphenyl-d14	74	(53 - 135)
Phenol-d5	68	(10 - 149)
2-Fluorophenol	57	(10 - 104)
2,4,6-Tribromophenol	83	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+40

WO # : C4C48102
LAB # : A6F080118-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/11-06/18/96	6163102
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/11-06/18/96	6163102
Hexachloropropene	ND	100	SW846 8270B	06/11-06/18/96	6163102
Phenacetin	ND	50	SW846 8270B	06/11-06/18/96	6163102
Pronamide	ND	20	SW846 8270B	06/11-06/18/96	6163102
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/11-06/18/96	6163102
Diallate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Chlorobenzilate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Acenaphthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Acenaphthylene	ND	10	SW846 8270B	06/11-06/18/96	6163102
etophenone	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Acetylaminofluorene	ND	20	SW846 8270B	06/11-06/18/96	6163102
Aniline	ND	10	SW846 8270B	06/11-06/18/96	6163102
Anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(a)anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(ghi)perylene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzo(a)pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Benzyl alcohol	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	65	(30 - 122)
2-Fluorobiphenyl	77	(54 - 116)
Terphenyl-d14	64	(53 - 135)
Phenol-d5	64	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+40

WO # : C4C48102
LAB # : A6F080118-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
bis(2-Ethylhexyl) phthalate	**6.7 B J**	**10**	**SW846 8270B**	**06/11-06/18/96**	**6163102**
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
Butyl benzyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chloroaniline	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Chloronaphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Chlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/11-06/18/96	6163102
hrysene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dibenzofuran	ND	10	SW846 8270B	06/11-06/18/96	6163102
Di-n-butyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,6-Dichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	65	(30 - 122)
2-Fluorobiphenyl	77	(54 - 116)
Terphenyl-d14	64	(53 - 135)
Phenol-d5	64	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
J ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.
B (COMPOUND DETECTED IN METHOD BLANK ASSOCIATED WITH THIS SAMPLE)

Geraghty & Miller

FMSWNS43+40

WO # : C4C48102
LAB # : A6F080118-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

- **GC/MS Semi-Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
2,4-Dimethylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
Dimethyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Di-n-octyl phthalate	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
2,4-Dinitrophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/11-06/18/96	6163102
Diphenylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
Ethyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	6163102
Fluoranthene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Fluorene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorobutadiene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachloroethane	ND	10	SW846 8270B	06/11-06/18/96	6163102
Hexachlorophene	--		**SW846 8270B**	**06/11-06/18/96**	**6163102**
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	65	(30 - 122)
2-Fluorobiphenyl	77	(54 - 116)
Terphenyl-d14	64	(53 - 135)
Phenol-d5	64	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
-- (NOT ANALYZED)

Geraghty & Miller

FMSWNS43+40

WO # : C4C48102
LAB # : A6F080118-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

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PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isophorone	ND	10	SW846 8270B	06/11-06/18/96	6163102
Isosafrole	ND	10	SW846 8270B	06/11-06/18/96	6163102
Methapyrilene	ND	100	SW846 8270B	06/11-06/18/96	6163102
o-Toluidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
3-Methylcholanthrene	ND	100	SW846 8270B	06/11-06/18/96	6163102
Methyl methanesulfonate	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Methylnaphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
3-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Methylphenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
Naphthalene	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,4-Naphthoquinone	ND	200	SW846 8270B	06/11-06/18/96	6163102
1-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Naphthylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
3-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
4-Nitroaniline	ND	50	SW846 8270B	06/11-06/18/96	6163102
Nitrobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2-Nitrophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
4-Nitrophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	65	(30 - 122)
2-Fluorobiphenyl	77	(54 - 116)
Terphenyl-d14	64	(53 - 135)
Phenol-d5	64	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+40

WO # : C4C48102
LAB # : A6F080118-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosomorpholine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosopiperidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/11-06/18/96	6163102
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/11-06/18/96	6163102
Pentachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Pentachloroethane	ND	50	SW846 8270B	06/11-06/18/96	6163102
Pentachloronitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	6163102
Pentachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
Phenanthrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Phenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
p-Phenylene diamine	ND	50	SW846 8270B	06/11-06/18/96	6163102
2-Picoline	ND	20	SW846 8270B	06/11-06/18/96	6163102
Pyrene	ND	10	SW846 8270B	06/11-06/18/96	6163102
Pyridine	ND	10	SW846 8270B	06/11-06/18/96	6163102
Safrole	ND	10	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	65	(30 - 122)
2-Fluorobiphenyl	77	(54 - 116)
Terphenyl-d14	64	(53 - 135)
Phenol-d5	64	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+40

WO # : C4C48102
LAB # : A6F080118-005
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/11-06/18/96	6163102
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/11-06/18/96	6163102
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/11-06/18/96	6163102
Aramite	ND	50	SW846 8270B	06/11-06/18/96	6163102

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	65	(30 - 122)
2-Fluorobiphenyl	77	(54 - 116)
Terphenyl-d14	64	(53 - 135)
Phenol-d5	64	(10 - 149)
2-Fluorophenol	50	(10 - 104)
2,4,6-Tribromophenol	66	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS101

WO # : C4C4F102
LAB # : A6F080118-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Aminobiphenyl	ND	50	SW846 8270B	06/12-06/17/96	6164106
p-Dimethylaminoazobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
7,12-Dimethylbenz(a)-anthracene	ND	20	SW846 8270B	06/12-06/17/96	6164106
Hexachloropropene	ND	100	SW846 8270B	06/12-06/17/96	6164106
Phenacetin	ND	50	SW846 8270B	06/12-06/17/96	6164106
Pronamide	ND	20	SW846 8270B	06/12-06/17/96	6164106
a,a-Dimethylphenethylamine	ND	50	SW846 8270B	06/12-06/17/96	6164106
Diallate	ND	10	SW846 8270B	06/12-06/17/96	6164106
Chlorobenzilate	ND	10	SW846 8270B	06/12-06/17/96	6164106
Acenaphthene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Acenaphthylene	ND	10	SW846 8270B	06/12-06/17/96	6164106
cetophenone	ND	10	SW846 8270B	06/12-06/17/96	6164106
2-Acetylaminofluorene	ND	20	SW846 8270B	06/12-06/17/96	6164106
Aniline	ND	10	SW846 8270B	06/12-06/17/96	6164106
Anthracene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Benzo(a)anthracene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Benzo(b)fluoranthene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Benzo(k)fluoranthene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Benzo(ghi)perylene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Benzo(a)pyrene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Benzyl alcohol	ND	10	SW846 8270B	06/12-06/17/96	6164106

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	83	(54 - 116)
Terphenyl-d14	101	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS101

WO # : C4C4F102
LAB # : A6F080118-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
bis(2-Chloroethoxy)methane	ND	10	SW846 8270B	06/12-06/17/96	6164106
bis(2-Chloroethyl) ether	ND	10	SW846 8270B	06/12-06/17/96	6164106
bis(2-Chloro-1-methylethyl) ether	ND	10	SW846 8270B	06/12-06/17/96	6164106
bis(2-Ethylhexyl) phthalate	ND	10	SW846 8270B	06/12-06/17/96	6164106
4-Bromophenyl phenyl ether	ND	10	SW846 8270B	06/12-06/17/96	6164106
Butyl benzyl phthalate	ND	10	SW846 8270B	06/12-06/17/96	6164106
4-Chloroaniline	ND	10	SW846 8270B	06/12-06/17/96	6164106
4-Chloro-3-methylphenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
2-Chloronaphthalene	ND	10	SW846 8270B	06/12-06/17/96	6164106
2-Chlorophenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
4-Chlorophenyl phenyl ether	ND	10	SW846 8270B	06/12-06/17/96	6164106
ırysene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Dibenz(a,h)anthracene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Dibenzofuran	ND	10	SW846 8270B	06/12-06/17/96	6164106
Di-n-butyl phthalate	ND	10	SW846 8270B	06/12-06/17/96	6164106
1,2-Dichlorobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
1,3-Dichlorobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
1,4-Dichlorobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
3,3'-Dichlorobenzidine	ND	10	SW846 8270B	06/12-06/17/96	6164106
2,4-Dichlorophenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
2,6-Dichlorophenol	ND	10	SW846 8270B	06/12-06/17/96	6164106

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	83	(54 - 116)
Terphenyl-d14	101	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

PMSWNS101

WO # : C4C4F102
LAB # : A6F080118-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Diethyl phthalate	ND	10	SW846 8270B	06/12-06/17/96	6164106
3,3'-Dimethylbenzidine	ND	20	SW846 8270B	06/12-06/17/96	6164106
2,4-Dimethylphenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
Dimethyl phthalate	ND	10	SW846 8270B	06/12-06/17/96	6164106
Di-n-octyl phthalate	ND	10	SW846 8270B	06/12-06/17/96	6164106
1,3-Dinitrobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270B	06/12-06/17/96	6164106
2,4-Dinitrophenol	ND	50	SW846 8270B	06/12-06/17/96	6164106
2,4-Dinitrotoluene	ND	10	SW846 8270B	06/12-06/17/96	6164106
2,6-Dinitrotoluene	ND	10	SW846 8270B	06/12-06/17/96	6164106
2-sec-Butyl-4,6-dinitro-phenol	ND	20	SW846 8270B	06/12-06/17/96	6164106
Diphenylamine	ND	10	SW846 8270B	06/12-06/17/96	6164106
Ethyl methanesulfonate	ND	10	SW846 8270B	06/12-06/17/96	6164106
Fluoranthene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Fluorene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Hexachlorobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Hexachlorobutadiene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Hexachlorocyclopentadiene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Hexachloroethane	ND	10	SW846 8270B	06/12-06/17/96	6164106
Hexachlorophene	--		**SW846 8270B**	**06/12-06/17/96**	**6164106**
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270B	06/12-06/17/96	6164106

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	83	(54 - 116)
Terphenyl-d14	101	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
-- (NOT ANALYZED)

Geraghty & Miller

FMSWNS101

WO # : C4C4F102
LAB # : A6F080118-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Isophorone	ND	10	SW846 8270B	06/12-06/17/96	6164106
Isosafrole	ND	10	SW846 8270B	06/12-06/17/96	6164106
Methapyrilene	ND	100	SW846 8270B	06/12-06/17/96	6164106
o-Toluidine	ND	20	SW846 8270B	06/12-06/17/96	6164106
3-Methylcholanthrene	ND	100	SW846 8270B	06/12-06/17/96	6164106
Methyl methanesulfonate	ND	10	SW846 8270B	06/12-06/17/96	6164106
2-Methylnaphthalene	ND	10	SW846 8270B	06/12-06/17/96	6164106
2-Methylphenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
3-Methylphenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
4-Methylphenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
Naphthalene	ND	10	SW846 8270B	06/12-06/17/96	6164106
1,4-Naphthoquinone	ND	200	SW846 8270B	06/12-06/17/96	6164106
_-Naphthylamine	ND	10	SW846 8270B	06/12-06/17/96	6164106
2-Naphthylamine	ND	10	SW846 8270B	06/12-06/17/96	6164106
2-Nitroaniline	ND	50	SW846 8270B	06/12-06/17/96	6164106
3-Nitroaniline	ND	50	SW846 8270B	06/12-06/17/96	6164106
4-Nitroaniline	ND	50	SW846 8270B	06/12-06/17/96	6164106
Nitrobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
2-Nitrophenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
4-Nitrophenol	ND	50	SW846 8270B	06/12-06/17/96	6164106
4-Nitroquinoline-1-oxide	ND	100	SW846 8270B	06/12-06/17/96	6164106

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	83	(54 - 116)
Terphenyl-d14	101	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS101

WO # : C4C4F102
LAB # : A6F080118-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
N-Nitrosodi-n-butylamine	ND	10	SW846 8270B	06/12-06/17/96	6164106
N-Nitrosodiethylamine	ND	10	SW846 8270B	06/12-06/17/96	6164106
N-Nitrosodimethylamine	ND	10	SW846 8270B	06/12-06/17/96	6164106
N-Nitrosodi-n-propylamine	ND	10	SW846 8270B	06/12-06/17/96	6164106
N-Nitrosodiphenylamine	ND	10	SW846 8270B	06/12-06/17/96	6164106
N-Nitrosomethylethylamine	ND	10	SW846 8270B	06/12-06/17/96	6164106
N-Nitrosomorpholine	ND	10	SW846 8270B	06/12-06/17/96	6164106
N-Nitrosopiperidine	ND	10	SW846 8270B	06/12-06/17/96	6164106
N-Nitrosopyrrolidine	ND	10	SW846 8270B	06/12-06/17/96	6164106
5-Nitro-o-toluidine	ND	20	SW846 8270B	06/12-06/17/96	6164106
Pentachlorobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Pentachloroethane	ND	50	SW846 8270B	06/12-06/17/96	6164106
Pentachloronitrobenzene	ND	50	SW846 8270B	06/12-06/17/96	6164106
Pentachlorophenol	ND	50	SW846 8270B	06/12-06/17/96	6164106
Phenanthrene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Phenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
p-Phenylene diamine	ND	50	SW846 8270B	06/12-06/17/96	6164106
2-Picoline	ND	20	SW846 8270B	06/12-06/17/96	6164106
Pyrene	ND	10	SW846 8270B	06/12-06/17/96	6164106
Pyridine	ND	10	SW846 8270B	06/12-06/17/96	6164106
Safrole	ND	10	SW846 8270B	06/12-06/17/96	6164106

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	83	(54 - 116)
Terphenyl-d14	101	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS101

WO # : C4C4F102
LAB # : A6F080118-009
MATRIX: WATER
DILUTION FACTOR: 1.00

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,2,4,5-Tetrachlorobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
2,3,4,6-Tetrachlorophenol	ND	50	SW846 8270B	06/12-06/17/96	6164106
1,2,4-Trichlorobenzene	ND	10	SW846 8270B	06/12-06/17/96	6164106
2,4,5-Trichlorophenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
2,4,6-Trichlorophenol	ND	10	SW846 8270B	06/12-06/17/96	6164106
1,3,5-Trinitrobenzene	ND	50	SW846 8270B	06/12-06/17/96	6164106
Aramite	ND	50	SW846 8270B	06/12-06/17/96	6164106

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(30 - 122)
2-Fluorobiphenyl	83	(54 - 116)
Terphenyl-d14	101	(53 - 135)
Phenol-d5	65	(10 - 149)
2-Fluorophenol	45	(10 - 104)
2,4,6-Tribromophenol	72	(20 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

INORGANIC SAMPLE DATA

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q
LAB # : A6F080118-001
MATRIX: WATER

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Lead	**71.4**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Barium	**80.9**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Cadmium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Copper	**29.3**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	6169115
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	6169115
Zinc	**107**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**6169115**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	6169115

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44
LAB # : A6F080118-002
MATRIX: WATER

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

- **REQUESTED METALS** -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Lead	**90.0**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Barium	**78.0**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cadmium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Copper	**38.2**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	616911
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	616911
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Zinc	**108**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	616911

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+40

WO # : C4C48
LAB # : A6F080118-005
MATRIX: WATER

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	**7.2**	**5.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Lead	**137**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Barium	**86.5**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cadmium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Copper	**70.1**	**10.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	616911
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	616911
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Zinc	**176**	**50.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	616911

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS101

WO # : C4C4F
LAB # : A6F080118-009
MATRIX: WATER

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Lead	**3.0**	**3.0**	**ug/L**	**SW846 6010A**	**6/17- 6/18/96**	**616911**
Selenium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Thallium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Silver	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Barium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Beryllium	ND	5.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cadmium	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Cobalt	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Chromium	ND	20.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Copper	ND	10.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Nickel	ND	40.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Antimony	ND	300	ug/L	SW846 6010A	6/17- 6/18/96	616911
Tin	ND	1,000	ug/L	SW846 6010A	6/17- 6/19/96	616911
Vanadium	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Zinc	ND	50.0	ug/L	SW846 6010A	6/17- 6/18/96	616911
Mercury	ND	0.20	ug/L	SW846 7470	6/17/96	616911

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

WET CHEMISTRY SAMPLE DATA

Geraghty & Miller

FMSWNS43+80(0-1)

WO # : C4C3Q
LAB # : A6F080118-001
MATRIX: WATER

DATE SAMPLED : 6/06/96
TIME SAMPLED : 10:30
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**2,100**	**1,200**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**6165207**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	6165153

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+80(1.5-2.5)

WO # : C4C44
LAB # : A6F080118-002
MATRIX: WATER

DATE SAMPLED : 6/06/96
TIME SAMPLED : 11:00
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**2,100**	**1,200**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**6165207**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	6165153

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS43+40

WO # : C4C48
LAB # : A6F080118-005
MATRIX: WATER

DATE SAMPLED : 6/06/96
TIME SAMPLED : 14:40
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	**2,000**	**1,200**	**ug/L**	**MCAWW 340.2**	**6/13/96**	**616520**
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	616515

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Geraghty & Miller

FMSWNS101

WO # : C4C4F
LAB # : A6F080118-009
MATRIX: WATER

DATE SAMPLED : 6/06/96
TIME SAMPLED : 17:15
DATE RECEIVED: 6/08/96

- - - - - - - - - - - - - - - - - - **INORGANIC ANALYTICAL REPORT** - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Fluoride (Potentiometric, Ion Selective Electrode)	ND	1,200	ug/L	MCAWW 340.2	6/13/96	6165207
Total Cyanide	ND	5.0	ug/L	SW846 9012	6/13/96	6165153

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

GERAGHTY & MILLER, INC.
Environmental Services
a heidemij company

Laboratory Task Order No. 10731
Client code: G11092

CHAIN-OF-CUSTODY RECORD

Project Number IN0144.107

Project Location Federated Metals

Laboratory Quanterra

Sampler(s)/Affiliation Blake Fahl GTM
Jamie Yaters

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	~~Code~~	Date/Time Sampled	Lab ID	VOCs 40ml - HCl	Total Metals 1LP - HNO3	Fluoride 250ml - NP	CN 250ml - NaOH	SVOCs 1L-glass - NP	VOCs 2oz jar	Metals, BNAs, Fluoride, CN 8oz jar			TOTAL
FMSWNS43+80	(0-1)	6-6-96 1030A		3	1	1	1	2					8
FMSWNS43+80	(1.5-2.5)	6-6-96 11A		3	1	1	1	2					8
FMSEDNS43+80	(0-1)	6-6-96 1115A							1	1			2
FMSEDNS43+80	(1-1.5)	6-6-96 1145A							1	1			2
FMSWNS43+40	(0-1)	6-6-96 340P		3	1	1	1	2					8
FMSEDNS43+5	TIP (~~0-0.5~~ 1-1.5)	6-6-96 315P							1	1			2
FMSEDNS43+20	(0.5-2)	6-6-96 340P							1	1			2
FMSEDNS43+40	(0-1)	6-6-96 4P							1	1			2
FMSWNS101		6-6-96 515P		3	1	1	1	2					8
TRIP BLANK		6-6-96		3									3
TRIP BLANK		6-7-96		3									3
FMSEDNS45+80	(0.5-1.5)	6-7-96 915A							1	1			2
FMSEDNS45+40	(0.5-1.5)	6-7-96 930A							1	1			2
FMSEDNS45+20	(0.5-1.5)	6-7-96 10A							1	1			2
FMSEDNS45+103	(0.5-1.5)	6-7-96 10A							1	1			2

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 56 - this page

Relinquished by: J. Yater	Organization: GTM	Date 6/7/96	Time 4P	Seal Intact? Yes No N/A
Received by: [illegible]	Organization: Quanterra	Date 6/8/96	Time 100pm	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:

FMN

GERAGHTY & MILLER, INC.
Environmental Services
a heidemij company

Laboratory Task Order No._____

CHAIN-OF-CUSTODY RECORD

Project Number IN0144.107

Project Location Federated Metals

Laboratory Quanterra

Sampler(s)/Affiliation Blake Fahl, Jamie Yater } GM

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	VOCs 40ml - HCl	Total Metals 1L P HNO3	Fluoride 250ml	CN 250ml - NaOH	SVOCs 1L glass	VOCs 2oz jar	Metals, BNAs, Fluoride, CN			TOTAL
FMSEDNS45+5	(0.5-1.5)	6-7-96 1015A							1	1			2
FMSEDNS46+80	(0.5-1.5)	6-7-96 1030A							1	1			2
FMSEDNS46+40	(0.5-1.5)	6-7-96 1045A							1	1			2
FMSEDNS46+20	(0.5-1.5)	6-7-96 11A							1	1			2
FMSEDNS46+5	(0.5-1.5)	6-7-96 1115A							1	1			2
FMSEDNS44+80	(0.5-1.5)	6-7-96 1145A							1	1			2
FMSEDNS44+40	(0.5-1.5)	6-7-96 12P							1	1			2
FMSEDNS44+20	(0.5-1.5)	6-7-96 1215P							1	1			2
FMSEDNS44+5	(0.5-1.5)	6-7-96 1230P							1	1			2
FMSWNS102		6-7-96 P		3	1	1	1	2					8

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 82

Relinquished by: Jamie Yater	Organization: Geraghty & Miller	Date 6/7/96	Time 4P	Seal Intact? Yes No N/A
Received by: Ronald Brooks	Organization: Quanterra	Date 6/8/96	Time 1000pm	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:

001560

A6F070137

MEMORANDUM

TO: Tim Northam
FROM: Susan Gallagher
DATE: August 14, 1996
SUBJECT: Data Validation for Surface-Water Samples Collected June 5, 1996 at the Federated Metals Site, Hammond, Indiana (Project Number IN0144.107)

The volatile organic compound (VOC); semi-volatile organic compound (SVOC); total metals (using inductively coupled plasma (ICP) analysis and including silver, arsenic, barium, beryllium, cadmium, cobalt, chromium, copper, nickel, lead, antimony, selenium, tin, thallium, vanadium, and zinc), total mercury (using cold vapor analysis), and total cyanide data validation for nine surface-water samples and one associated quality control sample collected June 5, 1996 at the Federated Metals Site, Hammond, Indiana is presented in the attachments to this memorandum. The samples were analyzed by the Quanterra Inc. (Quanterra) laboratory located in North Canton, Ohio, with the exception of the fluoride analyses, which were completed by Quanterra in Tampa, Florida.

The samples were analyzed in accordance with U.S. Environmental Protection Agency (USEPA) methods (VOCs using Method 8240B, SVOCs using Method 8270B, fluoride using "Methods for Chemical Analysis of Water and Waste" (MCAWW) 340.2, total metals using Method 6010A, total mercury using Method 7470, and total cyanide using Method 9012). The analytical results are contained in the Quanterra data package referred to as A6F070137 dated July 22, 1996.

Review of these data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the Federated Metals Quality Assurance Project Plan (QAPP) dated September 28, 1994, and the USEPA Contract Laboratory Program (CLP) document titled "National Functional Guidelines for Organic Data Review" (Draft - Revised) dated June 1991.

ORGANIC DATA SUMMARY

Validation of Volatile and Semi-Volatile Organic Compound Results
Federated Metals Facility Surface-Water Sampling

Analyses Performed by Quanterra, Inc.
Quanterra Inc. Report # A6F070137 Dated July 22, 1996
Work Order Number C4FT0102

SAMPLE DESCRIPTION

The following six surface-water samples were collected at the Federated Metals Facility and submitted to Quanterra Inc. in North Canton, Ohio for analysis of VOCs by Method 8240B and for SVOCs by Method 8270B. A trip blank was also submitted for analysis of VOCs as a quality control (QC) sample.

FMSWNS44+5	FMSWNS44+40	FMSWNS44+80
FMSWNS45+5	FMSWNS45+40	FMSWNS45+80
FMSWNS46+5	FMSWNS46+40	FMSWNS100+5
	Trip blank	

These samples are referred to as NS44+5, NS44+40, NS44+80, NS45+5, NS45+40, NS45+80, NS46+5, NS46+40, and trip blank in this data evaluation. FMSWNS100+5 is a blind duplicate sample of NS46+5.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The nine surface-water samples submitted under this chain-of-custody form for VOCs and SVOC analysis were analyzed, as requested. The trip blank was analyzed for VOCs, as requested.

HOLDING TIME COMPLIANCE

The samples were collected on June 5, 1996 and were received by the laboratory on June 7, 1995.

VOCs: The VOC samples were preserved with hydrochloric acid at the time of collection. All VOC analyses were performed June 18, 1996, within the required 14 day holding time.

SVOCs: Samples submitted for SVOC analysis were extracted on June 10 and June 11, 1996, within the required 7 day extraction holding time and were analyzed on June 18,

1996, within the required 40 day holding time after extraction, with one exception. Sample NS44+40 was re-extracted, due to low surrogate recoveries for the initial analysis, on June 15, 1996, outside of allowable extraction holding time, and re-analyzed on June 21, 1996. The SVOC results for this re-extraction are considered to be estimated and no compounds were detected (UJ).

SAMPLE BATCHING

VOC analyses were performed within the following QC batch: 6170122

SVOC analyses were performed within the following QC batch(es):

NS44+5, NS44+40 (initial), NS44+80, NS46+5 (primary) - Batch 6162104;
NS46+5 (duplicate), NS46+40, and NS45+5, NS45+40, NS45+80 - Batch 6163102:
NS44+40 (rerun) - Batch 6167104

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

VOCs: Each set of tuning data associated with calibration and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

SVOCs: Each set of tuning data associated with calibration and sample analysis meets the required ion abundance criteria. All samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

VOCs: The analyses for this sample delivery group were performed under an initial calibration dated June 13, 1996. Compound relative response factors (RRFs) were greater than 0.050 and percent relative standard deviations (%RSDs) were less then 30% for the initial calibration, with the exceptions listed below.

Calibration dates: June 13, 1996
Instrument: a3i502.i
Associated samples: all

Compound	RRF	%RSD
acrolein	0.0280	----
methylacrylonitrile	0.0079	----
1,4-dioxane	0.0034	----
n-butanol	0.0048	----

Compound	RRF	%RSD
cyclohexanone	0.0146	----
isopropyl alcohol	0.0451	----
n-propanol	0.00329	----

Based on the low relative response factors (RRFs) in the initial calibration data, the associated sample results for the compounds listed in the RRF column would be qualified as estimated (J), if detected and rejected (R), if not detected. Only results for acrolein and 1,4-dioxane were reported for this sample delivery order. Concentrations of acrolein and 1,4-dioxane were not reported above the reporting limit in any of the samples; therefore, acrolein and 1,4-dioxane results are validated as rejected (R).

SVOCs: One initial calibration was performed in conjunction with the environmental samples. RRFs were greater than 0.050 and %RSDs were less than 30%, with the following exceptions.

Calibration date: May 28, 1996
Instrument: 60528a.b
Associated samples: all

Compound	RRF	%RSD
methapyriline	0.04076	----
famphur	----	81.366

Based on the RRF initial calibration data, the associated methapyriline sample results are qualified rejected (R), since the compound was not detected above the reporting limits.

Based on the %RSD initial calibration data, the associated sample results for the compounds listed above would be qualified as estimated if not detected (UJ) and estimated (J) if detected. Results for famphur were not reported. Therefore, no action is taken.

CONTINUING CALIBRATION

VOCs: Results from one continuing calibration check were provided in support of the VOC results. RRFs were greater than 0.050, and percent differences (%Ds) from the initial calibration were less than 25 percent for the continuing calibrations, with the following exceptions.

Calibration Date: June 17, 1996 Time: 20:47
Instrument: a3i502.1
Associated samples: all

Compound	RRF	%D
bromomethane	----	25.7
acrolein	0.028	----
ethanol	0.017	31.1
tert-butyl alcohol	----	30.3
1,4-dioxane	0.003	27.7

Based on the RRF continuing calibration check data, the associated sample results would be qualified as estimated (J) if detected and rejected (R) if not detected. Only acrolein and 1,4-dioxane results were reported for associated samples. Neither of these compounds were reported above the reporting limit in the associated samples. Based in initial calibration results, acrolein and 1,4-dioxane results have already been validated as rejected (R).

Based on the %D continuing calibration data, the compounds listed above would be qualified as estimated if detected (J) and estimated if not detected (UJ) in the associated samples. However, only bromomethane and 1,4-dioxane results were reported. The 1,4-dioxane results have already been validated as rejected (R). Bromomethane results are validated as estimated and not detected (UJ).

SVOCs: Results from three continuing calibration checks were provided with the samples. RRFs were greater than 0.050, and compound %Ds were less than 25% for the continuing calibrations, with the following exceptions.

Continuing Calibration Date: June 13, 1996 Time: 0845 & 0942
Instrument: a4ext5.i
Associated sample: NS44+5, NS44+40 (initial), NS44+80, NS46+5 (primary)

Compound	RRF	%D
methapyriline	0.035	62.6
safrole	-----	61.8

Based on the RRF initial calibration data, the associated methapyriline sample results have already been qualified rejected (R).

Based on the %D continuing calibration data, safrole is qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples. Safrole was not detected in the samples and is qualified as not detected and estimated (UJ).

Continuing Calibration Date: June 18, 1996 Time: 1000 & 1030
Instrument: a4ext5.i
Associated samples: NS46+5 (duplicate), NS46+40, and NS45+5, NS45+40, NS45+80

Compound	RRF	%D
pyridine	----	39.2
n-nitrosodimethylamine	----	25.2
benzyl alcohol	----	60.2
benzoic acid	----	33.2
4-nitrophenol	----	27.7
n-nitrosomethylethylamine	----	31.8
p-phenylene diamine	----	65.2
1,3,5-trinitrobenzene	----	26.0
4-nitroquinoline 1-oxide	----	30.8
1,4-dioxane	----	44.8

Based on the %D continuing calibration data, the compounds listed above would be qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples. However, results for benzoic acid and 1,4-dioxane were not reported. None of the compounds listed above were detected in samples, so associated sample results for these compounds are qualified as not detected and estimated (UJ) based on the %D continuing calibration data.

Continuing Calibration Date: June 21, 1996 Time: 1026 & 1101
Instrument: a4ext5.i
Associated sample: NS44+40 (rerun)

Compound	RRF	%D
p-phenylene diamine	----	65.2
1,4-dioxane	----	44.8

Based on the %D continuing calibration data, the compounds listed above would be qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated sample. However, only results for p-phenylene diamine were reported. This compound was not detected in the sample, so the associated sample result for p-phenyl diamine is qualified as not detected and estimated (UJ) based on the %D continuing calibration data.

BLANKS

VOCs: The results for one method blank (A6F180000-122) were provided with the samples. No VOCs were detected in the method blank above reporting limits and no action is required. One trip blank was submitted with the samples. No VOCs were quantified in the trip blank.

SVOCs: The results for three method blanks analyses were provided in association with the samples in this sample delivery group. The method blanks, associated samples, and any analytes detected in the blank are as follows:

Blank	Associated Samples	Analytes Detected (micrograms per Liter (µg/L))
A6F100000-104	NS44+5, NS44+40 (initial), NS44+80, NS46+5 (primary)	None
A6F150000-104	NS46+5 (duplicate), NS46+40,NS46+80, NS45+5	None
A6F110000-102	NS44+40 (rerun)	Bis(ethylhexyl)phthalate 6.7

Bis(ethylhexyl)phthalate was not detected in the NS44+40 (rerun) sample. No action is taken.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

VOCs: Surrogate spike compound recoveries were within the prescribed control limits, ranging from 91 to 101 percent.

SVOCs: Surrogate spike compound recoveries were within prescribed control limits for each of the specific surrogate compounds, ranging from 3 to 93 percent, with the following exceptions. For sample NS44+40, the surrogate recoveries for 2-fluorophenol (3 percent) and 2,4,6-tribromophenol (7 percent) were below the lower control limits of 10 and 20 percent, respectively. The acid fraction compounds in sample NS44-40 are rejected since acid fraction compounds were not reported in the sample. The laboratory re-ran the sample and surrogate recoveries were acceptable, but the re-extraction occurred outside of the holding time.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

VOCs: Matrix spike (MS) and matrix spike duplicate (MSD) results completed on sample NS45+80 were provided. All MS/MSD spike recoveries were within prescribed QC limits, ranging from 92 to 105 percent. The relative percent differences (RPDs) between the MS and MSD recoveries ranged from 2.4 to 6.4 percent and precision criteria are satisfied.

SVOCs: The results from three MS and MSD spike analyses performed on other client's samples were provided. MS and MSD recoveries ranged from 33 to 120 percent and were within prescribed QC limits. The RPDs ranged from 0.28 to 65 percent and were within prescribed control limits, with the following exceptions. For the MS and MSD analyzed on June 14, 1996 (A6F070147-002), the RPD comparison was not within QC limits for pentachlorophenol, phenol, 2-chlorophenol, and 4-nitrophenol. For the MS and MSD analyzed on June 18, 1996 (A6F100122-029), the RPD for 4-nitrophenol was not within QC limits. No action is taken on MS and MSD results alone.

LABORATORY CONTROL SAMPLES

VOCs: Results from one laboratory control sample were provided. Recoveries ranged from 98 to 100 percent and were within prescribed laboratory QC limits.

SVOCs: Results from three laboratory control samples (check samples) were provided. Recoveries ranged from 54 to 105 percent and were within prescribed laboratory QC limits.

DUPLICATE SAMPLE ANALYSES

VOCs: Sample FMSWNS100+5 was prepared and submitted for VOCs as a blind duplicate sample of NS46+5. No VOCs were detected above the reporting limit in either sample. Precision and accuracy criteria are satisfied.

SVOCs: Sample FMSWNS100+5 was prepared and submitted for SVOCs analysis as a blind duplicate sample of NS46+5. No SVOCs were detected above the reporting limit in either sample. Precision and accuracy criteria are satisfied.

INTERNAL STANDARDS

VOCs: All three internal standard area counts and retention times met QC requirements for the surface-water and QC samples analyzed.

SVOCs: All six internal standard area counts and retention times met QC requirements for the surface-water and QC samples analyzed.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

The quality of the VOC and SVOC data presented in the Quanterra data package A6F070137 dated July 22, 1996 is acceptable, and data are determined to be quantitative, with the exceptions noted in the following table.

Sample Identification	Analyte(s) Qualified	Data Qualifier	Reason(s)
FMSWNS44+40 (re-analysis)	SVOCs, except methapyriline and p-phenylene diamine	UJ and R	Sample extraction occurred outside of the allowable holding time. Initial Calibration RRF and/or continuing calibration was low for methapyriline. For p-phenylene diamine, the %D continuing calibration was high.
FMSWNS44+5 FMSWNS44+40 FMSWNS44+80 FMSWNS45+5 FMSWNS45+40 FMSWNS45+80 FMSWNS46+5 FMSWNS46+40 FMSWNS100+5	VOCs, acrolein 1,4-dioxane	R	Initial Calibration RRF and/or continuing calibration was low. Neither acrolein nor 1,4-Dioxane was detected, so the qualification is R.
FMSWNS44+5 FMSWNS44+40 FMSWNS44+80 FMSWNS45+5 FMSWNS45+40 FMSWNS45+80 FMSWNS46+5 FMSWNS46+40 FMSWNS100+5	SVOCs methapyriline	R	Initial Calibration RRF and/or continuing calibration was low. Methapyriline was not detected in any of the samples so the qualification is R.
FMSWNS44+40 (initial analysis)	SVOCs Acid fraction 4-chloro-3-methylphenol 2-chlorophenol 2,4-dichlorophenol 2,4-dinitrophenol 2-methyphenol 4-methyphenol 2-nitrophenol 4- nitrophenol pentachlorophenol phenol 2,3,4,6-tetrachlorophenol 2,4,5-trichlorophenol 2,4,6-trichlorophenol 4,6-dinitro-2-methylphenol 2,6-dichlorophenol	R	Two acid fraction surrogate recoveries were below 10 percent.

Sample ntification	Analyte(s) Qualified	Data Qualifier	Reason(s)
MSWNS44+5 FMSWNS44+40 FMSWNS44+80 FMSWNS45+5 FMSWNS45+40 FMSWNS45+80 FMSWNS46+5 FMSWNS46+40 FMSWNS100+5	VOCs bromomethane	UJ	%D continuing calibration was high. Bromomethane was not detected, so results are considered to estimated and not detected (UJ).
FMSWNS44+5 FMSWNS44+40 (initial run), FMSWNS44+80 FMSWNS46+5	SVOCs safrole	UJ	%D continuing calibration was high. Safrole was not detected, so results are considered to estimated and not detected (UJ).

Prepared By: Susan Gallagher

Susan Gallagher
Project Scientist

8/29/96
Date

INORGANIC DATA SUMMARY

Validation of Total Metals, Fluoride, and Cyanide Analytical Results
Federated Metals Facility Surface-water Sampling

Analyses Performed by Quanterra Environmental Services
Quanterra, Inc. Report # A6F070137 dated July 22, 1996
Work Order # C4AN

SAMPLE DESCRIPTION

The following surface-water samples were collected at the Federated Metals Facility in Hammond, Indiana and submitted to Quanterra Environmental Services (Quanterra) in North Canton, Ohio for analysis of total metals, fluoride, and cyanide.

FMSWNS44+5	FMSWNS44+40	FMSWNS44+80
FMSWNS45+5	FMSWNS45+40	FMSWNS45+80
FMSWNS46+5	FMSWNS46+40	FMSWNS100+5

These samples are referred to as NS44+5, NS44+40, NS44+80, NS45+5, NS45+40, NS45+80, NS46+5, and NS46+40 in this data evaluation. FMSWNS100+5 is a blind duplicate sample of NS46+5.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The surface-water samples were submitted to Quanterra in North Canton, Ohio for total metals, fluoride, and cyanide analyses. The fluoride analyses were completed by Quanterra in Tampa, Florida. Total metals analyses were performed using U.S. Environmental Protection Agency (USEPA) Method 6010A. (Inductively Coupled Plasma ((ICP) metals include arsenic, lead, selenium, thallium, silver, barium, beryllium, cadmium, cobalt, chromium, copper, nickel, antimony, tin, vanadium, and zinc). USEPA Method 7470 (manual cold-vapor atomic absorption) was used to analyze for mercury. Wet chemistry analyses included analyzing for fluoride using USEPA Method 340.2 and cyanide using USEPA Method 9012.

HOLDING TIME COMPLIANCE

The samples were collected on June 5, 1996 and were received by the laboratory on June 7, 1995.

Total metals samples were preserved with nitric acid at the time of collection. Total metals analyses using ICP were prepared on June 17, 1996 and analyzed on June 18 and 19, 1996, within the required 180 day holding time. Total mercury analyses were performed on June 17, 1996, within the required 28 day holding time. Fluoride analyses were performed on June 13, 1996, within the required 28 day holding time. Cyanide analyses were performed on June 12 and 13, 1996, within the required 14 day holding time.

SAMPLE BATCHING

Metals and wet chemistry analyses for the surface-water samples were performed within the following Quality Control (QC) batch(es):

For USEPA 6010A ICP metals and USEPA 7470 cold vapor mercury, all samples were analyzed in QC Batch 6169115 (Work order identification C4AN).

For fluoride, samples were analyzed in batch 6165207 (Work order identification C4AN).

For cyanide, samples were analyzed in two batches, as follows (Work order identification C4AN).

- Batch 6164146: Samples NS44+5, NS44+40, and NS45+80
- Batch 6165153: Samples NS44+80, NS46+5, NS46+40 (primary), NS46+40 (duplicate), NS45+5, and NS45+40

INITIAL CALIBRATION

ICP Metals. The analyses for this sample delivery group were performed under initial calibrations dated June 17, 1996. Initial calibration blank and standard results were acceptable. Initial calibration verification (ICV) recoveries ranged from 98.4 to 105.4 percent and were within prescribed control limits.

Mercury. Mercury analyses using cold vapor atomic absorption were performed under six point (blank and five standards) initial calibration dated June 17, 1996. ICV recoveries were 98.9 percent, which is within prescribed control limits.

Wet Chemistry. Samples were analyzed for fluoride under four point initial calibration dated June 13, 1996. The ICV recovery for fluoride was 104 percent and was within acceptable limits. Samples were analyzed for cyanide under five point initial calibration dated June 13, 1996. The ICV recovery for cyanide was 98 percent and was within acceptable limits.

CONTINUING CALIBRATION

ICP Metals. A continuing calibration verification (CCV) standard for ICP metals was analyzed at the required frequency of every tenth sample or every two hours. CCV recoveries ranged from 96.3 to 104 percent and were within prescribed control limits.

Mercury. CCV analyses for mercury were performed at the required frequency. CCV recoveries ranged from 99.6 to 101.2 percent and were within prescribed control limits.

Wet Chemistry. CCV standards for fluoride were analyzed with the surface-water samples at the required frequency. CCV recoveries ranged from 100 to 103 percent and were within prescribed control limits. CCV standards for cyanide were analyzed with the surface-water samples at the required frequency. CCV recoveries ranged from 94 to 100 percent for cyanide and were within prescribed control limits.

BLANKS

ICP Metals. Results for initial calibration blanks (ICB), continuing calibration blanks (CCBs) analyzed before, during, and after surface-water samples, and one method blank were provided for total ICP metals. No target analytes were detected in the ICB or method blank. Thallium was detected in the CCBs at concentrations less than the contract required detection limit (CRDL). As such, no action is taken.

Mercury. Results for one ICB, CCBs, and one method blank associated with sample analyses were provided. Mercury was not quantified in any of the blanks.

Wet Chemistry. One ICB, CCBs, and one method blank were analyzed for fluoride. Fluoride was not quantified in any of the blanks. For the cyanide batches, CCBs and three method blanks were analyzed. Cyanide was not quantified in any of the blanks.

ICP INTERFERENCE CHECK SAMPLE

Interference check samples (ICS) were analyzed at the beginning and end of the ICP analyses. ICS recoveries ranged from 92.5 to 116.1 percent and were within prescribed control limits of ± 20 percent of the true value.

LABORATORY CONTROL SAMPLE

ICP Metals. The results for one laboratory control sample (LCS) (laboratory nomenclature is "check sample") was analyzed for ICP metals in association with surface-water samples. LCS recoveries ranged from 93 and 114 percent and were within prescribed control limits.

Mercury. Results were provided for an LCS analysis for mercury. The check sample recovery for mercury was 103 percent, and was within prescribed control limits.

Wet Chemistry. LCS and LCS duplicate results were reported for fluoride. The laboratory noted that insufficient quantities of sample were available for matrix spike (MS) and matrix spike duplicate (MSD) analyses, so a LCS duplicate analysis was completed. The LCS recoveries were 87 and 98 percent, respectively, and were within prescribed control limits. The relative percent difference (RPD) between the LCS recoveries was 12 percent and is acceptable. Accuracy and precision parameters are met for fluoride. Three LCS results were provided for cyanide. LCS recoveries ranged from 77 to 85 percent and were within prescribed control limits for cyanide.

DUPLICATE SAMPLE ANALYSES

Sample FMSWNS100+5 was prepared as a blind duplicate of the surface-water sample of NS46+5. The RPD comparisons of quantified compounds in the primary and blind duplicate samples follows. Concentrations are in microgams per liter (µg/L).

Compound	Concentration NS46+5 (primary)	Concentration NS46+5 (duplicate)	RPD
Arsenic	20.5	21.0	2
Lead	557	776	33
Barium	79.1	76.2	4
Cadmium	26.4	24.6	7
Copper	626	726	15
Zinc	3130	2900	8
Mercury	0.31	0.38	20
Fluoride	9800	9300	5

Sampling and analytical precision is acceptable.

MATRIX SPIKE ANALYSES

ICP Metals. MS and MSD analyses of total ICP metals were performed on sample NS45+80. MS and MSD recoveries for total metals ranged from 91 to 109 percent and were within the prescribed control limits. The RPDs between the MS and MSD results ranged from 0.01 to 2.1 percent and were within prescribed limits.

Mercury. MS and MSD analyses of total mercury were performed on sample NS45+80. Matrix spike and spike duplicate recoveries for total mercury were 106 and 103 percent, respectively and were within the prescribed control limits. The RPD between the MS and MSD results was 3.4 percent and was within prescribed limits.

Wet Chemistry. The laboratory states in its narrative that there was insufficient sample to complete MS and MSD analyses on the sample provided for MS and MSD analysis for fluoride. The laboratory provided LCS and LCS duplicate results instead. LCS recoveries and RPDs were acceptable and within prescribed limits. The cyanide MS and MSD analyses were performed on sample NS44+40. Both recoveries were 82 percent and the RPD was 0.36 percent. These results meet the prescribed control limits.

ICP SERIAL DILUTION

An ICP serial dilution analysis was performed on sample NS44+40. The percent differences between the serial dilution results and the undiluted results for ICP metals detected in sample NS44+40 or with concentrations at least five times the instrument detection limit were below the control limit of 10 percent.

OVERALL ASSESSMENT OF THE DATA

The quality of the total metals, fluoride, and cyanide data presented in the Quanterra data package A6F070137 dated July 22, 1996 is acceptable, and data are determined to be quantitative.

Prepared By: Susan Gallagher
Susan Gallagher
Project Scientist

Date: 9/12/96

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ORGANIC DATA SUMMARY

Validation of Volatile and Semivolatile Organic Compound Results
Federated Metals Facility - Surface-water and Sediment Sampling

Analyses Performed by Quanterra, Incorporated
Quanterra Lot # A6F080118 Dated July 22, 1996

SAMPLE DESCRIPTION

The following three surface-water (FMSW prefix) and eighteen sediment (FMSED prefix) samples were collected at the Federated Metals Facility and submitted to Quanterra Inc. in North Canton, Ohio for analysis of VOCs by Method 8240B and for SVOCs by Method 8270B. Sample FMSEDNS45+103 was collected as a blind replicate sample of primary sample FMSEDNS45+20. Two equipment rinsate samples, FMSWNS101 and FMSWNS102, were also collected and submitted for analysis of VOCs and SVOCs as field quality control (QC) samples. A trip blank was submitted for analysis of VOCs only.

FMSWNS43+40	FMSEDNS44+40(0.5-1.5)
FMSWNS43+80(0-1)	FMSEDNS44+80(0.5-1.5)
FMSWNS43+80(1.5-2.5)	FMSEDNS45+5(0.5-1.5)
FMSWNS101	FMSEDNS45+20(0.5-1.5)
FMSWNS102	FMSEDNS45+40(0.5-1.5)
FMSEDNS43+5(1-1.5)	FMSEDNS45+80(0.5-1.5)
FMSEDNS43+20(0.5-2)	FMSEDNS45+103(0.5-1.5)
FMSEDNS43+40(0-1)	FMSEDNS46+5(0.5-1.5)
FMSEDNS43+80(0-1)	FMSEDNS46+20(0.5-1.5)
FMSEDNS43+80(1-1.5)	FMSEDNS46+40(0.5-1.5)
FMSEDNS44+5(0.5-1.5)	FMSEDNS46+80(0.5-1.5)
FMSEDNS44+20(0.5-1.5)	Trip Blank

These samples are referred to as SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), SW101, SW102, 43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+20, 44+40, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20, 46+40, 46+80, and trip blank, respectively, in this data evaluation.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The five water and eighteen sediment samples submitted under this chain of custody for VOCs and SVOCs analyses were analyzed, as requested. The trip blank was analyzed for VOCs, as requested.

HOLDING TIME COMPLIANCE

The samples were collected on June 6 and 7, 1996 and were received by the laboratory on June 8, 1996.

VOCs: Aqueous samples for VOCs analysis were preserved with hydrochloric acid at the time of collection and placed on ice. Sediment samples were placed on ice after collection. VOCs analyses were performed June 14, 17, 18, and 19, 1996, within the required 14 day holding time.

SVOCs: Aqueous and sediment samples for SVOCs analysis were placed on ice after collection. Samples submitted for SVOC analysis were extracted on June 11, 12, and 13, 1996, within the required 7 day extraction holding time and were analyzed on June 14, 17, 18, and 19, 1996, within the required 40 day holding time after extraction.

SAMPLE BATCHING

VOCs: VOCs analyses were performed within the following QC batch(es):

43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 45+20, 45+40, 45+103, 46+40, and 46+80 - QC Batch 6169117

44+5, 44+20, 44+40, 44+80, 45+5, 45+80, 46+5, and 46+20 - QC Batch 6171139

SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), SW102, and trip blank - QC Batch 6171141

SW101 - QC Batch 6172151

SVOCs: SVOCs analyses were performed within the following QC batch(es):

SW43+40, SW43+80(0-1), and SW43+80(1.5-2.5) - QC Batch 6163102

SW101 and SW102 - QC Batch 6164106

43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20, 46+40, and 46+80 - QC Batch 5229108

44+20 and 44+40 - QC Batch 6170166

GAS CHROMATOGRAPHY/MASS SPECTROMETRY PERFORMANCE CHECK

VOCs: Each set of tuning data associated with calibration and sample analysis met the required ion abundance criteria. Samples were analyzed within the 12-hour tune time limit.

SVOCs: Each set of tuning data associated with calibration and sample analysis met the required ion abundance criteria. Samples were analyzed within the 12-hour tune time limit.

INITIAL CALIBRATION

VOCs: VOCs analyses for samples in this lot were performed under initial calibrations dated May 8, 1996 and May 23, 1996 for instruments A3I502 and A3I503, respectively. Compound relative response factors (RRFs) were greater than 0.050 and percent relative standard deviations (%RSDs) were less then 30% for the initial calibration, with the exceptions listed below.

Calibration date: 05/08/95
Instrument: A3I502
Associated samples: SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), SW101, SW102, and trip blank

Compound	RRF	%RSD
Acrolein	0.02802	-----
iso-Butanol	0.00786	-----
n-Butanol	0.00576	-----
Cyclohexane	0.01464	-----
Cyclohexanone	0.01789	-----
1,4-Dioxane	0.00344	-----
Ethanol	0.01687	-----
iso-Propanol	0.04513	-----
n-Propanol	0.00329	-----

Based on the low average relative response factors (RRFs) for the initial calibration, the associated sample results for the compounds listed would be qualified as estimated (J) if detected, and rejected (R) if not detected. n-Butanol, cyclohexane, cyclohexanone, ethanol, iso-propanol, and n-propanol were not included in the sampling program and were not reported for the samples. Concentrations of acrolein, iso-butanol, and 1,4-dioxane were not reported above the detection limit in the associated samples; therefore, those results are qualified as rejected (R). Qualification of QC samples is not appropriate, and therefore, results for the equipment blanks and trip blank were not qualified.

Calibration date: 05/23/95
Instrument: A3I503
Associated samples: 43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+20, 44+40, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20 46+40, and 46+80

Compound	RRF	%RSD
Acrolein	0.01529	---
iso-Butanol	0.02018	---
n-Butanol	0.01510	---
Cyclohexanone	0.03803	---
1,4-Dioxane	0.00584	-----
Ethanol	0.02973	-----

n-Butanol, cyclohexanone, and ethanol were not included in the sampling program and were not reported for the samples. Concentrations of acrolein, iso-butanol, and 1,4-dioxane were not reported above the detection limit in the associated samples; therefore, those results are qualified as rejected (R), based on the low average RRFs.

SVOCs: SVOCs analyses for the surface-water and sediment samples were performed under an initial calibration dated May 28, 1996. Average RRFs were greater than 0.050 and %RSDs were less than 30%, with the following exceptions.

Calibration date: 05/28/96
Instrument: A4EXT5
Associated samples: SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), SW101, SW102, 43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+20, 44+40, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20 46+40, 46+80, and trip blank

Compound	RRF	%RSD
Benzidine	-----	39.304
bis(2-Ethylhexyl)phthalate	----	35.788
Famphur	-----	81.366

Bensidine and famphur were not included in the sampling program for surface-water samples and benzidine was not included in the sampling program for sedimaent samples. Concentrations of famphur were not detected above the reporting limit, and associated sediment sample results are qualified as estimated (UJ) based on the initial calibration %RSDs. Bis(2-ethylhexyl)phthalate was detected in samples 43+20, 44+20, 45+5, 45+20, 45+40, 45+80, 45+103, and 46+5 at concentrations below the reporting limit and in sample 43+5 at a concentration above the reporting limit; these results are qualified as estimated (J). Bis(2-ethylhexyl)phthalate was not quantified in all other associated samples and those results are qualified as estimated (UJ). Qualification of QC samples is not appropriate, and therefore, the equipment blanks and trip blank results were not qualified.

CONTINUING CALIBRATION

VOCs: Results from continuing calibration checks were provided for each QC batch of VOCs analyses. RRFs were greater than 0.050, and percent differences (%Ds) from the initial calibration were less than 25 percent for the continuing calibrations, with the following exceptions.

Calibration Date: 06/14/96
Instrument: A3I503
Associated samples: 43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 45+20, 45+40, 45+103, 46+40, and 46+80

Compound	RRF	%D
Acrolein	0.039	105.9
2-Butanone	-----	37.2
iso-Butanol	0.016	-----
n-Butanol	0.010	33.0
1,4-Dioxane	0.006	-----
1,2-Dibromo-3-chloropropane	-----	26.3
Ethanol	0.027	-----
Hexane	-----	35.1
Propionitrile	-----	30.2
Trichlorofluoromethane	-----	54.3
Vinyl acetate	-----	55.9

n-Butanol, ethanol, and hexane were not included in the sampling program and results were not reported for the associated samples. Associated sample results for acrolein, iso-butanol, and 1,4-dioxane were previously qualified as rejected (R) based on the initial calibration RRFs.

Based on the continuing calibration %Ds, associated sample results for 2-butanone, 1,2-dibromo-3-chloropropane, propionitrile, trichlorofluoromethane, and vinyl acetate are qualified as estimated (UJ).

Calibration Date: 06/17/96
Instrument: A3I503
Associated samples: 44+5, 44+20, 44+40, 44+80, 45+5, 45+80, 46+5, and 46+20

Compound	RRF	%D
Acrolein	0.037	92.3
Acrylonitrile	-----	25.1
2-Butanone	-----	54.4
iso-Butanol	0.018	-----
n-Butanol	0.012	-----
Chloromethane	-----	28.4
Cyclohexanone	0.044	-----
1,4-Dioxane	0.005	-----
Ethanol	0.024	-----

Compound	RRF	%D
Freon-113	-----	26.6
Hexane	-----	38.5
Trichlorofluoromethane	-----	76.0
Vinyl acetate	-----	58.1

n-Butanol, cyclohexanone, ethanol, Freon-113, and hexane were not included in the sampling program and were not reported for the associated samples. Associated sample results for acrolein, iso-butanol, and 1,4-dioxane results were previously qualified as rejected (R) based on the initial calibration RRFs.

Based on the continuing calibration %Ds, associated sample results for acrylonitrile, 2-butanone, chloromethane, trichlorofluoromethane, and vinyl acetate are qualified as estimated (UJ).

Calibration Date: 06/18/96
Instrument: A3I502
Associated samples: SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), SW102, and trip blank

Compound	RRF	%D
Acetone	-----	45.4
Acrolein	0.024	-----
2-Butanone	-----	31.4
tert-Butyl alcohol	-----	31.8
Cyclohexanone	-----	39.5
1,4-Dioxane	0.002	28.9
Ethanol	0.012	29.5
2-Nitropropane	-----	49.9
iso-Propylethane	-----	33.1
Tetrahydrofuran	-----	26.7

tert-Butyl alcohol, cyclohexanone, ethanol, 2-nitropropane, iso-propylethane, and tetrahydrofuran were not included in the sampling program and were not reported for the associated samples. Associated sample results for acrolein and 1,4-dioxane results were previously qualified as rejected (R) based on the initial calibration RRFs.

Based on the continuing calibration %Ds, associated sample results for acetone and 2-butanone are qualified as estimated (UJ). Qualification of QC samples is not appropriate, and therefore, the equipment blank and trip blank results were not qualified.

Calibration Date: 06/19/96
Instrument: A3I502
Associated sample: SW101

Compound	RRF	%D
Acetone	-----	36.3
Acrolein	0.022	-----

Compound	RRF	%D
Acrylonitrile	-----	32.4
2-Butanone	-----	42.8
n-Butanol	-----	25.7
tert-Butyl alcohol	-----	51.2
Dichlorofluoromethane	-----	26.5
Cyclohexanone	-----	44.0
1,4-Dioxane	0.001	57.5
Ethanol	0.007	60.0
2-Hexanone	-----	26.7
2-Nitropropane	-----	53.4
Propionitrile	-----	26.6
iso-Propylethane	-----	37.5
Tetrahydrofuran	-----	32.2

n-Butanol, tert-butyl alcohol, cyclohexanone, ethanol, 2-nitropropane, iso-propylethane, and tetrahydrofuran were not included in the sampling program and were not reported for the associated samples. Qualification of QC samples is not appropriate, and therefore, the equipment blank results were not qualified.

SVOCs: Results from four continuing calibration checks associated with the surface-water and sediment sample analyses were provided. RRFs were greater than 0.050, and compound %Ds were less than 25 percent for the continuing calibrations with the following exceptions:

Calibration Date: 06/14/96
Instrument: A4EXT5
Associated samples: 43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20 46+40, and 46+80

Compound	RRF	%D
a,a'-Dimethylphenethylamine	-----	50.8
Famphur	-----	33.2
Malononitrile	-----	27.0
Methapyrilene	-----	34.0
p-Phenylenediamine	-----	50.7
2,4-Toluenediamine	-----	35.8

Malononitrile, and 2,4-toluenediamine were not included in the sampling program and results were not reported for the associated samples. Sample results for famphur were qualified previously based on the initial calibration. Based on the continuing calibration %Ds, a,a'-dimethylphenethylamine, methapyrilene, and p-phenylenediamine results are qualified as estimated (UJ) for the associated samples.

Calibration Date: 06/17/96
Instrument: A4EXT5

Associated samples: SW101 and SW102

Compound	RRF	%D
Aniline	-----	26.7
Benzidine	-----	34.3
Benzoic acid	-----	29.3
Benzyl alcohol	-----	34.3
3-Chloropropionitrile	-----	25.5
1,3-Dichloro-2-propanol	-----	27.2
a,a'-Dimethylphenethylamine	-----	71.7
Ethylmethanesulfonate	-----	27.2
Malononitrile	-----	38.8
Methapyrilene	-----	43.4
Methylmethanesulfonate	-----	29.2
2-Nitroaniline	-----	25.6
4-Nitroquinoline-1-oxide	-----	32.2
2-Nitrosomethylethylamine	-----	31.2
Phenacetin	-----	30.2
p-Phenylenediamene	-----	66.3
2-Picoline	-----	28.9
Pyridine	-----	37.8
2,4-Toluenediamine	-----	59.2

Benzidine, benzoic acid, 3-chloropropionitrile, 1,3-dichloro-2-propanol, malononitrile, phenacetin, and 2,4-toluenediamine were not included in the sampling program for water samples and results were not reported for the associated samples. Qualification of QC samples is not appropriate, and therefore, results for the equipment blanks were not qualified.

Calibration Date: 06/18/96
Instrument: A4EXT5
Associated samples: SW43+40, SW43+80(0-10), and SW43+80(1.5-2.5)

Compound	RRF	%D
Benzidine	-----	31.9
Benzoic acid	-----	33.2
Benzyl alcohol	-----	60.2
a,a'-Dimethylphenethylamine	-----	75.4
1,4-Dioxane	-----	44.8
Malononitrile	-----	30.5
Methapyrilene	-----	38.9
4-Nitrophenol	-----	27.7
4-Nitroquinoline-1-oxide	-----	30.8
n-Nitrosomethylethylamine	-----	31.8
Phenacetin	-----	26.0
p-Phenylenediamine	-----	65.2
Pyridine	-----	39.2
2,4-Toluenediamine	-----	43.1

Benzidine, benzoic acid, 1,4-dioxane, malononitrile, phenacetin, and 2,4-toluenediamine were not included in the sampling program and results were not reported for the associated samples. Based on the continuing calibration %Ds, benzyl alcohol, a,a'-dimethylphenethylamine, methapyrilene, 4-nitrophenol, 4-nitroquinoline-1-oxide, n-nitrosomethylethylamine, p-phenylenediamine, and pyridine results are qualified as estimated (UJ) for the associated samples.

Calibration Date: 06/19/96
Instrument: A4EXT5
Associated samples: 44+20 and 44+40

Compound	RRF	%D
a,a'-Dimethylphenethylamine	-----	49.5
1,4-Dioxane	-----	73.8
Famphur	-----	102.1
Malononitrile	-----	29.2
Methapyrilene	-----	34.2
n-Nitrosodimethylamine	-----	26.7
p-Phenylenediamene	-----	56.4
Pyridine	-----	37.6
2,4-Toluenediamine	-----	52.1

1,4-Dioxane, malononitrile, and 2,4-toluenediamine were not included in the sampling program and results were not reported for the associated samples. Associated sample results for famphur were previously qualified based on the initial calibration. Based on the continuing calibration %Ds, a,a'-dimethylphenethylamine, methapyrilene, n-

nitrosodimethylamine, p-phenylenediamine, and pyridine results are qualified as estimated (UJ) for the associated samples.

BLANKS

VOCs: The results for four method blanks associated with sample analyses were provided with the samples. No VOCs were detected in the method blanks above reporting limits and no action was required. Two equipment blanks, SW101 and SW102, and one trip blank were submitted with the samples. No VOCs were quantified in the blanks.

SVOCs: Results for four method blanks associated with sample analyses were provided. No SVOCs were detected in the method blanks with the following exceptions.

Blank	QC Batch	Analytes Detected (micrograms per Liter (µg/L))
A6F110000-102	6163102	bis(2-Ethylhexyl)phthalate 6.7 (J)
A6F120000-106	6164106	bis(2-Ethylhexyl)phthalate 6.6 (J)

bis(2-Ethylhexyl)phthalate was reported as estimated at 6.7 µg/L and 6.6 µg/L in blanks A6F110000-102 and A6F120000-106, respectively. bis(2-Ethylhexyl)phthalate was detected at a concentration below the reporting limit in associated sample SW43+40; the laboratory flagged the result as estimated (J) and detected in the method blank(B). The bis(2-ethylhexyl)phthalate result for SW43+40 is less than 10 times the associated method blank concentration and is considered to be not detected (U) at the reported value. This result is also qualified as estimated (UJ) based on the associated initial calibration %RSD. SVOCs were not detected in the two equipment blanks, SW101 and SW102.

SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

VOCs: Surrogate spike compound recoveries were within the prescribed control limits, ranging from 72 to 116 percent.

SVOCs: Surrogate spike compound recoveries were within prescribed control limits for each of the specific surrogate compounds, ranging from 43 to 101 percent.

MATRIX SPIKE/MATRIX SPIKE DUPLICATES

VOCs: Results from batch specific matrix spike/matrix spike duplicate (MS/MSD) analysis were provided for each QC batch. MS/MSD recoveries were within laboratory prescribed QC limits, ranging from 85 to 114 percent. Relative percent differences (RPDs) between the MS and MSD recoveries ranged from 0.91 to 8.4 percent and precision criteria were satisfied.

SVOCs: Results from three batch specific MS/MSD analyses were provided. MS/MSD recoveries ranged from 21 to 115 percent and were within laboratory prescribed QC limits. Precision between the MS and MSD recoveries was acceptable, with RPDs ranging from 0.29 to 21 percent.

LABORATORY CONTROL SAMPLES

VOCs: The laboratory control sample (LCS) is a blank spike sample and is identified as a check sample in the laboratory reports. LCS results were reported for each QC batch. LCS recoveries were within laboratory prescribed QC limits, ranging from 91 to 106 percent.

SVOCs: Results from three LCS analyses, and one LCS and duplicate control sample (DCS) pair were provided. LCS recoveries were within laboratory prescribed QC limits, ranging from 54 to 114 percent. Precision between the LCS and DCS results was acceptable with a maximum RPD of 7.3 percent.

DUPLICATE SAMPLE ANALYSES

VOCs: One field replicate sample, 45+103, was collected for primary sample 45+20. VOCs were not detected in the primary or replicate samples and precision was acceptable.

SVOCs: One field replicate sample, 45+103, was collected for primary sample 45+20. Bis(2-ethylhexyl)phthalate was detected in both the primary and replicate samples at estimated concentrations of 430 µg/L and 280 µg/L, respectively. The primary and replicate results were within ±two times the reporting limit and precision was acceptable.

INTERNAL STANDARDS

VOCs: All three internal standard (IS) area counts and retention times met QC requirements for samples in this laboratory report, with the following exception. Area counts for internal standards 1,4-difluorobenzene and chlorobenzene-d_5 were below QC limits for sample 43+20. Sample 43+20 was not reanalyzed and the laboratory noted in the "Case Narrative" that the low IS areas were "due to demonstrated matrix effect." Therefore, sample 43+20 results for toluene is qualified as estimated (J); and sample 43+20 results for benzene, bromodichloromethane, bromoform, carbon tetrachloride, chlorobenzene, dibromochloromethane, 1,2-dichloropropane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, ethylbenzene, 2-hexanone, 4-methyl-2-pentanone, 1,1,2-trichloroethane, trichloroethene, 1,1,2,2-tetrachloroethane, tetrachloroethene, styrene, and xylenes are qualified as estimated (UJ).

SVOCs: All six IS area counts and retention times met QC requirements for the samples analyzed.

COMPOUND QUANTITATION AND ESTIMATED RESULTS:

Compound quantitation and identification for VOCs and SVOCs analyses were consistent with the raw data and were within the calibration range. Compounds reported for samples at concentrations below the reporting limit and above the detection limit were flagged by the laboratory as estimated (J). These results are qualified as estimated (J) at the reported concentrations.

OVERALL ASSESSMENT OF THE DATA FOR THE CASE

The data quality of the VOCs and SVOCs analyses presented in Quanterra lot number A6F080118 dated July 22, 1996 is acceptable, and data are determined to be quantitative, with the exceptions noted in the following table.

Sample Identification	Analyte(s) Qualified	Data Qualifier	Reason
All samples (except SW101, SW102, and trip blank)	Acrolein iso-Butanol 1,4-Dioxane	R	Initial and continuing calibration RRFs were below 0.05.
SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+40, 44+80, 46+20, 46+40, and 46+80	bis(2-Ethylhexyl)phthalate	UJ	Initial calibration %RSD exceeded 30 percent. Concentration in sample SW43+40 was less than 10 times the amount detected in the associated method blank.
43+5, 43+20, 44+20, 45+5, 45+20, 45+40, 45+80, 45+103, and 46+5	bis(2-Ethylhexyl)phthalate	J	Initial calibration %RSD exceeded 30 percent.
43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+20, 44+40, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20 46+40, and 46+80	Famphur	UJ	Initial calibration %RSD exceeded 30 percent.
43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 45+20, 45+40, 45+103, 46+40, and 46+80	2-Butanone 1,2-Dibromo-3-chloropropane Proprionitrile Trichlorofluoromethane Vinyl Acetate	UJ	Continuing calibration %Ds exceeded 25 percent.
44+5, 44+20, 44+40, 44+80, 45+5, 45+80, 46+5, and 46+20	Acrylonitrile 2-Butanone Chloromethane Trichlorofluoromethane Vinyl Acetate	UJ	Continuing calibration %Ds exceeded 25 percent.
SW43+40, SW43+80(0-1),and SW43+80(1.5-2.5)	Acetone 2-Butanone	UJ	Continuing calibration %Ds exceeded 25 percent.
43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20, 46+40, and 46+80	a,a'-Dimethylphenethylamine Methapyrilene p-Phenylenediamine	UJ	Continuing calibration %Ds exceeded 25 percent.

Sample Identification	Analyte(s) Qualified	Data Qualifier	Reason
SW43+40, SW43+80(0-1), and SW43+80(1.5-2.5)	Benzyl alcohol a,a'-Dimethylphenethylamine Methapyrilene 4-Nitrophenol 4-Nitroquinoline-1-oxide n-Nitrosomethylethylamine p-Phenylenediamine Pyridine	UJ	Continuing calibration %Ds exceeded 25 percent.
44+20 and 44+40	a,a'-Dimethylphenethylamine Methapyrilene n-Nitrosodimethylamine p-Phenylenediamine Pyridine	UJ	Continuing calibration %Ds exceeded 25 percent.
43+20	Toluene	J	IS area counts were below QC limits; laboratory attributed to matrix interference.
43+20	Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Dibromochloromethane 1,2-Dichloropropane cis-1,3-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene 2-Hexanone 4-Methyl-2-pentanone Styrene 1,1,2,2-Tetrachloroethane Tetrachloroethene 1,1,2-Trichloroethane Trichloroethene Xylenes	UJ	IS area counts were below QC limits; laboratory attributed to matrix interference.

Prepared By: _____

Eumy F. Hung
Staff Scientist

Date: _____

INORGANIC DATA SUMMARY

Validation of Total Metals and Wet Chemistry Analytical Results
Federated Metals Facility Surface-water and Sediment Sampling

Analyses Performed by Quanterra Environmental Services
Quanterra Lot # A6F080118 Dated July 22, 1996

SAMPLE DESCRIPTION

The following three surface-water and eighteen sediment samples were collected at the Federated Metals Facility and submitted to Quanterra Inc. in North Canton, Ohio for analysis of total metals and wet chemistry parameters. Sample FMSEDNS45+103 was collected and submitted as a blind replicate of primary sample FMSEDNS45+20. Two equipment rinsate samples, FMSWNS101 and FMSWNS102, were also collected and submitted for inorganic analyses.

FMSWNS43+40
FMSWNS43+80(0-1)
FMSWNS43+80(1.5-2.5)
FMSWNS101
FMSWNS102
FMSEDNS43+5(1-1.5)
FMSEDNS43+20(0.5-2)
FMSEDNS43+40(0-1)
FMSEDNS43+80(0-1)
FMSEDNS43+80(1-1.5)
FMSEDNS44+5(0.5-1.5)
FMSEDNS44+20(0.5-1.5)
FMSEDNS44+40(0.5-1.5)
FMSEDNS44+80(0.5-1.5)
FMSEDNS45+5(0.5-1.5)
FMSEDNS45+20(0.5-1.5)
FMSEDNS45+40(0.5-1.5)
FMSEDNS45+80(0.5-1.5)
FMSEDNS45+103(0.5-1.5)
FMSEDNS46+5(0.5-1.5)
FMSEDNS46+20(0.5-1.5)
FMSEDNS46+40(0.5-1.5)
FMSEDNS46+80(0.5-1.5)

These samples are referred to as SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), SW101, SW102, 43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+20, 44+40, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20, 46+40, and 46+80, respectively, in this data evaluation.

COMPARISON OF REQUESTED AND PERFORMED ANALYSES

The five surface-water and eighteen sediment samples were submitted for total metals and wet chemistry parameters and were analyzed as requested on the chain-of-custody. Total metals analyses were performed by EPA Methods 6010A Inductively Coupled Plasma ((ICP) metals include arsenic, silver, barium, beryllium, cadmium, cobalt, chromium, copper, lead, nickel, antimony, selenium, thallium, tin, vanadium, and zinc), and Method 7470/7471 for mercury by manual cold-vapor atomic absorption. Wet

chemistry analyses included fluoride by Method 340.2 and cyanide by Method 9012. Fluoride analyses were performed by Quanterra - Tampa laboratory.

HOLDING TIME COMPLIANCE

The samples were collected on June 6 and 7, 1996 and were received by the laboratory on June 8, 1996. Aqueous total metals samples were preserved with nitric acid at the time of collection. Aqueous cyanide samples were preserved with sodium hydroxide at time of collection. Surface-water and sediment samples were place on ice after collection.

Total metals analyses by ICP were performed on June 17, 18, and 19, 1996 within the required 180 day holding time. Total mercury analyses were performed on June 18 and 19, 1996 within the required 28 day holding time. Fluoride analyses were performed on June 13 and 26, 1996 within the required 28 day holding time, and cyanide analyses were performed on June 13, 18, and 19, 1996 within the required 14 day holding time.

SAMPLE BATCHING

Total metals and wet chemistry analyses for the surface-water and sediment samples were performed within the following Quality Control (QC) batch(es):

43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+5, 44+20, 44+40, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20, 46+40, and 46+80 - QC batch 6169113 for total metals

SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), SW101, and SW102 - QC batch 6169115 for total metals

43+80(1-1.5) - QC batch 6171104 for total mercury

SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), SW101, and SW102 - QC batch 6165207 for fluoride

43+5, 43+20, 43+40, 43+80(0-1), 43+80(1-1.5), 44+40, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20, 46+40, and 46+80 - QC batch 6176180 for fluoride

44+5 and 44+20 - QC batch 6177185 for fluoride

43+5, 43+20, 43+40, 43+80(0-1), 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20, 46+40, and 46+80 - QC batch 6166158 for cyanide SW43+40, SW43+80(0-1), SW43+80(1.5-2.5), and SW101 - QC batch 6165153 for cyanide

SW102 - QC batch 6171109 for cyanide

43+80(1-1.5), 44+5, 44+20, and 44+40 - QC batch 6171152 for cyanide

INITIAL CALIBRATION

Total Metals. The analyses for this sample delivery group were performed under initial calibrations dated June 17, 18, and 19, 1996. Initial calibration blank and standard results were acceptable. Initial calibration verification (ICV) recoveries ranged from 95.7 to 105.9 percent and were within prescribed control limits.

Wet Chemistry. Samples were analyzed for fluoride under initial calibrations dated June 13 and 26, 1996. Cyanide analyses were performed under initial calibrations dated June 13, 18, and 19, 1996 . ICV recoveries for fluoride and cyanide ranged from 75 to 93 percent and were within acceptable limits.

CONTINUING CALIBRATION

Total Metals. Continuing calibration verification (CCV) standard analyses for ICP metals and mercury were performed at the required frequency of every tenth sample or every two hours. CCV recoveries ranged from 87.6 to 104 percent and were within prescribed control limits.

Wet Chemistry. CCV standards for fluoride and cyanide were analyzed with the surface-water and sediment samples at the required frequency. CCV recoveries ranged from 92.0 to 110 percent and were within prescribed control limits.

BLANKS

Total Metals. Results for method blanks and continuing calibration blanks (CCB) analyzed before, during, and after surface-water and sediment samples, were provided for total metals. No target analytes were detected in the method blanks. Thallium and zinc were detected in the CCBs at concentrations less than the contract required detection limit (CRDL). As such, no action was taken.

Two equipment blanks, SW101 and SW102, were submitted and analyzed for total metals. No target analytes were detected with the following exceptions.

Blank	Analytes Detected	Concentration (micrograms per liter)
SW101	Lead	3.0 µg/L

SW102	Zinc	54.2 µg/L

Results for lead in samples associated with equipment blank SW101 were greater than five times the blank concentration, with the exception of sample 43+80(1-1.5). Sample 43+80(1-1.5) result for lead is qualified as not detected (U) at the reported concentration. Results for zinc in samples associated with equipment blank SW102 were greater than five times the blank concentration, with the exception of sample 46+80. Sample 46+80 result for zinc is qualified as not detected (U) at the reported concentration.

Wet Chemistry. Results for method blanks associated with each QC batch were provided. No target analytes were detected in the blanks. Two equipment blanks, SW101 and SW102, were analyzed for fluoride and cyanide; target analytes were not detected in the blanks.

ICP INTERFERENCE CHECK SAMPLE

Results for one interference check sample (ICS) associated with total metals analyses were provided. ICS recoveries ranged from 92.3 to 116.1 percent and were within prescribed control limits of ±20 percent of the true value.

LABORATORY CONTROL SAMPLE

Total Metals. Laboratory control samples (LCS) were analyzed for each QC batch. LCS recoveries ranged from 84.0 to 114 percent and were within laboratory prescribed control limits.

Wet Chemistry. One LCS was analyzed for each QC batch. The LCS recoveries ranged from 75 to 93 and were within laboratory prescribed control limits. One LCS and duplicate control sample (DCS) pair was analyzed for fluoride. The LCS and DCS recoveries were 87 and 98 percent and precision was acceptable with a RPD of 12 percent.

DUPLICATE SAMPLE ANALYSES

Total Metals. Results for laboratory duplicate sample analyses for total metals were not provided. One replicate sample, 45+103, of primary sample 45+20 was submitted and analyzed for total metals. Precision, as evaluated by the relative percent differences (RPD) between the primary and replicate results, was acceptable with a maximum RPD of 59 percent.

Wet Chemistry. Results for laboratory duplicate sample analyses for wet chemistry parameters were not provided. One replicate sample, 45+103, of primary sample 45+20 was submitted and analyzed for fluoride and cyanide. Precision, as evaluated by the relative percent differences (RPD) between the primary and replicate results, was acceptable with a maximum RPD of 10.9 percent.

MATRIX SPIKE ANALYSES

Total Metals. Sample specific matrix spike and spike duplicate (MS/MSD) analysis for QC batch 6169113 was performed on sample 43+80(1-1.5). MS and MSD recoveries for total metals ranged from 72 to 95 percent and were within the prescribed QC limits, with the following exceptions. MS and/or MSD recoveries for beryllium, lead, antimony, selenium, and thallium were below the lower QC limit, but greater than 30 percent. The laboratory did not flag sample results. However, associated sample results are qualified as estimated (J, if detected) for beryllium, lead, antimony, selenium, thallium, and zinc. The relative percent differences (RPD) between the matrix spike and spike duplicate results ranged from 0.05 to 4.3 percent and were within prescribed QC limits.

Batch specific MS and MSD recoveries for total mercury were 129 and 113 percent and were within the prescribed QC limits. The RPD between the matrix spike and spike duplicate results was 13 percent and was within prescribed limits.

Wet Chemistry. Results for sample specific or batch specific MS/MSD analyses for each QC batch were provided. Fluoride MS and MSD recoveries for QC batches 6176180 and 6177185 were below the QC limit, but greater than 30 percent. RPDs between the MS and MSD results were within the QC limit. Associated samples results for fluoride are qualified as estimated (J).

MS and MSD recoveries for cyanide analyses ranged from 45 to 104 percent and were within QC limits, with the following exceptions. The MSD recovery for QC batch 6166158 and the MS recovery QC batch 6165153 were below the QC limit.

ICP SERIAL DILUTION

ICP serial dilution analysis was performed on sample 43+20. Percent difference (%D) of serial dilution results from undiluted results for total metals detected in sample 43+20, with concentrations at least five times the instrument detection limit (IDL), were below the control limit of ten percent. The laboratory flagged results for barium, cobalt, chromium, copper, lead, nickel, antimony, vanadium, and zinc as having greater than 10 percent difference between the initial and serial dilution results (L), and that a chemical or physical interference is suspected. These results are qualified as estimated (J).

OVERALL ASSESSMENT OF THE DATA

The data quality of the total metals and wet chemistry analyses presented in Quanterra lot number A6F080118 dated July 22, 1996 is acceptable, and data are determined to be quantitative, with the exceptions noted in the following table.

Sample Identification	Analyte(s) Qualified	Data Qualifier	Reason
43+80 (1-1.5)	Lead	UJ	Sample concentration was less than five times the associated equipment blank; and associated MS/MSD recoveries were below prescribed QC limits.
46+80	Zinc	UJ	Sample concentration was less than five times the associated equipment blank; and associated MS/MSD recoveries were below prescribed QC limits.
43+80(0-1), 43+5, 43+20, 43+40, 44+5, 44+20, 44+40, 44+80, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20, and 46+40	Lead Zinc	J	Associated MS/MSD recoveries were below prescribed QC limits.
43+80(0-1), 43+5, 43+40, 44+5, 44+20, 44+40, 45+5, 45+20, 45+40, 45+80, 45+103, 46+5, 46+20, 46+40, and 46+80	Selenium	J	Associated MS/MSD recoveries were below prescribed QC limits.
45+5	Beryllium	J	Associated MS/MSD recoveries were below prescribed QC limits.
44+5 and 44+20	Antimony	J	Associated MS/MSD recoveries were below prescribed QC limits.
All sediment samples	Fluoride	J	Associated MS/MSD recoveries were below prescribed QC limits.

Sample Identification	Analyte(s) Qualified	Data Qualifier	Reason
43+20	Barium Cobalt Chromium Copper Lead Nickel Vanadium Zinc	J	%Ds between original and ICP serial dilution results exceeded 10 percent for those analytes with greater than five times the IDL.

Prepared By:_____

Eumy F. Hung
Staff Scientist

Date: _____

APPENDIX Q

SEDIMENT SAMPLING LOGS

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 1:15P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 5' FROM SHORELINE IN LAKE GEORGE. W. SIDE OF LANDFILL

Sample Designation FMSEDNS43+5 (0-0.5)

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL +
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR-3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND. >50% ROOTS AND ORGANIC DEBRIS. SPONGEY, COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0.0.5' Sample Volume 10oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2oz JAR
SVOCs	8oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-6-96 / 3:15P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 5' FROM SHORELINE IN LAKE GEORGE

Sample Designation FMSEDN543 + 5 / 1 - 1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1ST FROM SAMPLER, OTHER COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR 5/2 GRAYISH BROWN Staining

Description 20% SILT, 80% VERY FINE QUARTZ SAND SUBANGULAR TO SUBROUND, WELL SORTED

SAMPLE DESCRIPTION

Sample Depth 1 - 1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-6-96/3:40P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 20' FROM SHORELINE IN LAKE GEORGE

Sample Designation FMSEDN543+20/0.5-2'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC COLLECTED 1ST - FROM SAMPLER, OTHER COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-4/1 DARK GRAY Staining

Description 30% SILT, 70% VERY FINE QUARTZ SAND, SUBROUND TO ROUND, WELL SORTED ROOTS ABUNDANT, SOME ORGANIC DEBRIS

SAMPLE DESCRIPTION

Sample Depth 0.5-2' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-6-96 / 4:00P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 40' FROM SHORELINE IN LAKE GEORGE

Sample Designation FMSEDN543 +40/0-0.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1ST. FROM SAMPLER, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR 4/1 DARK GRAY Staining

Description 30% SILT, 70% VERY FINE QUARTZ SAND, SUBROUND TO ROUND, WELL SORTED, ROOTS ABUNDANT, SOME ORGANIC DEBRIS

SAMPLE DESCRIPTION

Sample Depth 0-1' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. Federated Metals / IN0144.107 Date/Time 6-6-96 / 10:30A
Site Location Hammond, IN - Lake George
Sample Location 80' FROM SHORELINE IN LAKE GEORGE

Sample Designation FMSEDNS43+80 / 0-1'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth Hand Auger soil sampler, stainless steel 2-inch diameter, 12-inch core sampler
Sampling Method VOC sample collected 1st - from sampler others collected into stainless bowl *
Decontamination Method Soapy DI wash, DI Rinse, Lab Grade DI Rinse

SOIL DESCRIPTION

Color 5YR-2.5/1 BLACK Staining

Description BLACK, SILTY ORGANIC MATTE WITH ABUNDANT ORGANIC DEBRIS. 50% SILT, 50% VERY FINE SAND. FEW SMALL SHELLS

SAMPLE DESCRIPTION

Sample Depth 0-1' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2oz JAR
SVOCs	8oz JAR
Metals Plus Fl	↓
Total Cyanide	↓

Remarks * Samples collected from bowl w/ stainless scoop into containers
Sampling Personnel Blake Fahl, Jamie Yater - G&M

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/1N0144.107 Date/Time 6-6-96 / 11:00^A
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 80' FROM SHORELINE IN LAKE GEORGE

Sample Designation FMSEDN543+80 / 1.5-2.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1ST. FROM SAMPLER
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-5/2 GRAYISH BROWN Staining

Description 20% SILT, 80% VERY FINE QUARTZ SAND, WELL SORTED

SAMPLE DESCRIPTION

Sample Depth 1-1.5' Sample Volume 10oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2oz JAR
SVOCs	8oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks *-SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS / IN0144.107 Date/Time 6-11-96 / 4:00P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 5' FROM SHORE LINE IN WETLANDS. E. OF NS46

Sample Designation FMSEDNS44+5 / 0-0.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINE
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-7-96 / 12:30P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 5' FROM SHORELINE IN WETLANDS, SE OF NS46

Sample Designation FMSEDNS44 + 5 / 0.5-1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED FIRST - FROM SAMPLER, OTHERS COLLECTED FROM STAINLESS BOWL*
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-5/2 GRAYISH BROWN Staining

Description 10% SMALL GRAVEL, SUBANGULAR, 20% SILT, 70% FINE-MEDIUM SAND, MEDIUM-WELL SORTED, MOSTLY FINE-MEDIUM GRAINED.

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 4:15P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 20' FROM SHORE LINE IN WETLANDS, E. OF NS 46

Sample Designation FMSEDNS44+20 / 0-0.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINE
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-7-96 / 12:15P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 20% FROM SHORELINE IN WETLAND, SE OF NS46

Sample Designation FMSEDNS44+20 / 0.5-1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER, SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1ST - FROM SAMPLER, OTHERS COLLECTED FROM STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR - 5/2 GRAYISH BROWN Staining

Description 10% SMALL GRAVEL, SUBANGULAR, 20% SILT, 70% FINE-MEDIUM SAND, MEDIUM TO WELL SORTED, MOSTLY FINE-MEDIUM GRAINED.

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 4:30P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 40' FROM SHORE LINE IN WETLANDS. E. OF NS 46

Sample Designation FMSEDNS44+40/0-0.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2oz JAR
SVOCs	8oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINE
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-7-96 / 12:00P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 40' FROM SHORELINE SE OF NS46

Sample Designation FMSEDNS44+40 / 0.5-1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC COLLECTED 1ST. FROM SAMPLER, OTHERS COLLECTED FROM STAINLESS BOWL*
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-5/2 GRAYISH BROWN Staining

Description 10% SMALL GRAVEL, SUBANGULAR, 20% SILT, 70% FINE-MEDIUM SAND, MOSTLY QUARTZ, MEDIUM TO WELL SORTED, MOSTLY FINE-MEDIUM GRAINED

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 4:45P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 80' FROM SHORE LINE IN WETLANDS. E. OF NS 44

Sample Designation FMSEDNS44+80/0-0.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINE
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/1N0144.107 Date/Time 6-7-96 / 11:45A
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 80% FROM SHORELINE. SE OF NS 46

Sample Designation FMSEDNS44+80 / 0.5-1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER, SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1ST - FROM SAMPLER, OTHERS COLLECTED FROM STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-5/2 GRAYISH BROWN Staining

Description 10% SMALL GRAVEL, SUBANGULAR TO 20% SILT, 70% FINE-COARSE SAND, MEDIUM-WELL SORTED, MOSTLY FINE-MEDIUM GRAINED.

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 1:45P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 5' FROM SHORELINE IN WETLANDS. W. OF NS46

Sample Designation FMSEDNS45+5 (0.0.5)

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL +
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR-3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND. >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0-0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-7-96 / 10:15^A
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 5' FROM SHORELINE IN WETLANDS. SE OF NS46+40

Sample Designation FMSEDNS45+5/0.5-1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1st - FROM SAMPLER, OTHERS COLLECTED FROM STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR - 2/1 BLACK Staining

Description 30% SILT, 70% FINE-MEDIUM QUARTZ SAND, FEW SMALL ANGULAR GRAVEL, SUBANGULAR TO SUBROUND, WELL SORTED, ROOTS & ORGANICS ABUNDANT

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 2:00P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 20' FROM SHORELINE IN WETLANDS. W. OF NS46

Sample Designation FMSEDNS45 +20 (0-0.5')

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL +
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR-3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks ~~X~~ SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAUL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-7-96 / 10:00A
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 20' FROM SHORELINE IN WETLANDS E. OF NS46

Sample Designation FMSEDNS45+20/0.5-1.5 FMSED103+20/0.5-1.5

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1ST. FROM SAMPLER, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-5/2 GRAYISH BROWN Staining

Description 20% SMALL-LARGE SUBROUND TO ROUND, 20% SILT, 60% FINE-MEDIUM QUARTZ SAND, SUBANGULAR TO ROUND, WELL SORTED, ROOTS, ORGANIC DEBRIS

SAMPLE DESCRIPTION

Sample Depth 0.5 - 1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 2:10P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 40' FROM SHORE LINE IN WETLANDS. W. OF NS 46

Sample Designation FMSEDNS45+40 (0-0.5')

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL +
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINER
Sampling Personnel BLAKE FAUL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-7-96 / 9:30 A
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 40' FROM SHORELINE IN WETLANDS, NE OF NS46

Sample Designation FMSEDNS45 + 40 / 0.5-1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1ST. FROM SAMPLER, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-4/2 DARK GRAYISH BROWN Staining

Description 20% SMALL-LARGE SUBROUND TO SUBANGULAR ROCKS, 20% SILT, 60% FINE-MEDIUM QUARTZ SAND, SUBANGULAR TO SUBROUND, WELL SORTED, ROOTS, ORGANIC DEBRIS

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 2:30P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 80' FROM SHORE LINE IN WETLANDS. W. OF NS46

Sample Designation FMSEDNS45 +80 (0-0.5')

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINE
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 3:00P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 5' FROM SHORE LINE IN WETLANDS. E. OF NS 45

Sample Designation FMSEDNS46+5 (0-0.5')

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINE
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-7-96 / 11:15 AM
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 5' FROM SHORELINE IN WETLAND NW OF NS44+20

Sample Designation FMSEDNS46+5 / 0.5-1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1ST - FROM SAMPLER OTHERS COLLECTED IN STAINLESS BOWL *
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-4/1 DARK GRAY Staining

Description 10% SMALL-LARGE GRAVEL, 20% SILT, 70% FINE-MEDIUM SAND, MOSTLY QUARTZ, SUBANGULAR TO SUBROUND, ROOTS AND ORGANIC DEBRIS ABUNDANT

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 3:15P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 20' FROM SHORE LINE IN WETLANDS. E. OF NS 45

Sample Designation FMSEDNS46 + 20 / 0.-0.5' FMSEDNS104 + 40 / 0-0.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINE
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-7-96 / 11:00 A
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 20' FROM SHORELINE IN WETLAND NW OF NS49+40

Sample Designation FMSEDNS45+20/0.5-1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, STAINLESS STEEL 2" IN DIAMETER, 12" CORE SAMPLER
Sampling Method VOC COLLECTED 1ST. FROM SAMPLER, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-4/1 DARK GRAY Staining

Description 10% SMALL-LARGE GRAVEL, 20% SILT, 70% FINE-MEDIUM SAND, MOSTLY QUARTZ, SUBANGULAR TO SUBROUND, ROOTS AND ORGANIC DEBRIS ABUNDANT

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 3:30P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 40' FROM SHORE LINE IN WETLANDS. E. OF NS45

Sample Designation FMSEDNS46 +40 / 0-0.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINE
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS / IN0144.107 Date/Time 6-7-96 / 10:45A
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 40' FROM SHORELINE IN WETLANDS, E. OF HS

Sample Designation FMSEDNS46+40 / 0.5-1.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SOIL SAMPLER, 12" CORE SAMPLER, 2" STAINLESS STEEL (DIAMETER)
Sampling Method VOC SAMPLE COLLECTED 1ST. FROM SAMPLER, OTHERS COLLECTED IN STAINLESS BOWL*
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR-4/1 DARK GRAY Staining

Description 10% SMALL-LARGE GRAVEL, 20% SILT, 70% FINE-MEDIUM SAND, MOSTLY QUARTZ, SUBANGULAR TO SUBROUND, ROOTS AND ORGANIC DEBRIS ABUNDANT

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL W/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-11-96 / 3:45P
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 80' FROM SHORE LINE IN WETLANDS. E. OF NS 45

Sample Designation FMSEDNS46 +80 /0-0.5'

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth STAINLESS STEEL SCOOP

Sampling Method VOC SAMPLE COLLECTED 1ST FROM SCOOP, OTHERS COLLECTED INTO STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 5YR 3/1 VERY DARK GRAY Staining

Description 50% SILT, 50% VERY FINE QUARTZ SAND, >50% ROOTS AND ORGANIC DEBRIS, SPONGEY AND COHESIVE.

SAMPLE DESCRIPTION

Sample Depth 0 - 0.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS F1	
TOTAL CYANIDE	

Remarks ~~X~~ SAMPLES COLLECTED FROM BOWL W/ STRINLESS STEEL SCOOP INTO SAMPLE CONTAINE
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

SOIL SAMPLING LOG

Project/No. FEDERATED METALS/IN0144.107 Date/Time 6-7-96 / 9:15 A
Site Location HAMMOND, IN - LAKE GEORGE
Sample Location 80' FROM SHORE IN WETLAND AREA NE OF NS46

Sample Designation FMSEDNS45 + 80 / 0.5-1.5

Sample Location Sketch

SAMPLING METHODS

Method of Reaching Sample Depth HAND AUGER SAMPLER, STAINLESS STEEL 2" DIAMETER, 12" CORE SAMPLER
Sampling Method VOC SAMPLE COLLECTED 1ST FROM SAMPLER, OTHERS COLLECTED FROM STAINLESS BOWL
Decontamination Method SOAPY DI WASH, DI RINSE, LAB GRADE DI RINSE

SOIL DESCRIPTION

Color 10YR 4/2 DARK GRAYISH BROWN Staining

Description 20% SMALL-LARGE SUBROUND TO SUB ANGULAR ROCKS, 20% SILT, 60% FINE-MEDIUM QUARTZ SAND, SUBANGULAR TO SUBROUND, WELL SORTED, ROOTS, ORGANICS

SAMPLE DESCRIPTION

Sample Depth 0.5-1.5' Sample Volume 10 oz
Other (pH, HNU, OVA etc)

Constituents Sampled	Container Description (G&M Lab)
VOCs	2 oz JAR
SVOCs	8 oz JAR
METALS PLUS FI	
TOTAL CYANIDE	

Remarks * SAMPLES COLLECTED FROM BOWL w/ STAINLESS STEEL SCOOP INTO SAMPLE CONTAINERS
Sampling Personnel BLAKE FAHL / JAMIE YATER - GERAGHTY & MILLER, INC.