PNWD-2461
BNFL-RPT-001, Rev. 1

Organic Analysis of AW-101 and AN-107 Tank Waste

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PCB/Pesticides, Dioxins & Furans, Headspace, and Organic Anions
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August 2000

Prepared for
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Under Contract W375-LC-98-4168

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Summary

Thirty jars of waste material from tank AW-101 and seventeen jars of waste material from tank AN-107 were received by Battelle. The contents of all jars of AW-101 were mixed to provide a single composite, as were the contents of all jars of AN-107. Each composite was homogenized and representative sub-samples extracted for organic, radiochemical and inorganic regulatory analyses. The representative sub-samples were analyzed for inorganic, radiochemical, and organic analyses for analytes of interest as defined in Test Plan BNFL-29953-2. This report presents the organic results. The inorganic (including TCLP metals) and radiochemical results are reported in report BNFL-RPT-008 (PNWD-2462).
The organic characterization analyses of the as received material for AW-101 and AN-107 include:

- Volatile Organic Analysis
- Semi-volatile Organic Analysis
- Polychlorinated biphenyls and pesticides
- Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans
- Oxalate, formate, acetate, and acrylate by ion chromatography
- Ethanol, methanol, 2-propanol, 1-propanol, n-butanol, triethylamine, 2-methyl-2-propanol, and 2-butanol by headspace analysis

Except for a very few cases, the characterization results met or exceeded the quality control requirements established by the governing quality assurance plan, and met or exceeded the minimum reportable quantity requirements specified by BNFL. Whenever possible the analyses were performed to SW-846 protocols so that the results can be used to support permit application, as well as provide feed envelope characterization data.
Tables S.a and S.b summarize the results for the BNFL target analytes that produced measurable results. All other BNFL target analytes were non-detects. Also, numerous non-BNFL target analytes were measured and are presented in this report.

Table S.a. AW-101 Summary Results – BNFL Target Analytes Detected

CAS#	BNFL Target Compound	AW-101 Supernatant			AW-101 Centrifuged Solids		
		Blank	Sample	Duplicate	Blank	Sample	Duplicate
		µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg
VOA Compounds							
106-35-4	3-Heptanone	U	U	U	U	59	32 J
106-97-8	Butane	U	U	U	U	860	920
108-10-1	4-Methyl-2-pentanone	U	U	U	U	10 J	U
109-66-0	Pentane	U	U	U	U	150	80 J
109-99-9	Tetrahydrofuran	U	140	110	U	180	89 J
110-43-0	2-Heptanone	U	U	U	U	59	36 J
110-54-3	Hexane	U	U	U	U	200	80 J
111-65-9	Octane	U	U	U	U	200	99
111-84-2	Nonane	U	U	U	U	250	180
123-19-3	4-Heptanone	U	U	U	U	8 J	U
123-91-1	1,4-Dioxane	U	180	150	U	97	U
142-82-5	Heptane	U	U	U	U	210	66 J
563-80-4	3-Methyl-2-butanone	U	U	U	U	34 J	20 J
591-78-6	2-Hexanone	U	U	U	U	40 J	24 J
67-64-1	Acetone	U	330	360	6 JB	620 B	360 B
71-43-2	Benzene	U	U	U	U	10 J	U
75-05-8	Acetonitrile	U	U	U	U	41 J	U
75-45-6	Chlorodifluoromethane	5 JB	U	U	7 JB	U	U
78-93-3	2-Butanone	U	U	55 J	U	160	110
SVOA Compounds							
126-73-8	Tributyl phosphate	U	U	U	U	U	1800 J
62-75-9	N-Nitrosodimethylamine	U	160 J	390	U	12000	U
Pesticides							
319-84-6	alpha-BHC	U	U	U	U	18.1	U
76-44-8	Heptachlor	U	U	6.5	U	73.4	U
PCBs							
11097-69-1	AROCLOR 1260	U	U	U	U	23J	U
Dioxin/Furans							
(1)	xx-Pentachlorodibenzofuran	U	U	U	0.56 JB	U	U
35822-39-4	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	U	U	U	0.68 JB	0.87 JB	U
(1)	xx-Heptachlorodibenzofuran	U	U	U	0.78 JB	0.72 JB	U
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	U	U	U	2.90 B	2.94 B	0.18 JB
		µg/ml	µg/ml	µg/ml	µg/g	µg/g	µg/g
Organic Anions							
144-62-7	Oxalate	U	600 J	500 J	U	9700	11100
64-18-6	Formate	U	2200	2100	U	3400	2800
79-10-7	Acrylate	U	U	U	U	U	U
64-19-7	Acetate (2)	U	1200 J	1200 J	U	U	U
Headspace Analysis							
67-65-1	Methanol	U	1.1 J	U	n/a	n/a	n/a
64-17-5	Ethanol	2.5 B	2.6 B	2.6 B	n/a	n/a	n/a

1) Multiple isomers possible in retention time window; each isomer has unique CAS #. Component represents sum of dioxins or furans meeting retention time window and ion abundance ratio criteria.
2) Acetate and glycolate are not resolved; results represent bounding upper concentration

U flag = not detected; results less than MDL
J flag = detected and quantified, but results less than MDL.
B flag = Compound was present in the method blank

Table S.b. AN-107 Summary Results – BNFL Target Analytes Detected

CAS#	BNFL Target Compound	AN-107 Supernatant			AN-107 Centrifuged Solids		
		Blank	Sample	Duplicate	Blank	Sample	Duplicate
		µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg
VOA Compounds							
108-87-2	Methylcyclohexane	U	U	U	U	40 J	26 J
109-99-9	Tetrahydrofuran	U	31 J	26 J	U	43 J	36 J
110-43-0	2-Heptanone	U	U	U	U	U	15 J
67-64-1	Acetone	4 JB	140 B	100 B	6 JB	100 JB	370 B
75-05-8	Acetonitrile	U	94	70	U	U	89
75-45-6	Chlorodifluoromethane	5 JB	37 JB	30 JB	7 JB	80 JB	29 JB
78-93-3	2-Butanone	U	16 J	13 J	U	U	58 J
SVOA Compounds							
110-86-1	Pyridine	U	U	U	U	U	1400 J
126-73-8	Tributyl phosphate	U	U	100 J	U	U	U
62-75-9	N-Nitrosodimethylamine	U	170 J	260 J	U	U	2600 J
Pesticides							
309-00-2	Aldrin	U	1.2	3.7	U	U	U
319-84-6	alpha-BHC	U	U	U	U	11.8	35.1
76-44-8	Heptachlor	U	U	U	U	U	18.4
PCBs							
11097-69-1	AROCLOR 1260	0.8 JB	1.7 JB	1.8 JB	U	U	17 J
Dioxins/Furans							
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	U	U	U	U	U	0.05 J
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	U	U	U	U	U	0.06 J
40321-76-4	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	U	U	U	U	U	0.46 J
(1)	xx-Pentachlorodibenzofuran	U	U	U	U	U	0.45 J
(1)	xx-Hexachlorodibenzo-p-dioxin	U	U	U	U	U	0.06 J
(1)	xx-Hexachlorodibenzofuran	U	U	U	U	U	0.43 J
35822-39-4	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	U	U	U	0.63 JB	U	0.43 JB
(1)	xx-Heptachlorodibenzofuran	U	U	U	U	U	0.43 J
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-	U	U	U	U	U	1.65 J
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	U	U	U	U	U	1.94 J
		µg/ml	µg/ml	µg/ml	µg/g	µg/g	µg/g
Organic Anions							
144-62-7	Oxalate	U	200 J	500 J	U	22000	22700
64-18-6	Formate	U	1700	2000	U	600 J	600 J
79-10-7	Acrylate	U	U	U	U	U	U
64-19-7	Acetate (2)	U	4000 J	4000 J	U	U	U
Headspace Analysis							
67-65-1	Methanol	U	4.6 J	4.4 J	n/a	n/a	n/a
64-17-5	Ethanol	2.7 B	3.0 B	2.4 B	n/a	n/a	n/a
121-44-8	Triethylamine	U	5.8 J	1.0 J	n/a	n/a	n/a

1) Multiple isomers possible in retention time window; each isomer has unique CAS #. Component represents sum of dioxins or furans meeting retention time window and ion abundance ratio criteria.
2) Acetate and glycolate are not resolved; results represent bounding upper concentration

U flag = not detected; results less than MDL
J flag = detected and quantified, but results less than MDL.
B flag = Compound was present in the method blank

Terms and Abbreviations

ASR	analytical service request
BNFL	BNFL, Inc. (subsidiary of British Nuclear Fuels, Ltd.)
CAS#	chemical Abstracts Service Registry Number
CCC	Calibration check compound
CLP	Contract Laboratory Program
COC	chain of custody
K-D	Kuderna-Danish
ECD	electron capture detector
GC/ECD	gas chromatography/electron capture detection
GC/MS	gas chromatography/mass spectrometry
HLRF	High Level Radiation Facility
IC	ion chromatography
LCS	Laboratory Control Standard
MDL	method detection limit
MRQ	minimum reportable quantity
MS	matrix spike
MSD	matrix spike duplicate
M&TE	measuring and test equipment
%D	percent difference
PCB	polychlorinated biphenyl
QC	quality control
RSD	relative standard deviation
SAL	Shielded Analytical Laboratory
SPCC	system performance check compound
SVOA	semi-volatile organic analysis
TCLP	Toxicity characteristic leaching procedure
TIC	tentatively identified compound
USEPA	United States Environmental Protection Agency
VOA	volatile organic analysis

Units

°C	degree Centigrade
°F	degree Fahrenheit
g	gram
Kg	kilogram
L	liter
μg	microgram
mL	milliliter
mM	millimolar
min	minute
ng	nanogram
Vol%	volume percent
Wt%	weight percent

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1.0 Introduction

This report presents the organic analytical results for "as received" AW-101 and AN-107 tank waste materials. The organic analyses were conducted in support of the BNFL Proposal No. 29274/30406 Task 5.0. The organic analysis results obtained from the "as received" tank waste materials may be used to support permitting activities, as well as to provide limited characterization information for subsequent process testing (Tasks 2 through 4). SW-846 sampling, preservation, and hold time protocols are difficult to address for highly radioactive Hanford tank wastes and have historically not been implemented when sampling, transporting, and processing these materials. Based on the sampling and storage history of the samples, preservation or refrigeration of the "as received" samples was not performed, and hold times specified by SW-846 protocols had expired well prior to receiving the samples.

The method detection limits (MDL) for the analytes of interest were significantly impacted by the limited quantity of sample available for analysis. However, wherever possible the analytical protocols follow SW-846 guidelines. The concentrations of spiking solutions and choice of extraction solvents are based on SW-846 methods.

For all of the organic analyses (i.e., VOA, SVOA, PCB/Pesticides, Dioxins and Furans, Headspace, and organic anion) SW-846 methodology was followed as closely as possible. The organic analyses were conducted per approve Battelle analytical methods (procedures or test plans). Due to the sample matrices and radiological condition of the samples, the Battelle procedures deviate slightly from their SW-846 counterpart. Due to time and funding limitations, no effort has been made to validate these deviations. However, analytical quality control samples (e.g., matrix spike, matrix spike duplicates, and laboratory control samples) have been used to ensure that the methods used meet the quality objective for the task. Deviations considered significant are noted in the appropriate sections. The organic analytes of interest (target compounds) and recommended methods are defined in the BNFL Proposal No. 29274/30406 and Test Plan BNFL-29953-2 Revision 1. Except where noted in this report, all organic target compounds defined by these documents are reported, with estimated MDLs provided where target compounds are not detected. Where detected, non-target compounds are identified, reported and quantified to the extent possible.

Composites of both AW-101 and AN-107 as received material were prepared per Test Plan BNFL-29953-1, Revision 0. A composite of the AN-107 as received material was prepared by combining the contents from the 17 AN-107 shipping jars in a four-liter glass kettle. A composite of the AW-101 as received material was prepared similarly from the contents from the 30 AW-101 shipping jars. Once in the four-liter glass kettle, a bladed impeller was used to homogenize each of the composites. While each composite was being stirred, a ¼-inch (outside diameter) stainless steel probe was used to vacuum transfer sub-samples of the homogenized composite slurry to a minimum of five 125-mL glass jars. The composite sub-samples transferred to each 125-mL glass jar were extracted from different elevations and radial locations within the kettles during mixing. These sub-samples were allowed to settle for approximately 12 hours. After this settling period, the volume percent of settled solids in each of the 125-mL glass jars were similar (i.e., within ±10%), providing indication that the sub-samples were representative of the composite.

Figures 1.1 and 1.2 provide sample flow diagrams for the preparation of the AW-101 and AN-107 as received analytical characterization sub-samples. Six 125-mL glass jars of AN-107 and five 125-mL jars of AW-101 were sub-sampled for characterization analysis. The compositing and sub-sampling operations were conducted in the High Level Radiation Facility (HLRF). The sub-samples were

transferred under chain-of-custody (COC) to the Shielded Analytical Laboratory (SAL) for phase separation and analytical preparations.

The organic results for the analytes of interest for the AW-101 and AN-107 as received materials are typically reported in "µg/L supernatant" or "µg/Kg centrifuged wet solids". However, in some cases where the analyte concentrations are high or the method sensitivity is low, the results are reported in µg/mL or µg/g. Although the supernatants were processed by weight, the density of the supernatants has been used to provide the results in µg/L or µg/mL, as appropriate.

To evaluate the concentration of analytes of interest in the as received slurry material, estimates of the slurry concentration have been calculated from the analyte concentrations measured in the supernatant and in the wet centrifuged solids. To provide a conservative total slurry concentration, the highest measured concentration from either the sample or the duplicate for each phase is used in the calculation. Where no analyte concentration is measured (i.e., results less than MDL), the lowest MDL is used in the calculation. The "maximum" slurry concentration is calculated by Equation (1).

$$C_m = ((C_l / D_l) * W_l) + (C_s * W_s) \quad (1)$$

Where:

C_m = Maximum slurry concentration in µg/Kg
C_l = Concentration of supernatant in µg/L
D_l = Density of supernatant in Kg/L
W_l = Weight fraction of supernatant (i.e., 0.838 for AW-101, 0.886 for AN-107)
C_s = Concentration of solids in µg/Kg
W_s = Weight fraction of solids (i.e., 0.162 for AW-101, 0.114 for AN-107)

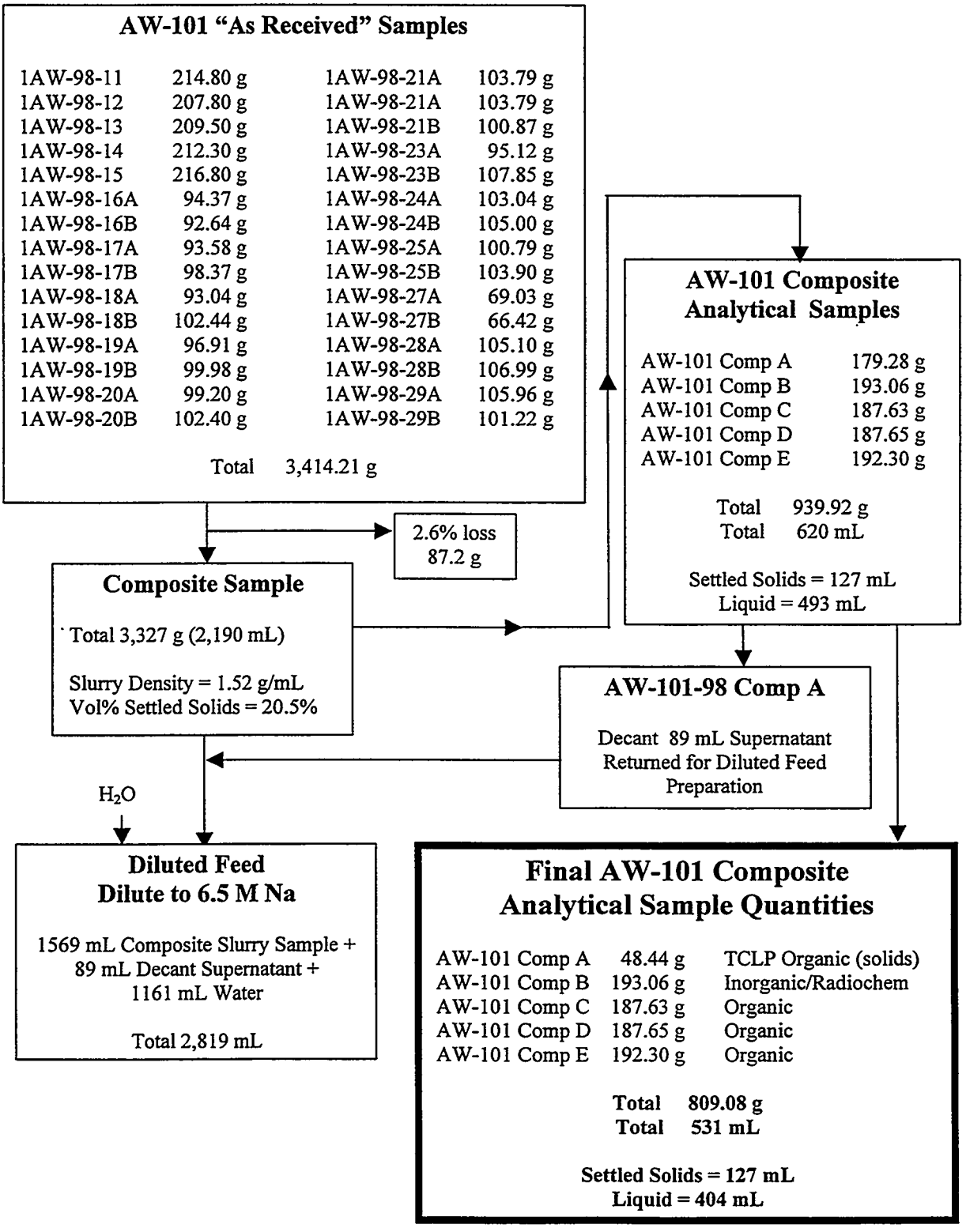


Figure 1.1. Flow Diagram for AW-101 As Received Composite Analytical Samples

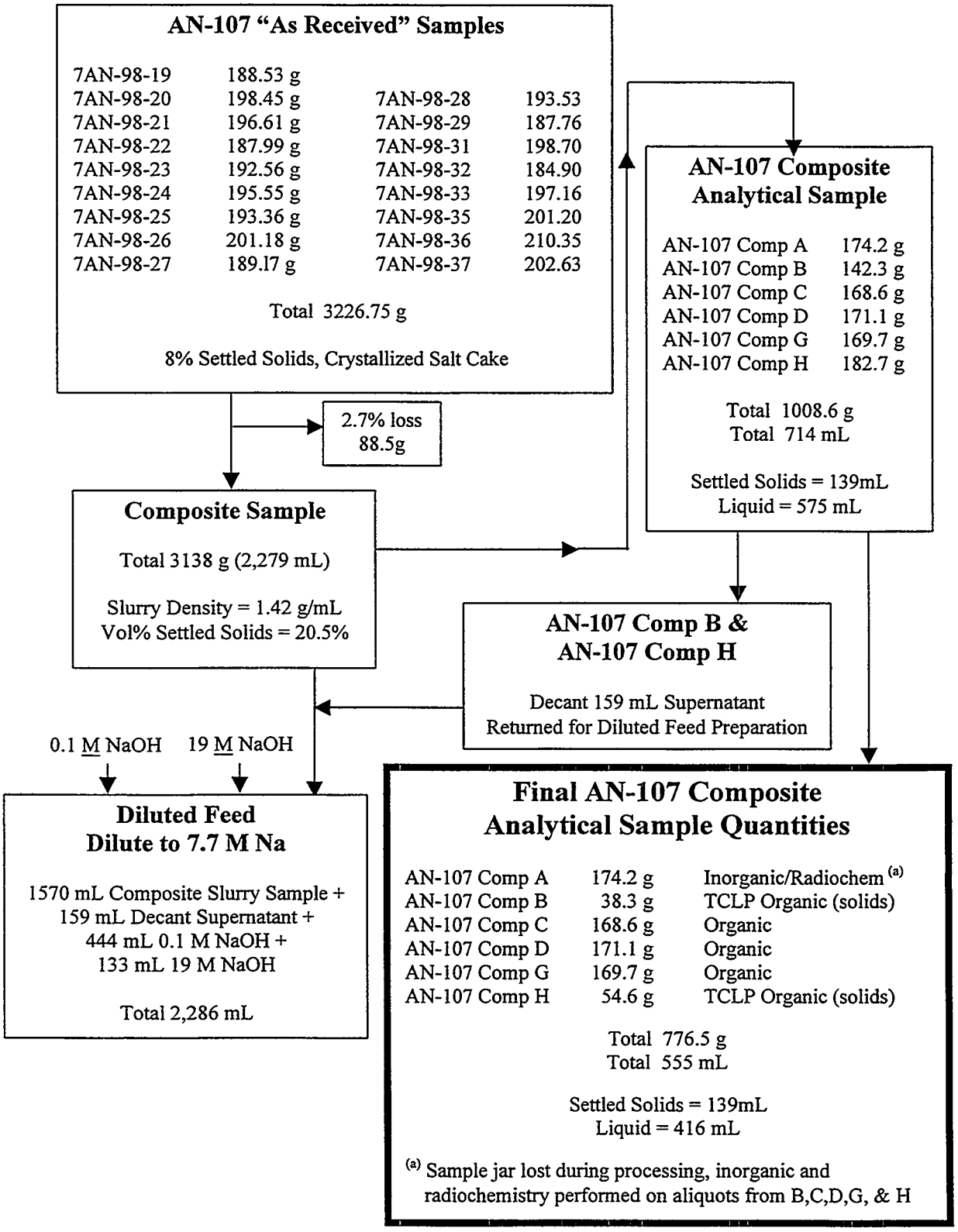


Figure 1.2 Flow Diagram for AN-107 As Received Composite Analytical Samples

2.0 Sample Receipt and Analytical Sub-sampling

2.1 Sample Receipt

A total of five 125-mL glass jars of AW-101 and six 125-mL glass jars of AN-107 were received by the SAL following compositing, homogenizing, and sub-sampling of the "as received" composite material in the HLRF. Of these jars, three from each composite were allocated for organic analysis and one from each composite was allocated for inorganic and radiochemical analysis. The remaining jar of AW-101 and two jars of AN-107 were allocated for solids toxic characteristic leaching procedure (TCLP) analysis and contained only wet solids (i.e., the majority of supernatant had been decanted for use in process testing tasks in HLRF).
Due to a jar failure during magnetic stirring, the entire AN-107 composite originally allocated for inorganic and radiochemical analysis was lost. Therefore, sub-samples from each of the AN-107 jars allocated for organic analysis were taken to support the inorganic and radiochemical analyses; thus reducing the quantity available for the organic analysis. The phase separation and sub-sampling activities are fully detailed in the Analytical Service Request (ASR) 5188.02 Special Instructions submit for the inorganic, radiochemical, and organic analysis. The sub-sampling quantities defined in the ASR 5188.02 supersede the sub-sampling quantities estimated in Test Plan BNFL-29953-2. For all organic analyses, the duplicate, matrix spikes (MS), and matrix spike duplicates (MSD) for the supernatants and wet centrifuged solids are sub-sampled prior to any preparation, extraction processing, or direct analysis.

2.2 Phase Separation

Following receipt of the samples in the SAL, the contents of each of jar was phase separated so that organic analyses could be performed on each phase (i.e., supernatant and wet solids). The phase separation was performed by centrifuging and decanting the supernatant. Centrifuging and decanting was chosen because initial filtering attempts in the HLRF indicated that filtering of the samples would be extremely difficult (i.e., hours to days to filter small quantities of material) and there is an associated risk of loosing analytes of interest due to filtering. Each sample was centrifuged in its original jar, and following centrifuging the supernatant was decanted to pre-labeled Teflon bottles (i.e., the solids remained in the original jar). Table 2.a details the quantity of supernatant and solids collected from each sub-sample. The weight percent supernatant and solids values are used to recombine the results from the supernatant and solids phases into the estimated maximum organic results for the original tank waste slurry.

2.3 Supernatant Density Measurements

Due to the viscous nature of the tank waste material, all supernatant samples were processed by weight (i.e., samples aliquots taken by weight instead of by volume). Therefore, the density of each of the tank waste samples was determined using method PNL-ALO-501. The resulting densities are used to report the analytical results on a per volume basis. Table 2.b provide the density results obtained by the SAL on AW-101 and AN-107 supernatants following phase separation. For both AW-101 and AN-107 supernatant, the density was measured in duplicate from the jars labeled "C". It is assumed that the supernatants in the other jars have the same densities, respectively.

Table 2.a. Supernatant and Solids following Phase Separation

Sample [1]	Lab ID	Total Mass [2]	Supernatant Mass (g)	Wt% Supernatant	Wet Solids Mass (g)	Wt% Wet Solids
AW-101 Comp (C)	99-0648 Supernatant	188.2	157.6	83.7	30.6	16.3
AW-101 Comp (D)	99-0650 Solids	190.7	160.0	83.9	30.7	16.1
AW-101 Comp (E)		190.1	159.3	83.8	30.8	16.2
AN-107 Comp (C)	99-0649 Supernatant	170.4	151.2	88.8	19.2	11.2
AN-107 Comp (D)	99-0651 Solids	170.8	151.4	88.6	19.4	11.4
AN-107 Comp (G)		162.5	143.4	88.2	19.1	11.8

1) Suffix ( ) represents individual bottle/jar identification number
2) Total mass remaining following phase separation activities in the SAL.

Table 2.b. Density Results for AW-101 and AN-107 Supernatants

Sample [1]	Lab ID	Sample Density (g/mL)	Duplicate Density (g/mL)	Average Density (g/mL)
AW-101 Comp (C)	99-0648	1.487	1.480	1.484
AN-107 Comp (C)	99-0649	1.421	1.418	1.420

1) Suffix ( ) represents individual bottle identification.

3.0 Volatile Organic Analysis (VOA)

3.1 Introduction

Volatile organic analyses were performed on both the supernatant and solids from samples AW-101 and AN-107 following phase separation. The VOA samples were aliquotted and prepared for analysis following phase separation and were removed from the SAL hot cells prior to introducing any organic solvents (e.g., methylene chloride) into the hot cells.

The samples, both supernatants and solids, were diluted with organic-free water from 3-fold to 10-fold to a final volume of approximately 5-mL in special disposable dual septa-sealed purge vessels. The volatile compounds were purged from the samples with helium onto a multi-bed absorbent trap using a commercial purge and trap sample concentrator and auto-sampler. The trapped volatile compounds were then thermally desorbed onto a 75-meter by 0.45-millimeter DB-624 column (2.55-micron film) that was directly interfaced to the mass spectrometer. The samples were analyzed using VOA method PNL-ALO-335 (per SW-846 8260B protocols).

3.2 Sample Preparation

Supernatant and solids from AW-101 and AN-107 were prepared in the SAL by accurately weighing 0.3 to 1.4 g of sample into pre-cleaned, disposable, 40-mL purge vessels and adding 4 to 5 mL of water diluent. Sample, duplicate, MS, MSD and blank samples were prepared in this manner in the SAL. Following transfer under COC from the SAL to the analytical laboratories, all samples were refrigerated to ensure that sample integrity was maintained. Internal standards and surrogate compounds were added to each sample (including the MS and MSD) and target spike compounds are added to the MS and MSD. Once the spikes and standards were added, the samples were loaded into the VOA auto-sampler for purging.

3.3 Instrumentation

The analytical instrumentation used for VOA consists of an auto-sampler, purge and trap system, and gas chromatograph mass spectrometer system. Detailed description of the VOA system is provided in Table 3.a.

Table 3.a. VOA Instrumentation

System/Instrument	Manufacturer	Model Number	M&TE[1] Number
Auto-sampler	Dynatech	PTA-30	WD25729
Purge & Trap	OI	4560	WD25728
GC/MS	Hewlett Packard	5890II/5989A	WC22547/WC28119

1) Measuring and Test Equipment

3.4 Analysis Results

The VOA target (calibrated analytes) results for AW-101 and AN-107 supernatant and solids phases are given in Tables 3.b and 3.c. Additionally, the results for any VOA tentatively identified compounds (TIC) that were detected for both AW-101 and AN-107 supernatant and solids phases are given in Table 3.d. For both target compounds and TICs, the results are given in units of μg/L for the supernatant and μg/Kg for the wet solid phase.

The MDLs provided are based upon instrument detection limits and the weight or volume of the sample used for the analysis. The MDLs are nominal, and are not based upon performance of the method on these specific sample matrices. In all cases the MDLs for the wet centrifuged solids and the supernatants (after adjusting for density) meet the BNFL VOA minimum reportable quantity (MRQ) requirements as detailed in Table 3.e.

VOA results below the MDL are quantified by the data analysis system; however, only those results greater then 20% of the MDL are reported. Results less than 20% of the MDL, while detected, are consider too low to accurately quantify.

3.4.1 Results for Calibrated/Regulatory Analytes of Interest

AW-101 Results

As seen in Table 3.b, few target compounds were detected in the AW-101 supernatant. Only 1,4-dioxane, acetone, and tetrahydrofuran were found at concentrations greater than the MDL. 2-Butanone was detected in the duplicate and chlorodifluoromethane was detected in the blank at concentrations slightly below the MDL. Chlorodifluoromethane was detected in the storage blank (used as the method blank in the analysis sequence), and is likely due to contamination from the walk-in refrigeration unit that the samples were stored in after removal from SAL. 1-Butanol and 2-ethyl-1-hexanol were detected in the sample and sample duplicate and measured as TICs. These compounds are likely decomposition products from other compounds, such as tributylphosphate and bis(2-ethylhexyl)phosphate used in the PUREX and B-Plant extraction processes.

The AW-101 solids samples contained a greater number of target analytes. 1,4-Dioxane, acetone, tetrahydrofuran, 2-butanone, 3-heptanone, butane, heptane, hexane, nonane, octane, pentane were all found at concentrations greater than the MDL. 2-Hexanone, 3-methyl-2-butanone, 4-heptanone, 4-methyl-2-pentanone, acetonitrile, benzene, and chlorodifluoromethane were detected at concentrations slightly below the MDL. The AW-101 solids had a large number of TICs, including 1-butanol, 2-ethyl-1-hexanol, undecane, dodecane, tridecane, and various other alkanes, alkenes and alcohols. It is interesting to note that the TIC data for AW-101 solids contain 1-butene and 2-methyl-1-propene. Like butane, these compounds are gases at room temperature, and not likely to be retained in the original tank material given its storage history. And, it is conceivable that these compounds are generated continuously from the breakdown of dodecane, tridecane, tetradecane, tributylphosphate, or 1-butanol.

AN-107 Results

As seen in Table 3.c, five target compounds were detected in the supernatant. Only acetone and acetonitrile were found at concentrations greater than the MDL. 2-Butanone, tetrahydrofuran and chlorodifluoromethane were detected at concentration less than the MDL. As noted above, chlorodifluoromethane was detected in the storage blank and is most likely from contamination following removal of the samples from the SAL (i.e., the presence of chlorodifluoromethane in the samples is unlikely). Butenal and 1-butanol, were detected in the sample and sample duplicate and measured as TICs.

AN-107 solids sample results are similar to the supernatant result, but also include 2-heptanone and methylcyclohexane (all found at concentrations below the MDL). Tridecane, tetradecane, and 5-tridecanone were detected and measured as TICs in the AN-107 solids.

Table 3.b. AW-101 VOA Results – BNFL & SW846 8260B Target Analyte List

	Tank Material	AW-101 Supernatant			AW-101 Solids [1]			
	Sample ID	99-0648-bl VBLK01	99-0648 Sample	99-0648-d Duplicate	99-0650-bl VBLK03	99-0650 Sample	99-0650-d Duplicate	*Maximum µg/Kg [2] of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL [3]*	10	51	56	10	42	94	*36*
BNFL Target Analyte List								
100-41-4	Ethylbenzene	U	U	U	U	U	U	*U*
100-42-5	Styrene	U	U	U	U	U	U	*U*
10061-01-	cis-1,3-Dichloropropene	U	U	U	U	U	U	*U*
10061-02-	trans-1,3-Dichloropropene	U	U	U	U	U	U	*U*
106-35-4	3-Heptanone	U	U	U	U	**59**	**32 J**	***10***
106-42-3	Xylene (m & p)	U	U	U	U	U	U	*U*
106-46-7	1,4-Dichlorobenzene	U	U	U	U	U	U	*U*
106-93-4	1,2-Dibromoethane	U	U	U	U	U	U	*U*
106-97-8	Butane	U	U	U	U	**860**	**920**	***149***
106-99-0	1,3-Butadiene	U	U	U	U	U	U	*U*
107-02-8	Acrolein	U	U	U	U	U	U	*U*
107-05-1	3-Chloropropene	U	U	U	U	U	U	*U*
107-06-2	1,2-Dichloroethane	U	U	U	U	U	U	*U*
107-13-1	Acrylonitrile	U	U	U	U	U	U	*U*
107-87-9	2-Pentanone	U	U	U	U	U	U	*U*
108-10-1	4-Methyl-2-pentanone	U	U	U	U	**10 J**	U	***2***
108-87-2	Methylcyclohexane	U	U	U	U	U	U	*U*
108-88-3	Toluene	U	U	U	U	U	U	*U*
108-90-7	Chlorobenzene	U	U	U	U	U	U	*U*
109-66-0	Pentane	U	U	U	U	**150**	**80 J**	***24***
109-99-9	Tetrahydrofuran	U	**140**	**110**	U	**180**	**89 J**	***108***
110-12-3	5-Methyl-2-hexanone	U	U	U	U	U	U	*U*
110-43-0	2-Heptanone	U	U	U	U	**59**	**36 J**	***10***
110-54-3	Hexane	U	U	U	U	**200**	**80 J**	***32***
110-82-7	Cyclohexane	U	U	U	U	U	U	*U*
110-83-8	Cyclohexene	U	U	U	U	U	U	*U*
111-65-9	Octane	U	U	U	U	**200**	**99**	***32***
111-84-2	Nonane	U	U	U	U	**250**	**180**	***41***
123-19-3	4-Heptanone	U	U	U	U	**8 J**	U	***1***
123-38-6	Propionaldehyde	U	U	U	U	U	U	*U*
123-86-4	Butylacetate	U	U	U	U	U	U	*U*
123-91-1	1,4-Dioxane	U	**180**	**150**	U	**97**	U	***117***
126-98-7	2-Methyl-2-propenenitrile	U	U	U	U	U	U	*U*
127-18-4	Tetrachloroethene	U	U	U	U	U	U	*U*
141-78-6	Ethyl acetate	U	U	U	U	U	U	*U*
142-82-5	Heptane	U	U	U	U	**210**	**66 J**	***34***
287-92-3	Cyclopentane	U	U	U	U	U	U	*U*
4170-30-3	2-Butenal	U	U	U	U	U	U	*U*
541-73-1	1,3-Dichlorobenzene	U	U	U	U	U	U	*U*
56-23-5	Carbon Tetrachloride	U	U	U	U	U	U	*U*
563-80-4	3-Methyl-2-butanone	U	U	U	U	**34 J**	**20 J**	***6***
591-78-6	2-Hexanone	U	U	U	U	**40 J**	**24 J**	***6***
627-13-4	Propyl nitrate	U	U	U	U	U	U	*U*
67-64-1	Acetone	U	**330**	**360**	**6 JB**	**620 B**	**360 B**	***304***
67-66-3	Chloroform	U	U	U	U	U	U	*U*
71-23-8	1-Propanol	U	U	U	U	U	U	*U*

	Tank Material	AW-101 Supernatant			AW-101 Solids [1]			
	Sample ID	99-0648-bl VBLK01	99-0648 Sample	99-0648-d Duplicate	99-0650-bl VBLK03	99-0650 Sample	99-0650-d Duplicate	*Maximum µg/Kg [2] of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL [3]*	**10**	**51**	**56**	**10**	**42**	**94**	***36***
71-43-2	Benzene	U	U	U	U	**10 J**	U	***2***
71-55-6	1,1,1-Trichloroethane	U	U	U	U	U	U	*U*
74-83-9	Bromomethane	U	U	U	U	U	U	*U*
74-87-3	Chloromethane	U	U	U	U	U	U	*U*
75-00-3	Chloroethane	U	U	U	U	U	U	*U*
75-01-4	Vinyl Chloride	U	U	U	U	U	U	*U*
75-05-8	Acetonitrile	U	U	U	U	**41 J**	U	***7***
75-09-2	Methylene Chloride	U	U	U	U	U	U	*U*
75-15-0	Carbon Disulfide	U	U	U	U	U	U	*U*
75-34-3	1,1-Dichloroethane	U	U	U	U	U	U	*U*
75-35-4	1,1-Dichloroethene	U	U	U	U	U	U	*U*
75-43-4	Dichlorofluoromethane	U	U	U	U	U	U	*U*
75-45-6	Chlorodifluoromethane	**5 JB**	U	U	**7 JB**	U	U	*U*
75-69-4	Trichlorofluoromethane	U	U	U	U	U	U	*U*
75-71-8	Dichlorodifluoromethane	U	U	U	U	U	U	*U*
76-13-1	1,2,2-Trichloro-1,1,2-trifluoroethane	U	U	U	U	U	U	*U*
76-14-2	1,2-Dichloro-1,1,2,2-	U	U	U	U	U	U	*U*
78-87-5	1,2-Dichloropropane	U	U	U	U	U	U	*U*
78-93-3	2-Butanone	U	U	**55 J**	U	**160**	**110**	***57***
79-00-5	1,1,2-Trichloroethane	U	U	U	U	U	U	*U*
79-01-6	Trichloroethene	U	U	U	U	U	U	*U*
79-34-5	1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	*U*
95-47-6	Xylene (o)	U	U	U	U	U	U	*U*
95-50-1	1,2-Dichlorobenzene	U	U	U	U	U	U	*U*
96-22-0	3-Pentanone	U	U	U	U	U	U	*U*
SW-846 8260B Target Analyte List								
103-65-1	Propylbenzene	U	U	U	U	U	U	*U*
104-51-8	Butylbenzene	U	U	U	U	U	U	*U*
106-43-4	4-Chlorotoluene	U	U	U	U	U	U	*U*
108-67-8	1,2,3-Trimethylbenzene	U	U	U	U	U	U	*U*
108-86-1	Bromobenzene	U	U	U	U	U	U	*U*
110-57-6	trans-1,4-Dichloro-2-butene	U	U	U	U	U	U	*U*
120-82-1	1,2,4-Trichlorobenzene	U	U	U	U	U	U	*U*
124-48-1	Dibromochloromethane	U	U	U	U	U	U	*U*
135-98-8	sec-Butylbenzene	U	U	U	U	U	U	*U*
142-28-9	1,3-Dichloropropane	U	U	U	U	U	U	*U*
156-59-2	cis-1,2-Dichloroethene	U	U	U	U	U	U	*U*
156-60-5	trans-1,2-Dichloroethene	U	U	U	U	U	U	*U*
563-58-6	1,1-Dichloropropene	U	U	U	U	U	U	*U*
594-20-7	2,2-Dichloropropane	U	U	U	U	U	U	*U*
74-88-4	Iodomethane	U	U	U	U	U	U	*U*
74-95-3	Dibromomethane	U	U	U	U	U	U	*U*
74-97-5	Bromochloromethane	U	U	U	U	U	U	*U*
75-25-2	Bromoform	U	U	U	U	U	U	*U*
75-27-4	Bromodichloromethane	U	U	U	U	U	U	*U*
87-61-6	1,2,3-Trichlorobenzene	U	U	U	U	U	U	*U*
87-68-3	Hexachloro-1,3-butadiene	U	U	U	U	U	U	*U*
91-20-3	Nathphalene	U	U	U	U	U	U	*U*

	Tank Material	AW-101 Supernatant			AW-101 Solids [1]			
	Sample ID	99-0648-bl VBLK01	99-0648 Sample	99-0648-d Duplicate	99-0650-bl VBLK03	99-0650 Sample	99-0650-d Duplicate	*Maximum µg/Kg [2] of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL [3]*	10	51	56	10	42	94	*36*
95-49-8	2-Chlorotoluene	U	U	U	U	U	U	*U*
95-63-6	1,2,4-Trimethylbenzene	U	U	U	U	U	U	*U*
96-12-8	1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	*U*
96-18-4	1,2,3-Trichloropropane	U	U	U	U	U	U	*U*
98-06-6	tert-Butylbenzene	U	U	U	U	U	U	*U*
98-82-8	Isopropylbenzene	U	U	U	U	U	U	*U*
99-87-6	4-Isopropyltoluene	U	U	U	U	U	U	*U*

1) Only 1 solids prep blank (99-0650BL, VBLK03) analyzed with AN-107 and AW-101 solids batch
2) Maximum slurry µg/Kg calculated using results of Tables 2.a (weight fractions) and 2.b (supernatant density)—See Section 1.0
3) MDL = Method detection limit based on instrument detection limit and sample quantity
U flag = Compound not detected; Compound concentration less than the MDL
J flag = Compound detected, but concentration is less than the MDL
B flag = Compound was present in the method blank

Table 3.c. AN-107 VOA Results – BNFL & SW846 8260B Target Analyte List

	Tank Material	AN-107 Supernatant			AN-107 Solids [1]			
	Sample ID	99-0649-bl VBLK02	99-0649 Sample	99-0649-d Duplicate	99-0650-bl VBLK03	99-0651 Sample	99-0651-d Duplicate	*Maximum µg/Kg [2] of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL [3]*	10	66	56	10	110	74	*43*
BNFL Target Analyte List								
100-41-4	Ethylbenzene	U	U	U	U	U	U	*U*
100-42-5	Styrene	U	U	U	U	U	U	*U*
10061-01-	cis-1,3-Dichloropropene	U	U	U	U	U	U	*U*
10061-02-	trans-1,3-Dichloropropene	U	U	U	U	U	U	*U*
106-35-4	3-Heptanone	U	U	U	U	U	U	*U*
106-42-3	Xylene (m & p)	U	U	U	U	U	U	*U*
106-46-7	1,4-Dichlorobenzene	U	U	U	U	U	U	*U*
106-93-4	1,2-Dibromoethane	U	U	U	U	U	U	*U*
106-97-8	Butane	U	U	U	U	U	U	*U*
106-99-0	1,3-Butadiene	U	U	U	U	U	U	*U*
107-02-8	Acrolein	U	U	U	U	U	U	*U*
107-05-1	3-Chloropropene	U	U	U	U	U	U	*U*
107-06-2	1,2-Dichloroethane	U	U	U	U	U	U	*U*
107-13-1	Acrylonitrile	U	U	U	U	U	U	*U*
107-87-9	2-Pentanone	U	U	U	U	U	U	*U*
108-10-1	4-Methyl-2-pentanone	U	U	U	U	U	U	*U*
108-87-2	Methylcyclohexane	U	U	U	U	**40 J**	**26 J**	*5*
108-88-3	Toluene	U	U	U	U	U	U	*U*
108-90-7	Chlorobenzene	U	U	U	U	U	U	*U*
109-66-0	Pentane	U	U	U	U	U	U	*U*
109-99-9	Tetrahydrofuran	U	**31 J**	**26 J**	U	**43 J**	**36 J**	*24*
110-12-3	5-Methyl-2-hexanone	U	U	U	U	U	U	*U*
110-43-0	2-Heptanone	U	U	U	U	U	**15 J**	*2*

	Tank Material	AN-107 Supernatant			AN-107 Solids [1]			
	Sample ID	99-0649-bl VBLK02	99-0649 Sample	99-0649-d Duplicate	99-0650-bl VBLK03	99-0651 Sample	99-0651-d Duplicate	*Maximum µg/Kg [2] of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL [3]*	10	66	56	10	110	74	*43*
110-54-3	Hexane	U	U	U	U	U	U	*U*
110-82-7	Cyclohexane	U	U	U	U	U	U	*U*
110-83-8	Cyclohexene	U	U	U	U	U	U	*U*
111-65-9	Octane	U	U	U	U	U	U	*U*
111-84-2	Nonane	U	U	U	U	U	U	*U*
123-19-3	4-Heptanone	U	U	U	U	U	U	*U*
123-38-6	Propionaldehyde	U	U	U	U	U	U	*U*
123-86-4	Butylacetate	U	U	U	U	U	U	*U*
123-91-1	1,4-Dioxane	U	U	U	U	U	U	*U*
126-98-7	2-Methyl-2-propenenitrile	U	U	U	U	U	U	*U*
127-18-4	Tetrachloroethene	U	U	U	U	U	U	*U*
141-78-6	Ethyl acetate	U	U	U	U	U	U	*U*
142-82-5	Heptane	U	U	U	U	U	U	*U*
287-92-3	Cyclopentane	U	U	U	U	U	U	*U*
4170-30-3	2-Butenal	U	U	U	U	U	U	*U*
541-73-1	1,3-Dichlorobenzene	U	U	U	U	U	U	*U*
56-23-5	Carbon Tetrachloride	U	U	U	U	U	U	*U*
563-80-4	3-Methyl-2-butanone	U	U	U	U	U	U	*U*
591-78-6	2-Hexanone	U	U	U	U	U	U	*U*
627-13-4	Propyl nitrate	U	U	U	U	U	U	*U*
67-64-1	Acetone	**4 JB**	**140 B**	**100 B**	**6 JB**	**100 JB**	**370 B**	***130***
67-66-3	Chloroform	U	U	U	U	U	U	*U*
71-23-8	1-Propanol	U	U	U	U	U	U	*U*
71-43-2	Benzene	U	U	U	U	U	U	*U*
71-55-6	1,1,1-Trichloroethane	U	U	U	U	U	U	*U*
74-83-9	Bromomethane	U	U	U	U	U	U	*U*
74-87-3	Chloromethane	U	U	U	U	U	U	*U*
75-00-3	Chloroethane	U	U	U	U	U	U	*U*
75-01-4	Vinyl Chloride	U	U	U	U	U	U	*U*
75-05-8	Acetonitrile	U	**94**	**70**	U	U	**89**	***69***
75-09-2	Methylene Chloride	U	U	U	U	U	U	*U*
75-15-0	Carbon Disulfide	U	U	U	U	U	U	*U*
75-34-3	1,1-Dichloroethane	U	U	U	U	U	U	*U*
75-35-4	1,1-Dichloroethene	U	U	U	U	U	U	*U*
75-43-4	Dichlorofluoromethane	U	U	U	U	U	U	*U*
75-45-6	Chlorodifluoromethane	**5 JB**	**37 JB**	**30 JB**	**7 JB**	**80 JB**	**29 JB**	***32***
75-69-4	Trichlorofluoromethane	U	U	U	U	U	U	*U*
75-71-8	Dichlorodifluoromethane	U	U	U	U	U	U	*U*
76-13-1	1,2,2-Trichloro-1,1,2-trifluoroethane	U	U	U	U	U	U	*U*
76-14-2	1,2-Dichloro-1,1,2,2-	U	U	U	U	U	U	*U*
78-87-5	1,2-Dichloropropane	U	U	U	U	U	U	*U*
78-93-3	2-Butanone	U	**16 J**	**13 J**	U	U	**58 J**	***17***
79-00-5	1,1,2-Trichloroethane	U	U	U	U	U	U	*U*
79-01-6	Trichloroethene	U	U	U	U	U	U	*U*
79-34-5	1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	*U*
95-47-6	Xylene (o)	U	U	U	U	U	U	*U*
95-50-1	1,2-Dichlorobenzene	U	U	U	U	U	U	*U*
96-22-0	3-Pentanone	U	U	U	U	U	U	*U*

	Tank Material	AN-107 Supernatant			AN-107 Solids [1]			
	Sample ID	99-0649-bl VBLK02	99-0649 Sample	99-0649-d Duplicate	99-0650-bl VBLK03	99-0651 Sample	99-0651-d Duplicate	*Maximum µg/Kg [2] of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL [3]*	10	66	56	10	110	74	*43*
SW-846 8260B Target Analyte List								
103-65-1	Propylbenzene	U	U	U	U	U	U	*U*
104-51-8	Butylbenzene	U	U	U	U	U	U	*U*
106-43-4	4-Chlorotoluene	U	U	U	U	U	U	*U*
108-67-8	1,2,3-Trimethylbenzene	U	U	U	U	U	U	*U*
108-86-1	Bromobenzene	U	U	U	U	U	U	*U*
110-57-6	trans-1,4-Dichloro-2-butene	U	U	U	U	U	U	*U*
120-82-1	1,2,4-Trichlorobenzene	U	U	U	U	U	U	*U*
124-48-1	Dibromochloromethane	U	U	U	U	U	U	*U*
135-98-8	sec-Butylbenzene	U	U	U	U	U	U	*U*
142-28-9	1,3-Dichloropropane	U	U	U	U	U	U	*U*
156-59-2	cis-1,2-Dichloroethene	U	U	U	U	U	U	*U*
156-60-5	trans-1,2-Dichloroethene	U	U	U	U	U	U	*U*
563-58-6	1,1-Dichloropropene	U	U	U	U	U	U	*U*
594-20-7	2,2-Dichloropropane	U	U	U	U	U	U	*U*
74-88-4	Iodomethane	U	U	U	U	U	U	*U*
74-95-3	Dibromomethane	U	U	U	U	U	U	*U*
74-97-5	Bromochloromethane	U	U	U	U	U	U	*U*
75-25-2	Bromoform	U	U	U	U	U	U	*U*
75-27-4	Bromodichloromethane	U	U	U	U	U	U	*U*
87-61-6	1,2,3-Trichlorobenzene	U	U	U	U	U	U	*U*
87-68-3	Hexachloro-1,3-butadiene	U	U	U	U	U	U	*U*
91-20-3	Nathphalene	U	U	U	U	U	U	*U*
95-49-8	2-Chlorotoluene	U	U	U	U	U	U	*U*
95-63-6	1,2,4-Trimethylbenzene	U	U	U	U	U	U	*U*
96-12-8	1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	*U*
96-18-4	1,2,3-Trichloropropane	U	U	U	U	U	U	*U*
98-06-6	tert-Butylbenzene	U	U	U	U	U	U	*U*
98-82-8	Isopropylbenzene	U	U	U	U	U	U	*U*
99-87-6	4-Isopropyltoluene	U	U	U	U	U	U	*U*

1) Only 1 solids prep blank (99-0650BL, VBLK03) analyzed with AN-107 and AW-101 solids batch
2) Maximum slurry µg/Kg calculated using results of Tables 2.a (weight fractions) and 2.b (supernatant density)—See Section 1.0
3) MDL = Method detection limit based on instrument detection limit and sample quantity
U flag = Compound not detected; Compound concentration less than the MDL
J flag = Compound detected, but concentration is less than the MDL
B flag = Compound was present in the method blank

Table 3.d. AW-101 & AN-107 VOA Tentatively Identified Compounds

AW-101 Supernatant 99-0648			Sample	Duplicate	Blank
CAS #	TIC	Ret. Time	µg/L	µg/L	µg/L
71-23-8	1-Propanol	8.37	2	2	-----
598-32-3	3-Buten-2-ol	9.00	1	-----	-----
71-36-3	1-Butanol	11.53	96	64	-----
111-70-6	1-Heptanol	19.37	2	2	-----
100-52-7	Benzaldehyde	19.66	1	1	-----
104-76-7	1-Hexanol, 2-ethyl-	20.68	6	4	-----
AW-101 Solids 99-0650			**Sample**	**Duplicate**	**Blank**
CAS #	TIC	Ret. Time	µg/Kg	µg/Kg	µg/Kg
115-17	1-Propene, 2-methyl-	3.71	70	56	-----
106-98-9	1-Butene	3.91	45	41	-----
592-41-6	1-Hexene	7.87	34	34	-----
592-76-7	1-Heptene	11.05	38	19	-----
71-36-3	1-Butanol	11.74	520	170	-----
111-66-0	1-Octene	13.99	62	33	-----
124-11-8	1-Nonene	16.66	49	22	-----
872-05-9	1-Decene	19.07	59	48	-----
124-18-5	Decane	19.16	278	227	-----
111-70-6	1-Heptanol	19.57	79	58	-----
104-76-7	1-Hexanol, 2-ethyl-	20.90	209	149	-----
4941-53-1	5-Undecene	21.29	70	59	-----
1120-21-4	Undecane	21.38	1224	1772	-----
111-87-5	1-Octanol	21.76	62	-----	-----
7239-23-8	3-Dodecene, (Z)-	23.31	122	163	-----
112-40-3	Dodecane	23.46	2308	5616	-----
24949-38-0	6-Tridecene	25.19	41	102	-----
629-50-5	Tridecane	25.34	1034	3590	-----
629-59-4	Tetradecane	27.12	22	55	-----
AN-107 Supernatant 99-0649			**Sample**	**Duplicate**	**Blank**
CAS #	TIC	Ret. Time	µg/L	µg/L	µg/L
123-72-8	Butanal	9.03	4	4	-----
71-36-3	1-Butanol	11.76	1	1	-----
66-25-1	Hexanal	15.26	4	-----	-----
107-31-1	Butanal, 3-hydroxy-	17.88	1	-----	-----
16747-32-3	Pentane, 3-ethyl-2,2-dimethyl-	20.94	-----	2	-----
112-31-2	Decanal	24.52	2	-----	-----
AN-107 Solids 99-0651			**Sample**	**Duplicate**	**Blank**
CAS #	TIC	Ret. Time	µg/Kg	µg/Kg	µg/Kg
629-50-5	Tridecane	25.23	358	101	-----
629-59-4	Tetradecane	27.02	603	119	-----
30692-16-1	5-Tridecanone	29.30	307	29	-----

"-----" = TIC not detected

Table 3.e. Target VOA Minimum Reportable Quantities

CAS #	VOA Compounds	Solids Target MRQ [1] µg/Kg	Supernatant Target (Density = 1.45) µg/L
100-41-4	Ethylbenzene	3300	4800
100-42-5	Styrene	-----	-----
10061-01-	cis-1,3-Dichloropropene	6000	8700
10061-02-	trans-1,3-Dichloropropene	6000	8700
106-35-4	3-Heptanone	-----	-----
106-42-3	p-Xylene	3300	4800
106-93-4	1,2-Dibromoethant	5000	7300
106-97-8	Butane	-----	-----
106-99-0	1,3-Butadiene	-----	-----
107-02-8	Acrolein	-----	-----
107-05-1	3-Chloropropene	10000	14500
107-06-2	1,2-Dichloroethane	2000	2900
107-12-0	Propionitrile	120000	174000
107-13-1	Acrylonitrile	28000	41000
107-87-9	2-Pentanone	-----	-----
108-10-1	4-Methyl-2-pentanone	11000	16000
108-38-3	m-Xylene	3300	4800
108-87-2	Methylcyclohexane	-----	-----
108-88-3	Toluene	3300	4800
108-90-7	Chlorobenzene	2000	2900
108-94-1	Cyclohexanone	-----	-----
109-66-0	Pentane	-----	-----
109-99-9	Tetrahydrofuran	-----	-----
110-12-3	5-Methyl-2-hexanone	-----	-----
110-43-0	2-Heptanone	-----	-----
110-54-3	Hexane	-----	-----
110-82-7	Cyclohexane	-----	-----
110-83-8	Cyclohexene	-----	-----
111-65-9	Octane	-----	-----
111-84-2	Nonane	-----	-----
123-19-3	4-Heptanone	-----	-----
123-38-6	Propionaldehyde	-----	-----
123-86-4	Butylacetate	-----	-----
123-91-1	1,4-Dioxane	-----	-----
126-98-7	2-Methyl-2-propenenitrile	28000	41000
127-18-4	Tetrachloroethene	2000	2900
141-78-6	Ethylacetate	11000	16000
142-82-5	Heptane	-----	-----
287-92-3	Cyclopentane	-----	-----
3825-26-1	Ammonium perfluorooctanoate	-----	-----
4170-30-3	2-Butenal	-----	-----
56-23-5	Carbon tetrachloride	2000	2900
563-80-4	3-Methyl-2-butanone	-----	-----
57-14-7	1,1-Dimethylhydrazine	-----	-----
591-78-6	2-Hexanone	-----	-----

CAS #	VOA Compounds	Solids Target MRQ [1] µg/Kg	Supernatant Target (Density = 1.45) µg/L
60-34-4	Methylhydrazine	-----	-----
624-83-9	Methyl isocyanate	-----	-----
627-13-4	Propyl nitrate	-----	-----
64-17-5	Ethyl alcohol	-----	-----
67-56-1	Methanol	-----	-----
67-63-0	Isopropanol	-----	-----
67-64-1	Acetone	53300	77300
67-66-3	Chloroform	2000	2900
684-16-2	Hexafluoroacetone	-----	-----
71-23-8	1-propanol	-----	-----
71-36-3	n-Butyl alcohol	900	1300
71-43-2	Benzene	3300	4800
71-55-6	1,1,1-Trichloroethane	2000	2900
74-83-9	Bromomethane	5000	7300
74-87-3	Chloromethane	10000	14500
75-00-3	Chloroethane	-----	-----
75-01-4	Vinyl chloride	2000	2900
75-05-8	Acetonitrile	12700	18400
75-09-2	methylene chloride	10000	14500
75-15-0	Carbon disulfide	-----	-----
75-21-8	Oxirane	-----	-----
75-34-3	1,1-Dichloroethane	2000	2900
75-35-4	1,1-Dichloroethene	2000	2900
75-43-4	Dichlorofluoromethane	-----	-----
75-45-6	Chlorodifluoromethane	-----	-----
75-65-0	2-Methyl-2-propanol	-----	-----
75-69-4	Trichlorofluoromethane	10000	14500
75-71-8	Dichlorodifluoromethane	2400	3500
76-13-1	1,2,2-Trichloro-1,1,2-trifluoroethane	10000	14500
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	-----	-----
78-87-5	1,2-Dichloropropane	-----	-----
78-92-2	2-butanol	-----	-----
78-93-3	2-Butanone	12000	17400
79-00-5	1,1,2-Trichloroethane	2000	2900
79-01-6	1,1,2-Trichloroethylene	2000	2900
79-34-5	1,1,2,2-Tetrachloroethane	2000	2900
95-47-6	o-Xylene	3300	4800
96-22-0	3-Pentanone	-----	-----

[1] MRQ = Minimum Reportable Quantity. Values provided through BNFL private communication from L. Bostic (BNFL) to G. Klinger (Battelle)

"-----" = No MRQ target provided in communication.

3.4.2 QC Evaluation

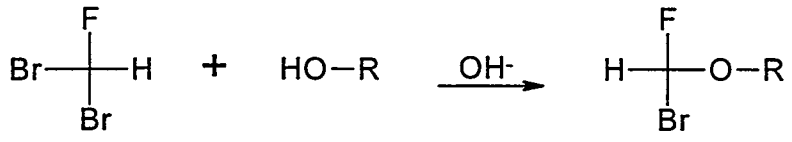
Instrument tuning check criteria and 12-hour calibration clock window criteria were met (USEPA CLP 3/90 SOW) for all initial calibration and sample analysis sequences as seen in the "5A" Forms in the Appendix A. The initial calibration met the criteria of USEPA SW-846 method 8260B, as seen in the "6A" Form in the Appendix A. All five-system performance check compounds (SPCC) met the criteria for minimum response factor, and all six calibration check compounds (CCC) met the maximum relative standard deviation (RSD) criteria. Six of the target analytes of interest have RSDs greater than the recommended 15%; however, none exceeded 25%. The target compounds failing to meet the RSD of 15% were acrylonitrile (20%), 2-butenal (18%), xylene-m&p (16%), nonane (16%), propyl nitrate (18%), and 1-propanol (24%).

The continuing calibration check standard met the criteria of USEPA SW-846 method 8260B, as seen in the "7A" Forms in the Appendix A. All calibration check standards met the SPCC and CCC criteria. However, in comparison of the results for the continuing calibration standards to the initial calibration, a few target analytes of interest exceed the recommended percent difference (%D) of 15%. The target analytes failing to meet the %D of 15% were propionaldehyde (17%), 1,3-butadiene (17%), butane (20%), dichlorodifluoromethane (22%), 1,4-dioxane (33%), acrolein (33% & 33%), 1,2-dichloro-1,1,2,2-tetrachloroethane (31%, 26%, & 34%).

The internal standards used in this study were difluorobenzene, pentafluorbenzene, chorobenzene-D_5, and 1,4-dichorobenzene-D_4. The surrogate compounds used were dibromofluoromethane, toluene-D_8, and bromofluorobenzene. These seven compounds were added to each sample, duplicate, MS, MSD, and blank sample analyzed.

Evaluation of surrogate recoveries are somewhat difficult in that performance based recovery limits have not been established for this type of sample matrix. In the absences of documented agreement between BNFL, WDOE, and Battelle, the Contract Laboratory Program (CLP) limits for low-level soil samples were used as a guide and are included on the "2A & 2B" Forms in Appendix A.

Dibromofluoromethane was poorly recovered from all of the samples, especially the AW-101 samples. This may be due to the reaction of this compound with the sample matrix. One possible reaction of this compound is the reaction with an alcohol in a Williamson synthesis type of reaction:



The fluoro-bromo ether product was not detected in the VOA as a TIC by the data analysis system. However, manual evaluation of the spectral data indicates the possible presence of this compound type but that the compound closely coelutes with methanol making it impossible to detect as a TIC.

The recoveries of the toluene-D_8 and bromofluorobenzene surrogates are somewhat high in all the samples and in one of the storage blanks. The reason for this is not clearly understood, but may be due to the way the spiking solution was handled within the limitations of permissible practices in contamination area fume hoods. Specifically, it is possible some methanol in the vial containing the methanolic surrogate spiking solution may have evaporated before the samples were spiked. This may be another reason for the poor dibromofluoromethane recoveries exhibited on all of the samples,

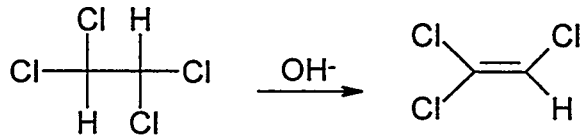
especially the AW-101 samples, since dibromofluoromethane has a boiling point similar to that of methanol. Alternate methods for handling and introducing the spiking solutions into highly radioactive samples needs to be evaluated, since the high velocity air movement and the restricted handling of the radioactive samples most likely contributed to the observed high variability in spike recoveries. The surrogate recovery data are summarized on the each of the CLP-type "2A & 2B" Forms in the Appendix A.

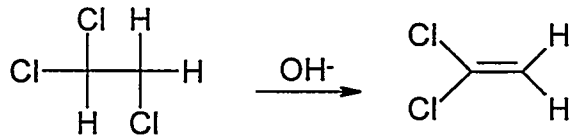
The CLP criterion for internal standard response was used (±50% of the calibration check standard response). Internal standard response met the criteria for all of the AW-101 supernatant samples spike samples and the blank. The internal standard response for the AN-107 supernatant samples was consistently low for all of the samples and spike samples; however, the blank met the criteria. This may be a matrix effect. Due to the limited quantity of sample available, it was not possible to re-analyze the samples to confirm this effect.

The same effect was observed for the AN-107 solids samples. The AW-101 solids samples met the internal standard response criteria. The internal standard data are summarized on the each of the CLP-type "8A" Forms in the Appendix A.

Matrix spiking was performed by adding the methanolic calibration solution to the samples at a level of 500 nanograms per compound. The MSs and MSDs revealed some interesting trends. The polar compounds such as acetone, 2-butanone, tetrahydrofuran, 2-pentanone, 3-methyl-2-butanone, 1,4-dioxane, 3-pentanone, 4-methyl-2-pentanone, 2-hexanone, propionaldehyde, 4-heptanone, 3-heptanone, 2-heptanone had high recoveries in the samples. Butylacetate and ethylacetate had variable recoveries. The high recoveries may be due to the salting-out effect of the sample matrix, relative to the calibration standard. The calibration standard is prepared using carbon filtered deionized water. Compounds that are completely or partially soluble in water are not completely purged from the aqueous calibration standard solution. Ordinarily this is not a problem as their partial recoveries are reasonably linear with respect to concentration in the solution. Since the samples are a concentrated salt solution (>20% Na^+, >20% NO_3^-), the solubility of partially soluble organic compounds is greatly reduced, increasing their recovery by sparging. The sparging was conducted at a temperature of about 30 °C; no other sparging temperatures were evaluated for potentially improving the recoveries of some polar compounds. Also, considering the high salt content of the samples, alternate calibration matrices with higher ionic strength (e.g., 1N NaOH) should be considered for the preparation of the calibration standards.

Some chloroalkanes (such as 1,1,2,2-tetrachloroethane and 1,1,2-trichloroethane) that were in the matrix spike solution had poor recoveries. Some chloroalkene compounds (such as 1,1-dichloroethene and 1,1,2-trichloroethene) that were in the matrix spike solution had high recoveries. These high recoveries may be due to textbook dehydrohalogenation reactions such as:





Acrolein, acrylonitrile, 2-butenal, carbon disulfide, and chloroform had somewhat low and variable recoveries, possibly due to reactivity with the matrix. Bromomethane had low recovery in some spiked samples possibly due to a Williamson synthesis type reaction or from losses due to volatilization during preparation of the matrix spikes, as described above. Cis- and trans-1,3-dichloropropene had low and variable recoveries. Butylacetate and ethylacetate had variable recoveries, sometimes greater than 100% and sometimes very low. While the salting-out effect can increase the apparent recoveries of water-soluble compounds, a strong base and catalyst in the matrix may cause these esters to hydrolyze to alcohols and acids.

3.4.3 Other Observations (or Deviations/Concerns/Issues)

Where compounds were detected in the sample and the duplicate (for both the AW-101 and AN-107 supernatant and solids), the reproducibility was generally poor; i.e., results within a factor of 2 to 3. However, it is noted that most of the results fall within 5 times the MDL and at this concentration the precision is anticipated to be poor. In part, the poor precision can be attributed to the complexity of the sample handling and sub-sampling in the SAL, as discussed below.

Several compounds specified in BNFL Proposal No. 29274/30406 Task 5.0 were not included in the VOA calibration. Specifically, ammonium perfluorooctanoate and oxirane (ethylene oxide) were deleted from the list as per personal communication with Lee Bostic on September 18, 1998. Hexafluoroacetone could not be procured from any vendor in a timeframe that permitted completion of the work by the March 1, 1999 milestone; however, if present, this compound would be identified as a TIC. Methylhydrazine, 1,1-dimethylhydrazine and methyl isocyanate were included in the calibration stock solution, however their recovery from the standard was extremely poor and variable. The poor recovery is possibly due to the high susceptibility to oxidation for the hydrazines or to hydrolysis for the isocyanate. Consequently, these compounds are not reported on the list of target analytes in the analysis results, and additional work on these analytes is recommended.

The vial containing the MS sample for the AN-107 solids was found to be leaking, so it was not analyzed in order to avoid problems with airborne radiological contamination. The leaking is most likely the results from the difficulties experienced in crimping the vial/lid in the shielded hot cell facility. The loss of the MS for AN-107 resulted in not being able to establish precision for the AN-107 solids samples. The AW-101 solids MS and MSD, which were processed in the same batch, were used to evaluate analytical precision for both AW-101 and AN-107 solids.

2-Methyl-2-propanol, 1-propanol, 1-propanol, 1-butanol were included in the calibration VOA standard and spike, however they are not reported as VOA target analytes since they will be reported in the headspace analysis.

Finally, it can not be stress strongly enough that the reported VOA results are for the sample composited and sub-sampled under the HLRF and SAL environmental conditions (e.g., high velocity airflow and slightly elevated temperature). The processing of highly radioactive tank waste in shielded facilities cannot, at this time, ensure that zero headspace is maintained for VOA samples and sub-samples. The VOA results presented in this report most assuredly do not represent the VOA compound concentrations resident in the waste tanks. It is inevitable that VOA compound losses are experienced at nearly every major processing point (i.e., tank sub-sampling, compositing, phase separation, and analytical sub-sampling).

4.0 Semi-Volatile Organic Analysis (SVOA)

4.1 Introduction

Semi-volatile organic analyses were performed on both the supernatant and solids from samples AW-101 and AN-107 following phase separation. Supernatants and solids were extracted with methylene chloride (or methylene chloride and acetone) per Test Plan BNFL-29953-5, Revision 0. The extracted samples were reduced in volume using a Kuderna-Danish concentrator. Following volume reduction, an aliquot was prepared and analyzed for semi-volatile compounds by method PNL-ALO-345.

Due to limited sample availability, a single extraction method was developed to provide samples for SVOA, PCB/pesticides, and dioxins and furans analysis. This extraction approach is fully detailed in Test Plan BNFL-29953-5, Revision 0. This Test Plan included dilution steps in an attempt to dissolve the bulk of the solids (i.e., leaving less than 0.5%) and thus be able to use only liquid-liquid extraction processing. However, during preliminary processing of the solids phases it was determined that a high fraction of the solids were insoluble following dilution with water. Therefore, the water dissolution step detailed in the Test Plan was eliminated and the solids were subjected directly to an ultra-sonication extraction using a methylene chloride and acetone mixture with desiccant.

4.2 Sample Preparation

Prior to performing the single extraction process for the SVOA, PCB/pesticides, and dioxin and furans, the aliquots of the supernatants from AW-101 and AN-107 and the solids (mixed with deionized water) were titrated with phosphoric acid. The resulting titration curves are used to establish the quantity of phosphoric acid required to adjust the extracting pH to level defined by the procedure (approximately 6.5). See Figure 4.1. It should be noted that the solids were not subjected to a water dissolution/dilution as detailed in the Test Plan; however, the solids titration curve was used to pH-adjust the solids fraction following centrifuging.

4.2.1 Supernatants

For each supernatant sample of AW-101 or AN-107 extracted, a known quantity (45 to 145 g) of sample was transferred into a Teflon separatory funnel. Appropriate spikes, internal standards, and surrogates were added to the samples prior to subjecting the samples to the extraction process. Each supernatant sample was extracted with three 25-mL portions of methylene chloride by subjecting the separatory funnel to mechanical shaking. Following this initial extraction, the supernatant was chilled in ice and stirred while the pH was adjusted with a predetermined quantity of phosphoric acid. Samples of AW-101 formed significant precipitates that were separated from the supernatant by centrifuging and decanting. The extraction process was repeated on the pH-adjusted supernatant. The solids from AW-101 were ultra-sonicated three 25-mL portions of methylene chloride. The methylene chloride-only extraction (versus methylene chloride-acetone) for these solids should be adequate, since only a moderate quantity of interstitial liquid remained following the centrifuging and decanting process. However, the use of methylene chloride-only for these precipitated solids has not been validated. All extracts from the supernatant sample, including the extracts from the solids formed during pH adjustment, were combined and passed through a column containing an anhydrous sodium sulfate desiccant to complete the supernatant extraction process.

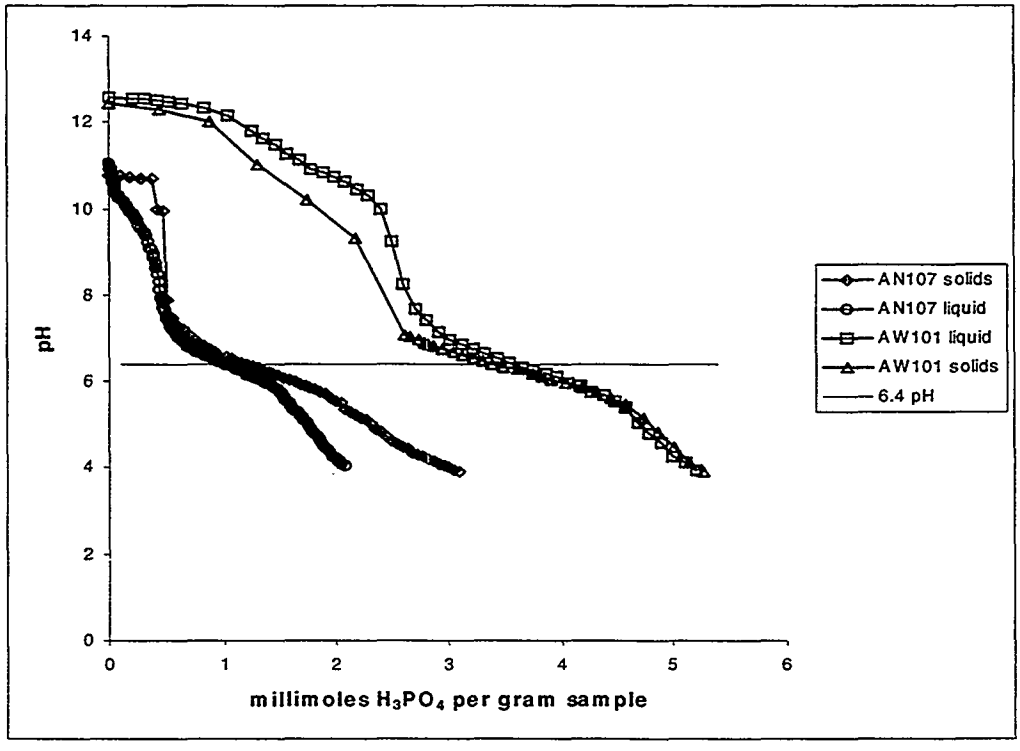


Figure 4.1 Phosphoric Acid Titration Curve

4.2.2 Solids

For each solids sample of AW-101 or AN-107 extracted, a known quantity (2.6 to 4.8 g) of sample was transferred to small Teflon bottle and anhydrous sodium sulfate (pre-dried in a muffle furnace) desiccant added. Appropriate spikes, internal standards, and surrogates were added to the samples prior to subjecting the samples to the ultra-sonication extraction process. Each sample was ultra-sonicated with three 25-mL portions of a 1:1 methylene chloride to acetone mixture. Following this initial extraction, the pH of the solids was adjusted with a predetermined quantity of phosphoric acid and the ultra-sonication extraction process repeated. All extracts from the solids sample were combined and passed through a column containing an anhydrous sodium sulfate desiccant to complete the solids extraction process.

4.2.3 Extract Volume Reduction

Once the extraction processes were completed in the SAL, the supernatant extracts and the solids extracts were transferred under COC from the SAL to the analytical laboratories and refrigerated prior to subsequent volume reduction processing. During the volume reduction processing, each extract was reduced in volume to 10 mL using a Kuderna-Danish (K-D) apparatus. Following removal of a 5-mL aliquot for PCB/Pesticides and dioxins and furans (See Sections 5.0 and 6.0), the SVOA aliquot (5 mL) was further reduced in volume to 1 mL, and refrigerated until analysis was performed.

4.3 Instrumentation

The analytical instrumentation used for SVOA consists of an auto-sampler-injector and gas chromatograph mass spectrometer system. Detailed description of the SVOA system is provided in Table 4.a.

Table 4.a. SVOA Instrumentation

System/Instrument	Manufacturer	Model Number	M&TE[1] Number
Auto-sampler	Hewlett Packard	7673A	N/A
GC/MS	Hewlett Packard	5890II/5972	WB47238/WD25623

1) Measuring and Test Equipment

4.4 Analysis Results

The SVOA target (calibrated analytes) results for AW-101 and AN-107 supernatant and solids phases are given in Tables 4.b and 4.c. Additionally, the results for any SVOA TICs that were detected for both AW-101 and AN-107 supernatant and solids phases are given in Tables 4.d through 4.g. For both target compounds and TICs, the results are given in units of µg/L for the supernatant and µg/Kg for the wet solid phase.

The MDLs provided are based upon instrument detection limits and the weight or volume of the sample used for the analysis. The MDLs are nominal, and are not based upon performance of the method on these specific sample matrices. In all cases, the MDLs for the supernatants (after adjusting for density) meet the BNFL SVOA MRQ requirements as detailed in Table 4.h. However, the MDLs for the solids met the BNFL SVOA MRQ requirements only for N,N-diphenylamine, nitrobenzene, and pyridine. The MDLs for the solids exceeded the BNFL SVOW MRQ requirement for all other compounds in the solids by a factor of 1.3 to 5, the most significant being for 1,4-dinitrobenzene and N-nitrosodimethlylamine.

SVOA results below the MDL are quantified by the data analysis system; however, only those results greater then 20% of the MDL are reported. Results less than 20% of the MDL, while detected, are consider too low to accurately quantify.

4.4.1 Results for Calibrated/Regulatory Analytes of Interest

AW-101 Results

A few target compounds were detected in the AW-101 supernatant. Only N-nitrosodimethylamine and N-nitrosomethylethylamine were found at levels greater than the MDL.

Results for nonane in the TIC data should not be interpreted as an indication the presence of nonane in the samples. Nonane was used as the solvent in the dioxins and furans spiking stock solutions that was added to all blanks, spikes, and samples prior to the single extraction processing for SVOA, PCB/pesticides, and dioxins and furans. The VOA results should be used for the determination of the nonane concentration in the samples.

Chloroform and 1,1,2-trichloroethane are reported in the TIC results, but are likely to be contaminants of the methylene chloride extraction solvent since neither of these compounds were detected in the VOA results. Tetramethyl silane was found in the samples and blank, and were likely leached from the Teflon lined, silcone rubber septum used in the I-Chem bottles that held the sample extracts prior to removal from the SAL. A number of organic acids, alcohols, ether-alcohols, and nitric acid esters were also detected as TICs in the AW-101 supernatant samples.

The AW-101 solids samples also contained N-nitrosodimethylamine at a concentration greater than the MDL. N-Nitrosomethylethylamine, tributylphosphate, and 1-naphthalamine were detected at concentrations less than the MDL.

Tridecane, tetradecane and pentadecane (used in the PUREX and B-Plant extraction processes) were among the TICs reported in the AW-101 solids (Tables 4.d and 4e). A number of artifact compounds such as aldol condensation products were reported in the data; these results are discussed in the quality control (QC) evaluation section.

For the AN-107 results, three target compounds were detected in the supernatant. None were found at levels greater than the MDL. N-nitrosodimethylamine, tributylphosphate, and diethylphthalate were detected at concentrations less than the MDL.

As with AW-101 supernatant, chloroform and 1,1,2-trichloroethane are reported in the TIC results and are likely contaminants of the methylene chloride extraction process, as discussed above. AN-107 supernatant TIC results contain a large number of unknowns and N-nitrosoamines. It is not clear whether these N-nitrosoamines are present in the original tank material or formed in the extraction process. Also, as noted previously, nonane was detected in all samples and blanks; however, nonane was used as a solvent for the dioxins and furans spike solution and was added to all samples, spikes, and blanks.

Both AN-107 supernatant and solids samples TIC results contain a large number of nitrogen containing compounds, such as N-nitroso substituted morpholine, piperizine, and piperidine. It is conceivable that these TICs are ring closure products of HEPTA, ED3A or some other EDTA-related chelators or their degradation products. AN-107 TIC results also contain various nitrate ester compounds, N-nitrosoamines, carboxylic acids, unknown amines, and unknowns.

AN-107 solids sample results are similar to the supernatant results. Only 1-naphthayamine was detected at a concentration than the MDL. Pyridine was detected at a concentration slightly below the MDL.

AN-107 solids samples TIC results contain some nitration products of surrogate spike compounds. These nitration products are discussed in the QC evaluation section below.

Table 4.b. AW-101 SVOA Results – BNFL & SW846 8270C Target Analyte List

	Tank Material	AW-101 Supernatant			AW-101 Solids			
	Sample ID	99-0648-bl SBLK03	99-0648 Sample	99-0648-d Duplicate	99-0650-bl SBLK04	99-0650 Sample	99-0650-d Duplicate	*Maximum µg/Kg (1) of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL (2)*	300	300	300	4000	4800	4300	*866*
BNFL Target Analyte List								
100-00-5	1-Chloro-4-nitrobenzene	U	U	U	U	U	U	*U*
100-25-4	1,4-Dinitrobenzene	U	U	U	U	U	U	*U*
100-51-6	Benzyl alcohol	U	U	U	U	U	U	*U*
106-44-5	4-Methylphenol (3)	U	U	U	U	U	U	*U*
106-46-7	1,4-Dichlorobenzene	U	U	U	U	U	U	*U*
108-95-2	Phenol	U	U	U	U	U	U	*U*
110-86-1	Pyridine	U	U	U	U	U	U	*U*
117-81-7	Bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	*U*
117-84-0	Di-n-octylphthalate	U	U	U	U	U	U	*U*
118-74-1	Hexachlorobenzene	U	U	U	U	U	U	*U*
120-82-1	1,2,4-Trichlorobenzene	U	U	U	U	U	U	*U*
122-39-4	N,N-Diphenylamine	U	U	U	U	U	U	*U*
126-73-8	Tributyl phosphate	U	U	U	U	U	**1800 J**	*292*
128-37-0	Butylated Hydroxytoluene	U	U	U	U	U	U	*U*
2234-13-1	Octachloronaphthalene	U	U	U	U	U	U	*U*
309-00-2	Aldrin	U	U	U	U	U	U	*U*
319-84-6	alpha-BHC	U	U	U	U	U	U	*U*
319-85-7	beta-BHC	U	U	U	U	U	U	*U*
465-73-6	Isodrin	U	U	U	U	U	U	*U*
50-29-3	4,4'-DDT	U	U	U	U	U	U	*U*
50-32-8	Benzo(a)pyrene	U	U	U	U	U	U	*U*
53-70-3	Dibenz(a,h)anthracene	U	U	U	U	U	U	*U*
541-73-1	1,3-Dichlorobenzene	U	U	U	U	U	U	*U*
58-89-9	gamma-BHC (Lindane)	U	U	U	U	U	U	*U*
60-57-1	Dieldrin	U	U	U	U	U	U	*U*
62-75-9	N-Nitrosodimethylamine	U	**160 J**	**390**	U	**12000**	U	*2164*
67-72-1	Hexachloroethane	U	U	U	U	U	U	*U*
72-20-8	Endrin	U	U	U	U	U	U	*U*
72-54-8	4,4'-DDD	U	U	U	U	U	U	*U*
76-44-8	Heptachlor	U	U	U	U	U	U	*U*
82-68-8	Pentachloronitrobenzene	U	U	U	U	U	U	*U*
87-68-3	Hexachlorobutadiene	U	U	U	U	U	U	*U*
87-86-5	Pentachlorophenol	U	U	U	U	U	U	*U*
88-85-7	Dinoseb	U	U	U	U	U	U	*U*
91-20-3	Naphthalene	U	U	U	U	U	U	*U*
92-52-4	Biphenyl	U	U	U	U	U	U	*U*
95-48-7	2-Methylphenol (3)	U	U	U	U	U	U	*U*
95-50-1	1,2-Dichlorobenzene	U	U	U	U	U	U	*U*
98-86-2	Acetophenone	U	U	U	U	U	U	*U*
98-95-3	Nitrobenzene	U	U	U	U	U	U	*U*
SW-846 8270C Target Analyte List								
100-01-6	4-Nitroaniline	U	U	U	U	U	U	*U*
100-02-7	4-Nitrophenol	U	U	U	U	U	U	*U*
100-75-4	N-Nitrosopiperidine	U	U	U	U	U	U	*1*
101-55-3	4-Bromophenyl-phenylether	U	U	U	U	U	U	*U*
1024-57-3	Heptachlor Epoxide	U	U	U	U	U	U	*U*

	Tank Material	AW-101 Supernatant			AW-101 Solids			
	Sample ID	99-0648-bl SBLK03	99-0648 Sample	99-0648-d Duplicate	99-0650-bl SBLK04	99-0650 Sample	99-0650-d Duplicate	*Maximum µg/Kg (1) of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL (2)*	300	300	300	4000	4800	4300	*866*
1031-07-8	Endosulfan Sulfate	U	U	U	U	U	U	*U*
103-33-3	Azeobenzene	U	U	U	U	U	U	*U*
105-67-9	2,4-Dimethylphenol	U	U	U	U	U	U	*U*
10595-95-6	N-Nitrosomethylethylamine	U	**160 J**	**580**	U	**1300 J**	U	*538*
106-47-8	4-Chloroaniline	U	U	U	U	U	U	*U*
108-60-1	2,2'-oxybis(1-Chloropropane)	U	U	U	U	U	U	*U*
109-06-8	2-Methylpyridine	U	U	U	U	U	U	*U*
111-44-4	bis(2-Chloroethyl)ether	U	U	U	U	U	U	*U*
111-91-1	bis(2-Chloroethoxy)methane	U	U	U	U	U	U	*U*
119-93-7	3,3'-Dimethylbenzidine	U	U	U	U	U	U	*U*
120-12-7	Anthracene	U	U	U	U	U	U	*U*
120-58-1	Isosafrole	U	U	U	U	U	U	*U*
120-83-2	2,4-Dichlorophenol	U	U	U	U	U	U	*U*
121-14-2	2,4-Dinitrotoluene	U	U	U	U	U	U	*U*
129-00-0	Pyrene	U	U	U	U	U	U	*U*
130-15-4	1,4-Naphthoquinone	U	U	U	U	U	U	*U*
131-11-3	Dimethylphthalate	U	U	U	U	U	U	*U*
132-64-9	Dibenzofuran	U	U	U	U	U	U	*U*
134-32-7	1-Naphthylamine	U	U	U	U	**1400 J**	U	*227*
143-50-0	Kepone	U	U	U	U	U	U	*U*
1888-71-7	Hexachloropropene	U	U	U	U	U	U	*U*
191-24-2	Benzo(g,h,i)perylene	U	U	U	U	U	U	*U*
193-39-5	Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	*U*
205-99-2	Benzo(b)fluoranthene	U	U	U	U	U	U	*U*
206-44-0	Fluoranthene	U	U	U	U	U	U	*U*
207-08-9	Benzo(k)fluoranthene	U	U	U	U	U	U	*U*
208-96-8	Acenaphthylene	U	U	U	U	U	U	*U*
218-01-9	Chrysene	U	U	U	U	U	U	*U*
2303-16-4	Diallate (cis)	U	U	U	U	U	U	*U*
2303-16-4	Diallate (trans)	U	U	U	U	U	U	*U*
23950-58-5	Pronamine	U	U	U	U	U	U	*U*
319-86-8	delta-BHC	U	U	U	U	U	U	*U*
33213-65-9	Endosulfan II	U	U	U	U	U	U	*U*
510-15-6	Chlorobenzilate	U	U	U	U	U	U	*U*
51-28-5	2,4-Dinitrophenol	U	U	U	U	U	U	*U*
534-52-1	4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	*U*
53494-70-5	Endrin Ketone	U	U	U	U	U	U	*U*
53-96-3	2-Acetylaminofluorene	U	U	U	U	U	U	*U*
55-18-5	N-Nitrosodiethylamine	U	U	U	U	U	U	*U*
56-49-5	3-Methylcholanthrene	U	U	U	U	U	U	*U*
56-55-3	Benzo(a)anthracene	U	U	U	U	U	U	*U*
57-74-9	Chlordane (alpha)	U	U	U	U	U	U	*U*
57-74-9	Chlordane (gamma)	U	U	U	U	U	U	*U*
58-90-2	2,3,4,6-Tetrachlorophenol	U	U	U	U	U	U	*U*
59-50-7	4-Chloro-3-methylphenol	U	U	U	U	U	U	*U*
60-11-7	p-Dimethylaminoazobenzene	U	U	U	U	U	U	*U*
606-20-2	2,6-Dinitrotoluene	U	U	U	U	U	U	*U*
608-93-5	Pentachlorobenzene	U	U	U	U	U	U	*U*

	Tank Material	AW-101 Supernatant			AW-101 Solids			
	Sample ID	99-0648-bl SBLK03	99-0648 Sample	99-0648-d Duplicate	99-0650-bl SBLK04	99-0650 Sample	99-0650-d Duplicate	*Maximum µg/Kg (1) of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL (2)*	300	300	300	4000	4800	4300	*866*
621-64-7	N-Nitroso-di-n-propylamine	U	U	U	U	U	U	*U*
62-44-2	Phenacetin	U	U	U	U	U	U	*U*
62-50-0	Ethyl methane sulfonate	U	U	U	U	U	U	*U*
62-53-3	Analine	U	U	U	U	U	U	*U*
66-27-3	Methyl methane sulfonate	U	U	U	U	U	U	*U*
7005-72-3	4-Chlorophenyl-phenylether	U	U	U	U	U	U	*U*
70-30-4	Hexachlorophene	U	U	U	U	U	U	*U*
72-43-5	Methoxychlor	U	U	U	U	U	U	*U*
72-55-9	4,4'-DDE	U	U	U	U	U	U	*U*
76-01-7	Pentachloroethane	U	U	U	U	U	U	*U*
77-47-4	Hexachlorocyclopentadiene	U	U	U	U	U	U	*U*
78-59-1	Isophorone	U	U	U	U	U	U	*U*
83-32-9	Acenaphthene	U	U	U	U	U	U	*U*
84-66-2	Diethylphthalate	U	U	U	U	U	U	*U*
84-74-2	Di-n-butylphthalate	U	U	U	U	U	U	*U*
85-01-8	Phenanthrene	U	U	U	U	U	U	*U*
85-68-7	Butylbenzylphthalate	U	U	U	U	U	U	*U*
86-73-7	Fluorene	U	U	U	U	U	U	*U*
86-74-8	Carbazole	U	U	U	U	U	U	*U*
87-65-0	2,6-Dichlorophenol	U	U	U	U	U	U	*U*
88-06-2	2,4,6-Trichlorophenol	U	U	U	U	U	U	*U*
88-74-4	2-Nitroaniline	U	U	U	U	U	U	*U*
88-75-5	2-Nitrophenol	U	U	U	U	U	U	*U*
91-57-6	2-Methylnaphthalene	U	U	U	U	U	U	*U*
91-58-7	2-Chloronaphthalene	U	U	U	U	U	U	*U*
91-59-8	2-Naphthylamine	U	U	U	U	U	U	*U*
91-94-1	3,3'-Dichlorobenzidine	U	U	U	U	U	U	*U*
924-16-3	N-Nitrosodi-n-butylamine	U	U	U	U	U	U	*U*
92-67-1	4-Aminobiphenyl	U	U	U	U	U	U	*U*
92-87-5	Benzidine	U	U	U	U	U	U	*U*
930-55-2	N-Nitrosopyrolidine	U	U	U	U	U	U	*U*
94-59-7	Safrole	U	U	U	U	U	U	*U*
95-57-8	2-Chlorophenol	U	U	U	U	U	U	*U*
95-94-3	1,2,4,5-Tetrachlorobenzene	U	U	U	U	U	U	*U*
95-95-4	2,4,5-Trichlorophenol	U	U	U	U	U	U	*U*
959-98-8	Endosulfan I	U	U	U	U	U	U	*U*
99-09-2	3-Nitroaniline	U	U	U	U	U	U	*U*
99-35-4	1,3,5-Trinitrobenzene	U	U	U	U	U	U	*U*
99-55-8	5-Nitro-o-toluidine	U	U	U	U	U	U	*U*
99-65-0	1,3-Dinitrobenzene	U	U	U	U	U	U	*U*

1) Maximum slurry µg/Kg calculated using results of Tables 2.a (weight fractions) and 2.b (supernatant density)—See Section 1.0
2) MDL = Method detection limit based on instrument detection limit and sample quantity
3) Cresol reported as individual isomers, 3- and 4- methyl phenols coelute

U flag = Compound not detected; Compound concentration less than the MDL
J flag = Compound detected, but concentration less than the MDL

Table 4.c. AN-107 SVOA Results – BNFL & SW846 8270C Target Analyte List

	Tank Material	AN-107 Supernatant			AN-107 Solids			
	Sample ID	99-0649-bl SBLK01	99-0649 Sample	99-0649-d Duplicate	99-0651-bl SBLK02	99-0651 Sample	99-0651-d Duplicate	*Maximum µg/Kg (1) of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL (2)*	200	300	300	4000	4300	4100	*657*
BNFL Target Analyte List								
100-00-5	1-Chloro-4-nitrobenzene	U	U	U	U	U	U	*U*
100-25-4	1,4-Dinitrobenzene	U	U	U	U	U	U	*U*
100-51-6	Benzyl alcohol	U	U	U	U	U	U	*U*
106-44-5	4-Methylphenol (3)	U	U	U	U	U	U	*U*
106-46-7	1,4-Dichlorobenzene	U	U	U	U	U	U	*U*
108-95-2	Phenol	U	U	U	U	U	U	*U*
110-86-1	Pyridine	U	U	U	U	U	**1400 J**	***161***
117-81-7	Bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	*U*
117-84-0	Di-n-octylphthalate	U	U	U	U	U	U	*U*
118-74-1	Hexachlorobenzene	U	U	U	U	U	U	*U*
120-82-1	1,2,4-Trichlorobenzene	U	U	U	U	U	U	*U*
122-39-4	N,N-Diphenylamine	U	U	U	U	U	U	*U*
126-73-8	Tributyl phosphate	U	U	**100 J**	U	U	U	***62***
128-37-0	Butylated Hydroxytoluene	U	U	U	U	U	U	*U*
2234-13-1	Octachloronaphthalene	U	U	U	U	U	U	*U*
309-00-2	Aldrin	U	U	U	U	U	U	*U*
319-84-6	alpha-BHC	U	U	U	U	U	U	*U*
319-85-7	beta-BHC	U	U	U	U	U	U	*U*
465-73-6	Isodrin	U	U	U	U	U	U	*U*
50-29-3	4,4'-DDT	U	U	U	U	U	U	*U*
50-32-8	Benzo(a)pyrene	U	U	U	U	U	U	*U*
53-70-3	Dibenz(a,h)anthracene	U	U	U	U	U	U	*U*
541-73-1	1,3-Dichlorobenzene	U	U	U	U	U	U	*U*
58-89-9	gamma-BHC (Lindane)	U	U	U	U	U	U	*U*
60-57-1	Dieldrin	U	U	U	U	U	U	*U*
62-75-9	N-Nitrosodimethylamine	U	**170 J**	**260 J**	U	U	**2600 J**	***460***
67-72-1	Hexachloroethane	U	U	U	U	U	U	*U*
72-20-8	Endrin	U	U	U	U	U	U	*U*
72-54-8	4,4'-DDD	U	U	U	U	U	U	*U*
76-44-8	Heptachlor	U	U	U	U	U	U	*U*
82-68-8	Pentachloronitrobenzene	U	U	U	U	U	U	*U*
87-68-3	Hexachlorobutadiene	U	U	U	U	U	U	*U*
87-86-5	Pentachlorophenol	U	U	U	U	U	U	*U*
88-85-7	Dinoseb	U	U	U	U	U	U	*U*
91-20-3	Naphthalene	U	U	U	U	U	U	*U*
92-52-4	Biphenyl	U	U	U	U	U	U	*U*
95-48-7	2-Methylphenol (3)	U	U	U	U	U	U	*U*
95-50-1	1,2-Dichlorobenzene	U	U	U	U	U	U	*U*
98-86-2	Acetophenone	U	U	U	U	U	U	*U*
98-95-3	Nitrobenzene	U	U	U	U	U	U	*U*
SW-846 8270C Target Analyte List								
100-01-6	4-Nitroaniline	U	U	U	U	U	U	*U*
100-02-7	4-Nitrophenol	U	U	U	U	U	U	*U*
100-75-4	N-Nitrosopiperidine	U	U	U	U	U	U	*U*
101-55-3	4-Bromophenyl-phenylether	U	U	U	U	U	U	*U*
1024-57-3	Heptachlor Epoxide	U	U	U	U	U	U	*U*

	Tank Material	AN-107 Supernatant			AN-107 Solids			
	Sample ID	99-0649-bl SBLK01	99-0649 Sample	99-0649-d Duplicate	99-0651-bl SBLK02	99-0651 Sample	99-0651-d Duplicate	*Maximum µg/Kg (1) of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL (2)*	200	300	300	4000	4300	4100	*657*
1031-07-8	Endosulfan Sulfate	U	U	U	U	U	U	*U*
103-33-3	Azeobenzene	U	U	U	U	U	U	*U*
105-67-9	2,4-Dimethylphenol	U	U	U	U	U	U	*U*
10595-95-6	N-Nitrosomethylethylamine	U	U	U	U	U	U	*U*
106-47-8	4-Chloroaniline	U	U	U	U	U	U	*U*
108-60-1	2,2'-oxybis(1-	U	U	U	U	U	U	*U*
109-06-8	2-Methylpyridine	U	U	U	U	U	U	*U*
111-44-4	bis(2-Chloroethyl)ether	U	U	U	U	U	U	*U*
111-91-1	bis(2-Chloroethoxy)methane	U	U	U	U	U	U	*U*
119-93-7	3,3'-Dimethylbenzidine	U	U	U	U	U	U	*U*
120-12-7	Anthracene	U	U	U	U	U	U	*U*
120-58-1	Isosafrole	U	U	U	U	U	U	*U*
120-83-2	2,4-Dichlorophenol	U	U	U	U	U	U	*U*
121-14-2	2,4-Dinitrotoluene	U	U	U	U	U	U	*U*
129-00-0	Pyrene	U	U	U	U	U	U	*U*
130-15-4	1,4-Naphthoquinone	U	U	U	U	U	U	*U*
131-11-3	Dimethylphthalate	U	U	U	U	U	U	*U*
132-64-9	Dibenzofuran	U	U	U	U	U	U	*U*
134-32-7	1-Naphthylamine	U	U	U	U	**5400**	**2000 J**	***619***
143-50-0	Kepone	U	U	U	U	U	U	*U*
1888-71-7	Hexachloropropene	U	U	U	U	U	U	*U*
191-24-2	Benzo(g,h,i)perylene	U	U	U	U	U	U	*U*
193-39-5	Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	*U*
205-99-2	Benzo(b)fluoranthene	U	U	U	U	U	U	*U*
206-44-0	Fluoranthene	U	U	U	U	U	U	*U*
207-08-9	Benzo(k)fluoranthene	U	U	U	U	U	U	*U*
208-96-8	Acenaphthylene	U	U	U	U	U	U	*U*
218-01-9	Chrysene	U	U	U	U	U	U	*U*
2303-16-4	Diallate (cis)	U	U	U	U	U	U	*U*
2303-16-4	Diallate (trans)	U	U	U	U	U	U	*U*
23950-58-5	Pronamine	U	U	U	U	U	U	*U*
319-86-8	delta-BHC	U	U	U	U	U	U	*U*
33213-65-9	Endosulfan II	U	U	U	U	U	U	*U*
510-15-6	Chlorobenzilate	U	U	U	U	U	U	*U*
51-28-5	2,4-Dinitrophenol	U	U	U	U	U	U	*U*
534-52-1	4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	*U*
53494-70-5	Endrin Ketone	U	U	U	U	U	U	*U*
53-96-3	2-Acetylaminofluorene	U	U	U	U	U	U	*U*
55-18-5	N-Nitrosodiethylamine	U	U	U	U	U	U	*U*
56-49-5	3-Methylcholanthrene	U	U	U	U	U	U	*U*
56-55-3	Benzo(a)anthracene	U	U	U	U	U	U	*U*
57-74-9	Chlordane (alpha)	U	U	U	U	U	U	*U*
57-74-9	Chlordane (gamma)	U	U	U	U	U	U	*U*
58-90-2	2,3,4,6-Tetrachlorophenol	U	U	U	U	U	U	*U*
59-50-7	4-Chloro-3-methylphenol	U	U	U	U	U	U	*U*
60-11-7	p-	U	U	U	U	U	U	*U*
606-20-2	2,6-Dinitrotoluene	U	U	U	U	U	U	*U*
608-93-5	Pentachlorobenzene	U	U	U	U	U	U	*U*

	Tank Material	AN-107 Supernatant			AN-107 Solids			
	Sample ID	99-0649-bl SBLK01	99-0649 Sample	99-0649-d Duplicate	99-0651-bl SBLK02	99-0651 Sample	99-0651-d Duplicate	*Maximum µg/Kg (1) of Slurry*
	Units	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	
CAS #	*MDL (2)*	200	300	300	4000	4300	4100	*657*
621-64-7	N-Nitroso-di-n-propylamine	U	U	U	U	U	U	*U*
62-44-2	Phenacetin	U	U	U	U	U	U	*U*
62-50-0	Ethyl methane sulfonate	U	U	U	U	U	U	*U*
62-53-3	Analine	U	U	U	U	U	U	*U*
66-27-3	Methyl methane sulfonate	U	U	U	U	U	U	*U*
7005-72-3	4-Chlorophenyl-phenylether	U	U	U	U	U	U	*U*
70-30-4	Hexachlorophene	U	U	U	U	U	U	*U*
72-43-5	Methoxychlor	U	U	U	U	U	U	*U*
72-55-9	4,4'-DDE	U	U	U	U	U	U	*U*
76-01-7	Pentachloroethane	U	U	U	U	U	U	*U*
77-47-4	Hexachlorocyclopentadiene	U	U	U	U	U	U	*U*
78-59-1	Isophorone	U	U	U	U	U	U	*U*
83-32-9	Acenaphthene	U	U	U	U	U	U	*U*
84-66-2	Diethylphthalate	U	**150 J**	U	U	U	U	***94***
84-74-2	Di-n-butylphthalate	U	U	U	U	U	U	*U*
85-01-8	Phenanthrene	U	U	U	U	U	U	*U*
85-68-7	Butylbenzylphthalate	U	U	U	U	U	U	*U*
86-73-7	Fluorene	U	U	U	U	U	U	*U*
86-74-8	Carbazole	U	U	U	U	U	U	*U*
87-65-0	2,6-Dichlorophenol	U	U	U	U	U	U	*U*
88-06-2	2,4,6-Trichlorophenol	U	U	U	U	U	U	*U*
88-74-4	2-Nitroaniline	U	U	U	U	U	U	*U*
88-75-5	2-Nitrophenol	U	U	U	U	U	U	*U*
91-57-6	2-Methylnaphthalene	U	U	U	U	U	U	*U*
91-58-7	2-Chloronaphthalene	U	U	U	U	U	U	*U*
91-59-8	2-Naphthylamine	U	U	U	U	U	U	*U*
91-94-1	3,3'-Dichlorobenzidine	U	U	U	U	U	U	*U*
924-16-3	N-Nitrosodi-n-butylamine	U	U	U	U	U	U	*U*
92-67-1	4-Aminobiphenyl	U	U	U	U	U	U	*U*
92-87-5	Benzidine	U	U	U	U	U	U	*U*
930-55-2	N-Nitrosopyrolidine	U	U	U	U	U	U	*U*
94-59-7	Safrole	U	U	U	U	U	U	*U*
95-57-8	2-Chlorophenol	U	U	U	U	U	U	*U*
95-94-3	1,2,4,5-Tetrachlorobenzene	U	U	U	U	U	U	*U*
95-95-4	2,4,5-Trichlorophenol	U	U	U	U	U	U	*U*
959-98-8	Endosulfan I	U	U	U	U	U	U	*U*
99-09-2	3-Nitroaniline	U	U	U	U	U	U	*U*
99-35-4	1,3,5-Trinitrobenzene	U	U	U	U	U	U	*U*
99-55-8	5-Nitro-o-toluidine	U	U	U	U	U	U	*U*
99-65-0	1,3-Dinitrobenzene	U	U	U	U	U	U	*U*

1) Maximum slurry µg/Kg calculated using results of Tables 2.a (weight fractions) and 2.b (supernatant density)—See Section 1.0
2) MDL = Method detection limit based on instrument detection limit and sample quantity
3) Cresol reported as individual isomers, 3- and 4- methyl phenols coelute
U flag = Compound not detected; Compound concentration less than the MDL
J flag = Compound detected, but concentration less than the MDL

Table 4.d. AW-101 Supernatant SVOA Tentatively Identified Compounds

CAS #	TIC	Ret. Time	AW-101 Supernatant 99-0648		
			Sample	Duplicate	Blank
			µg/L	µg/L	µg/L
67-66-3	Chloroform	4.82	430	-----	-----
79-00-5	Ethane, 1,1,2-trichloro-	5.45	160	-----	-----
107-92-6	Butanoic acid	6.85	2000	-----	-----
75-98-9	Propanoic acid, 2,2-dimethyl-	7.08	410	-----	-----
75-76-3	Silane, tetramethyl-	7.31	3300	2300	7200
123-42-2	2-Pentanone, 4-hydroxy-4-methyl	7.40	2000 A	5200 A	-----
141-78-6	Ethyl Acetate	7.88	1100	1100	-----
4245-37-8	2-Propenoic acid, 2-methyl-, ethenyl	8.04	440	-----	-----
156-87-6	1-Propanol, 3-amino-	8.11	390	-----	-----
111-84-2	Nonane	9.28	89000	80000	130000
616-40-0	Hydrazine, 1,1-diethyl-	9.60	96	-----	-----
53778-73-7	2-Butanol, 1-methoxy-	9.97	2100	-----	-----
3970-62-5	3-Pentanol, 2,2-dimethyl-	9.97	-----	3000	-----
	Unknown	10.07	460	-----	-----
13861-97-7	2(3H)-Furanone, dihydro-4,4-dimethyl-	11.11	580	-----	-----
78-42-2	Phosphoric acid, tris(2-ethylhexyl)	13.57	240	-----	-----
	Unknown	14.25	350	-----	-----
	Unknown nitric acid ester	16.24	170	130	-----
	Unknown nitric acid ester	16.52	240	200	-----
	Unknown nitric acid ester	16.89	380	300	-----
	Unknown nitric acid ester	17.32	48	66	-----
	Unknown nitric acid ester	18.04	180	150	-----
	Unknown	23.04	170	170	-----

"-----" = TIC not detected

A = Suspected aldol condensation product

Table 4.e. AW-101 Solids SVOA Tentatively Identified Compounds

CAS #	TIC	Ret. Time	AW-101 Solids 99-0650		
			Sample	Duplicate	Blank
			µg/Kg	µg/Kg	µg/Kg
	Unknown Aldol Condensate	6.64	-----	-----	20000 A
141-79-7	3-Penten-2-one, 4-methyl-	6.56	980000 A	11000 A	-----
109-49-9	5-Hexen-2-one	4.67	-----	17000 A	-----
141-79-7	3-Penten-2-one, 4-methyl-	6.72	-----	770000 A	-----
123-42-2	2-Pentanone, 4-hydroxy-4-methyl	8.75	2600000 A	4600000 A	430000 A
111-84-2	Nonane	9.40	690000	1500000	1600000
627-08-7	Propane, 1-(1-methylethoxy)	10.11	76000 A	-----	-----
	Unknown Aldol Condensate	10.24	-----	59000 A	-----
758-21-4	Silane, ethyldimethyl-	10.39	15000	-----	-----
3970-62-5	3-Pentanol, 2,2-dimethyl-	10.52	-----	22000	-----
	Unknown	13.36	56000	41000	-----
591-76-4	Hexane, 2-methyl-	13.48	9400	-----	-----
504-20-1	2,5-Heptadien-4-one, 2,6-dimethyl-	14.04	-----	19000 A	-----
73583-56-9	2,6-Dimethyl-6-nitro-2-hepten-4-one	14.78	32000	-----	-----
638-10-8	2-Butenoic acid, 3-methyl-, ethyl ester	14.87	-----	99000	-----
565-61-7	2-Pentanone, 3-methyl-	14.99	36000	-----	-----
112-40-3	Dodecane	15.74	-----	73000	-----
629-50-5	Tridecane	15.75	39000	-----	-----
18720-66-6	3-Heptanol, 6-methyl-	15.85	-----	34000	-----
3973-27-1	p-Dioxin, 2,3-dihydro-2,5,6-trimethyl	16.05	110000	-----	-----
	Unknown	16.09	-----	210000	-----
	Unknown	16.44	19000	44000	-----
629-50-5	Tridecane	17.63	170000	190000	-----
629-59-4	Tetradecane	19.30	160000	210000	-----
110-13-4	2,5-Hexanedione	20.31	-----	17000	-----
629-62-9	Pentadecane	20.86	14000	20000	-----

"-----" = TIC not detected

A = Suspected aldol condensation product

Table 4.f. AN-107 Supernatant SVOA Tentatively Identified Compounds

CAS #	TIC	Ret. Time	AN-107 Supernatant 99-0649		
			Sample	Duplicate	Blank
			µg/L	µg/L	µg/L
67-66-3	Chloroform	4.78	160	380	-----
79-00-5	Ethane, 1,1,2-trichloro-	5.42	380	290	-----
994-05-8	Butane, 2-methoxy-2-methyl-	7.23	1200	1300	-----
1120-64-5	Oxazole, 4,5-dihydro-2-methyl-	7.48	360	450	-----
34075-28-0	Butane, 2,3-dimethyl-2-nitro-	7.98	-----	1200	-----
625-58-1	Nitric acid, ethyl ester	8.76	770	2200	-----
111-84-2	Nonane	9.41	110000	140000	70000
79-34-5	Ethane, 1,1,2,2-tetrachloro-	9.65	170	-----	-----
924-46-9	1-Propanamine, N-methyl-N-nitroso-	10.59	2400	3600	-----
39884-53-2	N-nitroso-2-methyl-oxazolidine	11.67	-----	740	-----
59-89-2	Morpholine, 4-nitroso-	13.14	1800	3900	-----
34419-76-6	1-Propanamine, N,2-dimethyl-	13.25	2100	-----	-----
111-14-8	Heptanoic acid	13.45	-----	9500	-----
149-57-5	Hexanoic acid, 2-ethyl-	14.25	290	740	-----
	Unknown	14.44	-----	800	-----
	Unknown	15.97	570	630	-----
	Unknown	16.69	380	-----	-----
	Unknown amine	17.77	2900	3300	-----
1116-54-7	Ethanol, 2,2'-(nitrosoimino) bis-	19.43	290	1000	-----
	Unknown Amine	19.58	760	-----	-----
3034-41-1	1H-Imidazole, 1-methyl-4-nitro-	19.64	-----	840	-----
140-79-4	Piperazine, 1,4-dinitroso-	19.77	550	1500	-----
	Unknown	20.76	-----	750	-----
	Unknown	20.96	1800	3200	-----
7247-89-4	Piperidine, 2-methyl-1-nitroso-	21.21	160	-----	-----
	Unknown	21.38	120	-----	-----
	Unknown	21.87	3500	-----	-----
	Unknown	22.31	540	1000	-----
	Unknown amine	22.53	470	-----	-----
	Unknown amine	22.65	1400	-----	-----
	Unknown	23.51	710	-----	-----
55556-93-9	4-Piperidinol, 1-nitroso-	25.61	8100	16000	-----
15104-03-7	Piperidine, 4-methyl-1-nitroso-	26.57	230	-----	-----
55556-86-0	Pyrrolidine, 2,5-dimethyl-1-nitroso-	26.68	-----	820	-----

"-----" = TIC not detected

Table 4.g. AN-107 Solids SVOA Tentatively Identified Compounds

CAS #	TIC	Ret. Time	AN-107 Solids 99-0651		
			Sample	Duplicate	Blank
			µg/Kg	µg/Kg	µg/Kg
67-66-3	Chloroform	4.85	3200	3300	-----
106-94-5	Propane, 1-bromo-	5.04	1400	-----	-----
141-78-6	Ethyl Acetate	5.66	2500	-----	-----
141-79-7	3-Penten-2-one, 4-methyl-	6.02	5100 A	19000 A	-----
108-64-5	Butanoic acid, 3-methyl-, ethyl ester	6.46	-----	7300	-----
	Unknown aldol condensate	6.61	-----	11000 A	23000 A
108-21-4	Acetic acid, 1-methylethyl ester	6.62	23000	-----	-----
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	7.50	390000 A	260000 A	450000 A
	Unknown aldol condensate	8.55	18000	110000	-----
111-84-2	Nonane	9.54	2000000	1700000	860000
	Unknown aldol condensate	9.57	-----	12000 A	-----
3970-62-5	3-Pentanol, 2,2-dimethyl-	9.95	-----	18000	-----
625-50-3	Acetamide, N-ethyl-	11.72	-----	11000	-----
5343-96-4	2-Butanol, 3-methyl-, acetate	11.73	36000	-----	-----
107-87-9	2-Pentanone	12.58	68000	75000	-----
59-89-2	Morpholine, 4-nitroso-	13.12	3800	-----	-----
107-92-6	Butanoic acid	13.19	5300	-----	-----
1721-93-3	Isoquinoline, 1-methyl-	14.37	-----	4200	-----
91-63-4	Quinoline, 2-methyl-	14.38	12000	-----	-----
1526-17-6	2-Fluoro-6-nitrophenol	14.74	7500	-----	-----
3973-27-1	p-Dioxin, 2,3-dihydro-2,5,6-trimethyl	15.87	-----	13000	-----
	2-Chloro-6-nitrophenol-d3	18.02	7400	2700	-----
403-19-0	2-Fluoro-4-nitrophenol	18.11	5400	1800	-----
1116-54-7	Ethanol, 2,2'-(nitrosoimino) bis-	19.07	5800	3800	-----
	2-Chloro-4-nitrophenol-d3	19.94	5400	2300	-----
	Unknown	20.06	5900	-----	-----
	Unknown	20.27	1900	-----	-----
55556-93-9	4-Piperidinol, 1-nitroso-	25.26	26000	19000	-----

"-----" = TIC not detected

A = Suspected aldol condensation product

Table 4.h. Target SVOA Minimum Reportable Quantities

CAS #	SVOA Compounds	Solids Target MRQ [1] µg/Kg	Supernatant Target (Density = 1.45 g/mL) µg/L
100-00-5	1-Chloro-4-nitrobenzene	-----	-----
100-25-4	1,4-Dinitrobenzene	800	1200
100-51-6	Benzyl alcohol	-----	-----
106-46-7	1,4-Dichlorobenzene	-----	-----
108-95-2	Phenol	2100	3000
110-86-1	Pyridine	5300	7700
117-81-7	Bis (2-Ethylhexyl)phthalate	-----	-----
117-84-0	Di-n-octylphthalate	-----	-----
118-74-1	Hexachlorobenzene	3300	4800
120-82-1	1,2,4-Trichlorobenzene	-----	-----
122-39-4	N,N-Diphenylamine	4300	6200
126-73-8	Tributyl phosphate	-----	-----
128-37-0	Butylated	-----	-----
1319-77-3	Cresol	-----	-----
1321-64-8	Pentachloronaphthalene	-----	-----
1335-87-1	Hexachloronaphthalene	-----	-----
1335-88-2	Tetrachloronaphthalene	-----	-----
2234-13-1	Octachloronaphthalene	-----	-----
50-32-8	Benzo(a)pyrene	1100	1600
53-70-3	Dibenz[a,h]anthracene	2700	3900
541-73-1	1,3-Dichlorobenzene	-----	-----
62-75-9	N-nitrosodimethylamine	800	1200
67-72-1	Hexachloroethane	-----	-----
82-68-8	Pentachloronitrobenzene (PCNB)	1600	2300
87-68-3	Hexachlorobutadiene	1900	2800
87-86-5	Pentachlorophenol	-----	-----
88-85-7	Dinoseb (Dinoseb)	-----	-----
91-20-3	Naphthalene	-----	-----
92-52-4	Biphenyl	-----	-----
95-50-1	1,2-Dichlorobenzene	2000	2900
98-86-2	Acetophenone	3200	4600
98-95-3	Nitrobenzene	4700	6800

1) MRQ = Minimum Reportable Quantity. Values provided through BNFL private communication from L. Bostic (BNFL) to G. Klinger (Battelle)

"-----" = No MRQ target provided in communication.

4.4.2 QC Evaluation

Instrument tuning check criteria and 12-hour calibration clock window criteria were met (USEPA CLP 3/90 SOW) for all initial calibration and sample analysis sequences as seen in the "5A" Forms in Appendix B. The initial calibration met the criteria of USEPA SW-846 method 8270C, as seen in the "6B & 6C" Form in the Appendix B. All four SPCCs met the criteria for minimum response factor, and all 13 calibration CCCs met the maximum RSD criteria. Four of the target analytes of interest have RSDs greater than the recommended 15%. Hexachlorophene had a low response (0.032) factor and high RSD (81.9%). This compound was measured only because it was included in the commercial 8270C calibration mixture. The other three targets which had >15% RSDs were 2-naphthylamine (18%), 3,3'-dimethylbenzidine (28%), and 2,4-dinitrophenol (20%).

The continuing calibration check standard met the criteria of USEPA SW-846 method 8270C, as seen in the "7A & 7B" Forms in the Appendix B. All calibration check standards met the SPCC and CCC criteria. However, in comparison of the results for the continuing calibration standards to the initial calibration, several target analytes of interest exceed the recommended %D of 15%, but with the exception of Hexachlorophene, all were below 30%.

The internal standards used in this study were 1,4-dichlorobenzene-D_4, naphthalene-D_8, acenaphthene-D_{10}, phenanthrene-D_{10}, chrysene-D_{12}, and perylene-D_{12}. Each target compound was quantified using the relative response calculated from the most closely eluting internal standard. Acetophenone, nitrobenzene and nitrobenzene-D_5 where quantified using the first internal standard. An additional internal standard, pyridine-D_5, added to each sample, spike, blank and calibration standard to quantify the earliest eluting peaks. The internal standard area criteria of -50% and +100% were not met for AW-101 supernatant, AW-101 supernatant duplicate, AW-101 solids sample, AW-101 solids duplicate, AW-101 solids MS, and AN-107 solids sample. In each case the perylene-D_{12} area was low, and in some cases the pyridine-D_5 was low or not detected. These sample extracts were reanalyzed on March 3,1999 and in four cases the results were the same. In the two cases where the perylene-D_{12} area met the criteria, it was low and followed the trend of the original analysis. All of these extracts appeared slightly cloudy, possibly indicating the presence of suspended water. The low pyridine-D_5 area is likely the result of the solubility of the pyridine in the water residue, which is slightly acidic following the pH-adjustment. The low perylene-D_{12} area may be the result of loss of this material due to adsorption by ultra-fine particulate in the sample extracts. These fine particulate may have been produced by ultra-sonication. Ultra-sonication was used during the extraction of AW-101 supernatant, since the pH adjustment formed a considerable quantity of solids. Ultra-sonication was also used in the extraction of AW-101 and AN-107 solids. Internal standard area data are found on the "8B & 8C" Forms in Appendix B.

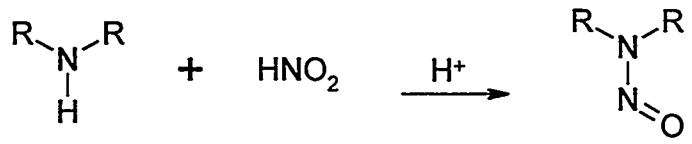
The surrogate compounds used were 2-fluorophenol, phenol-D_5, nitrobenzene-D_5, 2-fluorobiphenyl, 2,4,6-tribromophenol, and terphenyl-D_{14}. Two additional surrogates, 2-chlorophenol-D_4 and 1,4-dichorobenzene-D_4 were also added to each of the samples, spikes and blanks. These two additional surrogates have only advisory recoveries and were not included in the calibration mixture. However, to provide estimate of concentration and advisory recoveries for these additional surrogates, response factors from previous analyses (i.e., non-BNFL sample analyses) were used.

Evaluation of surrogate recoveries are somewhat difficult in that performance based recovery limits have not been established for this type of sample matrix. In the absences of documented agreement between BNFL, WDOE, and Battelle, the CLP limits for low-level soil samples were used as a guide and are included on the "2C & 2D" Forms in Appendix B.

All phenolic surrogates were poorly recovered from all of the samples, especially the AW-101 samples (supernatant and solids). It is believed this is due to the reaction of these compounds with the sample matrix. One possible reaction of these compounds is the reaction nitrous acid to form nitration products. Nitrous acid is a relatively weak acid, and some was likely formed when the pH of the samples was adjusted to 6.4 with the addition of phosphoric acid. Nitration products of 2-fluorophenol and 2-chlorophenol-D_4 were identified in the AN-107 solids samples TIC data (Table 4.f). These nitration products could be the results of localized areas of low pH generated during the pH-adjustment of the samples; these localized areas of low pH may result from inadequate mixing during the pH-adjustment. The base neutral surrogate compounds all have acceptable recoveries.

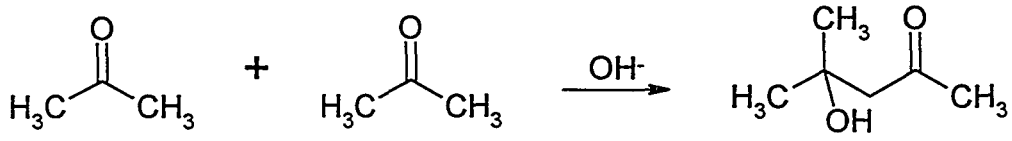
Matrix spike recovery data are found on the "3C & 3D" Forms in Appendix B. The phenolic MS compounds exhibited poor recovery in both the AW-101 solids and supernatant MSs. The AW-101 solids MS data exhibits the greatest number of MS failures. However, performance based recovery limits for these spike compounds need to be established to access these spike recoveries. AN-107 MS recoveries for both the supernatant and solids were generally higher than those of AW-101. Dinoseb was poorly recovered in the supernatant, and had higher recovery from the solids spike; the reason for this difference is unknown. The phenolic MS compounds exhibited the opposite trend, with higher recoveries in the supernatant. Some of the inconsistencies noted in phenolic matrix spike recoveries may be attributed to inadequate mixing during the pH adjustment, resulting from nitration of the phenolic compound.

Several N-nitrosoamines are reported in the AN-107 supernatant and solids data, such as N-nitrosodimethylamine, N-nitrosomethylethylamine, N-nitrosodiethylamine, 1,4-dinitrosopiperazine, etc. Both AN-107 and AW-101 samples contain large quantities of nitrite, 5.8% and 10%, respectively. Adjustment of the sample pH to 6.4 with phosphoric acid in the second part of the extraction procedure was performed in order to protonate phenolic compounds so they were extractable in the solvent. As discussed above, this pH adjustment can produce some nitrous acid. Secondary amines, both aliphatic and aromatic, react with nitrous acid to produce N-nitrosoamines:

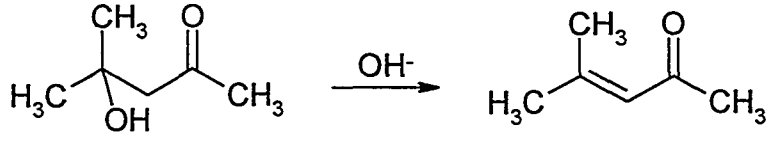


Primary amines react with HNO_2 to form diazonium salts, however these tend to be unstable and produce alkenes, alcohols and nitrogen gas. It is not entirely clear as how to interpret the presence of N-nitroso- compounds in the samples. It is conceivable that N-nitroso- compounds may be present in the native tank material; however, it is equally as possible that the N-nitroso compounds are formed during the pH adjustment conducted as part of the solvent extraction process. Further investigation into N-nitroso- compounds is warranted.

A 1:1 methylene chloride to acetone solution was used to extract the solids samples. This water-cutting solvent mixture was used to ensure that all the aqueous-wetted solids particles were wetted with the extraction solvent. Unfortunately, acetone undergoes some reactions in a hydroxide containing solutions, to produce aldol condensation products, notably 4-methyl-4-hydroxy-2-pentanone.



Also, 4-Methyl-4-hydroxy-2-pentanone undergoes further dehydration to 4-methyl-3-pentenone. This occurs only in the samples and not the extraction blank.



The presence of these aldol condensation products in the AW-101 solids sample data should not be interpreted as a positive indication of their presence in the tank sample.

4.4.3 Other Observations (or Deviations/Concerns/Issues)

Test Plan BNFL-TP-29953-5 specified a 32-component SVOA MS solution. Several of these compounds were not included in the matrix spiking solution for various reasons. A commercial source of the various isomers of pentachloronaphthalene, hexachloro-naphthalene, and heptachloronaphthalene could not be found, however octachloro-naphthalene was included in the spiking solution. Equal amounts of 2-, 3-, and 4-methylphenol were used to represent cresol [CAS 1319-77-3]. Some difficulties were encountered in preparing the multi-component spiking solution. The solvent initially used to prepare the spiking solution was methanol, which is completely miscible with the aqueous sample matrix. Unfortunately, several of the spike compounds have limited solubility or are insoluble in methanol. Other solvents were added, and solvent "cocktail" consisting of methanol, methylene chloride, diethyl ether, and acetone was used to dissolve the various compounds. After the additions of each octachloro-naphthalene, pentachloronitrobenzene and dinoseb, crystallization occurred. The relative amounts of the various solvents used were adjusted in order to get the crystals back into solution. A decision was made to limit the number of components in this spiking solution in order to avoid further problems with recrystallizations from the solution. The samples were spiked with 16 of the analytes specified in the test plan, plus an additional seven that were part of the commercially available acid and base/neutral matrix spiking solutions.

As stated earlier, SVOA results for nonane in the TIC data should not be interpreted as an indication of a true nonane concentration or the presence of nonane in the samples. nonane was used as the solvent in the dioxins and furans spiking stock solutions that were added to all blanks, spikes, and samples prior to the single extraction processing for SVOA, PCB/pesticides, and dioxin and furans. The VOA results should be used for the determination of the nonane concentration in the samples.

The precision between duplicates for both the AW-101 and AN-107 supernatant and solids was poorer than expected. For example, a sample may be reported at 3 to 5 times the MDL and the duplicate shows a non-detect. As was noted in the preparation sections, reasonably small sample sizes were used for the extractions, and an attempt was made to use a common extraction for the SVOA, PCB/Pesticides, and dioxins and furans due to the limited quantity of sample available and the complexity of processing the extractions in the SAL.

5.0 Polychlorinated Biphenyls/Pesticides Analysis

5.1 Introduction

The supernatants and solids samples were prepared in the SAL by the procedure outlined in Section 4.2. Following extraction, 5 mL of the of the resulting methylene chloride residue were transferred under COC to the laboratory for analysis of PCB/pesticides and dioxins and furans. Of this 5 mL of extraction residue, 2 mL were used for the PCB/pesticides analysis by gas chromatography/electron capture detection (GC/ECD), and the remaining 3 mL were used for dioxins and furans analysis.

5.2 Sample Preparation

Additional cleanup of the 2-mL aliquot of the extract residue was performed following exchange into hexane. When residues to be analyzed by this method are splits from semi-volatile extractions or are samples suspected of containing substantial interferences, then additional cleanup is performed. These are typically columns employing silica gel, alumina, or Florisil. In this case, Florisil (SW-846 Method 3620) cleanups were used. Florisil cleanup was selected because of the ease of use. Batch to batch variation in the composition of the Florisil or overloading the column may cause a change in the distribution patterns of the organochlorine pesticides. The lot number of cartridges used for this cleanup was evaluated for recovery of pesticides and PCBs and removal of unwanted polar materials before processing samples. The resulting Florisil cleaned residues were concentrated to 1 mL using a micro-Snyder Kuderna-Danish (K-D) apparatus.

5.3 Instrumentation

The instrumentation used for the analysis of pesticides and PCBs consists of a gas chromatograph equipped with two electron capture detectors (ECD). The analytical instrumentation is identified in Table 5.a. Both of the detectors were operated at 300° C. Injections were made on-column onto a 5 m fused silica retention gap, which was split between two analytical columns: a) 0.32 mm X 30 m DB-17 (0.25 μm phase) and b) 0.32 mm X 30 m DB-1701 (0.25 μm film thickness).

Table 5.a. PCB/Pesticides Analysis Instrumentation

System/Instrument	Manufacturer	Model Number	M&TE [1] Number
Gas Chromatograph	Hewlett-Packard	5890	WD 11127

1) Measuring and Test Equipment

5.4 Analysis Results

Polychlorinated biphenyl and pesticide results are presented in Tables 5.b and 5.c. As seen in Table 5.d, the BNFL target MRQs have been met for both the wet centrifuged solids and supernatant (after adjusting for density).

Table 5.b. AW-101 PCB/Pesticides Results

	Tank Material	AW-101 Supernatant				AW-101 Wet Centrifuged Solids			
	Sample ID	MDL	99-Proc Blk	99-0648 Sample	99-0648d Duplicate	MDL	99-Proc Blk	99-0650 Sample	99-0650d Duplicate
CAS #	*Units*	µg/L	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	µg/Kg
BNFL Pesticide Analyte List									
309-00-2	Aldrin	1.0	U	U	U	10	U	U	U
319-84-6	alpha-BHC	1.0	U	U	U	10	U	**18.1**	U
319-85-7	beta-BHC	1.0	U	U	U	10	U	U	U
465-73-6	Isodrin	2.0	U	U	U	20	U	U	U
50-29-3	4,4'-DDT	2.0	U	U	U	20	U	U	U
58-89-9	gamma-BHC	1.0	U	U	U	10	U	U	U
60-57-1	Dieldrin	2.0	U	U	U	20	U	U	U
72-20-8	Endrin	2.0	U	U	U	20	U	U	U
72-54-8	4,4'-DDD	2.0	U	U	U	20	U	U	U
76-44-8	Heptachlor	1.0	U	U	**6.5**	10	U	**73.4**	U
8001-35-2	Toxaphene	2.1	U	U	U	36	U	U	U
SW-846 8081A Pesticide Analyte List									
1024-57-3	Heptachlor	1.0	U	U	U	10	U	U	U
1031-07-8	Endosulfan	2.0	U	U	U	20	U	U	U
319-86-8	delta-BHC	1.0	U	U	U	10	U	U	**76.9**
33213-65-	Endosulfan II	2.0	U	U	U	20	U	U	U
5103-74-2	gamma-	1.0	U	U	U	10	U	U	U
5103-71-9	alpha-Chlordane	1.0	U	U	U	10	U	U	U
53494-70-	Endrin Ketone	2.0	U	U	U	20	U	U	U
72-43-5	Methoxychlor	10	U	U	U	100	U	U	U
72-55-9	4,4'-DDE	2.0	U	U	U	20	U	U	U
7421-93-4	Endrin Aldehyde	2.0	U	U	U	20	U	U	U
959-98-8	Endosulfan I	1.0	U	U	U	10	U	U	U
BNFL Polychlorinated Biphenyl's Analyte List									
12674-11-	AROCLOR 1016	2.1	U	U	U	36	U	U	U
11104-28-	AROCLOR 1221	2.1	U	U	U	36	U	U	U
11141-16-	AROCLOR 1232	2.1	U	U	U	36	U	U	U
53469-21-	AROCLOR 1242	2.1	U	U	U	36	U	U	U
12672-29-	AROCLOR 1248	2.1	U	U	U	36	U	U	U
11097-69-	AROCLOR 1254	2.1	U	U	U	36	U	**23 J**	U
11096-82-	AROCLOR 1260	2.1	U	U	U	36	U	U	U
			% Rec	% Rec	% Rec		% Rec	% Rec	% Rec
	TCX (surrogate)		11	45	95		9	73	0
	DCB (surrogate)		24	8.8	20		15	20	19

U flag = Not detected; results less than MDL
J flag = Detected and quantified, but result is less than MDL.

Table 5.c. AN-107 PCB/Pesticides Results

	Tank Material	AN-107 Supernatant				AN-107 Wet Centrifuged Solids			
	Sample ID	MDL	99-Proc Blk	99-0649 Sample	99-0649d Duplicate	MDL	99-Proc Blk	99-0651 Sample	99-0651d Duplicate
CAS #	*Units*	µg/L	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	µg/Kg
BNFL Pesticide Analyte List									
309-00-2	Aldrin	1.0	U	**1.2**	**3.7**	10	U	U	U
319-84-6	alpha-BHC	1.0	U	U	U	10	U	**11.8**	**35.1**
319-85-7	beta-BHC	1.0	U	U	U	10	U	U	U
465-73-6	Isodrin	2.0	U	U	U	20	U	U	U
50-29-3	4,4'-DDT	2.0	U	U	U	20	U	U	U
58-89-9	gamma-BHC	1.0	U	U	U	10	U	U	U
60-57-1	Dieldrin	2.0	U	U	U	20	U	U	U
72-20-8	Endrin	2.0	U	U	U	20	U	U	U
72-54-8	4,4'-DDD	2.0	U	U	U	20	U	U	U
76-44-8	Heptachlor	1.0	U	U	U	10	U	U	**18.4**
8001-35-2	Toxaphene	2.3	U	U	U	33	U	U	U
SW-846 8081A Pesticide Analyte List									
1024-57-3	Heptachlor	1.0	U	U	U	10	U	U	U
1031-07-8	Endosulfan	2.0	U	U	U	20	U	U	U
319-86-8	delta-BHC	1.0	U	U	U	10	U	U	U
33213-65-	Endosulfan II	2.0	U	U	U	20	U	U	U
5103-74-2	gamma-	1.0	U	U	U	10	U	U	U
5103-71-9	alpha-Chlordane	1.0	U	U	U	10	U	U	U
53494-70-	Endrin Ketone	2.0	U	U	U	20	U	U	U
72-43-5	Methoxychlor	10	U	U	U	100	U	U	U
72-55-9	4,4'-DDE	1.0	U	U	U	20	U	U	U
7421-93-4	Endrin Aldehyde	1.0	U	U	U	20	U	U	U
959-98-8	Endosulfan I	1.0	U	U	U	10	U	U	U
BNFL Polychlorinated Biphenyl's Analyte List									
12674-11-	AROCLOR 1016	2.3	U	U	U	33	U	U	U
11104-28-	AROCLOR 1221	2.3	U	U	U	33	U	U	U
11141-16-	AROCLOR 1232	2.3	U	U	U	33	U	U	U
53469-21-	AROCLOR 1242	2.3	U	U	U	33	U	U	U
12672-29-	AROCLOR 1248	2.3	U	U	U	33	U	U	U
11097-69-	AROCLOR 1254	2.3	**0.8 JB**	**1.7 JB**	**1.8 JB**	33	U	U	**17 J**
11096-82-	AROCLOR 1260	2.3	U	U	U	33	U	U	U
			% Rec	% Rec	% Rec		% Rec	% Rec	% Rec
	TCX (surrogate)		44	17	40		38	48	79
	DCB (surrogate)		72	54	55		65	95	80

U flag = Not detected; results less than MDL

J flag = Detected and quantified, but result is less than MDL.

B flag = Compound was present in the method blank

Table 5.d. Target PCB/Pesticides Minimum Reportable Quantities

CAS #	Compound	Solids Target MRQ [1] µg/Kg	Supernatant Target MRQ (Density = 1.45 g/mL) µg/L
All	Polychlorinated Biphenyls	3300	4800
309-00-2	Aldrin	22	32
319-84-6	alpha-BHC	22	32
319-85-7	beta-BHC	22	32
465-73-6	Isodrin	22	32
50-29-3	4,4'-DDT	----	----
58-89-9	gamma-BHC	----	----
60-57-1	Dieldrin	43	62
72-20-8	Endrin	43	62
72-54-8	4,4'-DDD	----	----
76-44-8	Heptachlor	22	32
8001-35-2	Toxaphene	900	1300

[1] MRQ = Minimum Reportable Quantity. Values provided through BNFL private communication from L. Bostic (BNFL) to G. Klinger (Battelle)
"-----" = No MRQ target provided in communication.

5.5 QC Evaluation

Surrogate and spike compounds were added to the supernatants and solids at levels that did not take into account adequately the residue splitting operation. Therefore, the amounts of these compounds were present at levels that were below the quantitation limits and resulted in erratic recoveries. If these materials were not known to be present as spikes, quantitation would not likely have been performed.

Table 5.e. AW-101 and AN-107 Supernatant -- Spike Recoveries

	Tank Material	AW-101		AN-107		
	Sample ID	99-0648		99-0649		
		MS	MSD	MS	MSD	LCS
	Units	% Rec (µg/L)	% Rec (µg/L)	% Rec (µg/L)	% Rec (µg/L)	% Rec (µg/L)
CAS #	*MDL*	2.9	3.3	4.8	4.8	0.3
8001-35-2	Toxaphene	n/a (U)	n/a (U)	n/a (U)	n/a (U)	n/a (U)
12674-11-	AROCLOR 1016	n/a (U)	n/a (U)	n/a (U)	n/a (U)	n/a (U)
11104-28-	AROCLOR 1221	n/a (U)	n/a (U)	n/a (U)	n/a (U)	n/a (U)
11141-16-	AROCLOR 1232	n/a (U)	n/a (U)	n/a (U)	n/a (U)	n/a (U)
53469-21-	AROCLOR 1242	n/a (U)	n/a (U)	n/a (U)	n/a (U)	n/a (U)
12672-29-	AROCLOR 1248	n/a (U)	n/a (U)	n/a (U)	n/a (U)	n/a (U)
11097-69-	AROCLOR 1254	77 (1.5 J)	129 (2.8 J)	139 (6.2)	145 (6.4)	97 (0.97)
11096-82-	AROCLOR 1260	n/a (U)	n/a (U)	n/a (U)	n/a (U)	n/a (U)
		% Rec	% Rec	% Rec	% Rec	% Rec
	TCX (surrogate)	206	495	0	41	76
	DCB (surrogate)	73000	100	0	71	114

n/a = Not applicable, since only AROCLOR 1254 spike added to the MS and MSD.
U flag = Not detected; results less than MDL
J flag = Detected and quantified, but result is less than MDL.

Table 5.f. AW-101 and AN-107 Wet Centrifuged Solids – Spike Recoveries

	Tank Material	AW-101		AN-107	
	Sample ID	99-0650		99-0651	
		MS	MSD	MS	MSD
	Units	%Rec (µg/Kg)	%Rec (µg/Kg)	%Rec (µg/Kg)	%Rec (µg/Kg)
CAS #	*MDL*	54	59	55	46
8001-35-2	Toxaphene	n/a (U)	n/a (U)	n/a (U)	n/a (U)
12674-11-2	AROCLOR 1016	n/a (U)	n/a (U)	n/a (U)	n/a (U)
11104-28-2	AROCLOR 1221	n/a (U)	n/a (U)	n/a (U)	n/a (U)
11141-16-5	AROCLOR 1232	n/a (U)	n/a (U)	n/a (U)	n/a (U)
53469-21-6	AROCLOR 1242	n/a (U)	n/a (U)	n/a (U)	n/a (U)
12672-29-6	AROCLOR 1248	n/a (U)	n/a (U)	n/a (U)	n/a (U)
11097-69-1	AROCLOR 1254	42 (38 J)	87 (57 J)	46 (33 J)	38 (28 J)
11096-82-5	AROCLOR 1260	n/a (U)	n/a (U)	n/a (U)	n/a (U)
		% Rec	% Rec	% Rec	% Rec
	TCX (surrogate)	740	810	0	0
	DCB (surrogate)	0	0	0	0

n/a = Not applicable, since only AROCLOR 1254 spike added to the MS and MSD.
U flag = Not detected; results less than MDL
J flag = Detected and quantified, but result is less than MDL.

Chromatographic resolution suffered noticeably following a number of sample residue analyses, indicating some column degradation had occurred. The observed peak broadening may have adversely impacted the retention time windows. The high surrogate recoveries for the PCB/pesticide analysis can be attributed in part to these interferences. However, as mentioned above, quantitation of the surrogates was performed at abnormally low levels, making their quantitation highly susceptible to even minor interference. In some cases, a well-defined chromatographic peak could not be identified. In these cases, the surrogate recovery was reported as 0%.

The AW-101 solids, AN-107 solids, and AW-101 supernatant were spiked with Aroclor 1254 at levels lower than desired as well. However, the recovery in these samples is satisfactory and compares well to the results obtained for the AN-107 supernatant which was spiked at a higher level. Therefore, because of the low concentrations that the surrogates were added for this sample set, low surrogate recovery does not equate to poor recovery of analytes. This conclusion is supported because, unlike the surrogate recoveries, the MSs are satisfactory. This is likely due to the multi-compound quantitation of the Aroclors producing an average result and is therefore less susceptible to interference.

The surrogates and single component pesticides rely on a single peak for quantitation, producing less reliable results at these concentration levels. Since the concentration of the surrogates was below the MDL for the single component pesticides, erratic surrogate recovery does not equate to poor recovery of analytes here as well.

For both the solids and supernatant samples, some variation was observed for duplicate samples of the single component pesticide results. However, in all cases, the results were well below ten times the MDL. This is where the greatest variation is expected to occur. In addition, the erratic surrogate recoveries also demonstrate there is significant matrix interferences at this low concentration level. In addition to the analytes of interest specified by BNFL, additional analytes normally analyzed utilizing this method have been reported.

6.0 Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans Analysis

6.1 Introduction

The supernatants and solids samples were prepared in the SAL by the procedure outlined in Section 4.2. Following extraction, 5 mL of the of the resulting methylene chloride extraction residue was transferred under COC to the laboratory for analysis of PCBs/pesticides and dioxins and furans. Of this 5 mL of extraction residue, 3 mL was used for the dioxins and furans analysis and the remaining 2 mL was used for the PCB/pesticide analysis.

The dioxins and furans portion was exchanged into hexane and passed through several column cleanup procedures including alumina and silica gel to remove interfering components. After column cleanup, the resulting solutions were further concentrated and were to be analyzed using high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS) as per Test Plan BNFL-TP-29953-018 and SW-846 Method 8290. However, due to a problem with the peak adjustment feature, the samples were ultimately screened for dioxins and furans using high-resolution gas chromatography/low-resolution mass spectrometry (HRGC/LRMS) per SW-846, Method 8280. A resolution of 1000 was utilized for the dioxins and furans analyses.

For both dioxins and furans, there are multiple isomers. Table 6.a lists the dioxin and furan standards analyzed to establish retention time windows and use as the basis for the determination of response factors.

Table 6.a. Standard Compounds Measured Using HRGC/LRMS

CAS #	Dioxin Compounds	Report ID [1]
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	TCDD
40321-76-4	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	PeCDD
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	HxCDD
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	HxCDD
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	HxCDD
35822-39-4	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	HpCDD
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	OCDD
CAS #	**Furan Compounds**	**Report ID [1]**
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	TCDF
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	PeCDF
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	PeCDF
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	HxCDF
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	HxCDF
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	HxCDF
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	HxCDF
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	HpCDF
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	HpCDF
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	OCDF

1) Report ID is shorthand notation for dioxins and furans for use in results tables

No previous documented analysis of dioxins and furans in high level waste has been identified. The data presented in this report was obtained on a best effort basis, utilizing procedures, instrumentation, and data systems for the first time for dioxins and furans analysis of radioactive materials.\

6.2 Sample Preparation

6.2.1 Supernatants and Solids

Following methylene chloride extraction of the supernatant samples and methylene chloride-acetone extraction of the solids samples and the volume reduction and sub-sampling of the methylene chloride extracts (See Section 4.2), the sub-sample fractions for dioxins and furans analysis were exchanged in hexane. The hexane residues from both the supernatant samples and the solids samples were then processed through an extensive cleanup procedure to remove potential interfering components, primarily PCBs.

The hexane extracts were first washed with concentrated sulfuric acid, 20% KOH, and 5% NaCl in a separatory funnel. The washed hexane extract was passed through a column of anhydrous sodium sulfate. Following this water removal step, the hexane extract was applied to the top of a silica gel column and eluted with hexane. The eluate was concentrated to approximately 1 mL using a K-D apparatus, and added to an alumina column. The concentrated solution was then eluted with 60% methylene chloride in hexane (v/v) and collected. The resulting eluate was concentrated to approximately 1 mL using a K-D apparatus, and then reduced to a final volume of 200 µL using nitrogen blow-down techniques for subsequent analysis using HRGC/LRMS.

6.2.2 Laboratory Control Standard and Glassware Blank

For the laboratory control standard (LCS), 100 mL of double distilled water was spiked with pre-measured volume of spiking materials and extracted with six 25-mL portions of methylene chloride. The LCS was extracted in like manner to the supernatants and solids, except that the LCS was extracted in the laboratory instead of the SAL hot cells. Following extraction, the combined volumes were transferred to a K-D flask, exchanged into hexane, and reduced in volume to approximately 2 mL. The hexane extract was transferred to a separatory funnel and washed with concentrated sulfuric acid, 20% KOH, and 5% NaCl. The hexane extract was then eluted through a column consisting of anhydrous sodium sulfate. The separatory funnel was then rinsed twice with 5 mL of hexane and the rinsates passed through a sodium sulfate column. The hexane fractions were combined and evaporated with a rotary evaporator to a final volume of 2 mL, and then put through the cleanup procedure discussed above.

A glassware blank was prepared to demonstrate that it was free of interferants under the conditions of analysis. The blank was prepared by rinsing various glassware associated with sample preparation and analysis including separatory funnels, beakers, graduated cylinders, K-D flasks, glass columns, and storage vials with 50 mL of methylene chloride. The rinsates were transferred to a K-D flask, exchanged into hexane, and reduced in volume to approximately 2 mL. The hexane extract was transferred to a separatory funnel and washed with concentrated sulfuric acid, 20% KOH, and 5% NaCl. The washed hexane extract was eluted through a column consisting of anhydrous sodium sulfate. The separatory funnel was rinsed twice with 5 mL of hexane and rinsates passed through a sodium sulfate column. The hexane fractions were combined and evaporated with a rotary evaporator to a final volume of 2 mL. The hexane fractions were further concentrated to approximately 200 µL using nitrogen blow-down techniques, and analyzed by HRGC/LRMS. The purpose of a glassware blank is to demonstrate that there is no contamination resulting from the glassware, therefore, the glassware blank was not put through the column cleanup procedure.

6.3 Instrumentation

The analytical instrumentation used for the analysis of dioxins and furans consists of a gas chromatograph equipped with a 5 m X 0.32 mm HP retention gap (uncoated and deactivated) column followed by a RTX-5 (60 m X 0.25 mm, 0.25 µm film thickness, Restek) column. Analyses were performed using on-column injection techniques and auto sampler injections. The JEOL high-resolution mass spectrometer (HRMS) system was operated in the low-resolution mode. A description of the instrumentation is shown in Table 6.b.

Table 6.b. Dioxins and Furans Analysis Instrumentation

System/Instrument	Manufacturer	Model Number	M&TE Number [1]
GC	Hewlett-Packard	5890	WD11062
HRMS	JEOL	SX-102/SX-102	WD11061

1) Measuring and Test Equipment

6.4 Analysis Results

The dioxins and furans results for AW-101 and AN-107 are presented in Tables 6.c. The CAS numbers have been omitted since there are multiple dioxin and furan isomers that are not included as standards. For example, if a peak is detected in the TCDD retention time window with a slightly different retention time than the standard, the exact TCDD isomer cannot be identified since it does not match the standard. Per SW-846, Method 8280 protocol, if multiple isomers are detected in the appropriate retention time window, the multiple isomers are summed to provide single dioxin or furan result. However, there were no cases for either AN-107 or AW-101 supernatant or solids where multiple isomers were detected.

Dioxins and furans were detected in some of the solid samples, e.g., AN-107 solids duplicate. For the AN-107 solids duplicate, the retention times matched with standards and the ion ratios were within the control limits. However, the criteria (See Section 6.5.2) were not met with the AN-107 solids sample; therefore, no dioxins or furans results were reported. It is believed that the cross contamination may have occurred during the MS and sample preparation. An estimate of the contamination is approximately 1%, based on percent recovery. A third analysis may have resolved the MS contamination issue; however, this analysis could not be performed due to lack of additional sample material for testing.

For both the AW-101 wet centrifuged solids process blank and sample, OCDF was detected at 2.90 µg/Kg and 2.94 µg/Kg, respectively. The results of the AW-101 wet centrifuged solids duplicate indicates that OCDF is well below the MDL, which may indicate that the sample and blank were contaminated during handling. The OCDF results for the sample and blank are only slightly above the MDL and are considered qualitative.

Table 6.c. AW-101 and AN-107 Dioxins and Furans Results

	Tank Material	AW-101 Supernatant				AW-101 Wet Centrifuged Solids			
	Sample ID	MDL	99-0648bl Proc Blk	99-0648 Sample	99-0648d Duplicate	MDL	99-0650bl Proc Blk	99-0650 Sample	99-0650d Duplicate
CAS #	*Units*	µg/L	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	µg/Kg
1746-01-6	TCDD	0.02	U	U	U	0.4	U	U	U
51207-31-9	TCDF	0.02	U	U	U	0.4	U	U	U
40321-76-4	PeCDD	0.06	U	U	U	1.0	U	U	U
(1)	PeCDF	0.06	U	U	U	1.0	U	U	U
(1)	HxCDD	0.06	U	U	U	1.0	U	U	U
(1)	HxCDF	0.06	U	U	U	1.0	**0.56 JB**	U	U
35822-39-4	HpCDD	0.06	U	U	U	1.0	**0.68 JB**	**0.87 JB**	U
(1)	HpCDF	0.06	U	U	U	1.0	**0.78 JB**	**0.72 JB**	U
3268-87-9	OCDD	0.11	U	U	U	2.1	U	U	U
39001-02-0	OCDF	0.11	U	U	U	2.1	**2.90 B**	**2.94 B**	**0.18 JB**
	Tank Material	AN-107 Supernatant				AN-107 Wet Centrifuged Solids			
	Sample ID	MDL	99-0649bl Proc Blk	99-0649 Sample	99-0649d Duplicate	MDL	99-0651bl Proc Blk	99-0651 Sample	99-0651d Duplicate
CAS #	*Units*	µg/L	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	µg/Kg
1746-01-6	TCDD	0.03	U	U	U	0.4	U	U	**0.05 J**
51207-31-9	TCDF	0.03	U	U	U	0.4	U	U	**0.06 J**
40321-76-4	PeCDD	0.07	U	U	U	1.0	U	U	**0.46 J**
(1)	PeCDF	0.07	U	U	U	1.0	U	U	**0.45 J**
(1)	HxCDD	0.07	U	U	U	1.0	U	U	**0.06 J**
(1)	HxCDF	0.07	U	U	U	1.0	U	U	**0.43 J**
35822-39-4	HpCDD	0.07	U	U	U	1.0	**0.62 JB**	U	**0.43 JB**
(1)	HpCDF	0.07	U	U	U	1.0	U	U	**0.43 J**
3268-87-9	OCDD	0.14	U	U	U	2.1	U	U	**1.65 J**
39001-02-0	OCDF	0.14	U	U	U	2.1	U	U	**1.94 J**

1) Multiple isomers possible in retention time window; each isomer has unique CAS #. Component represents sum of dioxins or furans meeting retention time window and ion abundance ratio criteria.

U flag = not detected; results less than MDL

J flag = detected and quantified, but results less than MDL. Analysis met ion abundance ratio and retention time criteria.

B flag = Compound was present in the method blank

6.5 QC Evaluation

The QC evaluation focuses on a) ion abundance ratios and response factors for the standards, b) ion abundance ratios for the samples, duplicates, MSs and MSDs, c) the spike recovery results from the analyses of the MSs for both liquids and solids, and d) the use of LRMS instead of HRMS for dioxins and furans analysis.

6.5.1 Ion Abundance Ratios and Response Factors --- Standards

The theoretical ion abundance ratios and control limits are listed in Table 6.d. These ratios are applicable to both the LRMS and HRMS. The matrix spiking solutions contain both ^{13}C-labeled and unlabeled standards. All samples, including MSs, were spiked with labeled internal standards. The ion ratios for both the native (unlabeled) and the labeled components must meet the criteria shown in

Table 6.d. The letter designations M, M+2, and M+4 refer to the parent ion (M) and the corresponding additional masses associated with the chlorine isotope pattern.

Table 6.d. Theoretical Ion Abundance Ratios and Control Limits

Number of Cl atoms	Ion Type	Theoretical Abundance	Control Limits	
			Lower	Upper
4	M/M+2	0.77	0.65	0.89
5	M+2/M+4	1.55	1.32	1.78
6	M+2/M+4	1.24	1.05	1.43
7	M+2/M+4	1.04	0.88	1.20
8	M+2/M+4	0.89	0.76	1.02

Appendix C contains the ion abundance ratio QC data for the native and labeled components of the standards. The only failures of the ion abundance ratios for the standards were associated with the highest concentration standards. The concentration of the standards ranged from 0.5 to 200 µg/L for TCDD and TCDF, 5.0 to 2000 µg/L for OCDF and OCDD, and 2.5 to 1000 µg/L for all other compounds. The values for the highest concentration standards were not used for calculating the average response factor due to the fact that the low-resolution mode of the HRMS was used for the analysis. In the low-resolution mode the concentration versus peak area response was not linear over the entire concentration range. In all instances except for TCDD, the highest concentration standards produced the lowest response factor, since it was outside the linear calibration range of the system. In the cases of TCDD and TCDF, the response factor obtained for the highest concentrations were not used in the determination of the average response factor.

The analyses could not be performed with HRMS due to a peak adjustment problem. During analysis certain lock masses are assigned per group. Prior to actual sample analysis, peak adjustment is performed where the centroid of the peak are located. If certain criteria are met, the peak adjustment succeeds. However, in the high-resolution mode the peak adjustment failed numerous times and the decision was made to perform the analysis in the low resolutions screening mode. The percent relative standard deviations for the average response factors are less than 15% as required by the LRMS method, except for components:

PeCDD for m/z 356 (RSD =25.6%) and m/z 358 (RSD = 21.7%)
PeCDF for m/z 342 (RSD = 18.6%)
HpCDD for m/z 426 (RSD = 16.1%)
HxCDF for m/z 376 (RSD = 17.5%)
OCDF for m/z 444 (RSD = 19.2%)

6.5.2 Ion Abundance Ratios – Samples, Duplicates, and Matrix Spikes

The ion abundance ratios for both the native and labeled components for all samples, duplicates, MSs, MSDs, and process blanks are listed in Appendix C. The ion abundance ratio is a major criterion for identifying dioxins and furans. If the ion abundance ratio is not within the control limits listed in Table 6.d, the component is not identified as a dioxin or furan even though the retention times may be consistent with dioxins and furans. Table 6.e provides a summary of those compounds tentatively identified as dioxins and furans by retention time and whether they meet the ion abundance ratio control limit criteria. For example, for TCDD in the AW-101 wet centrifuged solids sample a peak was detected within the retention time window but did not meet the ion abundance ratio criteria; therefore was assigned an "f" (fail). The corresponding labeled TCDD was detected and met the ion abundance ratio criteria, and was assigned a "p" (pass).

Table 6.e. Acceptance Criteria Summary of Ion Abundance Ratios

Sample ID	Compound	TCDD Native	TCDD Labeled	TCDF Native	TCDF Labeled	PeCDD Native	PeCDD Labeled	PeCDF Native	PeCDF Labeled	HxCDD Native	HxCDD Labeled	HxCDF Native	HxCDF Labeled	HpCDD Native	HpCDD Labeled	HpCDF Native	HpCDF Labeled	OCDD Native	OCDD Labeled	OCDF Native	OCDF Labeled
AW-101 Supernatant	Proc	-	p	-	p	-	f	-	p	-	p	-	p	-	p	-	p	-	p	-	p
	Sample	-	p	-	p	-	p	-	p	-	f	-	p	-	p	-	p	-	p	-	p
	Duplicate	-	p	-	p	-	f	-	p	-	p	-	p	-	p	-	p	-	p	-	p
	MS	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
	MSD	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
AW-101 Wet Centrifuged Solids	Proc	-	f	f	-	f	p	f	p	f	p	p	p	p	p	p	p	f	p	p	p
	Sample	f	p	f	f	p	p	f	p	f	f	p	f	p	p	p	p	f	p	p	p
	Duplicate	-	p	-	p	-	p	-	p	f	f	-	p	f	p	-	p	f	p	p	p
	MS	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
	MSD	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
AN-107 Supernatant	Proc	-	p	-	f	-	f	-	p	-	p	-	p	-	p	-	p	-	p	-	p
	Sample	-	p	-	p	-	p	-	p	-	p	-	p	-	p	-	p	-	p	-	p
	Duplicate	-	p	-	p	-	p	-	p	-	p	-	p	-	p	-	p	-	p	-	p
	MS	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
	MSD	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
AN-107 Wet Centrifuged Solids	Proc	-	p	f	p	-	f	-	p	-	p	f	p	p	p	f	p	p	p	-	p
	Sample	-	p	-	p	-	p	-	p	f	p	-	p	f	p	-	p	-	p	-	p
	Duplicate	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
	MS	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
	MSD	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
LCS	Standard	p	f	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p

"p" = pass; peak detected at dioxins and furans retention time and ion abundance ratio met acceptance criteria from Table 6.e.

"f" = fail; peak detected at dioxins and furans retention time but ion abundance ratio did not meet criteria from Table 6.e.

"-" = No signal or peak area detected; ion abundance ratio undefined.

For the AW-101 and AN-107 supernatant MS and MSD analysis and the LCS analysis, all native and labeled compounds, except TCDD on the LCS, met the ion abundance ratio acceptance criteria. For the process blanks, samples and duplicates, only five of the 110 labeled compounds analyses failed to meet the ion abundance ratio acceptance criteria; these being PeCDD on the AW-101 process blank and duplicate, HxCDD on the AW-101 sample, PeCDD and TCDF on the AN-107 process blank, and TCDD on the LCS.

For AN-107 solids analyses, the only labeled compound to fail the acceptance criteria was PeCDD for the process blank. However, TCDF, HxCDF and HpCDF native compounds for the process blank and HxCDD and HpCDD native compounds for the sample also failed to meet the ion abundance ratio acceptance criteria. In the case of AW-101 solids, five ion abundance ratios for the labeled components failed including TCDD in the process blank, TCDF in the sample, HxCDD in the sample and duplicate, and HxCDF in the sample. There were numerous failures of the native components for AW-101 solids samples including TCDD in the sample, TCDF in the process blank and sample, PeCDF in the process blank and sample, HxCDD in the process blank, sample, and duplicate, HpCDD in the duplicate, and OCDD in the process blank, sample, and duplicate. All of the native

and labeled components in both the MS and duplicates for both AN-107 solids and AW-101 solids met the ion abundance criteria.

As detailed in Table 6.e, numerous compounds for the AW-101and AN-107 process blanks, samples and duplicates failed to meet the ion abundance ratio acceptance criteria. The ion abundance ratios were established for labeled components at concentrations approximately seven times greater than the spike concentrations in the prepared samples. The low spike concentrations, as well as the measured concentrations of the native compounds (i.e., typically below the MDLs), significant impact the ability to meet the ion abundance ratio criteria.

6.5.3 Dioxins and Furans Matrix Spike Recoveries

The recoveries for the MSs and MSDs for the AW-101 and AN-107 supernatants are detailed in Table 6.f and the recoveries for solids are detailed in Table 6.g. The CAS numbers are included to identify the components in the matrix spiking solution. All ion abundance ratios for both the native and labeled components in the MSs and MSDs met the criteria listed in Table 6.d. The only failure related to ion abundance ratios was observed in the laboratory control sample for the labeled TCDD. There are several instances where the percent recovery is >130%. This may be due in part to the low spike level for the internal standards. Using manual integration of the labeled components, the peak areas were typically less than 100. In addition, the ratio of the peak areas of the native/labeled was approximately 10. In those cases, a small error in the peak area of the internal standards can make a relatively large difference in the calculated concentrations and ion abundance ratios.

Table 6.f. AW-101 and AN-107 Supernatant – Dioxins and Furans Spike Recoveries

	Tank Material	**AW-101 Supernatant**		**AN-107 Supernatant**		**Laboratory Control**
	Sample ID	**99-0648**		**99-0649**		
		MS	**MSD**	**MS**	**MSD**	
CAS #	*Units*	**%Rec**	**%Rec**	**%Rec**	**%Rec**	**%Rec**
1746-01-6	TCDD	87	85	74	98	104 *
51207-31-9	TCDF	129	126	130	149	132
40321-76-4	PeCDD	100	110	127	133	84
57117-41-6	PeCDF	113	93	88	98	73
57653-85-7	HxCDD	121	92	106	148	114
57117-44-9	HxCDF	115	114	103	134	116
35822-39-4	HpCDD	115	103	112	167	85
67562-39-4	HpCDF	111	95	105	135	85
3268-87-9	OCDD	121	114	110	136	22
39001-02-0	OCDF	115	105	97	122	86

* = Failed to meet Table 6.e ion abundance ratio QC criteria.

Table 6.g. AW-101 and AN-107 Solids --- Dioxins and Furans Spike Recoveries

	Tank Material	AW-101 Wet Centrifuged Solids		N-107 Wet Centrifuged Solids	
	Sample ID	99-0650		99-0651	
		MS	MSD	MS	MSD
CAS #	*Units*	%Rec	%Rec	%Rec	%Rec
1746-01-6	TCDD	70	77	73	73
51207-31-9	TCDF	97	123	119	120
40321-76-4	PeCDD	82	110	98	93
57117-41-6	PeCDF	51	74	87	78
57653-85-7	HxCDD	96	118	107	89
57117-44-9	HxCDF	68	122	104	96
35822-39-4	HpCDD	86	109	112	89
67562-39-4	HpCDF	61	106	103	89
3268-87-9	OCDD	67	96	127	90
39001-02-0	OCDF	52	84	111	83

6.5.4 Other Observations (Deviations/Concerns/Issues)

Due to the peak adjustment difficulty, the dioxins and furans analyses were performed by LRMS rather than HRMS. At lower resolution, the mass spectrometer has higher sensitivity but less specificity (i.e., resolving power). The resolving power of a mass spectrometer is a measure of its ability to separate two ions of any defined mass difference. Basically, for two overlapping peaks M_1 and M_2, the resolution may be defined in terms of the mass difference (ΔM) between them. The resolution is then defined as $M_1/\Delta M$. The HRMS method requires a resolution of 10,000. At 10,000 resolution a mass at m/z 300.00 is separated from a mass at m/z 300.03. For each group of ions, a lock mass is assigned in high resolution. If the peak adjustment fails, the lock mass may not be adequately tracked during the analysis; ultimately affecting quantitation. In high-resolution mode, the peak adjustment failed repeatedly. Therefore, the analyses were performed in low-resolution mode. In low-resolution mode the resolution was set at 1,000. At 1,000 resolution a mass at m/z of 300.00 is distinguished from a mass at m/z 300.30.

The concentration levels of the internal standard spikes were significantly low as to affect the quantitation and recovery. In most cases, manual integration of the peak areas resulted in areas less than 100. At these minimal areas, a small error in the peak area may make a relatively large difference in the calculated concentrations. Typically, for an internal standard at 100 µg/L, the peak areas were in the range of 4000-6000.

One possible explanation for the presence of dioxins and furans components in AN-107 solids duplicate may be contamination due to a) sample carryover from analysis of standards or b) contamination incurred during the sample preparation and spiking of internal standards. The dioxins and furans pattern observed in the AN-107 solids duplicate was consistent with the spiking solution and not the standard solutions. The spiking solution contains less components than the standard solution. As an example, the spiking solution contains one compound for each dioxin and furan from tetra to octa-substituted. The standard solution, however, contains three HxCDDs and four HxCDFs. The pattern observed in the sample is consistent with the pattern for the matrix spiking solution. In addition, there is no evidence to indicate the contamination was the result of carryover from one injection to the next. The concentrations of the components in the AN-107 solids duplicate are so low that it is certainly possible that the components would not have been detected with HRMS. The presence of dioxins and furans in the other samples at low levels may also be due to contamination during sample preparation.

7.0 Organic Anions Analysis

7.1 Introduction

Analyses of organic anions were performed on both the supernatant and solids from samples of tank waste material from Tanks AW-101 and AN-107. The supernatant samples were passed through cation exchange resin material to reduce the radioactivity to a sufficient level to be safely handled in the laboratory. The solid samples were leached at ambient temperature with water, filtered, and the resulting solution passed through cation exchange resin to reduce the radioactivity levels. The supernatant and solids were aliquotted and prepared in the SAL and transferred under COC to the analytical laboratory for organic anion analysis by ion chromatography (IC).

7.2 Sample Preparation

Tank samples from AW-101 and AN-107 were prepared in the SAL. For the supernatants, a 1-mL sample was accurately weighed and then passed through a column of cation exchange resin to reduce the radioactivity level. Similarly for the solids, an approximate 1-g sample was accurately weighed, leached at ambient temperature with approximately 5 mL of distilled water for 12 hours, and then filtered prior to passing the resulting solution through a cation exchange column. The activity reduction was performed per Test Plan BNFL-29953-014, "Activity Reduction Via Cation Exchange for Carboxylate Analysis". The treatment within the SAL resulted in an approximate 10-fold to 12-fold dilution (weight/weight) into a dilute caustic matrix that is not significantly different from the caustic matrix of the original sample. An additional 300-fold dilution was performed to dilute the major inorganic ions (nitrate and nitrite) to levels that prevent overloading the capacity of the analytical column. Previous experience (Campbell 1997) has demonstrated that ion-exchange sites within the IC column apparently do not recover quickly from an overload of these inorganic species, which results in a non-uniform elution of the weakly retained analytes (e.g. acetate and formate). Blank spikes, MSs and MSDs were prepared in the laboratory after elution through the cation exchange resin. Previous studies on samples from these two tanks have shown that organic material was neither introduced nor removed with the use of cation exchange resin. Spiking solutions were prepared using oxalic acid, sodium formate, and sodium acrylate in deionized water.

7.3 Instrumentation

The analytical instrumentation utilized for the analysis of low molecular weight organic acids consisted of an IC unit equipped with a conductivity detector. A Dionex AS-11 column and AG-11 guard column were used at ambient temperature with a 25-µL sample loop. An anion suppressor was used. The flow rate of the mobile phase was 2.0 mL/min. A description of the IC system is provided in Table 7.a.

Table 7.a. Ion Chromatography Instrumentation

System/Instrument	Manufacturer	Model Number	M&TE [1] Number
IC System	Dionex	500 DX	WD 24293
Conductivity Detector	Dionex	CD20	WD 24295

1) Measuring and Test Equipment

The IC gradient conditions were: (a) 0.0 min 0% 100 mM NaOH, 98.1% deionized water and 1.9% 5 mM NaOH, (b) 6.4 min 0% 100 mM NaOH, 0% deionized water and 100% 5 mM NaOH, and (c) 18.4 min 35% 100 mM NaOH, 0 % deionized water and 65% 5 mM NaOH. The mobile phase contained a gradient of deionized water and a weak solution of NaOH.

7.4 Analysis Result

The results of the analysis of the AW-101 and AN-107 supernatant and wet centrifuged solids samples are listed below in Table 7.b.

Although acetate is reported, acetate coelutes with glycolate and requires the use of an alternate column for separation from glycolate. Without additional separation, one can not unequivocally state that the observed peak contains only acetate, only glycolate, a combination of both anions, or a possible contaminant. From tank waste and solubility studies, the results are dependent on tank waste type. In other words, for tanks with different fill histories, the analytical results may be primarily glycolate, primarily acetate, or a combination of both anions (Sharma et al. 1998, Camaioni et al. 1998, Barney 1997, Ashby et al. 1994.)

For AW-101 and AN-107 analyses, no acetate/glycolate peak was detected in the supernatants or solids above the MDL, and the reported acetate MDL can be used to bound the upper acetate/glycolate concentration. However, acetate/glycolate peaks were detected below the MDL for both AW-101 and AN-107 supernatants, with the "estimated" AW-101 and AN-107 acetate/glycolate concentrations being 1200 µg/mL and 4000 µg/mL, respectively.

Table 7.b. IC Organic Anion Results

	Tank Material	AW-101 Supernatant				AW-101 Wet Centrifuged Solids				
	Sample ID	MDL (1)	99-Proc Blk	99-0648 Sample	99-0648d Duplicate	MDL (1)	99-Proc Blk	99-0650 Sample	99-0650d Duplicate	*Maximum µg/g (2) of Slurry*
CAS #	*Units*	µg/mL	µg/mL	µg/mL	µg/mL	µg/g	µg/g	µg/g	µg/g	
144-62-7	Oxalate	1300	U	**600 J**	**500 J**	900	U	**9700**	**11100**	*1600*
64-18-6	Formate	1700	U	**2200**	**2100**	1200	U	**3400**	**2800**	*2300*
79-10-7	Acrylate	1300	U	U	U	900	U	U	U	*U*
64-19-7	Acetate (3)	4400	U	**1200 J**	**1200 J**	1000	U	U	U	*U*
	Tank Material	AN-107 Supernatant				AN-107 Wet Centrifuged Solids				
	Sample ID	MDL (1)	99-Proc Blk	99-0649 Sample	99-0649d Duplicate	MDL (1)	99-Proc Blk	99-0651 Sample	99-0651d Duplicate	*Maximum µg/g (2) of Slurry*
CAS #	*Units*	µg/mL	µg/mL	µg/mL	µg/mL	µg/g	µg/g	µg/g	µg/g	
144-62-7	Oxalate	1300	U	**200 J**	**500 J**	900	U	**22000**	**22700**	*2900*
64-18-6	Formate	1700	U	**1700**	**2000**	1200	U	**600 J**	**600 J**	*1800*
79-10-7	Acrylate	1300	U	U	U	900	U	U	U	*U*
64-19-7	Acetate (3)	4400	U	**4000 J**	**4000 J**	1000	U	U	U	*U*

1) MDL = Method detection limit based on instrument detection limit and sample quantity
2) Maximum slurry µg/g calculated using results of Tables 2.a (weight fractions) and 2.b (supernatant density)—See Section 1.0
3) Acetate and glycolate are not resolved; results or MDL represent bounding upper concentration
   U flag = Anion not detected above the MDL; the MDL is based on the lowest calibration standard adjusted for analytical dilution factors.
   J flag = Anion detected, but concentration is less than MDL

7.5 QC Evaluation

No organic anions of interest were detected in the blank samples. The MDLs stated in Table 7.b are assumed to be adequate, since no MRQs were established by BNFL for the organic anions measured.

Table 7.c presents the average MS and MSD recoveries and blank spike recovery results for the AW-101 and AN-107 supernatants and wet centrifuged solids. Spike recoveries for blank spikes, MSs, and MSDs ranged from 77% to 165% and in most cases meet the acceptance criteria of the governing quality assurance plan. Three spikes failed to meet the acceptance criteria of 75% to 125%; oxalate for the AN-107 solids MS and formate for the AW-101 solids MS and MSD.

Table 7.c. IC Organic Anions Matrix Spike Recoveries

	Tank Material	**AW-101 Supernatant**			**AW-101 Wet Centrifuged Solids**		
	Sample ID	**99-0648**			**99-0650**		
		MS	**MSD**	**Blk Spike**	**MS**	**MSD**	**Blk Spike**
CAS #	***Units***	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
144-62-7	Oxalate	102	106	81	79	114	115
64-18-6	Formate	100	103	84	165	137	106
79-10-7	Acrylate	102	105	82	77	102	99
	Tank Material	**AN-107 Supernatant**			**AN-107 Wet Centrifuged Solids**		
	Sample ID	**99-0649**			**99-0651**		
		MS	**MSD**	**Blk Spike**	**MS**	**MSD**	**Blk Spike**
CAS #	***Units***	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
144-62-7	Oxalate	103	101	86	126	92	106
64-18-6	Formate	95	90	85	91	85	106
79-10-7	Acrylate	104	102	84	118	109	119

8.0 Headspace Analysis

8.1 Introduction

Headspace analyses were performed on the supernatant of tank waste material from Tanks AW-101 and AN-107. The samples were prepared in the SAL and transferred under COC to the laboratory for analyses. Analyses were performed using an automated headspace sampler interfaced to a gas chromatographic/mass spectrometric system. Test Plan BNFL-29953-026 Rev. 0 "Analysis for Volatile Constituents using Headspace Gas Chromatography Mass Spectrometry" provides details of the procedure used for this analysis. Analytes of interest include methanol, ethanol, 1-propanol, 2-propanol, n-butanol, 2-methyl-2-propanol, and triethylamine.

8.2 Sample Preparation

Tank samples from AW-101 and AN-107 were prepared in the SAL . Sample aliquots of 1 mL were placed in 10-mL headspace vials and immediately sealed using crimp-top septa. The samples were then transported to the laboratory for subsequent analysis. Immediately prior to analysis, internal standards and surrogate compounds were added through the septa.

8.3 Instrumentation

The analytical instrumentation utilized for the analysis of volatile components by headspace consists of an automated headspace analyzer interfaced to a GC/MS system. A description of the system is provided in Table 8.a.

Table 8.a. Headspace Instrumentation

System/Instrument	Manufacturer	Model Number	M&TE [1] Number
Headspace Sampler	Hewlett-Packard	7964	WD 25715
Gas Chromatograph	Hewlett-Packard	5890	WD 14120
Mass Spectrometer	Hewlett-Packard	5972	WD 17020

1) Measuring and Test Equipment

8.4 Analysis Results

The headspace analysis results are presented in Tables 8.b. Headspace analysis for alcohols and triethylamine was performed on the supernatants only. As seen in Table 8.c, the target MRQs (after adjusting for density) for n-butanol and triethylamine were not met.

Table 8.b. AW-101 and AN-107 Results – Headspace Analysis

	Tank Material		AW-101 Supernatant			AN-107 Supernatant		
	Sample ID	MDL	99-0648 Proc Blank	99-0648 Sample	99-0648 Duplicate	99-0649 Proc Blank	99-0649 Sample	99-0649 Duplicate
	Units	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL	µg/mL
CAS #	**BNFL Compound List**							
67-56-1	Methanol	30	U	**1.1 J**	U	U	**4.6 J**	**4.4 J**
64-17-5	Ethanol	1	**2.5 B**	**2.6 B**	**2.6 B**	**2.7 B**	**3.0 B**	**2.4 B**
67-63-0	2-Propanol	1	U	U	U	U	U	U
75-65-0	2-Methyl-2-propanol	1	U	U	U	U	U	U
71-23-8	1-Propanol	1	U	U	U	U	U	U
78-92-2	2-Butanol	1	U	U	U	U	U	U
71-36-3	n-Butanol	1	U	U	U	U	U	U
121-44-8	Triethylamine	20	U	U	U	U	**5.8 J**	**1.0 J**
CAS #	**Other Compounds**							
78-93-3	Butanone	1	U	U	U	U	U	U
109-99-9	Tetrahydrofuran	1	U	U	U	U	U	U
107-87-9	2-Pentanone	1	U	U	U	U	U	U
108-10-1	4-Methyl-2-pentanone	1	U	U	U	U	U	U
591-78-6	2-Hexanone	1	U	U	U	U	U	U
			% Rec	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
	Methanol-d4		119.5	35.8	35.7	120.5	61.8	61.4

J flag = Compound was detected below the level of quantitation
B flag = Compound was present in the method blank

Table 8.c. Target Headspace Minimum Reportable Quantities

CAS #	BNFL Compound List	Solids Target MRQ [1] µg/Kg	Supernatant Target MRQ (Density = 1.45 g/mL) µg/mL
67-56-1	Methanol	-----	-----
64-17-5	Ethanol	-----	-----
67-63-0	2-Propanol	-----	-----
75-65-0	2-Methyl-2-propanol	-----	-----
71-23-8	1-Propanol	-----	-----
78-92-2	2-Butanol	-----	-----
71-36-3	n-Butanol	900	1.3
121-44-8	Triethylamine	500	0.7

[1] MRQ = Minimum Reportable Quantity. Values provided through BNFL private communication from L. Bostic (BNFL) to G. Klinger (Battelle)
"-----" = No MRQ target provided in communication.

8.5 QC Evaluation

Response for the internal standard, ethanol-d_6, varied substantially (nearly an order of magnitude) throughout the analytical batch. This effected the detection limits, particularly for methanol and triethylamine. In addition, the surrogate recoveries for methanol-d_4 were effected in the later portion of the run. This appears primarily due to the internal standard response as well. Matrix spike and MSD recoveries are presented in Table 8.d.

Table 8.d. AW-101 and AN-107 Headspace Matrix Spike Recoveries

	Tank Material	AW-101 Supernatant		AN-107 Supernatant	
	Sample ID	99-0648		99-0649	
		MS	MSD	MS	MSD
	Units	% Rec	% Rec	% Rec	% Rec
CAS #	BNFL List				
67-56-1	Methanol	41	39	58	58
64-17-5	Ethanol	93	97	94	99
67-63-0	2-Propanol	96	104	115	110
75-65-0	2-Methyl-2-propanol	63	70	99	92
71-23-8	1-Propanol	101	109	112	105
78-92-2	2-Butanol	71	79	107	101
71-36-3	n-Butanol	92	98	117	110
121-44-8	Triethylamine	14	17	27	28
CAS #	Other Compounds				
78-93-3	Butanone	40	45	67	62
109-99-9	Tetrahydrofuran	36	39	64	59
107-87-9	2-Pentanone	30	32	57	53
108-10-1	4-Methyl-2-pentanone	21	23	45	40
591-78-6	2-Hexanone	24	25	49	45
		% Rec	% Rec	% Rec	% Rec
	Methanol-d4 (Surrogate)	42	37	63	62

This method has typically performed well for methanol and shows promise as an effective technique for the analysis of triethylamine. Additional analytes that are normally analyzed utilizing this method, not requested by BNFL, were also included in the tables. Further development and evaluation will be necessary to determine the cause of the erratic performance for this technique.

9.0 REFERENCES

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APPENDIX A

VOLATILE ORGANIC ANALYSIS RESULTS

AW-101 Supernatant --- Forms 1A through 8A

AN-107 Supernatant --- Forms 1A through 8A

AW-101 and AN-107 Solids --- Forms 1A through 8A

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021207

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	51	U
75-01-4	Vinyl Chloride	51	U
106-99-0	1,3-Butadiene	51	U
106-97-8	Butane	51	U
74-83-9	Bromomethane	51	U
75-35-4	1,1-Dichloroethene	51	U
75-00-3	Chloroethane	51	U
67-64-1	Acetone	330	
109-66-0	Pentane	51	U
75-15-0	Carbon Disulfide	51	U
107-02-8	Acrolein	51	U
107-13-1	Acrylonitrile	51	U
75-09-2	Methylene Chloride	51	U
156-60-5	trans-1,2-Dichloroethene	51	U
123-38-6	Propionaldehyde	51	U
4170-30-3	2-Butenal	51	U
75-34-3	1,1-Dichloroethane	51	U
156-59-2	cis-1,2-Dichloroethene	51	U
110-54-3	Hexane	51	U
78-93-3	2-Butanone	51	U
110-83-8	Cyclohexene	51	U
141-78-6	Ethyl acetate	51	U
287-92-3	Cyclopentane	51	U
74-97-5	Bromochloromethane	51	U
67-66-3	Chloroform	51	U
75-43-4	Dichlorofluoromethane	51	U
71-55-6	1,1,1-Trichloroethane	51	U
75-45-6	Chlorodifluoromethane	6	JB
56-23-5	Carbon Tetrachloride	51	U
75-69-4	Trichlorofluoromethane	51	U
71-43-2	Benzene	51	U
107-06-2	1,2-Dichloroethane	51	U
79-01-6	Trichloroethene	51	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021207

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	51	U
75-27-4	Bromodichloromethane	51	U
10061-01-5	cis-1,3-Dichloropropene	51	U
108-10-1	4-Methyl-2-pentanone	51	U
108-88-3	Toluene	51	U
10061-02-6	trans-1,3-Dichloropropene	51	U
79-00-5	1,1,2-Trichloroethane	51	U
127-18-4	Tetrachloroethene	51	U
591-78-6	2-Hexanone	51	U
124-48-1	Dibromochloromethane	51	U
108-90-7	Chlorobenzene	51	U
100-41-4	Ethylbenzene	51	U
106-42-3	Xylene (m & p)	51	U
95-47-6	Xylene (o)	51	U
100-42-5	Styrene	51	U
75-25-2	Bromoform	51	U
79-34-5	1,1,2,2-Tetrachloroethane	51	U
541-73-1	1,3-Dichlorobenzene	51	U
106-46-7	1,4-Dichlorobenzene	51	U
95-50-1	1,2-Dichlorobenzene	51	U
142-82-5	Heptane	51	U
111-65-9	Octane	51	U
111-84-2	Nonane	51	U
107-05-1	3-Chloropropene	51	U
107-87-9	2-Pentanone	51	U
108-87-2	Methylcyclohexane	51	U
110-12-3	5-Methyl-2-hexanone	51	U
123-19-3	4-Heptanone	51	U
123-86-4	Butylacetate	51	U
123-91-1	1,4-Dioxane	180	
126-98-7	2-Methyl-2-propenenitrile	51	U
563-80-4	3-Methyl-2-butanone	51	U
627-13-4	Propyl nitrate	51	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021207

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	51	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	51	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	51	U
75-71-8	Dichlorodifluoromethane	51	U
75-05-8	Acetonitrile	51	U
110-82-7	Cyclohexane	51	U
108-86-1	Bromobenzene	51	U
104-51-8	Butylbenzene	51	U
98-06-6	tert-Butylbenzene	51	U
135-98-8	sec-Butylbenzene	51	U
95-49-8	2-Chlorotoluene	51	U
99-87-6	4-Isopropyltoluene	51	U
106-43-4	4-Chlorotoluene	51	U
96-12-8	1,2-Dibromo-3-chloropropane	51	U
106-93-4	1,2-Dibromoethane	51	U
110-57-6	trans-1,4-Dichloro-2-butene	51	U
142-28-9	1,3-Dichloropropane	51	U
594-20-7	2,2-Dichloropropane	51	U
563-58-6	1,1-Dichloropropene	51	U
87-68-3	Hexachloro-1,3-butadiene	51	U
74-88-4	Iodomethane	51	U
98-82-8	Isopropylbenzene	51	U
91-20-3	Nathphalene	51	U
103-65-1	Propylbenzene	51	U
87-61-6	1,2,3-Trichlorobenzene	51	U
120-82-1	1,2,4-Trichlorobenzene	51	U
96-18-4	1,2,3-Trichloropropane	51	U
95-63-6	1,2,4-Trimethylbenzene	51	U
108-67-8	1,2,3-Trimethylbenzene	51	U
71-23-8	1-Propanol	51	U
106-35-4	3-Heptanone	51	U
110-43-0	2-Heptanone	51	U
109-99-9	Tetrahydrofuran	140	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021207

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	51	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021208

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	56	U
75-01-4	Vinyl Chloride	56	U
106-99-0	1,3-Butadiene	56	U
106-97-8	Butane	56	U
74-83-9	Bromomethane	56	U
75-35-4	1,1-Dichloroethene	56	U
75-00-3	Chloroethane	56	U
67-64-1	Acetone	360	
109-66-0	Pentane	56	U
75-15-0	Carbon Disulfide	56	U
107-02-8	Acrolein	56	U
107-13-1	Acrylonitrile	56	U
75-09-2	Methylene Chloride	56	U
156-60-5	trans-1,2-Dichloroethene	56	U
123-38-6	Propionaldehyde	56	U
4170-30-3	2-Butenal	3	J
75-34-3	1,1-Dichloroethane	56	U
156-59-2	cis-1,2-Dichloroethene	56	U
110-54-3	Hexane	56	U
78-93-3	2-Butanone	55	J
110-83-8	Cyclohexene	56	U
141-78-6	Ethyl acetate	56	U
287-92-3	Cyclopentane	56	U
74-97-5	Bromochloromethane	56	U
67-66-3	Chloroform	56	U
75-43-4	Dichlorofluoromethane	56	U
71-55-6	1,1,1-Trichloroethane	56	U
75-45-6	Chlorodifluoromethane	7	JB
56-23-5	Carbon Tetrachloride	56	U
75-69-4	Trichlorofluoromethane	56	U
71-43-2	Benzene	56	U
107-06-2	1,2-Dichloroethane	56	U
79-01-6	Trichloroethene	56	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021208

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	56	U
75-27-4	Bromodichloromethane	56	U
10061-01-5	cis-1,3-Dichloropropene	56	U
108-10-1	4-Methyl-2-pentanone	56	U
108-88-3	Toluene	56	U
10061-02-6	trans-1,3-Dichloropropene	56	U
79-00-5	1,1,2-Trichloroethane	56	U
127-18-4	Tetrachloroethene	56	U
591-78-6	2-Hexanone	56	U
124-48-1	Dibromochloromethane	56	U
108-90-7	Chlorobenzene	56	U
100-41-4	Ethylbenzene	56	U
106-42-3	Xylene (m & p)	56	U
95-47-6	Xylene (o)	56	U
100-42-5	Styrene	56	U
75-25-2	Bromoform	56	U
79-34-5	1,1,2,2-Tetrachloroethane	56	U
541-73-1	1,3-Dichlorobenzene	56	U
106-46-7	1,4-Dichlorobenzene	56	U
95-50-1	1,2-Dichlorobenzene	56	U
142-82-5	Heptane	56	U
111-65-9	Octane	56	U
111-84-2	Nonane	56	U
107-05-1	3-Chloropropene	56	U
107-87-9	2-Pentanone	56	U
108-87-2	Methylcyclohexane	56	U
110-12-3	5-Methyl-2-hexanone	56	U
123-19-3	4-Heptanone	56	U
123-86-4	Butylacetate	56	U
123-91-1	1,4-Dioxane	150	
126-98-7	2-Methyl-2-propenenitrile	56	U
563-80-4	3-Methyl-2-butanone	56	U
627-13-4	Propyl nitrate	56	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021208

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	56	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	56	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	56	U
75-71-8	Dichlorodifluoromethane	56	U
75-05-8	Acetonitrile	56	U
110-82-7	Cyclohexane	56	U
108-86-1	Bromobenzene	56	U
104-51-8	Butylbenzene	56	U
98-06-6	tert-Butylbenzene	56	U
135-98-8	sec-Butylbenzene	56	U
95-49-8	2-Chlorotoluene	56	U
99-87-6	4-Isopropyltoluene	56	U
106-43-4	4-Chlorotoluene	56	U
96-12-8	1,2-Dibromo-3-chloropropane	56	U
106-93-4	1,2-Dibromoethane	56	U
110-57-6	trans-1,4-Dichloro-2-butene	56	U
142-28-9	1,3-Dichloropropane	56	U
594-20-7	2,2-Dichloropropane	56	U
563-58-6	1,1-Dichloropropene	56	U
87-68-3	Hexachloro-1,3-butadiene	56	U
74-88-4	Iodomethane	56	U
98-82-8	Isopropylbenzene	56	U
91-20-3	Nathphalene	56	U
103-65-1	Propylbenzene	56	U
87-61-6	1,2,3-Trichlorobenzene	56	U
120-82-1	1,2,4-Trichlorobenzene	56	U
96-18-4	1,2,3-Trichloropropane	56	U
95-63-6	1,2,4-Trimethylbenzene	56	U
108-67-8	1,2,3-Trimethylbenzene	56	U
71-23-8	1-Propanol	56	U
106-35-4	3-Heptanone	56	U
110-43-0	2-Heptanone	56	U
109-99-9	Tetrahydrofuran	110	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021208

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	56	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MS

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021209

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	89	
75-01-4	Vinyl Chloride	100	
106-99-0	1,3-Butadiene	90	
106-97-8	Butane	110	
74-83-9	Bromomethane	30	J
75-35-4	1,1-Dichloroethene	170	
75-00-3	Chloroethane	87	
67-64-1	Acetone	330	E
109-66-0	Pentane	120	
75-15-0	Carbon Disulfide	41	J
107-02-8	Acrolein	11	J
107-13-1	Acrylonitrile	13	J
75-09-2	Methylene Chloride	96	
156-60-5	trans-1,2-Dichloroethene	440	
123-38-6	Propionaldehyde	340	E
4170-30-3	2-Butenal	20	J
75-34-3	1,1-Dichloroethane	100	
156-59-2	cis-1,2-Dichloroethene	480	
110-54-3	Hexane	98	
78-93-3	2-Butanone	340	E
110-83-8	Cyclohexene	97	
141-78-6	Ethyl acetate	140	
287-92-3	Cyclopentane	97	
74-97-5	Bromochloromethane	520	
67-66-3	Chloroform	52	J
75-43-4	Dichlorofluoromethane	40	J
71-55-6	1,1,1-Trichloroethane	110	
75-45-6	Chlorodifluoromethane	52	JB
56-23-5	Carbon Tetrachloride	100	
75-69-4	Trichlorofluoromethane	95	
71-43-2	Benzene	94	
107-06-2	1,2-Dichloroethane	100	
79-01-6	Trichloroethene	180	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MS

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021209

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	100	
75-27-4	Bromodichloromethane	11	J
10061-01-5	cis-1,3-Dichloropropene	15	J
108-10-1	4-Methyl-2-pentanone	330	E
108-88-3	Toluene	100	
10061-02-6	trans-1,3-Dichloropropene	27	J
79-00-5	1,1,2-Trichloroethane	0.9	J
127-18-4	Tetrachloroethene	87	
591-78-6	2-Hexanone	390	E
124-48-1	Dibromochloromethane	3	J
108-90-7	Chlorobenzene	84	
100-41-4	Ethylbenzene	80	
106-42-3	Xylene (m & p)	84	
95-47-6	Xylene (o)	74	
100-42-5	Styrene	77	
75-25-2	Bromoform	2	J
79-34-5	1,1,2,2-Tetrachloroethane	0.3	J
541-73-1	1,3-Dichlorobenzene	400	
106-46-7	1,4-Dichlorobenzene	350	
95-50-1	1,2-Dichlorobenzene	410	
142-82-5	Heptane	96	
111-65-9	Octane	96	
111-84-2	Nonane	78	
107-05-1	3-Chloropropene	70	
107-87-9	2-Pentanone	300	E
108-87-2	Methylcyclohexane	100	
110-12-3	5-Methyl-2-hexanone	140	
123-19-3	4-Heptanone	250	E
123-86-4	Butylacetate	170	
123-91-1	1,4-Dioxane	270	E
126-98-7	2-Methyl-2-propenenitrile	140	
563-80-4	3-Methyl-2-butanone	280	E
627-13-4	Propyl nitrate	110	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MS

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021209

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	310	E
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	110	
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	98	
75-71-8	Dichlorodifluoromethane	73	
75-05-8	Acetonitrile	100	
110-82-7	Cyclohexane	100	
108-86-1	Bromobenzene	510	
104-51-8	Butylbenzene	290	
98-06-6	tert-Butylbenzene	430	
135-98-8	sec-Butylbenzene	390	
95-49-8	2-Chlorotoluene	400	
99-87-6	4-Isopropyltoluene	330	
106-43-4	4-Chlorotoluene	360	
96-12-8	1,2-Dibromo-3-chloropropane	52	U
106-93-4	1,2-Dibromoethane	47	J
110-57-6	trans-1,4-Dichloro-2-butene	9	J
142-28-9	1,3-Dichloropropane	680	
594-20-7	2,2-Dichloropropane	610	
563-58-6	1,1-Dichloropropene	480	
87-68-3	Hexachloro-1,3-butadiene	270	
74-88-4	Iodomethane	290	
98-82-8	Isopropylbenzene	380	
91-20-3	Nathphalene	740	
103-65-1	Propylbenzene	400	
87-61-6	1,2,3-Trichlorobenzene	380	
120-82-1	1,2,4-Trichlorobenzene	320	
96-18-4	1,2,3-Trichloropropane	65	
95-63-6	1,2,4-Trimethylbenzene	350	
108-67-8	1,2,3-Trimethylbenzene	390	
71-23-8	1-Propanol	1000	
106-35-4	3-Heptanone	290	E
110-43-0	2-Heptanone	320	E
109-99-9	Tetrahydrofuran	290	E

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MS

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021209

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	600	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MSD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021210

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	90	
75-01-4	Vinyl Chloride	100	
106-99-0	1,3-Butadiene	90	
106-97-8	Butane	100	
74-83-9	Bromomethane	30	J
75-35-4	1,1-Dichloroethene	170	
75-00-3	Chloroethane	89	
67-64-1	Acetone	320	E
109-66-0	Pentane	110	
75-15-0	Carbon Disulfide	40	J
107-02-8	Acrolein	34	J
107-13-1	Acrylonitrile	18	J
75-09-2	Methylene Chloride	98	
156-60-5	trans-1,2-Dichloroethene	510	
123-38-6	Propionaldehyde	320	E
4170-30-3	2-Butenal	21	J
75-34-3	1,1-Dichloroethane	110	
156-59-2	cis-1,2-Dichloroethene	580	
110-54-3	Hexane	100	
78-93-3	2-Butanone	320	E
110-83-8	Cyclohexene	98	
141-78-6	Ethyl acetate	130	
287-92-3	Cyclopentane	100	
74-97-5	Bromochloromethane	590	
67-66-3	Chloroform	55	J
75-43-4	Dichlorofluoromethane	35	J
71-55-6	1,1,1-Trichloroethane	110	
75-45-6	Chlorodifluoromethane	52	JB
56-23-5	Carbon Tetrachloride	94	
75-69-4	Trichlorofluoromethane	100	
71-43-2	Benzene	92	
107-06-2	1,2-Dichloroethane	100	
79-01-6	Trichloroethene	180	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MSD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021210

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	100	
75-27-4	Bromodichloromethane	7	J
10061-01-5	cis-1,3-Dichloropropene	14	J
108-10-1	4-Methyl-2-pentanone	290	E
108-88-3	Toluene	100	
10061-02-6	trans-1,3-Dichloropropene	29	J
79-00-5	1,1,2-Trichloroethane	0.9	J
127-18-4	Tetrachloroethene	85	
591-78-6	2-Hexanone	340	E
124-48-1	Dibromochloromethane	7	J
108-90-7	Chlorobenzene	88	
100-41-4	Ethylbenzene	86	
106-42-3	Xylene (m & p)	85	
95-47-6	Xylene (o)	77	
100-42-5	Styrene	80	
75-25-2	Bromoform	2	J
79-34-5	1,1,2,2-Tetrachloroethane	4	J
541-73-1	1,3-Dichlorobenzene	520	
106-46-7	1,4-Dichlorobenzene	460	
95-50-1	1,2-Dichlorobenzene	530	
142-82-5	Heptane	97	
111-65-9	Octane	97	
111-84-2	Nonane	80	
107-05-1	3-Chloropropene	73	
107-87-9	2-Pentanone	260	E
108-87-2	Methylcyclohexane	90	
110-12-3	5-Methyl-2-hexanone	120	
123-19-3	4-Heptanone	240	E
123-86-4	Butylacetate	150	
123-91-1	1,4-Dioxane	230	E
126-98-7	2-Methyl-2-propenenitrile	130	
563-80-4	3-Methyl-2-butanone	250	E
627-13-4	Propyl nitrate	110	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MSD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021210

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	260	E
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	110	
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	100	
75-71-8	Dichlorodifluoromethane	89	
75-05-8	Acetonitrile	110	
110-82-7	Cyclohexane	100	
108-86-1	Bromobenzene	630	
104-51-8	Butylbenzene	380	
98-06-6	tert-Butylbenzene	570	
135-98-8	sec-Butylbenzene	510	
95-49-8	2-Chlorotoluene	540	
99-87-6	4-Isopropyltoluene	450	
106-43-4	4-Chlorotoluene	490	
96-12-8	1,2-Dibromo-3-chloropropane	59	U
106-93-4	1,2-Dibromoethane	49	J
110-57-6	trans-1,4-Dichloro-2-butene	28	J
142-28-9	1,3-Dichloropropane	730	
594-20-7	2,2-Dichloropropane	700	
563-58-6	1,1-Dichloropropene	570	
87-68-3	Hexachloro-1,3-butadiene	350	
74-88-4	Iodomethane	330	
98-82-8	Isopropylbenzene	470	
91-20-3	Nathphalene	900	
103-65-1	Propylbenzene	540	
87-61-6	1,2,3-Trichlorobenzene	460	
120-82-1	1,2,4-Trichlorobenzene	390	
96-18-4	1,2,3-Trichloropropane	85	
95-63-6	1,2,4-Trimethylbenzene	480	
108-67-8	1,2,3-Trimethylbenzene	520	
71-23-8	1-Propanol	1000	
106-35-4	3-Heptanone	260	E
110-43-0	2-Heptanone	300	E
109-99-9	Tetrahydrofuran	250	E

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MSD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021210

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	660	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: VBLK01

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021204

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
106-99-0	1,3-Butadiene	10	U
106-97-8	Butane	10	U
74-83-9	Bromomethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-00-3	Chloroethane	10	U
67-64-1	Acetone	10	U
109-66-0	Pentane	10	U
75-15-0	Carbon Disulfide	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
123-38-6	Propionaldehyde	10	U
4170-30-3	2-Butenal	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
110-54-3	Hexane	10	U
78-93-3	2-Butanone	10	U
110-83-8	Cyclohexene	10	U
141-78-6	Ethyl acetate	10	U
287-92-3	Cyclopentane	10	U
74-97-5	Bromochloromethane	10	U
67-66-3	Chloroform	10	U
75-43-4	Dichlorofluoromethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
75-45-6	Chlorodifluoromethane	5	J
56-23-5	Carbon Tetrachloride	10	U
75-69-4	Trichlorofluoromethane	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: VBLK01

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021204

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
106-42-3	Xylene (m & p)	10	U
95-47-6	Xylene (o)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
142-82-5	Heptane	10	U
111-65-9	Octane	10	U
111-84-2	Nonane	10	U
107-05-1	3-Chloropropene	10	U
107-87-9	2-Pentanone	10	U
108-87-2	Methylcyclohexane	10	U
110-12-3	5-Methyl-2-hexanone	10	U
123-19-3	4-Heptanone	10	U
123-86-4	Butylacetate	10	U
123-91-1	1,4-Dioxane	10	U
126-98-7	2-Methyl-2-propenenitrile	10	U
563-80-4	3-Methyl-2-butanone	10	U
627-13-4	Propyl nitrate	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: VBLK01

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021204

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	10	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	10	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	10	U
75-71-8	Dichlorodifluoromethane	10	U
75-05-8	Acetonitrile	10	U
110-82-7	Cyclohexane	10	U
108-86-1	Bromobenzene	10	U
104-51-8	Butylbenzene	10	U
98-06-6	tert-Butylbenzene	10	U
135-98-8	sec-Butylbenzene	10	U
95-49-8	2-Chlorotoluene	10	U
99-87-6	4-Isopropyltoluene	10	U
106-43-4	4-Chlorotoluene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
106-93-4	1,2-Dibromoethane	10	U
110-57-6	trans-1,4-Dichloro-2-butene	10	U
142-28-9	1,3-Dichloropropane	10	U
594-20-7	2,2-Dichloropropane	10	U
563-58-6	1,1-Dichloropropene	10	U
87-68-3	Hexachloro-1,3-butadiene	10	U
74-88-4	Iodomethane	10	U
98-82-8	Isopropylbenzene	10	U
91-20-3	Nathphalene	10	U
103-65-1	Propylbenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
96-18-4	1,2,3-Trichloropropane	10	U
95-63-6	1,2,4-Trimethylbenzene	10	U
108-67-8	1,2,3-Trimethylbenzene	10	U
71-23-8	1-Propanol	10	U
106-35-4	3-Heptanone	10	U
110-43-0	2-Heptanone	10	U
109-99-9	Tetrahydrofuran	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: VBLK01

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021204

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021205

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	310	U
75-01-4	Vinyl Chloride	310	U
106-99-0	1,3-Butadiene	310	U
106-97-8	Butane	310	U
74-83-9	Bromomethane	310	U
75-35-4	1,1-Dichloroethene	310	U
75-00-3	Chloroethane	310	U
67-64-1	Acetone	380	
109-66-0	Pentane	310	U
75-15-0	Carbon Disulfide	310	U
107-02-8	Acrolein	310	U
107-13-1	Acrylonitrile	310	U
75-09-2	Methylene Chloride	310	U
156-60-5	trans-1,2-Dichloroethene	310	U
123-38-6	Propionaldehyde	310	U
4170-30-3	2-Butenal	310	U
75-34-3	1,1-Dichloroethane	310	U
156-59-2	cis-1,2-Dichloroethene	310	U
110-54-3	Hexane	310	U
78-93-3	2-Butanone	110	J
110-83-8	Cyclohexene	310	U
141-78-6	Ethyl acetate	310	U
287-92-3	Cyclopentane	310	U
74-97-5	Bromochloromethane	310	U
67-66-3	Chloroform	310	U
75-43-4	Dichlorofluoromethane	310	U
71-55-6	1,1,1-Trichloroethane	310	U
75-45-6	Chlorodifluoromethane	61	JB
56-23-5	Carbon Tetrachloride	310	U
75-69-4	Trichlorofluoromethane	310	U
71-43-2	Benzene	310	U
107-06-2	1,2-Dichloroethane	310	U
79-01-6	Trichloroethene	310	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021205

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	310	U
75-27-4	Bromodichloromethane	310	U
10061-01-5	cis-1,3-Dichloropropene	310	U
108-10-1	4-Methyl-2-pentanone	310	U
108-88-3	Toluene	310	U
10061-02-6	trans-1,3-Dichloropropene	310	U
79-00-5	1,1,2-Trichloroethane	310	U
127-18-4	Tetrachloroethene	310	U
591-78-6	2-Hexanone	310	U
124-48-1	Dibromochloromethane	310	U
108-90-7	Chlorobenzene	310	U
100-41-4	Ethylbenzene	310	U
106-42-3	Xylene (m & p)	310	U
95-47-6	Xylene (o)	310	U
100-42-5	Styrene	310	U
75-25-2	Bromoform	310	U
79-34-5	1,1,2,2-Tetrachloroethane	310	U
541-73-1	1,3-Dichlorobenzene	310	U
106-46-7	1,4-Dichlorobenzene	310	U
95-50-1	1,2-Dichlorobenzene	310	U
142-82-5	Heptane	310	U
111-65-9	Octane	310	U
111-84-2	Nonane	310	U
107-05-1	3-Chloropropene	310	U
107-87-9	2-Pentanone	310	U
108-87-2	Methylcyclohexane	310	U
110-12-3	5-Methyl-2-hexanone	310	U
123-19-3	4-Heptanone	310	U
123-86-4	Butylacetate	310	U
123-91-1	1,4-Dioxane	310	U
126-98-7	2-Methyl-2-propenenitrile	310	U
563-80-4	3-Methyl-2-butanone	310	U
627-13-4	Propyl nitrate	310	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021205

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	310	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	310	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	310	U
75-71-8	Dichlorodifluoromethane	310	U
75-05-8	Acetonitrile	310	U
110-82-7	Cyclohexane	310	U
108-86-1	Bromobenzene	310	U
104-51-8	Butylbenzene	310	U
98-06-6	tert-Butylbenzene	310	U
135-98-8	sec-Butylbenzene	310	U
95-49-8	2-Chlorotoluene	310	U
99-87-6	4-Isopropyltoluene	310	U
106-43-4	4-Chlorotoluene	310	U
96-12-8	1,2-Dibromo-3-chloropropane	310	U
106-93-4	1,2-Dibromoethane	310	U
110-57-6	trans-1,4-Dichloro-2-butene	310	U
142-28-9	1,3-Dichloropropane	310	U
594-20-7	2,2-Dichloropropane	310	U
563-58-6	1,1-Dichloropropene	310	U
87-68-3	Hexachloro-1,3-butadiene	310	U
74-88-4	Iodomethane	310	U
98-82-8	Isopropylbenzene	310	U
91-20-3	Nathphalene	310	U
103-65-1	Propylbenzene	310	U
87-61-6	1,2,3-Trichlorobenzene	310	U
120-82-1	1,2,4-Trichlorobenzene	310	U
96-18-4	1,2,3-Trichloropropane	310	U
95-63-6	1,2,4-Trimethylbenzene	310	U
108-67-8	1,2,3-Trimethylbenzene	310	U
71-23-8	1-Propanol	310	U
106-35-4	3-Heptanone	310	U
110-43-0	2-Heptanone	310	U
109-99-9	Tetrahydrofuran	100	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021205

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	310	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101DILD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021206

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	450	U
75-01-4	Vinyl Chloride	450	U
106-99-0	1,3-Butadiene	450	U
106-97-8	Butane	450	U
74-83-9	Bromomethane	450	U
75-35-4	1,1-Dichloroethene	450	U
75-00-3	Chloroethane	450	U
67-64-1	Acetone	480	
109-66-0	Pentane	450	U
75-15-0	Carbon Disulfide	450	U
107-02-8	Acrolein	450	U
107-13-1	Acrylonitrile	450	U
75-09-2	Methylene Chloride	450	U
156-60-5	trans-1,2-Dichloroethene	450	U
123-38-6	Propionaldehyde	450	U
4170-30-3	2-Butenal	450	U
75-34-3	1,1-Dichloroethane	450	U
156-59-2	cis-1,2-Dichloroethene	450	U
110-54-3	Hexane	450	U
78-93-3	2-Butanone	450	U
110-83-8	Cyclohexene	450	U
141-78-6	Ethyl acetate	450	U
287-92-3	Cyclopentane	450	U
74-97-5	Bromochloromethane	450	U
67-66-3	Chloroform	450	U
75-43-4	Dichlorofluoromethane	450	U
71-55-6	1,1,1-Trichloroethane	450	U
75-45-6	Chlorodifluoromethane	99	JB
56-23-5	Carbon Tetrachloride	450	U
75-69-4	Trichlorofluoromethane	450	U
71-43-2	Benzene	3	J
107-06-2	1,2-Dichloroethane	450	U
79-01-6	Trichloroethene	450	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101DILD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021206

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	450	U
75-27-4	Bromodichloromethane	450	U
10061-01-5	cis-1,3-Dichloropropene	450	U
108-10-1	4-Methyl-2-pentanone	74	J
108-88-3	Toluene	450	U
10061-02-6	trans-1,3-Dichloropropene	450	U
79-00-5	1,1,2-Trichloroethane	450	U
127-18-4	Tetrachloroethene	450	U
591-78-6	2-Hexanone	450	U
124-48-1	Dibromochloromethane	450	U
108-90-7	Chlorobenzene	450	U
100-41-4	Ethylbenzene	450	U
106-42-3	Xylene (m & p)	450	U
95-47-6	Xylene (o)	450	U
100-42-5	Styrene	450	U
75-25-2	Bromoform	450	U
79-34-5	1,1,2,2-Tetrachloroethane	450	U
541-73-1	1,3-Dichlorobenzene	450	U
106-46-7	1,4-Dichlorobenzene	450	U
95-50-1	1,2-Dichlorobenzene	450	U
142-82-5	Heptane	450	U
111-65-9	Octane	450	U
111-84-2	Nonane	450	U
107-05-1	3-Chloropropene	450	U
107-87-9	2-Pentanone	450	U
108-87-2	Methylcyclohexane	450	U
110-12-3	5-Methyl-2-hexanone	450	U
123-19-3	4-Heptanone	450	U
123-86-4	Butylacetate	450	U
123-91-1	1,4-Dioxane	450	U
126-98-7	2-Methyl-2-propenenitrile	450	U
563-80-4	3-Methyl-2-butanone	450	U
627-13-4	Propyl nitrate	450	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101DILD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021206

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	450	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	450	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	450	U
75-71-8	Dichlorodifluoromethane	450	U
75-05-8	Acetonitrile	450	U
110-82-7	Cyclohexane	450	U
108-86-1	Bromobenzene	450	U
104-51-8	Butylbenzene	450	U
98-06-6	tert-Butylbenzene	450	U
135-98-8	sec-Butylbenzene	450	U
95-49-8	2-Chlorotoluene	450	U
99-87-6	4-Isopropyltoluene	450	U
106-43-4	4-Chlorotoluene	450	U
96-12-8	1,2-Dibromo-3-chloropropane	450	U
106-93-4	1,2-Dibromoethane	450	U
110-57-6	trans-1,4-Dichloro-2-butene	450	U
142-28-9	1,3-Dichloropropane	450	U
594-20-7	2,2-Dichloropropane	450	U
563-58-6	1,1-Dichloropropene	450	U
87-68-3	Hexachloro-1,3-butadiene	450	U
74-88-4	Iodomethane	450	U
98-82-8	Isopropylbenzene	450	U
91-20-3	Nathphalene	450	U
103-65-1	Propylbenzene	450	U
87-61-6	1,2,3-Trichlorobenzene	450	U
120-82-1	1,2,4-Trichlorobenzene	450	U
96-18-4	1,2,3-Trichloropropane	450	U
95-63-6	1,2,4-Trimethylbenzene	450	U
108-67-8	1,2,3-Trimethylbenzene	450	U
71-23-8	1-Propanol	450	U
106-35-4	3-Heptanone	450	U
110-43-0	2-Heptanone	450	U
109-99-9	Tetrahydrofuran	150	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101DILD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021206

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	450	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0648

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021207

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 71-23-8	1-PROPANOL	8.37	7	NJ
2. 598-32-3	3-BUTEN-2-OL	9.00	3	NJ
3. 71-36-3	1-BUTANOL	11.53	330	NJ
4. 111-70-6	1-HEPTANOL	19.37	5	NJ
5. 100-52-7	BENZALDEHYDE	19.66	2	NJ
6. 104-76-7	1-HEXANOL, 2-ETHYL-	20.68	19	NJ
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0648D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021208

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 71-23-8	1-PROPANOL	8.43	8	NJ
2. 71-36-3	1-BUTANOL	11.60	240	NJ
3. 111-70-6	1-HEPTANOL	19.44	5	NJ
4. 100-52-7	BENZALDEHYDE	19.74	4	NJ
5. 104-76-7	1-HEXANOL, 2-ETHYL-	20.75	14	NJ
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: VBLK01

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021204

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0648DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021205

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 71-36-3	1-BUTANOL	11.53	60	NJ
2. 104-76-7	1-HEXANOL, 2-ETHYL-	20.68	25	NJ
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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101DILD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0648DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021206

Level: (low/med) LOW Date Received: _____

%.Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 71-36-3	1-BUTANOL	11.54	90	NJ
2. 104-76-7	1-HEXANOL, 2-ETHYL-	20.68	120	NJ
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2A
SUPERNATANT VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 #	OTHER	TOT OUT
01	METHOD BLANK	136*	157*	60		2
02	AW-101DIL	134*	149*	0		2
03	AW-101DILD	137*	149*	0		2
04	AW-101	145*	157*	0		2
05	AW-101D	148*	162*	0		2
06	AW-101MS	175*	153*	0		2
07	AW-101MSD	171*	171*	0		2
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		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(88-110)
SMC2 (BFB)	= Bromofluorobenzene	(86-115)
SMC3	= Dibromofluoromethane	(0-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Chloromethane	500	0.0	440	88	1-150
Vinyl Chloride	500	0.0	520	104	1-150
1,3-Butadiene	500	0.0	450	90	1-150
Butane	500	0.0	560	112	1-150
Bromomethane	500	0.0	150	30	1-150
1,1-Dichloroethene	500	0.0	850	170*	1-150
Chloroethane	500	0.0	440	88	1-150
Acetone	500	320	1600	256*	1-150
Pentane	500	0.0	580	116	1-150
Carbon Disulfide	500	0.0	200	40	1-150
Acrolein	500	0.0	54	11	1-150
Acrylonitrile	500	0.0	65	13	1-150
Methylene Chloride	500	0.0	480	96	1-150
Propionaldehyde	500	0.0	1700	340*	1-150
2-Butenal	500	0.0	100	20	1-150
1,1-Dichloroethane	500	0.0	520	104	1-150
Hexane	500	0.0	490	98	1-150
2-Butanone	500	0.0	1700	340*	1-150
Cyclohexene	500	0.0	480	96	1-150
Ethyl acetate	500	0.0	690	138	1-150
Cyclopentane	500	0.0	480	96	1-150
Chloroform	500	0.0	260	52	1-150
Dichlorofluoromethane	500	0.0	200	40	1-150
1,1,1-Trichloroethane	500	0.0	560	112	1-150
Chlorodifluoromethane	500	6	260	51	1-150
Carbon Tetrachloride	500	0.0	530	106	1-150
Trichlorofluoromethane	500	0.0	480	96	1-150
Benzene	500	0.0	470	94	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
1,2-Dichloroethane	500	0.0	530	106	1-150
Trichloroethene	500	0.0	920	184*	1-150
1,2-Dichloropropane	500	0.0	510	102	1-150
cis-1,3-Dichloropropene	500	0.0	76	15	1-150
4-Methyl-2-pentanone	500	0.0	1700	340*	1-150
Toluene	500	0.0	520	104	1-150
trans-1,3-Dichloroprope	500	0.0	140	28	1-150
1,1,2-Trichloroethane	500	0.0	4	1	1-150
Tetrachloroethene	500	0.0	440	88	1-150
2-Hexanone	500	0.0	2000	400*	1-150
Chlorobenzene	500	0.0	420	84	1-150
Ethylbenzene	500	0.0	400	80	1-150
Xylene (m & p)	500	0.0	420	84	1-150
Xylene (o)	500	0.0	370	74	1-150
Styrene	500	0.0	380	76	1-150
1,1,2,2-Tetrachloroetha	500	0.0	2	0*	1-150
Heptane	500	0.0	480	96	1-150
Octane	500	0.0	480	96	1-150
Nonane	500	0.0	390	78	1-150
3-Chloropropene	500	0.0	350	70	1-150
2-Pentanone	500	0.0	1500	300*	1-150
Methylcyclohexane	500	0.0	510	102	1-150
5-Methyl-2-hexanone	500	0.0	680	136	1-150
4-Heptanone	500	0.0	1200	240*	1-150
Butylacetate	500	0.0	870	174*	1-150
1,4-Dioxane	500	180	1300	224*	1-150
2-Methyl-2-propenenitri	500	0.0	700	140	1-150
3-Methyl-2-butanone	500	0.0	1400	280*	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Propyl nitrate	500	0.0	550	110	1-150
3-Pentanone	500	0.0	1500	300*	1-150
1,2,2-Cl3-1,1,2-F3ethan	500	0.0	540	108	1-150
1,2-Cl2-1,1,2,2-F4ethan	500	0.0	490	98	1-150
Dichlorodifluoromethane	500	0.0	370	74	1-150
Acetonitrile	500	0.0	510	102	1-150
Cyclohexane	500	0.0	510	102	1-150
1,2-Dibromoethane	500	0.0	240	48	1-150
3-Heptanone	500	0.0	1400	280*	1-150
2-Heptanone	500	0.0	1600	320*	1-150
Tetrahydrofuran	500	140	1400	252*	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Chloromethane	500	450	90	2	40	1-150
Vinyl Chloride	500	530	106	2	40	1-150
1,3-Butadiene	500	450	90	0	40	1-150
Butane	500	500	100	11	40	1-150
Bromomethane	500	150	30	0	40	1-150
1,1-Dichloroethene	500	860	172*	1	40	1-150
Chloroethane	500	450	90	2	40	1-150
Acetone	500	1600	256*	0	40	1-150
Pentane	500	560	112	4	40	1-150
Carbon Disulfide	500	200	40	0	40	1-150
Acrolein	500	170	34	102*	40	1-150
Acrylonitrile	500	92	18	32	40	1-150
Methylene Chloride	500	490	98	2	40	1-150
Propionaldehyde	500	1600	320*	6	40	1-150
2-Butenal	500	100	20	0	40	1-150
1,1-Dichloroethane	500	530	106	2	40	1-150
Hexane	500	500	100	2	40	1-150
2-Butanone	500	1600	320*	6	40	1-150
Cyclohexene	500	490	98	2	40	1-150
Ethyl acetate	500	640	128	8	40	1-150
Cyclopentane	500	520	104	8	40	1-150
Chloroform	500	270	54	4	40	1-150
Dichlorofluoromethane	500	180	36	10	40	1-150
1,1,1-Trichloroethane	500	570	114	2	40	1-150
Chlorodifluoromethane	500	260	51	0	40	1-150
Carbon Tetrachloride	500	470	94	12	40	1-150
Trichlorofluoromethane	500	510	102	6	40	1-150
Benzene	500	460	92	2	40	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,2-Dichloroethane	500	520	104	2	40	1-150
Trichloroethene	500	910	182*	1	40	1-150
1,2-Dichloropropane	500	510	102	0	40	1-150
cis-1,3-Dichloropropene	500	72	14	7	40	1-150
4-Methyl-2-pentanone	500	1400	280*	19	40	1-150
Toluene	500	510	102	2	40	1-150
trans-1,3-Dichloroprope	500	140	28	0	40	1-150
1,1,2-Trichloroethane	500	5	1	0	40	1-150
Tetrachloroethene	500	430	86	2	40	1-150
2-Hexanone	500	1700	340*	16	40	1-150
Chlorobenzene	500	440	88	5	40	1-150
Ethylbenzene	500	430	86	7	40	1-150
Xylene (m & p)	500	420	84	0	40	1-150
Xylene (o)	500	380	76	3	40	1-150
Styrene	500	400	80	5	40	1-150
1,1,2,2-Tetrachloroetha	500	20	4	200*	40	1-150
Heptane	500	490	98	2	40	1-150
Octane	500	490	98	2	40	1-150
Nonane	500	400	80	2	40	1-150
3-Chloropropene	500	360	72	3	40	1-150
2-Pentanone	500	1300	260*	14	40	1-150
Methylcyclohexane	500	450	90	12	40	1-150
5-Methyl-2-hexanone	500	630	126	8	40	1-150
4-Heptanone	500	1200	240*	0	40	1-150
Butylacetate	500	750	150	15	40	1-150
1,4-Dioxane	500	1100	184*	20	40	1-150
2-Methyl-2-propenenitri	500	640	128	9	40	1-150
3-Methyl-2-butanone	500	1300	260*	7	40	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Propyl nitrate	500	560	112	2	40	1-150
3-Pentanone	500	1300	260*	14	40	1-150
1,2,2-Cl3-1,1,2-F3ethan	500	560	112	4	40	1-150
1,2-Cl2-1,1,2,2-F4ethan	500	520	104	6	40	1-150
Dichlorodifluoromethane	500	450	90	20	40	1-150
Acetonitrile	500	530	106	4	40	1-150
Cyclohexane	500	520	104	2	40	1-150
1,2-Dibromoethane	500	240	48	0	40	1-150
3-Heptanone	500	1300	260*	7	40	1-150
2-Heptanone	500	1500	300*	6	40	1-150
Tetrahydrofuran	500	1300	232*	8	40	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 2 out of 67 outside limits
Spike Recovery: 32 out of 134 outside limits

COMMENTS: _____

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99021204 Lab Sample ID: VBLK01

Date Analyzed: 02/12/99 Time Analyzed: 1543

GC Column: DB-624 75M X 2.55UMID: 0.45 (mm) Heated Purge: (Y/N) N

Instrument ID: HP1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	AW-101DIL	99-0648DIL	99021205	1626
02	AW-101DILD	99-0648DILD	99021206	1711
03	AW-101	99-0648	99021207	1756
04	AW-101D	99-0648D	99021208	1841
05	AW-101MS	99-0648MS	99021209	1926
06	AW-101MSD	99-0648MSD	99021210	2011
07				
08				
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COMMENTS:

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99021201 BFB Injection Date: 02/12/99

Instrument ID: HP1 BFB Injection Time: 1313

GC Column: ID: 2.00 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	35.0
75	30.0 - 66.0% of mass 95	51.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.0 (_ 0.0)1
174	50.0 - 120.0% of mass 95	79.7
175	4.0 - 9.0% of mass 174	6.9 (8.7)1
176	93.0 - 101.0% of mass 174	76.3 (95.7)1
177	5.0 - 9.0% of mass 176	4.8 (6.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CONT. CAL. C	VSTD050	99021202	02/12/99	1355
02	METHOD BLANK	VBLK01	99021204	02/12/99	1543
03	AW-101DIL	99-0648DIL	99021205	02/12/99	1626
04	AW-101DILD	99-0648DILD	99021206	02/12/99	1711
05	AW-101	99-0648	99021207	02/12/99	1756
06	AW-101D	99-0648D	99021208	02/12/99	1841
07	AW-101MS	99-0648MS	99021209	02/12/99	1926
08	AW-101MSD	99-0648MSD	99021210	02/12/99	2011
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99021101 BFB Injection Date: 02/11/99

Instrument ID: HP1 BFB Injection Time: 1206

GC Column: ID: 2.00 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	33.8
75	30.0 - 66.0% of mass 95	50.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.2
173	Less than 2.0% of mass 174	0.0 (_ 0.0)1
174	50.0 - 120.0% of mass 95	89.3
175	4.0 - 9.0% of mass 174	7.7 (8.6)1
176	93.0 - 101.0% of mass 174	84.7 (94.9)1
177	5.0 - 9.0% of mass 176	5.8 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD020	VSTD020	99021102	02/11/99	1249
02	VSTD050	VSTD050	99021103	02/11/99	1334
03	VSTD100	VSTD100	99021104	02/11/99	1419
04	VSTD150	VSTD150	99021105	02/11/99	1504
05	VSTD200	VSTD200	99021106	02/11/99	1549
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6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Calibration Time(s): 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

LAB FILE ID: RRF100=99021102 RRF250=99021103
RRF500=99021104 RRF750=99021105 RRF1000=99021106

COMPOUND	RRF100	RRF250	RRF500	RRF750	RRF 1000	$\overline{RRF}$	% RSD
Chloromethane *	0.595	0.460	0.515	0.567	0.561	0.540	9.8*
Vinyl Chloride	0.402	0.379	0.412	0.474	0.471	0.428	10.0
1,3-Butadiene	1.167	0.910	0.960	1.093	1.094	1.045	10.1
Butane	0.141	0.118	0.154	0.160	0.169	0.148	13.2
Bromomethane	0.096	0.125	0.113	0.111	0.093	0.108	12.0
1,1-Dichloroethene	0.359	0.320	0.401	0.460	0.438	0.396	14.4
Chloroethane	0.118	0.136	0.124	0.117	0.102	0.119	10.2
Acetone	0.300	0.238	0.240	0.255	0.238	0.254	10.6
Pentane	0.593	0.637	0.575	0.681	0.715	0.640	9.1
Carbon Disulfide	1.023	1.057	1.093	1.248	1.196	1.123	8.5
Acrolein *	0.010	0.010	0.008	0.009	0.008	0.009	9.5*
Acrylonitrile	0.194	0.174	0.224	0.265	0.282	0.228	20.0
Methylene Chloride	0.411	0.358	0.395	0.494	0.503	0.432	14.8
Propionaldehyde	0.072	0.052	0.054	0.060	0.057	0.059	13.1
trans-1,2-Dichloroethene	0.278	0.318	0.282	0.310	0.295	0.297	5.8
2-Butenal	0.049	0.047	0.054	0.066	0.071	0.057	18.3
1,1-Dichloroethane *	0.801	0.819	0.880	1.063	1.075	0.928	14.3*
cis-1,2-Dichloroethene	0.411	0.442	0.453	0.529	0.531	0.473	11.4
Hexane	0.490	0.490	0.538	0.651	0.654	0.565	14.7
2-Butanone	0.271	0.299	0.344	0.346	0.397	0.331	14.6
Cyclohexene	0.162	0.165	0.164	0.191	0.179	0.172	7.2
Ethyl acetate	0.705	0.741	0.800	0.931	0.968	0.829	14.0
Cyclopentane	1.373	1.352	1.358	1.746	1.754	1.517	14.0
Bromochloromethane	0.182	0.146	0.195	0.209	0.206	0.188	13.6
1,1-Dimethylhydrazine		0.034				0.034	0.0 <-
Chloroform	0.742	0.705	0.834	0.982	0.984	0.849	15.4
1,1,1-Trichloroethane	0.063	0.073	0.067	0.074	0.073	0.070	7.0
Dichlorofluoromethane	0.541	0.642	0.638	0.717	0.700	0.648	10.7
Chlorodifluoromethane	0.316	0.281	0.332	0.388	0.398	0.343	14.4
Carbon Tetrachloride	0.475	0.470	0.430	0.463	0.444	0.456	4.2
Trichlorofluoromethane	0.287	0.285	0.331	0.296	0.375	0.315	12.3
Benzene	0.761	0.713	0.771	0.738	0.662	0.729	6.0
1,2-Dichloroethane	0.376	0.319	0.406	0.396	0.379	0.375	9.0
Trichloroethene	0.190	0.194	0.186	0.188	0.169	0.185	5.4
1,2-Dichloropropane	0.220	0.202	0.236	0.248	0.227	0.227	7.6
Bromodichloromethane	0.290	0.260	0.308	0.333	0.314	0.301	9.1
cis-1,3-Dichloropropene	0.340	0.294	0.358	0.379	0.352	0.345	9.1

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Calibration Time(s): 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

LAB FILE ID: RRF100=99021102 RRF250=99021103
RRF500=99021104 RRF750=99021105 RRF1000=99021106

COMPOUND	RRF100	RRF250	RRF500	RRF750	RRF 1000	$\overline{RRF}$	% RSD
4-Methyl-2-pentanone	0.400	0.414	0.438	0.492	0.491	0.447	9.6
Toluene	0.552	0.564	0.583	0.618	0.582	0.580	4.3
trans-1,3-Dichloropropene	0.386	0.348	0.436	0.475	0.460	0.421	12.6
1,1,2-Trichloroethane	0.179	0.155	0.195	0.214	0.206	0.190	12.3
Tetrachloroethene	0.169	0.184	0.141	0.145	0.129	0.154	14.4
2-Hexanone	0.269	0.252	0.299	0.345	0.350	0.303	14.6
Dibromochloromethane	0.222	0.198	0.239	0.252	0.242	0.231	9.1
Chlorobenzene *	0.549	0.539	0.534	0.543	0.502	0.533	3.4*
Ethylbenzene	0.305	0.319	0.282	0.303	0.278	0.297	5.8
Xylene (m & p)	0.778	0.751	0.602	0.582	0.544	0.651	16.2
Xylene (o)	0.367	0.369	0.316	0.321	0.285	0.332	10.9
Styrene	0.603	0.576	0.545	0.537	0.478	0.548	8.6
Bromoform *	0.128	0.113	0.138	0.142	0.133	0.131	8.6*
1,1,2,2-Tetrachloroethane *	0.373	0.312	0.370	0.368	0.333	0.351	7.8*
1,3-Dichlorobenzene	0.556	0.532	0.453	0.444	0.381	0.473	14.9
1,4-Dichlorobenzene	0.564	0.535	0.474	0.492	0.430	0.499	10.4
1,2-Dichlorobenzene	0.532	0.480	0.451	0.462	0.394	0.464	10.8
Heptane	0.058	0.068	0.056	0.069	0.063	0.063	8.9
Octane	0.039	0.048	0.036	0.047	0.042	0.042	12.0
Nonane	0.035	0.033	0.027	0.026	0.024	0.029	16.4
3-Chloropropene	0.624	0.753	0.619	0.606	0.589	0.638	10.3
2-Pentanone	0.026	0.022	0.028	0.029	0.028	0.027	11.3
Methylcyclohexane	0.312	0.337	0.293	0.304	0.274	0.304	7.7
5-Methyl-2-hexanone	0.515	0.417	0.547	0.562	0.518	0.512	11.0
4-Heptanone	0.425	0.362	0.472	0.525	0.520	0.461	14.9
Butylacetate	0.624	0.525	0.681	0.724	0.689	0.649	12.0
1,4-Dioxane *	0.003	0.002	0.002	0.003	0.003	0.003	7.5*
2-Methyl-2-propenenitrile	0.215	0.177	0.224	0.237	0.225	0.216	10.6
3-Methyl-2-butanone	0.034	0.027	0.036	0.040	0.040	0.035	14.2
Propyl nitrate	0.278	0.219	0.323	0.348	0.333	0.300	17.5
3-Pentanone	0.172	0.156	0.189	0.213	0.212	0.188	13.2
1,2,2-Cl3-1,1,2-F3ethane	0.289	0.329	0.321	0.391	0.375	0.341	12.2
1,2-Cl2-1,1,2,2-F4ethane	0.176	0.193	0.134	0.159	0.158	0.164	13.4
Dichlorodifluoromethane	0.549	0.584	0.543	0.609	0.521	0.561	6.2
Acetonitrile	0.094	0.101	0.092	0.087	0.076	0.090	10.6
Cyclohexane	0.672	0.798	0.542	0.665	0.676	0.671	13.5
Bromobenzene	0.296	0.272	0.243	0.235	0.200	0.249	14.7

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Calibration Time(s): 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

LAB FILE ID: RRF100=99021102 RRF250=99021103
RRF500=99021104 RRF750=99021105 RRF1000=99021106

COMPOUND	RRF100	RRF250	RRF500	RRF750	RRF 1000	$\overline{RRF}$	% RSD
Butylbenzene	0.263	0.283	0.215	0.236	0.204	0.240	13.7
tert-Butylbenzene	0.886	0.944	0.736	0.826	0.727	0.824	11.4
sec-Butylbenzene	1.283	1.382	1.078	1.167	1.009	1.184	12.7
2-Chlorotoluene	0.919	0.915	0.836	0.898	0.776	0.869	7.1
4-Isopropyltoluene	1.066	1.059	0.854	0.863	0.765	0.921	14.6
4-Chlorotoluene	1.069	1.059	0.973	1.017	0.881	1.000	7.7
1,2-Dibromo-3-chloropropane	0.065	0.052	0.067	0.072	0.068	0.065	11.5
1,2-Dibromoethane	0.195	0.168	0.210	0.230	0.223	0.205	12.1
trans-1,4-Dichloro-2-butene	0.158	0.122	0.164	0.179	0.162	0.157	13.3
1,3-Dichloropropane	0.372	0.330	0.396	0.399	0.377	0.375	7.4
2,2-Dichloropropane	0.298	0.368	0.309	0.343	0.342	0.332	8.5
1,1-Dichloropropene	0.579	0.549	0.642	0.729	0.701	0.640	12.0
Hexachloro-1,3-butadiene	0.135	0.126	0.106	0.107	0.098	0.114	13.3
Iodomethane	0.434	0.437	0.488	0.534	0.528	0.484	9.9
Isopropylbenzene	0.840	0.906	0.774	0.843	0.755	0.824	7.3
Nathphalene	0.876	0.668	0.773	0.798	0.705	0.764	10.6
Propylbenzene	1.539	1.489	1.263	1.278	1.167	1.347	11.8
1,2,3-Trichlorobenzene	0.300	0.247	0.233	0.246	0.214	0.248	13.0
1,2,4-Trichlorobenzene	0.316	0.281	0.250	0.255	0.224	0.265	13.1
1,2,3-Trichloropropane	0.529	0.431	0.544	0.583	0.537	0.525	10.7
1,2,4-Trimethylbenzene	1.010	1.023	0.874	0.923	0.804	0.927	10.0
1,2,3-Trimethylbenzene	1.002	1.043	0.848	0.874	0.749	0.903	13.2
1-Propanol	0.046	0.041	0.055	0.070	0.071	0.057	23.9
3-Heptanone	0.338	0.280	0.330	0.315	0.288	0.310	8.2
2-Heptanone	0.409	0.353	0.458	0.518	0.512	0.450	15.6
Tetrahydrofuran	0.203	0.176	0.208	0.240	0.250	0.215	13.8
Dibromomethane	0.130	0.110	0.139	0.149	0.141	0.134	11.1
Toluene-d8	0.586	0.594	0.583	0.619	0.580	0.592	2.7
Bromofluorobenzene	0.382	0.352	0.356	0.393	0.355	0.368	5.1
Dibromofluoromethane	0.336	0.284	0.358	0.384	0.379	0.348	11.7

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/11/99 Time: 1334

Lab File ID: 99021103 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF250	MIN RRF	%D	MAX %D
Chloromethane	0.540	0.460	0.100	14.8	100
Vinyl Chloride	0.428	0.379		11.4	
1,3-Butadiene	1.045	0.910		12.9	
Butane	0.148	0.118		20.3	
Bromomethane	0.108	0.125		-15.7	
1,1-Dichloroethene	0.396	0.320		19.2	
Chloroethane	0.119	0.136		-14.3	
Acetone	0.254	0.238		6.3	
Pentane	0.640	0.637		0.5	
Carbon Disulfide	1.123	1.057		5.9	
Acrolein	0.009	0.010	0.001	-11.1	100
Acrylonitrile	0.228	0.174		23.7	
Methylene Chloride	0.432	0.358		17.1	
Propionaldehyde	0.059	0.052		11.9	
trans-1,2-Dichloroethene	0.297	0.318		-7.1	
2-Butenal	0.057	0.047		17.5	
1,1-Dichloroethane	0.928	0.819	0.100	11.7	100
cis-1,2-Dichloroethene	0.473	0.442		6.6	
Hexane	0.565	0.490		13.3	
2-Butanone	0.331	0.299		9.7	
Cyclohexene	0.172	0.165		4.1	
Ethyl acetate	0.829	0.741		10.6	
Cyclopentane	1.517	1.352		10.9	
Bromochloromethane	0.188	0.146		22.3	
1,1-Dimethylhydrazine	0.034	0.034		0.0	
Chloroform	0.849	0.705		17.0	
1,1,1-Trichloroethane	0.070	0.073		-4.3	
Dichlorofluoromethane	0.648	0.642		0.9	
Chlorodifluoromethane	0.343	0.281		18.1	
Carbon Tetrachloride	0.456	0.470		-3.1	
Trichlorofluoromethane	0.315	0.285		9.5	
Benzene	0.729	0.713		2.2	
1,2-Dichloroethane	0.375	0.319		14.9	
Trichloroethene	0.185	0.194		-4.9	
1,2-Dichloropropane	0.227	0.202		11.0	
Bromodichloromethane	0.301	0.260		13.6	
cis-1,3-Dichloropropene	0.345	0.294		14.8	

All other compounds must meet a minimum RRF of 0.010.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/11/99 Time: 1334

Lab File ID: 99021103 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF250	MIN RRF	%D	MAX %D
4-Methyl-2-pentanone	0.447	0.414		7.4	
Toluene	0.580	0.564		2.8	
trans-1,3-Dichloropropene	0.421	0.348		17.3	
1,1,2-Trichloroethane	0.190	0.155		18.4	
Tetrachloroethene	0.154	0.184		-19.5	
2-Hexanone	0.303	0.252		16.8	
Dibromochloromethane	0.231	0.198		14.3	
Chlorobenzene	0.533	0.539	0.300	-1.1	100
Ethylbenzene	0.297	0.319		-7.4	
Xylene (m & p)	0.651	0.751		-15.4	
Xylene (o)	0.332	0.369		-11.1	
Styrene	0.548	0.576		-5.1	
Bromoform	0.131	0.113	0.100	13.7	100
1,1,2,2-Tetrachloroethane	0.351	0.312	0.300	11.1	100
1,3-Dichlorobenzene	0.473	0.532		-12.5	
1,4-Dichlorobenzene	0.499	0.535		-7.2	
1,2-Dichlorobenzene	0.464	0.480		-3.4	
Heptane	0.063	0.068		-7.9	
Octane	0.042	0.048		-14.3	
Nonane	0.029	0.033		-13.8	
3-Chloropropene	0.638	0.753		-18.0	
2-Pentanone	0.027	0.022		18.5	
Methylcyclohexane	0.304	0.337		-10.8	
5-Methyl-2-hexanone	0.512	0.417		18.6	
4-Heptanone	0.461	0.362		21.5	
Butylacetate	0.649	0.525		19.1	
1,4-Dioxane	0.003	0.002	0.001	33.3	100
2-Methyl-2-propenenitrile	0.216	0.177		18.0	
3-Methyl-2-butanone	0.035	0.027		22.8	
Propyl nitrate	0.300	0.219		27.0	
3-Pentanone	0.188	0.156		17.0	
1,2,2-Cl3-1,1,2-F3ethane	0.341	0.329		3.5	
1,2-Cl2-1,1,2,2-F4ethane	0.164	0.193		-17.7	
Dichlorodifluoromethane	0.561	0.584		-4.1	
Acetonitrile	0.090	0.101		-12.2	
Cyclohexane	0.671	0.798		-18.9	
Bromobenzene	0.249	0.272		-9.2	

All other compounds must meet a minimum RRF of 0.010.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/11/99 Time: 1334

Lab File ID: 99021103 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF250	MIN RRF	%D	MAX %D
Butylbenzene	0.240	0.283		-17.9	
tert-Butylbenzene	0.824	0.944		-14.6	
sec-Butylbenzene	1.184	1.382		-16.7	
2-Chlorotoluene	0.869	0.915		-5.3	
4-Isopropyltoluene	0.921	1.059		-15.0	
4-Chlorotoluene	1.000	1.059		-5.9	
1,2-Dibromo-3-chloropropane	0.065	0.052		20.0	
1,2-Dibromoethane	0.205	0.168		18.0	
trans-1,4-Dichloro-2-butene	0.157	0.122		22.3	
1,3-Dichloropropane	0.375	0.330		12.0	
2,2-Dichloropropane	0.332	0.368		-10.8	
1,1-Dichloropropene	0.640	0.549		14.2	
Hexachloro-1,3-butadiene	0.114	0.126		-10.5	
Iodomethane	0.484	0.437		9.7	
Isopropylbenzene	0.824	0.906		-10.0	
Nathphalene	0.764	0.668		12.6	
Propylbenzene	1.347	1.489		-10.5	
1,2,3-Trichlorobenzene	0.248	0.247		0.4	
1,2,4-Trichlorobenzene	0.265	0.281		-6.0	
1,2,3-Trichloropropane	0.525	0.431		17.9	
1,2,4-Trimethylbenzene	0.927	1.023		-10.4	
1,2,3-Trimethylbenzene	0.903	1.043		-15.5	
1-Propanol	0.057	0.041		28.1	
3-Heptanone	0.310	0.280		9.7	
2-Heptanone	0.450	0.353		21.6	
Tetrahydrofuran	0.215	0.176		18.1	
Dibromomethane	0.134	0.110		17.9	
Toluene-d8	0.592	0.594		-0.3	
Bromofluorobenzene	0.368	0.352		4.3	
Dibromofluoromethane	0.348	0.284		18.4	

All other compounds must meet a minimum RRF of 0.010.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/12/99 Time: 1355

Lab File ID: 99021202 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF250	MIN RRF	%D	MAX %D
Chloromethane	0.540	0.467	0.100	13.5	100
Vinyl Chloride	0.428	0.370		13.6	
1,3-Butadiene	1.045	0.942		9.8	
Butane	0.148	0.148		0.0	
Bromomethane	0.108	0.111		-2.8	
1,1-Dichloroethene	0.396	0.390		1.5	
Chloroethane	0.119	0.114		4.2	
Acetone	0.254	0.256		-0.8	
Pentane	0.640	0.551		13.9	
Carbon Disulfide	1.123	1.046		6.8	
Acrolein	0.009	0.006	0.001	33.3	100
Acrylonitrile	0.228	0.222		2.6	
Methylene Chloride	0.432	0.459		-6.2	
trans-1,2-Dichloroethene	0.297	0.275		7.4	
Propionaldehyde	0.059	0.059		0.0	
2-Butenal	0.057	0.057		0.0	
1,1-Dichloroethane	0.928	0.857	0.100	7.6	100
cis-1,2-Dichloroethene	0.473	0.452		4.4	
Hexane	0.565	0.507		10.3	
2-Butanone	0.331	0.312		5.7	
Cyclohexene	0.172	0.166		3.5	
Ethyl acetate	0.829	0.769		7.2	
Cyclopentane	1.517	1.381		9.0	
Bromochloromethane	0.188	0.194		-3.2	
Chloroform	0.849	0.833		1.9	
Dichlorofluoromethane	0.648	0.626		3.4	
1,1,1-Trichloroethane	0.070	0.064		8.6	
Chlorodifluoromethane	0.343	0.306		10.8	
Carbon Tetrachloride	0.456	0.449		1.5	
Trichlorofluoromethane	0.315	0.313		0.6	
Benzene	0.729	0.783		-7.4	
1,2-Dichloroethane	0.375	0.399		-6.4	
Trichloroethene	0.185	0.193		-4.3	
1,2-Dichloropropane	0.227	0.232		-2.2	
Bromodichloromethane	0.301	0.314		-4.3	
cis-1,3-Dichloropropene	0.345	0.359		-4.0	
4-Methyl-2-pentanone	0.447	0.442		1.1	

All other compounds must meet a minimum RRF of 0.010.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/12/99 Time: 1355

Lab File ID: 99021202 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF250	MIN RRF	%D	MAX %D
Toluene	0.580	0.595		-2.6	
trans-1,3-Dichloropropene	0.421	0.415		1.4	
1,1,2-Trichloroethane	0.190	0.195		-2.6	
Tetrachloroethene	0.154	0.168		-9.1	
2-Hexanone	0.303	0.309		-2.0	
Dibromochloromethane	0.231	0.240		-3.9	
Chlorobenzene	0.533	0.568	0.300	-6.6	100
Ethylbenzene	0.297	0.313		-5.4	
Xylene (m & p)	0.651	0.679		-4.3	
Xylene (o)	0.332	0.370		-11.4	
Styrene	0.548	0.587		-7.1	
Bromoform	0.131	0.142	0.100	-8.4	100
1,1,2,2-Tetrachloroethane	0.351	0.376	0.300	-7.1	100
1,3-Dichlorobenzene	0.473	0.492		-4.0	
1,4-Dichlorobenzene	0.499	0.561		-12.4	
1,2-Dichlorobenzene	0.464	0.522		-12.5	
Heptane	0.063	0.060		4.8	
Octane	0.042	0.041		2.4	
Nonane	0.029	0.032		-10.3	
3-Chloropropene	0.638	0.592		7.2	
2-Pentanone	0.027	0.029		-7.4	
Methylcyclohexane	0.304	0.313		-3.0	
5-Methyl-2-hexanone	0.512	0.570		-11.3	
4-Heptanone	0.461	0.476		-3.2	
Butylacetate	0.649	0.701		-8.0	
1,4-Dioxane	0.003	0.003	0.001	0.0	100
2-Methyl-2-propenenitrile	0.216	0.228		-5.6	
3-Methyl-2-butanone	0.035	0.038		-8.6	
Propyl nitrate	0.300	0.296		1.3	
3-Pentanone	0.188	0.190		-1.1	
1,2,2-Cl3-1,1,2-F3ethane	0.341	0.316		7.3	
1,2-Cl2-1,1,2,2-F4ethane	0.164	0.114		30.5	
Dichlorodifluoromethane	0.561	0.493		12.1	
Acetonitrile	0.090	0.097		-7.8	
Cyclohexane	0.671	0.600		10.6	
Bromobenzene	0.249	0.284		-14.0	
Butylbenzene	0.240	0.253		-5.4	

All other compounds must meet a minimum RRF of 0.010.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/12/99 Time: 1355

Lab File ID: 99021202 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF250	MIN RRF	%D	MAX %D
tert-Butylbenzene	0.824	0.865		-5.0	
sec-Butylbenzene	1.184	1.270		-7.3	
2-Chlorotoluene	0.869	0.957		-10.1	
4-Isopropyltoluene	0.921	1.023		-11.1	
4-Chlorotoluene	1.000	1.109		-10.9	
1,2-Dibromo-3-chloropropane	0.065	0.069		-6.2	
1,2-Dibromoethane	0.205	0.211		-2.9	
trans-1,4-Dichloro-2-butene	0.157	0.168		-7.0	
1,3-Dichloropropane	0.375	0.404		-7.7	
2,2-Dichloropropane	0.332	0.301		9.3	
1,1-Dichloropropene	0.640	0.626		2.2	
Hexachloro-1,3-butadiene	0.114	0.124		-8.8	
Iodomethane	0.484	0.440		9.1	
Isopropylbenzene	0.824	0.883		-7.2	
Nathphalene	0.764	0.859		-12.4	
Propylbenzene	1.347	1.459		-8.3	
1,2,3-Trichlorobenzene	0.248	0.280		-12.9	
1,2,4-Trichlorobenzene	0.265	0.298		-12.4	
1,2,3-Trichloropropane	0.525	0.557		-6.1	
1,2,4-Trimethylbenzene	0.927	1.021		-10.1	
1,2,3-Trimethylbenzene	0.903	0.987		-9.3	
1-Propanol	0.057	0.057		0.0	
3-Heptanone	0.310	0.342		-10.3	
2-Heptanone	0.450	0.459		-2.0	
Tetrahydrofuran	0.215	0.213		0.9	
Dibromomethane	0.134	0.140		-4.5	
Toluene-d8	0.592	0.610		-3.0	
Bromofluorobenzene	0.368	0.396		-7.6	
Dibromofluoromethane	0.348	0.355		-2.0	

All other compounds must meet a minimum RRF of 0.010.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID (Standard): 99021202 Date Analyzed: 02/12/99

Instrument ID: HP1 Time Analyzed: 1355

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Heated Purge: (Y/N) N

		IS1(DFB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	2398734	11.27	1951133	16.20	1172699	10.04
	UPPER LIMIT	4797468	11.77	3902266	16.70	2345398	10.54
	LOWER LIMIT	1199367	10.77	975567	15.70	586350	9.54
	EPA SAMPLE NO.						
01	METHOD BLANK	2294200	11.26	1757710	16.17	1173210	10.04
02	AW-101DIL	1977305	11.19	1586612	16.11	1054066	9.98
03	AW-101DILD	1960574	11.20	1573545	16.12	1030203	9.98
04	AW-101	1880579	11.17	1372590	16.10	989518	9.97
05	AW-101D	2073008	11.25	1532797	16.18	1105852	10.03
06	AW-101MS	2015765	11.26	1256806	16.21	1007720	10.05
07	AW-101MSD	2229903	11.28	1465734	16.22	1051032	10.06
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DFB) = 1,4-Difluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID (Standard): 99021202 Date Analyzed: 02/12/99

Instrument ID: HP1 Time Analyzed: 1355

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1456744	20.38				
	UPPER LIMIT	2913488	20.88				
	LOWER LIMIT	728372	19.88				
	EPA SAMPLE NO.						
01	METHOD BLANK	1087585	20.35				
02	AW-101DIL	987554	20.29				
03	AW-101DILD	983982	20.28				
04	AW-101	758767	20.29				
05	AW-101D	844772	20.36				
06	AW-101MS	760877	20.39				
07	AW-101MSD	835288	20.40				
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021217

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	66	U
75-01-4	Vinyl Chloride	66	U
106-99-0	1,3-Butadiene	66	U
106-97-8	Butane	66	U
74-83-9	Bromomethane	66	U
75-35-4	1,1-Dichloroethene	66	U
75-00-3	Chloroethane	66	U
67-64-1	Acetone	140	
109-66-0	Pentane	66	U
75-15-0	Carbon Disulfide	66	U
107-02-8	Acrolein	66	U
107-13-1	Acrylonitrile	66	U
75-09-2	Methylene Chloride	66	U
156-60-5	trans-1,2-Dichloroethene	66	U
123-38-6	Propionaldehyde	66	U
4170-30-3	2-Butenal	66	U
75-34-3	1,1-Dichloroethane	66	U
156-59-2	cis-1,2-Dichloroethene	66	U
110-54-3	Hexane	66	U
78-93-3	2-Butanone	16	J
110-83-8	Cyclohexene	66	U
141-78-6	Ethyl acetate	66	U
287-92-3	Cyclopentane	66	U
74-97-5	Bromochloromethane	66	U
67-66-3	Chloroform	66	U
75-43-4	Dichlorofluoromethane	66	U
71-55-6	1,1,1-Trichloroethane	66	U
75-45-6	Chlorodifluoromethane	37	J
56-23-5	Carbon Tetrachloride	66	U
75-69-4	Trichlorofluoromethane	66	U
71-43-2	Benzene	66	U
107-06-2	1,2-Dichloroethane	66	U
79-01-6	Trichloroethene	66	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021217

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	66	U
75-27-4	Bromodichloromethane	66	U
10061-01-5	cis-1,3-Dichloropropene	66	U
108-10-1	4-Methyl-2-pentanone	66	U
108-88-3	Toluene	66	U
10061-02-6	trans-1,3-Dichloropropene	66	U
79-00-5	1,1,2-Trichloroethane	66	U
127-18-4	Tetrachloroethene	66	U
591-78-6	2-Hexanone	66	U
124-48-1	Dibromochloromethane	66	U
108-90-7	Chlorobenzene	66	U
100-41-4	Ethylbenzene	66	U
106-42-3	Xylene (m & p)	66	U
95-47-6	Xylene (o)	66	U
100-42-5	Styrene	66	U
75-25-2	Bromoform	66	U
79-34-5	1,1,2,2-Tetrachloroethane	66	U
541-73-1	1,3-Dichlorobenzene	66	U
106-46-7	1,4-Dichlorobenzene	66	U
95-50-1	1,2-Dichlorobenzene	66	U
142-82-5	Heptane	66	U
111-65-9	Octane	66	U
111-84-2	Nonane	66	U
107-05-1	3-Chloropropene	66	U
107-87-9	2-Pentanone	66	U
108-87-2	Methylcyclohexane	66	U
110-12-3	5-Methyl-2-hexanone	66	U
123-19-3	4-Heptanone	66	U
123-86-4	Butylacetate	66	U
123-91-1	1,4-Dioxane	66	U
126-98-7	2-Methyl-2-propenenitrile	66	U
563-80-4	3-Methyl-2-butanone	66	U
627-13-4	Propyl nitrate	66	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021217

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	66	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	66	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	66	U
75-71-8	Dichlorodifluoromethane	66	U
75-05-8	Acetonitrile	94	
110-82-7	Cyclohexane	66	U
108-86-1	Bromobenzene	66	U
104-51-8	Butylbenzene	66	U
98-06-6	tert-Butylbenzene	66	U
135-98-8	sec-Butylbenzene	66	U
95-49-8	2-Chlorotoluene	66	U
99-87-6	4-Isopropyltoluene	66	U
106-43-4	4-Chlorotoluene	66	U
96-12-8	1,2-Dibromo-3-chloropropane	66	U
106-93-4	1,2-Dibromoethane	66	U
110-57-6	trans-1,4-Dichloro-2-butene	66	U
142-28-9	1,3-Dichloropropane	66	U
594-20-7	2,2-Dichloropropane	66	U
563-58-6	1,1-Dichloropropene	66	U
87-68-3	Hexachloro-1,3-butadiene	66	U
74-88-4	Iodomethane	66	U
98-82-8	Isopropylbenzene	66	U
91-20-3	Nathphalene	66	U
103-65-1	Propylbenzene	66	U
87-61-6	1,2,3-Trichlorobenzene	66	U
120-82-1	1,2,4-Trichlorobenzene	66	U
96-18-4	1,2,3-Trichloropropane	66	U
95-63-6	1,2,4-Trimethylbenzene	66	U
108-67-8	1,2,3-Trimethylbenzene	66	U
71-23-8	1-Propanol	66	U
106-35-4	3-Heptanone	7	J
110-43-0	2-Heptanone	66	U
109-99-9	Tetrahydrofuran	31	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021217

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	66	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021218

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	56	U
75-01-4	Vinyl Chloride	56	U
106-99-0	1,3-Butadiene	56	U
106-97-8	Butane	56	U
74-83-9	Bromomethane	56	U
75-35-4	1,1-Dichloroethene	56	U
75-00-3	Chloroethane	56	U
67-64-1	Acetone	100	
109-66-0	Pentane	56	U
75-15-0	Carbon Disulfide	56	U
107-02-8	Acrolein	56	U
107-13-1	Acrylonitrile	56	U
75-09-2	Methylene Chloride	56	U
156-60-5	trans-1,2-Dichloroethene	56	U
123-38-6	Propionaldehyde	56	U
4170-30-3	2-Butenal	56	U
75-34-3	1,1-Dichloroethane	56	U
156-59-2	cis-1,2-Dichloroethene	56	U
110-54-3	Hexane	56	U
78-93-3	2-Butanone	13	J
110-83-8	Cyclohexene	56	U
141-78-6	Ethyl acetate	56	U
287-92-3	Cyclopentane	56	U
74-97-5	Bromochloromethane	56	U
67-66-3	Chloroform	56	U
75-43-4	Dichlorofluoromethane	56	U
71-55-6	1,1,1-Trichloroethane	56	U
75-45-6	Chlorodifluoromethane	30	J
56-23-5	Carbon Tetrachloride	56	U
75-69-4	Trichlorofluoromethane	56	U
71-43-2	Benzene	56	U
107-06-2	1,2-Dichloroethane	56	U
79-01-6	Trichloroethene	56	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021218

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	56	U
75-27-4	Bromodichloromethane	56	U
10061-01-5	cis-1,3-Dichloropropene	56	U
108-10-1	4-Methyl-2-pentanone	56	U
108-88-3	Toluene	56	U
10061-02-6	trans-1,3-Dichloropropene	56	U
79-00-5	1,1,2-Trichloroethane	56	U
127-18-4	Tetrachloroethene	56	U
591-78-6	2-Hexanone	56	U
124-48-1	Dibromochloromethane	56	U
108-90-7	Chlorobenzene	56	U
100-41-4	Ethylbenzene	56	U
106-42-3	Xylene (m & p)	56	U
95-47-6	Xylene (o)	56	U
100-42-5	Styrene	56	U
75-25-2	Bromoform	56	U
79-34-5	1,1,2,2-Tetrachloroethane	56	U
541-73-1	1,3-Dichlorobenzene	56	U
106-46-7	1,4-Dichlorobenzene	56	U
95-50-1	1,2-Dichlorobenzene	56	U
142-82-5	Heptane	56	U
111-65-9	Octane	56	U
111-84-2	Nonane	56	U
107-05-1	3-Chloropropene	56	U
107-87-9	2-Pentanone	56	U
108-87-2	Methylcyclohexane	56	U
110-12-3	5-Methyl-2-hexanone	56	U
123-19-3	4-Heptanone	56	U
123-86-4	Butylacetate	56	U
123-91-1	1,4-Dioxane	56	U
126-98-7	2-Methyl-2-propenenitrile	56	U
563-80-4	3-Methyl-2-butanone	56	U
627-13-4	Propyl nitrate	56	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021218

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	56	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	56	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	56	U
75-71-8	Dichlorodifluoromethane	56	U
75-05-8	Acetonitrile	70	
110-82-7	Cyclohexane	56	U
108-86-1	Bromobenzene	56	U
104-51-8	Butylbenzene	56	U
98-06-6	tert-Butylbenzene	56	U
135-98-8	sec-Butylbenzene	56	U
95-49-8	2-Chlorotoluene	56	U
99-87-6	4-Isopropyltoluene	56	U
106-43-4	4-Chlorotoluene	56	U
96-12-8	1,2-Dibromo-3-chloropropane	56	U
106-93-4	1,2-Dibromoethane	56	U
110-57-6	trans-1,4-Dichloro-2-butene	56	U
142-28-9	1,3-Dichloropropane	56	U
594-20-7	2,2-Dichloropropane	56	U
563-58-6	1,1-Dichloropropene	56	U
87-68-3	Hexachloro-1,3-butadiene	56	U
74-88-4	Iodomethane	56	U
98-82-8	Isopropylbenzene	56	U
91-20-3	Nathphalene	56	U
103-65-1	Propylbenzene	56	U
87-61-6	1,2,3-Trichlorobenzene	56	U
120-82-1	1,2,4-Trichlorobenzene	56	U
96-18-4	1,2,3-Trichloropropane	56	U
95-63-6	1,2,4-Trimethylbenzene	56	U
108-67-8	1,2,3-Trimethylbenzene	56	U
71-23-8	1-Propanol	56	U
106-35-4	3-Heptanone	6	J
110-43-0	2-Heptanone	56	U
109-99-9	Tetrahydrofuran	26	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021218

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	56	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MS

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021219

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	120	
75-01-4	Vinyl Chloride	120	
106-99-0	1,3-Butadiene	110	
106-97-8	Butane	160	
74-83-9	Bromomethane	28	J
75-35-4	1,1-Dichloroethene	120	
75-00-3	Chloroethane	140	
67-64-1	Acetone	340	E
109-66-0	Pentane	110	
75-15-0	Carbon Disulfide	10	J
107-02-8	Acrolein	11	J
107-13-1	Acrylonitrile	2	J
75-09-2	Methylene Chloride	83	
156-60-5	trans-1,2-Dichloroethene	370	
123-38-6	Propionaldehyde	310	E
4170-30-3	2-Butenal	21	J
75-34-3	1,1-Dichloroethane	88	
156-59-2	cis-1,2-Dichloroethene	400	
110-54-3	Hexane	78	
78-93-3	2-Butanone	260	E
110-83-8	Cyclohexene	96	
141-78-6	Ethyl acetate	16	J
287-92-3	Cyclopentane	91	
74-97-5	Bromochloromethane	510	
67-66-3	Chloroform	90	
75-43-4	Dichlorofluoromethane	130	
71-55-6	1,1,1-Trichloroethane	97	
75-45-6	Chlorodifluoromethane	150	
56-23-5	Carbon Tetrachloride	100	
75-69-4	Trichlorofluoromethane	140	
71-43-2	Benzene	110	
107-06-2	1,2-Dichloroethane	150	
79-01-6	Trichloroethene	170	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MS

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021219

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	130	
75-27-4	Bromodichloromethane	540	
10061-01-5	cis-1,3-Dichloropropene	6	J
108-10-1	4-Methyl-2-pentanone	520	E
108-88-3	Toluene	100	
10061-02-6	trans-1,3-Dichloropropene	19	J
79-00-5	1,1,2-Trichloroethane	170	
127-18-4	Tetrachloroethene	87	
591-78-6	2-Hexanone	560	E
124-48-1	Dibromochloromethane	880	
108-90-7	Chlorobenzene	87	
100-41-4	Ethylbenzene	68	
106-42-3	Xylene (m & p)	67	
95-47-6	Xylene (o)	72	
100-42-5	Styrene	75	
75-25-2	Bromoform	1100	E
79-34-5	1,1,2,2-Tetrachloroethane	10	J
541-73-1	1,3-Dichlorobenzene	390	
106-46-7	1,4-Dichlorobenzene	390	
95-50-1	1,2-Dichlorobenzene	500	
142-82-5	Heptane	84	
111-65-9	Octane	79	
111-84-2	Nonane	63	
107-05-1	3-Chloropropene	77	
107-87-9	2-Pentanone	380	E
108-87-2	Methylcyclohexane	100	
110-12-3	5-Methyl-2-hexanone	170	
123-19-3	4-Heptanone	420	E
123-86-4	Butylacetate	7	J
123-91-1	1,4-Dioxane	310	E
126-98-7	2-Methyl-2-propenenitrile	270	E
563-80-4	3-Methyl-2-butanone	290	E
627-13-4	Propyl nitrate	150	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MS

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021219

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	380	E
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	120	
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	140	
75-71-8	Dichlorodifluoromethane	120	
75-05-8	Acetonitrile	120	
110-82-7	Cyclohexane	120	
108-86-1	Bromobenzene	540	
104-51-8	Butylbenzene	210	
98-06-6	tert-Butylbenzene	320	
135-98-8	sec-Butylbenzene	260	
95-49-8	2-Chlorotoluene	340	
99-87-6	4-Isopropyltoluene	240	
106-43-4	4-Chlorotoluene	310	
96-12-8	1,2-Dibromo-3-chloropropane	2200	E
106-93-4	1,2-Dibromoethane	210	E
110-57-6	trans-1,4-Dichloro-2-butene	25	J
142-28-9	1,3-Dichloropropane	1000	E
594-20-7	2,2-Dichloropropane	530	
563-58-6	1,1-Dichloropropene	350	
87-68-3	Hexachloro-1,3-butadiene	230	
74-88-4	Iodomethane	200	
98-82-8	Isopropylbenzene	280	
91-20-3	Nathphalene	1200	E
103-65-1	Propylbenzene	260	
87-61-6	1,2,3-Trichlorobenzene	580	
120-82-1	1,2,4-Trichlorobenzene	440	
96-18-4	1,2,3-Trichloropropane	1200	E
95-63-6	1,2,4-Trimethylbenzene	280	
108-67-8	1,2,3-Trimethylbenzene	290	
71-23-8	1-Propanol	920	
106-35-4	3-Heptanone	460	E
110-43-0	2-Heptanone	520	E
109-99-9	Tetrahydrofuran	270	E

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MS

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021219

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	780	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MSD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021220

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	110	
75-01-4	Vinyl Chloride	120	
106-99-0	1,3-Butadiene	100	
106-97-8	Butane	160	
74-83-9	Bromomethane	24	J
75-35-4	1,1-Dichloroethene	130	
75-00-3	Chloroethane	110	
67-64-1	Acetone	360	E
109-66-0	Pentane	100	
75-15-0	Carbon Disulfide	12	J
107-02-8	Acrolein	13	J
107-13-1	Acrylonitrile	21	J
75-09-2	Methylene Chloride	110	
156-60-5	trans-1,2-Dichloroethene	520	
123-38-6	Propionaldehyde	360	E
4170-30-3	2-Butenal	21	J
75-34-3	1,1-Dichloroethane	110	
156-59-2	cis-1,2-Dichloroethene	550	
110-54-3	Hexane	95	
78-93-3	2-Butanone	310	E
110-83-8	Cyclohexene	100	
141-78-6	Ethyl acetate	18	J
287-92-3	Cyclopentane	100	
74-97-5	Bromochloromethane	600	
67-66-3	Chloroform	110	
75-43-4	Dichlorofluoromethane	120	
71-55-6	1,1,1-Trichloroethane	120	
75-45-6	Chlorodifluoromethane	150	
56-23-5	Carbon Tetrachloride	110	
75-69-4	Trichlorofluoromethane	110	
71-43-2	Benzene	110	
107-06-2	1,2-Dichloroethane	150	
79-01-6	Trichloroethene	160	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MSD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021220

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	130	
75-27-4	Bromodichloromethane	600	
10061-01-5	cis-1,3-Dichloropropene	6	J
108-10-1	4-Methyl-2-pentanone	590	E
108-88-3	Toluene	120	
10061-02-6	trans-1,3-Dichloropropene	23	J
79-00-5	1,1,2-Trichloroethane	190	
127-18-4	Tetrachloroethene	92	
591-78-6	2-Hexanone	640	E
124-48-1	Dibromochloromethane	1000	
108-90-7	Chlorobenzene	95	
100-41-4	Ethylbenzene	72	
106-42-3	Xylene (m & p)	69	
95-47-6	Xylene (o)	76	
100-42-5	Styrene	78	
75-25-2	Bromoform	1200	E
79-34-5	1,1,2,2-Tetrachloroethane	13	J
541-73-1	1,3-Dichlorobenzene	470	
106-46-7	1,4-Dichlorobenzene	460	
95-50-1	1,2-Dichlorobenzene	590	
142-82-5	Heptane	89	
111-65-9	Octane	85	
111-84-2	Nonane	58	
107-05-1	3-Chloropropene	96	
107-87-9	2-Pentanone	400	E
108-87-2	Methylcyclohexane	100	
110-12-3	5-Methyl-2-hexanone	160	
123-19-3	4-Heptanone	460	E
123-86-4	Butylacetate	7	J
123-91-1	1,4-Dioxane	360	E
126-98-7	2-Methyl-2-propenenitrile	280	E
563-80-4	3-Methyl-2-butanone	310	E
627-13-4	Propyl nitrate	160	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MSD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021220

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	400	E
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	130	
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	140	
75-71-8	Dichlorodifluoromethane	98	
75-05-8	Acetonitrile	140	
110-82-7	Cyclohexane	140	
108-86-1	Bromobenzene	690	
104-51-8	Butylbenzene	220	
98-06-6	tert-Butylbenzene	380	
135-98-8	sec-Butylbenzene	290	
95-49-8	2-Chlorotoluene	420	
99-87-6	4-Isopropyltoluene	260	
106-43-4	4-Chlorotoluene	370	
96-12-8	1,2-Dibromo-3-chloropropane	2800	E
106-93-4	1,2-Dibromoethane	240	E
110-57-6	trans-1,4-Dichloro-2-butene	15	J
142-28-9	1,3-Dichloropropane	1200	E
594-20-7	2,2-Dichloropropane	660	
563-58-6	1,1-Dichloropropene	430	
87-68-3	Hexachloro-1,3-butadiene	220	
74-88-4	Iodomethane	250	
98-82-8	Isopropylbenzene	300	
91-20-3	Nathphalene	1500	E
103-65-1	Propylbenzene	320	
87-61-6	1,2,3-Trichlorobenzene	670	
120-82-1	1,2,4-Trichlorobenzene	500	
96-18-4	1,2,3-Trichloropropane	1600	E
95-63-6	1,2,4-Trimethylbenzene	340	
108-67-8	1,2,3-Trimethylbenzene	340	
71-23-8	1-Propanol	840	
106-35-4	3-Heptanone	530	E
110-43-0	2-Heptanone	590	E
109-99-9	Tetrahydrofuran	310	E

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MSD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021220

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	840	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: VBLK02

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021214

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
106-99-0	1,3-Butadiene	10	U
106-97-8	Butane	10	U
74-83-9	Bromomethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-00-3	Chloroethane	10	U
67-64-1	Acetone	4	J
109-66-0	Pentane	10	U
75-15-0	Carbon Disulfide	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
123-38-6	Propionaldehyde	10	U
4170-30-3	2-Butenal	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
110-54-3	Hexane	10	U
78-93-3	2-Butanone	10	U
110-83-8	Cyclohexene	10	U
141-78-6	Ethyl acetate	10	U
287-92-3	Cyclopentane	10	U
74-97-5	Bromochloromethane	10	U
67-66-3	Chloroform	10	U
75-43-4	Dichlorofluoromethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
75-45-6	Chlorodifluoromethane	5	J
56-23-5	Carbon Tetrachloride	10	U
75-69-4	Trichlorofluoromethane	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: VBLK02

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021214

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
106-42-3	Xylene (m & p)	10	U
95-47-6	Xylene (o)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
142-82-5	Heptane	10	U
111-65-9	Octane	10	U
111-84-2	Nonane	10	U
107-05-1	3-Chloropropene	10	U
107-87-9	2-Pentanone	10	U
108-87-2	Methylcyclohexane	10	U
110-12-3	5-Methyl-2-hexanone	10	U
123-19-3	4-Heptanone	10	U
123-86-4	Butylacetate	10	U
123-91-1	1,4-Dioxane	10	U
126-98-7	2-Methyl-2-propenenitrile	10	U
563-80-4	3-Methyl-2-butanone	10	U
627-13-4	Propyl nitrate	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: VBLK02

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021214

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	10	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	10	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	10	U
75-71-8	Dichlorodifluoromethane	10	U
75-05-8	Acetonitrile	10	U
110-82-7	Cyclohexane	10	U
108-86-1	Bromobenzene	10	U
104-51-8	Butylbenzene	10	U
98-06-6	tert-Butylbenzene	10	U
135-98-8	sec-Butylbenzene	10	U
95-49-8	2-Chlorotoluene	10	U
99-87-6	4-Isopropyltoluene	10	U
106-43-4	4-Chlorotoluene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
106-93-4	1,2-Dibromoethane	10	U
110-57-6	trans-1,4-Dichloro-2-butene	10	U
142-28-9	1,3-Dichloropropane	10	U
594-20-7	2,2-Dichloropropane	10	U
563-58-6	1,1-Dichloropropene	10	U
87-68-3	Hexachloro-1,3-butadiene	10	U
74-88-4	Iodomethane	10	U
98-82-8	Isopropylbenzene	10	U
91-20-3	Nathphalene	10	U
103-65-1	Propylbenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
96-18-4	1,2,3-Trichloropropane	10	U
95-63-6	1,2,4-Trimethylbenzene	10	U
108-67-8	1,2,3-Trimethylbenzene	10	U
71-23-8	1-Propanol	10	U
106-35-4	3-Heptanone	10	U
110-43-0	2-Heptanone	10	U
109-99-9	Tetrahydrofuran	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: VBLK02

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021214

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021215

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	270	U
75-01-4	Vinyl Chloride	270	U
106-99-0	1,3-Butadiene	270	U
106-97-8	Butane	270	U
74-83-9	Bromomethane	270	U
75-35-4	1,1-Dichloroethene	270	U
75-00-3	Chloroethane	270	U
67-64-1	Acetone	690	
109-66-0	Pentane	270	U
75-15-0	Carbon Disulfide	270	U
107-02-8	Acrolein	270	U
107-13-1	Acrylonitrile	270	U
75-09-2	Methylene Chloride	270	U
156-60-5	trans-1,2-Dichloroethene	270	U
123-38-6	Propionaldehyde	270	U
4170-30-3	2-Butenal	270	U
75-34-3	1,1-Dichloroethane	270	U
156-59-2	cis-1,2-Dichloroethene	270	U
110-54-3	Hexane	270	U
78-93-3	2-Butanone	38	J
110-83-8	Cyclohexene	270	U
141-78-6	Ethyl acetate	270	U
287-92-3	Cyclopentane	270	U
74-97-5	Bromochloromethane	270	U
67-66-3	Chloroform	270	U
75-43-4	Dichlorofluoromethane	270	U
71-55-6	1,1,1-Trichloroethane	270	U
75-45-6	Chlorodifluoromethane	160	J
56-23-5	Carbon Tetrachloride	270	U
75-69-4	Trichlorofluoromethane	270	U
71-43-2	Benzene	270	U
107-06-2	1,2-Dichloroethane	270	U
79-01-6	Trichloroethene	270	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021215

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	270	U
75-27-4	Bromodichloromethane	270	U
10061-01-5	cis-1,3-Dichloropropene	270	U
108-10-1	4-Methyl-2-pentanone	270	U
108-88-3	Toluene	270	U
10061-02-6	trans-1,3-Dichloropropene	270	U
79-00-5	1,1,2-Trichloroethane	270	U
127-18-4	Tetrachloroethene	270	U
591-78-6	2-Hexanone	270	U
124-48-1	Dibromochloromethane	270	U
108-90-7	Chlorobenzene	270	U
100-41-4	Ethylbenzene	270	U
106-42-3	Xylene (m & p)	270	U
95-47-6	Xylene (o)	270	U
100-42-5	Styrene	270	U
75-25-2	Bromoform	270	U
79-34-5	1,1,2,2-Tetrachloroethane	270	U
541-73-1	1,3-Dichlorobenzene	270	U
106-46-7	1,4-Dichlorobenzene	270	U
95-50-1	1,2-Dichlorobenzene	270	U
142-82-5	Heptane	270	U
111-65-9	Octane	270	U
111-84-2	Nonane	270	U
107-05-1	3-Chloropropene	270	U
107-87-9	2-Pentanone	270	U
108-87-2	Methylcyclohexane	270	U
110-12-3	5-Methyl-2-hexanone	270	U
123-19-3	4-Heptanone	270	U
123-86-4	Butylacetate	270	U
123-91-1	1,4-Dioxane	270	U
126-98-7	2-Methyl-2-propenenitrile	270	U
563-80-4	3-Methyl-2-butanone	270	U
627-13-4	Propyl nitrate	270	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021215

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	270	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	270	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	270	U
75-71-8	Dichlorodifluoromethane	270	U
75-05-8	Acetonitrile	250	J
110-82-7	Cyclohexane	270	U
108-86-1	Bromobenzene	270	U
104-51-8	Butylbenzene	270	U
98-06-6	tert-Butylbenzene	270	U
135-98-8	sec-Butylbenzene	270	U
95-49-8	2-Chlorotoluene	270	U
99-87-6	4-Isopropyltoluene	270	U
106-43-4	4-Chlorotoluene	270	U
96-12-8	1,2-Dibromo-3-chloropropane	270	U
106-93-4	1,2-Dibromoethane	270	U
110-57-6	trans-1,4-Dichloro-2-butene	270	U
142-28-9	1,3-Dichloropropane	270	U
594-20-7	2,2-Dichloropropane	270	U
563-58-6	1,1-Dichloropropene	270	U
87-68-3	Hexachloro-1,3-butadiene	270	U
74-88-4	Iodomethane	270	U
98-82-8	Isopropylbenzene	270	U
91-20-3	Nathphalene	270	U
103-65-1	Propylbenzene	270	U
87-61-6	1,2,3-Trichlorobenzene	270	U
120-82-1	1,2,4-Trichlorobenzene	270	U
96-18-4	1,2,3-Trichloropropane	270	U
95-63-6	1,2,4-Trimethylbenzene	270	U
108-67-8	1,2,3-Trimethylbenzene	270	U
71-23-8	1-Propanol	270	U
106-35-4	3-Heptanone	270	U
110-43-0	2-Heptanone	270	U
109-99-9	Tetrahydrofuran	120	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021215

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	270	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DILDUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021216

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	180	U
75-01-4	Vinyl Chloride	180	U
106-99-0	1,3-Butadiene	180	U
106-97-8	Butane	180	U
74-83-9	Bromomethane	180	U
75-35-4	1,1-Dichloroethene	180	U
75-00-3	Chloroethane	180	U
67-64-1	Acetone	4300	E
109-66-0	Pentane	180	U
75-15-0	Carbon Disulfide	180	U
107-02-8	Acrolein	180	U
107-13-1	Acrylonitrile	180	U
75-09-2	Methylene Chloride	180	U
156-60-5	trans-1,2-Dichloroethene	180	U
123-38-6	Propionaldehyde	180	U
4170-30-3	2-Butenal	180	U
75-34-3	1,1-Dichloroethane	180	U
156-59-2	cis-1,2-Dichloroethene	180	U
110-54-3	Hexane	180	U
78-93-3	2-Butanone	230	
110-83-8	Cyclohexene	180	U
141-78-6	Ethyl acetate	180	U
287-92-3	Cyclopentane	180	U
74-97-5	Bromochloromethane	180	U
67-66-3	Chloroform	180	U
75-43-4	Dichlorofluoromethane	180	U
71-55-6	1,1,1-Trichloroethane	180	U
75-45-6	Chlorodifluoromethane	4000	E
56-23-5	Carbon Tetrachloride	180	U
75-69-4	Trichlorofluoromethane	180	U
71-43-2	Benzene	180	U
107-06-2	1,2-Dichloroethane	180	U
79-01-6	Trichloroethene	180	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DILDUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021216

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
78-87-5	1,2-Dichloropropane	180	U
75-27-4	Bromodichloromethane	180	U
10061-01-5	cis-1,3-Dichloropropene	180	U
108-10-1	4-Methyl-2-pentanone	180	U
108-88-3	Toluene	180	U
10061-02-6	trans-1,3-Dichloropropene	180	U
79-00-5	1,1,2-Trichloroethane	180	U
127-18-4	Tetrachloroethene	180	U
591-78-6	2-Hexanone	180	U
124-48-1	Dibromochloromethane	180	U
108-90-7	Chlorobenzene	180	U
100-41-4	Ethylbenzene	180	U
106-42-3	Xylene (m & p)	180	U
95-47-6	Xylene (o)	180	U
100-42-5	Styrene	180	U
75-25-2	Bromoform	180	U
79-34-5	1,1,2,2-Tetrachloroethane	180	U
541-73-1	1,3-Dichlorobenzene	180	U
106-46-7	1,4-Dichlorobenzene	180	U
95-50-1	1,2-Dichlorobenzene	180	U
142-82-5	Heptane	180	U
111-65-9	Octane	180	U
111-84-2	Nonane	180	U
107-05-1	3-Chloropropene	180	U
107-87-9	2-Pentanone	180	U
108-87-2	Methylcyclohexane	180	U
110-12-3	5-Methyl-2-hexanone	180	U
123-19-3	4-Heptanone	180	U
123-86-4	Butylacetate	180	U
123-91-1	1,4-Dioxane	180	U
126-98-7	2-Methyl-2-propenenitrile	180	U
563-80-4	3-Methyl-2-butanone	180	U
627-13-4	Propyl nitrate	180	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DILDUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021216

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-22-0	3-Pentanone	180	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	180	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	180	U
75-71-8	Dichlorodifluoromethane	180	U
75-05-8	Acetonitrile	120	J
110-82-7	Cyclohexane	180	U
108-86-1	Bromobenzene	180	U
104-51-8	Butylbenzene	180	U
98-06-6	tert-Butylbenzene	180	U
135-98-8	sec-Butylbenzene	180	U
95-49-8	2-Chlorotoluene	180	U
99-87-6	4-Isopropyltoluene	180	U
106-43-4	4-Chlorotoluene	180	U
96-12-8	1,2-Dibromo-3-chloropropane	180	U
106-93-4	1,2-Dibromoethane	180	U
110-57-6	trans-1,4-Dichloro-2-butene	180	U
142-28-9	1,3-Dichloropropane	180	U
594-20-7	2,2-Dichloropropane	180	U
563-58-6	1,1-Dichloropropene	180	U
87-68-3	Hexachloro-1,3-butadiene	180	U
74-88-4	Iodomethane	180	U
98-82-8	Isopropylbenzene	180	U
91-20-3	Nathphalene	180	U
103-65-1	Propylbenzene	180	U
87-61-6	1,2,3-Trichlorobenzene	180	U
120-82-1	1,2,4-Trichlorobenzene	180	U
96-18-4	1,2,3-Trichloropropane	180	U
95-63-6	1,2,4-Trimethylbenzene	180	U
108-67-8	1,2,3-Trimethylbenzene	180	U
71-23-8	1-Propanol	180	U
106-35-4	3-Heptanone	180	U
110-43-0	2-Heptanone	180	U
109-99-9	Tetrahydrofuran	290	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107DILDUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021216

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-95-3	Dibromomethane	180	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0649

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021217

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.21	3500	J
2.	123-72-8	BUTANAL	9.03	5	NJ
3.	71-36-3	1-BUTANOL	11.76	2	NJ
4.	66-25-1	HEXANAL	15.26	5	NJ
5.	107-89-1	BUTANAL, 3-HYDROXY-	17.88	2	NJ
6.	112-31-2	DECANAL	24.52	3	NJ
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29.					
30.					

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107DUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0649D

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021218

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-72-8	BUTANAL	9.05	4	NJ
2.	71-36-3	1-BUTANOL	11.77	2	NJ
3.	16747-32-3	PENTANE, 3-ETHYL-2,2-DIMETHY	20.94	3	NJ
4.					
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATANT Lab Sample ID: VBLK02

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021214

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107DIL

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0649DIL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021215

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/12/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 66-25-1	HEXANAL	15.19	17	NJ
2. 112-31-2	DECANAL	24.45	19	NJ
3. 629-50-5	TRIDECANE	25.29	52	NJ
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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107DILDUP

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0649DILD

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: 99021216

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/13/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
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2A
SUPERNATANT VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 #	OTHER	TOT OUT
01	METHOD BLANK	107	116*	45		1
02	AN-107DIL	113*	127*	7		2
03	AN-107DILDUP	144*	155*	17		2
04	AN-107	112*	127*	2		2
05	AN-107DUP	108	125*	2		1
06	AN-107MS	138*	122*	2		2
07	AN-107MSD	149*	139*	2		2
08						
09						
10						
11						
12						
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29						
30						

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(88-110)
SMC2 (BFB)	= Bromofluorobenzene	(86-115)
SMC3	= Dibromofluoromethane	(0-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix Spike - EPA Sample No.: AN-107

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Chloromethane	500	0.0	600	120	1-150
Vinyl Chloride	500	0.0	620	124	1-150
1,3-Butadiene	500	0.0	540	108	1-150
Butane	500	0.0	800	160*	1-150
Bromomethane	500	0.0	140	28	1-150
1,1-Dichloroethene	500	0.0	600	120	1-150
Chloroethane	500	0.0	710	142	1-150
Acetone	500	100	1700	320*	1-150
Pentane	500	0.0	530	106	1-150
Carbon Disulfide	500	0.0	52	10	1-150
Acrolein	500	0.0	55	11	1-150
Acrylonitrile	500	0.0	8	2	1-150
Methylene Chloride	500	0.0	420	84	1-150
Propionaldehyde	500	0.0	1600	320*	1-150
2-Butenal	500	0.0	110	22	1-150
1,1-Dichloroethane	500	0.0	440	88	1-150
Hexane	500	0.0	390	78	1-150
2-Butanone	500	12	1300	258*	1-150
Cyclohexene	500	0.0	480	96	1-150
Ethyl acetate	500	0.0	79	16	1-150
Cyclopentane	500	0.0	460	92	1-150
Chloroform	500	0.0	450	90	1-150
Dichlorofluoromethane	500	0.0	630	126	1-150
1,1,1-Trichloroethane	500	0.0	480	96	1-150
Chlorodifluoromethane	500	28	740	142	1-150
Carbon Tetrachloride	500	0.0	510	102	1-150
Trichlorofluoromethane	500	0.0	730	146	1-150
Benzene	500	0.0	540	108	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix Spike - EPA Sample No.: AN-107

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
1,2-Dichloroethane	500	0.0	740	148	1-150
Trichloroethene	500	0.0	850	170*	1-150
1,2-Dichloropropane	500	0.0	630	126	1-150
cis-1,3-Dichloropropene	500	0.0	30	6	1-150
4-Methyl-2-pentanone	500	0.0	2600	520*	1-150
Toluene	500	0.0	500	100	1-150
trans-1,3-Dichloroprope	500	0.0	93	19	1-150
1,1,2-Trichloroethane	500	0.0	860	172*	1-150
Tetrachloroethene	500	0.0	430	86	1-150
2-Hexanone	500	0.0	2800	560*	1-150
Chlorobenzene	500	0.0	440	88	1-150
Ethylbenzene	500	0.0	340	68	1-150
Xylene (m & p)	500	0.0	340	68	1-150
Xylene (o)	500	0.0	360	72	1-150
Styrene	500	0.0	380	76	1-150
1,1,2,2-Tetrachloroetha	500	0.0	53	11	1-150
Heptane	500	0.0	420	84	1-150
Octane	500	0.0	390	78	1-150
Nonane	500	0.0	320	64	1-150
3-Chloropropene	500	0.0	380	76	1-150
2-Pentanone	500	0.0	1900	380*	1-150
Methylcyclohexane	500	0.0	500	100	1-150
5-Methyl-2-hexanone	500	0.0	840	168*	1-150
4-Heptanone	500	0.0	2100	420*	1-150
Butylacetate	500	0.0	37	7	1-150
1,4-Dioxane	500	0.0	1600	320*	1-150
2-Methyl-2-propenenitri	500	0.0	1400	280*	1-150
3-Methyl-2-butanone	500	0.0	1500	300*	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix Spike - EPA Sample No.: AN-107

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Propyl nitrate	500	0.0	750	150	1-150
3-Pentanone	500	0.0	1900	380*	1-150
1,2,2-Cl3-1,1,2-F3ethan	500	0.0	580	116	1-150
1,2-Cl2-1,1,2,2-F4ethan	500	0.0	700	140	1-150
Dichlorodifluoromethane	500	0.0	580	116	1-150
Acetonitrile	500	71	600	106	1-150
Cyclohexane	500	0.0	580	116	1-150
1,2-Dibromoethane	500	0.0	1100	220*	1-150
3-Heptanone	500	5	2300	459*	1-150
2-Heptanone	500	0.0	2600	520*	1-150
Tetrahydrofuran	500	24	1300	255*	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix Spike - EPA Sample No.: AN-107

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Chloromethane	500	570	114	5	40	1-150
Vinyl Chloride	500	610	122	2	40	1-150
1,3-Butadiene	500	510	102	6	40	1-150
Butane	500	800	160*	0	40	1-150
Bromomethane	500	120	24	15	40	1-150
1,1-Dichloroethene	500	660	132	10	40	1-150
Chloroethane	500	560	112	24	40	1-150
Acetone	500	1800	340*	6	40	1-150
Pentane	500	510	102	4	40	1-150
Carbon Disulfide	500	62	12	18	40	1-150
Acrolein	500	66	13	17	40	1-150
Acrylonitrile	500	100	20	164*	40	1-150
Methylene Chloride	500	570	114	30	40	1-150
Propionaldehyde	500	1800	360*	12	40	1-150
2-Butenal	500	100	20	10	40	1-150
1,1-Dichloroethane	500	560	112	24	40	1-150
Hexane	500	470	94	19	40	1-150
2-Butanone	500	1500	298*	14	40	1-150
Cyclohexene	500	530	106	10	40	1-150
Ethyl acetate	500	93	19	17	40	1-150
Cyclopentane	500	520	104	12	40	1-150
Chloroform	500	540	108	18	40	1-150
Dichlorofluoromethane	500	610	122	3	40	1-150
1,1,1-Trichloroethane	500	600	120	22	40	1-150
Chlorodifluoromethane	500	770	148	4	40	1-150
Carbon Tetrachloride	500	550	110	8	40	1-150
Trichlorofluoromethane	500	560	112	26	40	1-150
Benzene	500	570	114	5	40	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix Spike - EPA Sample No.: AN-107

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,2-Dichloroethane	500	770	154*	4	40	1-150
Trichloroethene	500	820	164*	4	40	1-150
1,2-Dichloropropane	500	650	130	3	40	1-150
cis-1,3-Dichloropropene	500	29	6	0	40	1-150
4-Methyl-2-pentanone	500	2900	580*	11	40	1-150
Toluene	500	580	116	15	40	1-150
trans-1,3-Dichloroprope	500	120	24	23	40	1-150
1,1,2-Trichloroethane	500	970	194*	12	40	1-150
Tetrachloroethene	500	460	92	7	40	1-150
2-Hexanone	500	3200	640*	13	40	1-150
Chlorobenzene	500	480	96	9	40	1-150
Ethylbenzene	500	360	72	6	40	1-150
Xylene (m & p)	500	350	70	3	40	1-150
Xylene (o)	500	380	76	5	40	1-150
Styrene	500	390	78	2	40	1-150
1,1,2,2-Tetrachloroetha	500	65	13	17	40	1-150
Heptane	500	450	90	7	40	1-150
Octane	500	420	84	7	40	1-150
Nonane	500	290	58	10	40	1-150
3-Chloropropene	500	480	96	23	40	1-150
2-Pentanone	500	2000	400*	5	40	1-150
Methylcyclohexane	500	510	102	2	40	1-150
5-Methyl-2-hexanone	500	820	164*	2	40	1-150
4-Heptanone	500	2300	460*	9	40	1-150
Butylacetate	500	36	7	0	40	1-150
1,4-Dioxane	500	1800	360*	12	40	1-150
2-Methyl-2-propenenitri	500	1400	280*	0	40	1-150
3-Methyl-2-butanone	500	1500	300*	0	40	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A

SUPERNATANT VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Matrix Spike - EPA Sample No.: AN-107

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Propyl nitrate	500	780	156*	4	40	1-150
3-Pentanone	500	2000	400*	5	40	1-150
1,2,2-Cl3-1,1,2-F3ethan	500	660	132	13	40	1-150
1,2-Cl2-1,1,2,2-F4ethan	500	690	138	1	40	1-150
Dichlorodifluoromethane	500	490	98	17	40	1-150
Acetonitrile	500	700	126	17	40	1-150
Cyclohexane	500	680	136	16	40	1-150
1,2-Dibromoethane	500	1200	240*	9	40	1-150
3-Heptanone	500	2600	519*	12	40	1-150
2-Heptanone	500	2900	580*	11	40	1-150
Tetrahydrofuran	500	1600	315*	21	40	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 67 outside limits
Spike Recovery: 40 out of 134 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Lab File ID: 99021214 Lab Sample ID: VBLK02

Date Analyzed: 02/12/99 Time Analyzed: 2311

GC Column: DB-624 75M X 2.55UMID: 0.45 (mm) Heated Purge: (Y/N) N

Instrument ID: HP1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	AN-107DIL	99-0649DIL	99021215	2356
02	AN-107DILDUP	99-0649DILD	99021216	0041
03	AN-107	99-0649	99021217	0126
04	AN-107DUP	99-0649D	99021218	0211
05	AN-107MS	99-0649MS	99021219	0256
06	AN-107MSD	99-0649MSD	99021220	0341
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COMMENTS:

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Lab File ID: 99021211 BFB Injection Date: 02/12/99

Instrument ID: HP1 BFB Injection Time: 2056

GC Column: ID: 2.00 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	39.2
75	30.0 - 66.0% of mass 95	61.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.0 (- 0.0)1
174	50.0 - 120.0% of mass 95	73.3
175	4.0 - 9.0% of mass 174	5.9 (8.0)1
176	93.0 - 101.0% of mass 174	71.3 (97.4)1
177	5.0 - 9.0% of mass 176	4.7 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CONT. CAL. C	VSTD050	99021212	02/12/99	2141
02	METHOD BLANK	VBLK02	99021214	02/12/99	2311
03	AN-107DIL	99-0649DIL	99021215	02/12/99	2356
04	AN-107DILDUP	99-0649DILD	99021216	02/13/99	0041
05	AN-107	99-0649	99021217	02/13/99	0126
06	AN-107DUP	99-0649D	99021218	02/13/99	0211
07	AN-107MS	99-0649MS	99021219	02/13/99	0256
08	AN-107MSD	99-0649MSD	99021220	02/13/99	0341
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7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Instrument ID: HP1 Calibration Date: 02/12/99 Time: 2141

Lab File ID: 99021212 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF250	MIN RRF	%D	MAX %D
Chloromethane	0.540	0.467	0.100	13.5	100
Vinyl Chloride	0.428	0.401		6.3	
1,3-Butadiene	1.045	0.969		7.3	
Butane	0.148	0.147		0.7	
Bromomethane	0.108	0.104		3.7	
1,1-Dichloroethene	0.396	0.366		7.6	
Chloroethane	0.119	0.114		4.2	
Acetone	0.254	0.239		5.9	
Pentane	0.640	0.587		8.3	
Carbon Disulfide	1.123	1.030		8.3	
Acrolein	0.009	0.006	0.001	33.3	100
Acrylonitrile	0.228	0.197		13.6	
Methylene Chloride	0.432	0.420		2.8	
trans-1,2-Dichloroethene	0.297	0.267		10.1	
Propionaldehyde	0.059	0.054		8.5	
2-Butenal	0.057	0.050		12.3	
1,1-Dichloroethane	0.928	0.874	0.100	5.8	100
cis-1,2-Dichloroethene	0.473	0.422		10.8	
Hexane	0.565	0.504		10.8	
2-Butanone	0.331	0.338		-2.1	
Cyclohexene	0.172	0.149		13.4	
Ethyl acetate	0.829	0.753		9.2	
Cyclopentane	1.517	1.368		9.8	
Bromochloromethane	0.188	0.188		0.0	
Chloroform	0.849	0.774		8.8	
Dichlorofluoromethane	0.648	0.622		4.0	
1,1,1-Trichloroethane	0.070	0.060		14.3	
Chlorodifluoromethane	0.343	0.308		10.2	
Carbon Tetrachloride	0.456	0.428		6.1	
Trichlorofluoromethane	0.315	0.311		1.3	
Benzene	0.729	0.694		4.8	
1,2-Dichloroethane	0.375	0.359		4.3	
Trichloroethene	0.185	0.177		4.3	
1,2-Dichloropropane	0.227	0.205		9.7	
Bromodichloromethane	0.301	0.280		7.0	
cis-1,3-Dichloropropene	0.345	0.319		7.5	
4-Methyl-2-pentanone	0.447	0.391		12.5	

All other compounds must meet a minimum RRF of 0.010.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Instrument ID: HP1 Calibration Date: 02/12/99 Time: 2141

Lab File ID: 99021212 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF250	MIN RRF	%D	MAX %D
Toluene	0.580	0.546		5.9	
trans-1,3-Dichloropropene	0.421	0.379		10.0	
1,1,2-Trichloroethane	0.190	0.178		6.3	
Tetrachloroethene	0.154	0.155		-0.6	
2-Hexanone	0.303	0.272		10.2	
Dibromochloromethane	0.231	0.226		2.2	
Chlorobenzene	0.533	0.527	0.300	1.1	100
Ethylbenzene	0.297	0.292		1.7	
Xylene (m & p)	0.651	0.705		-8.3	
Xylene (o)	0.332	0.346		-4.2	
Styrene	0.548	0.583		-6.4	
Bromoform	0.131	0.132	0.100	-0.8	100
1,1,2,2-Tetrachloroethane	0.351	0.349	0.300	0.6	100
1,3-Dichlorobenzene	0.473	0.508		-7.4	
1,4-Dichlorobenzene	0.499	0.531		-6.4	
1,2-Dichlorobenzene	0.464	0.500		-7.8	
Heptane	0.063	0.059		6.3	
Octane	0.042	0.040		4.8	
Nonane	0.029	0.032		-10.3	
3-Chloropropene	0.638	0.593		7.0	
2-Pentanone	0.027	0.025		7.4	
Methylcyclohexane	0.304	0.298		2.0	
5-Methyl-2-hexanone	0.512	0.503		1.8	
4-Heptanone	0.461	0.430		6.7	
Butylacetate	0.649	0.625		3.7	
1,4-Dioxane	0.003	0.002	0.001	33.3	100
2-Methyl-2-propenenitrile	0.216	0.205		5.1	
3-Methyl-2-butanone	0.035	0.033		5.7	
Propyl nitrate	0.300	0.268		10.7	
3-Pentanone	0.188	0.164		12.8	
1,2,2-Cl3-1,1,2-F3ethane	0.341	0.325		4.7	
1,2-Cl2-1,1,2,2-F4ethane	0.164	0.122		25.6	
Dichlorodifluoromethane	0.561	0.508		9.4	
Acetonitrile	0.090	0.096		-6.7	
Cyclohexane	0.671	0.610		9.1	
Bromobenzene	0.249	0.274		-10.0	
Butylbenzene	0.240	0.248		-3.3	

All other compounds must meet a minimum RRF of 0.010.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Instrument ID: HP1 Calibration Date: 02/12/99 Time: 2141

Lab File ID: 99021212 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF250	MIN RRF	%D	MAX %D
tert-Butylbenzene	0.824	0.830		-0.7	
sec-Butylbenzene	1.184	1.234		-4.2	
2-Chlorotoluene	0.869	0.881		-1.4	
4-Isopropyltoluene	0.921	0.992		-7.7	
4-Chlorotoluene	1.000	1.018		-1.8	
1,2-Dibromo-3-chloropropane	0.065	0.065		0.0	
1,2-Dibromoethane	0.205	0.192		6.3	
trans-1,4-Dichloro-2-butene	0.157	0.146		7.0	
1,3-Dichloropropane	0.375	0.372		0.8	
2,2-Dichloropropane	0.332	0.279		16.0	
1,1-Dichloropropene	0.640	0.608		5.0	
Hexachloro-1,3-butadiene	0.114	0.126		-10.5	
Iodomethane	0.484	0.413		14.7	
Isopropylbenzene	0.824	0.828		-0.5	
Nathphalene	0.764	0.840		-9.9	
Propylbenzene	1.347	1.435		-6.5	
1,2,3-Trichlorobenzene	0.248	0.272		-9.7	
1,2,4-Trichlorobenzene	0.265	0.289		-9.0	
1,2,3-Trichloropropane	0.525	0.511		2.7	
1,2,4-Trimethylbenzene	0.927	0.968		-4.4	
1,2,3-Trimethylbenzene	0.903	0.954		-5.6	
1-Propanol	0.057	0.049		14.0	
3-Heptanone	0.310	0.330		-6.4	
2-Heptanone	0.450	0.407		9.6	
Tetrahydrofuran	0.215	0.190		11.6	
Dibromomethane	0.134	0.124		7.5	
Toluene-d8	0.592	0.540		8.8	
Bromofluorobenzene	0.368	0.352		4.3	
Dibromofluoromethane	0.348	0.340		2.3	

All other compounds must meet a minimum RRF of 0.010.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Lab File ID (Standard): 99021212 Date Analyzed: 02/12/99

Instrument ID: HP1 Time Analyzed: 2141

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Heated Purge: (Y/N) N

		IS1(DFB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	2503678	11.33	2013675	16.28	1170977	10.12
	UPPER LIMIT	5007356	11.83	4027350	16.78	2341954	10.62
	LOWER LIMIT	1251839	10.83	1006838	15.78	585489	9.62
	EPA SAMPLE NO.						
01	METHOD BLANK	1999320	11.37	1405960	16.30	1051005	10.15
02	AN-107DIL	1559506	11.37	1043229	16.31	763552	10.16
03	AN-107DILDUP	273782*	11.38	113421*	16.31	156919*	10.16
04	AN-107	1757453	11.43	1187602	16.37	919325	10.21
05	AN-107DUP	1782752	11.43	1232039	16.37	921224	10.21
06	AN-107MS	1242467*	11.42	684002*	16.35	785599	10.20
07	AN-107MSD	1372425	11.43	668034*	16.38	797162	10.23
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DFB) = 1,4-Difluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021202

Lab File ID (Standard): 99021212 Date Analyzed: 02/12/99

Instrument ID: HP1 Time Analyzed: 2141

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1484094	20.45				
	UPPER LIMIT	2968188	20.95				
	LOWER LIMIT	742047	19.95				
	EPA SAMPLE NO.						
01	METHOD BLANK	791312	20.49				
02	AN-107DIL	486544*	20.48				
03	AN-107DILDUP	31884*	20.50				
04	AN-107	561247*	20.56				
05	AN-107DUP	586836*	20.55				
06	AN-107MS	413017*	20.55				
07	AN-107MSD	339810*	20.56				
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650

Sample wt/vol: 1.2 (g/mL) G Lab File ID: 99021605

Level: (low/med) LOW Date Received: _____

% Moisture: not dec: _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	42	U
75-01-4	Vinyl Chloride	42	U
106-99-0	1,3-Butadiene	42	U
106-97-8	Butane	860	E
74-83-9	Bromomethane	42	U
75-35-4	1,1-Dichloroethene	42	U
75-00-3	Chloroethane	42	U
67-64-1	Acetone	620	
109-66-0	Pentane	150	
75-15-0	Carbon Disulfide	42	U
107-02-8	Acrolein	42	U
107-13-1	Acrylonitrile	42	U
75-09-2	Methylene Chloride	42	U
156-60-5	trans-1,2-Dichloroethene	42	U
123-38-6	Propionaldehyde	42	U
4170-30-3	2-Butenal	42	U
75-34-3	1,1-Dichloroethane	42	U
156-59-2	cis-1,2-Dichloroethene	42	U
110-54-3	Hexane	200	
78-93-3	2-Butanone	160	
110-83-8	Cyclohexene	42	U
141-78-6	Ethyl acetate	42	U
287-92-3	Cyclopentane	42	U
74-97-5	Bromochloromethane	42	U
67-66-3	Chloroform	42	U
75-43-4	Dichlorofluoromethane	42	U
71-55-6	1,1,1-Trichloroethane	42	U
75-45-6	Chlorodifluoromethane	42	U
56-23-5	Carbon Tetrachloride	42	U
75-69-4	Trichlorofluoromethane	42	U
71-43-2	Benzene	10	J
107-06-2	1,2-Dichloroethane	42	U
79-01-6	Trichloroethene	42	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650

Sample wt/vol: 1.2 (g/mL) G Lab File ID: 99021605

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
78-87-5	1,2-Dichloropropane	42	U
75-27-4	Bromodichloromethane	42	U
10061-01-5	cis-1,3-Dichloropropene	42	U
108-10-1	4-Methyl-2-pentanone	10	J
108-88-3	Toluene	42	U
10061-02-6	trans-1,3-Dichloropropene	42	U
79-00-5	1,1,2-Trichloroethane	42	U
127-18-4	Tetrachloroethene	42	U
591-78-6	2-Hexanone	40	J
124-48-1	Dibromochloromethane	42	U
108-90-7	Chlorobenzene	42	U
100-41-4	Ethylbenzene	2	J
106-42-3	Xylene (m & p)	6	J
95-47-6	Xylene (o)	2	J
100-42-5	Styrene	42	U
75-25-2	Bromoform	42	U
79-34-5	1,1,2,2-Tetrachloroethane	42	U
541-73-1	1,3-Dichlorobenzene	42	U
106-46-7	1,4-Dichlorobenzene	42	U
95-50-1	1,2-Dichlorobenzene	42	U
142-82-5	Heptane	210	
111-65-9	Octane	200	
111-84-2	Nonane	250	
107-05-1	3-Chloropropene	42	U
107-87-9	2-Pentanone	42	U
108-87-2	Methylcyclohexane	42	U
110-12-3	5-Methyl-2-hexanone	42	U
123-19-3	4-Heptanone	8	J
123-86-4	Butylacetate	42	U
123-91-1	1,4-Dioxane	97	
126-98-7	2-Methyl-2-propenenitrile	42	U
563-80-4	3-Methyl-2-butanone	34	J
627-13-4	Propyl nitrate	42	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650

Sample wt/vol: 1.2 (g/mL) G Lab File ID: 99021605

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
96-22-0	3-Pentanone	42	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	42	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	42	U
75-71-8	Dichlorodifluoromethane	42	U
75-05-8	Acetonitrile	41	J
110-82-7	Cyclohexane	42	U
108-86-1	Bromobenzene	42	U
104-51-8	Butylbenzene	42	U
98-06-6	tert-Butylbenzene	42	U
135-98-8	sec-Butylbenzene	42	U
95-49-8	2-Chlorotoluene	42	U
99-87-6	4-Isopropyltoluene	42	U
106-43-4	4-Chlorotoluene	42	U
96-12-8	1,2-Dibromo-3-chloropropane	42	U
106-93-4	1,2-Dibromoethane	42	U
110-57-6	trans-1,4-Dichloro-2-butene	42	U
142-28-9	1,3-Dichloropropane	42	U
594-20-7	2,2-Dichloropropane	42	U
563-58-6	1,1-Dichloropropene	42	U
87-68-3	Hexachloro-1,3-butadiene	42	U
74-88-4	Iodomethane	42	U
98-82-8	Isopropylbenzene	42	U
91-20-3	Nathphalene	42	U
103-65-1	Propylbenzene	42	U
87-61-6	1,2,3-Trichlorobenzene	42	U
120-82-1	1,2,4-Trichlorobenzene	42	U
96-18-4	1,2,3-Trichloropropane	42	U
95-63-6	1,2,4-Trimethylbenzene	42	U
108-67-8	1,2,3-Trimethylbenzene	42	U
71-23-8	1-Propanol	42	U
106-35-4	3-Heptanone	59	
110-43-0	2-Heptanone	59	
109-99-9	Tetrahydrofuran	180	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650

Sample wt/vol: 1.2 (g/mL) G Lab File ID: 99021605

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-95-3	Dibromomethane	42	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650D

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021606

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	94	U
75-01-4	Vinyl Chloride	94	U
106-99-0	1,3-Butadiene	94	U
106-97-8	Butane	920	
74-83-9	Bromomethane	94	U
75-35-4	1,1-Dichloroethene	94	U
75-00-3	Chloroethane	94	U
67-64-1	Acetone	360	
109-66-0	Pentane	80	J
75-15-0	Carbon Disulfide	94	U
107-02-8	Acrolein	94	U
107-13-1	Acrylonitrile	94	U
75-09-2	Methylene Chloride	94	U
156-60-5	trans-1,2-Dichloroethene	94	U
123-38-6	Propionaldehyde	94	U
4170-30-3	2-Butenal	94	U
75-34-3	1,1-Dichloroethane	94	U
156-59-2	cis-1,2-Dichloroethene	94	U
110-54-3	Hexane	80	J
78-93-3	2-Butanone	110	
110-83-8	Cyclohexene	94	U
141-78-6	Ethyl acetate	94	U
287-92-3	Cyclopentane	94	U
74-97-5	Bromochloromethane	94	U
67-66-3	Chloroform	94	U
75-43-4	Dichlorofluoromethane	94	U
71-55-6	1,1,1-Trichloroethane	94	U
75-45-6	Chlorodifluoromethane	94	U
56-23-5	Carbon Tetrachloride	94	U
75-69-4	Trichlorofluoromethane	94	U
71-43-2	Benzene	7	J
107-06-2	1,2-Dichloroethane	94	U
79-01-6	Trichloroethene	94	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650D

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021606

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
78-87-5	1,2-Dichloropropane	94	U
75-27-4	Bromodichloromethane	94	U
10061-01-5	cis-1,3-Dichloropropene	94	U
108-10-1	4-Methyl-2-pentanone	6	J
108-88-3	Toluene	94	U
10061-02-6	trans-1,3-Dichloropropene	94	U
79-00-5	1,1,2-Trichloroethane	94	U
127-18-4	Tetrachloroethene	94	U
591-78-6	2-Hexanone	24	J
124-48-1	Dibromochloromethane	94	U
108-90-7	Chlorobenzene	94	U
100-41-4	Ethylbenzene	94	U
106-42-3	Xylene (m & p)	94	U
95-47-6	Xylene (o)	94	U
100-42-5	Styrene	94	U
75-25-2	Bromoform	94	U
79-34-5	1,1,2,2-Tetrachloroethane	94	U
541-73-1	1,3-Dichlorobenzene	94	U
106-46-7	1,4-Dichlorobenzene	94	U
95-50-1	1,2-Dichlorobenzene	94	U
142-82-5	Heptane	66	J
111-65-9	Octane	99	
111-84-2	Nonane	180	
107-05-1	3-Chloropropene	94	U
107-87-9	2-Pentanone	94	U
108-87-2	Methylcyclohexane	13	J
110-12-3	5-Methyl-2-hexanone	94	U
123-19-3	4-Heptanone	4	J
123-86-4	Butylacetate	94	U
123-91-1	1,4-Dioxane	94	U
126-98-7	2-Methyl-2-propenenitrile	94	U
563-80-4	3-Methyl-2-butanone	20	J
627-13-4	Propyl nitrate	94	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650D

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021606

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
96-22-0	3-Pentanone	94	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	94	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	94	U
75-71-8	Dichlorodifluoromethane	94	U
75-05-8	Acetonitrile	94	U
110-82-7	Cyclohexane	94	U
108-86-1	Bromobenzene	94	U
104-51-8	Butylbenzene	94	U
98-06-6	tert-Butylbenzene	94	U
135-98-8	sec-Butylbenzene	94	U
95-49-8	2-Chlorotoluene	94	U
99-87-6	4-Isopropyltoluene	94	U
106-43-4	4-Chlorotoluene	94	U
96-12-8	1,2-Dibromo-3-chloropropane	94	U
106-93-4	1,2-Dibromoethane	94	U
110-57-6	trans-1,4-Dichloro-2-butene	94	U
142-28-9	1,3-Dichloropropane	94	U
594-20-7	2,2-Dichloropropane	94	U
563-58-6	1,1-Dichloropropene	94	U
87-68-3	Hexachloro-1,3-butadiene	94	U
74-88-4	Iodomethane	94	U
98-82-8	Isopropylbenzene	94	U
91-20-3	Nathphalene	94	U
103-65-1	Propylbenzene	94	U
87-61-6	1,2,3-Trichlorobenzene	94	U
120-82-1	1,2,4-Trichlorobenzene	94	U
96-18-4	1,2,3-Trichloropropane	94	U
95-63-6	1,2,4-Trimethylbenzene	94	U
108-67-8	1,2,3-Trimethylbenzene	94	U
71-23-8	1-Propanol	94	U
106-35-4	3-Heptanone	32	J
110-43-0	2-Heptanone	36	J
109-99-9	Tetrahydrofuran	89	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650D

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021606

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-95-3	Dibromomethane	94	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650MS

Sample wt/vol: 0.4 (g/mL) G Lab File ID: 99021607

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	91	J
75-01-4	Vinyl Chloride	110	J
106-99-0	1,3-Butadiene	94	J
106-97-8	Butane	280	E
74-83-9	Bromomethane	64	J
75-35-4	1,1-Dichloroethene	200	
75-00-3	Chloroethane	80	J
67-64-1	Acetone	240	E
109-66-0	Pentane	99	J
75-15-0	Carbon Disulfide	45	J
107-02-8	Acrolein	13	J
107-13-1	Acrylonitrile	73	J
75-09-2	Methylene Chloride	120	J
156-60-5	trans-1,2-Dichloroethene	1300	
123-38-6	Propionaldehyde	260	E
4170-30-3	2-Butenal	22	J
75-34-3	1,1-Dichloroethane	120	J
156-59-2	cis-1,2-Dichloroethene	1400	
110-54-3	Hexane	100	J
78-93-3	2-Butanone	230	E
110-83-8	Cyclohexene	99	J
141-78-6	Ethyl acetate	88	J
287-92-3	Cyclopentane	100	J
74-97-5	Bromochloromethane	1400	
67-66-3	Chloroform	100	J
75-43-4	Dichlorofluoromethane	50	J
71-55-6	1,1,1-Trichloroethane	120	J
75-45-6	Chlorodifluoromethane	75	J
56-23-5	Carbon Tetrachloride	110	J
75-69-4	Trichlorofluoromethane	110	J
71-43-2	Benzene	100	J
107-06-2	1,2-Dichloroethane	110	J
79-01-6	Trichloroethene	180	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650MS

Sample wt/vol: 0.4 (g/mL) G Lab File ID: 99021607

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
78-87-5	1,2-Dichloropropane	110	J
75-27-4	Bromodichloromethane	120	J
10061-01-5	cis-1,3-Dichloropropene	66	J
108-10-1	4-Methyl-2-pentanone	180	
108-88-3	Toluene	100	J
10061-02-6	trans-1,3-Dichloropropene	93	J
79-00-5	1,1,2-Trichloroethane	0.8	J
127-18-4	Tetrachloroethene	91	J
591-78-6	2-Hexanone	190	
124-48-1	Dibromochloromethane	190	
108-90-7	Chlorobenzene	93	J
100-41-4	Ethylbenzene	90	J
106-42-3	Xylene (m & p)	97	J
95-47-6	Xylene (o)	93	J
100-42-5	Styrene	93	J
75-25-2	Bromoform	740	
79-34-5	1,1,2,2-Tetrachloroethane	2	J
541-73-1	1,3-Dichlorobenzene	1200	
106-46-7	1,4-Dichlorobenzene	1100	
95-50-1	1,2-Dichlorobenzene	1300	
142-82-5	Heptane	98	J
111-65-9	Octane	110	J
111-84-2	Nonane	98	J
107-05-1	3-Chloropropene	110	J
107-87-9	2-Pentanone	180	
108-87-2	Methylcyclohexane	100	J
110-12-3	5-Methyl-2-hexanone	79	J
123-19-3	4-Heptanone	170	
123-86-4	Butylacetate	1	J
123-91-1	1,4-Dioxane	150	
126-98-7	2-Methyl-2-propenenitrile	140	
563-80-4	3-Methyl-2-butanone	170	
627-13-4	Propyl nitrate	110	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650MS

Sample wt/vol: 0.4 (g/mL) G Lab File ID: 99021607

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
96-22-0	3-Pentanone	170	
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	110	J
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	94	J
75-71-8	Dichlorodifluoromethane	100	J
75-05-8	Acetonitrile	130	
110-82-7	Cyclohexane	100	J
108-86-1	Bromobenzene	1400	
104-51-8	Butylbenzene	1200	
98-06-6	tert-Butylbenzene	1400	
135-98-8	sec-Butylbenzene	1400	
95-49-8	2-Chlorotoluene	1200	
99-87-6	4-Isopropyltoluene	1300	
106-43-4	4-Chlorotoluene	1100	
96-12-8	1,2-Dibromo-3-chloropropane	120	U
106-93-4	1,2-Dibromoethane	110	J
110-57-6	trans-1,4-Dichloro-2-butene	1100	
142-28-9	1,3-Dichloropropane	1600	
594-20-7	2,2-Dichloropropane	1500	
563-58-6	1,1-Dichloropropene	1200	
87-68-3	Hexachloro-1,3-butadiene	1300	
74-88-4	Iodomethane	1200	
98-82-8	Isopropylbenzene	1100	
91-20-3	Nathphalene	1700	
103-65-1	Propylbenzene	1200	
87-61-6	1,2,3-Trichlorobenzene	1300	
120-82-1	1,2,4-Trichlorobenzene	1300	
96-18-4	1,2,3-Trichloropropane	920	
95-63-6	1,2,4-Trimethylbenzene	1200	
108-67-8	1,2,3-Trimethylbenzene	1200	
71-23-8	1-Propanol	2200	
106-35-4	3-Heptanone	190	
110-43-0	2-Heptanone	180	
109-99-9	Tetrahydrofuran	180	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650MS

Sample wt/vol: 0.4 (g/mL) G Lab File ID: 99021607

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-95-3	Dibromomethane	1400	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650MSD

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021608

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	93	J
75-01-4	Vinyl Chloride	110	
106-99-0	1,3-Butadiene	110	
106-97-8	Butane	220	E
74-83-9	Bromomethane	56	J
75-35-4	1,1-Dichloroethene	210	E
75-00-3	Chloroethane	76	J
67-64-1	Acetone	290	E
109-66-0	Pentane	120	
75-15-0	Carbon Disulfide	53	J
107-02-8	Acrolein	8	J
107-13-1	Acrylonitrile	55	J
75-09-2	Methylene Chloride	130	
156-60-5	trans-1,2-Dichloroethene	1000	
123-38-6	Propionaldehyde	320	E
4170-30-3	2-Butenal	24	J
75-34-3	1,1-Dichloroethane	130	
156-59-2	cis-1,2-Dichloroethene	1200	
110-54-3	Hexane	140	
78-93-3	2-Butanone	280	E
110-83-8	Cyclohexene	100	
141-78-6	Ethyl acetate	110	
287-92-3	Cyclopentane	120	
74-97-5	Bromochloromethane	1200	
67-66-3	Chloroform	110	
75-43-4	Dichlorofluoromethane	56	J
71-55-6	1,1,1-Trichloroethane	130	
75-45-6	Chlorodifluoromethane	97	J
56-23-5	Carbon Tetrachloride	110	
75-69-4	Trichlorofluoromethane	120	
71-43-2	Benzene	100	
107-06-2	1,2-Dichloroethane	120	
79-01-6	Trichloroethene	180	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650MSD

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021608

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
78-87-5	1,2-Dichloropropane	110	
75-27-4	Bromodichloromethane	48	J
10061-01-5	cis-1,3-Dichloropropene	55	J
108-10-1	4-Methyl-2-pentanone	220	E
108-88-3	Toluene	100	
10061-02-6	trans-1,3-Dichloropropene	88	J
79-00-5	1,1,2-Trichloroethane	0.9	J
127-18-4	Tetrachloroethene	91	J
591-78-6	2-Hexanone	240	E
124-48-1	Dibromochloromethane	67	J
108-90-7	Chlorobenzene	90	J
100-41-4	Ethylbenzene	87	J
106-42-3	Xylene (m & p)	93	J
95-47-6	Xylene (o)	89	J
100-42-5	Styrene	89	J
75-25-2	Bromoform	420	
79-34-5	1,1,2,2-Tetrachloroethane	2	J
541-73-1	1,3-Dichlorobenzene	920	
106-46-7	1,4-Dichlorobenzene	890	
95-50-1	1,2-Dichlorobenzene	980	
142-82-5	Heptane	110	
111-65-9	Octane	110	
111-84-2	Nonane	100	
107-05-1	3-Chloropropene	96	J
107-87-9	2-Pentanone	190	
108-87-2	Methylcyclohexane	100	
110-12-3	5-Methyl-2-hexanone	90	J
123-19-3	4-Heptanone	200	E
123-86-4	Butylacetate	2	J
123-91-1	1,4-Dioxane	180	
126-98-7	2-Methyl-2-propenenitrile	150	
563-80-4	3-Methyl-2-butanone	200	E
627-13-4	Propyl nitrate	110	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650MSD

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021608

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
96-22-0	3-Pentanone	200	
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	130	
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	100	
75-71-8	Dichlorodifluoromethane	120	
75-05-8	Acetonitrile	120	
110-82-7	Cyclohexane	110	
108-86-1	Bromobenzene	1100	
104-51-8	Butylbenzene	710	
98-06-6	tert-Butylbenzene	910	
135-98-8	sec-Butylbenzene	810	
95-49-8	2-Chlorotoluene	870	
99-87-6	4-Isopropyltoluene	810	
106-43-4	4-Chlorotoluene	810	
96-12-8	1,2-Dibromo-3-chloropropane	98	U
106-93-4	1,2-Dibromoethane	120	
110-57-6	trans-1,4-Dichloro-2-butene	720	
142-28-9	1,3-Dichloropropane	1300	
594-20-7	2,2-Dichloropropane	1300	
563-58-6	1,1-Dichloropropene	1000	
87-68-3	Hexachloro-1,3-butadiene	680	
74-88-4	Iodomethane	940	
98-82-8	Isopropylbenzene	770	
91-20-3	Nathphalene	1500	
103-65-1	Propylbenzene	840	
87-61-6	1,2,3-Trichlorobenzene	1100	
120-82-1	1,2,4-Trichlorobenzene	1000	
96-18-4	1,2,3-Trichloropropane	580	
95-63-6	1,2,4-Trimethylbenzene	860	
108-67-8	1,2,3-Trimethylbenzene	860	
71-23-8	1-Propanol	2200	E
106-35-4	3-Heptanone	230	E
110-43-0	2-Heptanone	230	E
109-99-9	Tetrahydrofuran	220	E

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650MSD

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021608

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-95-3	Dibromomethane	1200	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651

Sample wt/vol: 0.4 (g/mL) G Lab File ID: 99021610

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	110	U
75-01-4	Vinyl Chloride	110	U
106-99-0	1,3-Butadiene	110	U
106-97-8	Butane	110	U
74-83-9	Bromomethane	110	U
75-35-4	1,1-Dichloroethene	110	U
75-00-3	Chloroethane	110	U
67-64-1	Acetone	100	J
109-66-0	Pentane	110	U
75-15-0	Carbon Disulfide	110	U
107-02-8	Acrolein	110	U
107-13-1	Acrylonitrile	110	U
75-09-2	Methylene Chloride	110	U
156-60-5	trans-1,2-Dichloroethene	110	U
123-38-6	Propionaldehyde	110	U
4170-30-3	2-Butenal	110	U
75-34-3	1,1-Dichloroethane	110	U
156-59-2	cis-1,2-Dichloroethene	110	U
110-54-3	Hexane	110	U
78-93-3	2-Butanone	110	U
110-83-8	Cyclohexene	110	U
141-78-6	Ethyl acetate	110	U
287-92-3	Cyclopentane	110	U
74-97-5	Bromochloromethane	110	U
67-66-3	Chloroform	110	U
75-43-4	Dichlorofluoromethane	110	U
71-55-6	1,1,1-Trichloroethane	110	U
75-45-6	Chlorodifluoromethane	80	J
56-23-5	Carbon Tetrachloride	110	U
75-69-4	Trichlorofluoromethane	110	U
71-43-2	Benzene	110	U
107-06-2	1,2-Dichloroethane	110	U
79-01-6	Trichloroethene	110	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651

Sample wt/vol: 0.4 (g/mL) G Lab File ID: 99021610

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
78-87-5	1,2-Dichloropropane	110	U
75-27-4	Bromodichloromethane	110	U
10061-01-5	cis-1,3-Dichloropropene	110	U
108-10-1	4-Methyl-2-pentanone	110	U
108-88-3	Toluene	110	U
10061-02-6	trans-1,3-Dichloropropene	110	U
79-00-5	1,1,2-Trichloroethane	110	U
127-18-4	Tetrachloroethene	110	U
591-78-6	2-Hexanone	9	J
124-48-1	Dibromochloromethane	110	U
108-90-7	Chlorobenzene	110	U
100-41-4	Ethylbenzene	110	U
106-42-3	Xylene (m & p)	110	U
95-47-6	Xylene (o)	110	U
100-42-5	Styrene	110	U
75-25-2	Bromoform	110	U
79-34-5	1,1,2,2-Tetrachloroethane	110	U
541-73-1	1,3-Dichlorobenzene	110	U
106-46-7	1,4-Dichlorobenzene	110	U
95-50-1	1,2-Dichlorobenzene	110	U
142-82-5	Heptane	110	U
111-65-9	Octane	110	U
111-84-2	Nonane	110	U
107-05-1	3-Chloropropene	110	U
107-87-9	2-Pentanone	110	U
108-87-2	Methylcyclohexane	40	J
110-12-3	5-Methyl-2-hexanone	110	U
123-19-3	4-Heptanone	110	U
123-86-4	Butylacetate	110	U
123-91-1	1,4-Dioxane	110	U
126-98-7	2-Methyl-2-propenenitrile	110	U
563-80-4	3-Methyl-2-butanone	110	U
627-13-4	Propyl nitrate	110	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651

Sample wt/vol: 0.4 (g/mL) G Lab File ID: 99021610

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
96-22-0	3-Pentanone	110	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	110	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	110	U
75-71-8	Dichlorodifluoromethane	110	U
75-05-8	Acetonitrile	110	U
110-82-7	Cyclohexane	110	U
108-86-1	Bromobenzene	110	U
104-51-8	Butylbenzene	110	U
98-06-6	tert-Butylbenzene	110	U
135-98-8	sec-Butylbenzene	110	U
95-49-8	2-Chlorotoluene	110	U
99-87-6	4-Isopropyltoluene	110	U
106-43-4	4-Chlorotoluene	110	U
96-12-8	1,2-Dibromo-3-chloropropane	110	U
106-93-4	1,2-Dibromoethane	110	U
110-57-6	trans-1,4-Dichloro-2-butene	110	U
142-28-9	1,3-Dichloropropane	110	U
594-20-7	2,2-Dichloropropane	110	U
563-58-6	1,1-Dichloropropene	110	U
87-68-3	Hexachloro-1,3-butadiene	110	U
74-88-4	Iodomethane	110	U
98-82-8	Isopropylbenzene	110	U
91-20-3	Nathphalene	110	U
103-65-1	Propylbenzene	110	U
87-61-6	1,2,3-Trichlorobenzene	110	U
120-82-1	1,2,4-Trichlorobenzene	110	U
96-18-4	1,2,3-Trichloropropane	110	U
95-63-6	1,2,4-Trimethylbenzene	110	U
108-67-8	1,2,3-Trimethylbenzene	110	U
71-23-8	1-Propanol	110	U
106-35-4	3-Heptanone	110	U
110-43-0	2-Heptanone	110	U
109-99-9	Tetrahydrofuran	43	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651

Sample wt/vol: 0.4 (g/mL) G Lab File ID: 99021610

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-95-3	Dibromomethane	110	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 0.7 (g/mL) G Lab File ID: 99021611

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	74	U
75-01-4	Vinyl Chloride	74	U
106-99-0	1,3-Butadiene	74	U
106-97-8	Butane	74	U
74-83-9	Bromomethane	74	U
75-35-4	1,1-Dichloroethene	74	U
75-00-3	Chloroethane	74	U
67-64-1	Acetone	370	
109-66-0	Pentane	74	U
75-15-0	Carbon Disulfide	74	U
107-02-8	Acrolein	74	U
107-13-1	Acrylonitrile	74	U
75-09-2	Methylene Chloride	74	U
156-60-5	trans-1,2-Dichloroethene	74	U
123-38-6	Propionaldehyde	74	U
4170-30-3	2-Butenal	74	U
75-34-3	1,1-Dichloroethane	74	U
156-59-2	cis-1,2-Dichloroethene	74	U
110-54-3	Hexane	74	U
78-93-3	2-Butanone	58	J
110-83-8	Cyclohexene	74	U
141-78-6	Ethyl acetate	74	U
287-92-3	Cyclopentane	74	U
74-97-5	Bromochloromethane	74	U
67-66-3	Chloroform	74	U
75-43-4	Dichlorofluoromethane	74	U
71-55-6	1,1,1-Trichloroethane	74	U
75-45-6	Chlorodifluoromethane	29	J
56-23-5	Carbon Tetrachloride	74	U
75-69-4	Trichlorofluoromethane	74	U
71-43-2	Benzene	74	U
107-06-2	1,2-Dichloroethane	74	U
79-01-6	Trichloroethene	74	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 0.7 (g/mL) G Lab File ID: 99021611

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
78-87-5	1,2-Dichloropropane	74	U
75-27-4	Bromodichloromethane	74	U
10061-01-5	cis-1,3-Dichloropropene	74	U
108-10-1	4-Methyl-2-pentanone	74	U
108-88-3	Toluene	74	U
10061-02-6	trans-1,3-Dichloropropene	74	U
79-00-5	1,1,2-Trichloroethane	74	U
127-18-4	Tetrachloroethene	74	U
591-78-6	2-Hexanone	14	J
124-48-1	Dibromochloromethane	74	U
108-90-7	Chlorobenzene	74	U
100-41-4	Ethylbenzene	74	U
106-42-3	Xylene (m & p)	74	U
95-47-6	Xylene (o)	74	U
100-42-5	Styrene	74	U
75-25-2	Bromoform	74	U
79-34-5	1,1,2,2-Tetrachloroethane	74	U
541-73-1	1,3-Dichlorobenzene	74	U
106-46-7	1,4-Dichlorobenzene	74	U
95-50-1	1,2-Dichlorobenzene	74	U
142-82-5	Heptane	74	U
111-65-9	Octane	74	U
111-84-2	Nonane	74	U
107-05-1	3-Chloropropene	74	U
107-87-9	2-Pentanone	74	U
108-87-2	Methylcyclohexane	26	J
110-12-3	5-Methyl-2-hexanone	74	U
123-19-3	4-Heptanone	74	U
123-86-4	Butylacetate	74	U
123-91-1	1,4-Dioxane	74	U
126-98-7	2-Methyl-2-propenenitrile	74	U
563-80-4	3-Methyl-2-butanone	74	U
627-13-4	Propyl nitrate	74	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 0.7 (g/mL) G Lab File ID: 99021611

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
78-87-5	1,2-Dichloropropane	74	U
75-27-4	Bromodichloromethane	74	U
10061-01-5	cis-1,3-Dichloropropene	74	U
108-10-1	4-Methyl-2-pentanone	74	U
108-88-3	Toluene	74	U
10061-02-6	trans-1,3-Dichloropropene	74	U
79-00-5	1,1,2-Trichloroethane	74	U
127-18-4	Tetrachloroethene	74	U
591-78-6	2-Hexanone	14	J
124-48-1	Dibromochloromethane	74	U
108-90-7	Chlorobenzene	74	U
100-41-4	Ethylbenzene	74	U
106-42-3	Xylene (m & p)	74	U
95-47-6	Xylene (o)	74	U
100-42-5	Styrene	74	U
75-25-2	Bromoform	74	U
79-34-5	1,1,2,2-Tetrachloroethane	74	U
541-73-1	1,3-Dichlorobenzene	74	U
106-46-7	1,4-Dichlorobenzene	74	U
95-50-1	1,2-Dichlorobenzene	74	U
142-82-5	Heptane	74	U
111-65-9	Octane	74	U
111-84-2	Nonane	74	U
107-05-1	3-Chloropropene	74	U
107-87-9	2-Pentanone	74	U
108-87-2	Methylcyclohexane	26	J
110-12-3	5-Methyl-2-hexanone	74	U
123-19-3	4-Heptanone	74	U
123-86-4	Butylacetate	74	U
123-91-1	1,4-Dioxane	74	U
126-98-7	2-Methyl-2-propenenitrile	74	U
563-80-4	3-Methyl-2-butanone	74	U
627-13-4	Propyl nitrate	74	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 0.7 (g/mL) G Lab File ID: 99021611

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
96-22-0	3-Pentanone	74	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	74	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	74	U
75-71-8	Dichlorodifluoromethane	74	U
75-05-8	Acetonitrile	89	
110-82-7	Cyclohexane	74	U
108-86-1	Bromobenzene	74	U
104-51-8	Butylbenzene	74	U
98-06-6	tert-Butylbenzene	74	U
135-98-8	sec-Butylbenzene	74	U
95-49-8	2-Chlorotoluene	74	U
99-87-6	4-Isopropyltoluene	74	U
106-43-4	4-Chlorotoluene	74	U
96-12-8	1,2-Dibromo-3-chloropropane	74	U
106-93-4	1,2-Dibromoethane	74	U
110-57-6	trans-1,4-Dichloro-2-butene	74	U
142-28-9	1,3-Dichloropropane	74	U
594-20-7	2,2-Dichloropropane	74	U
563-58-6	1,1-Dichloropropene	74	U
87-68-3	Hexachloro-1,3-butadiene	74	U
74-88-4	Iodomethane	74	U
98-82-8	Isopropylbenzene	74	U
91-20-3	Nathphalene	74	U
103-65-1	Propylbenzene	74	U
87-61-6	1,2,3-Trichlorobenzene	74	U
120-82-1	1,2,4-Trichlorobenzene	74	U
96-18-4	1,2,3-Trichloropropane	74	U
95-63-6	1,2,4-Trimethylbenzene	74	U
108-67-8	1,2,3-Trimethylbenzene	74	U
71-23-8	1-Propanol	74	U
106-35-4	3-Heptanone	8	J
110-43-0	2-Heptanone	15	J
109-99-9	Tetrahydrofuran	36	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 0.7 (g/mL) G Lab File ID: 99021611

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-95-3	Dibromomethane	74	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651MSD

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021612

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	97	J
75-01-4	Vinyl Chloride	110	
106-99-0	1,3-Butadiene	94	J
106-97-8	Butane	120	
74-83-9	Bromomethane	67	J
75-35-4	1,1-Dichloroethene	120	
75-00-3	Chloroethane	95	J
67-64-1	Acetone	250	E
109-66-0	Pentane	96	J
75-15-0	Carbon Disulfide	28	J
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	41	J
75-09-2	Methylene Chloride	130	
156-60-5	trans-1,2-Dichloroethene	1100	
123-38-6	Propionaldehyde	270	E
4170-30-3	2-Butenal	48	J
75-34-3	1,1-Dichloroethane	130	
156-59-2	cis-1,2-Dichloroethene	1200	
110-54-3	Hexane	84	J
78-93-3	2-Butanone	220	E
110-83-8	Cyclohexene	100	J
141-78-6	Ethyl acetate	48	J
287-92-3	Cyclopentane	100	J
74-97-5	Bromochloromethane	1200	
67-66-3	Chloroform	120	
75-43-4	Dichlorofluoromethane	130	
71-55-6	1,1,1-Trichloroethane	120	
75-45-6	Chlorodifluoromethane	130	
56-23-5	Carbon Tetrachloride	110	
75-69-4	Trichlorofluoromethane	140	
71-43-2	Benzene	110	
107-06-2	1,2-Dichloroethane	130	
79-01-6	Trichloroethene	150	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651MSD

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021612

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
78-87-5	1,2-Dichloropropane	120	
75-27-4	Bromodichloromethane	1200	
10061-01-5	cis-1,3-Dichloropropene	56	J
108-10-1	4-Methyl-2-pentanone	16	J
108-88-3	Toluene	320	E
10061-02-6	trans-1,3-Dichloropropene	11	J
79-00-5	1,1,2-Trichloroethane	3	J
127-18-4	Tetrachloroethene	270	E
591-78-6	2-Hexanone	520	E
124-48-1	Dibromochloromethane	4600	E
108-90-7	Chlorobenzene	290	E
100-41-4	Ethylbenzene	580	E
106-42-3	Xylene (m & p)	280	E
95-47-6	Xylene (o)	270	E
100-42-5	Styrene	280	E
75-25-2	Bromoform	4900	E
79-34-5	1,1,2,2-Tetrachloroethane	7	J
541-73-1	1,3-Dichlorobenzene	1000	
106-46-7	1,4-Dichlorobenzene	980	
95-50-1	1,2-Dichlorobenzene	1200	
142-82-5	Heptane	70	J
111-65-9	Octane	68	J
111-84-2	Nonane	7	J
107-05-1	3-Chloropropene	100	J
107-87-9	2-Pentanone	190	
108-87-2	Methylcyclohexane	100	J
110-12-3	5-Methyl-2-hexanone	61	J
123-19-3	4-Heptanone	63	J
123-86-4	Butylacetate	240	E
123-91-1	1,4-Dioxane	180	
126-98-7	2-Methyl-2-propenenitrile	160	
563-80-4	3-Methyl-2-butanone	180	
627-13-4	Propyl nitrate	120	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651MSD

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021612

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
96-22-0	3-Pentanone	180	
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	130	
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	100	J
75-71-8	Dichlorodifluoromethane	120	
75-05-8	Acetonitrile	130	
110-82-7	Cyclohexane	100	J
108-86-1	Bromobenzene	1400	
104-51-8	Butylbenzene	560	
98-06-6	tert-Butylbenzene	910	
135-98-8	sec-Butylbenzene	760	
95-49-8	2-Chlorotoluene	960	
99-87-6	4-Isopropyltoluene	710	
106-43-4	4-Chlorotoluene	850	
96-12-8	1,2-Dibromo-3-chloropropane	2500	E
106-93-4	1,2-Dibromoethane	480	E
110-57-6	trans-1,4-Dichloro-2-butene	710	
142-28-9	1,3-Dichloropropane	4900	E
594-20-7	2,2-Dichloropropane	1200	
563-58-6	1,1-Dichloropropene	940	
87-68-3	Hexachloro-1,3-butadiene	640	
74-88-4	Iodomethane	980	
98-82-8	Isopropylbenzene	2200	E
91-20-3	Nathphalene	1900	
103-65-1	Propylbenzene	810	
87-61-6	1,2,3-Trichlorobenzene	1200	
120-82-1	1,2,4-Trichlorobenzene	930	
96-18-4	1,2,3-Trichloropropane	1800	
95-63-6	1,2,4-Trimethylbenzene	850	
108-67-8	1,2,3-Trimethylbenzene	840	
71-23-8	1-Propanol	1400	
106-35-4	3-Heptanone	18	J
110-43-0	2-Heptanone	690	E
109-99-9	Tetrahydrofuran	170	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651MSD

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021612

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-95-3	Dibromomethane	1300	

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021604

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
106-99-0	1,3-Butadiene	10	U
106-97-8	Butane	10	U
74-83-9	Bromomethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-00-3	Chloroethane	10	U
67-64-1	Acetone	6	J
109-66-0	Pentane	10	U
75-15-0	Carbon Disulfide	10	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
123-38-6	Propionaldehyde	10	U
4170-30-3	2-Butenal	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
110-54-3	Hexane	10	U
78-93-3	2-Butanone	10	U
110-83-8	Cyclohexene	10	U
141-78-6	Ethyl acetate	10	U
287-92-3	Cyclopentane	10	U
74-97-5	Bromochloromethane	10	U
67-66-3	Chloroform	10	U
75-43-4	Dichlorofluoromethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
75-45-6	Chlorodifluoromethane	7	J
56-23-5	Carbon Tetrachloride	10	U
75-69-4	Trichlorofluoromethane	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021604

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
106-42-3	Xylene (m & p)	10	U
95-47-6	Xylene (o)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
142-82-5	Heptane	10	U
111-65-9	Octane	10	U
111-84-2	Nonane	10	U
107-05-1	3-Chloropropene	10	U
107-87-9	2-Pentanone	10	U
108-87-2	Methylcyclohexane	10	U
110-12-3	5-Methyl-2-hexanone	10	U
123-19-3	4-Heptanone	10	U
123-86-4	Butylacetate	10	U
123-91-1	1,4-Dioxane	10	U
126-98-7	2-Methyl-2-propenenitrile	10	U
563-80-4	3-Methyl-2-butanone	10	U
627-13-4	Propyl nitrate	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021604

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
96-22-0	3-Pentanone	10	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	10	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	10	U
75-71-8	Dichlorodifluoromethane	10	U
75-05-8	Acetonitrile	10	U
110-82-7	Cyclohexane	10	U
108-86-1	Bromobenzene	10	U
104-51-8	Butylbenzene	10	U
98-06-6	tert-Butylbenzene	10	U
135-98-8	sec-Butylbenzene	10	U
95-49-8	2-Chlorotoluene	10	U
99-87-6	4-Isopropyltoluene	10	U
106-43-4	4-Chlorotoluene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
106-93-4	1,2-Dibromoethane	10	U
110-57-6	trans-1,4-Dichloro-2-butene	10	U
142-28-9	1,3-Dichloropropane	10	U
594-20-7	2,2-Dichloropropane	10	U
563-58-6	1,1-Dichloropropene	10	U
87-68-3	Hexachloro-1,3-butadiene	10	U
74-88-4	Iodomethane	10	U
98-82-8	Isopropylbenzene	10	U
91-20-3	Nathphalene	10	U
103-65-1	Propylbenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
96-18-4	1,2,3-Trichloropropane	10	U
95-63-6	1,2,4-Trimethylbenzene	10	U
108-67-8	1,2,3-Trimethylbenzene	10	U
71-23-8	1-Propanol	10	U
106-35-4	3-Heptanone	10	U
110-43-0	2-Heptanone	10	U
109-99-9	Tetrahydrofuran	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021604

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-95-3	Dibromomethane	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021603

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0:45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
106-99-0	1,3-Butadiene	10	U
106-97-8	Butane	10	U
60-29-7	Ethyl ether	10	U
74-83-9	Bromomethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-00-3	Chloroethane	10	U
109-66-0	Pentane	10	U
75-15-0	Carbon Disulfide	10	U
107-02-8	Acrolein	10	U
75-09-2	Methylene Chloride	10	U
107-13-1	Acrylonitrile	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
123-38-6	Propionaldehyde	10	U
75-34-3	1,1-Dichloroethane	10	U
4170-30-3	2-Butenal	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
110-54-3	Hexane	10	U
78-93-3	2-Butanone	10	U
110-83-8	Cyclohexene	10	U
287-92-3	Cyclopentane	10	U
141-78-6	Ethyl acetate	10	U
57-14-7	1,1-Dimethylhydrazine	10	U
74-97-5	Bromochloromethane	10	U
67-66-3	Chloroform	10	U
60-34-4	Methylhydrazine	10	U
75-43-4	Dichlorofluoromethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
75-45-6	Chlorodifluoromethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-69-4	Trichlorofluoromethane	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021603

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
106-42-3	Xylene (m & p)	10	U
95-47-6	Xylene (o)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
142-82-5	Heptane	10	U
111-65-9	Octane	10	U
111-84-2	Nonane	10	U
107-05-1	3-Chloropropene	10	U
107-87-9	2-Pentanone	10	U
108-87-2	Methylcyclohexane	10	U
110-12-3	5-Methyl-2-hexanone	10	U
123-19-3	4-Heptanone	10	U
123-86-4	Butylacetate	10	U
123-91-1	1,4-Dioxane	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021603

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
126-98-7	2-Methyl-2-propenenitrile	10	U
563-80-4	3-Methyl-2-butanone	10	U
624-83-9	Methylisocyanate	10	U
627-13-4	Propyl nitrate	10	U
684-16-2	Hexafluoroacetone	10	U
96-22-0	3-Pentanone	10	U
76-13-1	1,2,2-Cl3-1,1,2-F3ethane	10	U
76-14-2	1,2-Cl2-1,1,2,2-F4ethane	10	U
75-71-8	Dichlorodifluoromethane	10	U
75-05-8	Acetonitrile	10	U
110-82-7	Cyclohexane	10	U
108-86-1	Bromobenzene	10	U
104-51-8	Butylbenzene	10	U
98-06-6	tert-Butylbenzene	10	U
135-98-8	sec-Butylbenzene	10	U
95-49-8	2-Chlorotoluene	10	U
99-87-6	4-Isopropyltoluene	10	U
106-43-4	4-Chlorotoluene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
106-93-4	1,2-Dibromoethane	10	U
110-57-6	trans-1,4-Dichloro-2-butene	10	U
142-28-9	1,3-Dichloropropane	10	U
594-20-7	2,2-Dichloropropane	10	U
563-58-6	1,1-Dichloropropene	10	U
87-68-3	Hexachloro-1,3-butadiene	10	U
74-88-4	Iodomethane	10	U
98-82-8	Isopropylbenzene	10	U
91-20-3	Nathphalene	10	U
103-65-1	Propylbenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
96-18-4	1,2,3-Trichloropropane	10	U
95-63-6	1,2,4-Trimethylbenzene	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021603

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-67-8	1,2,3-Trimethylbenzene	10	U
71-36-3	Butanol	10	U
67-63-0	2-Propanol	10	U
71-23-8	1-Propanol	10	U
75-65-0	2-Methyl-2-propanol	10	U
78-92-2	2-Butanol	10	U
106-35-4	3-Heptanone	10	U
110-43-0	2-Heptanone	10	U
109-99-9	Tetrahydrofuran	10	U
74-95-3	Dibromomethane	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651

Sample wt/vol: 0.4 (g/mL) G Lab File ID: 99021610

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 629-50-5	TRIDECANE	25.23	360	NJ
2. 629-59-4	TETRADECANE	27.02	600	NJ
3. 30692-16-1	5-TRIDECANONE	29.30	310	NJ
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 0.7 (g/mL) G Lab File ID: 99021611

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/17/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 629-50-5	TRIDECANE	25.21	0.0	NJ
2. 629-59-4	TETRADECANE	27.02	0.0	NJ
3. 30692-16-1	5-TRIDECANONE	29.30	0.0	NJ
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650

Sample wt/vol: 1.2 (g/mL) G Lab File ID: 99021605

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 19

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	115-11-7	1-PROPENE, 2-METHYL-	3.71	70	NJ
2.	106-98-9	1-BUTENE	3.91	45	NJ
3.	592-41-6	1-HEXENE	7.87	34	NJ
4.	592-76-7	1-HEPTENE	11.05	38	NJ
5.	71-36-3	1-BUTANOL	11.74	520	NJ
6.	111-66-0	1-OCTENE	13.99	62	NJ
7.	124-11-8	1-NONENE	16.66	49	NJ
8.	872-05-9	1-DECENE	19.07	59	NJ
9.	124-18-5	DECANE	19.16	280	NJ
10.	111-70-6	1-HEPTANOL	19.57	79	NJ
11.	104-76-7	1-HEXANOL, 2-ETHYL-	20.90	210	NJ
12.	4941-53-1	5-UNDECENE	21.29	70	NJ
13.	1120-21-4	UNDECANE	21.38	1200	NJ
14.	111-87-5	1-OCTANOL	21.76	62	NJ
15.	7239-23-8	3-DODECENE, (Z)-	23.31	120	NJ
16.	112-40-3	DODECANE	23.46	2300	NJ
17.	24949-38-0	6-TRIDECENE	25.18	41	NJ
18.	629-50-5	TRIDECANE	25.34	1000	NJ
19.	629-59-4	TETRADECANE	27.12	22	NJ
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650D

Sample wt/vol: 0.5 (g/mL) G Lab File ID: 99021606

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 18

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 115-11-7	1-PROPENE, 2-METHYL-	3.71	56	NJ
2. 106-98-9	1-BUTENE	3.91	41	NJ
3. 592-41-6	1-HEXENE	7.87	34	NJ
4. 592-76-7	1-HEPTENE	11.05	19	NJ
5. 71-36-3	1-BUTANOL	11.74	170	NJ
6. 111-66-0	1-OCTENE	13.99	33	NJ
7. 124-11-8	1-NONENE	16.67	22	NJ
8. 872-05-9	1-DECENE	19.07	48	NJ
9. 124-18-5	DECANE	19.17	230	NJ
10. 111-70-6	1-HEPTANOL	19.58	58	NJ
11. 104-76-7	1-HEXANOL, 2-ETHYL-	20.89	150	NJ
12. 4941-53-1	5-UNDECENE	21.28	58	NJ
13. 1120-21-4	UNDECANE	21.38	1800	NJ
14. 7239-23-8	3-DODECENE, (Z)-	23.32	160	NJ
15. 112-40-3	DODECANE	23.46	5600	NJ
16. 24949-38-0	6-TRIDECENE	25.19	100	NJ
17. 629-50-5	TRIDECANE	25.34	3600	NJ
18. 629-59-4	TETRADECANE	27.12	55	NJ
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021604

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix: (soil/water) SOLID Lab Sample ID: VBLK

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99021603

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/16/99

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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2B
SOLID VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Level: (low/med) LOW

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 #	OTHER	TOT OUT
01	METHOD BLANK	97	110	43*		1
02	AW-101	97	101	0		0
03	AW-101D	102	113	0		0
04	AW-101MS	96	96	0*		1
05	AW-101MSD	96	95	0*		1
06	AN-107	103	126*	4*		2
07	AN-107D	104	118*	20*		2
08	AN-107MSD	316*	108	16*		2
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		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3	= Dibromofluoromethane	(0- 0)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3B

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix Spike - EPA Sample No.: AW-101 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT ()	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Chloromethane	500	0.0	450	90	1-150
Vinyl Chloride	500	0.0	540	108	1-150
1,3-Butadiene	500	0.0	470	94	1-150
Butane	500	1000	1400	80	1-150
Bromomethane	500	0.0	320	64	1-150
1,1-Dichloroethene	500	0.0	980	196*	1-150
Chloroethane	500	0.0	400	80	1-150
Acetone	500	740	1200	92	1-150
Pentane	500	180	500	64	1-150
Carbon Disulfide	500	0.0	220	44	1-150
Acrolein	500	0.0	66	13	1-150
Acrylonitrile	500	0.0	370	74	1-150
Methylene Chloride	500	0.0	590	118	1-150
Propionaldehyde	500	0.0	1300	260*	1-150
2-Butenal	500	0.0	110	22	1-150
1,1-Dichloroethane	500	0.0	600	120	1-150
Hexane	500	240	520	56	1-150
2-Butanone	500	190	1200	202*	1-150
Cyclohexene	500	0.0	490	98	1-150
Ethyl acetate	500	0.0	440	88	1-150
Cyclopentane	500	0.0	520	104	1-150
Chloroform	500	0.0	510	102	1-150
Dichlorofluoromethane	500	0.0	250	50	1-150
1,1,1-Trichloroethane	500	0.0	600	120	1-150
Chlorodifluoromethane	500	0.0	380	76	1-150
Carbon Tetrachloride	500	0.0	540	108	1-150
Trichlorofluoromethane	500	0.0	550	110	1-150
Benzene	500	12	510	100	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

3B

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix Spike - EPA Sample No.: AW-101 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT ()	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
1,2-Dichloroethane	500	0.0	570	114	1-150
Trichloroethene	500	0.0	920	184*	1-150
1,2-Dichloropropane	500	0.0	540	108	1-150
cis-1,3-Dichloropropene	500	0.0	330	66	1-150
4-Methyl-2-pentanone	500	12	910	180*	1-150
Toluene	500	0.0	510	102	1-150
trans-1,3-Dichloroprope	500	0.0	460	92	1-150
1,1,2-Trichloroethane	500	0.0	4	1	1-150
Tetrachloroethene	500	0.0	450	90	1-150
2-Hexanone	500	47	970	185*	1-150
Chlorobenzene	500	0.0	460	92	1-150
Ethylbenzene	500	3	450	89	1-150
Xylene (m & p)	500	7	490	97	1-150
Xylene (o)	500	3	470	93	1-150
Styrene	500	0.0	460	92	1-150
1,1,2,2-Tetrachloroetha	500	0.0	11	2	1-150
Heptane	500	250	490	48	1-150
Octane	500	230	530	60	1-150
Nonane	500	300	490	38	1-150
3-Chloropropene	500	0.0	550	110	1-150
2-Pentanone	500	0.0	880	176*	1-150
Methylcyclohexane	500	0.0	510	102	1-150
5-Methyl-2-hexanone	500	0.0	390	78	1-150
4-Heptanone	500	9	840	166*	1-150
Butylacetate	500	0.0	6	1	1-150
1,4-Dioxane	500	110	770	132	1-150
2-Methyl-2-propenenitri	500	0.0	680	136	1-150
3-Methyl-2-butanone	500	41	860	164*	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

3B

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix Spike - EPA Sample No.: AW-101 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT ()	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Propyl nitrate	500	0.0	550	110	1-150
3-Pentanone	500	0.0	860	172*	1-150
1,2,2-Cl3-1,1,2-F3ethan	500	0.0	560	112	1-150
1,2-Cl2-1,1,2,2-F4ethan	500	0.0	470	94	1-150
Dichlorodifluoromethane	500	0.0	530	106	1-150
Acetonitrile	500	49	630	116	1-150
Cyclohexane	500	0.0	520	104	1-150
1,2-Dibromoethane	500	0.0	570	114	1-150
3-Heptanone	500	70	950	176*	1-150
2-Heptanone	500	70	930	172*	1-150
Tetrahydrofuran	500	220	920	140	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3B

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix Spike - EPA Sample No.: AW-101 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Chloromethane	500	460	92	2	40	1-150
Vinyl Chloride	500	560	112	4	40	1-150
1,3-Butadiene	500	560	112	17	40	1-150
Butane	500	1100	20	120*	40	1-150
Bromomethane	500	280	56	13	40	1-150
1,1-Dichloroethene	500	1000	200*	2	40	1-150
Chloroethane	500	380	76	5	40	1-150
Acetone	500	1400	132	36	40	1-150
Pentane	500	580	80	22	40	1-150
Carbon Disulfide	500	260	52	17	40	1-150
Acrolein	500	38	8	48*	40	1-150
Acrylonitrile	500	270	54	31	40	1-150
Methylene Chloride	500	660	132	11	40	1-150
Propionaldehyde	500	1600	320*	21	40	1-150
2-Butenal	500	120	24	9	40	1-150
1,1-Dichloroethane	500	640	128	6	40	1-150
Hexane	500	680	88	44*	40	1-150
2-Butanone	500	1400	242*	18	40	1-150
Cyclohexene	500	510	102	4	40	1-150
Ethyl acetate	500	540	108	20	40	1-150
Cyclopentane	500	580	116	11	40	1-150
Chloroform	500	540	108	6	40	1-150
Dichlorofluoromethane	500	280	56	11	40	1-150
1,1,1-Trichloroethane	500	660	132	10	40	1-150
Chlorodifluoromethane	500	480	96	23	40	1-150
Carbon Tetrachloride	500	560	112	4	40	1-150
Trichlorofluoromethane	500	600	120	9	40	1-150
Benzene	500	520	102	2	40	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3B

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix Spike - EPA Sample No.: AW-101 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,2-Dichloroethane	500	590	118	3	40	1-150
Trichloroethene	500	930	186*	1	40	1-150
1,2-Dichloropropane	500	550	110	2	40	1-150
cis-1,3-Dichloropropene	500	280	56	16	40	1-150
4-Methyl-2-pentanone	500	1100	218*	19	40	1-150
Toluene	500	520	104	2	40	1-150
trans-1,3-Dichloroprope	500	440	88	4	40	1-150
1,1,2-Trichloroethane	500	4	1	0	40	1-150
Tetrachloroethene	500	450	90	0	40	1-150
2-Hexanone	500	1200	231*	22	40	1-150
Chlorobenzene	500	450	90	2	40	1-150
Ethylbenzene	500	430	85	4	40	1-150
Xylene (m & p)	500	460	91	6	40	1-150
Xylene (o)	500	440	87	7	40	1-150
Styrene	500	440	88	4	40	1-150
1,1,2,2-Tetrachloroetha	500	9	2	0	40	1-150
Heptane	500	540	58	19	40	1-150
Octane	500	550	64	6	40	1-150
Nonane	500	500	40	5	40	1-150
3-Chloropropene	500	480	96	14	40	1-150
2-Pentanone	500	970	194*	10	40	1-150
Methylcyclohexane	500	500	100	2	40	1-150
5-Methyl-2-hexanone	500	450	90	14	40	1-150
4-Heptanone	500	1000	198*	18	40	1-150
Butylacetate	500	12	2	67*	40	1-150
1,4-Dioxane	500	880	154*	15	40	1-150
2-Methyl-2-propenenitri	500	740	148	8	40	1-150
3-Methyl-2-butanone	500	1000	192*	16	40	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3B

SOLID VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Matrix Spike - EPA Sample No.: AW-101 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Propyl nitrate	500	570	114	4	40	1-150
3-Pentanone	500	1000	200*	15	40	1-150
1,2,2-Cl3-1,1,2-F3ethan	500	640	128	13	40	1-150
1,2-Cl2-1,1,2,2-F4ethan	500	520	104	10	40	1-150
Dichlorodifluoromethane	500	610	122	14	40	1-150
Acetonitrile	500	630	116	0	40	1-150
Cyclohexane	500	550	110	6	40	1-150
1,2-Dibromoethane	500	580	116	2	40	1-150
3-Heptanone	500	1100	206*	16	40	1-150
2-Heptanone	500	1100	206*	18	40	1-150
Tetrahydrofuran	500	1100	176*	23	40	1-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 4 out of 67 outside limits
Spike Recovery: 26 out of 134 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Lab File ID: 99021604 Lab Sample ID: VBLK03

Date Analyzed: 02/16/99 Time Analyzed: 1845

GC Column: DB-624 75M X 2.55UMID: 0.45 (mm) Heated Purge: (Y/N) Y

Instrument ID: HP1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	AW-101	99-0650	99021605	1930
02	AW-101D	99-0650D	99021606	2015
03	AW-101MS	99-0650MS	99021607	2100
04	AW-101MSD	99-0650MSD	99021608	2145
05	AN-107	99-0651	99021610	2315
06	AN-107D	99-0651D	99021611	0000
07	AN-107MSD	99-0651MSD	99021612	0045
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COMMENTS:

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Lab File ID: 99021601 BFB Injection Date: 02/16/99

Instrument ID: HP1 BFB Injection Time: 1632

GC Column: ID: 2.00 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	24.3
75	30.0 - 66.0% of mass 95	42.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (= 0.0)1
174	50.0 - 120.0% of mass 95	97.5
175	4.0 - 9.0% of mass 174	8.8 (9.0)1
176	93.0 - 101.0% of mass 174	94.9 (97.3)1
177	5.0 - 9.0% of mass 176	5.6 (5.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD100	VSTD100	99021602	02/16/99	1715
02	METHOD BLANK	VBLK03	99021604	02/16/99	1845
03	AW-101	99-0650	99021605	02/16/99	1930
04	AW-101D	99-0650D	99021606	02/16/99	2015
05	AW-101MS	99-0650MS	99021607	02/16/99	2100
06	AW-101MSD	99-0650MSD	99021608	02/16/99	2145
07	AN-107	99-0651	99021610	02/16/99	2315
08	AN-107D	99-0651D	99021611	02/17/99	0000
09	AN-107MSD	99-0651MSD	99021612	02/17/99	0045
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7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Instrument ID: HP1 Calibration Date: 02/16/99 Time: 1715

Lab File ID: 99021602 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF500	MIN RRF	%D	MAX %D
Chloromethane	0.540	0.482	0.100	10.7	100
Vinyl Chloride	0.428	0.368		14.0	
1,3-Butadiene	1.045	0.870		16.7	
Butane	0.148	0.119		19.6	
Bromomethane	0.108	0.099		8.3	
1,1-Dichloroethene	0.396	0.348		12.1	
Chloroethane	0.119	0.125		-5.0	
Acetone	0.254	0.231		9.0	
Pentane	0.640	0.593		7.3	
Carbon Disulfide	1.123	1.017		9.4	
Acrolein	0.009	0.008	0.001	11.1	100
Acrylonitrile	0.228	0.220		3.5	
Methylene Chloride	0.432	0.390		9.7	
trans-1,2-Dichloroethene	0.297	0.274		7.7	
Propionaldehyde	0.059	0.049		16.9	
2-Butenal	0.057	0.055		3.5	
1,1-Dichloroethane	0.928	0.834	0.100	10.1	100
cis-1,2-Dichloroethene	0.473	0.422		10.8	
Hexane	0.565	0.494		12.6	
2-Butanone	0.331	0.303		8.4	
Cyclohexene	0.172	0.160		7.0	
Ethyl acetate	0.829	0.793		4.3	
Cyclopentane	1.517	1.294		14.7	
Bromochloromethane	0.188	0.190		-1.1	
Chloroform	0.849	0.784		7.6	
Dichlorofluoromethane	0.648	0.607		6.3	
1,1,1-Trichloroethane	0.070	0.063		10.0	
Chlorodifluoromethane	0.343	0.296		13.7	
Carbon Tetrachloride	0.456	0.425		6.8	
Trichlorofluoromethane	0.315	0.272		13.6	
Benzene	0.729	0.734		-0.7	
1,2-Dichloroethane	0.375	0.378		-0.8	
Trichloroethene	0.185	0.187		-1.1	
1,2-Dichloropropane	0.227	0.233		-2.6	
Bromodichloromethane	0.301	0.299		0.7	
cis-1,3-Dichloropropene	0.345	0.352		-2.0	
4-Methyl-2-pentanone	0.447	0.447		0.0	

All other compounds must meet a minimum RRF of 0.010.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Instrument ID: HP1 Calibration Date: 02/16/99 Time: 1715

Lab File ID: 99021602 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF500	MIN RRF	%D	MAX %D
Toluene	0.580	0.578		0.3	
trans-1,3-Dichloropropene	0.421	0.424		-0.7	
1,1,2-Trichloroethane	0.190	0.194		-2.1	
Tetrachloroethene	0.154	0.144		6.5	
2-Hexanone	0.303	0.314		-3.6	
Dibromochloromethane	0.231	0.241		-4.3	
Chlorobenzene	0.533	0.550	0.300	-3.2	100
Ethylbenzene	0.297	0.293		1.3	
Xylene (m & p)	0.651	0.614		5.7	
Xylene (o)	0.332	0.328		1.2	
Styrene	0.548	0.554		-1.1	
Bromoform	0.131	0.139	0.100	-6.1	100
1,1,2,2-Tetrachloroethane	0.351	0.369	0.300	-5.1	100
1,3-Dichlorobenzene	0.473	0.455		3.8	
1,4-Dichlorobenzene	0.499	0.486		2.6	
1,2-Dichlorobenzene	0.464	0.468		-0.9	
Heptane	0.063	0.064		-1.6	
Octane	0.042	0.041		2.4	
Nonane	0.029	0.028		3.4	
3-Chloropropene	0.638	0.625		2.0	
2-Pentanone	0.027	0.036		-33.3	
Methylcyclohexane	0.304	0.291		4.3	
5-Methyl-2-hexanone	0.512	0.558		-9.0	
4-Heptanone	0.461	0.495		-7.4	
Butylacetate	0.649	0.693		-6.8	
1,4-Dioxane	0.003	0.003	0.001	0.0	100
2-Methyl-2-propenenitrile	0.216	0.232		-7.4	
3-Methyl-2-butanone	0.035	0.030		14.3	
Propyl nitrate	0.300	0.318		-6.0	
3-Pentanone	0.188	0.196		-4.2	
1,2,2-Cl3-1,1,2-F3ethane	0.341	0.290		15.0	
1,2-Cl2-1,1,2,2-F4ethane	0.164	0.108		34.1	
Dichlorodifluoromethane	0.561	0.436		22.3	
Acetonitrile	0.090	0.097		-7.8	
Cyclohexane	0.671	0.617		8.0	
Bromobenzene	0.249	0.248		0.4	
Butylbenzene	0.240	0.240		0.0	

All other compounds must meet a minimum RRF of 0.010.

FORM VII VOA

OLM03.0

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Instrument ID: HP1 Calibration Date: 02/16/99 Time: 1715

Lab File ID: 99021602 Init. Calib. Date(s): 02/11/99 02/11/99

Heated Purge: (Y/N) N Init. Calib. Times: 1249 1549

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm)

COMPOUND	$\overline{RRF}$	RRF500	MIN RRF	%D	MAX %D
tert-Butylbenzene	0.824	0.816		1.0	
sec-Butylbenzene	1.184	1.185		-0.1	
2-Chlorotoluene	0.869	0.868		0.1	
4-Isopropyltoluene	0.921	0.916		0.5	
4-Chlorotoluene	1.000	1.009		-0.9	
1,2-Dibromo-3-chloropropane	0.065	0.073		-12.3	
1,2-Dibromoethane	0.205	0.213		-3.9	
trans-1,4-Dichloro-2-butene	0.157	0.175		-11.5	
1,3-Dichloropropane	0.375	0.393		-4.8	
2,2-Dichloropropane	0.332	0.297		10.5	
1,1-Dichloropropene	0.640	0.629		1.7	
Hexachloro-1,3-butadiene	0.114	0.119		-4.4	
Iodomethane	0.484	0.412		14.9	
Isopropylbenzene	0.824	0.843		-2.3	
Nathphalene	0.764	0.822		-7.6	
Propylbenzene	1.347	1.355		-0.6	
1,2,3-Trichlorobenzene	0.248	0.246		0.8	
1,2,4-Trichlorobenzene	0.265	0.263		0.8	
1,2,3-Trichloropropane	0.525	0.564		-7.4	
1,2,4-Trimethylbenzene	0.927	0.925		0.2	
1,2,3-Trimethylbenzene	0.903	0.907		-0.4	
1-Propanol	0.057	0.052		8.8	
3-Heptanone	0.310	0.338		-9.0	
2-Heptanone	0.450	0.474		-5.3	
Tetrahydrofuran	0.215	0.214		0.5	
Dibromomethane	0.134	0.138		-3.0	
Toluene-d8	0.592	0.599		-1.2	
Bromofluorobenzene	0.368	0.370		-0.5	
Dibromofluoromethane	0.348	0.344		1.1	

All other compounds must meet a minimum RRF of 0.010.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Lab File ID (Standard): 99021602 Date Analyzed: 02/16/99

Instrument ID: HP1 Time Analyzed: 1715

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Heated Purge: (Y/N) N

		IS1 (DFB) AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	2678277	11.47	2156550	16.41	1290008	10.26
	UPPER LIMIT	5356554	11.97	4313100	16.91	2580016	10.76
	LOWER LIMIT	1339139	10.97	1078275	15.91	645004	9.76
	EPA SAMPLE NO.						
01	METHOD BLANK	2076641	11.40	1619262	16.34	1071851	10.19
02	AW-101	2043551	11.40	1771136	16.33	993573	10.19
03	AW-101D	2081890	11.40	1629961	16.34	1024350	10.19
04	AW-101MS	1940033	11.41	1373684	16.34	867770	10.20
05	AW-101MSD	1744667	11.30	1175684	16.24	747906	10.08
06	AN-107	1554704	11.29	1121897	16.22	768564	10.09
07	AN-107D	1507650	11.31	1059839*	16.24	777972	10.10
08	AN-107MSD	1369226	11.31	283954*	16.44	664181	10.11
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IS1 (DFB) = 1,4-Difluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 99021601

Lab File ID (Standard): 99021602 Date Analyzed: 02/16/99

Instrument ID: HP1 Time Analyzed: 1715

GC Column: DB-624 75M X 2.55UM ID: 0.45 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1663972	20.61				
	UPPER LIMIT	3327944	21.11				
	LOWER LIMIT	831986	20.11				
	EPA SAMPLE NO.						
01	METHOD BLANK	979826	20.52				
02	AW-101	1221043	20.52				
03	AW-101D	933388	20.52				
04	AW-101MS	891435	20.54				
05	AW-101MSD	759386*	20.42				
06	AN-107	527853*	20.42				
07	AN-107D	570964*	20.42				
08	AN-107MSD	497643*	20.44				
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IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

APPENDIX B

SEMI-VOLATILE ORGANIC ANALYSIS RESULTS

AW-101 Supernatant and Solids -- Forms 1B through 8C

AN-107 Supernatant and Solids --- Forms 1B through 8C

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020606

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	210	U
51-28-5	2,4-Dinitrophenol	37	J
132-64-9	Dibenzofuran	210	U
100-02-7	4-Nitrophenol	210	U
121-14-2	2,4-Dinitrotoluene	210	U
84-66-2	Diethylphthalate	210	U
86-73-7	Fluorene	210	U
7005-72-3	4-Chlorophenyl-phenylether	210	U
100-01-6	4-Nitroaniline	210	U
534-52-1	4,6-Dinitro-2-methylphenol	210	U
122-39-4	N,N-Diphenylamine	210	U
76-44-8	Heptachlor	210	U
319-84-6	alpha-BHC	210	U
101-55-3	4-Bromophenyl-phenylether	210	U
118-74-1	Hexachlorobenzene	210	U
319-85-7	beta-BHC	210	U
87-86-5	Pentachlorophenol	210	U
319-86-8	delta-BHC	210	U
85-01-8	Phenanthrene	210	U
120-12-7	Anthracene	210	U
58-89-9	gamma-BHC (Lindane)	210	U
86-74-8	Carbazole	210	U
84-74-2	Di-n-butylphthalate	210	U
309-00-2	Aldrin	210	U
1024-57-3	Heptachlor Epoxide	210	U
206-44-0	Fluoranthene	210	U
129-00-0	Pyrene	210	U
959-98-8	Endosulfan I	210	U
72-55-9	4,4'-DDE	210	U
60-57-1	Dieldrin	210	U
72-20-8	Endrin	210	U
33213-65-9	Endosulfan II	210	U
72-54-8	4,4'-DDD	210	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020606

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	210	U
111-44-4	bis(2-Chloroethyl)ether	210	U
95-57-8	2-Chlorophenol	210	U
541-73-1	1,3-Dichlorobenzene	210	U
106-46-7	1,4-Dichlorobenzene	210	U
95-50-1	1,2-Dichlorobenzene	210	U
100-51-6	Benzyl alcohol	210	U
95-48-7	2-Methylphenol	210	U
108-60-1	2,2'-oxybis(1-Chloropropane)	210	U
621-64-7	N-Nitroso-di-n-propylamine	210	U
106-44-5	4-Methylphenol	210	U
67-72-1	Hexachloroethane	210	U
98-95-3	Nitrobenzene	210	U
78-59-1	Isophorone	210	U
88-75-5	2-Nitrophenol	210	U
105-67-9	2,4-Dimethylphenol	210	U
111-91-1	bis(2-Chloroethoxy)methane	210	U
120-83-2	2,4-Dichlorophenol	210	U
120-82-1	1,2,4-Trichlorobenzene	210	U
91-20-3	Naphthalene	210	U
106-47-8	4-Chloroaniline	210	U
87-68-3	Hexachlorobutadiene	210	U
59-50-7	4-Chloro-3-methylphenol	210	U
91-57-6	2-Methylnaphthalene	210	U
77-47-4	Hexachlorocyclopentadiene	210	U
88-06-2	2,4,6-Trichlorophenol	210	U
95-95-4	2,4,5-Trichlorophenol	210	U
91-58-7	2-Chloronaphthalene	210	U
88-74-4	2-Nitroaniline	210	U
99-09-2	3-Nitroaniline	210	U
131-11-3	Dimethylphthalate	210	U
606-20-2	2,6-Dinitrotoluene	210	U
208-96-8	Acenaphthylene	210	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020606

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	210	U
1031-07-8	Endosulfan Sulfate	210	U
50-29-3	4,4'-DDT	210	U
53494-70-5	Endrin Ketone	210	U
56-55-3	Benzo(a)anthracene	210	U
91-94-1	3,3'-Dichlorobenzidine	210	U
218-01-9	Chrysene	210	U
72-43-5	Methoxychlor	210	U
117-81-7	Bis(2-Ethylhexyl)phthalate	210	U
117-84-0	Di-n-octylphthalate	210	U
205-99-2	Benzo(b)fluoranthene	210	U
207-08-9	Benzo(k)fluoranthene	210	U
50-32-8	Benzo(a)pyrene	210	U
193-39-5	Indeno(1,2,3-cd)pyrene	210	U
53-70-3	Dibenz(a,h)anthracene	210	U
191-24-2	Benzo(g,h,i)perylene	210	U
110-86-1	Pyridine	210	U
126-73-8	Tributyl phosphate	19	J
62-75-9	N-Nitrosodimethylamine	160	J
98-86-2	Acetophenone	2	J
100-00-5	1-Chloro-4-nitrobenzene	210	U
92-52-4	Biphenyl	3	J
100-25-4	1,4-Dinitrobenzene	210	U
128-37-0	Butylated Hydroxytoluene	210	U
82-68-8	Pentachloronitrobenzene	210	U
88-85-7	Dinoseb	210	U
2234-13-1	Octachloronaphthalene	210	U
10595-95-6	N-Nitrosomethylethylamine	160	J
55-18-5	N-Nitrosodiethylamine	210	U
62-50-0	Ethyl methane sulfonate	210	U
62-53-3	Analine	210	U
76-01-7	Pentachloroethane	210	U
930-55-2	N-Nitrosopyrolidine	210	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020606

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	2	J
1888-71-7	Hexachloropropene	210	U
924-16-3	N-Nitrosodi-n-butylamine	210	U
94-59-7	Safrole	210	U
95-94-3	1,2,4,5-Tetrachlorobenzene	210	U
120-58-1	Isosafrole	210	U
130-15-4	1,4-Naphthoquinone	210	U
608-93-5	Pentachlorobenzene	210	U
134-32-7	1-Naphthylamine	0.4	J
58-90-2	2,3,4,6-Tetrachlorophenol	210	U
91-59-8	2-Naphthylamine	0.2	J
99-55-8	5-Nitro-o-toluidine	210	U
103-33-3	Azeobenzene	210	U
99-35-4	1,3,5-Trinitrobenzene	210	U
2303-16-4	Diallate (cis)	210	U
62-44-2	Phenacetin	210	U
2303-16-4	Diallate (trans)	210	U
92-67-1	4-Aminobiphenyl	210	U
23950-58-5	Pronamine	210	U
465-73-6	Isodrin	210	U
57-74-9	Chlordane (alpha)	210	U
92-87-5	Benzidine	210	U
60-11-7	p-Dimethylaminoazobenzene	210	U
510-15-6	Chlorobenzilate	210	U
119-93-7	3,3'-Dimethylbenzidine	210	U
53-96-3	2-Acetylaminofluorene	210	U
56-49-5	3-Methylcholanthrene	210	U
109-06-8	2-Methylpyridine	210	U
143-50-0	Kepone	210	U
57-74-9	Chlordane (gamma)	210	U
66-27-3	Methyl methane sulfonate	210	U
70-30-4	Hexachlorophene	210	U
99-65-0	1,3-Dinitrobenzene	2	J

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020606

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	210	U

FORM I SV-5

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020607

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	200	U
111-44-4	bis(2-Chloroethyl)ether	200	U
95-57-8	2-Chlorophenol	200	U
541-73-1	1,3-Dichlorobenzene	200	U
106-46-7	1,4-Dichlorobenzene	200	U
95-50-1	1,2-Dichlorobenzene	200	U
100-51-6	Benzyl alcohol	200	U
95-48-7	2-Methylphenol	200	U
108-60-1	2,2'-oxybis(1-Chloropropane)	200	U
621-64-7	N-Nitroso-di-n-propylamine	200	U
106-44-5	4-Methylphenol	200	U
67-72-1	Hexachloroethane	200	U
98-95-3	Nitrobenzene	200	U
78-59-1	Isophorone	200	U
88-75-5	2-Nitrophenol	200	U
105-67-9	2,4-Dimethylphenol	200	U
111-91-1	bis(2-Chloroethoxy)methane	200	U
120-83-2	2,4-Dichlorophenol	200	U
120-82-1	1,2,4-Trichlorobenzene	200	U
91-20-3	Naphthalene	200	U
106-47-8	4-Chloroaniline	200	U
87-68-3	Hexachlorobutadiene	200	U
59-50-7	4-Chloro-3-methylphenol	200	U
91-57-6	2-Methylnaphthalene	200	U
77-47-4	Hexachlorocyclopentadiene	200	U
88-06-2	2,4,6-Trichlorophenol	200	U
95-95-4	2,4,5-Trichlorophenol	200	U
91-58-7	2-Chloronaphthalene	200	U
88-74-4	2-Nitroaniline	200	U
99-09-2	3-Nitroaniline	200	U
131-11-3	Dimethylphthalate	200	U
606-20-2	2,6-Dinitrotoluene	200	U
208-96-8	Acenaphthylene	200	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020607

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	200	U
51-28-5	2,4-Dinitrophenol	25	J
132-64-9	Dibenzofuran	200	U
100-02-7	4-Nitrophenol	200	U
121-14-2	2,4-Dinitrotoluene	200	U
84-66-2	Diethylphthalate	200	U
86-73-7	Fluorene	200	U
7005-72-3	4-Chlorophenyl-phenylether	200	U
100-01-6	4-Nitroaniline	200	U
534-52-1	4,6-Dinitro-2-methylphenol	200	U
122-39-4	N,N-Diphenylamine	200	U
76-44-8	Heptachlor	200	U
319-84-6	alpha-BHC	200	U
101-55-3	4-Bromophenyl-phenylether	200	U
118-74-1	Hexachlorobenzene	200	U
319-85-7	beta-BHC	200	U
87-86-5	Pentachlorophenol	200	U
319-86-8	delta-BHC	200	U
85-01-8	Phenanthrene	200	U
120-12-7	Anthracene	200	U
58-89-9	gamma-BHC (Lindane)	200	U
86-74-8	Carbazole	200	U
84-74-2	Di-n-butylphthalate	200	U
309-00-2	Aldrin	200	U
1024-57-3	Heptachlor Epoxide	200	U
206-44-0	Fluoranthene	200	U
129-00-0	Pyrene	200	U
959-98-8	Endosulfan I	200	U
72-55-9	4,4'-DDE	200	U
60-57-1	Dieldrin	200	U
72-20-8	Endrin	200	U
33213-65-9	Endosulfan II	200	U
72-54-8	4,4'-DDD	200	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020607

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	200	U
1031-07-8	Endosulfan Sulfate	200	U
50-29-3	4,4'-DDT	200	U
53494-70-5	Endrin Ketone	200	U
56-55-3	Benzo(a)anthracene	200	U
91-94-1	3,3'-Dichlorobenzidine	200	U
218-01-9	Chrysene	200	U
72-43-5	Methoxychlor	200	U
117-81-7	Bis(2-Ethylhexyl)phthalate	200	U
117-84-0	Di-n-octylphthalate	200	U
205-99-2	Benzo(b)fluoranthene	200	U
207-08-9	Benzo(k)fluoranthene	200	U
50-32-8	Benzo(a)pyrene	200	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenz(a,h)anthracene	200	U
191-24-2	Benzo(g,h,i)perylene	200	U
110-86-1	Pyridine	200	U
126-73-8	Tributyl phosphate	11	J
62-75-9	N-Nitrosodimethylamine	390	
98-86-2	Acetophenone	200	U
100-00-5	1-Chloro-4-nitrobenzene	200	U
92-52-4	Biphenyl	3	J
100-25-4	1,4-Dinitrobenzene	200	U
128-37-0	Butylated Hydroxytoluene	200	U
82-68-8	Pentachloronitrobenzene	200	U
88-85-7	Dinoseb	200	U
2234-13-1	Octachloronaphthalene	200	U
10595-95-6	N-Nitrosomethylethylamine	580	
55-18-5	N-Nitrosodiethylamine	200	U
62-50-0	Ethyl methane sulfonate	200	U
62-53-3	Analine	200	U
76-01-7	Pentachloroethane	200	U
930-55-2	N-Nitrosopyrolidine	200	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020607

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	200	U
1888-71-7	Hexachloropropene	200	U
924-16-3	N-Nitrosodi-n-butylamine	200	U
94-59-7	Safrole	200	U
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U
120-58-1	Isosafrole	200	U
130-15-4	1,4-Naphthoquinone	200	U
608-93-5	Pentachlorobenzene	200	U
134-32-7	1-Naphthylamine	3	J
58-90-2	2,3,4,6-Tetrachlorophenol	200	U
91-59-8	2-Naphthylamine	200	U
99-55-8	5-Nitro-o-toluidine	200	U
103-33-3	Azeobenzene	200	U
99-35-4	1,3,5-Trinitrobenzene	200	U
2303-16-4	Diallate (cis)	200	U
62-44-2	Phenacetin	200	U
2303-16-4	Diallate (trans)	200	U
92-67-1	4-Aminobiphenyl	200	U
23950-58-5	Pronamine	200	U
465-73-6	Isodrin	200	U
57-74-9	Chlordane (alpha)	200	U
92-87-5	Benzidine	200	U
60-11-7	p-Dimethylaminoazobenzene	200	U
510-15-6	Chlorobenzilate	200	U
119-93-7	3,3'-Dimethylbenzidine	200	U
53-96-3	2-Acetylaminofluorene	200	U
56-49-5	3-Methylcholanthrene	200	U
109-06-8	2-Methylpyridine	200	U
143-50-0	Kepone	200	U
57-74-9	Chlordane (gamma)	200	U
66-27-3	Methyl methane sulfonate	200	U
70-30-4	Hexachlorophene	200	U
99-65-0	1,3-Dinitrobenzene	200	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020607

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	200	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020608

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	7	J
111-44-4	bis(2-Chloroethyl)ether	300	U
95-57-8	2-Chlorophenol	7	J
541-73-1	1,3-Dichlorobenzene	300	U
106-46-7	1,4-Dichlorobenzene	700	
95-50-1	1,2-Dichlorobenzene	300	U
100-51-6	Benzyl alcohol	300	U
95-48-7	2-Methylphenol	8	J
108-60-1	2,2'-oxybis(1-Chloropropane)	300	U
621-64-7	N-Nitroso-di-n-propylamine	740	
106-44-5	4-Methylphenol	21	J
67-72-1	Hexachloroethane	300	U
98-95-3	Nitrobenzene	300	U
78-59-1	Isophorone	300	U
88-75-5	2-Nitrophenol	300	U
105-67-9	2,4-Dimethylphenol	300	U
111-91-1	bis(2-Chloroethoxy)methane	300	U
120-83-2	2,4-Dichlorophenol	300	U
120-82-1	1,2,4-Trichlorobenzene	800	
91-20-3	Naphthalene	300	U
106-47-8	4-Chloroaniline	300	U
87-68-3	Hexachlorobutadiene	300	U
59-50-7	4-Chloro-3-methylphenol	77	J
91-57-6	2-Methylnaphthalene	300	U
77-47-4	Hexachlorocyclopentadiene	300	U
88-06-2	2,4,6-Trichlorophenol	300	U
95-95-4	2,4,5-Trichlorophenol	300	U
91-58-7	2-Chloronaphthalene	300	U
88-74-4	2-Nitroaniline	300	U
99-09-2	3-Nitroaniline	300	U
131-11-3	Dimethylphthalate	300	U
606-20-2	2,6-Dinitrotoluene	300	U
208-96-8	Acenaphthylene	300	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020608

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	770	
51-28-5	2,4-Dinitrophenol	300	U
132-64-9	Dibenzofuran	300	U
100-02-7	4-Nitrophenol	840	
121-14-2	2,4-Dinitrotoluene	550	
84-66-2	Diethylphthalate	300	U
86-73-7	Fluorene	300	U
7005-72-3	4-Chlorophenyl-phenylether	300	U
100-01-6	4-Nitroaniline	300	U
534-52-1	4,6-Dinitro-2-methylphenol	200	J
122-39-4	N,N-Diphenylamine	640	
76-44-8	Heptachlor	300	U
319-84-6	alpha-BHC	300	U
101-55-3	4-Bromophenyl-phenylether	300	U
118-74-1	Hexachlorobenzene	300	U
319-85-7	beta-BHC	300	U
87-86-5	Pentachlorophenol	920	
319-86-8	delta-BHC	300	U
85-01-8	Phenanthrene	300	U
120-12-7	Anthracene	300	U
58-89-9	gamma-BHC (Lindane)	300	U
86-74-8	Carbazole	300	U
84-74-2	Di-n-butylphthalate	300	U
309-00-2	Aldrin	300	U
1024-57-3	Heptachlor Epoxide	300	U
206-44-0	Fluoranthene	300	U
129-00-0	Pyrene	890	
959-98-8	Endosulfan I	300	U
72-55-9	4,4'-DDE	300	U
60-57-1	Dieldrin	300	U
72-20-8	Endrin	300	U
33213-65-9	Endosulfan II	300	U
72-54-8	4,4'-DDD	300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020608

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	300	U
1031-07-8	Endosulfan Sulfate	300	U
50-29-3	4,4'-DDT	300	U
53494-70-5	Endrin Ketone	300	U
56-55-3	Benzo(a)anthracene	300	U
91-94-1	3,3'-Dichlorobenzidine	300	U
218-01-9	Chrysene	300	U
72-43-5	Methoxychlor	300	U
117-81-7	Bis(2-Ethylhexyl)phthalate	300	U
117-84-0	Di-n-octylphthalate	300	U
205-99-2	Benzo(b)fluoranthene	300	U
207-08-9	Benzo(k)fluoranthene	300	U
50-32-8	Benzo(a)pyrene	300	U
193-39-5	Indeno(1,2,3-cd)pyrene	300	U
53-70-3	Dibenz(a,h)anthracene	300	U
191-24-2	Benzo(g,h,i)perylene	300	U
110-86-1	Pyridine	380	
126-73-8	Tributyl phosphate	980	
62-75-9	N-Nitrosodimethylamine	80	J
98-86-2	Acetophenone	710	
100-00-5	1-Chloro-4-nitrobenzene	880	
92-52-4	Biphenyl	880	
100-25-4	1,4-Dinitrobenzene	710	
128-37-0	Butylated Hydroxytoluene	69	J
82-68-8	Pentachloronitrobenzene	720	
88-85-7	Dinoseb	570	
2234-13-1	Octachloronaphthalene	880	
10595-95-6	N-Nitrosomethylethylamine	300	U
55-18-5	N-Nitrosodiethylamine	300	U
62-50-0	Ethyl methane sulfonate	300	U
62-53-3	Analine	300	U
76-01-7	Pentachloroethane	300	U
930-55-2	N-Nitrosopyrolidine	300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020608

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	300	U
1888-71-7	Hexachloropropene	300	U
924-16-3	N-Nitrosodi-n-butylamine	300	U
94-59-7	Safrole	300	U
95-94-3	1,2,4,5-Tetrachlorobenzene	300	U
120-58-1	Isosafrole	300	U
130-15-4	1,4-Naphthoquinone	300	U
608-93-5	Pentachlorobenzene	300	U
134-32-7	1-Naphthylamine	300	U
58-90-2	2,3,4,6-Tetrachlorophenol	4	J
91-59-8	2-Naphthylamine	300	U
99-55-8	5-Nitro-o-toluidine	300	U
103-33-3	Azeobenzene	300	U
99-35-4	1,3,5-Trinitrobenzene	300	U
2303-16-4	Diallate (cis)	300	U
62-44-2	Phenacetin	300	U
2303-16-4	Diallate (trans)	300	U
92-67-1	4-Aminobiphenyl	300	U
23950-58-5	Pronamine	300	U
465-73-6	Isodrin	300	U
57-74-9	Chlordane (alpha)	300	U
92-87-5	Benzidine	300	U
60-11-7	p-Dimethylaminoazobenzene	300	U
510-15-6	Chlorobenzilate	300	U
119-93-7	3,3'-Dimethylbenzidine	300	U
53-96-3	2-Acetylaminofluorene	300	U
56-49-5	3-Methylcholanthrene	300	U
109-06-8	2-Methylpyridine	300	U
143-50-0	Kepone	300	U
57-74-9	Chlordane (gamma)	300	U
66-27-3	Methyl methane sulfonate	300	U
70-30-4	Hexachlorophene	300	U
99-65-0	1,3-Dinitrobenzene	300	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020608

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	300	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020609

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	4	J
111-44-4	bis(2-Chloroethyl)ether	300	U
95-57-8	2-Chlorophenol	4	J
541-73-1	1,3-Dichlorobenzene	300	U
106-46-7	1,4-Dichlorobenzene	630	
95-50-1	1,2-Dichlorobenzene	300	U
100-51-6	Benzyl alcohol	300	U
95-48-7	2-Methylphenol	0.2	J
108-60-1	2,2'-oxybis(1-Chloropropane)	300	U
621-64-7	N-Nitroso-di-n-propylamine	680	
106-44-5	4-Methylphenol	5	J
67-72-1	Hexachloroethane	300	U
98-95-3	Nitrobenzene	300	U
78-59-1	Isophorone	300	U
88-75-5	2-Nitrophenol	300	U
105-67-9	2,4-Dimethylphenol	300	U
111-91-1	bis(2-Chloroethoxy)methane	300	U
120-83-2	2,4-Dichlorophenol	300	U
120-82-1	1,2,4-Trichlorobenzene	750	
91-20-3	Naphthalene	300	U
106-47-8	4-Chloroaniline	300	U
87-68-3	Hexachlorobutadiene	300	U
59-50-7	4-Chloro-3-methylphenol	15	J
91-57-6	2-Methylnaphthalene	300	U
77-47-4	Hexachlorocyclopentadiene	300	U
88-06-2	2,4,6-Trichlorophenol	300	U
95-95-4	2,4,5-Trichlorophenol	300	U
91-58-7	2-Chloronaphthalene	300	U
88-74-4	2-Nitroaniline	300	U
99-09-2	3-Nitroaniline	300	U
131-11-3	Dimethylphthalate	300	U
606-20-2	2,6-Dinitrotoluene	300	U
208-96-8	Acenaphthylene	300	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020609

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	700	
51-28-5	2,4-Dinitrophenol	59	J
132-64-9	Dibenzofuran	300	U
100-02-7	4-Nitrophenol	540	
121-14-2	2,4-Dinitrotoluene	520	
84-66-2	Diethylphthalate	300	U
86-73-7	Fluorene	300	U
7005-72-3	4-Chlorophenyl-phenylether	300	U
100-01-6	4-Nitroaniline	300	U
534-52-1	4,6-Dinitro-2-methylphenol	110	J
122-39-4	N,N-Diphenylamine	600	
76-44-8	Heptachlor	300	U
319-84-6	alpha-BHC	300	U
101-55-3	4-Bromophenyl-phenylether	300	U
118-74-1	Hexachlorobenzene	300	U
319-85-7	beta-BHC	300	U
87-86-5	Pentachlorophenol	800	
319-86-8	delta-BHC	300	U
85-01-8	Phenanthrene	300	U
120-12-7	Anthracene	300	U
58-89-9	gamma-BHC (Lindane)	300	U
86-74-8	Carbazole	300	U
84-74-2	Di-n-butylphthalate	300	U
309-00-2	Aldrin	300	U
1024-57-3	Heptachlor Epoxide	300	U
206-44-0	Fluoranthene	300	U
129-00-0	Pyrene	820	
959-98-8	Endosulfan I	300	U
72-55-9	4,4'-DDE	300	U
60-57-1	Dieldrin	300	U
72-20-8	Endrin	300	U
33213-65-9	Endosulfan II	300	U
72-54-8	4,4'-DDD	300	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020609

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	300	U
1031-07-8	Endosulfan Sulfate	300	U
50-29-3	4,4'-DDT	300	U
53494-70-5	Endrin Ketone	300	U
56-55-3	Benzo(a)anthracene	300	U
91-94-1	3,3'-Dichlorobenzidine	300	U
218-01-9	Chrysene	300	U
72-43-5	Methoxychlor	300	U
117-81-7	Bis(2-Ethylhexyl)phthalate	300	U
117-84-0	Di-n-octylphthalate	300	U
205-99-2	Benzo(b)fluoranthene	300	U
207-08-9	Benzo(k)fluoranthene	300	U
50-32-8	Benzo(a)pyrene	300	U
193-39-5	Indeno(1,2,3-cd)pyrene	300	U
53-70-3	Dibenz(a,h)anthracene	300	U
191-24-2	Benzo(g,h,i)perylene	300	U
110-86-1	Pyridine	220	J
126-73-8	Tributyl phosphate	920	
62-75-9	N-Nitrosodimethylamine	69	J
98-86-2	Acetophenone	660	
100-00-5	1-Chloro-4-nitrobenzene	860	
92-52-4	Biphenyl	830	
100-25-4	1,4-Dinitrobenzene	770	
128-37-0	Butylated Hydroxytoluene	42	J
82-68-8	Pentachloronitrobenzene	760	
88-85-7	Dinoseb	180	J
2234-13-1	Octachloronaphthalene	860	
10595-95-6	N-Nitrosomethylethylamine	77	J
55-18-5	N-Nitrosodiethylamine	300	U
62-50-0	Ethyl methane sulfonate	300	U
62-53-3	Analine	0.1	J
76-01-7	Pentachloroethane	300	U
930-55-2	N-Nitrosopyrolidine	300	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020609

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	300	U
1888-71-7	Hexachloropropene	300	U
924-16-3	N-Nitrosodi-n-butylamine	300	U
94-59-7	Safrole	300	U
95-94-3	1,2,4,5-Tetrachlorobenzene	300	U
120-58-1	Isosafrole	300	U
130-15-4	1,4-Naphthoquinone	300	U
608-93-5	Pentachlorobenzene	300	U
134-32-7	1-Naphthylamine	35	J
58-90-2	2,3,4,6-Tetrachlorophenol	3	J
91-59-8	2-Naphthylamine	300	U
99-55-8	5-Nitro-o-toluidine	300	U
103-33-3	Azeobenzene	300	U
99-35-4	1,3,5-Trinitrobenzene	300	U
2303-16-4	Diallate (cis)	300	U
62-44-2	Phenacetin	300	U
2303-16-4	Diallate (trans)	300	U
92-67-1	4-Aminobiphenyl	300	U
23950-58-5	Pronamine	300	U
465-73-6	Isodrin	300	U
57-74-9	Chlordane (alpha)	300	U
92-87-5	Benzidine	300	U
60-11-7	p-Dimethylaminoazobenzene	300	U
510-15-6	Chlorobenzilate	300	U
119-93-7	3,3'-Dimethylbenzidine	300	U
53-96-3	2-Acetylaminofluorene	300	U
56-49-5	3-Methylcholanthrene	300	U
109-06-8	2-Methylpyridine	300	U
143-50-0	Kepone	300	U
57-74-9	Chlordane (gamma)	300	U
66-27-3	Methyl methane sulfonate	300	U
70-30-4	Hexachlorophene	300	U
99-65-0	1,3-Dinitrobenzene	300	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0648MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020609

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	300	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK03

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020605

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	300	U
111-44-4	bis(2-Chloroethyl)ether	300	U
95-57-8	2-Chlorophenol	300	U
541-73-1	1,3-Dichlorobenzene	300	U
106-46-7	1,4-Dichlorobenzene	300	U
95-50-1	1,2-Dichlorobenzene	300	U
100-51-6	Benzyl alcohol	300	U
95-48-7	2-Methylphenol	300	U
108-60-1	2,2'-oxybis(1-Chloropropane)	300	U
621-64-7	N-Nitroso-di-n-propylamine	300	U
106-44-5	4-Methylphenol	300	U
67-72-1	Hexachloroethane	300	U
98-95-3	Nitrobenzene	300	U
78-59-1	Isophorone	300	U
88-75-5	2-Nitrophenol	300	U
105-67-9	2,4-Dimethylphenol	300	U
111-91-1	bis(2-Chloroethoxy)methane	300	U
120-83-2	2,4-Dichlorophenol	300	U
120-82-1	1,2,4-Trichlorobenzene	300	U
91-20-3	Naphthalene	300	U
106-47-8	4-Chloroaniline	300	U
87-68-3	Hexachlorobutadiene	300	U
59-50-7	4-Chloro-3-methylphenol	300	U
91-57-6	2-Methylnaphthalene	300	U
77-47-4	Hexachlorocyclopentadiene	300	U
88-06-2	2,4,6-Trichlorophenol	300	U
95-95-4	2,4,5-Trichlorophenol	300	U
91-58-7	2-Chloronaphthalene	300	U
88-74-4	2-Nitroaniline	300	U
99-09-2	3-Nitroaniline	300	U
131-11-3	Dimethylphthalate	300	U
606-20-2	2,6-Dinitrotoluene	300	U
208-96-8	Acenaphthylene	300	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK03

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020605

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	300	U
51-28-5	2,4-Dinitrophenol	300	U
132-64-9	Dibenzofuran	300	U
100-02-7	4-Nitrophenol	300	U
121-14-2	2,4-Dinitrotoluene	300	U
84-66-2	Diethylphthalate	300	U
86-73-7	Fluorene	300	U
7005-72-3	4-Chlorophenyl-phenylether	300	U
100-01-6	4-Nitroaniline	300	U
534-52-1	4,6-Dinitro-2-methylphenol	300	U
122-39-4	N,N-Diphenylamine	300	U
76-44-8	Heptachlor	300	U
319-84-6	alpha-BHC	300	U
101-55-3	4-Bromophenyl-phenylether	300	U
118-74-1	Hexachlorobenzene	300	U
319-85-7	beta-BHC	300	U
87-86-5	Pentachlorophenol	300	U
319-86-8	delta-BHC	300	U
85-01-8	Phenanthrene	300	U
120-12-7	Anthracene	300	U
58-89-9	gamma-BHC (Lindane)	300	U
86-74-8	Carbazole	300	U
84-74-2	Di-n-butylphthalate	300	U
309-00-2	Aldrin	300	U
1024-57-3	Heptachlor Epoxide	300	U
206-44-0	Fluoranthene	300	U
129-00-0	Pyrene	300	U
959-98-8	Endosulfan I	300	U
72-55-9	4,4'-DDE	300	U
60-57-1	Dieldrin	300	U
72-20-8	Endrin	300	U
33213-65-9	Endosulfan II	300	U
72-54-8	4,4'-DDD	300	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK03

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020605

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	300	U
1031-07-8	Endosulfan Sulfate	300	U
50-29-3	4,4'-DDT	300	U
53494-70-5	Endrin Ketone	300	U
56-55-3	Benzo(a)anthracene	300	U
91-94-1	3,3'-Dichlorobenzidine	300	U
218-01-9	Chrysene	300	U
72-43-5	Methoxychlor	300	U
117-81-7	Bis(2-Ethylhexyl)phthalate	300	U
117-84-0	Di-n-octylphthalate	300	U
205-99-2	Benzo(b)fluoranthene	300	U
207-08-9	Benzo(k)fluoranthene	300	U
50-32-8	Benzo(a)pyrene	300	U
193-39-5	Indeno(1,2,3-cd)pyrene	300	U
53-70-3	Dibenz(a,h)anthracene	300	U
191-24-2	Benzo(g,h,i)perylene	300	U
110-86-1	Pyridine	300	U
126-73-8	Tributyl phosphate	300	U
62-75-9	N-Nitrosodimethylamine	300	U
98-86-2	Acetophenone	300	U
100-00-5	1-Chloro-4-nitrobenzene	300	U
92-52-4	Biphenyl	300	U
100-25-4	1,4-Dinitrobenzene	300	U
128-37-0	Butylated Hydroxytoluene	300	U
82-68-8	Pentachloronitrobenzene	300	U
88-85-7	Dinoseb	300	U
2234-13-1	Octachloronaphthalene	300	U
10595-95-6	N-Nitrosomethylethylamine	300	U
55-18-5	N-Nitrosodiethylamine	300	U
62-50-0	Ethyl methane sulfonate	300	U
62-53-3	Analine	300	U
76-01-7	Pentachloroethane	1	J
930-55-2	N-Nitrosopyrolidine	300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK03

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020605

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	300	U
1888-71-7	Hexachloropropene	300	U
924-16-3	N-Nitrosodi-n-butylamine	300	U
94-59-7	Safrole	300	U
95-94-3	1,2,4,5-Tetrachlorobenzene	300	U
120-58-1	Isosafrole	300	U
130-15-4	1,4-Naphthoquinone	300	U
608-93-5	Pentachlorobenzene	300	U
134-32-7	1-Naphthylamine	300	U
58-90-2	2,3,4,6-Tetrachlorophenol	300	U
91-59-8	2-Naphthylamine	300	U
99-55-8	5-Nitro-o-toluidine	300	U
103-33-3	Azeobenzene	300	U
99-35-4	1,3,5-Trinitrobenzene	300	U
2303-16-4	Diallate (cis)	300	U
62-44-2	Phenacetin	300	U
2303-16-4	Diallate (trans)	300	U
92-67-1	4-Aminobiphenyl	300	U
23950-58-5	Pronamine	300	U
465-73-6	Isodrin	300	U
57-74-9	Chlordane (alpha)	300	U
92-87-5	Benzidine	300	U
60-11-7	p-Dimethylaminoazobenzene	300	U
510-15-6	Chlorobenzilate	300	U
119-93-7	3,3'-Dimethylbenzidine	300	U
53-96-3	2-Acetylaminofluorene	300	U
56-49-5	3-Methylcholanthrene	300	U
109-06-8	2-Methylpyridine	300	U
143-50-0	Kepone	300	U
57-74-9	Chlordane (gamma)	300	U
66-27-3	Methyl methane sulfonate	300	U
70-30-4	Hexachlorophene	300	U
99-65-0	1,3-Dinitrobenzene	300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK03

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020605

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	300	U

FORM I SV-5 OLM03.0

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-

Sample wt/vol: 4.2 (g/mL) G Lab File ID: 99020611

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4800	U
111-44-4	bis(2-Chloroethyl)ether	4800	U
95-57-8	2-Chlorophenol	4800	U
541-73-1	1,3-Dichlorobenzene	4800	U
106-46-7	1,4-Dichlorobenzene	4800	U
95-50-1	1,2-Dichlorobenzene	4800	U
100-51-6	Benzyl alcohol	4800	U
95-48-7	2-Methylphenol	4800	U
108-60-1	2,2'-oxybis(1-Chloropropane)	4800	U
621-64-7	N-Nitroso-di-n-propylamine	4800	U
106-44-5	4-Methylphenol	4800	U
67-72-1	Hexachloroethane	4800	U
98-95-3	Nitrobenzene	4800	U
78-59-1	Isophorone	4800	U
88-75-5	2-Nitrophenol	4800	U
105-67-9	2,4-Dimethylphenol	4800	U
111-91-1	bis(2-Chloroethoxy)methane	4800	U
120-83-2	2,4-Dichlorophenol	4800	U
120-82-1	1,2,4-Trichlorobenzene	4800	U
91-20-3	Naphthalene	4800	U
106-47-8	4-Chloroaniline	4800	U
87-68-3	Hexachlorobutadiene	4800	U
59-50-7	4-Chloro-3-methylphenol	4800	U
91-57-6	2-Methylnaphthalene	4800	U
77-47-4	Hexachlorocyclopentadiene	4800	U
88-06-2	2,4,6-Trichlorophenol	4800	U
95-95-4	2,4,5-Trichlorophenol	4800	U
91-58-7	2-Chloronaphthalene	4800	U
88-74-4	2-Nitroaniline	4800	U
99-09-2	3-Nitroaniline	4800	U
131-11-3	Dimethylphthalate	4800	U
606-20-2	2,6-Dinitrotoluene	4800	U
208-96-8	Acenaphthylene	4800	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-

Sample wt/vol: 4.2 (g/mL) G Lab File ID: 99020611

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	4800	U
51-28-5	2,4-Dinitrophenol	4800	U
132-64-9	Dibenzofuran	4800	U
100-02-7	4-Nitrophenol	4800	U
121-14-2	2,4-Dinitrotoluene	4800	U
84-66-2	Diethylphthalate	4800	U
86-73-7	Fluorene	4800	U
7005-72-3	4-Chlorophenyl-phenylether	4800	U
100-01-6	4-Nitroaniline	4800	U
534-52-1	4,6-Dinitro-2-methylphenol	4800	U
122-39-4	N,N-Diphenylamine	4800	U
76-44-8	Heptachlor	4800	U
319-84-6	alpha-BHC	4800	U
101-55-3	4-Bromophenyl-phenylether	4800	U
118-74-1	Hexachlorobenzene	4800	U
319-85-7	beta-BHC	4800	U
87-86-5	Pentachlorophenol	4800	U
319-86-8	delta-BHC	4800	U
85-01-8	Phenanthrene	4800	U
120-12-7	Anthracene	4800	U
58-89-9	gamma-BHC (Lindane)	4800	U
86-74-8	Carbazole	4800	U
84-74-2	Di-n-butylphthalate	4800	U
309-00-2	Aldrin	4800	U
1024-57-3	Heptachlor Epoxide	4800	U
206-44-0	Fluoranthene	4800	U
129-00-0	Pyrene	4800	U
959-98-8	Endosulfan I	4800	U
72-55-9	4,4'-DDE	4800	U
60-57-1	Dieldrin	4800	U
72-20-8	Endrin	4800	U
33213-65-9	Endosulfan II	4800	U
72-54-8	4,4'-DDD	4800	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-

Sample wt/vol: 4.2 (g/mL) G Lab File ID: 99020611

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	4800	U
1031-07-8	Endosulfan Sulfate	4800	U
50-29-3	4,4'-DDT	4800	U
53494-70-5	Endrin Ketone	4800	U
56-55-3	Benzo(a)anthracene	4800	U
91-94-1	3,3'-Dichlorobenzidine	4800	U
218-01-9	Chrysene	4800	U
72-43-5	Methoxychlor	4800	U
117-81-7	Bis(2-Ethylhexyl)phthalate	4800	U
117-84-0	Di-n-octylphthalate	4800	U
205-99-2	Benzo(b)fluoranthene	4800	U
207-08-9	Benzo(k)fluoranthene	4800	U
50-32-8	Benzo(a)pyrene	4800	U
193-39-5	Indeno(1,2,3-cd)pyrene	4800	U
53-70-3	Dibenz(a,h)anthracene	4800	U
191-24-2	Benzo(g,h,i)perylene	4800	U
110-86-1	Pyridine	4800	U
126-73-8	Tributyl phosphate	900	J
62-75-9	N-Nitrosodimethylamine	17000	
98-86-2	Acetophenone	4800	U
100-00-5	1-Chloro-4-nitrobenzene	4800	U
92-52-4	Biphenyl	4800	U
100-25-4	1,4-Dinitrobenzene	4800	U
128-37-0	Butylated Hydroxytoluene	4800	U
82-68-8	Pentachloronitrobenzene	4800	U
88-85-7	Dinoseb	4800	U
2234-13-1	Octachloronaphthalene	4800	U
10595-95-6	N-Nitrosomethylethylamine	1800	J
55-18-5	N-Nitrosodiethylamine	4800	U
62-50-0	Ethyl methane sulfonate	4800	U
62-53-3	Analine	4800	U
76-01-7	Pentachloroethane	51	J
930-55-2	N-Nitrosopyrolidine	4800	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-

Sample wt/vol: 4.2 (g/mL) G Lab File ID: 99020611

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	4800	U
1888-71-7	Hexachloropropene	4800	U
924-16-3	N-Nitrosodi-n-butylamine	140	J
94-59-7	Safrole	4800	U
95-94-3	1,2,4,5-Tetrachlorobenzene	4800	U
120-58-1	Isosafrole	4800	U
130-15-4	1,4-Naphthoquinone	4800	U
608-93-5	Pentachlorobenzene	4800	U
134-32-7	1-Naphthylamine	1100	J
58-90-2	2,3,4,6-Tetrachlorophenol	4800	U
91-59-8	2-Naphthylamine	4800	U
99-55-8	5-Nitro-o-toluidine	4800	U
103-33-3	Azeobenzene	4800	U
99-35-4	1,3,5-Trinitrobenzene	4800	U
2303-16-4	Diallate (cis)	4800	U
62-44-2	Phenacetin	4800	U
2303-16-4	Diallate (trans)	4800	U
92-67-1	4-Aminobiphenyl	4800	U
23950-58-5	Pronamine	4800	U
465-73-6	Isodrin	4800	U
57-74-9	Chlordane (alpha)	4800	U
92-87-5	Benzidine	4800	U
60-11-7	p-Dimethylaminoazobenzene	4800	U
510-15-6	Chlorobenzilate	4800	U
119-93-7	3,3'-Dimethylbenzidine	5	J
53-96-3	2-Acetylaminofluorene	4800	U
56-49-5	3-Methylcholanthrene	4800	U
109-06-8	2-Methylpyridine	4800	U
143-50-0	Kepone	4800	U
57-74-9	Chlordane (gamma)	4800	U
66-27-3	Methyl methane sulfonate	4800	U
70-30-4	Hexachlorophene	4800	U
99-65-0	1,3-Dinitrobenzene	4800	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-

Sample wt/vol: 4.2 (g/mL) G Lab File ID: 99020611

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	4800	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-D

Sample wt/vol: 4.7 (g/mL) G Lab File ID: 99020612

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4300	U
111-44-4	bis(2-Chloroethyl)ether	4300	U
95-57-8	2-Chlorophenol	4300	U
541-73-1	1,3-Dichlorobenzene	4300	U
106-46-7	1,4-Dichlorobenzene	4300	U
95-50-1	1,2-Dichlorobenzene	4300	U
100-51-6	Benzyl alcohol	4300	U
95-48-7	2-Methylphenol	4300	U
108-60-1	2,2'-oxybis(1-Chloropropane)	4300	U
621-64-7	N-Nitroso-di-n-propylamine	4300	U
106-44-5	4-Methylphenol	4300	U
67-72-1	Hexachloroethane	4300	U
98-95-3	Nitrobenzene	4300	U
78-59-1	Isophorone	4300	U
88-75-5	2-Nitrophenol	4300	U
105-67-9	2,4-Dimethylphenol	4300	U
111-91-1	bis(2-Chloroethoxy)methane	4300	U
120-83-2	2,4-Dichlorophenol	4300	U
120-82-1	1,2,4-Trichlorobenzene	4300	U
91-20-3	Naphthalene	4300	U
106-47-8	4-Chloroaniline	4300	U
87-68-3	Hexachlorobutadiene	4300	U
59-50-7	4-Chloro-3-methylphenol	4300	U
91-57-6	2-Methylnaphthalene	4300	U
77-47-4	Hexachlorocyclopentadiene	4300	U
88-06-2	2,4,6-Trichlorophenol	4300	U
95-95-4	2,4,5-Trichlorophenol	4300	U
91-58-7	2-Chloronaphthalene	4300	U
88-74-4	2-Nitroaniline	4300	U
99-09-2	3-Nitroaniline	4300	U
131-11-3	Dimethylphthalate	4300	U
606-20-2	2,6-Dinitrotoluene	4300	U
208-96-8	Acenaphthylene	4300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-D

Sample wt/vol: 4.7 (g/mL) G Lab File ID: 99020612

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	4300	U
51-28-5	2,4-Dinitrophenol	4300	U
132-64-9	Dibenzofuran	4300	U
100-02-7	4-Nitrophenol	4300	U
121-14-2	2,4-Dinitrotoluene	4300	U
84-66-2	Diethylphthalate	4300	U
86-73-7	Fluorene	4300	U
7005-72-3	4-Chlorophenyl-phenylether	4300	U
100-01-6	4-Nitroaniline	4300	U
534-52-1	4,6-Dinitro-2-methylphenol	4300	U
122-39-4	N,N-Diphenylamine	4300	U
76-44-8	Heptachlor	4300	U
319-84-6	alpha-BHC	4300	U
101-55-3	4-Bromophenyl-phenylether	4300	U
118-74-1	Hexachlorobenzene	4300	U
319-85-7	beta-BHC	4300	U
87-86-5	Pentachlorophenol	4300	U
319-86-8	delta-BHC	4300	U
85-01-8	Phenanthrene	4300	U
120-12-7	Anthracene	4300	U
58-89-9	gamma-BHC (Lindane)	4300	U
86-74-8	Carbazole	4300	U
84-74-2	Di-n-butylphthalate	4300	U
309-00-2	Aldrin	4300	U
1024-57-3	Heptachlor Epoxide	4300	U
206-44-0	Fluoranthene	4300	U
129-00-0	Pyrene	4300	U
959-98-8	Endosulfan I	4300	U
72-55-9	4,4'-DDE	4300	U
60-57-1	Dieldrin	4300	U
72-20-8	Endrin	4300	U
33213-65-9	Endosulfan II	4300	U
72-54-8	4,4'-DDD	4300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-D

Sample wt/vol: 4.7 (g/mL) G Lab File ID: 99020612

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	4300	U
1031-07-8	Endosulfan Sulfate	4300	U
50-29-3	4,4'-DDT	4300	U
53494-70-5	Endrin Ketone	4300	U
56-55-3	Benzo(a)anthracene	4300	U
91-94-1	3,3'-Dichlorobenzidine	4300	U
218-01-9	Chrysene	4300	U
72-43-5	Methoxychlor	4300	U
117-81-7	Bis(2-Ethylhexyl)phthalate	4300	U
117-84-0	Di-n-octylphthalate	4300	U
205-99-2	Benzo(b)fluoranthene	4300	U
207-08-9	Benzo(k)fluoranthene	4300	U
50-32-8	Benzo(a)pyrene	4300	U
193-39-5	Indeno(1,2,3-cd)pyrene	4300	U
53-70-3	Dibenz(a,h)anthracene	4300	U
191-24-2	Benzo(g,h,i)perylene	4300	U
110-86-1	Pyridine	4300	U
126-73-8	Tributyl phosphate	1800	J
62-75-9	N-Nitrosodimethylamine	4300	U
98-86-2	Acetophenone	4300	U
100-00-5	1-Chloro-4-nitrobenzene	4300	U
92-52-4	Biphenyl	4300	U
100-25-4	1,4-Dinitrobenzene	4300	U
128-37-0	Butylated Hydroxytoluene	4300	U
82-68-8	Pentachloronitrobenzene	4300	U
88-85-7	Dinoseb	4300	U
2234-13-1	Octachloronaphthalene	4300	U
10595-95-6	N-Nitrosomethylethylamine	4300	U
55-18-5	N-Nitrosodiethylamine	4300	U
62-50-0	Ethyl methane sulfonate	4300	U
62-53-3	Analine	4300	U
76-01-7	Pentachloroethane	96	J
930-55-2	N-Nitrosopyrolidine	4300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-D

Sample wt/vol: 4.7 (g/mL) G Lab File ID: 99020612

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	4300	U
1888-71-7	Hexachloropropene	4300	U
924-16-3	N-Nitrosodi-n-butylamine	4300	U
94-59-7	Safrole	4300	U
95-94-3	1,2,4,5-Tetrachlorobenzene	4300	U
120-58-1	Isosafrole	4300	U
130-15-4	1,4-Naphthoquinone	4300	U
608-93-5	Pentachlorobenzene	4300	U
134-32-7	1-Naphthylamine	840	J
58-90-2	2,3,4,6-Tetrachlorophenol	4300	U
91-59-8	2-Naphthylamine	4300	U
99-55-8	5-Nitro-o-toluidine	4300	U
103-33-3	Azeobenzene	4300	U
99-35-4	1,3,5-Trinitrobenzene	11	J
2303-16-4	Diallate (cis)	4300	U
62-44-2	Phenacetin	4300	U
2303-16-4	Diallate (trans)	4300	U
92-67-1	4-Aminobiphenyl	4300	U
23950-58-5	Pronamine	4300	U
465-73-6	Isodrin	4300	U
57-74-9	Chlordane (alpha)	4300	U
92-87-5	Benzidine	4300	U
60-11-7	p-Dimethylaminoazobenzene	4300	U
510-15-6	Chlorobenzilate	4300	U
119-93-7	3,3'-Dimethylbenzidine	4300	U
53-96-3	2-Acetylaminofluorene	4300	U
56-49-5	3-Methylcholanthrene	4300	U
109-06-8	2-Methylpyridine	4300	U
143-50-0	Kepone	4300	U
57-74-9	Chlordane (gamma)	4300	U
66-27-3	Methyl methane sulfonate	4300	U
70-30-4	Hexachlorophene	4300	U
99-65-0	1,3-Dinitrobenzene	4300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-D

Sample wt/vol: 4.7 (g/mL) G Lab File ID: 99020612

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	4300	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MS

Sample wt/vol: 2.8 (g/mL) G Lab File ID: 99020613

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	6500	J
111-44-4	bis(2-Chloroethyl)ether	7200	U
95-57-8	2-Chlorophenol	11000	
541-73-1	1,3-Dichlorobenzene	7200	U
106-46-7	1,4-Dichlorobenzene	11000	
95-50-1	1,2-Dichlorobenzene	7200	U
100-51-6	Benzyl alcohol	7200	U
95-48-7	2-Methylphenol	110	J
108-60-1	2,2'-oxybis(1-Chloropropane)	7200	U
621-64-7	N-Nitroso-di-n-propylamine	16000	
106-44-5	4-Methylphenol	1300	J
67-72-1	Hexachloroethane	7200	U
98-95-3	Nitrobenzene	7200	U
78-59-1	Isophorone	7200	U
88-75-5	2-Nitrophenol	14000	
105-67-9	2,4-Dimethylphenol	7200	U
111-91-1	bis(2-Chloroethoxy)methane	7200	U
120-83-2	2,4-Dichlorophenol	7200	U
120-82-1	1,2,4-Trichlorobenzene	17000	
91-20-3	Naphthalene	7200	U
106-47-8	4-Chloroaniline	7200	U
87-68-3	Hexachlorobutadiene	7200	U
59-50-7	4-Chloro-3-methylphenol	3900	J
91-57-6	2-Methylnaphthalene	7200	U
77-47-4	Hexachlorocyclopentadiene	7200	U
88-06-2	2,4,6-Trichlorophenol	7200	U
95-95-4	2,4,5-Trichlorophenol	7200	U
91-58-7	2-Chloronaphthalene	7200	U
88-74-4	2-Nitroaniline	7200	U
99-09-2	3-Nitroaniline	7200	U
131-11-3	Dimethylphthalate	7200	U
606-20-2	2,6-Dinitrotoluene	7200	U
208-96-8	Acenaphthylene	7200	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MS

Sample wt/vol: 2.8 (g/mL) G Lab File ID: 99020613

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	20000	
51-28-5	2,4-Dinitrophenol	7200	U
132-64-9	Dibenzofuran	7200	U
100-02-7	4-Nitrophenol	50000	
121-14-2	2,4-Dinitrotoluene	590	J
84-66-2	Diethylphthalate	1100	J
86-73-7	Fluorene	7200	U
7005-72-3	4-Chlorophenyl-phenylether	7200	U
100-01-6	4-Nitroaniline	7200	U
534-52-1	4,6-Dinitro-2-methylphenol	7200	U
122-39-4	N,N-Diphenylamine	560	J
76-44-8	Heptachlor	7200	U
319-84-6	alpha-BHC	7200	U
101-55-3	4-Bromophenyl-phenylether	7200	U
118-74-1	Hexachlorobenzene	7200	U
319-85-7	beta-BHC	7200	U
87-86-5	Pentachlorophenol	27000	
319-86-8	delta-BHC	7200	U
85-01-8	Phenanthrene	7200	U
120-12-7	Anthracene	7200	U
58-89-9	gamma-BHC (Lindane)	7200	U
86-74-8	Carbazole	7200	U
84-74-2	Di-n-butylphthalate	7200	U
309-00-2	Aldrin	7200	U
1024-57-3	Heptachlor Epoxide	7200	U
206-44-0	Fluoranthene	7200	U
129-00-0	Pyrene	24000	
959-98-8	Endosulfan I	7200	U
72-55-9	4,4'-DDE	7200	U
60-57-1	Dieldrin	7200	U
72-20-8	Endrin	7200	U
33213-65-9	Endosulfan II	7200	U
72-54-8	4,4'-DDD	7200	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MS

Sample wt/vol: 2.8 (g/mL) G Lab File ID: 99020613

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	7200	U
1031-07-8	Endosulfan Sulfate	7200	U
50-29-3	4,4'-DDT	7200	U
53494-70-5	Endrin Ketone	7200	U
56-55-3	Benzo(a)anthracene	7200	U
91-94-1	3,3'-Dichlorobenzidine	7200	U
218-01-9	Chrysene	7200	U
72-43-5	Methoxychlor	7200	U
117-81-7	Bis(2-Ethylhexyl)phthalate	7200	U
117-84-0	Di-n-octylphthalate	1100	J
205-99-2	Benzo(b)fluoranthene	7200	U
207-08-9	Benzo(k)fluoranthene	7200	U
50-32-8	Benzo(a)pyrene	7200	U
193-39-5	Indeno(1,2,3-cd)pyrene	7200	U
53-70-3	Dibenz(a,h)anthracene	7200	U
191-24-2	Benzo(g,h,i)perylene	7200	U
110-86-1	Pyridine	4300	J
126-73-8	Tributyl phosphate	29000	
62-75-9	N-Nitrosodimethylamine	67	J
98-86-2	Acetophenone	15000	
100-00-5	1-Chloro-4-nitrobenzene	22000	
92-52-4	Biphenyl	24000	
100-25-4	1,4-Dinitrobenzene	430	J
128-37-0	Butylated Hydroxytoluene	260	J
82-68-8	Pentachloronitrobenzene	5600	J
88-85-7	Dinoseb	2700	J
2234-13-1	Octachloronaphthalene	76000	
10595-95-6	N-Nitrosomethylethylamine	7200	U
55-18-5	N-Nitrosodiethylamine	7200	U
62-50-0	Ethyl methane sulfonate	280	J
62-53-3	Analine	7200	U
76-01-7	Pentachloroethane	7200	U
930-55-2	N-Nitrosopyrolidine	10	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MS

Sample wt/vol: 2.8 (g/mL) G Lab File ID: 99020613

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	65	J
1888-71-7	Hexachloropropene	7200	U
924-16-3	N-Nitrosodi-n-butylamine	7200	U
94-59-7	Safrole	7200	U
95-94-3	1,2,4,5-Tetrachlorobenzene	7200	U
120-58-1	Isosafrole	7200	U
130-15-4	1,4-Naphthoquinone	190	J
608-93-5	Pentachlorobenzene	7200	U
134-32-7	1-Naphthylamine	2700	J
58-90-2	2,3,4,6-Tetrachlorophenol	85	J
91-59-8	2-Naphthylamine	3900	J
99-55-8	5-Nitro-o-toluidine	36	J
103-33-3	Azeobenzene	27	J
99-35-4	1,3,5-Trinitrobenzene	54	J
2303-16-4	Diallate (cis)	7200	U
62-44-2	Phenacetin	17	J
2303-16-4	Diallate (trans)	7200	U
92-67-1	4-Aminobiphenyl	750	J
23950-58-5	Pronamine	7200	U
465-73-6	Isodrin	7200	U
57-74-9	Chlordane (alpha)	7200	U
92-87-5	Benzidine	7200	U
60-11-7	p-Dimethylaminoazobenzene	950	J
510-15-6	Chlorobenzilate	7200	U
119-93-7	3,3'-Dimethylbenzidine	7200	U
53-96-3	2-Acetylaminofluorene	7200	U
56-49-5	3-Methylcholanthrene	7200	U
109-06-8	2-Methylpyridine	7200	U
143-50-0	Kepone	7200	U
57-74-9	Chlordane (gamma)	7200	U
66-27-3	Methyl methane sulfonate	7200	U
70-30-4	Hexachlorophene	7200	U
99-65-0	1,3-Dinitrobenzene	52	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MS

Sample wt/vol: 2.8 (g/mL) G Lab File ID: 99020613

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	7200	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MSD

Sample wt/vol: 2.6 (g/mL) G Lab File ID: 99020614

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	7000	J
111-44-4	bis(2-Chloroethyl)ether	7800	U
95-57-8	2-Chlorophenol	17000	
541-73-1	1,3-Dichlorobenzene	7800	U
106-46-7	1,4-Dichlorobenzene	13000	
95-50-1	1,2-Dichlorobenzene	7800	U
100-51-6	Benzyl alcohol	7800	U
95-48-7	2-Methylphenol	290	J
108-60-1	2,2'-oxybis(1-Chloropropane)	7800	U
621-64-7	N-Nitroso-di-n-propylamine	15000	
106-44-5	4-Methylphenol	1600	J
67-72-1	Hexachloroethane	7800	U
98-95-3	Nitrobenzene	7800	U
78-59-1	Isophorone	7800	U
88-75-5	2-Nitrophenol	16000	
105-67-9	2,4-Dimethylphenol	7800	U
111-91-1	bis(2-Chloroethoxy)methane	7800	U
120-83-2	2,4-Dichlorophenol	7800	U
120-82-1	1,2,4-Trichlorobenzene	19000	
91-20-3	Naphthalene	7800	U
106-47-8	4-Chloroaniline	7800	U
87-68-3	Hexachlorobutadiene	7800	U
59-50-7	4-Chloro-3-methylphenol	5700	J
91-57-6	2-Methylnaphthalene	7800	U
77-47-4	Hexachlorocyclopentadiene	7800	U
88-06-2	2,4,6-Trichlorophenol	7800	U
95-95-4	2,4,5-Trichlorophenol	7800	U
91-58-7	2-Chloronaphthalene	7800	U
88-74-4	2-Nitroaniline	7800	U
99-09-2	3-Nitroaniline	7800	U
131-11-3	Dimethylphthalate	7800	U
606-20-2	2,6-Dinitrotoluene	7800	U
208-96-8	Acenaphthylene	7800	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MSD

Sample wt/vol: 2.6 (g/mL) G Lab File ID: 99020614

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	19000	
51-28-5	2,4-Dinitrophenol	7800	U
132-64-9	Dibenzofuran	7800	U
100-02-7	4-Nitrophenol	57000	
121-14-2	2,4-Dinitrotoluene	670	J
84-66-2	Diethylphthalate	7800	U
86-73-7	Fluorene	7800	U
7005-72-3	4-Chlorophenyl-phenylether	7800	U
100-01-6	4-Nitroaniline	7800	U
534-52-1	4,6-Dinitro-2-methylphenol	7800	U
122-39-4	N,N-Diphenylamine	220	J
76-44-8	Heptachlor	7800	U
319-84-6	alpha-BHC	7800	U
101-55-3	4-Bromophenyl-phenylether	7800	U
118-74-1	Hexachlorobenzene	7800	U
319-85-7	beta-BHC	7800	U
87-86-5	Pentachlorophenol	25000	
319-86-8	delta-BHC	7800	U
85-01-8	Phenanthrene	7800	U
120-12-7	Anthracene	7800	U
58-89-9	gamma-BHC (Lindane)	7800	U
86-74-8	Carbazole	7800	U
84-74-2	Di-n-butylphthalate	7800	U
309-00-2	Aldrin	7800	U
1024-57-3	Heptachlor Epoxide	7800	U
206-44-0	Fluoranthene	7800	U
129-00-0	Pyrene	24000	
959-98-8	Endosulfan I	7800	U
72-55-9	4,4'-DDE	7800	U
60-57-1	Dieldrin	7800	U
72-20-8	Endrin	7800	U
33213-65-9	Endosulfan II	7800	U
72-54-8	4,4'-DDD	7800	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MSD

Sample wt/vol: 2.6 (g/mL) G Lab File ID: 99020614

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	7800	U
1031-07-8	Endosulfan Sulfate	7800	U
50-29-3	4,4'-DDT	7800	U
53494-70-5	Endrin Ketone	7800	U
56-55-3	Benzo(a)anthracene	7800	U
91-94-1	3,3'-Dichlorobenzidine	7800	U
218-01-9	Chrysene	7800	U
72-43-5	Methoxychlor	7800	U
117-81-7	Bis(2-Ethylhexyl)phthalate	7800	U
117-84-0	Di-n-octylphthalate	1300	J
205-99-2	Benzo(b)fluoranthene	7800	U
207-08-9	Benzo(k)fluoranthene	7800	U
50-32-8	Benzo(a)pyrene	7800	U
193-39-5	Indeno(1,2,3-cd)pyrene	7800	U
53-70-3	Dibenz(a,h)anthracene	7800	U
191-24-2	Benzo(g,h,i)perylene	7800	U
110-86-1	Pyridine	380	J
126-73-8	Tributyl phosphate	28000	
62-75-9	N-Nitrosodimethylamine	7800	U
98-86-2	Acetophenone	14000	
100-00-5	1-Chloro-4-nitrobenzene	23000	
92-52-4	Biphenyl	24000	
100-25-4	1,4-Dinitrobenzene	1100	J
128-37-0	Butylated Hydroxytoluene	7800	U
82-68-8	Pentachloronitrobenzene	6000	J
88-85-7	Dinoseb	3300	J
2234-13-1	Octachloronaphthalene	240000	
10595-95-6	N-Nitrosomethylethylamine	7800	U
55-18-5	N-Nitrosodiethylamine	7800	U
62-50-0	Ethyl methane sulfonate	7800	U
62-53-3	Analine	7800	U
76-01-7	Pentachloroethane	7800	U
930-55-2	N-Nitrosopyrolidine	40	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MSD

Sample wt/vol: 2.6 (g/mL) G Lab File ID: 99020614

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	7800	U
1888-71-7	Hexachloropropene	7800	U
924-16-3	N-Nitrosodi-n-butylamine	7800	U
94-59-7	Safrole	7800	U
95-94-3	1,2,4,5-Tetrachlorobenzene	7800	U
120-58-1	Isosafrole	7800	U
130-15-4	1,4-Naphthoquinone	7800	U
608-93-5	Pentachlorobenzene	160	J
134-32-7	1-Naphthylamine	2400	J
58-90-2	2,3,4,6-Tetrachlorophenol	130	J
91-59-8	2-Naphthylamine	7800	U
99-55-8	5-Nitro-o-toluidine	7800	U
103-33-3	Azeobenzene	7800	U
99-35-4	1,3,5-Trinitrobenzene	7800	U
2303-16-4	Diallate (cis)	7800	U
62-44-2	Phenacetin	7800	U
2303-16-4	Diallate (trans)	7800	U
92-67-1	4-Aminobiphenyl	7800	U
23950-58-5	Pronamine	7800	U
465-73-6	Isodrin	7800	U
57-74-9	Chlordane (alpha)	7800	U
92-87-5	Benzidine	7800	U
60-11-7	p-Dimethylaminoazobenzene	7800	U
510-15-6	Chlorobenzilate	7800	U
119-93-7	3,3'-Dimethylbenzidine	7800	U
53-96-3	2-Acetylaminofluorene	7800	U
56-49-5	3-Methylcholanthrene	7800	U
109-06-8	2-Methylpyridine	7800	U
143-50-0	Kepone	7800	U
57-74-9	Chlordane (gamma)	7800	U
66-27-3	Methyl methane sulfonate	7800	U
70-30-4	Hexachlorophene	7800	U
99-65-0	1,3-Dinitrobenzene	7800	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AW-101-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-MSD

Sample wt/vol: 2.6 (g/mL) G Lab File ID: 99020614

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	7800	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99020610

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4000	U
111-44-4	bis(2-Chloroethyl)ether	4000	U
95-57-8	2-Chlorophenol	4000	U
541-73-1	1,3-Dichlorobenzene	4000	U
106-46-7	1,4-Dichlorobenzene	4000	U
95-50-1	1,2-Dichlorobenzene	4000	U
100-51-6	Benzyl alcohol	4000	U
95-48-7	2-Methylphenol	4000	U
108-60-1	2,2'-oxybis(1-Chloropropane)	4000	U
621-64-7	N-Nitroso-di-n-propylamine	4000	U
106-44-5	4-Methylphenol	4000	U
67-72-1	Hexachloroethane	4000	U
98-95-3	Nitrobenzene	4000	U
78-59-1	Isophorone	4000	U
88-75-5	2-Nitrophenol	4000	U
105-67-9	2,4-Dimethylphenol	4000	U
111-91-1	bis(2-Chloroethoxy)methane	4000	U
120-83-2	2,4-Dichlorophenol	4000	U
120-82-1	1,2,4-Trichlorobenzene	4000	U
91-20-3	Naphthalene	4000	U
106-47-8	4-Chloroaniline	4000	U
87-68-3	Hexachlorobutadiene	4000	U
59-50-7	4-Chloro-3-methylphenol	4000	U
91-57-6	2-Methylnaphthalene	4000	U
77-47-4	Hexachlorocyclopentadiene	4000	U
88-06-2	2,4,6-Trichlorophenol	4000	U
95-95-4	2,4,5-Trichlorophenol	4000	U
91-58-7	2-Chloronaphthalene	4000	U
88-74-4	2-Nitroaniline	4000	U
99-09-2	3-Nitroaniline	4000	U
131-11-3	Dimethylphthalate	4000	U
606-20-2	2,6-Dinitrotoluene	4000	U
208-96-8	Acenaphthylene	4000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99020610

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	4000	U
51-28-5	2,4-Dinitrophenol	4000	U
132-64-9	Dibenzofuran	4000	U
100-02-7	4-Nitrophenol	4000	U
121-14-2	2,4-Dinitrotoluene	4000	U
84-66-2	Diethylphthalate	4000	U
86-73-7	Fluorene	4000	U
7005-72-3	4-Chlorophenyl-phenylether	4000	U
100-01-6	4-Nitroaniline	4000	U
534-52-1	4,6-Dinitro-2-methylphenol	4000	U
122-39-4	N,N-Diphenylamine	4000	U
76-44-8	Heptachlor	4000	U
319-84-6	alpha-BHC	4000	U
101-55-3	4-Bromophenyl-phenylether	4000	U
118-74-1	Hexachlorobenzene	4000	U
319-85-7	beta-BHC	4000	U
87-86-5	Pentachlorophenol	4000	U
319-86-8	delta-BHC	4000	U
85-01-8	Phenanthrene	4000	U
120-12-7	Anthracene	4000	U
58-89-9	gamma-BHC (Lindane)	4000	U
86-74-8	Carbazole	4000	U
84-74-2	Di-n-butylphthalate	4000	U
309-00-2	Aldrin	4000	U
1024-57-3	Heptachlor Epoxide	4000	U
206-44-0	Fluoranthene	4000	U
129-00-0	Pyrene	4000	U
959-98-8	Endosulfan I	4000	U
72-55-9	4,4'-DDE	4000	U
60-57-1	Dieldrin	4000	U
72-20-8	Endrin	4000	U
33213-65-9	Endosulfan II	4000	U
72-54-8	4,4'-DDD	4000	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99020610

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	4000	U
1031-07-8	Endosulfan Sulfate	4000	U
50-29-3	4,4'-DDT	4000	U
53494-70-5	Endrin Ketone	4000	U
56-55-3	Benzo(a)anthracene	4000	U
91-94-1	3,3'-Dichlorobenzidine	4000	U
218-01-9	Chrysene	4000	U
72-43-5	Methoxychlor	4000	U
117-81-7	Bis(2-Ethylhexyl)phthalate	4000	U
117-84-0	Di-n-octylphthalate	4000	U
205-99-2	Benzo(b)fluoranthene	4000	U
207-08-9	Benzo(k)fluoranthene	4000	U
50-32-8	Benzo(a)pyrene	4000	U
193-39-5	Indeno(1,2,3-cd)pyrene	4000	U
53-70-3	Dibenz(a,h)anthracene	4000	U
191-24-2	Benzo(g,h,i)perylene	4000	U
110-86-1	Pyridine	4000	U
126-73-8	Tributyl phosphate	4000	U
62-75-9	N-Nitrosodimethylamine	4000	U
98-86-2	Acetophenone	4000	U
100-00-5	1-Chloro-4-nitrobenzene	4000	U
92-52-4	Biphenyl	4000	U
100-25-4	1,4-Dinitrobenzene	4000	U
128-37-0	Butylated Hydroxytoluene	4000	U
82-68-8	Pentachloronitrobenzene	4000	U
88-85-7	Dinoseb	4000	U
2234-13-1	Octachloronaphthalene	4000	U
10595-95-6	N-Nitrosomethylethylamine	4000	U
55-18-5	N-Nitrosodiethylamine	4000	U
62-50-0	Ethyl methane sulfonate	4000	U
62-53-3	Analine	4000	U
76-01-7	Pentachloroethane	4000	U
930-55-2	N-Nitrosopyrolidine	4000	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99020610

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	4000	U
1888-71-7	Hexachloropropene	4000	U
924-16-3	N-Nitrosodi-n-butylamine	4000	U
94-59-7	Safrole	4000	U
95-94-3	1,2,4,5-Tetrachlorobenzene	4000	U
120-58-1	Isosafrole	4000	U
130-15-4	1,4-Naphthoquinone	4000	U
608-93-5	Pentachlorobenzene	4000	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	4000	U
91-59-8	2-Naphthylamine	4000	U
99-55-8	5-Nitro-o-toluidine	4000	U
103-33-3	Azeobenzene	4000	U
99-35-4	1,3,5-Trinitrobenzene	4000	U
2303-16-4	Diallate (cis)	4000	U
62-44-2	Phenacetin	4000	U
2303-16-4	Diallate (trans)	4000	U
92-67-1	4-Aminobiphenyl	4000	U
23950-58-5	Pronamine	4000	U
465-73-6	Isodrin	4000	U
57-74-9	Chlordane (alpha)	4000	U
92-87-5	Benzidine	4000	U
60-11-7	p-Dimethylaminoazobenzene	4000	U
510-15-6	Chlorobenzilate	4000	U
119-93-7	3,3'-Dimethylbenzidine	4000	U
53-96-3	2-Acetylaminofluorene	4000	U
56-49-5	3-Methylcholanthrene	4000	U
109-06-8	2-Methylpyridine	4000	U
143-50-0	Kepone	4000	U
57-74-9	Chlordane (gamma)	4000	U
66-27-3	Methyl methane sulfonate	4000	U
70-30-4	Hexachlorophene	4000	U
99-65-0	1,3-Dinitrobenzene	4000	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99020610

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	4000	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) WATER Lab Sample ID: LCS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020615

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2400(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	990	
111-44-4	bis(2-Chloroethyl)ether	1000	
95-57-8	2-Chlorophenol	990	
541-73-1	1,3-Dichlorobenzene	950	
106-46-7	1,4-Dichlorobenzene	970	
95-50-1	1,2-Dichlorobenzene	970	
100-51-6	Benzyl alcohol	870	
95-48-7	2-Methylphenol	2200	
108-60-1	2,2'-oxybis(1-Chloropropane)	960	
621-64-7	N-Nitroso-di-n-propylamine	980	
106-44-5	4-Methylphenol	4000	
67-72-1	Hexachloroethane	960	
98-95-3	Nitrobenzene	980	
78-59-1	Isophorone	1000	
88-75-5	2-Nitrophenol	1000	
105-67-9	2,4-Dimethylphenol	1000	
111-91-1	bis(2-Chloroethoxy)methane	1000	
120-83-2	2,4-Dichlorophenol	1000	
120-82-1	1,2,4-Trichlorobenzene	1000	
91-20-3	Naphthalene	1000	
106-47-8	4-Chloroaniline	930	
87-68-3	Hexachlorobutadiene	1000	
59-50-7	4-Chloro-3-methylphenol	1000	
91-57-6	2-Methylnaphthalene	1100	
77-47-4	Hexachlorocyclopentadiene	710	
88-06-2	2,4,6-Trichlorophenol	870	
95-95-4	2,4,5-Trichlorophenol	820	
91-58-7	2-Chloronaphthalene	970	
88-74-4	2-Nitroaniline	940	
99-09-2	3-Nitroaniline	880	
131-11-3	Dimethylphthalate	980	
606-20-2	2,6-Dinitrotoluene	990	
208-96-8	Acenaphthylene	950	

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) WATER Lab Sample ID: LCS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020615

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2400(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	950	
51-28-5	2,4-Dinitrophenol	360	U
132-64-9	Dibenzofuran	970	
100-02-7	4-Nitrophenol	50	J
121-14-2	2,4-Dinitrotoluene	940	
84-66-2	Diethylphthalate	980	
86-73-7	Fluorene	970	
7005-72-3	4-Chlorophenyl-phenylether	970	
100-01-6	4-Nitroaniline	830	
534-52-1	4,6-Dinitro-2-methylphenol	260	J
122-39-4	N,N-Diphenylamine	2200	
76-44-8	Heptachlor	1000	
319-84-6	alpha-BHC	1000	
101-55-3	4-Bromophenyl-phenylether	1000	
118-74-1	Hexachlorobenzene	1000	
319-85-7	beta-BHC	1200	
87-86-5	Pentachlorophenol	360	U
319-86-8	delta-BHC	1100	
85-01-8	Phenanthrene	1000	
120-12-7	Anthracene	1100	
58-89-9	gamma-BHC (Lindane)	1100	
86-74-8	Carbazole	1000	
84-74-2	Di-n-butylphthalate	1000	
309-00-2	Aldrin	1000	
1024-57-3	Heptachlor Epoxide	1000	
206-44-0	Fluoranthene	1100	
129-00-0	Pyrene	1100	
959-98-8	Endosulfan I	1100	
72-55-9	4,4'-DDE	1100	
60-57-1	Dieldrin	1100	
72-20-8	Endrin	1000	
33213-65-9	Endosulfan II	1100	
72-54-8	4,4'-DDD	1100	

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) WATER Lab Sample ID: LCS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020615

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2400(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	1100	
1031-07-8	Endosulfan Sulfate	1100	
50-29-3	4,4'-DDT	1100	
53494-70-5	Endrin Ketone	1100	
56-55-3	Benzo(a)anthracene	1100	
91-94-1	3,3'-Dichlorobenzidine	900	
218-01-9	Chrysene	1100	
72-43-5	Methoxychlor	1000	
117-81-7	Bis(2-Ethylhexyl)phthalate	1100	
117-84-0	Di-n-octylphthalate	1000	
205-99-2	Benzo(b)fluoranthene	980	
207-08-9	Benzo(k)fluoranthene	980	
50-32-8	Benzo(a)pyrene	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	750	
53-70-3	Dibenz(a,h)anthracene	1000	
191-24-2	Benzo(g,h,i)perylene	1000	
110-86-1	Pyridine	2100	
126-73-8	Tributyl phosphate	1300	
62-75-9	N-Nitrosodimethylamine	1000	
98-86-2	Acetophenone	2100	
100-00-5	1-Chloro-4-nitrobenzene	1400	
92-52-4	Biphenyl	1300	
100-25-4	1,4-Dinitrobenzene	1500	
128-37-0	Butylated Hydroxytoluene	1200	
82-68-8	Pentachloronitrobenzene	2300	
88-85-7	Dinoseb	1700	
2234-13-1	Octachloronaphthalene	1200	
10595-95-6	N-Nitrosomethylethylamine	1000	
55-18-5	N-Nitrosodiethylamine	990	
62-50-0	Ethyl methane sulfonate	1000	
62-53-3	Analine	900	
76-01-7	Pentachloroethane	950	
930-55-2	N-Nitrosopyrolidine	990	

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) WATER Lab Sample ID: LCS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020615

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2400(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	1000	
1888-71-7	Hexachloropropene	990	
924-16-3	N-Nitrosodi-n-butylamine	1000	
94-59-7	Safrole	1000	
95-94-3	1,2,4,5-Tetrachlorobenzene	940	
120-58-1	Isosafrole	910	
130-15-4	1,4-Naphthoquinone	990	
608-93-5	Pentachlorobenzene	950	
134-32-7	1-Naphthylamine	630	
58-90-2	2,3,4,6-Tetrachlorophenol	400	
91-59-8	2-Naphthylamine	700	
99-55-8	5-Nitro-o-toluidine	890	
103-33-3	Azeobenzene	1000	
99-35-4	1,3,5-Trinitrobenzene	950	
2303-16-4	Diallate (cis)	1000	
62-44-2	Phenacetin	990	
2303-16-4	Diallate (trans)	1000	
92-67-1	4-Aminobiphenyl	980	
23950-58-5	Pronamine	1000	
465-73-6	Isodrin	1000	
57-74-9	Chlordane (alpha)	1000	
92-87-5	Benzidine	400	
60-11-7	p-Dimethylaminoazobenzene	1000	
510-15-6	Chlorobenzilate	1100	
119-93-7	3,3'-Dimethylbenzidine	810	
53-96-3	2-Acetylaminofluorene	950	
56-49-5	3-Methylcholanthrene	930	
109-06-8	2-Methylpyridine	1000	
143-50-0	Kepone	1100	
57-74-9	Chlordane (gamma)	1000	
66-27-3	Methyl methane sulfonate	1100	
70-30-4	Hexachlorophene	3100	
99-65-0	1,3-Dinitrobenzene	980	

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) WATER Lab Sample ID: LCS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99020615

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2400(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	1000	

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0648

Sample wt/vol: 0.000 (g/mL) ML Lab File ID: 99020606

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

Number TICs found: 22

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 67-66-3	CHLOROFORM	4.82	430	NJ
2. 79-00-5	ETHANE, 1,1,2-TRICHLORO-	5.45	160	NJ
3. 107-92-6	BUTANOIC ACID	6.85	2000	NJ
4. 75-98-9	PROPANOIC ACID, 2,2-DIMETHYL	7.08	410	NJ
5. 75-76-3	SILANE, TETRAMETHYL-	7.31	3300	NJ
6. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7.40	2000	NJB
7. 141-78-6	ETHYL ACETATE	7.88	1100	NJ
8. 4245-37-8	2-PROPENOIC ACID, 2-METHYL-,	8.04	440	NJ
9. 156-87-6	1-PROPANOL, 3-AMINO-	8.11	390	NJ
10. 111-84-2	NONANE	9.28	89000	NJB
11. 616-40-0	HYDRAZINE, 1,1-DIETHYL-	9.60	96	NJ
12. 53778-73-7	2-BUTANOL, 1-METHOXY-	9.97	2100	NJ
13.	UNKNOWN	10.06	460	J
14. 13861-97-7	2(3H)-FURANONE, DIHYDRO-4,4-	11.11	580	NJ
15. 78-42-2	PHOSPHORIC ACID, TRIS(2-ETHY	13.57	240	NJ
16.	UNKNOWN	14.25	350	J
17. 20633-13-0	UNKNOWN NITRIC ACID ESTER	16.24	170	J
18. 20633-12-9	UNKNOWN NITRIC ACID ESTER	16.52	240	NJ
19. 20633-11-8	UNKNOWN NITRIC ACID ESTER	16.89	380	NJ
20. 2050-78-4	UNKNOWN NITRIC ACID ESTER	17.32	48	NJ
21. 20633-13-0	UNKNOWN NITRIC ACID ESTER	18.04	180	NJ
22.	UNKNOWN	23.04	170	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0648D

Sample wt/vol: 0.000 (g/mL) ML Lab File ID: 99020607

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

Number TICs found: 12

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75-76-3	SILANE, TETRAMETHYL-	7.30	2300	NJ
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7.42	5200	NJB
3. 141-78-6	ETHYL ACETATE	7.88	1100	NJ
4. 156-87-6	1-PROPANOL, 3-AMINO-	8.11	510	NJ
5. 111-84-2	NONANE	9.28	80000	NJB
6. 3970-62-5	3-PENTANOL, 2,2-DIMETHYL-	9.97	3000	NJ
7.	UNKNOWN NITRIC ACID ESTER	16.23	130	J
8. 20633-11-8	NITRIC ACID, HEXYL ESTER	16.51	200	NJ
9. 20633-11-8	NITRIC ACID, HEXYL ESTER	16.88	300	NJ
10. 2050-78-4	NITRIC ACID, DECYL ESTER	17.31	66	NJ
11. 20633-13-0	NITRIC ACID, NONYL ESTER	18.04	150	NJ
12.	UNKNOWN	23.04	170	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: SBLK03

Sample wt/vol: 0.000 (g/mL) ML Lab File ID: 99020605

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75-76-3	SILANE, TETRAMETHYL-	7.30	7200	NJ
2. 111-84-2	NONANE	9.27	130000	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-

Sample wt/vol: 4.2 (g/mL) G Lab File ID: 99020611

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	6.56	980000	NJ
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	8.75	2600000	NJA
3. 111-84-2	NONANE	9.40	690000	NJB
4.	UNKNOWN ALDOL CONDENSATE	10.11	76000	JA
5.	UNKNOWN ALDOL CONDENSATE	10.39	15000	JA
6.	UNKNOWN	13.48	56000	J
7. 504-20-1	2,5-HEPTADIEN-4-ONE, 2,6-DIM	14.05	9400	NJ
8. 73583-56-9	2,6-DIMETHYL-6-NITRO-2-HEPTE	14.78	32000	NJ
9.	UNKNOWN	14.99	36000	J
10. 112-40-3	DODECANE	15.75	39000	NJ
11. 3973-27-1	P-DIOXIN, 2,3-DIHYDRO-2,5,6-	16.05	110000	NJ
12.	UNKNOWN	16.42	19000	J
13. 629-50-5	TRIDECANE	17.63	170000	NJ
14. 629-59-4	TETRADECANE	19.30	160000	NJ
15. 629-62-9	PENTADECANE	20.86	14000	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AW-101-D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0650-D

Sample wt/vol: 4.7 (g/mL) G Lab File ID: 99020612

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/07/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 12.5

Number TICs found: 18

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 625-33-2	3-PENTEN-2-ONE	4.35	11000	NJA
2. 109-49-9	5-HEXEN-2-ONE	4.67	17000	NJA
3. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	6.72	770000	NJA
4. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	8.85	4600000	NJA
5.	NONANE	9.31	1500000	NJB
6.	UNKNOWN ALDOL CONDENSATE	10.24	59000	JA
7. 3970-62-5	3-PENTANOL, 2,2-DIMETHYL-	10.52	22000	NJ
8.	UNKNOWN	13.36	41000	J
9. 504-20-1	2,5-HEPTADIEN-4-ONE, 2,6-DIM	14.04	19000	NJ
10. 638-10-8	2-BUTENOIC ACID, 3-METHYL-,	14.87	99000	NJ
11. 112-40-3	DODECANE	15.74	73000	NJ
12. 18720-66-6	3-HEPTANOL, 6-METHYL-	15.85	34000	NJ
13.	UNKNOWN	16.09	210000	J
14.	UNKNOWN	16.44	44000	J
15. 629-50-5	TRIDECANE	17.61	190000	NJ
16. 629-59-4	TETRADECANE	19.29	210000	NJ
17. 110-13-4	2,5-HEXANEDIONE	20.31	17000	NJ
18. 629-62-9	PENTADECANE	20.85	20000	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99020610

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALDOL CONDENSATE	6.64	20000	JA
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7.50	430000	NJ
3. 111-84-2	NONANE	9.34	1600000	NJ
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2D
SOLID SEMIVOLATILE SURROGATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (2CP) #	S4 (DCB) #	S5 (NBZ) #	S6 (FBP) #	S7 (TBP) #	S8 (TPH) #	TOT OUT
01	METHOD BLANK	30	31	64	70	66	69	14*	78	1
02	AW-101-	2*	3*	18*	48	46	68	4*	82	4
03	AW-101-D	0*	0*	8*	72	69	82	4*	90	4
04	AW-101-MS	8*	8*	27	66	67	83	4*	97	3
05	AW-101-MSD	13*	8*	40	54	54	76	12*	95	3
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		QC LIMITS	
S1 (2FP)	= 2-Fluorophenol	(25-121)	
S2 (PHL)	= Phenol-d5	(24-113)	
S3 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S4 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)	(advisory)
S5 (NBZ)	= Nitrobenzene-d5	(23-120)	
S6 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S7 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S8 (TPH)	= Terphenyl-d14	(18-137)	

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

2C
SUPERNATANT SEMIVOLATILE SURROGATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

	EPA SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (2CP) #	S4 (DCB) #	S5 (NBZ) #	S6 (FBP) #	S7 (TBP) #	S8 (TPH) #	TOT OUT
01	METHOD BLANK	27	28	63	62	65	69	10	74	0
02	AW-101	0*	8*	0*	68	66	70	0*	80	4
03	AW-101D	0*	3*	0*	55	57	60	0*	69	4
04	AW-101MS	1*	1*	0*	68	65	72	24	78	3
05	AW-101MSD	1*	1*	0*	71	69	76	15	87	3
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		QC LIMITS	
S1 (2FP)	= 2-Fluorophenol	(21-110)	
S2 (PHL)	= Phenol-d5	(10-110)	
S3 (2CP)	= 2-Chlorophenol-d4	(16-110)	(advisory)
S4 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)
S5 (NBZ)	= Nitrobenzene-d5	(35-114)	
S6 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S7 (TBP)	= 2,4,6-Tribromophenol	(10-123)	
S8 (TPH)	= Terphenyl-d14	(33-141)	

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

	EPA SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (2CP) #	S4 (DCB) #	S5 (NBZ) #	S6 (FBP) #	S7 (TBP) #	S8 (TPH) #	TOT OUT
01	LCS	70	70	73	73	126*	124*	67	138	2
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		QC LIMITS	
S1 (2FP)	= 2-Fluorophenol	(21-110)	
S2 (PHL)	= Phenol-d5	(10-110)	
S3 (2CP)	= 2-Chlorophenol-d4	(16-110)	(advisory)
S4 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)
S5 (NBZ)	= Nitrobenzene-d5	(35-114)	
S6 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S7 (TBP)	= 2,4,6-Tribromophenol	(10-123)	
S8 (TPH)	= Terphenyl-d14	(33-141)	

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

SUPERNATANT SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Phenol	75	0.0	0.2	0*	12-110
2-Chlorophenol	75	0.0	0.2	0*	27-123
1,4-Dichlorobenzene	50	0.0	24	48	36- 97
2-Methylphenol	50	0.0	0.3	1	1-150
N-Nitroso-di-n-prop.(1)	50	0.0	25	50	41-116
4-Methylphenol	100	0.0	0.7	1	1-150
1,2,4-Trichlorobenzene	50	0.0	27	54	39- 98
4-Chloro-3-methylphenol	75	0.0	3	4*	23- 97
Acenaphthene	50	0.0	26	52	46-118
4-Nitrophenol	75	0.0	28	37	10- 80
2,4-Dinitrotoluene	50	0.0	19	38	24- 96
N,N-Diphenylamine	50	0.0	22	44	1-150
Pentachlorophenol	75	0.0	31	41	9-103
Pyrene	50	0.0	30	60	26-127
Pyridine	50	0.0	13	26	1-150
Tributyl phosphate	50	0.9	33	64	1-150
Acetophenone	50	0.07	24	48	1-150
1-Chloro-4-nitrobenzene	50	0.0	30	60	1-150
Biphenyl	50	0.2	30	60	1-150
1,4-Dinitrobenzene	50	0.0	24	48	1-150
Pentachloronitrobenzene	50	0.0	24	48	1-150
Dinoseb	50	0.0	19	38	1-150
Octachloronaphthalene	50	0.0	30	60	1-150

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

SUPERNATANT SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75	0.1	0*	999*	42	12-110
2-Chlorophenol	75	0.1	0*	999*	40	27-123
1,4-Dichlorobenzene	50	21	42	13	28	36- 97
2-Methylphenol	50	0.008	0*	200*	50	1-150
N-Nitroso-di-n-prop.(1)	50	23	46	8	38	41-116
4-Methylphenol	100	0.2	0*	200*	50	1-150
1,2,4-Trichlorobenzene	50	25	50	8	28	39- 98
4-Chloro-3-methylphenol	75	0.5	1*	120*	42	23- 97
Acenaphthene	50	24	48	8	31	46-118
4-Nitrophenol	75	18	24	43	50	10- 80
2,4-Dinitrotoluene	50	18	36	5	38	24- 96
N,N-Diphenylamine	50	20	40	10	50	1-150
Pentachlorophenol	75	27	36	13	50	9-103
Pyrene	50	28	56	7	31	26-127
Pyridine	50	7	14	60*	50	1-150
Tributyl phosphate	50	31	60	6	50	1-150
Acetophenone	50	22	44	9	50	1-150
1-Chloro-4-nitrobenzene	50	29	58	3	50	1-150
Biphenyl	50	28	56	7	50	1-150
1,4-Dinitrobenzene	50	26	52	8	50	1-150
Pentachloronitrobenzene	50	25	50	4	50	1-150
Dinoseb	50	6	12	104*	50	1-150
Octachloronaphthalene	50	29	58	3	50	1-150

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 7 out of 23 outside limits
Spike Recovery: 8 out of 46 outside limits

COMMENTS: _____

SOLID SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101- Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Phenol	75	0.0	9	12	12-110
2-Chlorophenol	75	0.0	15	20*	27-123
1,4-Dichlorobenzene	50	0.0	15	30*	36- 97
2-Methylphenol	50	0.0	0.2	0*	1-150
N-Nitroso-di-n-prop.(1)	50	0.0	22	44	41-116
4-Methylphenol	100	0.0	2	2	1-150
1,2,4-Trichlorobenzene	50	0.0	24	48	39- 98
4-Chloro-3-methylphenol	75	0.0	5	7*	23- 97
Acenaphthene	50	0.0	28	56	46-118
4-Nitrophenol	75	0.0	70	93*	10- 80
2,4-Dinitrotoluene	50	0.0	0.8	2*	24- 96
N,N-Diphenylamine	50	0.0	0.8	2	1-150
Pentachlorophenol	75	0.0	37	49	9-103
Pyrene	50	0.0	33	66	26-127
Pyridine	50	0.0	6	12	1-150
Tributyl phosphate	50	2	40	76	1-150
Acetophenone	50	0.0	20	40	1-150
1-Chloro-4-nitrobenzene	50	0.0	30	60	1-150
Biphenyl	50	0.0	33	66	1-150
1,4-Dinitrobenzene	50	0.0	0.6	1	1-150
Pentachloronitrobenzene	50	0.0	8	16	1-150
Dinoseb	50	0.0	4	8	1-150
Octachloronaphthalene	50	0.0	110	220*	1-150

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

3D
SOLID SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AW-101- Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	%. RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75	9	12	0	42	12-110
2-Chlorophenol	75	22	29	37	40	27-123
1,4-Dichlorobenzene	50	16	32*	6	28	36- 97
2-Methylphenol	50	0.4	1	200*	50	1-150
N-Nitroso-di-n-prop.(1)	50	19	38*	15	38	41-116
4-Methylphenol	100	2	2	0	50	1-150
1,2,4-Trichlorobenzene	50	24	48	0	28	39- 98
4-Chloro-3-methylphenol	75	7	9*	25	42	23- 97
Acenaphthene	50	25	50	11	31	46-118
4-Nitrophenol	75	73	97*	4	50	10- 80
2,4-Dinitrotoluene	50	0.8	2*	0	38	24- 96
N,N-Diphenylamine	50	0.3	1	67*	50	1-150
Pentachlorophenol	75	32	43	13	50	9-103
Pyrene	50	30	60	10	31	26-127
Pyridine	50	0.5	1	169*	50	1-150
Tributyl phosphate	50	36	68	11	50	1-150
Acetophenone	50	18	36	10	50	1-150
1-Chloro-4-nitrobenzene	50	29	58	3	50	1-150
Biphenyl	50	30	60	10	50	1-150
1,4-Dinitrobenzene	50	1	2	67*	50	1-150
Pentachloronitrobenzene	50	8	16	0	50	1-150
Dinoseb	50	4	8	0	50	1-150
Octachloronaphthalene	50	300	600*	93*	50	1-150

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 5 out of 23 outside limits
Spike Recovery: 13 out of 46 outside limits

COMMENTS: _____

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99020610 Lab Sample ID: SBLK04

Instrument ID: HP1 Date Extracted:

Matrix: (soil/water) SOLID Date Analyzed: 02/06/99

Level: (low/med) LOW Time Analyzed: 2328

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	AW-101-	99-0650-	99020611	02/07/99
02	AW-101-D	99-0650-D	99020612	02/07/99
03	AW-101-MS	99-0650-MS	99020613	02/07/99
04	AW-101-MSD	99-0650-MSD	99020614	02/07/99
05				
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08				
09				
10				
11				
12				
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COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99020605 Lab Sample ID: SBLK03

Instrument ID: HP1 Date Extracted:

Matrix: (soil/water) SUPERNATANT Date Analyzed: 02/06/99

Level: (low/med) LOW Time Analyzed: 1903

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	AW-101	99-0648	99020606	02/06/99
02	AW-101D	99-0648D	99020607	02/06/99
03	AW-101MS	99-0648MS	99020608	02/06/99
04	AW-101MSD	99-0648MSD	99020609	02/06/99
05				
06				
07				
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COMMENTS:

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99020601 DFTPP Injection Date: 02/06/99

Instrument ID: HP1 DFTPP Injection Time: 1532

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	47.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	52.5
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	25.0 - 75.0% of mass 198	50.0
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	21.3
365	Greater than 0.75% of mass 198	2.32
441	Present, but less than mass 443	8.6
442	40.0 - 110.0% of mass 198	60.3
443	15.0 - 24.0% of mass 442	11.7 (19.5)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD050DQOMIX	STD050	99020602	02/06/99	1625
02					
03					
04					
05					
06					
07					
08					
09					
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5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99020603 DFTPP Injection Date: 02/06/99

Instrument ID: HP1 DFTPP Injection Time: 1718

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	51.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.1
70	Less than 2.0% of mass 69	0.2 (0.3)1
127	25.0 - 75.0% of mass 198	52.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	21.6
365	Greater than 0.75% of mass 198	2.34
441	Present, but less than mass 443	8.0
442	40.0 - 110.0% of mass 198	57.8
443	15.0 - 24.0% of mass 442	10.9 (18.8)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD050	STD050	99020604	02/06/99	1811
02	METHOD BLANK	SBLK03	99020605	02/06/99	1903
03	AW-101	99-0648	99020606	02/06/99	1956
04	AW-101D	99-0648D	99020607	02/06/99	2049
05	AW-101MS	99-0648MS	99020608	02/06/99	2142
06	AW-101MSD	99-0648MSD	99020609	02/06/99	2235
07	METHOD BLANK	SBLK04	99020610	02/06/99	2328
08	AW-101-	99-0650-	99020611	02/07/99	0021
09	AW-101-D	99-0650-D	99020612	02/07/99	0114
10	AW-101-MS	99-0650-MS	99020613	02/07/99	0207
11	AW-101-MSD	99-0650-MSD	99020614	02/07/99	0300
12	LCS	LCS	99020615	02/07/99	0353
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14					
15					
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22					

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/06/99 Time: 1625

Lab File ID: 99020602 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Phenol	1.914	2.075	0.800	-8.4	25.0
bis(2-Chloroethyl)ether	1.521	1.728	0.700	-13.6	25.0
2-Chlorophenol	1.342	1.552	0.800	-15.6	25.0
1,3-Dichlorobenzene	1.518	1.763	0.600	-16.1	25.0
1,4-Dichlorobenzene	1.552	1.808	0.500	-16.5	25.0
1,2-Dichlorobenzene	1.453	1.687	0.400	-16.1	25.0
Benzyl alcohol	0.864	0.966	0.100	-11.8	25.0
2-Methylphenol	1.210	1.440	0.700	-19.0	25.0
2,2'-oxybis(1-Chloropropane)	1.864	2.215		-18.8	
N-Nitroso-di-n-propylamine	1.009	1.204	0.500	-19.3	25.0
4-Methylphenol	1.339	1.572	0.600	-17.4	25.0
Hexachloroethane	0.595	0.692	0.300	-16.3	25.0
Nitrobenzene	1.486	1.735	0.200	-16.8	25.0
Isophorone	0.788	0.860	0.400	-9.1	25.0
2-Nitrophenol	0.211	0.231	0.100	-9.5	25.0
2,4-Dimethylphenol	0.324	0.352	0.200	-8.6	25.0
bis(2-Chloroethoxy)methane	0.424	0.465	0.300	-9.7	25.0
2,4-Dichlorophenol	0.290	0.310	0.200	-6.9	25.0
1,2,4-Trichlorobenzene	0.327	0.360	0.200	-10.1	25.0
Naphthalene	1.088	1.218	0.700	-11.9	25.0
4-Chloroaniline	0.397	0.471		-18.6	
Hexachlorobutadiene	0.170	0.184		-8.2	
4-Chloro-3-methylphenol	0.300	0.322	0.200	-7.3	25.0
2-Methylnaphthalene	0.688	0.764	0.400	-11.0	25.0
Hexachlorocyclopentadiene	0.361	0.340		5.8	
2,4,6-Trichlorophenol	0.359	0.402	0.200	-12.0	25.0
2,4,5-Trichlorophenol	0.383	0.430	0.200	-12.3	25.0
2-Chloronaphthalene	1.189	1.433	0.800	-20.5	25.0
2-Nitroaniline	0.377	0.442		-17.2	
3-Nitroaniline	0.342	0.414	0.050	-21.0	40.0
Dimethylphthalate	1.272	1.511	0.050	-18.8	25.0
2,6-Dinitrotoluene	0.315	0.379	0.200	-20.3	25.0
Acenaphthylene	1.880	2.246	1.300	-19.5	25.0
Acenaphthene	1.151	1.338	0.800	-16.2	25.0
2,4-Dinitrophenol	0.180	0.181		-0.6	
Dibenzofuran	1.576	1.875	0.800	-19.0	25.0
4-Nitrophenol	0.152	0.138		9.2	

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/06/99 Time: 1625

Lab File ID: 99020602 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
2,4-Dinitrotoluene	0.398	0.486	0.200	-22.1	25.0
Diethylphthalate	1.263	1.512		-19.7	
Fluorene	1.253	1.484	0.900	-18.4	25.0
4-Chlorophenyl-phenylether	0.554	0.655	0.400	-18.2	25.0
4-Nitroaniline	0.337	0.401		-19.0	
4,6-Dinitro-2-methylphenol	0.236	0.282		-19.5	
N,N-Diphenylamine	0.722	0.767		-6.2	
Heptachlor	0.179	0.192	0.050	-7.3	40.0
alpha-BHC	0.155	0.165	0.050	-6.4	40.0
4-Bromophenyl-phenylether	0.211	0.226	0.100	-7.1	25.0
Hexachlorobenzene	0.236	0.251	0.100	-6.4	25.0
beta-BHC	0.117	0.134	0.050	-14.5	40.0
Pentachlorophenol	0.161	0.149	0.050	7.4	25.0
delta-BHC	0.125	0.132	0.050	-5.6	40.0
Phenanthrene	1.139	1.216	0.700	-6.8	25.0
Anthracene	1.139	1.216	0.700	-6.8	25.0
gamma-BHC (Lindane)	0.112	0.116	0.050	-3.6	40.0
Carbazole	1.061	1.146		-8.0	
Di-n-butylphthalate	1.376	1.512		-9.9	
Aldrin	0.170	0.182	0.050	-7.0	40.0
Heptachlor Epoxide	0.057	0.062		-8.8	
Fluoranthene	1.063	1.160	0.600	-9.1	25.0
Pyrene	1.485	1.626	0.600	-9.5	25.0
Endosulfan I	0.052	0.056		-7.7	
4,4'-DDE	0.267	0.290	0.050	-8.6	40.0
Dieldrin	0.277	0.297	0.050	-7.2	40.0
Endrin	0.080	0.090	0.050	-12.5	40.0
Endosulfan II	0.045	0.047		-4.4	
4,4'-DDD	0.461	0.485	0.050	-5.2	40.0
Butylbenzylphthalate	0.767	0.831		-8.3	
Endosulfan Sulfate	0.076	0.081		-6.6	
4,4'-DDT	0.414	0.431	0.050	-4.1	40.0
Endrin Ketone	0.124	0.127	0.050	-2.4	40.0
Benzo(a)anthracene	1.370	1.484	0.800	-8.3	25.0
3,3'-Dichlorobenzidine	0.388	0.465		-19.8	
Chrysene	1.153	1.253	0.700	-8.7	25.0

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/06/99 Time: 1625

Lab File ID: 99020602 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Methoxychlor	0.937	1.026	0.050	-9.5	40.0
Bis(2-Ethylhexyl)phthalate	1.049	1.127		-7.4	
Di-n-octylphthalate	1.793	1.975		-10.2	
Benzo(b)fluoranthene	1.275	1.367	0.700	-7.2	25.0
Benzo(k)fluoranthene	1.195	1.367	0.700	-14.4	25.0
Benzo(a)pyrene	1.034	1.100	0.700	-6.4	25.0
Indeno(1,2,3-cd)pyrene	1.081	1.149	0.500	-6.3	25.0
Dibenz(a,h)anthracene	0.907	0.962	0.400	-6.1	25.0
Benzo(g,h,i)perylene	0.923	0.947	0.500	-2.6	25.0
Pyridine	0.985	1.112		-12.9	
Tributyl phosphate	1.147	1.176		-2.5	
N-Nitrosodimethylamine	0.603	0.660		-9.4	
Acetophenone	1.848	2.158		-16.8	
1-Chloro-4-nitrobenzene	0.123	0.123		0.0	
Biphenyl	1.372	1.419		-3.4	
1,4-Dinitrobenzene	0.218	0.207		5.0	
Butylated Hydroxytoluene	0.894	0.889		0.6	
Pentachloronitrobenzene	0.090	0.095		-5.6	
Dinoseb	0.215	0.229		-6.5	
Octachloronaphthalene	0.099	0.095		4.0	
N-Nitrosomethylethylamine	0.467	0.508		-8.8	
N-Nitrosodiethylamine	0.712	0.822		-15.4	
Ethyl methane sulfonate	1.118	1.292		-15.6	
Analine	2.065	2.399		-16.2	
Pentachloroethane	0.516	0.589		-14.1	
N-Nitrosopyrolidine	0.703	0.834		-18.6	
N-Nitrosopiperidine	0.192	0.211		-9.9	
Hexachloropropene	0.200	0.212		-6.0	
N-Nitrosodi-n-butylamine	0.254	0.282		-11.0	
Safrole	0.266	0.296		-11.3	
1,2,4,5-Tetrachlorobenzene	0.541	0.636		-17.6	
Isosafrole	0.547	0.606		-10.8	
1,4-Naphthoquinone	0.321	0.375		-16.8	
Pentachlorobenzene	0.439	0.516		-17.5	
1-Naphthylamine	1.006	1.254		-24.6	
2,3,4,6-Tetrachlorophenol	0.278	0.308		-10.8	

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/06/99 Time: 1625

Lab File ID: 99020602 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
2-Naphthylamine	0.680	0.882		-29.7		
5-Nitro-o-toluidine	0.367	0.450		-22.6		
Azeobenzene	1.028	1.062		-3.3		
1,3,5-Trinitrobenzene	0.212	0.216		-1.9		
Diallate (cis)	0.133	0.143		-7.5		
Phenacetin	0.419	0.438		-4.5		
Diallate (trans)	0.312	0.335		-7.4		
4-Aminobiphenyl	0.580	0.720		-24.1		
Pronamine	0.353	0.381		-7.9		
Isodrin	0.128	0.137		-7.0		
Chlordane (alpha)	0.103	0.112		-8.7		
Benzidine	0.488	0.533		-9.2		
p-Dimethylaminoazobenzene	0.483	0.525		-8.7		
Chlorobenzilate	0.509	0.544		-6.9		
3,3'-Dimethylbenzidine	0.368	0.474		-28.8		
2-Acetylaminofluorene	0.274	0.302		-10.2		
3-Methylcholanthrene	0.551	0.593		-7.6		
2-Methylpyridine	1.046	1.161		-11.0		
Kepone	0.076	0.082		-7.9		
Chlordane (gamma)	0.102	0.118		-15.7		
Methyl methane sulfonate	0.411	0.470		-14.4		
Hexachlorophene	0.032			100.0		<-
1,3-Dinitrobenzene	0.244	0.290		-18.8		
2,6-Dichlorophenol	0.296	0.314		-6.1		
2-Fluorophenol	2.703	3.049	0.600	-12.8	25.0	
Phenol-d5	3.439	3.917	0.800	-13.9	25.0	
2-Chlorophenol-d4			0.800		25.0	<-
1,2-Dichlorobenzene-d4			0.400		25.0	<-
Nitrobenzene-d5	1.446	1.683	0.200	-16.4	25.0	
2-Fluorobiphenyl	1.292	1.506	0.700	-16.6	25.0	
2,4,6-Tribromophenol	0.223	0.232		-4.0		
Terphenyl-d14	0.950	1.029	0.500	-8.3	25.0	

All other compounds must meet a minimum RRF of 0.010.

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/06/99 Time: 1811

Lab File ID: 99020604 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Phenol	1.914	2.075	0.800	-8.4	25.0
bis(2-Chloroethyl)ether	1.521	1.728	0.700	-13.6	25.0
2-Chlorophenol	1.342	1.552	0.800	-15.6	25.0
1,3-Dichlorobenzene	1.518	1.763	0.600	-16.1	25.0
1,4-Dichlorobenzene	1.552	1.808	0.500	-16.5	25.0
1,2-Dichlorobenzene	1.453	1.687	0.400	-16.1	25.0
Benzyl alcohol	0.864	0.966	0.100	-11.8	25.0
2-Methylphenol	1.210	1.440	0.700	-19.0	25.0
2,2'-oxybis(1-Chloropropane)	1.864	2.215		-18.8	
N-Nitroso-di-n-propylamine	1.009	1.204	0.500	-19.3	25.0
4-Methylphenol	1.339	1.572	0.600	-17.4	25.0
Hexachloroethane	0.595	0.692	0.300	-16.3	25.0
Nitrobenzene	1.486	1.735	0.200	-16.8	25.0
Isophorone	0.788	0.860	0.400	-9.1	25.0
2-Nitrophenol	0.211	0.231	0.100	-9.5	25.0
2,4-Dimethylphenol	0.324	0.352	0.200	-8.6	25.0
bis(2-Chloroethoxy)methane	0.424	0.465	0.300	-9.7	25.0
2,4-Dichlorophenol	0.290	0.310	0.200	-6.9	25.0
1,2,4-Trichlorobenzene	0.327	0.360	0.200	-10.1	25.0
Naphthalene	1.088	1.218	0.700	-11.9	25.0
4-Chloroaniline	0.397	0.471		-18.6	
Hexachlorobutadiene	0.170	0.184		-8.2	
4-Chloro-3-methylphenol	0.300	0.322	0.200	-7.3	25.0
2-Methylnaphthalene	0.688	0.764	0.400	-11.0	25.0
Hexachlorocyclopentadiene	0.361	0.340		5.8	
2,4,6-Trichlorophenol	0.359	0.402	0.200	-12.0	25.0
2,4,5-Trichlorophenol	0.383	0.430	0.200	-12.3	25.0
2-Chloronaphthalene	1.189	1.433	0.800	-20.5	25.0
2-Nitroaniline	0.377	0.442		-17.2	
3-Nitroaniline	0.342	0.414	0.050	-21.0	40.0
Dimethylphthalate	1.272	1.511	0.050	-18.8	25.0
2,6-Dinitrotoluene	0.315	0.379	0.200	-20.3	25.0
Acenaphthylene	1.880	2.246	1.300	-19.5	25.0
Acenaphthene	1.151	1.338	0.800	-16.2	25.0
2,4-Dinitrophenol	0.180	0.181		-0.6	
Dibenzofuran	1.576	1.875	0.800	-19.0	25.0
4-Nitrophenol	0.152	0.138		9.2	

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/06/99 Time: 1811

Lab File ID: 99020604 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
2,4-Dinitrotoluene	0.398	0.486	0.200	-22.1	25.0
Diethylphthalate	1.263	1.512		-19.7	
Fluorene	1.253	1.484	0.900	-18.4	25.0
4-Chlorophenyl-phenylether	0.554	0.655	0.400	-18.2	25.0
4-Nitroaniline	0.337	0.401		-19.0	
4,6-Dinitro-2-methylphenol	0.236	0.282		-19.5	
N,N-Diphenylamine	0.722	0.767		-6.2	
Heptachlor	0.179	0.192	0.050	-7.3	40.0
alpha-BHC	0.155	0.165	0.050	-6.4	40.0
4-Bromophenyl-phenylether	0.211	0.226	0.100	-7.1	25.0
Hexachlorobenzene	0.236	0.251	0.100	-6.4	25.0
beta-BHC	0.117	0.134	0.050	-14.5	40.0
Pentachlorophenol	0.161	0.149	0.050	7.4	25.0
delta-BHC	0.125	0.132	0.050	-5.6	40.0
Phenanthrene	1.139	1.216	0.700	-6.8	25.0
Anthracene	1.139	1.216	0.700	-6.8	25.0
gamma-BHC (Lindane)	0.112	0.116	0.050	-3.6	40.0
Carbazole	1.061	1.146		-8.0	
Di-n-butylphthalate	1.376	1.512		-9.9	
Aldrin	0.170	0.182	0.050	-7.0	40.0
Heptachlor Epoxide	0.057	0.062		-8.8	
Fluoranthene	1.063	1.160	0.600	-9.1	25.0
Pyrene	1.485	1.626	0.600	-9.5	25.0
Endosulfan I	0.052	0.056		-7.7	
4,4'-DDE	0.267	0.290	0.050	-8.6	40.0
Dieldrin	0.277	0.297	0.050	-7.2	40.0
Endrin	0.080	0.090	0.050	-12.5	40.0
Endosulfan II	0.045	0.047		-4.4	
4,4'-DDD	0.461	0.485	0.050	-5.2	40.0
Butylbenzylphthalate	0.767	0.831		-8.3	
Endosulfan Sulfate	0.076	0.081		-6.6	
4,4'-DDT	0.414	0.431	0.050	-4.1	40.0
Endrin Ketone	0.124	0.127	0.050	-2.4	40.0
Benzo(a)anthracene	1.370	1.484	0.800	-8.3	25.0
3,3'-Dichlorobenzidine	0.388	0.465		-19.8	
Chrysene	1.153	1.253	0.700	-8.7	25.0

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/06/99 Time: 1811

Lab File ID: 99020604 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Methoxychlor	0.937	1.026	0.050	-9.5	40.0
Bis(2-Ethylhexyl)phthalate	1.049	1.127		-7.4	
Di-n-octylphthalate	1.793	1.975		-10.2	
Benzo(b)fluoranthene	1.275	1.367	0.700	-7.2	25.0
Benzo(k)fluoranthene	1.195	1.367	0.700	-14.4	25.0
Benzo(a)pyrene	1.034	1.100	0.700	-6.4	25.0
Indeno(1,2,3-cd)pyrene	1.081	1.149	0.500	-6.3	25.0
Dibenz(a,h)anthracene	0.907	0.962	0.400	-6.1	25.0
Benzo(g,h,i)perylene	0.923	0.947	0.500	-2.6	25.0
Pyridine	0.985	1.112		-12.9	
Tributyl phosphate	1.147	1.176		-2.5	
N-Nitrosodimethylamine	0.603	0.660		-9.4	
Acetophenone	1.848	2.158		-16.8	
1-Chloro-4-nitrobenzene	0.123	0.123		0.0	
Biphenyl	1.372	1.419		-3.4	
1,4-Dinitrobenzene	0.218	0.207		5.0	
Butylated Hydroxytoluene	0.894	0.889		0.6	
Pentachloronitrobenzene	0.090	0.095		-5.6	
Dinoseb	0.215	0.229		-6.5	
Octachloronaphthalene	0.099	0.095		4.0	
N-Nitrosomethylethylamine	0.467	0.508		-8.8	
N-Nitrosodiethylamine	0.712	0.822		-15.4	
Ethyl methane sulfonate	1.118	1.292		-15.6	
Analine	2.065	2.399		-16.2	
Pentachloroethane	0.516	0.589		-14.1	
N-Nitrosopyrolidine	0.703	0.834		-18.6	
N-Nitrosopiperidine	0.192	0.211		-9.9	
Hexachloropropene	0.200	0.212		-6.0	
N-Nitrosodi-n-butylamine	0.254	0.282		-11.0	
Safrole	0.266	0.296		-11.3	
1,2,4,5-Tetrachlorobenzene	0.541	0.636		-17.6	
Isosafrole	0.547	0.606		-10.8	
1,4-Naphthoquinone	0.321	0.375		-16.8	
Pentachlorobenzene	0.439	0.516		-17.5	
1-Naphthylamine	1.006	1.254		-24.6	
2,3,4,6-Tetrachlorophenol	0.278	0.308		-10.8	

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/06/99 Time: 1811

Lab File ID: 99020604 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
2-Naphthylamine	0.680	0.882		-29.7		
5-Nitro-o-toluidine	0.367	0.450		-22.6		
Azeobenzene	1.028	1.062		-3.3		
1,3,5-Trinitrobenzene	0.212	0.216		-1.9		
Diallate (cis)	0.133	0.143		-7.5		
Phenacetin	0.419	0.438		-4.5		
Diallate (trans)	0.312	0.335		-7.4		
4-Aminobiphenyl	0.580	0.720		-24.1		
Pronamine	0.353	0.381		-7.9		
Isodrin	0.128	0.137		-7.0		
Chlordane (alpha)	0.103	0.112		-8.7		
Benzidine	0.488	0.533		-9.2		
p-Dimethylaminoazobenzene	0.483	0.525		-8.7		
Chlorobenzilate	0.509	0.544		-6.9		
3,3'-Dimethylbenzidine	0.368	0.474		-28.8		
2-Acetylaminofluorene	0.274	0.302		-10.2		
3-Methylcholanthrene	0.551	0.593		-7.6		
2-Methylpyridine	1.046	1.161		-11.0		
Kepone	0.076	0.082		-7.9		
Chlordane (gamma)	0.102	0.118		-15.7		
Methyl methane sulfonate	0.411	0.470		-14.4		
Hexachlorophene	0.032			100.0		<-
1,3-Dinitrobenzene	0.244	0.290		-18.8		
2,6-Dichlorophenol	0.296	0.314		-6.1		
2-Fluorophenol	2.703	3.049	0.600	-12.8	25.0	
Phenol-d5	3.439	3.917	0.800	-13.9	25.0	
2-Chlorophenol-d4			0.800		25.0	<-
1,2-Dichlorobenzene-d4			0.400		25.0	<-
Nitrobenzene-d5	1.446	1.683	0.200	-16.4	25.0	
2-Fluorobiphenyl	1.292	1.506	0.700	-16.6	25.0	
2,4,6-Tribromophenol	0.223	0.232		-4.0		
Terphenyl-d14	0.950	1.029	0.500	-8.3	25.0	

All other compounds must meet a minimum RRF of 0.010.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID (Standard): 99020604 Date Analyzed: 02/06/99

Instrument ID: HP1 Time Analyzed: 1811

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	1164397	11.90	4392592	15.54	2233561	20.74
	UPPER LIMIT	2328794	12.40	8785184	16.04	4467122	21.24
	LOWER LIMIT	582199	11.40	2196296	15.04	1116781	20.24
	EPA SAMPLE NO.						
01	METHOD BLANK	1015711	11.88	3545661	15.52	1943516	20.71
02	AW-101	1131916	11.89	3983662	15.52	2168417	20.72
03	AW-101D	1105134	11.88	3881114	15.52	2048419	20.71
04	AW-101MS	970192	11.88	3415854	15.52	1867358	20.71
05	AW-101MSD	1134537	11.88	4020822	15.52	2183769	20.71
06	METHOD BLANK	1185989	11.88	4202833	15.52	2287475	20.70
07	AW-101-	1205659	11.95	4288976	15.56	2240656	20.72
08	AW-101-D	1172473	11.97	4087756	15.54	2099134	20.72
09	AW-101-MS	1097573	11.94	4000798	15.55	2160240	20.72
10	AW-101-MSD	1158072	11.93	4100930	15.54	2203608	20.71
11	LCS	1155841	11.88	4212874	15.54	2362275	20.73
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID (Standard): 99020604 Date Analyzed: 02/06/99

Instrument ID: HP1 Time Analyzed: 1811

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	3602191	25.15	2665680	33.00	2479079	36.89
	UPPER LIMIT	7204382	25.65	5331360	33.50	4958158	37.39
	LOWER LIMIT	1801096	24.65	1332840	32.50	1239540	36.39
	EPA SAMPLE NO.						
01	METHOD BLANK	3003769	25.11	2192575	32.95	2194325	36.86
02	AW-101	3420008	25.11	2421447	32.96	697687*	36.86
03	AW-101D	3270527	25.10	2314248	32.95		
04	AW-101MS	2866890	25.11	2083733	32.96	2084661	36.86
05	AW-101MSD	3324228	25.11	2384343	32.96	2351494	36.87
06	METHOD BLANK	3454500	25.11	2406103	32.96	2355214	36.87
07	AW-101-	3573562	25.12	2477047	32.97	116509*	36.88
08	AW-101-D	2993473	25.11	2070928	32.96	25118*	36.93
09	AW-101-MS	3428901	25.12	2367409	32.97	729087*	36.88
10	AW-101-MSD	3421764	25.12	2243740	32.96	203966*	36.89
11	LCS	3568817	25.14	2600022	32.99	2515124	36.89
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID (Standard): 99020604 Date Analyzed: 02/06/99

Instrument ID: HP1 Time Analyzed: 1811

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1869951	4.37				
	UPPER LIMIT	3739902	4.87				
	LOWER LIMIT	934976	3.87				
	EPA SAMPLE NO.						
01	METHOD BLANK	1552786	4.29				
02	AW-101	1151541	4.36				
03	AW-101D	359901*	4.44				
04	AW-101MS	1463863	4.29				
05	AW-101MSD	1719277	4.32				
06	METHOD BLANK	1800715	4.35				
07	AW-101-	89351*	4.56				
08	AW-101-D	931315*	4.61				
09	AW-101-MS	920074*	4.42				
10	AW-101-MSD	617193*	4.31				
11	LCS	1693969	4.34				
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS7 = Pyridine-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010506

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	310	U
111-44-4	bis(2-Chloroethyl)ether	310	U
95-57-8	2-Chlorophenol	310	U
541-73-1	1,3-Dichlorobenzene	310	U
106-46-7	1,4-Dichlorobenzene	310	U
95-50-1	1,2-Dichlorobenzene	310	U
100-51-6	Benzyl alcohol	310	U
95-48-7	2-Methylphenol	310	U
108-60-1	2,2'-oxybis(1-Chloropropane)	310	U
621-64-7	N-Nitroso-di-n-propylamine	310	U
106-44-5	4-Methylphenol	310	U
67-72-1	Hexachloroethane	310	U
98-95-3	Nitrobenzene	310	U
78-59-1	Isophorone	310	U
88-75-5	2-Nitrophenol	310	U
105-67-9	2,4-Dimethylphenol	310	U
111-91-1	bis(2-Chloroethoxy)methane	310	U
120-83-2	2,4-Dichlorophenol	310	U
120-82-1	1,2,4-Trichlorobenzene	310	U
91-20-3	Naphthalene	310	U
106-47-8	4-Chloroaniline	310	U
87-68-3	Hexachlorobutadiene	310	U
59-50-7	4-Chloro-3-methylphenol	310	U
91-57-6	2-Methylnaphthalene	310	U
77-47-4	Hexachlorocyclopentadiene	310	U
88-06-2	2,4,6-Trichlorophenol	310	U
95-95-4	2,4,5-Trichlorophenol	310	U
91-58-7	2-Chloronaphthalene	310	U
88-74-4	2-Nitroaniline	310	U
99-09-2	3-Nitroaniline	310	U
131-11-3	Dimethylphthalate	310	U
606-20-2	2,6-Dinitrotoluene	310	U
208-96-8	Acenaphthylene	310	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010506

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	310	U
51-28-5	2,4-Dinitrophenol	310	U
132-64-9	Dibenzofuran	310	U
100-02-7	4-Nitrophenol	310	U
121-14-2	2,4-Dinitrotoluene	310	U
84-66-2	Diethylphthalate	160	J
86-73-7	Fluorene	310	U
7005-72-3	4-Chlorophenyl-phenylether	310	U
100-01-6	4-Nitroaniline	310	U
534-52-1	4,6-Dinitro-2-methylphenol	310	U
122-39-4	N,N-Diphenylamine	310	U
76-44-8	Heptachlor	310	U
319-84-6	alpha-BHC	310	U
101-55-3	4-Bromophenyl-phenylether	310	U
118-74-1	Hexachlorobenzene	310	U
319-85-7	beta-BHC	310	U
87-86-5	Pentachlorophenol	310	U
319-86-8	delta-BHC	310	U
85-01-8	Phenanthrene	310	U
120-12-7	Anthracene	310	U
58-89-9	gamma-BHC (Lindane)	310	U
86-74-8	Carbazole	310	U
84-74-2	Di-n-butylphthalate	310	U
309-00-2	Aldrin	310	U
1024-57-3	Heptachlor Epoxide	310	U
206-44-0	Fluoranthene	310	U
129-00-0	Pyrene	310	U
959-98-8	Endosulfan I	310	U
72-55-9	4,4'-DDE	310	U
60-57-1	Dieldrin	310	U
72-20-8	Endrin	310	U
33213-65-9	Endosulfan II	310	U
72-54-8	4,4'-DDD	310	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010506

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	310	U
1031-07-8	Endosulfan Sulfate	310	U
50-29-3	4,4'-DDT	310	U
53494-70-5	Endrin Ketone	310	U
56-55-3	Benzo(a)anthracene	310	U
91-94-1	3,3'-Dichlorobenzidine	310	U
218-01-9	Chrysene	310	U
72-43-5	Methoxychlor	310	U
117-81-7	Bis(2-Ethylhexyl)phthalate	39	J
117-84-0	Di-n-octylphthalate	310	U
205-99-2	Benzo(b)fluoranthene	310	U
207-08-9	Benzo(k)fluoranthene	310	U
50-32-8	Benzo(a)pyrene	310	U
193-39-5	Indeno(1,2,3-cd)pyrene	310	U
53-70-3	Dibenz(a,h)anthracene	310	U
191-24-2	Benzo(g,h,i)perylene	310	U
110-86-1	Pyridine	310	U
126-73-8	Tributyl phosphate	310	U
62-75-9	N-Nitrosodimethylamine	180	J
98-86-2	Acetophenone	310	U
100-00-5	1-Chloro-4-nitrobenzene	310	U
92-52-4	Biphenyl	4	J
100-25-4	1,4-Dinitrobenzene	310	U
128-37-0	Butylated Hydroxytoluene	310	U
82-68-8	Pentachloronitrobenzene	310	U
88-85-7	Dinoseb	310	U
2234-13-1	Octachloronaphthalene	310	U
10595-95-6	N-Nitrosomethylethylamine	16	J
55-18-5	N-Nitrosodiethylamine	12	J
62-50-0	Ethyl methane sulfonate	310	U
62-53-3	Analine	310	U
76-01-7	Pentachloroethane	10	J
930-55-2	N-Nitrosopyrolidine	14	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010506

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	310	U
1888-71-7	Hexachloropropene	310	U
924-16-3	N-Nitrosodi-n-butylamine	310	U
94-59-7	Safrole	310	U
95-94-3	1,2,4,5-Tetrachlorobenzene	310	U
120-58-1	Isosafrole	310	U
130-15-4	1,4-Naphthoquinone	310	U
608-93-5	Pentachlorobenzene	310	U
134-32-7	1-Naphthylamine	22	J
58-90-2	2,3,4,6-Tetrachlorophenol	310	U
91-59-8	2-Naphthylamine	310	U
99-55-8	5-Nitro-o-toluidine	310	U
103-33-3	Azeobenzene	310	U
99-35-4	1,3,5-Trinitrobenzene	310	U
2303-16-4	Diallate (cis)	310	U
62-44-2	Phenacetin	310	U
2303-16-4	Diallate (trans)	310	U
92-67-1	4-Aminobiphenyl	6	J
23950-58-5	Pronamine	310	U
465-73-6	Isodrin	310	U
57-74-9	Chlordane (alpha)	310	U
92-87-5	Benzidine	310	U
60-11-7	p-Dimethylaminoazobenzene	310	U
510-15-6	Chlorobenzilate	310	U
119-93-7	3,3'-Dimethylbenzidine	310	U
53-96-3	2-Acetylaminofluorene	310	U
56-49-5	3-Methylcholanthrene	310	U
109-06-8	2-Methylpyridine	310	U
143-50-0	Kepone	310	U
57-74-9	Chlordane (gamma)	310	U
66-27-3	Methyl methane sulfonate	310	U
70-30-4	Hexachlorophene	310	U
99-65-0	1,3-Dinitrobenzene	310	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010506

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	310	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010507

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	310	U
111-44-4	bis(2-Chloroethyl)ether	310	U
95-57-8	2-Chlorophenol	310	U
541-73-1	1,3-Dichlorobenzene	310	U
106-46-7	1,4-Dichlorobenzene	310	U
95-50-1	1,2-Dichlorobenzene	310	U
100-51-6	Benzyl alcohol	310	U
95-48-7	2-Methylphenol	310	U
108-60-1	2,2'-oxybis(1-Chloropropane)	310	U
621-64-7	N-Nitroso-di-n-propylamine	310	U
106-44-5	4-Methylphenol	310	U
67-72-1	Hexachloroethane	310	U
98-95-3	Nitrobenzene	310	U
78-59-1	Isophorone	310	U
88-75-5	2-Nitrophenol	310	U
105-67-9	2,4-Dimethylphenol	310	U
111-91-1	bis(2-Chloroethoxy)methane	310	U
120-83-2	2,4-Dichlorophenol	310	U
120-82-1	1,2,4-Trichlorobenzene	310	U
91-20-3	Naphthalene	310	U
106-47-8	4-Chloroaniline	310	U
87-68-3	Hexachlorobutadiene	310	U
59-50-7	4-Chloro-3-methylphenol	310	U
91-57-6	2-Methylnaphthalene	310	U
77-47-4	Hexachlorocyclopentadiene	310	U
88-06-2	2,4,6-Trichlorophenol	310	U
95-95-4	2,4,5-Trichlorophenol	310	U
91-58-7	2-Chloronaphthalene	310	U
88-74-4	2-Nitroaniline	310	U
99-09-2	3-Nitroaniline	310	U
131-11-3	Dimethylphthalate	310	U
606-20-2	2,6-Dinitrotoluene	310	U
208-96-8	Acenaphthylene	310	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010507

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	310	U
51-28-5	2,4-Dinitrophenol	310	U
132-64-9	Dibenzofuran	310	U
100-02-7	4-Nitrophenol	310	U
121-14-2	2,4-Dinitrotoluene	310	U
84-66-2	Diethylphthalate	310	U
86-73-7	Fluorene	310	U
7005-72-3	4-Chlorophenyl-phenylether	310	U
100-01-6	4-Nitroaniline	310	U
534-52-1	4,6-Dinitro-2-methylphenol	310	U
122-39-4	N,N-Diphenylamine	310	U
76-44-8	Heptachlor	310	U
319-84-6	alpha-BHC	310	U
101-55-3	4-Bromophenyl-phenylether	310	U
118-74-1	Hexachlorobenzene	310	U
319-85-7	beta-BHC	310	U
87-86-5	Pentachlorophenol	310	U
319-86-8	delta-BHC	310	U
85-01-8	Phenanthrene	310	U
120-12-7	Anthracene	310	U
58-89-9	gamma-BHC (Lindane)	310	U
86-74-8	Carbazole	310	U
84-74-2	Di-n-butylphthalate	310	U
309-00-2	Aldrin	310	U
1024-57-3	Heptachlor Epoxide	310	U
206-44-0	Fluoranthene	310	U
129-00-0	Pyrene	310	U
959-98-8	Endosulfan I	310	U
72-55-9	4,4'-DDE	310	U
60-57-1	Dieldrin	310	U
72-20-8	Endrin	310	U
33213-65-9	Endosulfan II	310	U
72-54-8	4,4'-DDD	310	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010507

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	310	U
1031-07-8	Endosulfan Sulfate	310	U
50-29-3	4,4'-DDT	310	U
53494-70-5	Endrin Ketone	310	U
56-55-3	Benzo(a)anthracene	310	U
91-94-1	3,3'-Dichlorobenzidine	310	U
218-01-9	Chrysene	310	U
72-43-5	Methoxychlor	310	U
117-81-7	Bis(2-Ethylhexyl)phthalate	310	U
117-84-0	Di-n-octylphthalate	310	U
205-99-2	Benzo(b)fluoranthene	310	U
207-08-9	Benzo(k)fluoranthene	310	U
50-32-8	Benzo(a)pyrene	310	U
193-39-5	Indeno(1,2,3-cd)pyrene	310	U
53-70-3	Dibenz(a,h)anthracene	310	U
191-24-2	Benzo(g,h,i)perylene	310	U
110-86-1	Pyridine	310	U
126-73-8	Tributyl phosphate	100	J
62-75-9	N-Nitrosodimethylamine	270	J
98-86-2	Acetophenone	310	U
100-00-5	1-Chloro-4-nitrobenzene	310	U
92-52-4	Biphenyl	5	J
100-25-4	1,4-Dinitrobenzene	310	U
128-37-0	Butylated Hydroxytoluene	310	U
82-68-8	Pentachloronitrobenzene	310	U
88-85-7	Dinoseb	310	U
2234-13-1	Octachloronaphthalene	310	U
10595-95-6	N-Nitrosomethylethylamine	23	J
55-18-5	N-Nitrosodiethylamine	310	U
62-50-0	Ethyl methane sulfonate	310	U
62-53-3	Analine	310	U
76-01-7	Pentachloroethane	11	J
930-55-2	N-Nitrosopyrolidine	310	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010507

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	310	U
1888-71-7	Hexachloropropene	310	U
924-16-3	N-Nitrosodi-n-butylamine	310	U
94-59-7	Safrole	310	U
95-94-3	1,2,4,5-Tetrachlorobenzene	310	U
120-58-1	Isosafrole	310	U
130-15-4	1,4-Naphthoquinone	310	U
608-93-5	Pentachlorobenzene	310	U
134-32-7	1-Naphthylamine	310	U
58-90-2	2,3,4,6-Tetrachlorophenol	310	U
91-59-8	2-Naphthylamine	310	U
99-55-8	5-Nitro-o-toluidine	310	U
103-33-3	Azeobenzene	310	U
99-35-4	1,3,5-Trinitrobenzene	310	U
2303-16-4	Diallate (cis)	310	U
62-44-2	Phenacetin	310	U
2303-16-4	Diallate (trans)	310	U
92-67-1	4-Aminobiphenyl	310	U
23950-58-5	Pronamine	310	U
465-73-6	Isodrin	310	U
57-74-9	Chlordane (alpha)	310	U
92-87-5	Benzidine	310	U
60-11-7	p-Dimethylaminoazobenzene	310	U
510-15-6	Chlorobenzilate	310	U
119-93-7	3,3'-Dimethylbenzidine	310	U
53-96-3	2-Acetylaminofluorene	310	U
56-49-5	3-Methylcholanthrene	310	U
109-06-8	2-Methylpyridine	5	J
143-50-0	Kepone	310	U
57-74-9	Chlordane (gamma)	310	U
66-27-3	Methyl methane sulfonate	310	U
70-30-4	Hexachlorophene	310	U
99-65-0	1,3-Dinitrobenzene	310	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649D

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010507

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	310	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010508

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	3100	
111-44-4	bis(2-Chloroethyl)ether	640	U
95-57-8	2-Chlorophenol	3400	
541-73-1	1,3-Dichlorobenzene	640	U
106-46-7	1,4-Dichlorobenzene	2200	
95-50-1	1,2-Dichlorobenzene	640	U
100-51-6	Benzyl alcohol	640	U
95-48-7	2-Methylphenol	1200	
108-60-1	2,2'-oxybis(1-Chloropropane)	640	U
621-64-7	N-Nitroso-di-n-propylamine	2100	
106-44-5	4-Methylphenol	3100	
67-72-1	Hexachloroethane	640	U
98-95-3	Nitrobenzene	640	U
78-59-1	Isophorone	640	U
88-75-5	2-Nitrophenol	640	U
105-67-9	2,4-Dimethylphenol	640	U
111-91-1	bis(2-Chloroethoxy)methane	640	U
120-83-2	2,4-Dichlorophenol	640	U
120-82-1	1,2,4-Trichlorobenzene	2500	
91-20-3	Naphthalene	640	U
106-47-8	4-Chloroaniline	640	U
87-68-3	Hexachlorobutadiene	640	U
59-50-7	4-Chloro-3-methylphenol	3100	
91-57-6	2-Methylnaphthalene	640	U
77-47-4	Hexachlorocyclopentadiene	640	U
88-06-2	2,4,6-Trichlorophenol	640	U
95-95-4	2,4,5-Trichlorophenol	640	U
91-58-7	2-Chloronaphthalene	640	U
88-74-4	2-Nitroaniline	640	U
99-09-2	3-Nitroaniline	640	U
131-11-3	Dimethylphthalate	640	U
606-20-2	2,6-Dinitrotoluene	640	U
208-96-8	Acenaphthylene	640	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010508

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	2400	
51-28-5	2,4-Dinitrophenol	640	U
132-64-9	Dibenzofuran	640	U
100-02-7	4-Nitrophenol	3100	
121-14-2	2,4-Dinitrotoluene	2500	
84-66-2	Diethylphthalate	640	U
86-73-7	Fluorene	640	U
7005-72-3	4-Chlorophenyl-phenylether	640	U
100-01-6	4-Nitroaniline	91	J
534-52-1	4,6-Dinitro-2-methylphenol	640	U
122-39-4	N,N-Diphenylamine	2100	
76-44-8	Heptachlor	640	U
319-84-6	alpha-BHC	640	U
101-55-3	4-Bromophenyl-phenylether	640	U
118-74-1	Hexachlorobenzene	640	U
319-85-7	beta-BHC	640	U
87-86-5	Pentachlorophenol	2200	
319-86-8	delta-BHC	640	U
85-01-8	Phenanthrene	640	U
120-12-7	Anthracene	640	U
58-89-9	gamma-BHC (Lindane)	640	U
86-74-8	Carbazole	640	U
84-74-2	Di-n-butylphthalate	640	U
309-00-2	Aldrin	640	U
1024-57-3	Heptachlor Epoxide	640	U
206-44-0	Fluoranthene	640	U
129-00-0	Pyrene	2500	
959-98-8	Endosulfan I	640	U
72-55-9	4,4'-DDE	640	U
60-57-1	Dieldrin	640	U
72-20-8	Endrin	640	U
33213-65-9	Endosulfan II	640	U
72-54-8	4,4'-DDD	640	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010508

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	640	U
1031-07-8	Endosulfan Sulfate	640	U
50-29-3	4,4'-DDT	640	U
53494-70-5	Endrin Ketone	640	U
56-55-3	Benzo(a)anthracene	640	U
91-94-1	3,3'-Dichlorobenzidine	640	U
218-01-9	Chrysene	640	U
72-43-5	Methoxychlor	640	U
117-81-7	Bis(2-Ethylhexyl)phthalate	640	U
117-84-0	Di-n-octylphthalate	640	U
205-99-2	Benzo(b)fluoranthene	640	U
207-08-9	Benzo(k)fluoranthene	640	U
50-32-8	Benzo(a)pyrene	640	U
193-39-5	Indeno(1,2,3-cd)pyrene	640	U
53-70-3	Dibenz(a,h)anthracene	640	U
191-24-2	Benzo(g,h,i)perylene	640	U
110-86-1	Pyridine	2100	
126-73-8	Tributyl phosphate	2000	
62-75-9	N-Nitrosodimethylamine	220	J
98-86-2	Acetophenone	2200	
100-00-5	1-Chloro-4-nitrobenzene	2100	
92-52-4	Biphenyl	2000	
100-25-4	1,4-Dinitrobenzene	1900	
128-37-0	Butylated Hydroxytoluene	540	J
82-68-8	Pentachloronitrobenzene	2500	
88-85-7	Dinoseb	80	J
2234-13-1	Octachloronaphthalene	1800	
10595-95-6	N-Nitrosomethylethylamine	640	U
55-18-5	N-Nitrosodiethylamine	640	U
62-50-0	Ethyl methane sulfonate	640	U
62-53-3	Analine	640	U
76-01-7	Pentachloroethane	4	J
930-55-2	N-Nitrosopyrolidine	640	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010508

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	640	U
1888-71-7	Hexachloropropene	640	U
924-16-3	N-Nitrosodi-n-butylamine	640	U
94-59-7	Safrole	640	U
95-94-3	1,2,4,5-Tetrachlorobenzene	640	U
120-58-1	Isosafrole	640	U
130-15-4	1,4-Naphthoquinone	640	U
608-93-5	Pentachlorobenzene	9	J
134-32-7	1-Naphthylamine	640	U
58-90-2	2,3,4,6-Tetrachlorophenol	640	U
91-59-8	2-Naphthylamine	640	U
99-55-8	5-Nitro-o-toluidine	640	U
103-33-3	Azeobenzene	640	U
99-35-4	1,3,5-Trinitrobenzene	640	U
2303-16-4	Diallate (cis)	640	U
62-44-2	Phenacetin	640	U
2303-16-4	Diallate (trans)	640	U
92-67-1	4-Aminobiphenyl	640	U
23950-58-5	Pronamine	640	U
465-73-6	Isodrin	640	U
57-74-9	Chlordane (alpha)	640	U
92-87-5	Benzidine	640	U
60-11-7	p-Dimethylaminoazobenzene	640	U
510-15-6	Chlorobenzilate	640	U
119-93-7	3,3'-Dimethylbenzidine	640	U
53-96-3	2-Acetylaminofluorene	640	U
56-49-5	3-Methylcholanthrene	640	U
109-06-8	2-Methylpyridine	640	U
143-50-0	Kepone	640	U
57-74-9	Chlordane (gamma)	640	U
66-27-3	Methyl methane sulfonate	640	U
70-30-4	Hexachlorophene	640	U
99-65-0	1,3-Dinitrobenzene	640	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MS

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010508

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	640	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010509

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	4300	
111-44-4	bis(2-Chloroethyl)ether	640	U
95-57-8	2-Chlorophenol	4800	
541-73-1	1,3-Dichlorobenzene	640	U
106-46-7	1,4-Dichlorobenzene	3100	
95-50-1	1,2-Dichlorobenzene	640	U
100-51-6	Benzyl alcohol	640	U
95-48-7	2-Methylphenol	2300	
108-60-1	2,2'-oxybis(1-Chloropropane)	640	U
621-64-7	N-Nitroso-di-n-propylamine	3000	
106-44-5	4-Methylphenol	5100	
67-72-1	Hexachloroethane	640	U
98-95-3	Nitrobenzene	640	U
78-59-1	Isophorone	640	U
88-75-5	2-Nitrophenol	640	U
105-67-9	2,4-Dimethylphenol	640	U
111-91-1	bis(2-Chloroethoxy)methane	640	U
120-83-2	2,4-Dichlorophenol	640	U
120-82-1	1,2,4-Trichlorobenzene	3600	
91-20-3	Naphthalene	640	U
106-47-8	4-Chloroaniline	640	U
87-68-3	Hexachlorobutadiene	640	U
59-50-7	4-Chloro-3-methylphenol	4800	
91-57-6	2-Methylnaphthalene	640	U
77-47-4	Hexachlorocyclopentadiene	640	U
88-06-2	2,4,6-Trichlorophenol	640	U
95-95-4	2,4,5-Trichlorophenol	640	U
91-58-7	2-Chloronaphthalene	640	U
88-74-4	2-Nitroaniline	640	U
99-09-2	3-Nitroaniline	640	U
131-11-3	Dimethylphthalate	640	U
606-20-2	2,6-Dinitrotoluene	640	U
208-96-8	Acenaphthylene	640	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010509

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	3500	
51-28-5	2,4-Dinitrophenol	640	U
132-64-9	Dibenzofuran	640	U
100-02-7	4-Nitrophenol	4000	
121-14-2	2,4-Dinitrotoluene	3600	
84-66-2	Diethylphthalate	640	U
86-73-7	Fluorene	640	U
7005-72-3	4-Chlorophenyl-phenylether	640	U
100-01-6	4-Nitroaniline	140	J
534-52-1	4,6-Dinitro-2-methylphenol	640	U
122-39-4	N,N-Diphenylamine	3200	
76-44-8	Heptachlor	640	U
319-84-6	alpha-BHC	640	U
101-55-3	4-Bromophenyl-phenylether	640	U
118-74-1	Hexachlorobenzene	640	U
319-85-7	beta-BHC	640	U
87-86-5	Pentachlorophenol	2000	
319-86-8	delta-BHC	640	U
85-01-8	Phenanthrene	640	U
120-12-7	Anthracene	640	U
58-89-9	gamma-BHC (Lindane)	640	U
86-74-8	Carbazole	640	U
84-74-2	Di-n-butylphthalate	640	U
309-00-2	Aldrin	640	U
1024-57-3	Heptachlor Epoxide	640	U
206-44-0	Fluoranthene	640	U
129-00-0	Pyrene	3400	
959-98-8	Endosulfan I	640	U
72-55-9	4,4'-DDE	640	U
60-57-1	Dieldrin	640	U
72-20-8	Endrin	640	U
33213-65-9	Endosulfan II	640	U
72-54-8	4,4'-DDD	640	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010509

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	640	U
1031-07-8	Endosulfan Sulfate	640	U
50-29-3	4,4'-DDT	640	U
53494-70-5	Endrin Ketone	640	U
56-55-3	Benzo(a)anthracene	640	U
91-94-1	3,3'-Dichlorobenzidine	640	U
218-01-9	Chrysene	640	U
72-43-5	Methoxychlor	640	U
117-81-7	Bis(2-Ethylhexyl)phthalate	640	U
117-84-0	Di-n-octylphthalate	81	J
205-99-2	Benzo(b)fluoranthene	640	U
207-08-9	Benzo(k)fluoranthene	640	U
50-32-8	Benzo(a)pyrene	640	U
193-39-5	Indeno(1,2,3-cd)pyrene	640	U
53-70-3	Dibenz(a,h)anthracene	640	U
191-24-2	Benzo(g,h,i)perylene	640	U
110-86-1	Pyridine	2800	
126-73-8	Tributyl phosphate	2700	
62-75-9	N-Nitrosodimethylamine	230	J
98-86-2	Acetophenone	3100	
100-00-5	1-Chloro-4-nitrobenzene	3000	
92-52-4	Biphenyl	2800	
100-25-4	1,4-Dinitrobenzene	2900	
128-37-0	Butylated Hydroxytoluene	720	
82-68-8	Pentachloronitrobenzene	3500	
88-85-7	Dinoseb	62	J
2234-13-1	Octachloronaphthalene	2500	
10595-95-6	N-Nitrosomethylethylamine	640	U
55-18-5	N-Nitrosodiethylamine	640	U
62-50-0	Ethyl methane sulfonate	640	U
62-53-3	Analine	640	U
76-01-7	Pentachloroethane	640	U
930-55-2	N-Nitrosopyrolidine	640	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010509

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	640	U
1888-71-7	Hexachloropropene	640	U
924-16-3	N-Nitrosodi-n-butylamine	640	U
94-59-7	Safrole	640	U
95-94-3	1,2,4,5-Tetrachlorobenzene	640	U
120-58-1	Isosafrole	640	U
130-15-4	1,4-Naphthoquinone	640	U
608-93-5	Pentachlorobenzene	28	J
134-32-7	1-Naphthylamine	640	U
58-90-2	2,3,4,6-Tetrachlorophenol	21	J
91-59-8	2-Naphthylamine	640	U
99-55-8	5-Nitro-o-toluidine	640	U
103-33-3	Azeobenzene	640	U
99-35-4	1,3,5-Trinitrobenzene	640	U
2303-16-4	Diallate (cis)	640	U
62-44-2	Phenacetin	640	U
2303-16-4	Diallate (trans)	640	U
92-67-1	4-Aminobiphenyl	640	U
23950-58-5	Pronamine	640	U
465-73-6	Isodrin	640	U
57-74-9	Chlordane (alpha)	640	U
92-87-5	Benzidine	640	U
60-11-7	p-Dimethylaminoazobenzene	640	U
510-15-6	Chlorobenzilate	640	U
119-93-7	3,3'-Dimethylbenzidine	640	U
53-96-3	2-Acetylaminofluorene	640	U
56-49-5	3-Methylcholanthrene	640	U
109-06-8	2-Methylpyridine	640	U
143-50-0	Kepone	640	U
57-74-9	Chlordane (gamma)	640	U
66-27-3	Methyl methane sulfonate	640	U
70-30-4	Hexachlorophene	640	U
99-65-0	1,3-Dinitrobenzene	640	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK01

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010515

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	200	U
111-44-4	bis(2-Chloroethyl)ether	200	U
95-57-8	2-Chlorophenol	200	U
541-73-1	1,3-Dichlorobenzene	200	U
106-46-7	1,4-Dichlorobenzene	200	U
95-50-1	1,2-Dichlorobenzene	200	U
100-51-6	Benzyl alcohol	200	U
95-48-7	2-Methylphenol	200	U
108-60-1	2,2'-oxybis(1-Chloropropane)	200	U
621-64-7	N-Nitroso-di-n-propylamine	200	U
106-44-5	4-Methylphenol	200	U
67-72-1	Hexachloroethane	200	U
98-95-3	Nitrobenzene	200	U
78-59-1	Isophorone	200	U
88-75-5	2-Nitrophenol	200	U
105-67-9	2,4-Dimethylphenol	200	U
111-91-1	bis(2-Chloroethoxy)methane	200	U
120-83-2	2,4-Dichlorophenol	200	U
120-82-1	1,2,4-Trichlorobenzene	200	U
91-20-3	Naphthalene	200	U
106-47-8	4-Chloroaniline	200	U
87-68-3	Hexachlorobutadiene	200	U
59-50-7	4-Chloro-3-methylphenol	200	U
91-57-6	2-Methylnaphthalene	200	U
77-47-4	Hexachlorocyclopentadiene	200	U
88-06-2	2,4,6-Trichlorophenol	200	U
95-95-4	2,4,5-Trichlorophenol	200	U
91-58-7	2-Chloronaphthalene	200	U
88-74-4	2-Nitroaniline	200	U
99-09-2	3-Nitroaniline	200	U
131-11-3	Dimethylphthalate	200	U
606-20-2	2,6-Dinitrotoluene	200	U
208-96-8	Acenaphthylene	200	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK01

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010515

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
83-32-9	Acenaphthene	200	U
51-28-5	2,4-Dinitrophenol	200	U
132-64-9	Dibenzofuran	200	U
100-02-7	4-Nitrophenol	200	U
121-14-2	2,4-Dinitrotoluene	200	U
84-66-2	Diethylphthalate	200	U
86-73-7	Fluorene	200	U
7005-72-3	4-Chlorophenyl-phenylether	200	U
100-01-6	4-Nitroaniline	200	U
534-52-1	4,6-Dinitro-2-methylphenol	200	U
122-39-4	N,N-Diphenylamine	200	U
76-44-8	Heptachlor	200	U
319-84-6	alpha-BHC	200	U
101-55-3	4-Bromophenyl-phenylether	200	U
118-74-1	Hexachlorobenzene	200	U
319-85-7	beta-BHC	200	U
87-86-5	Pentachlorophenol	200	U
319-86-8	delta-BHC	200	U
85-01-8	Phenanthrene	200	U
120-12-7	Anthracene	200	U
58-89-9	gamma-BHC (Lindane)	200	U
86-74-8	Carbazole	200	U
84-74-2	Di-n-butylphthalate	200	U
309-00-2	Aldrin	200	U
1024-57-3	Heptachlor Epoxide	200	U
206-44-0	Fluoranthene	200	U
129-00-0	Pyrene	200	U
959-98-8	Endosulfan I	200	U
72-55-9	4,4'-DDE	200	U
60-57-1	Dieldrin	200	U
72-20-8	Endrin	200	U
33213-65-9	Endosulfan II	200	U
72-54-8	4,4'-DDD	200	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: 99-0649MSD

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010509

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	640	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK01

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010515

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
85-68-7	Butylbenzylphthalate	200	U
1031-07-8	Endosulfan Sulfate	200	U
50-29-3	4,4'-DDT	200	U
53494-70-5	Endrin Ketone	200	U
56-55-3	Benzo(a)anthracene	200	U
91-94-1	3,3'-Dichlorobenzidine	200	U
218-01-9	Chrysene	200	U
72-43-5	Methoxychlor	200	U
117-81-7	Bis(2-Ethylhexyl)phthalate	200	U
117-84-0	Di-n-octylphthalate	200	U
205-99-2	Benzo(b)fluoranthene	200	U
207-08-9	Benzo(k)fluoranthene	200	U
50-32-8	Benzo(a)pyrene	200	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenz(a,h)anthracene	200	U
191-24-2	Benzo(g,h,i)perylene	200	U
110-86-1	Pyridine	200	U
126-73-8	Tributyl phosphate	200	U
62-75-9	N-Nitrosodimethylamine	200	U
98-86-2	Acetophenone	200	U
100-00-5	1-Chloro-4-nitrobenzene	200	U
92-52-4	Biphenyl	200	U
100-25-4	1,4-Dinitrobenzene	200	U
128-37-0	Butylated Hydroxytoluene	200	U
82-68-8	Pentachloronitrobenzene	200	U
88-85-7	Dinoseb	200	U
2234-13-1	Octachloronaphthalene	200	U
10595-95-6	N-Nitrosomethylethylamine	200	U
55-18-5	N-Nitrosodiethylamine	200	U
62-50-0	Ethyl methane sulfonate	200	U
62-53-3	Analine	200	U
76-01-7	Pentachloroethane	200	U
930-55-2	N-Nitrosopyrolidine	200	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK01

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010515

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-75-4	N-Nitrosopiperidine	200	U
1888-71-7	Hexachloropropene	200	U
924-16-3	N-Nitrosodi-n-butylamine	200	U
94-59-7	Safrole	200	U
95-94-3	1,2,4,5-Tetrachlorobenzene	200	U
120-58-1	Isosafrole	200	U
130-15-4	1,4-Naphthoquinone	200	U
608-93-5	Pentachlorobenzene	200	U
134-32-7	1-Naphthylamine	200	U
58-90-2	2,3,4,6-Tetrachlorophenol	200	U
91-59-8	2-Naphthylamine	200	U
99-55-8	5-Nitro-o-toluidine	200	U
103-33-3	Azeobenzene	200	U
99-35-4	1,3,5-Trinitrobenzene	200	U
2303-16-4	Diallate (cis)	200	U
62-44-2	Phenacetin	200	U
2303-16-4	Diallate (trans)	200	U
92-67-1	4-Aminobiphenyl	200	U
23950-58-5	Pronamine	200	U
465-73-6	Isodrin	200	U
57-74-9	Chlordane (alpha)	200	U
92-87-5	Benzidine	200	U
60-11-7	p-Dimethylaminoazobenzene	200	U
510-15-6	Chlorobenzilate	200	U
119-93-7	3,3'-Dimethylbenzidine	200	U
53-96-3	2-Acetylaminofluorene	200	U
56-49-5	3-Methylcholanthrene	200	U
109-06-8	2-Methylpyridine	200	U
143-50-0	Kepone	200	U
57-74-9	Chlordane (gamma)	200	U
66-27-3	Methyl methane sulfonate	200	U
70-30-4	Hexachlorophene	200	U
99-65-0	1,3-Dinitrobenzene	200	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATAN Lab Sample ID: SBLK01

Sample wt/vol: _____ (g/mL) ML Lab File ID: 99010515

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
87-65-0	2,6-Dichlorophenol	200	U

FORM I SV-5 OLM03.0

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-

Sample wt/vol: 4.6 (g/mL) G Lab File ID: 99010511

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4300	U
111-44-4	bis(2-Chloroethyl)ether	4300	U
95-57-8	2-Chlorophenol	4300	U
541-73-1	1,3-Dichlorobenzene	4300	U
106-46-7	1,4-Dichlorobenzene	4300	U
95-50-1	1,2-Dichlorobenzene	4300	U
100-51-6	Benzyl alcohol	4300	U
95-48-7	2-Methylphenol	4300	U
108-60-1	2,2'-oxybis(1-Chloropropane)	4300	U
621-64-7	N-Nitroso-di-n-propylamine	4300	U
106-44-5	4-Methylphenol	4300	U
67-72-1	Hexachloroethane	4300	U
98-95-3	Nitrobenzene	4300	U
78-59-1	Isophorone	4300	U
88-75-5	2-Nitrophenol	4300	U
105-67-9	2,4-Dimethylphenol	4300	U
111-91-1	bis(2-Chloroethoxy)methane	4300	U
120-83-2	2,4-Dichlorophenol	4300	U
120-82-1	1,2,4-Trichlorobenzene	4300	U
91-20-3	Naphthalene	4300	U
106-47-8	4-Chloroaniline	4300	U
87-68-3	Hexachlorobutadiene	4300	U
59-50-7	4-Chloro-3-methylphenol	4300	U
91-57-6	2-Methylnaphthalene	4300	U
77-47-4	Hexachlorocyclopentadiene	4300	U
88-06-2	2,4,6-Trichlorophenol	4300	U
95-95-4	2,4,5-Trichlorophenol	4300	U
91-58-7	2-Chloronaphthalene	4300	U
88-74-4	2-Nitroaniline	4300	U
99-09-2	3-Nitroaniline	4300	U
131-11-3	Dimethylphthalate	4300	U
606-20-2	2,6-Dinitrotoluene	4300	U
208-96-8	Acenaphthylene	4300	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-

Sample wt/vol: 4.6 (g/mL) G Lab File ID: 99010511

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	4300	U
51-28-5	2,4-Dinitrophenol	4300	U
132-64-9	Dibenzofuran	4300	U
100-02-7	4-Nitrophenol	4300	U
121-14-2	2,4-Dinitrotoluene	4300	U
84-66-2	Diethylphthalate	4300	U
86-73-7	Fluorene	4300	U
7005-72-3	4-Chlorophenyl-phenylether	4300	U
100-01-6	4-Nitroaniline	4300	U
534-52-1	4,6-Dinitro-2-methylphenol	4300	U
122-39-4	N,N-Diphenylamine	4300	U
76-44-8	Heptachlor	4300	U
319-84-6	alpha-BHC	4300	U
101-55-3	4-Bromophenyl-phenylether	4300	U
118-74-1	Hexachlorobenzene	4300	U
319-85-7	beta-BHC	4300	U
87-86-5	Pentachlorophenol	4300	U
319-86-8	delta-BHC	4300	U
85-01-8	Phenanthrene	4300	U
120-12-7	Anthracene	4300	U
58-89-9	gamma-BHC (Lindane)	4300	U
86-74-8	Carbazole	4300	U
84-74-2	Di-n-butylphthalate	4300	U
309-00-2	Aldrin	4300	U
1024-57-3	Heptachlor Epoxide	4300	U
206-44-0	Fluoranthene	4300	U
129-00-0	Pyrene	4300	U
959-98-8	Endosulfan I	4300	U
72-55-9	4,4'-DDE	4300	U
60-57-1	Dieldrin	4300	U
72-20-8	Endrin	4300	U
33213-65-9	Endosulfan II	4300	U
72-54-8	4,4'-DDD	4300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-

Sample wt/vol: 4.6 (g/mL) G Lab File ID: 99010511

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	4300	U
1031-07-8	Endosulfan Sulfate	4300	U
50-29-3	4,4'-DDT	4300	U
53494-70-5	Endrin Ketone	4300	U
56-55-3	Benzo(a)anthracene	4300	U
91-94-1	3,3'-Dichlorobenzidine	4300	U
218-01-9	Chrysene	4300	U
72-43-5	Methoxychlor	4300	U
117-81-7	Bis(2-Ethylhexyl)phthalate	4300	U
117-84-0	Di-n-octylphthalate	4300	U
205-99-2	Benzo(b)fluoranthene	4300	U
207-08-9	Benzo(k)fluoranthene	4300	U
50-32-8	Benzo(a)pyrene	4300	U
193-39-5	Indeno(1,2,3-cd)pyrene	4300	U
53-70-3	Dibenz(a,h)anthracene	4300	U
191-24-2	Benzo(g,h,i)perylene	4300	U
110-86-1	Pyridine	4300	U
126-73-8	Tributyl phosphate	230	J
62-75-9	N-Nitrosodimethylamine	200	J
98-86-2	Acetophenone	4300	U
100-00-5	1-Chloro-4-nitrobenzene	4300	U
92-52-4	Biphenyl	84	J
100-25-4	1,4-Dinitrobenzene	4300	U
128-37-0	Butylated Hydroxytoluene	4300	U
82-68-8	Pentachloronitrobenzene	4300	U
88-85-7	Dinoseb	4300	U
2234-13-1	Octachloronaphthalene	4300	U
10595-95-6	N-Nitrosomethylethylamine	4300	U
55-18-5	N-Nitrosodiethylamine	4300	U
62-50-0	Ethyl methane sulfonate	4300	U
62-53-3	Analine	4300	U
76-01-7	Pentachloroethane	4300	U
930-55-2	N-Nitrosopyrolidine	100	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-

Sample wt/vol: 4.6 (g/mL) G Lab File ID: 99010511

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	4300	U
1888-71-7	Hexachloropropene	4300	U
924-16-3	N-Nitrosodi-n-butylamine	4300	U
94-59-7	Safrole	4300	U
95-94-3	1,2,4,5-Tetrachlorobenzene	4300	U
120-58-1	Isosafrole	4300	U
130-15-4	1,4-Naphthoquinone	4300	U
608-93-5	Pentachlorobenzene	4300	U
134-32-7	1-Naphthylamine	5400	
58-90-2	2,3,4,6-Tetrachlorophenol	4300	U
91-59-8	2-Naphthylamine	4300	U
99-55-8	5-Nitro-o-toluidine	4300	U
103-33-3	Azeobenzene	4300	U
99-35-4	1,3,5-Trinitrobenzene	4300	U
2303-16-4	Diallate (cis)	4300	U
62-44-2	Phenacetin	4300	U
2303-16-4	Diallate (trans)	4300	U
92-67-1	4-Aminobiphenyl	4300	U
23950-58-5	Pronamine	4300	U
465-73-6	Isodrin	4300	U
57-74-9	Chlordane (alpha)	4300	U
92-87-5	Benzidine	4300	U
60-11-7	p-Dimethylaminoazobenzene	4300	U
510-15-6	Chlorobenzilate	4300	U
119-93-7	3,3'-Dimethylbenzidine	4300	U
53-96-3	2-Acetylaminofluorene	4300	U
56-49-5	3-Methylcholanthrene	4300	U
109-06-8	2-Methylpyridine	4300	U
143-50-0	Kepone	4300	U
57-74-9	Chlordane (gamma)	4300	U
66-27-3	Methyl methane sulfonate	4300	U
70-30-4	Hexachlorophene	4300	U
99-65-0	1,3-Dinitrobenzene	4300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-

Sample wt/vol: 4.6 (g/mL) G Lab File ID: 99010511

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	4300	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 4.8 (g/mL) G Lab File ID: 99010512

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4100	U
111-44-4	bis(2-Chloroethyl)ether	4100	U
95-57-8	2-Chlorophenol	4100	U
541-73-1	1,3-Dichlorobenzene	4100	U
106-46-7	1,4-Dichlorobenzene	4100	U
95-50-1	1,2-Dichlorobenzene	4100	U
100-51-6	Benzyl alcohol	4100	U
95-48-7	2-Methylphenol	4100	U
108-60-1	2,2'-oxybis(1-Chloropropane)	4100	U
621-64-7	N-Nitroso-di-n-propylamine	4100	U
106-44-5	4-Methylphenol	4100	U
67-72-1	Hexachloroethane	4100	U
98-95-3	Nitrobenzene	4100	U
78-59-1	Isophorone	4100	U
88-75-5	2-Nitrophenol	4100	U
105-67-9	2,4-Dimethylphenol	4100	U
111-91-1	bis(2-Chloroethoxy)methane	4100	U
120-83-2	2,4-Dichlorophenol	4100	U
120-82-1	1,2,4-Trichlorobenzene	4100	U
91-20-3	Naphthalene	4100	U
106-47-8	4-Chloroaniline	4100	U
87-68-3	Hexachlorobutadiene	4100	U
59-50-7	4-Chloro-3-methylphenol	4100	U
91-57-6	2-Methylnaphthalene	4100	U
77-47-4	Hexachlorocyclopentadiene	4100	U
88-06-2	2,4,6-Trichlorophenol	4100	U
95-95-4	2,4,5-Trichlorophenol	4100	U
91-58-7	2-Chloronaphthalene	4100	U
88-74-4	2-Nitroaniline	4100	U
99-09-2	3-Nitroaniline	4100	U
131-11-3	Dimethylphthalate	4100	U
606-20-2	2,6-Dinitrotoluene	4100	U
208-96-8	Acenaphthylene	4100	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 4.8 (g/mL) G Lab File ID: 99010512

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	4100	U
51-28-5	2,4-Dinitrophenol	4100	U
132-64-9	Dibenzofuran	4100	U
100-02-7	4-Nitrophenol	4100	U
121-14-2	2,4-Dinitrotoluene	4100	U
84-66-2	Diethylphthalate	4100	U
86-73-7	Fluorene	4100	U
7005-72-3	4-Chlorophenyl-phenylether	4100	U
100-01-6	4-Nitroaniline	4100	U
534-52-1	4,6-Dinitro-2-methylphenol	4100	U
122-39-4	N,N-Diphenylamine	4100	U
76-44-8	Heptachlor	4100	U
319-84-6	alpha-BHC	4100	U
101-55-3	4-Bromophenyl-phenylether	4100	U
118-74-1	Hexachlorobenzene	4100	U
319-85-7	beta-BHC	4100	U
87-86-5	Pentachlorophenol	4100	U
319-86-8	delta-BHC	4100	U
85-01-8	Phenanthrene	4100	U
120-12-7	Anthracene	4100	U
58-89-9	gamma-BHC (Lindane)	4100	U
86-74-8	Carbazole	4100	U
84-74-2	Di-n-butylphthalate	4100	U
309-00-2	Aldrin	4100	U
1024-57-3	Heptachlor Epoxide	4100	U
206-44-0	Fluoranthene	4100	U
129-00-0	Pyrene	4100	U
959-98-8	Endosulfan I	4100	U
72-55-9	4,4'-DDE	4100	U
60-57-1	Dieldrin	4100	U
72-20-8	Endrin	4100	U
33213-65-9	Endosulfan II	4100	U
72-54-8	4,4'-DDD	4100	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 4.8 (g/mL) G Lab File ID: 99010512

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	4100	U
1031-07-8	Endosulfan Sulfate	4100	U
50-29-3	4,4'-DDT	4100	U
53494-70-5	Endrin Ketone	4100	U
56-55-3	Benzo(a)anthracene	4100	U
91-94-1	3,3'-Dichlorobenzidine	4100	U
218-01-9	Chrysene	4100	U
72-43-5	Methoxychlor	4100	U
117-81-7	Bis(2-Ethylhexyl)phthalate	640	J
117-84-0	Di-n-octylphthalate	4100	U
205-99-2	Benzo(b)fluoranthene	4100	U
207-08-9	Benzo(k)fluoranthene	4100	U
50-32-8	Benzo(a)pyrene	4100	U
193-39-5	Indeno(1,2,3-cd)pyrene	4100	U
53-70-3	Dibenz(a,h)anthracene	4100	U
191-24-2	Benzo(g,h,i)perylene	4100	U
110-86-1	Pyridine	1400	J
126-73-8	Tributyl phosphate	260	J
62-75-9	N-Nitrosodimethylamine	2600	J
98-86-2	Acetophenone	4100	U
100-00-5	1-Chloro-4-nitrobenzene	4100	U
92-52-4	Biphenyl	65	J
100-25-4	1,4-Dinitrobenzene	4100	U
128-37-0	Butylated Hydroxytoluene	4100	U
82-68-8	Pentachloronitrobenzene	4100	U
88-85-7	Dinoseb	4100	U
2234-13-1	Octachloronaphthalene	4100	U
10595-95-6	N-Nitrosomethylethylamine	4100	U
55-18-5	N-Nitrosodiethylamine	4100	U
62-50-0	Ethyl methane sulfonate	4100	U
62-53-3	Analine	4100	U
76-01-7	Pentachloroethane	4100	U
930-55-2	N-Nitrosopyrolidine	4100	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 4.8 (g/mL) G Lab File ID: 99010512

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/05/99

Injection Volume: _____ (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	4100	U
1888-71-7	Hexachloropropene	4100	U
924-16-3	N-Nitrosodi-n-butylamine	4100	U
94-59-7	Safrole	4100	U
95-94-3	1,2,4,5-Tetrachlorobenzene	4100	U
120-58-1	Isosafrole	4100	U
130-15-4	1,4-Naphthoquinone	4100	U
608-93-5	Pentachlorobenzene	4100	U
134-32-7	1-Naphthylamine	2000	J
58-90-2	2,3,4,6-Tetrachlorophenol	4100	U
91-59-8	2-Naphthylamine	4100	U
99-55-8	5-Nitro-o-toluidine	4100	U
103-33-3	Azeobenzene	4100	U
99-35-4	1,3,5-Trinitrobenzene	21	J
2303-16-4	Diallate (cis)	4100	U
62-44-2	Phenacetin	4100	U
2303-16-4	Diallate (trans)	4100	U
92-67-1	4-Aminobiphenyl	4100	U
23950-58-5	Pronamine	4100	U
465-73-6	Isodrin	4100	U
57-74-9	Chlordane (alpha)	4100	U
92-87-5	Benzidine	4100	U
60-11-7	p-Dimethylaminoazobenzene	4100	U
510-15-6	Chlorobenzilate	4100	U
119-93-7	3,3'-Dimethylbenzidine	4100	U
53-96-3	2-Acetylaminofluorene	4100	U
56-49-5	3-Methylcholanthrene	4100	U
109-06-8	2-Methylpyridine	4100	U
143-50-0	Kepone	4100	U
57-74-9	Chlordane (gamma)	4100	U
66-27-3	Methyl methane sulfonate	4100	U
70-30-4	Hexachlorophene	4100	U
99-65-0	1,3-Dinitrobenzene	4100	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 4.8 (g/mL) G Lab File ID: 99010512

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	4100	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MS

Sample wt/vol: 2.7 (g/mL) G Lab File ID: 99010513

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	3100	J
111-44-4	bis(2-Chloroethyl)ether	7300	U
95-57-8	2-Chlorophenol	14000	
541-73-1	1,3-Dichlorobenzene	7300	U
106-46-7	1,4-Dichlorobenzene	23000	
95-50-1	1,2-Dichlorobenzene	7300	U
100-51-6	Benzyl alcohol	7300	U
95-48-7	2-Methylphenol	7300	U
108-60-1	2,2'-oxybis(1-Chloropropane)	7300	U
621-64-7	N-Nitroso-di-n-propylamine	22000	
106-44-5	4-Methylphenol	7300	U
67-72-1	Hexachloroethane	7300	U
98-95-3	Nitrobenzene	7300	U
78-59-1	Isophorone	7300	U
88-75-5	2-Nitrophenol	25000	
105-67-9	2,4-Dimethylphenol	7300	U
111-91-1	bis(2-Chloroethoxy)methane	7300	U
120-83-2	2,4-Dichlorophenol	7300	U
120-82-1	1,2,4-Trichlorobenzene	26000	
91-20-3	Naphthalene	7300	U
106-47-8	4-Chloroaniline	7300	U
87-68-3	Hexachlorobutadiene	7300	U
59-50-7	4-Chloro-3-methylphenol	3700	J
91-57-6	2-Methylnaphthalene	7300	U
77-47-4	Hexachlorocyclopentadiene	7300	U
88-06-2	2,4,6-Trichlorophenol	7300	U
95-95-4	2,4,5-Trichlorophenol	7300	U
91-58-7	2-Chloronaphthalene	7300	U
88-74-4	2-Nitroaniline	7300	U
99-09-2	3-Nitroaniline	7300	U
131-11-3	Dimethylphthalate	7300	U
606-20-2	2,6-Dinitrotoluene	7300	U
208-96-8	Acenaphthylene	7300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MS

Sample wt/vol: 2.7 (g/mL) G Lab File ID: 99010513

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	24000	
51-28-5	2,4-Dinitrophenol	7300	U
132-64-9	Dibenzofuran	7300	U
100-02-7	4-Nitrophenol	58000	
121-14-2	2,4-Dinitrotoluene	27000	
84-66-2	Diethylphthalate	7300	U
86-73-7	Fluorene	7300	U
7005-72-3	4-Chlorophenyl-phenylether	7300	U
100-01-6	4-Nitroaniline	7300	U
534-52-1	4,6-Dinitro-2-methylphenol	7300	U
122-39-4	N,N-Diphenylamine	14000	
76-44-8	Heptachlor	7300	U
319-84-6	alpha-BHC	7300	U
101-55-3	4-Bromophenyl-phenylether	7300	U
118-74-1	Hexachlorobenzene	7300	U
319-85-7	beta-BHC	7300	U
87-86-5	Pentachlorophenol	26000	
319-86-8	delta-BHC	7300	U
85-01-8	Phenanthrene	7300	U
120-12-7	Anthracene	7300	U
58-89-9	gamma-BHC (Lindane)	7300	U
86-74-8	Carbazole	7300	U
84-74-2	Di-n-butylphthalate	7300	U
309-00-2	Aldrin	7300	U
1024-57-3	Heptachlor Epoxide	7300	U
206-44-0	Fluoranthene	7300	U
129-00-0	Pyrene	25000	
959-98-8	Endosulfan I	7300	U
72-55-9	4,4'-DDE	7300	U
60-57-1	Dieldrin	7300	U
72-20-8	Endrin	7300	U
33213-65-9	Endosulfan II	7300	U
72-54-8	4,4'-DDD	7300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MS

Sample wt/vol: 2.7 (g/mL) G Lab File ID: 99010513

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	7300	U
1031-07-8	Endosulfan Sulfate	7300	U
50-29-3	4,4'-DDT	7300	U
53494-70-5	Endrin Ketone	7300	U
56-55-3	Benzo(a)anthracene	7300	U
91-94-1	3,3'-Dichlorobenzidine	7300	U
218-01-9	Chrysene	7300	U
72-43-5	Methoxychlor	7300	U
117-81-7	Bis(2-Ethylhexyl)phthalate	1200	J
117-84-0	Di-n-octylphthalate	7300	U
205-99-2	Benzo(b)fluoranthene	7300	U
207-08-9	Benzo(k)fluoranthene	7300	U
50-32-8	Benzo(a)pyrene	7300	U
193-39-5	Indeno(1,2,3-cd)pyrene	7300	U
53-70-3	Dibenz(a,h)anthracene	7300	U
191-24-2	Benzo(g,h,i)perylene	7300	U
110-86-1	Pyridine	19000	
126-73-8	Tributyl phosphate	19000	
62-75-9	N-Nitrosodimethylamine	530	J
98-86-2	Acetophenone	23000	
100-00-5	1-Chloro-4-nitrobenzene	22000	
92-52-4	Biphenyl	20000	
100-25-4	1,4-Dinitrobenzene	24000	
128-37-0	Butylated Hydroxytoluene	790	J
82-68-8	Pentachloronitrobenzene	26000	
88-85-7	Dinoseb	22000	
2234-13-1	Octachloronaphthalene	24000	
10595-95-6	N-Nitrosomethylethylamine	7300	U
55-18-5	N-Nitrosodiethylamine	7300	U
62-50-0	Ethyl methane sulfonate	7300	U
62-53-3	Analine	29	J
76-01-7	Pentachloroethane	7300	U
930-55-2	N-Nitrosopyrolidine	7300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MS

Sample wt/vol: 2.7 (g/mL) G Lab File ID: 99010513

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	7300	U
1888-71-7	Hexachloropropene	7300	U
924-16-3	N-Nitrosodi-n-butylamine	7300	U
94-59-7	Safrole	7300	U
95-94-3	1,2,4,5-Tetrachlorobenzene	7300	U
120-58-1	Isosafrole	7300	U
130-15-4	1,4-Naphthoquinone	26	J
608-93-5	Pentachlorobenzene	7300	U
134-32-7	1-Naphthylamine	7300	
58-90-2	2,3,4,6-Tetrachlorophenol	130	J
91-59-8	2-Naphthylamine	7300	U
99-55-8	5-Nitro-o-toluidine	7300	U
103-33-3	Azeobenzene	7300	U
99-35-4	1,3,5-Trinitrobenzene	570	J
2303-16-4	Diallate (cis)	7300	U
62-44-2	Phenacetin	7300	U
2303-16-4	Diallate (trans)	7300	U
92-67-1	4-Aminobiphenyl	7300	U
23950-58-5	Pronamine	7300	U
465-73-6	Isodrin	7300	U
57-74-9	Chlordane (alpha)	7300	U
92-87-5	Benzidine	7300	U
60-11-7	p-Dimethylaminoazobenzene	7300	U
510-15-6	Chlorobenzilate	7300	U
119-93-7	3,3'-Dimethylbenzidine	7300	U
53-96-3	2-Acetylaminofluorene	7300	U
56-49-5	3-Methylcholanthrene	7300	U
109-06-8	2-Methylpyridine	7300	U
143-50-0	Kepone	7300	U
57-74-9	Chlordane (gamma)	7300	U
66-27-3	Methyl methane sulfonate	7300	U
70-30-4	Hexachlorophene	7300	U
99-65-0	1,3-Dinitrobenzene	7300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MS

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MS

Sample wt/vol: 2.7 (g/mL) G Lab File ID: 99010513

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	7300	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MSD

Sample wt/vol: 3.3 (g/mL) G Lab File ID: 99010514

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	29000	
111-44-4	bis(2-Chloroethyl)ether	6100	U
95-57-8	2-Chlorophenol	31000	
541-73-1	1,3-Dichlorobenzene	6100	U
106-46-7	1,4-Dichlorobenzene	21000	
95-50-1	1,2-Dichlorobenzene	6100	U
100-51-6	Benzyl alcohol	6100	U
95-48-7	2-Methylphenol	10000	
108-60-1	2,2'-oxybis(1-Chloropropane)	6100	U
621-64-7	N-Nitroso-di-n-propylamine	21000	
106-44-5	4-Methylphenol	24000	
67-72-1	Hexachloroethane	6100	U
98-95-3	Nitrobenzene	6100	U
78-59-1	Isophorone	6100	U
88-75-5	2-Nitrophenol	6100	U
105-67-9	2,4-Dimethylphenol	6100	U
111-91-1	bis(2-Chloroethoxy)methane	6100	U
120-83-2	2,4-Dichlorophenol	6100	U
120-82-1	1,2,4-Trichlorobenzene	24000	
91-20-3	Naphthalene	6100	U
106-47-8	4-Chloroaniline	6100	U
87-68-3	Hexachlorobutadiene	6100	U
59-50-7	4-Chloro-3-methylphenol	31000	
91-57-6	2-Methylnaphthalene	6100	U
77-47-4	Hexachlorocyclopentadiene	6100	U
88-06-2	2,4,6-Trichlorophenol	6100	U
95-95-4	2,4,5-Trichlorophenol	6100	U
91-58-7	2-Chloronaphthalene	6100	U
88-74-4	2-Nitroaniline	6100	U
99-09-2	3-Nitroaniline	6100	U
131-11-3	Dimethylphthalate	6100	U
606-20-2	2,6-Dinitrotoluene	6100	U
208-96-8	Acenaphthylene	6100	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MSD

Sample wt/vol: 3.3 (g/mL) G Lab File ID: 99010514

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	24000	
51-28-5	2,4-Dinitrophenol	6100	U
132-64-9	Dibenzofuran	6100	U
100-02-7	4-Nitrophenol	38000	
121-14-2	2,4-Dinitrotoluene	26000	
84-66-2	Diethylphthalate	6100	U
86-73-7	Fluorene	6100	U
7005-72-3	4-Chlorophenyl-phenylether	6100	U
100-01-6	4-Nitroaniline	6100	U
534-52-1	4,6-Dinitro-2-methylphenol	6100	U
122-39-4	N,N-Diphenylamine	6700	
76-44-8	Heptachlor	6100	U
319-84-6	alpha-BHC	6100	U
101-55-3	4-Bromophenyl-phenylether	6100	U
118-74-1	Hexachlorobenzene	6100	U
319-85-7	beta-BHC	6100	U
87-86-5	Pentachlorophenol	28000	
319-86-8	delta-BHC	6100	U
85-01-8	Phenanthrene	6100	U
120-12-7	Anthracene	6100	U
58-89-9	gamma-BHC (Lindane)	6100	U
86-74-8	Carbazole	6100	U
84-74-2	Di-n-butylphthalate	6100	U
309-00-2	Aldrin	6100	U
1024-57-3	Heptachlor Epoxide	6100	U
206-44-0	Fluoranthene	6100	U
129-00-0	Pyrene	24000	
959-98-8	Endosulfan I	6100	U
72-55-9	4,4'-DDE	6100	U
60-57-1	Dieldrin	6100	U
72-20-8	Endrin	6100	U
33213-65-9	Endosulfan II	6100	U
72-54-8	4,4'-DDD	6100	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MSD

Sample wt/vol: 3.3 (g/mL) G Lab File ID: 99010514

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	6100	U
1031-07-8	Endosulfan Sulfate	6100	U
50-29-3	4,4'-DDT	6100	U
53494-70-5	Endrin Ketone	6100	U
56-55-3	Benzo(a)anthracene	6100	U
91-94-1	3,3'-Dichlorobenzidine	6100	U
218-01-9	Chrysene	6100	U
72-43-5	Methoxychlor	6100	U
117-81-7	Bis(2-Ethylhexyl)phthalate	920	J
117-84-0	Di-n-octylphthalate	6100	U
205-99-2	Benzo(b)fluoranthene	6100	U
207-08-9	Benzo(k)fluoranthene	6100	U
50-32-8	Benzo(a)pyrene	6100	U
193-39-5	Indeno(1,2,3-cd)pyrene	6100	U
53-70-3	Dibenz(a,h)anthracene	6100	U
191-24-2	Benzo(g,h,i)perylene	6100	U
110-86-1	Pyridine	20000	
126-73-8	Tributyl phosphate	19000	
62-75-9	N-Nitrosodimethylamine	520	J
98-86-2	Acetophenone	22000	
100-00-5	1-Chloro-4-nitrobenzene	20000	
92-52-4	Biphenyl	19000	
100-25-4	1,4-Dinitrobenzene	22000	
128-37-0	Butylated Hydroxytoluene	1000	J
82-68-8	Pentachloronitrobenzene	26000	
88-85-7	Dinoseb	21000	
2234-13-1	Octachloronaphthalene	23000	
10595-95-6	N-Nitrosomethylethylamine	6100	U
55-18-5	N-Nitrosodiethylamine	6100	U
62-50-0	Ethyl methane sulfonate	6100	U
62-53-3	Analine	6100	U
76-01-7	Pentachloroethane	6100	U
930-55-2	N-Nitrosopyrolidine	8	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MSD

Sample wt/vol: 3.3 (g/mL) G Lab File ID: 99010514

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	6100	U
1888-71-7	Hexachloropropene	6100	U
924-16-3	N-Nitrosodi-n-butylamine	6100	U
94-59-7	Safrole	6100	U
95-94-3	1,2,4,5-Tetrachlorobenzene	6100	U
120-58-1	Isosafrole	6100	U
130-15-4	1,4-Naphthoquinone	6100	U
608-93-5	Pentachlorobenzene	6100	U
134-32-7	1-Naphthylamine	6100	U
58-90-2	2,3,4,6-Tetrachlorophenol	130	J
91-59-8	2-Naphthylamine	6100	U
99-55-8	5-Nitro-o-toluidine	6100	U
103-33-3	Azeobenzene	6100	U
99-35-4	1,3,5-Trinitrobenzene	22	J
2303-16-4	Diallate (cis)	6100	U
62-44-2	Phenacetin	6100	U
2303-16-4	Diallate (trans)	6100	U
92-67-1	4-Aminobiphenyl	6100	U
23950-58-5	Pronamine	6100	U
465-73-6	Isodrin	6100	U
57-74-9	Chlordane (alpha)	6100	U
92-87-5	Benzidine	6100	U
60-11-7	p-Dimethylaminoazobenzene	6100	U
510-15-6	Chlorobenzilate	6100	U
119-93-7	3,3'-Dimethylbenzidine	6100	U
53-96-3	2-Acetylaminofluorene	6100	U
56-49-5	3-Methylcholanthrene	6100	U
109-06-8	2-Methylpyridine	6100	U
143-50-0	Kepone	6100	U
57-74-9	Chlordane (gamma)	6100	U
66-27-3	Methyl methane sulfonate	6100	U
70-30-4	Hexachlorophene	6100	U
99-65-0	1,3-Dinitrobenzene	6100	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AN-107-MSD

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-MSD

Sample wt/vol: 3.3 (g/mL) G Lab File ID: 99010514

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	6100	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99010510

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4000	U
111-44-4	bis(2-Chloroethyl)ether	4000	U
95-57-8	2-Chlorophenol	4000	U
541-73-1	1,3-Dichlorobenzene	4000	U
106-46-7	1,4-Dichlorobenzene	4000	U
95-50-1	1,2-Dichlorobenzene	4000	U
100-51-6	Benzyl alcohol	4000	U
95-48-7	2-Methylphenol	4000	U
108-60-1	2,2'-oxybis(1-Chloropropane)	4000	U
621-64-7	N-Nitroso-di-n-propylamine	4000	U
106-44-5	4-Methylphenol	4000	U
67-72-1	Hexachloroethane	4000	U
98-95-3	Nitrobenzene	4000	U
78-59-1	Isophorone	4000	U
88-75-5	2-Nitrophenol	4000	U
105-67-9	2,4-Dimethylphenol	4000	U
111-91-1	bis(2-Chloroethoxy)methane	4000	U
120-83-2	2,4-Dichlorophenol	4000	U
120-82-1	1,2,4-Trichlorobenzene	4000	U
91-20-3	Naphthalene	4000	U
106-47-8	4-Chloroaniline	4000	U
87-68-3	Hexachlorobutadiene	4000	U
59-50-7	4-Chloro-3-methylphenol	4000	U
91-57-6	2-Methylnaphthalene	4000	U
77-47-4	Hexachlorocyclopentadiene	4000	U
88-06-2	2,4,6-Trichlorophenol	4000	U
95-95-4	2,4,5-Trichlorophenol	4000	U
91-58-7	2-Chloronaphthalene	4000	U
88-74-4	2-Nitroaniline	4000	U
99-09-2	3-Nitroaniline	4000	U
131-11-3	Dimethylphthalate	4000	U
606-20-2	2,6-Dinitrotoluene	4000	U
208-96-8	Acenaphthylene	4000	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99010510

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
83-32-9	Acenaphthene	4000	U
51-28-5	2,4-Dinitrophenol	4000	U
132-64-9	Dibenzofuran	4000	U
100-02-7	4-Nitrophenol	4000	U
121-14-2	2,4-Dinitrotoluene	4000	U
84-66-2	Diethylphthalate	4000	U
86-73-7	Fluorene	4000	U
7005-72-3	4-Chlorophenyl-phenylether	4000	U
100-01-6	4-Nitroaniline	4000	U
534-52-1	4,6-Dinitro-2-methylphenol	4000	U
122-39-4	N,N-Diphenylamine	4000	U
76-44-8	Heptachlor	4000	U
319-84-6	alpha-BHC	4000	U
101-55-3	4-Bromophenyl-phenylether	4000	U
118-74-1	Hexachlorobenzene	4000	U
319-85-7	beta-BHC	4000	U
87-86-5	Pentachlorophenol	4000	U
319-86-8	delta-BHC	4000	U
85-01-8	Phenanthrene	4000	U
120-12-7	Anthracene	4000	U
58-89-9	gamma-BHC (Lindane)	4000	U
86-74-8	Carbazole	4000	U
84-74-2	Di-n-butylphthalate	4000	U
309-00-2	Aldrin	4000	U
1024-57-3	Heptachlor Epoxide	4000	U
206-44-0	Fluoranthene	4000	U
129-00-0	Pyrene	4000	U
959-98-8	Endosulfan I	4000	U
72-55-9	4,4'-DDE	4000	U
60-57-1	Dieldrin	4000	U
72-20-8	Endrin	4000	U
33213-65-9	Endosulfan II	4000	U
72-54-8	4,4'-DDD	4000	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99010510

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
85-68-7	Butylbenzylphthalate	4000	U
1031-07-8	Endosulfan Sulfate	4000	U
50-29-3	4,4'-DDT	4000	U
53494-70-5	Endrin Ketone	4000	U
56-55-3	Benzo(a)anthracene	4000	U
91-94-1	3,3'-Dichlorobenzidine	4000	U
218-01-9	Chrysene	4000	U
72-43-5	Methoxychlor	4000	U
117-81-7	Bis(2-Ethylhexyl)phthalate	4000	U
117-84-0	Di-n-octylphthalate	4000	U
205-99-2	Benzo(b)fluoranthene	4000	U
207-08-9	Benzo(k)fluoranthene	4000	U
50-32-8	Benzo(a)pyrene	4000	U
193-39-5	Indeno(1,2,3-cd)pyrene	4000	U
53-70-3	Dibenz(a,h)anthracene	4000	U
191-24-2	Benzo(g,h,i)perylene	4000	U
110-86-1	Pyridine	4000	U
126-73-8	Tributyl phosphate	4000	U
62-75-9	N-Nitrosodimethylamine	4000	U
98-86-2	Acetophenone	4000	U
100-00-5	1-Chloro-4-nitrobenzene	4000	U
92-52-4	Biphenyl	4000	U
100-25-4	1,4-Dinitrobenzene	4000	U
128-37-0	Butylated Hydroxytoluene	4000	U
82-68-8	Pentachloronitrobenzene	4000	U
88-85-7	Dinoseb	4000	U
2234-13-1	Octachloronaphthalene	4000	U
10595-95-6	N-Nitrosomethylethylamine	4000	U
55-18-5	N-Nitrosodiethylamine	4000	U
62-50-0	Ethyl methane sulfonate	4000	U
62-53-3	Analine	4000	U
76-01-7	Pentachloroethane	4000	U
930-55-2	N-Nitrosopyrolidine	4000	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99010510

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000 (uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-75-4	N-Nitrosopiperidine	4000	U
1888-71-7	Hexachloropropene	4000	U
924-16-3	N-Nitrosodi-n-butylamine	4000	U
94-59-7	Safrole	4000	U
95-94-3	1,2,4,5-Tetrachlorobenzene	4000	U
120-58-1	Isosafrole	4000	U
130-15-4	1,4-Naphthoquinone	4000	U
608-93-5	Pentachlorobenzene	4000	U
134-32-7	1-Naphthylamine	4000	U
58-90-2	2,3,4,6-Tetrachlorophenol	4000	U
91-59-8	2-Naphthylamine	4000	U
99-55-8	5-Nitro-o-toluidine	4000	U
103-33-3	Azeobenzene	4000	U
99-35-4	1,3,5-Trinitrobenzene	4000	U
2303-16-4	Diallate (cis)	4000	U
62-44-2	Phenacetin	4000	U
2303-16-4	Diallate (trans)	4000	U
92-67-1	4-Aminobiphenyl	4000	U
23950-58-5	Pronamine	4000	U
465-73-6	Isodrin	4000	U
57-74-9	Chlordane (alpha)	4000	U
92-87-5	Benzidine	4000	U
60-11-7	p-Dimethylaminoazobenzene	4000	U
510-15-6	Chlorobenzilate	4000	U
119-93-7	3,3'-Dimethylbenzidine	4000	U
53-96-3	2-Acetylaminofluorene	4000	U
56-49-5	3-Methylcholanthrene	4000	U
109-06-8	2-Methylpyridine	4000	U
143-50-0	Kepone	4000	U
57-74-9	Chlordane (gamma)	4000	U
66-27-3	Methyl methane sulfonate	4000	U
70-30-4	Hexachlorophene	4000	U
99-65-0	1,3-Dinitrobenzene	4000	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99010510

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
87-65-0	2,6-Dichlorophenol	4000	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0649

Sample wt/vol: 0.000 (g/mL) ML Lab File ID: 99010506

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

Number TICs found: 27

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 67-66-3	CHLOROFORM	4.78	170	NJ
2. 79-00-5	ETHANE, 1,1,2-TRICHLORO-	5.42	400	NJ
3. 994-05-8	BUTANE, 2-METHOXY-2-METHYL-	7.23	1300	NJ
4. 1120-64-5	OXAZOLE, 4,5-DIHYDRO-2-METHY	7.48	370	NJ
5. 627-13-4	NITRIC ACID, PROPYL ESTER	8.69	810	NJ
6. 111-84-2	NONANE	9.41	110000	NJB
7. 79-34-5	ETHANE, 1,1,2,2-TETRACHLORO-	9.65	170	NJ
8. 924-46-9	1-PROPANAMINE, N-METHYL-N-NI	10.59	2600	NJ
9. 59-89-2	MORPHOLINE, 4-NITROSO-	13.13	1900	NJ
10. 34419-76-6	1-PROPANAMINE, N,2-DIMETHYL-	13.25	2200	NJ
11. 149-57-5	HEXANOIC ACID, 2-ETHYL-	14.25	300	NJ
12.	UNKNOWN	15.97	600	J
13.	UNKNOWN	16.69	390	J
14.	UNKNOWN AMINE	17.77	3100	J
15. 1116-54-7	ETHANOL, 2,2'-(NITROSOIMINO)	19.43	300	NJ
16.	UNKNOWN AMINE	19.58	800	J
17. 140-79-4	PIPERAZINE, 1,4-DINITROSO-	19.76	570	NJ
18.	UNKNOWN	20.96	1800	J
19. 7247-89-4	PIPERIDINE, 2-METHYL-1-NITRO	21.21	160	NJ
20.	UNKNOWN	21.38	120	J
21.	UNKNOWN	21.87	3600	J
22.	UNKNOWN	22.31	570	J
23.	UNKNOWN AMINE	22.53	490	J
24.	UNKNOWN AMINE	22.65	1500	J
25.	UNKNOWN	23.51	740	J
26. 55556-93-9	4-PIPERIDINOL, 1-NITROSO-	25.61	8500	NJ
27. 15104-03-7	PIPERIDINE, 4-METHYL-1-NITRO	26.57	240	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: 99-0649D

Sample wt/vol: 0.000 (g/mL) ML Lab File ID: 99010507

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

Number TICs found: 23

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 67-66-3	CHLOROFORM	4.79	400	NJ
2. 79-00-5	ETHANE, 1,1,2-TRICHLORO-	5.42	300	NJ
3. 994-05-8	BUTANE, 2-METHOXY-2-METHYL-	7.24	1400	NJ
4. 1120-64-5	OXAZOLE, 4,5-DIHYDRO-2-METHY	7.49	470	NJ
5. 34075-28-0	BUTANE, 2,3-DIMETHYL-2-NITRO	7.98	1200	NJ
6. 625-58-1	NITRIC ACID, ETHYL ESTER	8.76	2400	NJ
7. 111-84-2	NONANE	9.43	140000	NJ
8. 924-46-9	1-PROPANAMINE, N-METHYL-N-NI	10.61	3800	NJ
9. 39884-53-2	N-NITROSO-2-METHYL-OXAZOLIDI	11.67	770	NJ
10. 59-89-2	MORPHOLINE, 4-NITROSO-	13.16	4000	NJ
11. 111-14-8	HEPTANOIC ACID	13.45	9900	NJ
12. 149-57-5	HEXANOIC ACID, 2-ETHYL-	14.28	780	NJ
13.	UNKNOWN	14.44	840	J
14.	UNKNOWN	15.99	660	J
15.	UNKNOWN AMINE	17.77	3400	J
16. 1116-54-7	ETHANOL, 2,2'-(NITROSOIMINO)	19.52	1100	NJ
17. 3034-41-1	1H-IMIDAZOLE, 1-METHYL-4-NIT	19.64	880	NJ
18. 140-79-4	PIPERAZINE, 1,4-DINITROSO-	19.79	1600	NJ
19.	UNKNOWN	20.76	790	J
20.	UNKNOWN	20.98	3300	J
21.	UNKNOWN	22.32	1100	J
22. 100-75-4	PIPERIDINE, 1-NITROSO-	25.74	17000	NJ
23. 55556-86-0	PYRROLIDINE, 2,5-DIMETHYL-1-	26.68	860	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SUPERNATANT Lab Sample ID: SBLK01

Sample wt/vol: 0.000 (g/mL) ML Lab File ID: 99010515

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/06/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 111-84-2	NONANE	9.26	47000	NJS
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107-

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651-

Sample wt/vol: 4.6 (g/mL) G Lab File ID: 99010511

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

Number TICs found: 21

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 67-66-3	CHLOROFORM	4.85	3200	NJ
2. 106-94-5	PROPANE, 1-BROMO-	5.04	1400	NJ
3. 141-78-6	ETHYL ACETATE	5.66	2500	NJ
4. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	6.02	5100	NJA
5. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	6.62	23000	NJ
6. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7.50	390000	NJAB
7.	UNKNOWN ALDOL CONDENSATE	8.32	18000	JA
8. 111-84-2	NONANE	9.54	2000000	NJ
9. 5343-96-4	2-BUTANOL, 3-METHYL-, ACETAT	11.73	36000	NJ
10. 107-87-9	2-PENTANONE	12.58	68000	NJ
11. 59-89-2	MORPHOLINE, 4-NITROSO-	13.12	3800	NJ
12. 107-92-6	BUTANOIC ACID	13.19	5300	NJ
13. 91-63-4	QUINOLINE, 2-METHYL-	14.38	12000	NJ
14. 1526-17-6	2-FLUORO-6-NITROPHENOL	14.74	7500	NJ
15.	2-CHLORO-6-NITROPHENOL-D3	18.02	7400	J
16. 403-19-0	2-FLUORO-4-NITROPHENOL	18.11	5400	NJ
17. 1116-54-7	ETHANOL, 2,2'-(NITROSOIMINO)	19.07	5800	NJ
18.	2-CHLORO-4-NITROPHENOL-D3	19.94	5400	J
19.	UNKNOWN	20.06	5900	J
20.	UNKNOWN	20.27	1900	J
21. 100-75-4	PIPERIDINE, 1-NITROSO-	25.29	26000	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AN-107D

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: 99-0651D

Sample wt/vol: 4.8 (g/mL) G Lab File ID: 99010512

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

Number TICs found: 18

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 67-66-3	CHLOROFORM	4.85	3300	NJ
2. 141-79-7	3-PENTEN-2-ONE, 4-METHYL-	6.02	19000	NJ
3. 108-64-5	BUTANOIC ACID, 3-METHYL-, ET	6.46	7300	NJ
4. 1626-09-1	2,7-OCTANEDIONE	6.61	11000	NJ
5. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7.46	260000	NJAB
6.	UNKNOWN ALDOL CONDENSATE	8.55	110000	JA
7. 111-84-2	NONANE	9.25	1700000	NJB
8.	UNKNOWN ALDOL CONDENSATE	9.57	12000	JA
9. 3970-62-5	3-PENTANOL, 2,2-DIMETHYL-	9.95	18000	NJ
10. 625-50-3	ACETAMIDE, N-ETHYL-	11.72	11000	NJ
11. 107-87-9	2-PENTANONE	12.58	75000	NJ
12. 1721-93-3	ISOQUINOLINE, 1-METHYL-	14.37	4200	NJ
13. 3973-27-1	P-DIOXIN, 2,3-DIHYDRO-2,5,6-	15.86	13000	NJ
14.	2-CHLORO-6-NITROPHENOL-D3	18.02	2700	J
15. 403-19-0	2-FLUORO-4-NITROPHENOL	18.13	1800	NJ
16. 1116-54-7	ETHANOL, 2,2'-(NITROSOIMINO)	19.11	3800	NJ
17.	2-CHLORO-4-NITROPHENOL-D3	19.94	2300	J
18. 55556-93-9	4-PIPERIDINOL, 1-NITROSO-	25.26	19000	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) SOLID Lab Sample ID: SBLK02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 99010510

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 2000(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 11.0

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALDOL CONDENSATE	6.61	23000	JA
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	7.47	450000	NJA
3. 111-84-2	NONANE	9.23	860000	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SOLVENT BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix: (soil/water) Lab Sample ID: SOLVENT

Sample wt/vol: 0.0 (g/mL) G Lab File ID: 99010505

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume:_____(uL) Date Analyzed: 02/05/99

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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2D
SOLID SEMIVOLATILE SURROGATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (2CP) #	S4 (DCB) #	S5 (NBZ) #	S6 (FBP) #	S7 (TBP) #	S8 (TPH) #	TOT OUT
01	METHOD BLANK	52	51	82	73	95	108	37	109	0
02	AN-107-	10*	3*	23	92	118	138*	12*	140*	5
03	AN-107D	25	24*	48	72	96	111	19	106	1
04	AN-107-MS	15*	5*	30	72	94	109	4*	106	3
05	AN-107-MSD	44	45	70	69	90	104	21	102	0
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		QC LIMITS	
S1 (2FP)	= 2-Fluorophenol	(25-121)	
S2 (PHL)	= Phenol-d5	(24-113)	
S3 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S4 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)	(advisory)
S5 (NBZ)	= Nitrobenzene-d5	(23-120)	
S6 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S7 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S8 (TPH)	= Terphenyl-d14	(18-137)	

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

2C
SUPERNATANT SEMIVOLATILE SURROGATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

	EPA SAMPLE NO.	S1 (2FP)#	S2 (PHL)#	S3 (2CP)#	S4 (DCB)#	S5 (NBZ)#	S6 (FBP)#	S7 (TBP)#	S8 (TPH)#	TOT OUT
01	AN-107	21	33	53	54	72	81	0*	75	1
02	AN-107D	13*	31	52	71	93	113	0*	111	2
03	AN-107MS	33	45	72	49	65	88	0*	94	1
04	AN-107MSD	34	46	72	57	73	96	32	96	0
05	METHOD BLANK	26	28	48	39	60	71	11	69	0
06										
07										
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		QC LIMITS	
S1 (2FP)	= 2-Fluorophenol	(21-110)	
S2 (PHL)	= Phenol-d5	(10-110)	
S3 (2CP)	= 2-Chlorophenol-d4	(16-110)	(advisory)
S4 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)
S5 (NBZ)	= Nitrobenzene-d5	(35-114)	
S6 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S7 (TBP)	= 2,4,6-Tribromophenol	(10-123)	
S8 (TPH)	= Terphenyl-d14	(33-141)	

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

	EPA SAMPLE NO.	S1 (2FP)#	S2 (PHL)#	S3 (2CP)#	S4 (DCB)#	S5 (NBZ)#	S6 (FBP)#	S7 (TBP)#	S8 (TPH)#	TOT OUT
01	AN-107	21	33	53	54	72	81	0*	75	1
02	AN-107D	13*	31	52	71	93	113	0*	111	2
03	AN-107MS	33	45	72	49	65	88	0*	94	1
04	AN-107MSD	34	46	72	57	73	96	32	96	0
05	METHOD BLANK	26	28	48	39	60	71	11	69	0
06										
07										
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		QC LIMITS	
S1 (2FP)	= 2-Fluorophenol	(21-110)	
S2 (PHL)	= Phenol-d5	(10-110)	
S3 (2CP)	= 2-Chlorophenol-d4	(16-110)	(advisory)
S4 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)
S5 (NBZ)	= Nitrobenzene-d5	(35-114)	
S6 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S7 (TBP)	= 2,4,6-Tribromophenol	(10-123)	
S8 (TPH)	= Terphenyl-d14	(33-141)	

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

SUPERNATANT SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AN-107

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Phenol	75	0.0	48	64	12-110
2-Chlorophenol	75	0.0	54	72	27-123
1,4-Dichlorobenzene	50	0.0	34	68	36- 97
2-Methylphenol	50	0.0	19	38	1-150
N-Nitroso-di-n-prop.(1)	50	0.0	32	64	41-116
4-Methylphenol	100	0.0	49	49	1-150
1,2,4-Trichlorobenzene	50	0.0	39	78	39- 98
4-Chloro-3-methylphenol	75	0.0	49	65	23- 97
Acenaphthene	50	0.0	38	76	46-118
4-Nitrophenol	75	0.0	49	65	10- 80
2,4-Dinitrotoluene	50	0.0	39	78	24- 96
N,N-Diphenylamine	50	0.0	33	66	1-150
Pentachlorophenol	75	0.0	34	45	9-103
Pyrene	50	0.0	38	76	26-127
Pyridine	50	0.0	32	64	1-150
Tributyl phosphate	50	0.0	31	62	1-150
Acetophenone	50	0.0	35	70	1-150
1-Chloro-4-nitrobenzene	50	0.0	33	66	1-150
Biphenyl	50	0.1	31	62	1-150
1,4-Dinitrobenzene	50	0.0	30	60	1-150
Pentachloronitrobenzene	50	0.0	39	78	1-150
Dinoseb	50	0.0	1	2	1-150
Octachloronaphthalene	50	0.0	28	56	1-150

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

SUPERNATANT SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AN-107

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75	67	89	33	42	12-110
2-Chlorophenol	75	76	101	34	40	27-123
1,4-Dichlorobenzene	50	48	96	34*	28	36- 97
2-Methylphenol	50	35	70	59*	50	1-150
N-Nitroso-di-n-prop.(1)	50	47	94	38	38	41-116
4-Methylphenol	100	79	79	47	50	1-150
1,2,4-Trichlorobenzene	50	56	112*	36*	28	39- 98
4-Chloro-3-methylphenol	75	75	100*	42	42	23- 97
Acenaphthene	50	54	108	35*	31	46-118
4-Nitrophenol	75	63	84*	26	50	10- 80
2,4-Dinitrotoluene	50	56	112*	36	38	24- 96
N,N-Diphenylamine	50	49	98	39	50	1-150
Pentachlorophenol	75	31	41	9	50	9-103
Pyrene	50	53	106	33*	31	26-127
Pyridine	50	43	86	29	50	1-150
Tributyl phosphate	50	43	86	32	50	1-150
Acetophenone	50	49	98	33	50	1-150
1-Chloro-4-nitrobenzene	50	47	94	35	50	1-150
Biphenyl	50	43	86	32	50	1-150
1,4-Dinitrobenzene	50	44	88	38	50	1-150
Pentachloronitrobenzene	50	54	108	32	50	1-150
Dinoseb	50	1.0	2	0	50	1-15[illegible]
Octachloronaphthalene	50	38	76	30	50	1-1[illegible]

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 5 out of 23 outside limits
Spike Recovery: 4 out of 46 outside limits

COMMENTS: _____

3D

SOLID SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AN-107- Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ng)	SAMPLE AMOUNT (ng)	MS AMOUNT (ng)	MS % REC #	QC. LIMITS REC.
Phenol	75	0.0	4	5*	12-110
2-Chlorophenol	75	0.0	18	24*	27-123
1,4-Dichlorobenzene	50	0.0	31	62	36- 97
2-Methylphenol	50	0.0	0.0	0*	1-150
N-Nitroso-di-n-prop.(1)	50	0.0	31	62	41-116
4-Methylphenol	100	0.0	0.0	0*	1-150
1,2,4-Trichlorobenzene	50	0.0	35	70	39- 98
4-Chloro-3-methylphenol	75	0.0	5	7*	23- 97
Acenaphthene	50	0.0	33	66	46-118
4-Nitrophenol	75	0.0	80	107*	10- 80
2,4-Dinitrotoluene	50	0.0	38	76	24- 96
N,N-Diphenylamine	50	0.0	20	40	1-150
Pentachlorophenol	75	0.0	36	48	9-103
Pyrene	50	0.0	34	68	26-127
Pyridine	50	0.0	26	52	1-150
Tributyl phosphate	50	0.5	26	51	1-150
Acetophenone	50	0.0	32	64	1-150
1-Chloro-4-nitrobenzene	50	0.0	30	60	1-150
Biphenyl	50	0.2	28	56	1-150
1,4-Dinitrobenzene	50	0.0	32	64	1-150
Pentachloronitrobenzene	50	0.0	36	72	1-150
Dinoseb	50	0.0	30	60	1-150
Octachloronaphthalene	50	0.0	33	66	1-150

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

3D

SOLID SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Matrix Spike - EPA Sample No.: AN-107- Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ng)	MSD AMOUNT (ng)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75	47	63	170*	42	12-110
2-Chlorophenol	75	51	68	96*	40	27-123
1,4-Dichlorobenzene	50	34	68	9	28	36- 97
2-Methylphenol	50	17	34		50	1-150
N-Nitroso-di-n-prop.(1)	50	34	68	9	38	41-116
4-Methylphenol	100	39	39		50	1-150
1,2,4-Trichlorobenzene	50	39	78	11	28	39- 98
4-Chloro-3-methylphenol	75	51	68	163*	42	23- 97
Acenaphthene	50	39	78	17	31	46-118
4-Nitrophenol	75	61	81*	28	50	10- 80
2,4-Dinitrotoluene	50	42	84	10	38	24- 96
N,N-Diphenylamine	50	11	22	58*	50	1-150
Pentachlorophenol	75	45	60	22	50	9-103
Pyrene	50	39	78	14	31	26-127
Pyridine	50	32	64	21	50	1-150
Tributyl phosphate	50	31	61	18	50	1-150
Acetophenone	50	35	70	9	50	1-150
1-Chloro-4-nitrobenzene	50	33	66	10	50	1-150
Biphenyl	50	31	62	10	50	1-150
1,4-Dinitrobenzene	50	36	72	12	50	1-150
Pentachloronitrobenzene	50	42	84	15	50	1-150
Dinoseb	50	34	68	12	50	1-150
Octachloronaphthalene	50	38	76	14	50	1-1[illegible]

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 4 out of 23 outside limits
Spike Recovery: 7 out of 46 outside limits

COMMENTS: _____

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

METHOD BLANK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99010510 Lab Sample ID: SBLK02

Instrument ID: HP1 Date Extracted:

Matrix: (soil/water) SOLID Date Analyzed: 02/05/99

Level: (low/med) LOW Time Analyzed: 1959

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	AN-107-	99-0651-	99010511	02/05/99
02	AN-107D	99-0651D	99010512	02/05/99
03	AN-107-MS	99-0651-MS	99010513	02/05/99
04	AN-107-MSD	99-0651-MSD	99010514	02/05/99
05				
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COMMENTS:

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99010501 DFTPP Injection Date: 02/05/99

Instrument ID: HP1 DFTPP Injection Time: 1200

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	46.5
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	52.7
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	49.8
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.3
275	10.0 - 30.0% of mass 198	22.2
365	Greater than 0.75% of mass 198	2.69
441	Present, but less than mass 443	9.9
442	40.0 - 110.0% of mass 198	70.7
443	15.0 - 24.0% of mass 442	13.4 (19.0)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD050 DQO M	STD050	99010502	02/05/99	1253
02					
03					
04					
05					
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5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID: 99010503 DFTPP Injection Date: 02/05/99

Instrument ID: HP1 DFTPP Injection Time: 1345

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	51.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	57.2
70	Less than 2.0% of mass 69	0.3 (0.4)1
127	25.0 - 75.0% of mass 198	52.8
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	21.5
365	Greater than 0.75% of mass 198	2.38
441	Present, but less than mass 443	8.2
442	40.0 - 110.0% of mass 198	58.4
443	15.0 - 24.0% of mass 442	10.9 (18.7)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD050 8270C	STD050	99010504	02/05/99	1438
02	AN-107	99-0649	99010506	02/05/99	1625
03	AN-107D	99-0649D	99010507	02/05/99	1718
04	AN-107MS	99-0649MS	99010508	02/05/99	1812
05	AN-107MSD	99-0649MSD	99010509	02/05/99	1906
06	METHOD BLANK	SBLK02	99010510	02/05/99	1959
07	AN-107-	99-0651-	99010511	02/05/99	2053
08	AN-107D	99-0651D	99010512	02/05/99	2146
09	AN-107-MS	99-0651-MS	99010513	02/05/99	2240
10	AN-107-MSD	99-0651-MSD	99010514	02/05/99	2333
11	METHOD BLANK	SBLK01	99010515	02/06/99	0027
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7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/05/99 Time: 1253

Lab File ID: 99010502 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Phenol	1.914	1.670	0.800	12.7	25.0
bis(2-Chloroethyl)ether	1.521	1.319	0.700	13.3	25.0
2-Chlorophenol	1.342	1.148	0.800	14.4	25.0
1,3-Dichlorobenzene	1.518	1.294	0.600	14.8	25.0
1,4-Dichlorobenzene	1.552	1.320	0.500	14.9	25.0
1,2-Dichlorobenzene	1.453	1.242	0.400	14.5	25.0
Benzyl alcohol	0.864	0.759	0.100	12.2	25.0
2-Methylphenol	1.210	1.054	0.700	12.9	25.0
2,2'-oxybis(1-Chloropropane)	1.864	1.681		9.8	
N-Nitroso-di-n-propylamine	1.009	0.917	0.500	9.1	25.0
4-Methylphenol	1.339	1.185	0.600	11.5	25.0
Hexachloroethane	0.595	0.500	0.300	16.0	25.0
Nitrobenzene	1.486	1.282	0.200	13.7	25.0
Isophorone	0.788	0.631	0.400	19.9	25.0
2-Nitrophenol	0.211	0.164	0.100	22.3	25.0
2,4-Dimethylphenol	0.324	0.259	0.200	20.1	25.0
bis(2-Chloroethoxy)methane	0.424	0.344	0.300	18.9	25.0
2,4-Dichlorophenol	0.290	0.230	0.200	20.7	25.0
1,2,4-Trichlorobenzene	0.327	0.251	0.200	23.2	25.0
Naphthalene	1.088	0.876	0.700	19.5	25.0
4-Chloroaniline	0.397	0.355		10.6	
Hexachlorobutadiene	0.170	0.130		23.5	
4-Chloro-3-methylphenol	0.300	0.238	0.200	20.7	25.0
2-Methylnaphthalene	0.688	0.540	0.400	21.5	25.0
Hexachlorocyclopentadiene	0.361	0.253		29.9	
2,4,6-Trichlorophenol	0.359	0.275	0.200	23.4	25.0
2,4,5-Trichlorophenol	0.383	0.302	0.200	21.1	25.0
2-Chloronaphthalene	1.189	0.911	0.800	23.4	25.0
2-Nitroaniline	0.377	0.297		21.2	
3-Nitroaniline	0.342	0.268	0.050	21.6	40.0
Dimethylphthalate	1.272	0.991	0.050	22.1	25.0
2,6-Dinitrotoluene	0.315	0.245	0.200	22.2	25.0
Acenaphthylene	1.880	1.482	1.300	21.2	25.0
Acenaphthene	1.151	0.884	0.800	23.2	25.0
2,4-Dinitrophenol	0.180	0.129		28.3	
Dibenzofuran	1.576	1.226	0.800	22.2	25.0
4-Nitrophenol	0.152	0.109		28.3	

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/05/99 Time: 1253

Lab File ID: 99010502 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
2,4-Dinitrotoluene	0.398	0.313	0.200	21.4	25.0
Diethylphthalate	1.263	0.980		22.4	
Fluorene	1.253	0.971	0.900	22.5	25.0
4-Chlorophenyl-phenylether	0.554	0.429	0.400	22.6	25.0
4-Nitroaniline	0.337	0.263		22.0	
4,6-Dinitro-2-methylphenol	0.236	0.180		23.7	
N,N-Diphenylamine	0.722	0.590		18.3	
Heptachlor	0.179	0.147	0.050	17.9	40.0
alpha-BHC	0.155	0.124	0.050	20.0	40.0
4-Bromophenyl-phenylether	0.211	0.165	0.100	21.8	25.0
Hexachlorobenzene	0.236	0.186	0.100	21.2	25.0
beta-BHC	0.117	0.090	0.050	23.1	40.0
Pentachlorophenol	0.161	0.125	0.050	22.4	25.0
delta-BHC	0.125	0.099	0.050	20.8	40.0
Phenanthrene	1.139	0.916	0.700	19.6	25.0
Anthracene	1.139	0.916	0.700	19.6	25.0
gamma-BHC (Lindane)	0.112	0.087	0.050	22.3	40.0
Carbazole	1.061	0.865		18.5	
Di-n-butylphthalate	1.376	1.133		17.6	
Aldrin	0.170	0.140	0.050	17.6	40.0
Heptachlor Epoxide	0.057	0.046		19.3	
Fluoranthene	1.063	0.853	0.600	19.8	25.0
Pyrene	1.485	1.270	0.600	14.5	25.0
Endosulfan I	0.052	0.044		15.4	
4,4'-DDE	0.267	0.219	0.050	18.0	40.0
Dieldrin	0.277	0.244	0.050	11.9	40.0
Endrin	0.080	0.069	0.050	13.8	40.0
Endosulfan II	0.045	0.037		17.8	
4,4'-DDD	0.461	0.376	0.050	18.4	40.0
Butylbenzylphthalate	0.767	0.645		15.9	
Endosulfan Sulfate	0.076	0.068		10.5	
4,4'-DDT	0.414	0.337	0.050	18.6	40.0
Endrin Ketone	0.124	0.104	0.050	16.1	40.0
Benzo(a)anthracene	1.370	1.129	0.800	17.6	25.0
3,3'-Dichlorobenzidine	0.388	0.358		7.7	
Chrysene	1.153	0.950	0.700	17.6	25.0

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/05/99 Time: 1253

Lab File ID: 99010502 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Methoxychlor	0.937	0.790	0.050	15.7	40.0
Bis(2-Ethylhexyl)phthalate	1.049	0.862		17.8	
Di-n-octylphthalate	1.793	1.483		17.3	
Benzo(b)fluoranthene	1.275	1.015	0.700	20.4	25.0
Benzo(k)fluoranthene	1.195	0.971	0.700	18.7	25.0
Benzo(a)pyrene	1.034	0.830	0.700	19.7	25.0
Indeno(1,2,3-cd)pyrene	1.081	0.854	0.500	21.0	25.0
Dibenz(a,h)anthracene	0.907	0.719	0.400	20.7	25.0
Benzo(g,h,i)perylene	0.923	0.727	0.500	21.2	25.0
Pyridine	0.985	0.851		13.6	
Tributyl phosphate	1.147	1.195		-4.2	
N-Nitrosodimethylamine	0.603	0.511		15.2	
Acetophenone	1.848	1.579		14.6	
1-Chloro-4-nitrobenzene	0.123	0.117		4.9	
Biphenyl	1.372	1.362		0.7	
1,4-Dinitrobenzene	0.218	0.196		10.1	
Butylated Hydroxytoluene	0.894	0.847		5.2	
Pentachloronitrobenzene	0.090	0.070		22.2	
Dinoseb	0.215	0.168		21.9	
Octachloronaphthalene	0.099	0.088		11.1	
N-Nitrosomethylethylamine	0.467	0.380		18.6	
N-Nitrosodiethylamine	0.712	0.603		15.3	
Ethyl methane sulfonate	1.118	0.978		12.5	
Analine	2.065	1.846		10.6	
Pentachloroethane	0.516	0.425		17.6	
N-Nitrosopyrolidine	0.703	0.626		11.0	
N-Nitrosopiperidine	0.192	0.153		20.3	
Hexachloropropene	0.200	0.148		26.0	
N-Nitrosodi-n-butylamine	0.254	0.208		18.1	
Safrole	0.266	0.211		20.7	
1,2,4,5-Tetrachlorobenzene	0.541	0.414		23.5	
Isosafrole	0.547	0.420		23.2	
1,4-Naphthoquinone	0.321	0.249		22.4	
Pentachlorobenzene	0.439	0.329		25.0	
1-Naphthylamine	1.006	0.820		18.5	
2,3,4,6-Tetrachlorophenol	0.278	0.211		24.1	

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/05/99 Time: 1253

Lab File ID: 99010502 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
2-Naphthylamine	0.680	0.629		7.5		
5-Nitro-o-toluidine	0.367	0.292		20.4		
Azeobenzene	1.028	0.836		18.7		
1,3,5-Trinitrobenzene	0.212	0.163		23.1		
Diallate (cis)	0.133	0.109		18.0		
Phenacetin	0.419	0.332		20.8		
Diallate (trans)	0.312	0.263		15.7		
4-Aminobiphenyl	0.580	0.533		8.1		
Pronamine	0.353	0.284		19.5		
Isodrin	0.128	0.100		21.9		
Chlordane (alpha)	0.103	0.085		17.5		
Benzidine	0.488	0.405		17.0		
p-Dimethylaminoazobenzene	0.483	0.401		17.0		
Chlorobenzilate	0.509	0.426		16.3		
3,3'-Dimethylbenzidine	0.368	0.402		-9.2		
2-Acetylaminofluorene	0.274	0.222		19.0		
3-Methylcholanthrene	0.551	0.436		20.9		
2-Methylpyridine	1.046	0.873		16.5		
Kepone	0.076	0.067		11.8		
Chlordane (gamma)	0.102	0.088		13.7		
Methyl methane sulfonate	0.411	0.358		12.9		
Hexachlorophene	0.032	0.010		68.8		<-
1,3-Dinitrobenzene	0.244	0.186		23.8		
2,6-Dichlorophenol	0.296	0.234		20.9		
2-Fluorophenol	2.703	2.289	0.600	15.3	25.0	
Phenol-d5	3.439	2.993	0.800	13.0	25.0	
2-Chlorophenol-d4		1.465	0.800		25.0	<-
1,2-Dichlorobenzene-d4		1.000	0.400		25.0	<-
Nitrobenzene-d5	1.446	1.247	0.200	13.8	25.0	
2-Fluorobiphenyl	1.292	0.982	0.700	24.0	25.0	
2,4,6-Tribromophenol	0.223	0.178		20.2		
Terphenyl-d14	0.950	0.786	0.500	17.3	25.0	

All other compounds must meet a minimum RRF of 0.010.

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/05/99 Time: 1438

Lab File ID: 99010504 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Phenol	1.914	1.670	0.800	12.7	25.0
bis(2-Chloroethyl)ether	1.521	1.319	0.700	13.3	25.0
2-Chlorophenol	1.342	1.148	0.800	14.4	25.0
1,3-Dichlorobenzene	1.518	1.294	0.600	14.8	25.0
1,4-Dichlorobenzene	1.552	1.320	0.500	14.9	25.0
1,2-Dichlorobenzene	1.453	1.242	0.400	14.5	25.0
Benzyl alcohol	0.864	0.759	0.100	12.2	25.0
2-Methylphenol	1.210	1.054	0.700	12.9	25.0
2,2'-oxybis(1-Chloropropane)	1.864	1.681		9.8	
N-Nitroso-di-n-propylamine	1.009	0.917	0.500	9.1	25.0
4-Methylphenol	1.339	1.185	0.600	11.5	25.0
Hexachloroethane	0.595	0.500	0.300	16.0	25.0
Nitrobenzene	1.486	1.282	0.200	13.7	25.0
Isophorone	0.788	0.631	0.400	19.9	25.0
2-Nitrophenol	0.211	0.164	0.100	22.3	25.0
2,4-Dimethylphenol	0.324	0.259	0.200	20.1	25.0
bis(2-Chloroethoxy)methane	0.424	0.344	0.300	18.9	25.0
2,4-Dichlorophenol	0.290	0.230	0.200	20.7	25.0
1,2,4-Trichlorobenzene	0.327	0.251	0.200	23.2	25.0
Naphthalene	1.088	0.876	0.700	19.5	25.0
4-Chloroaniline	0.397	0.355		10.6	
Hexachlorobutadiene	0.170	0.130		23.5	
4-Chloro-3-methylphenol	0.300	0.238	0.200	20.7	25.0
2-Methylnaphthalene	0.688	0.540	0.400	21.5	25.0
Hexachlorocyclopentadiene	0.361	0.253		29.9	
2,4,6-Trichlorophenol	0.359	0.275	0.200	23.4	25.0
2,4,5-Trichlorophenol	0.383	0.302	0.200	21.1	25.0
2-Chloronaphthalene	1.189	0.911	0.800	23.4	25.0
2-Nitroaniline	0.377	0.297		21.2	
3-Nitroaniline	0.342	0.268	0.050	21.6	40.0
Dimethylphthalate	1.272	0.991	0.050	22.1	25.0
2,6-Dinitrotoluene	0.315	0.245	0.200	22.2	25.0
Acenaphthylene	1.880	1.482	1.300	21.2	25.0
Acenaphthene	1.151	0.884	0.800	23.2	25.0
2,4-Dinitrophenol	0.180	0.129		28.3	
Dibenzofuran	1.576	1.226	0.800	22.2	25.0
4-Nitrophenol	0.152	0.109		28.3	

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/05/99 Time: 1438

Lab File ID: 99010504 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
2,4-Dinitrotoluene	0.398	0.313	0.200	21.4	25.0
Diethylphthalate	1.263	0.980		22.4	
Fluorene	1.253	0.971	0.900	22.5	25.0
4-Chlorophenyl-phenylether	0.554	0.429	0.400	22.6	25.0
4-Nitroaniline	0.337	0.263		22.0	
4,6-Dinitro-2-methylphenol	0.236	0.180		23.7	
N,N-Diphenylamine	0.722	0.590		18.3	
Heptachlor	0.179	0.147	0.050	17.9	40.0
alpha-BHC	0.155	0.124	0.050	20.0	40.0
4-Bromophenyl-phenylether	0.211	0.165	0.100	21.8	25.0
Hexachlorobenzene	0.236	0.186	0.100	21.2	25.0
beta-BHC	0.117	0.090	0.050	23.1	40.0
Pentachlorophenol	0.161	0.125	0.050	22.4	25.0
delta-BHC	0.125	0.099	0.050	20.8	40.0
Phenanthrene	1.139	0.916	0.700	19.6	25.0
Anthracene	1.139	0.916	0.700	19.6	25.0
gamma-BHC (Lindane)	0.112	0.087	0.050	22.3	40.0
Carbazole	1.061	0.865		18.5	
Di-n-butylphthalate	1.376	1.133		17.6	
Aldrin	0.170	0.140	0.050	17.6	40.0
Heptachlor Epoxide	0.057	0.046		19.3	
Fluoranthene	1.063	0.853	0.600	19.8	25.0
Pyrene	1.485	1.270	0.600	14.5	25.0
Endosulfan I	0.052	0.044		15.4	
4,4'-DDE	0.267	0.219	0.050	18.0	40.0
Dieldrin	0.277	0.244	0.050	11.9	40.0
Endrin	0.080	0.069	0.050	13.8	40.0
Endosulfan II	0.045	0.037		17.8	
4,4'-DDD	0.461	0.376	0.050	18.4	40.0
Butylbenzylphthalate	0.767	0.645		15.9	
Endosulfan Sulfate	0.076	0.068		10.5	
4,4'-DDT	0.414	0.337	0.050	18.6	40.0
Endrin Ketone	0.124	0.104	0.050	16.1	40.0
Benzo(a)anthracene	1.370	1.129	0.800	17.6	25.0
3,3'-Dichlorobenzidine	0.388	0.358		7.7	
Chrysene	1.153	0.950	0.700	17.6	25.0

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/05/99 Time: 1438

Lab File ID: 99010504 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
Methoxychlor	0.937	0.790	0.050	15.7	40.0	
Bis(2-Ethylhexyl)phthalate	1.049	0.862		17.8		
Di-n-octylphthalate	1.793	1.483		17.3		
Benzo(b)fluoranthene	1.275	1.015	0.700	20.4	25.0	
Benzo(k)fluoranthene	1.195	0.971	0.700	18.7	25.0	
Benzo(a)pyrene	1.034	0.830	0.700	19.7	25.0	
Indeno(1,2,3-cd)pyrene	1.081	0.854	0.500	21.0	25.0	
Dibenz(a,h)anthracene	0.907	0.719	0.400	20.7	25.0	
Benzo(g,h,i)perylene	0.923	0.727	0.500	21.2	25.0	
Pyridine	0.985	0.851		13.6		
Tributyl phosphate	1.147			100.0		<-
N-Nitrosodimethylamine	0.603	0.511		15.2		
Acetophenone	1.848	1.579		14.6		
1-Chloro-4-nitrobenzene	0.123			100.0		<-
Biphenyl	1.372	0.002		99.8		<-
1,4-Dinitrobenzene	0.218			100.0		<-
Butylated Hydroxytoluene	0.894			100.0		<-
Pentachloronitrobenzene	0.090	0.070		22.2		
Dinoseb	0.215	0.168		21.9		
Octachloronaphthalene	0.099			100.0		<-
N-Nitrosomethylethylamine	0.467	0.380		18.6		
N-Nitrosodiethylamine	0.712	0.603		15.3		
Ethyl methane sulfonate	1.118	0.978		12.5		
Analine	2.065	1.846		10.6		
Pentachloroethane	0.516	0.425		17.6		
N-Nitrosopyrolidine	0.703	0.626		11.0		
N-Nitrosopiperidine	0.192	0.153		20.3		
Hexachloropropene	0.200	0.148		26.0		
N-Nitrosodi-n-butylamine	0.254	0.208		18.1		
Safrole	0.266	0.211		20.7		
1,2,4,5-Tetrachlorobenzene	0.541	0.414		23.5		
Isosafrole	0.547	0.420		23.2		
1,4-Naphthoquinone	0.321	0.249		22.4		
Pentachlorobenzene	0.439	0.329		25.0		
1-Naphthylamine	1.006	0.820		18.5		
2,3,4,6-Tetrachlorophenol	0.278	0.211		24.1		

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Instrument ID: HP1 Calibration Date: 02/05/99 Time: 1438

Lab File ID: 99010504 Init. Calib. Date(s): 02/04/99 02/05/99

Init. Calib. Times: 1820 1532

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
2-Naphthylamine	0.680	0.629		7.5		
5-Nitro-o-toluidine	0.367	0.292		20.4		
Azeobenzene	1.028	0.836		18.7		
1,3,5-Trinitrobenzene	0.212	0.163		23.1		
Diallate (cis)	0.133	0.109		18.0		
Phenacetin	0.419	0.332		20.8		
Diallate (trans)	0.312	0.263		15.7		
4-Aminobiphenyl	0.580	0.533		8.1		
Pronamine	0.353	0.284		19.5		
Isodrin	0.128	0.100		21.9		
Chlordane (alpha)	0.103	0.085		17.5		
Benzidine	0.488	0.405		17.0		
p-Dimethylaminoazobenzene	0.483	0.401		17.0		
Chlorobenzilate	0.509	0.426		16.3		
3,3'-Dimethylbenzidine	0.368	0.402		-9.2		
2-Acetylaminofluorene	0.274	0.222		19.0		
3-Methylcholanthrene	0.551	0.436		20.9		
2-Methylpyridine	1.046	0.873		16.5		
Kepone	0.076	0.067		11.8		
Chlordane (gamma)	0.102	0.088		13.7		
Methyl methane sulfonate	0.411	0.358		12.9		
Hexachlorophene	0.032	0.010		68.8		<-
1,3-Dinitrobenzene	0.244	0.186		23.8		
2,6-Dichlorophenol	0.296	0.234		20.9		
2-Fluorophenol	2.703	2.289	0.600	15.3	25.0	
Phenol-d5	3.439	2.993	0.800	13.0	25.0	
2-Chlorophenol-d4		1.465	0.800		25.0	<-
1,2-Dichlorobenzene-d4		1.000	0.400		25.0	<-
Nitrobenzene-d5	1.446	1.247	0.200	13.8	25.0	
2-Fluorobiphenyl	1.292	0.982	0.700	24.0	25.0	
2,4,6-Tribromophenol	0.223	0.178		20.2		
Terphenyl-d14	0.950	0.786	0.500	17.3	25.0	

All other compounds must meet a minimum RRF of 0.010.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID (Standard): 99010504 Date Analyzed: 02/05/99

Instrument ID: HP1 Time Analyzed: 1438

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	1269972	11.84	4844621	15.50	2662734	20.68
	UPPER LIMIT	2539944	12.34	9689242	16.00	5325468	21.18
	LOWER LIMIT	634986	11.34	2422311	15.00	1331367	20.18
	EPA SAMPLE NO.						
01	AN-107	1558365	11.86	5605188	15.49	3180102	20.69
02	AN-107D	1272326	11.85	4496799	15.49	2427513	20.68
03	AN-107MS	1377414	11.86	4989436	15.49	2758026	20.69
04	AN-107MSD	1379210	11.87	4915189	15.49	2718754	20.69
05	METHOD BLANK	1327864	11.86	4760794	15.48	2636435	20.68
06	AN-107-	1320331	11.87	4720515	15.49	2591739	20.68
07	AN-107D	1252923	11.87	4511748	15.49	2447843	20.68
08	AN-107-MS	1285354	11.87	4630034	15.49	2532250	20.68
09	AN-107-MSD	1235621	11.87	4485827	15.49	2461569	20.69
10	METHOD BLANK	1269873	11.84	4592623	15.49	2514136	20.67
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID (Standard): 99010504 Date Analyzed: 02/05/99

Instrument ID: HP1 Time Analyzed: 1438

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	3680301	25.09	2562118	32.94	2349596	36.85
	UPPER LIMIT	7360602	25.59	5124236	33.44	4699192	37.35
	LOWER LIMIT	1840151	24.59	1281059	32.44	1174798	36.35
	EPA SAMPLE NO.						
01	AN-107	4704605	25.08	3341745	32.93	3466840	36.84
02	AN-107D	3521593	25.09	2325746	32.93	2363335	36.84
03	AN-107MS	4042253	25.09	2789573	32.92	2786424	36.84
04	AN-107MSD	4045906	25.09	2768445	32.93	2786696	36.84
05	METHOD BLANK	4099288	25.07	2928192	32.92	2960926	36.84
06	AN-107-	3971265	25.07	2675370	32.92	2478850	36.83
07	AN-107D	3857566	25.08	2740325	32.93	200279*	36.83
08	AN-107-MS	3946172	25.08	2681739	32.93	2377153	36.84
09	AN-107-MSD	3765051	25.09	2634712	32.93	2327404	36.84
10	METHOD BLANK	3906261	25.08	2701423	32.93	2658585	36.84
11							
12							
13							
14							
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17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990205

Lab File ID (Standard): 99010504 Date Analyzed: 02/05/99

Instrument ID: HP1 Time Analyzed: 1438

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	2005301	4.31				
	UPPER LIMIT	4010602	4.81				
	LOWER LIMIT	1002651	3.81				
	EPA SAMPLE NO.						
01	AN-107	2444588	4.25				
02	AN-107D	2004541	4.27				
03	AN-107MS	2133266	4.26				
04	AN-107MSD	2161200	4.26				
05	METHOD BLANK	1978768	4.31				
06	AN-107-	1912464	4.36				
07	AN-107D	108174*	4.26				
08	AN-107-MS	1803770	4.36				
09	AN-107-MSD	1866460	4.35				
10	METHOD BLANK	1877375	4.25				
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS7 = Pyridine-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990312

Lab File ID: 99030303 DFTPP Injection Date: 03/03/99

Instrument ID: HP1 DFTPP Injection Time: 1858

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	49.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	54.8
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	25.0 - 75.0% of mass 198	50.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	21.4
365	Greater than 0.75% of mass 198	2.52
441	Present, but less than mass 443	8.9
442	40.0 - 110.0% of mass 198	61.9
443	15.0 - 24.0% of mass 442	11.9 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD050	STD050	99030304	03/03/99	1951
02	AW-101	99-0648	99030305	03/03/99	2043
03	AW-101-	99-0650	99030306	03/03/99	2135
04	AW-101D	99-0650D	99030307	03/03/99	2227
05	AW-101-MS	99-0650MSD	99030308	03/03/99	2319
06	AW-101D	99-0648D	99030310	03/04/99	0103
07	AW-107D	99-0651D	99030311	03/04/99	0154
08	SBLK05	BLANK	99030312	03/04/99	0248
09					
10					
11					
12					
13					
14					
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16					
17					
18					
19					
20					
21					
22					

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990312

Lab File ID (Standard): 99030304 Date Analyzed: 03/03/99

Instrument ID: HP1 Time Analyzed: 1951

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	860572	11.84	2958493	15.48	1584427	20.68
	UPPER LIMIT	1721144	12.34	5916986	15.98	3168854	21.18
	LOWER LIMIT	430286	11.34	1479247	14.98	792214	20.18
	EPA SAMPLE NO.						
01	AW-101	995909	11.85	3406623	15.48	1823692	20.67
02	AW-101-	1036266	11.90	3524246	15.51	1794264	20.67
03	AW-101D	993327	11.92	3266319	15.51	1607227	20.68
04	AW-101-MS	1043976	11.90	3696958	15.51	1950954	20.67
05	AW-101D	811861	11.84	2775820	15.48	1529925	20.67
06	AW-107D	1137242	11.84	3864151	15.47	2093284	20.66
07	SBLK05	763902	11.82	2596228	15.48	1402809	20.67
08							
09							
10							
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22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990312

Lab File ID (Standard): 99030304 Date Analyzed: 03/03/99

Instrument ID: HP1 Time Analyzed: 1951

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	2272287	25.09	1703774	32.94	1515868	36.83
	UPPER LIMIT	4544574	25.59	3407548	33.44	3031736	37.33
	LOWER LIMIT	1136144	24.59	851887	32.44	757934	36.33
	EPA SAMPLE NO.						
01	AW-101	2830398	25.07	2010930	32.92	978840	36.83
02	AW-101-	2701746	25.07	1757464	32.92	69070*	36.89
03	AW-101D	2511330	25.08	1642419	32.93	13109*	36.93
04	AW-101-MS	2995855	25.08	2014988	32.93	1072746	36.85
05	AW-101D	2338612	25.07	1685222	32.93	625825*	36.87
06	AW-107D	3182017	25.06	2141588	32.91	559093*	36.84
07	SBLK05	1953738	25.08	1299056	32.93	1094191	36.86
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 990312

Lab File ID (Standard): 99030304 Date Analyzed: 03/03/99

Instrument ID: HP1 Time Analyzed: 1951

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1430622	4.28				
	UPPER LIMIT	2861244	4.78				
	LOWER LIMIT	715311	3.78				
	EPA SAMPLE NO.						
01	AW-101	885116	4.35				
02	AW-101-						
03	AW-101D						
04	AW-101-MS	833990	4.37				
05	AW-101D	738983	4.40				
06	AW-107D	1026272	4.39				
07	SBLK05	1156569	4.23				
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS7 = Pyridine-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 980221

Lab File ID: 99010401 DFTPP Injection Date: 02/04/99

Instrument ID: HP1 DFTPP Injection Time: 1727

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	59.4	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 relative abundance	64.9	
70	Less than 2.0% of mass 69	0.3	(0.4)1
127	25.0 - 75.0% of mass 198	56.3	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.8	
275	10.0 - 30.0% of mass 198	20.6	
365	Greater than 0.75% of mass 198	2.22	
441	Present, but less than mass 443	7.6	
442	40.0 - 110.0% of mass 198	52.3	
443	15.0 - 24.0% of mass 442	10.3	(19.6)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		STD020	99010402	02/04/99	1820
02		STD050	99010403	02/04/99	1913
03		STD080	99010404	02/04/99	2006
04		STD120	99010405	02/04/99	2059
05		STD160	99010406	02/04/99	2152
06	DQO MIX	STD020	99010407	02/04/99	2246
07	DQO MIX	STD050	99010408	02/04/99	2339
08	DQO MIX	STD080	99010409	02/05/99	0032
09	DQO MIX	STD120	99010410	02/05/99	0125
10	DQO MIX	STD160	99010411	02/05/99	0218
11					
12					
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21					
22					

6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 980221

Instrument ID: HP1 Calibration Date(s): 02/04/99 02/05/99

Calibration Time(s): 1820 0218

LAB FILE ID: RRF20 =99010407 RRF50 =99010408
RRF80 =99010409 RRF120=99010410 RRF160=99010411

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol *	2.134	1.647	1.941	1.969	1.881	1.914	9.2*
bis(2-Chloroethyl)ether *	1.719	1.326	1.525	1.531	1.502	1.521	9.1*
2-Chlorophenol *	1.449	1.145	1.339	1.378	1.400	1.342	8.7*
1,3-Dichlorobenzene *	1.648	1.314	1.535	1.542	1.550	1.518	8.1*
1,4-Dichlorobenzene *	1.680	1.345	1.573	1.590	1.570	1.552	8.0*
1,2-Dichlorobenzene *	1.593	1.265	1.465	1.476	1.468	1.453	8.1*
Benzyl alcohol *	0.887	0.736	0.873	0.905	0.920	0.864	8.5*
2-Methylphenol *	1.339	1.037	1.202	1.209	1.261	1.210	9.2*
2,2'-oxybis(1-Chloropropane)	2.309	1.738	1.552	1.853	1.870	1.864	15.0
N-Nitroso-di-n-propylamine *	1.227	0.917	1.037	0.977	0.886	1.009	13.4*
4-Methylphenol *	3.045	2.342	2.704	2.716	2.581	2.678	9.5*
Hexachloroethane *	0.659	0.515	0.599	0.602	0.602	0.595	8.6*
Nitrobenzene *	1.674	1.291	1.484	1.503	1.476	1.486	9.1*
Isophorone *	0.878	0.670	0.796	0.794	0.800	0.788	9.5*
2-Nitrophenol *	0.219	0.177	0.217	0.218	0.222	0.211	8.9*
2,4-Dimethylphenol *	0.358	0.276	0.329	0.322	0.333	0.324	9.3*
bis(2-Chloroethoxy)methane *	0.481	0.366	0.440	0.407	0.424	0.424	10.0*
2,4-Dichlorophenol *	0.312	0.246	0.297	0.293	0.302	0.290	8.8*
Benzoic acid *							*<-
1,2,4-Trichlorobenzene *	0.352	0.273	0.333	0.336	0.343	0.327	9.6*
Naphthalene *	1.225	0.948	1.125	1.109	1.031	1.088	9.6*
4-Chloroaniline	0.475	0.376	0.420	0.381	0.333	0.397	13.4
Hexachlorobutadiene	0.179	0.141	0.172	0.174	0.182	0.170	9.6
4-Chloro-3-methylphenol *	0.327	0.255	0.305	0.308	0.306	0.300	9.0*
2-Methylnaphthalene *	0.766	0.586	0.698	0.694	0.698	0.688	9.4*
Hexachlorocyclopentadiene	0.353	0.301	0.376	0.383	0.394	0.361	10.2
2,4,6-Trichlorophenol *	0.368	0.294	0.364	0.373	0.395	0.359	10.6*
2,4,5-Trichlorophenol *	0.404	0.328	0.387	0.390	0.408	0.383	8.4*
2-Chloronaphthalene *	1.325	1.051	1.223	1.156	1.188	1.189	8.4*
2-Nitroaniline	0.418	0.333	0.384	0.383	0.369	0.377	8.2
3-Nitroaniline *	0.364	0.296	0.352	0.347	0.350	0.342	7.7*
Dimethylphthalate *	1.418	1.094	1.306	1.261	1.279	1.272	9.2*
2,6-Dinitrotoluene *	0.339	0.272	0.320	0.316	0.326	0.315	8.1*
Acenaphthylene *	2.070	1.656	1.932	1.883	1.859	1.880	7.9*
Acenaphthene *	1.280	1.003	1.163	1.158	1.149	1.151	8.5*
2,4-Dinitrophenol	0.144	0.141	0.191	0.206	0.218	0.180	19.8
Dibenzofuran *	1.752	1.366	1.623	1.557	1.584	1.576	8.8*

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 980221

Instrument ID: HP1 Calibration Date(s): 02/04/99 02/05/99

Calibration Time(s): 1820 0218

LAB FILE ID: RRF20 =99010407 RRF50 =99010408
RRF80 =99010409 RRF120=99010410 RRF160=99010411

COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
4-Nitrophenol		0.148	0.131	0.157	0.154	0.169	0.152	9.2
2,4-Dinitrotoluene	*	0.429	0.346	0.408	0.398	0.409	0.398	7.8*
Diethylphthalate		1.403	1.096	1.277	1.256	1.285	1.263	8.7
Fluorene	*	1.408	1.097	1.250	1.240	1.272	1.253	8.8*
4-Chlorophenyl-phenylether	*	0.624	0.478	0.556	0.553	0.561	0.554	9.3*
4-Nitroaniline		0.368	0.289	0.347	0.335	0.346	0.337	8.7
4,6-Dinitro-2-methylphenol		0.228	0.200	0.244	0.250	0.256	0.236	9.6
N,N-Diphenylamine		0.793	0.628	0.727	0.729	0.731	0.722	8.2
Heptachlor	*	0.199	0.156	0.182	0.179	0.177	0.179	8.6*
alpha-BHC	*	0.167	0.134	0.160	0.154	0.160	0.155	8.2*
4-Bromophenyl-phenylether	*	0.217	0.176	0.216	0.223	0.224	0.211	9.5*
Hexachlorobenzene	*	0.242	0.197	0.236	0.249	0.256	0.236	9.7*
beta-BHC	*	0.122	0.098	0.118	0.123	0.126	0.117	9.6*
Pentachlorophenol	*	0.154	0.130	0.162	0.175	0.186	0.161	13.2*
delta-BHC	*	0.134	0.105	0.125	0.128	0.131	0.125	9.1*
Phenanthrene	*	1.270	0.989	1.146	1.143	1.146	1.139	8.8*
Anthracene	*	1.270	0.989	1.146	1.143	1.146	1.139	8.8*
gamma-BHC (Lindane)	*	0.124	0.097	0.111	0.113	0.115	0.112	8.9*
Carbazole		1.174	0.926	1.067	1.068	1.069	1.061	8.3
Di-n-butylphthalate		1.514	1.219	1.420	1.387	1.338	1.376	7.9
Aldrin	*	0.198	0.153	0.172	0.165	0.160	0.170	10.3*
Heptachlor Epoxide		0.058	0.048	0.057	0.059	0.062	0.057	9.2
Fluoranthene	*	1.147	0.926	1.082	1.084	1.075	1.063	7.7*
Pyrene	*	1.637	1.294	1.503	1.497	1.494	1.485	8.3*
Endosulfan I		0.057	0.044	0.052	0.054	0.054	0.052	9.1
4,4'-DDE	*	0.275	0.225	0.260	0.275	0.302	0.267	10.5*
Dieldrin	*	0.339	0.248	0.273	0.263	0.262	0.277	12.9*
Endrin	*	0.089	0.069	0.078	0.080	0.085	0.080	9.7*
Endosulfan II		0.050	0.038	0.044	0.045	0.049	0.045	10.4
4,4'-DDD	*	0.483	0.392	0.452	0.470	0.510	0.461	9.6*
Butylbenzylphthalate		0.831	0.658	0.750	0.775	0.822	0.767	9.1
Endosulfan Sulfate		0.091	0.063	0.073	0.075	0.080	0.076	13.0
4,4'-DDT	*	0.433	0.346	0.403	0.422	0.466	0.414	10.8*
Endrin Ketone	*	0.148	0.110	0.121	0.120	0.123	0.124	11.2*
Benzo(a)anthracene	*	1.475	1.181	1.348	1.388	1.460	1.370	8.6*
3,3'-Dichlorobenzidine		0.452	0.368	0.390	0.372	0.359	0.388	9.6
Chrysene	*	1.281	1.002	1.144	1.140	1.197	1.153	8.8*

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 980221

Instrument ID: HP1 Calibration Date(s): 02/04/99 02/05/99

Calibration Time(s): 1820 0218

LAB FILE ID: RRF20 =99010407 RRF50 =99010408
RRF80 =99010409 RRF120=99010410 RRF160=99010411

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD	
Methoxychlor *	0.930	0.812	0.955	0.979	1.008	0.937	8.1*	
Bis(2-Ethylhexyl)phthalate	1.093	0.893	1.031	1.067	1.163	1.049	9.5	
Di-n-octylphthalate	1.702	1.504	1.843	1.981	1.937	1.793	10.8	
Benzo(b)fluoranthene *	1.236	1.051	1.280	1.362	1.444	1.275	11.6*	
Benzo(k)fluoranthene *	1.268	1.036	1.201	1.252	1.218	1.195	7.8*	
Benzo(a)pyrene *	1.044	0.882	1.042	1.087	1.113	1.034	8.7*	
Indeno(1,2,3-cd)pyrene *	1.038	0.930	1.108	1.141	1.189	1.081	9.3*	
Dibenz(a,h)anthracene *	0.893	0.783	0.927	0.976	0.956	0.907	8.3*	
Benzo(g,h,i)perylene *	0.939	0.804	0.938	0.948	0.987	0.923	7.6*	
Pyridine	1.113	0.795	0.989	0.992	1.035	0.985	11.9	
Undecane								<-
Dodecane								<-
Tridecane								<-
Tetradecane								<-
Pentadecane								<-
Tributyl phosphate	1.144	1.155	1.165	1.185	1.087	1.147	3.2	
Bis(2-Ethylhexyl)phosphate								<-
N-Nitrosodimethylamine	0.705	0.494	0.604	0.592	0.619	0.603	12.5	
tetrachlorobiphenyl(peak 2)								<-
tetrachlorobiphenyl(peak 1)			0.004		0.004	0.004	6.8	<-
pentachlorobiphenyl(peak 3)					0.000			<-
pentachlorobiphenyl(peak 4)								<-
pentachlorobiphenyl(peak 5)								<-
pentachlorobiphenyl(peak 6)								<-
hexachlorobiphenyl(peak 7)								<-
pentachlorobiphenyl(peak 8)								<-
hexachlorobiphenyl(peak 9)								<-
hexachlorobiphenyl(peak10)								<-
AROCLOR 1254			0.005		0.006	0.006	15.5	<-
2-Butoxyethanol								<-
Acetophenone	2.072	1.584	1.841	1.879	1.862	1.848	9.4	
1-Chloro-4-nitrobenzene	0.114	0.120	0.126	0.126	0.129	0.123	4.7	
Biphenyl	1.362	1.341	1.379	1.390	1.389	1.372	1.5	
1,4-Dinitrobenzene	0.184	0.213	0.228	0.229	0.238	0.218	9.7	
Butylated Hydroxytoluene	0.867	0.861	0.902	0.905	0.933	0.894	3.3	
Pentachloronitrobenzene	0.092	0.074	0.092	0.094	0.098	0.090	10.1	
Dinoseb	0.196	0.176	0.225	0.237	0.243	0.215	13.2	

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: PNNL Contract: BNFL

Lab Code: PNNL Case No.: SAS No.: SDG No.: 980221

Instrument ID: HP1 Calibration Date(s): 02/04/99 02/05/99

Calibration Time(s): 1820 0218

LAB FILE ID: RRF20 =99010407 RRF50 =99010408
RRF80 =99010409 RRF120=99010410 RRF160=99010411

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Octachloronaphthalene	0.087	0.094	0.100	0.105	0.111	0.099	9.4
N-Nitrosomethylethylamine	0.513	0.376	0.464	0.480	0.502	0.467	11.6
N-Nitrosodiethylamine	0.764	0.610	0.713	0.740	0.733	0.712	8.4
Ethyl methane sulfonate	1.261	0.972	1.108	1.126	1.124	1.118	9.2
Analine	2.327	1.819	2.063	2.074	2.040	2.065	8.7
Pentachloroethane	0.552	0.440	0.524	0.529	0.534	0.516	8.5
N-Nitrosopyrolidine	0.784	0.605	0.710	0.712	0.702	0.703	9.1
N-Nitrosopiperidine	0.212	0.162	0.196	0.198	0.191	0.192	9.7
Hexachloropropene	0.201	0.164	0.206	0.212	0.218	0.200	10.4
N-Nitrosodi-n-butylamine	0.287	0.216	0.259	0.251	0.257	0.254	10.0
Safrole	0.285	0.227	0.272	0.269	0.276	0.266	8.5
1,2,4,5-Tetrachlorobenzene	0.544	0.457	0.560	0.566	0.576	0.541	8.9
Isosafrole	0.552	0.441	0.555	0.593	0.593	0.547	11.4
1,4-Naphthoquinone	0.343	0.275	0.330	0.325	0.331	0.321	8.2
Pentachlorobenzene	0.474	0.374	0.445	0.445	0.456	0.439	8.7
1-Naphthylamine	1.180	0.923	1.035	0.966	0.925	1.006	10.7
2,3,4,6-Tetrachlorophenol	0.294	0.238	0.279	0.281	0.297	0.278	8.5
2-Naphthylamine	0.860	0.676	0.720	0.614	0.531	0.680	18.1
5-Nitro-o-toluidine	0.411	0.324	0.374	0.362	0.364	0.367	8.5
Azeobenzene	1.165	0.904	1.028	1.021	1.020	1.028	9.0
1,3,5-Trinitrobenzene	0.212	0.178	0.218	0.224	0.226	0.212	9.2
Diallate (cis)	0.149	0.117	0.136	0.132	0.133	0.133	8.4
Phenacetin	0.438	0.357	0.420	0.433	0.445	0.419	8.5
Diallate (trans)	0.365	0.279	0.319	0.304	0.294	0.312	10.5
4-Aminobiphenyl	0.715	0.579	0.587	0.528	0.491	0.580	14.7
Pronamine	0.374	0.302	0.356	0.361	0.372	0.353	8.4
Isodrin	0.137	0.110	0.128	0.131	0.135	0.128	8.1
Chlordane (alpha)	0.103	0.085	0.099	0.106	0.120	0.103	12.2
Benzidine	0.466	0.435	0.509	0.506	0.522	0.488	7.4
p-Dimethylaminoazobenzene	0.511	0.416	0.479	0.489	0.519	0.483	8.5
Chlorobenzilate	0.551	0.436	0.499	0.507	0.552	0.509	9.4
3,3'-Dimethylbenzidine	0.510	0.426	0.352	0.290	0.262	0.368	27.5
2-Acetylaminofluorene	0.253	0.230	0.280	0.290	0.319	0.274	12.4
3-Methylcholanthrene	0.539	0.467	0.559	0.583	0.607	0.551	9.7
2-Methylpyridine	1.207	0.844	1.050	1.054	1.076	1.046	12.4
Kepone	0.086	0.066	0.074	0.074	0.080	0.076	10.0
Chlordane (gamma)	0.102	0.086	0.106	0.107	0.111	0.102	9.5

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

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LAB FILE ID: RRF20 =99010407 RRF50 =99010408
RRF80 =99010409 RRF120=99010410 RRF160=99010411

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Methyl methane sulfonate	0.475	0.332	0.405	0.415	0.427	0.411	12.5
Hexachlorophene	0.003	0.010	0.032	0.053	0.064	0.032	81.9
1,3-Dinitrobenzene	0.250	0.208	0.253	0.253	0.255	0.244	8.3
2,6-Dichlorophenol	0.318	0.250	0.300	0.305	0.307	0.296	9.1
2-Fluorophenol *	2.950	2.318	2.714	2.755	2.776	2.703	8.6*
Phenol-d5 *	3.830	2.978	3.414	3.503	3.470	3.439	8.9*
2-Chlorophenol-d4 *							*<-
1,2-Dichlorobenzene-d4 *							*<-
Nitrobenzene-d5	1.614	1.243	1.449	1.474	1.452	1.446	9.2*
2-Fluorobiphenyl *	1.383	1.104	1.337	1.305	1.331	1.292	8.4*
2,4,6-Tribromophenol	0.227	0.184	0.226	0.235	0.243	0.223	10.3
Terphenyl-d14 *	1.007	0.805	0.939	0.967	1.031	0.950	9.3*

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

APPENDIX C: Dioxins/Furans Analysis

Table C.1 Ion Abundance Ratios and Response Factors for Standards

Table C.2 Ion Abundance Ratios for Supernatant Matrix Spikes

Table C.3 Ion Abundance Ratios for Solids Matrix Spikes

Table C.4 Ion Abundance Ratios for Supernatant Samples, Duplicates, and Process Blanks

Table C.5 Ion Abundance Ratios for Solids Samples, Duplicates, and Process Blanks

Table C.1. Ion Abundance Ratios and Response Factors for Standards

Compound	Native Conc. µg/L	Mass m/z	Native Ion Ratio	Labeled Ion Ratio (1)	RRF (2)	Average RRF	%RSD
HpCDD	2.5	424	1.02	1.12	1.03	0.95	14.1
	10.0		1.06	1.06	0.97		
	50.0		1.01	0.99	1.05		
	200.0		1.04	1.06	0.73		
	1000.0		0.86	1.07	0.31*		
HpCDD	2.5	426			1.14	0.97	16.1
	10.0				0.97		
	50.0				1.03		
	200.0				0.76		
	1000.0				0.37*		
HpCDF	2.5	408	0.97	1.00	1.08	1.07	13.8
	10.0		1.06	1.02	1.19		
	50.0		1.00	0.99	1.14		
	200.0		0.97	1.05	0.86		
	1000.0		1.02	1.20	0.38*		
HpCDF	2.5	410			1.12	1.08	9.9
	10.0				1.14		
	50.0				1.13		
	200.0				0.92		
	1000.0				0.45*		
HxCDD	2.5	390	1.39	1.28	1.19	1.12	4.9
	10.0		1.26	1.25	1.12		
	50.0		1.26	1.27	1.11		
	200.0		1.17	1.27	1.06		
	1000.0		0.98	1.31	0.31*		
HxCDD	2.5	392			1.10	1.12	2.5
	10.0				1.11		
	50.0				1.12		
	200.0				1.15		
	1000.0				0.42*		
HxCDF	2.5	374	1.24	1.25	1.06	1.16	13.5
	10.0		1.23	1.27	1.10		
	50.0		1.25	1.27	1.11		
	200.0		1.18	1.29	1.40		
	1000.0		1.12	1.38	0.50*		

Compound	Native Conc. µg/L	Mass m/z	Native Ion Ratio	Labeled Ion Ratio (1)	RRF (2)	Average RRF	%RSD
HxCDF	2.5	376			1.06	1.21	17.5
	10.0				1.14		
	50.0				1.12		
	200.0				1.53		
	1000.0				0.62*		
OCDD	5.0	458	0.97	0.90	0.88	0.96	11.7
	20.0		0.93	0.87	1.02		
	100.0		1.01	0.93	1.08		
	400.0		0.97	0.92	0.84		
	2000.0		1.24	0.74	0.25*		
OCDD	5.0	460			0.82	0.89	10.8
	20.0				0.96		
	100.0				0.98		
	400.0				0.80		
	2000.0				0.30*		
OCDF	5.0	442	0.98	0.90	1.18	1.11	13.2
	20.0		0.80	0.87	1.20		
	100.0		0.84	0.93	1.18		
	400.0		0.97	0.92	0.90		
	2000.0		0.56	0.74	0.35*		
OCDF	5.0	444			1.09	1.14	19.2
	20.0				1.31		
	100.0				1.30		
	400.0				0.85		
	2000.0				0.46*		
PeCDD	2.5	356	1.35	1.61	0.61	0.92	25.6
	10.0		1.43	1.68	0.95		
	50.0		1.55	1.62	1.17		
	200.0		1.36	1.62	0.95		
	1000.0		1.39	1.64	0.31*		
PeCDD	2.5	358			0.72	1.05	21.7
	10.0				1.11		
	50.0				1.23		
	200.0				1.13		
	1000.0				0.36*		
PeCDF	2.5	340	1.32	1.70	1.13	1.02	14.4
	10.0		1.42	1.36	1.04		
	50.0		1.63	1.62	1.11		
	200.0		1.34	1.68	0.81		
	1000.0		1.30	1.57	0.31*		

Compound	Native Conc. µg/L	Mass m/z	Native Ion Ratio	Labeled Ion Ratio (1)	RRF (2)	Average RRF	%RSD
PeCDF	2.5	342			1.46	1.15	18.6
	10.0				1.00		
	50.0				1.10		
	200.0				1.02		
	1000.0				0.37*		
TCDD	0.5	320	0.68	0.76	1.68	1.79	11.4
	2.0		0.72	0.79	1.59		
	10.0		0.87	0.71	2.04		
	40.0		0.76	0.79	1.87		
	200.0		0.90	0.79	1.99*		
TCDD	0.5	322			1.92	1.82	7.3
	2.0				1.74		
	10.0				1.68		
	40.0				1.95		
	200.0				1.72*		
TCDF	0.5	304	0.74	0.86	0.90	1.06	11.8
	2.0		0.80	0.68	1.09		
	10.0		0.87	0.81	1.19		
	40.0		0.66	0.70	1.03		
	200.0		0.70	0.92	0.65*		
TCDF	0.5	306			1.04	1.04	7.9
	2.0				0.93		
	10.0				1.10		
	40.0				1.09		
	200.0				0.86*		

1) Concentration of labeled compounds: OCDD and OCDF = 200 µg/L, all other labeled compounds at 100 µg/L
2) Relative response factors (RRF) marked with an asterisk not included in determining the average response factor

Table C.2. Ion Abundance Ratios for Supernatant Matrix Spikes

Sample ID	99-0648 Supernatant				99-0649 Supernatant				LCS	
Tank Material	AW-101 MS		AW-101 MSD		AN-107 MS		AN-107 MSD			
Injection #	49		64		54		55		61	
Ion Ratios	Native	Labeled	Native	Labeled	Native	Labeled	Native	Labeled	Native	Labeled
Analyte										
HpCDD	1.04	0.99	1.05	1.11	1.06	1.05	1.06	1.08	1.05	1.04
HpCDF	0.90	0.95	1.06	1.05	1.00	1.09	0.98	1.05	1.00	1.10
HxCDD	1.19	1.26	1.21	1.23	1.26	1.23	1.23	1.14	1.25	1.26
HxCDF	1.15	1.40	1.19	1.43	1.17	1.39	1.09	1.37	1.20	1.41
OCDD	0.93	0.95	0.91	0.90	0.92	0.98	0.94	0.95	0.99	0.98
OCDF	0.94	0.95	0.91	0.90	0.94	0.98	0.96	0.95	0.93	0.98
PeCDD	1.65	1.37	1.54	1.55	1.66	1.67	1.35	1.72	1.55	1.64
PeCDF	1.56	1.74	1.48	1.69	1.41	1.32	1.34	1.32	1.65	1.61
TCDD	0.79	0.65	0.75	0.75	0.72	0.70	0.77	0.66	0.73	0.31*
TCDF	0.65	0.67	0.77	0.81	0.72	0.73	0.78	0.88	0.83	0.72

* Designates ion abundance ratio that does not meet QC criteria shown in Table 6.e.

Table C.3. Ion Abundance Ratios for Solids Matrix Spikes

Sample ID	99-0648 Solids				99-0649 Solids			
Tank Material	AW-101 MS		AW-101 MSD		AN-107 MS		AN-107 MSD	
Injection #	44		45		56		63	
Ion Ratios	Native	Labeled	Native	Labeled	Native	Labeled	Native	Labeled
Analyte								
HpCDD	1.03	1.09	1.06	1.06	1.04	1.05	1.10	1.00
HpCDF	0.91	1.09	1.04	1.08	1.03	1.06	1.06	1.04
HxCDD	1.10	1.11	1.19	1.32	1.05	1.17	1.25	1.19
HxCDF	1.07	1.32	1.20	1.32	1.24	1.36	1.24	1.42
OCDD	0.95	0.93	1.02	0.86	0.85	0.89	0.97	0.94
OCDF	0.97	0.93	0.94	0.86	0.93	0.89	0.90	0.94
PeCDD	1.33	1.62	1.39	1.69	1.51	1.68	1.57	1.53
PeCDF	1.33	1.36	1.46	1.58	1.45	1.32	1.57	1.72
TCDD	0.79	0.69	0.78	0.67	0.81	0.70	0.79	0.73
TCDF	0.81	0.78	0.76	0.80	0.73	0.78	0.79	0.82

Table C.4. Ion Abundance Ratios for Supernatant Samples, Duplicates, and Process Blanks

Tank	AW-101 Supernatant						AN-107 Supernatant					
Sample ID	99-0648bl		99-0648		99-0648d		99-0649bl		99-0649		99-0649d	
	ProcBlk		Sample		Duplicate		ProcBlk		Sample		Duplicate	
Injection	67		68		48		51		52		53	
Ion Ratios	Native	Labeled	Native	Labeled	Native	Labeled	Native	Labeled	Native	Labeled	Native	Labeled
Analyte												
HpCDD		1.09		1.08		0.96		1.05		1.04		1.05
HpCDF		1.11		1.06		1.07		1.02		1.04		1.05
HxCDD		1.27		1.67*		1.20		1.14		1.19		1.21
HxCDF		1.13		1.27		1.38		1.23		1.27		1.33
OCDD		0.95		0.89		0.90		0.83		0.88		0.85
OCDF		0.95		0.89		0.90		0.83		0.88		0.85
PeCDD		1.26*		1.73		1.82*		1.84*		1.64		1.70
PeCDF		1.52		1.41		1.63		1.58		1.63		1.67
TCDD		0.67		0.86		0.71		0.85		0.68		0.73
TCDF		0.82		0.84		0.83		0.94*		0.65		0.78

"*" = Ion abundance ratio does not meet QC criteria shown in Table 6.e.
"Blanks" = No signal or peak area detected; ion abundance ratio is zero (0) or undefined.

Table C.5. Ion Abundance Ratios for Solids Samples, Duplicates, and Process Blanks

Tank Material	AW-101 Solids						AN-107 Solids					
Sample ID	99-0650		99-0650		99-0650d		99-0651pb		99-0651		99-0651d	
	ProcBlk		Sample		Duplicate		ProcBlk		Sample		Duplicate	
Injection #	46		42		43		60		59		58	
Ion Ratios	Native	Labeled	Native	Labeled	Native	Labeled	Native	Labeled	Native	Labeled	Native	Labeled
Analyte												
HpCDD	0.97	1.12	0.96	1.09	0.79*	1.08	0.97	1.07	1.23*	1.05	1.14	1.08
HpCDF	0.95	1.15	1.05	1.08		1.06	1.69*	1.04		1.07	1.08	1.07
HxCDD	0.43*	1.25	0.94*	0.98*	2.36*	0.98*		1.30	1.68*	1.28	1.18	1.27
HxCDF	1.31	1.39	1.36	1.54*	0.00*	1.20	0.77*	1.36		1.28	1.30	1.32
OCDD	1.33*	0.93	1.18*	0.87	1.84*	0.90	1.00	0.86		0.90	0.85	0.82
OCDF	0.76	0.93	0.86	0.87	0.92	0.90		0.85		0.90	0.89	0.82
PeCDD	0.97*	1.58	1.28	1.48		1.60		1.82*		1.61	1.52	1.65
PeCDF	1.05*	1.60	4.33*	1.69		1.64		1.61		1.61	1.49	1.66
TCDD		0.54*	1.50*	0.75		0.82		0.88		0.69	0.67	0.73
TCDF	0.60*		0.60*	1.25*		0.89		0.97*		0.77	0.72	0.85

"*" = Ion abundance ratio does not meet QC criteria shown in Table 6.e.
"Blanks" = No signal or peak area detected; ion abundance ratio is zero (0) or undefined.

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