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Prepared for:
Terminal 117
Port of Seattle

November 19, 2008

Organic and Inorganic Data Validation Report

Port of Seattle - Terminal 117 Groundwater, Soil, and Water QC Samples Analytical Resources, Inc. data September 2008

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Overview

The samples analyzed for the Port of Seattle - Terminal 117 groundwater and soil event from September 2008 are listed in the Table of Samples Analyzed (page 3). Data validation was performed on a total of ten distinct groundwater samples, one soil sample, and two trip blank water QC samples.

Samples were analyzed by Analytical Resources, Inc. (ARI) of Tukwila, Washington. The validated analyses were Volatile Organic Compounds (VOCs) by SW-846 method 8260B; Semivolatile Organic Compounds (SVOCs) by SW-846 method 8270D; Polynuclear Aromatic Hydrocarbons (PAHs) including 1-Methylnaphthalene, 2-Methylnaphthalene, and Dibenzofuran by SW-846 method 8270D SIM (Select Ion Monitoring); Polychlorinated Biphenyls (PCBs) by SW-846 method 8082; Benzene, Toluene, Ethylbenzene, m,p-Xylene, and o-Xylene (BTEX) by SW-846 method 8021B modified; Gasoline Range Hydrocarbons (GRH) by WDOE method NWTPH-Gx; Diesel Range Hydrocarbons (DRH) and Motor Oil Range Hydrocarbons (MORH) by WDOE method NWTPH-Dx; Total and Dissolved Metals by SW-846 methods 6010B and 7470A (mercury); and Total Suspended Solids (TSS) by EPA method 160.2.

The ENSR Analytical Data Validation Checklist is presented as pages 4-15. Data were evaluated based on project criteria outlined in the *Quality Assurance Project Plan – Non-Time Critical Removal Action – Preliminary Investigation and Interim Groundwater Monitoring Plan DRAFT (QAPP), Lower Duwamish Waterway Superfund Site, Terminal T117 Early Action Area, ENSR, December 31, 2007,* and based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, and the *USEPA CLP National Functional Guidelines for Inorganic Data Review*, document number EPA 540-R-04-004, October 2004, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

The following data components were reviewed during the data validation procedure:

Deliverable Requirement	Method	Form*	Method	Form*	
Case Narrative	Organics		Metals/GenChem		✓
Chain-of-Custody form	Organics		Metals/GenChem		✓
Sample results	Organics	I	Metals/GenChem	IA-IN	✓
Surrogate recoveries	Organics	II			✓
LCS, LCSD (blank spike) recoveries	Organics	III	Metals/GenChem	VII-IN	✓
CRQL standard check for ICP			Metals	IIB-IN	✓
Method and/or calibration blank summaries/results	Organics	IV	Metals/GenChem	III-IN	✓
Duplicate/Spike duplicate RPDs	Organics	III	Metals/GenChem	VI-IN	✓
Instrument performance check (tuning)	Organics	V	Metals	XIV-IN	✓
Initial and continuing calibration data/summaries	Organics	VI, VII	Metals/GenChem	IIA-IN	✓
Internal standards areas and/or retention times	Organics	VIII	Metals	XV-IN	✓
Method detection limits and/or Reporting limits	Organics	I	Metals/GenChem	IX-IN	✓
Preparation log	Organics		Metals/GenChem	XII-IN	✓
Analysis run log	Organics		Metals/GenChem	XIII-IN	✓
Reconstructed ion chromatograms (samples/standards)	Organics				✓
Raw Data (Quantitation lists, Instrument printouts)	Organics		Metals		✓
Electronic data deliverables (EDDs)	Organics		Metals/GenChem		✓

* equivalent USEPA CLP summary form; as applicable to the organic methods

Data Validation Qualifiers Assigned During this Review

J estimated concentration

R rejected due to severe QAQC noncompliance

U evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination (U validation qualifiers are not identical to U laboratory flags that identify undetected results)

UJ undetected, reporting limit is estimated

Assigned qualifiers are detailed in the ENSR Analytical Data Validation Checklist and are summarized in the Table of Qualified Analytical Results (pages 16-17).

Other Qualifiers Assigned During this Review

A reported result is likely a combination of both Aroclor 1254 and Aroclor 1260 although accurate identification of Aroclor 1254 can not be achieved (ENSR qualifier).

Y reporting limit was raised due to the presence of interference (ENSR qualifier).

NR Do not report, used to identify duplicate results from dilutions or reanalysis that are not reportable because an alternate, acceptable result for that sample and analyte is available (ENSR qualifier).

Overall Data Assessment

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data submitted. One data point for 2-chloroethylvinylether from method 8260B for sample MW-01-0908 was rejected based on non-recovery of the matrix spike (see Checklist item 16). One data point for 3,3'-Dichlorobenzidine from method 8270D for sample MW-01-0908 was rejected based on non-recovery of the matrix spike (see Checklist item 16). A total of ten hexachlorocyclopenta-diene results from method 8270D were rejected due to LCS/LCSD recoveries below 30% (see Checklist item 15). The method 8082 aroclor 1260 result from the undiluted analysis of sample MW-03-0908 was qualified as not reportable (NR qualifier) due to a high concentration that exceeded instrument calibration range. An alternate aroclor 1260 result from a 1:3 dilution was available. Data qualified with R qualifiers are rejected due to severe QC noncompliance and are not useable. Data qualified with NR qualifiers are the result of duplicate analyses and should not be used. These data are designated as not reportable in the project database. The remaining data are suitable for their intended use with the qualifications and clarifications noted.

Table of Samples Analyzed
Port of Seattle - Terminal 117
Groundwater, Soil, and Water QC Samples
Analytical Resources, Inc. (ARI) Laboratory Reports NM92, NO67
September 2008

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Soil	MW-11 22.75-23		9/2/2008	09:54	NM92	NM92A
Water QC	TB-090208	Trip Blank	9/2/2008		NM92	NM92B
Groundwater	MW-03-0908		9/10/2008	06:20	NO67	NO67A/L
Groundwater	MW-07-0908		9/10/2008	08:20	NO67	NO67B/M
Groundwater	MW-02-0908		9/10/2008	10:00	NO67	NO67C/N
Groundwater	MW-102-0908	MW-02-0908 Dup	9/10/2008	10:00	NO67	NO67D/O
Groundwater	MW-05R-0908		9/10/2008	09:40	NO67	NO67E/P
Groundwater	MW-08R-0908		9/10/2008	07:55	NO67	NO67F/Q
Groundwater	MW-04R-0908		9/11/2008	06:53	NO67	NO67G/R
Groundwater	MW-11-0908		9/11/2008	09:17	NO67	NO67H/S
Groundwater	MW-06-0908		9/11/2008	06:05	NO67	NO67I/T
Groundwater	MW-01-0908		9/11/2008	08:40	NO67	NO67J/U
Water QC	TRIP BLANK 0908	Trip Blank	9/10/2008		NO67	NO67K

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

Project Name: Port of Seattle (PSR) – Terminal 117	Laboratory: Analytical Resources, Inc. (ARI) of Tukwila, WA.
Project Reference: Terminal 117 – 3Q2008	Sample Matrix: Groundwater, Soil, and Water QC samples
ENSR Project: 05482-023-400	Sample Start Date: 09/02/2008
Validated By/Date Validated: Sue Milcan 11/19/2008 (completed)	Sample End Date: 09/11/2008

Samples Analyzed: see Table of Samples Analyzed, Port of Seattle - Terminal 117, Groundwater, Soil and Water QC Samples, September 2008 (page 3).

Parameters Validated -

Volatile Organic Compounds (VOCs) by SW-846 method 8260B;

Semivolatile Organic Compounds (SVOCs) by SW-846 method 8270D;

Polynuclear Aromatic Hydrocarbons (PAHs) including 1-Methylnaphthalene, 2-Methylnaphthalene, and Dibenzofuran by SW-846 method 8270D SIM (Select Ion Monitoring);

Polychlorinated Biphenyls (PCBs) by SW-846 method 8082;

Benzene, Toluene, Ethylbenzene, m,p-Xylene, and o-Xylene (BTEX) by SW-846 method 8021B modified;

Gasoline Range Hydrocarbons (GRH) by WDOE method NWTPH-Gx;

Diesel Range Hydrocarbons (DRH) and Motor Oil Range Hydrocarbons (MORH) by WDOE method NWTPH-Dx;

Total and Dissolved Metals by SW-846 methods 6010B and 7470A (mercury); and

Total Suspended Solids (TSS) by EPA method 160.2.

Not all samples were analyzed for every parameter. Refer to Chain of Custody records for the exact analyses requested.

Laboratory Project IDs (SDGs): NM92, NO67

PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT

Precision:	**X**	Acceptable		Unacceptable	SM	Initials

Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD) or Percent Difference (%D). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. The %D for serial dilutions during metals analysis indicates how close a diluted value corresponds with the original result. All RPD and %D precision measurements were compared to EPA published QC limits and QAPP requirements. Although some data require qualification due to laboratory RPDs (see item 17) or calculated field duplicate RPDs (see item 21), overall field and laboratory precision is acceptable since a majority of the data are unqualified and no data are rejected based on these measurements. Precision measurements are reviewed in items 17 and 21.

Accuracy:	**X**	Acceptable		Unacceptable	SM	Initials

Comments: Field accuracy, a measure of the sampling bias, was determined by reviewing trip blank results for evidence of sample contamination stemming from bottles and/or sample transport. Laboratory accuracy, a measure of the system bias, was measured by evaluating laboratory control sample, laboratory control sample duplicate (LCS, LCSD), ICP Interference Check Sample (ICS), detection limit (CRI), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD, and CRI %Rs demonstrated the overall performance of the analysis and ability to achieve quantitation at reported detection limits.

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ENSR ANALYTICAL DATA VALIDATION CHECKLIST

ICS %Rs provided information on sample matrix interferences. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. All accuracy measurements were compared to EPA published QC limits, QAPP requirements, and/or laboratory control-charted QC limits. One data point for 2-chloroethylvinylether from method 8260B for sample MW-01-0908 was rejected based on non-recovery of the matrix spike (see Checklist item 16). One data point for 3,3'-Dichlorobenzidine from method 8270D for sample MW-01-0908 was rejected based on non-recovery of the matrix spike (see Checklist item 16). A total of ten hexachlorocyclopenta- diene results from method 8270D were rejected due to LCS/LCSD recoveries below 30% (see Checklist item 15). Although some additional data require qualification based on surrogate recovery (see item 14) or matrix spike recovery (see item 16), overall field and laboratory accuracy is acceptable since a majority of the data are unqualified and the rejected data are limited to select analytes or samples and not to entire methods or data set. Accuracy measurements are reviewed in items 12, 14, 15, 16, 19, and 20.

Method Compliance:	X	Acceptable		Unacceptable	SM	Initials

Comments: For this data set, method compliance was determined by evaluating sample integrity, holding time, reporting limits, laboratory blanks, system performance checks, instrument calibrations, and organic sample chromatograms against method specified requirements. Although some data require qualification based on concentrations reported above the instrument calibration range or interferences (see item 6), evidence of laboratory contamination (see item 11), instrument calibration outliers (see item 13), and/or analyte confirmation discrepancy (see item 22), overall method compliance is acceptable since a majority of the data are unqualified and no data are rejected based on these measurements. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.

Completeness:	X	Acceptable		Unacceptable	SM	Initials

Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals were set at 95-100%. Determination of completeness during this data validation procedure included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results and QC summary reports, with reference to supplied chromatograms and raw data. The electronic data deliverable query file (EDD file) was QA'd 100% for positive target analytes and method reporting limits. EDD file corrections/additions were made by the data validator during this review procedure as outlined in item 23.

Alternate, reportable results were available for all data points designated as not-reportable based on multiple dilutions. One data point for 2-chloroethylvinylether from method 8260B for sample MW-01-0908 was rejected based on non-recovery of the matrix spike (see Checklist item 16). One data point for 3,3'-Dichlorobenzidine from method 8270D for sample MW-01-0908 was rejected based on non-recovery of the matrix spike (see Checklist item 16). A total of ten hexachlorocyclopenta- diene results from method 8270D were rejected due to LCS/LCSD recoveries below 30% (see Checklist item 15). The remaining unduplicated data are useable, some with qualification. There were a total of 2209 distinct possible target analyte data points possible for this sample set. When considering the 12 rejected data points, completeness of the data set is calculated to be 99.4% and is acceptable and compliant with QAPP requirements.

VALIDATION CRITERIA CHECK

Data validation and other qualifiers assigned during this review for <u>reportable</u> results:

A	reported result is likely a combination of Aroclor 1254/1260; accurate identification of Aroclor 1254 can not be achieved (ENSR qualifier)
J	estimated concentration
U	evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination (U validation qualifiers are not identical to U laboratory flags that identify undetected results)
UJ	undetected, reporting limit is estimated
Y	reporting limit was raised due to the presence of interference (ENSR qualifier)

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ENSR ANALYTICAL DATA VALIDATION CHECKLIST

Data validation and other qualifiers assigned during this review for non-reportable data:

R rejected due to severe QAQC noncompliance

NR do not report; an alternate, acceptable result is available

The following comments identifying sample results requiring qualification are in bold type. The other comments are of interest, but qualification of the sample results is not necessary.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

1. Did the laboratory identify any non-conformances related to the analytical results?	**X**	Yes		No	SM	Initials

Explanation by laboratory: Surrogate outliers were noted in laboratory case narratives. Any assigned laboratory flags were also reviewed and evaluated during the data validation procedure.

Data qualification, if any, related to laboratory case narrative comments and assigned laboratory flags are discussed in the following sections.

2. Were sample Chain-of-Custody forms complete?	**X**	Yes		No	SM	Initials

Comments: The COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, and laboratory dates and times of sample receipt.

3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	**X**	Yes		No	SM	Initials

Comments: All requested analyses as documented on the original COCs were completed by the laboratory, with the following clarification.

SDG NO67: COC records for the groundwater samples stipulate SVOC analysis by method 8270D SIM. The SVOC analysis was conducted as method 8270D (low level) which is in keeping with past data analysis requests for this project. The PAH analysis was done as method 8270D SIM as requested. No action is required other than to note this incorrect method designation for SVOCs on the COC records.

4. Were samples received in good condition and at the appropriate temperature?	**X**	Yes		No	SM	Initials

Comments: The samples were received intact, on ice, and in good condition with cooler temperatures of 0.0°C to 8.4°C as noted on the supplied Cooler Receipt Forms received. Samples received at less than 2°C were determined to be in acceptable condition since samples were hand delivered on the day of sampling, sample containers were intact, and samples themselves were not frozen. Samples received at greater than 6°C were determined to be in acceptable condition since no other preservation issues were noted and temperatures were well below 24°C (room temperature). No action is required other than to note these observations.

Note that one 1-L bottle for sample MW-11-0908 was designated within the laboratory as sample volume for TSS analysis, since the TSS sample aliquot for MW-11-0908 was not received.

Note that groundwater samples for dissolved metals analysis were filtered in the field.

5. Were the requested analytical methods in compliance with WP/QAPP, permit, or COC?	**X**	Yes		No	SM	Initials

Comments: Reported methods met those requested on the COCs and/or the methods reported are in compliance with those methods listed in Table 2-3 (Sample Handling and Preservation Requirements for Water) found in the *Quality Assurance Project Plan – Non-Time Critical Removal Action – Preliminary Investigation and Interim Groundwater Monitoring Plan DRAFT (QAPP), Lower Duwamish Waterway Superfund Site, Terminal T117 Early Action Area, ENSR, December 31, 2007.*

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

6. Were detection limits in accordance with WP/QAPP, permit, or method?	**X**	Yes		No	SM	Initials

Comments: The reporting limits (RLs) are achievable by the quoted methods, and meet the limit requirements listed in QAPP Table 2-3 (Method Reporting Limits in Soil/Water) prior to any dilution/extract volume adjustments, and prior to any dry weight adjustments (soils only). Some samples were reported at diluted levels due to high target analyte concentration. Soil results were reported on a dry weight basis. Reporting limits were adjusted appropriately to accommodate any dilution factors, concentrated extract volumes, reduced starting weights, and percent moisture content.

Note that there were no trace concentrations (concentrations > method detection limit but < reporting limit) reported for target analytes in any analytical methods.

Method 8270D –

SDG NO67: The reporting limit for 2-nitroaniline was raised without dilution in samples MW-02-0908 and MW-102-0908 due to evidence of interference. The Y assigned laboratory flags for these results have been maintained as qualifiers for informational purposes only.

Method 8082 –

SDG NO67: The laboratory appropriately reanalyzed at dilution analyte aroclor 1260 that exceeded instrument calibration range in the initial analysis of sample MW-03-0908. The initial sample concentration for aroclor 1260 in sample MW-03-0908 was designated as not reportable (NR qualifier) in the EDD file since an alternate, acceptable result was available at subsequent dilution.

All Methods –

Note that MDLs are provided in the EDD files for all methods except 160.2. The MDLs are not referenced in the hardcopy laboratory reports. In all cases, the MDLs are correctly listed in the EDDs as a lesser value than the corresponding practical quantitation limit or reporting limit (PQL/RL).

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	**X**	Yes		No	SM	Initials

Comments: Only analytes applicable to the requested methods were reported. The data validator was not given specific target analyte lists for this project, however, the reported lists were consistent for all samples and methods.

Note that some analytes were reported by both methods 8260B and 8021BMod, or by method 8270D and 8270D SIM.

8. Were sample holding times met?	**X**	Yes		No	SM	Initials

Comments: Extraction and/or analytical holding times were met for all samples and analyses.

The method required holding time periods for water/water QC samples were as follows:

7 days from sample collection to analysis for method 160.2;

7 days from sample collection to extraction, and 40 days from extraction to analysis for methods 8270D, 8270D SIM, and 8082;

14 days from sample collection to analysis for methods 8260B, 8021B modified, and NWTPH-Gx;

14 days from sample collection to extraction, and 40 days from extraction to analysis for method NWTPH-Dx;

28 days from sample collection to analysis for method 7470A; and

6 months from sample collection to analysis for methods 6010B and 7060A.

The method required holding time period for the soil sample was as follows:

14 days from sample collection to analysis for method 8260B.

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

9. Were correct concentration units reported?	**X**	Yes		No	SM	Initials
Comments: Correct concentration units were reported. For the soil sample, the method 8260B data were reported as µg/kg dry weight (ppb). For the groundwater and water QC samples, all inorganic data and all organic method NWTPH-Gx and NWTPH-Dx data were reported as mg/L (ppm). All other organic method data were reported as µg/L (ppb). No action is required other than to alert the data user to these varying units of measure.						
10. Were the reporting requirements for flagged data met?	**X**	Yes		No	SM	Initials
Comments: Laboratory flags were reviewed and considered during the data validation procedure. Data validation qualifiers override assigned laboratory flags.						
11. Were laboratory blank samples free of target analyte contamination?		Yes	**X**	No	SM	Initials

Comments: Laboratory blank samples (including method, preparation, and calibration blanks) were free of target analyte contamination, were associated with undetected sample results, or were associated with sample results that exceeded the calculated blank concentration action limits and could therefore not be attributed to laboratory contamination, except as noted. For organics, action limits were equal to the RL or were calculated at 2x RL for common volatile contaminants and 5x RL for common semivolatile contaminants. For inorganics, action limits were either equal to the RL or were calculated at 10 times the blank concentration.

Method 8260B – Qualification of Results >/= RL -

Current 2008 guidance states that if a sample result is ≥ RL (≥ 2x RL for common contaminants), and is associated with contamination in the blank at a comparable level, then the sample result should be evaluated as being undetected at the reported concentration (qualified as < CONC U). For these samples, the detect_flag field was changed from Y to N, the initial concentrations reported as positive hits by the laboratory were maintained in the result_value field and were also used to populate the reporting_detection_limit field, and the original RL was maintained in the quantitation_limit field of the project database for informational purposes only. Applying this guidance, the following qualifiers were assigned:

Methylene chloride (8.4 µg/kg) was reported in the method blank MB-090408 in SDG NM92.

The associated methylene chloride result in associated soil sample MW-11 22.75-23, whose reported value for this analyte was ≥ RL but <2x the blank concentration, has been corrected to read < CONC U in both the EDD and in the table of Qualified Analytical Results to show that the analyte has been evaluated to be undetected at the reported concentration due to evidence of laboratory contamination.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	**X**	Yes		No	SM	Initials
Comments: Trip blank samples submitted and scheduled for methods 8260B, 8021B modified, and NWTPH-Gx analyses was free of target analyte contamination, or were associated with samples already qualified based on corresponding method blank concentrations. Field blank and equipment rinse blank samples were not applicable to the sampling procedures followed and/or were not submitted for analysis.						

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

13. Were instrument calibrations within method control limits?		Yes	**X**	No	SM	Initials

Comments: Initial and continuing calibrations were within data validation criteria for all target analytes, except as noted. The frequency of both initial and continuing calibration verification checks (ICVs, CCVs) was sufficient for all methods.

Method 8260B –

Organic method 8260B QC limits were set at 0-15%RSD for ICV or linearity >0.995; 0-20%D for CCV. All System Performance Check Compound (SPCC) RF > 0.10 or 0.30. Any noncompliant relative response factors (RRFs), percent relative standard deviations (%RSDs), or percent differences (%Ds) that were associated with non-target analytes or non-project samples were reviewed but did not initiate data qualification since the outliers did not apply to target analytes in project samples. Additionally, high bias indicators in the ICV that were associated with undetected project sample results were reviewed but did not initiate qualification, as per data validation guidance, since the indicated bias did not affect reported project sample results.

The following method 8260B calibration outliers initiated data qualification.

Instrument FINN1: The %Ds for carbon disulfide (21.8%), 2-chloroethyl vinyl ether (31.7%), and n-butylbenzene (22.0%) exceeded the ≤ 20%D QC limit in the CCV of 09/04/2008 at 10:46 (associated with SDG NM92). These analytes were undetected in associated project samples and require UJ qualifiers to indicate estimated reporting limits due to compromised system sensitivity.

Instrument FINN3: The %D for methylene chloride (21.2%) exceeded the ≤ 20%D QC limit in the CCV of 09/16/2008 at 19:09 (associated with SDG NO67). This analyte was undetected in associated project samples and requires UJ qualifiers to indicate estimated reporting limits due to compromised system sensitivity.

Note that these qualifications are assigned per national guidance of volatile organics and not necessarily on SW-846 requirements.

Methods 8270D/8270D SIM –

Organic methods 8270D and 8270D SIM QC limits were set at 0-20%RSD for ICV or linearity >0.995; 0-20%D for CCV. All System Performance Check Compound (SPCC) RFs met SW-846 method 8270D Table 4 requirements. Any noncompliant relative response factors (RRFs), percent relative standard deviations (%RSDs), or percent differences (%Ds) that were associated with non-target analytes or non-project samples were reviewed but did not initiate data qualification since the outliers did not apply to target analytes in project samples. Additionally, high bias indicators associated with undetected project sample results were reviewed but did not initiate qualification, as per data validation guidance, since the indicated bias did not affect reported project sample results.

There were no method 8270D SIM calibration results that initiated data qualification of project samples. The following method 8270D calibration outliers initiated data qualification.

Instrument NT4: The %D for indeno(1,2,3-cd)pyrene (26.9%) exceeded the ≤ 20%D QC limit in the CCV of 09/23/2008 at 02:47 (associated with SDG NO67). This analyte was undetected in associated project samples and requires UJ qualifiers to indicate estimated reporting limits due to compromised system sensitivity.

Note that these qualifications are assigned per national guidance of semivolatile organics and not necessarily on SW-846 requirements.

Method 8082 –

Organic method 8082 QC limits were set at 0-20%RSD for ICV and 0-25%D for CCV, or averaged %Ds were ≤15%. (Averaged percent deviations are allowed per method 8000B, Section 7 of *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846), Final Update III.)*

There were no method 8082 calibration outliers noted and none initiated data qualification of project samples.

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ENSR ANALYTICAL DATA VALIDATION CHECKLIST

Method 8021B -

Organic methods 8021B modified QC limits were set at 0-20%RSD for ICV and 0-15%D for CCV, or averaged %Ds were ≤15%. (Averaged percent deviations are allowed per method 8000B, Section 7 of *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846), Final Update III.)*

There were no method 8021B calibration outliers noted and none initiated data qualification of project samples.

Methods NWTPH-Gx and NWTPH-Dx -

Method NWTPH-Gx and NWTPH-Dx ICVs reported %RSDs within the 0-20% QC limits (±15% for secondary source calibration). NWTPH-Gx and NWTPH-Dx CCVs were within averaged percent deviations of ≤ 15% (<20% acceptable for GRH). Averaged percent deviations are allowed per method 8000B, Section 7 of *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846), Final Update III.* Any noncompliant relative response factors (RRFs), percent relative standard deviations (%RSDs), or percent differences (%Ds) that were associated with non-target analytes or non-project samples were reviewed but did not initiate data qualification since the outliers did not apply to target analytes in project samples. Note that only fuel standards from the appropriate WDOE method and carbon range were considered.

There were no method NWTPH-Gx or NWTPH-Dx calibration outliers noted and none initiated data qualification of project samples.

Methods 6010B and 7470A -

Inorganic method 6010B ICV and CCV %R limits were set at 90-110%; 7470A ICV and CCV %R limits were set at 80-120%. Any noncompliant percent recoveries that were associated with non-target analytes or non-project samples were reviewed but did not initiate data qualification of project samples since the outliers did not apply to target analytes in project samples.

There were no method 6010B or 7470A calibration outliers noted and none initiated data qualification of project samples.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

14. Were surrogate recoveries within control limits?		Yes	**X**	No	SM	Initials

Comments:

Method 8260B –

Surrogate %Rs were within data validation or laboratory control-charted QC limits for all samples and associated QC samples, or met the following requirement, except as noted. High surrogate recoveries associated with undetected project sample results did not initiate data qualification since the indicated high bias was not realized.

SDG NO67: A high %R (121%) for surrogate bromofluorobenzene was reported above the 71-120% laboratory QC limits for groundwater sample MW-102-0908. Positive VOC results reported for this sample require J qualifiers to indicate estimated concentrations due to indicated matrix interference.

Methods 8270D/8270D SIM –

Surrogate %Rs were within data validation or laboratory control-charted QC limits for all samples and associated QC samples.

Method 8082 –

Surrogate %Rs were within data validation or laboratory control-charted QC limits for all samples and associated QC samples.

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Method 8021B –

Surrogate %Rs were within data validation or laboratory control-charted QC limits for all samples and associated QC samples.

Methods NWTPH-Gx and NWTPH-Dx –

Surrogate %Rs were within data validation or laboratory control-charted QC limits for all samples and associated QC samples, or met the following requirement, except as noted.

SDG NO67: **A low %R (58.4%) for surrogate o-terphenyl was reported below the 64-111% laboratory QC limits for groundwater sample MW-102-0908. The results reported for this sample require J/UJ qualifiers (as appropriate) to indicate estimated concentrations or reporting limits.** Note that the source sample, MW-02-0908, for this field duplicate had acceptable surrogate %R of 81.3% so matrix interference is not likely the cause of the accuracy outlier.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

15. Were laboratory control sample recoveries within control limits?		Yes	**X**	No	SM	Initials

Comments:

Method 8260B –

Reported LCS, LCSD recoveries were within data validation QC limits (70-130%) for all target analytes, or were within laboratory control-charted QC limits for organic target analytes as allowed for SW-846 organic methods.

Methods 8270D/8270D SIM –

Reported LCS, LCSD recoveries were within data validation QC limits (70-130%) for all target analytes, or were within laboratory control-charted QC limits for organic target analytes as allowed for SW-846 organic methods, or met the following requirements, except as noted. If an out of control LCS or LCSD was associated with a same-batch compliant LCS or LCSD, and the noncompliant %R was greater than 30%, then data qualification was not required since a consistent system bias was not demonstrated.

SDG NO67: The LCS/LCSD %Rs for hexachlorocyclopentadiene (20.3-21.9%) were below the lowest acceptable data validation QC criteria of 30%R for reportable results. The laboratory lower QC limit of 10%R is not acceptable for GC/MS analysis of matrix interference-free laboratory QC matrices. Due to the extreme noncompliance of <30%Rs, data rejection of undetected sample results is justified. The undetected hexachlorocyclopentadiene in the groundwater samples associated with this LCS/LCSD require R qualifiers to indicate rejected, undetected results due to confirmed low system bias (extreme noncompliance). Note that there were no detected hexachlorocyclopentadiene results reported for these samples.

Method 8082 –

Reported LCS, LCSD recoveries were within data validation QC limits (70-130%) for all target analytes, or were within laboratory control-charted QC limits for organic target analytes as allowed for SW-846 organic methods.

Method 8021B –

Reported LCS, LCSD recoveries were within data validation QC limits (70-130%) for all target analytes, or were within laboratory control-charted QC limits for organic target analytes as allowed for SW-846 organic methods.

Methods NWTPH-Gx and NWTPH-Dx –

Reported LCS, LCSD recoveries were within data validation QC limits (70-130%) for all target analytes, or were within laboratory control-charted QC limits for organic target analytes as allowed for SW-846 organic methods.

Continued on next page

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

Comments:

Methods 6010B and 7470A -

Reported LCS, LCSD recoveries were within data validation QC limits (80-120%) for all target analytes.

Method 160.2 –

Reported LCS recoveries were within data validation QC limits 50-150%.

16. Were matrix spike recoveries within control limits?		Yes	**X**	No	SM	Initials

Comments:

Method 8260B –

Project specific MS, MSD %Rs for target analytes were within QAPP Table 1-1 Data Quality Objectives limits of 70-130% or laboratory control charted QC limits (as allowed for SW-846 methods), except as noted.

SDG NO67: Analyte 2-chloroethylvinyl ether was not recovered (0% R) in both the MS and the MSD of source groundwater sample MW-01-0908. The non-recovery was below the lowest acceptable data validation QC limit of 10% for reportable data. The undetected 2-chloroethylvinyl ether result in the source sample requires rejection (R qualifier) due to severe QC failure and confirmed matrix interference resulting in a low bias. Note that the same batch LCS/LCSD %Rs for this analyte were compliant at 97.5-100%, thereby demonstrating analytical accuracy, and confirming matrix effect.

Methods 8270D and 8270D SIM –

Project specific MS, MSD %Rs for target analytes were within QAPP Table 1-1 Data Quality Objectives limits of 70-130% or laboratory control charted QC limits (as allowed for SW-846 methods) or MS, MSD data met the following requirement, except as noted. Organic MS/MSD %Rs must both be outside of QC limits in order for organic results to be qualified based on matrix. If organic matrix effect was not confirmed (either MS or MSD was compliant), data did not require qualification.

SDG NO67: Analyte 3,3'-dichlorobenzidine was not recovered (0% R) in both the MS and the MSD of source groundwater sample MW-01-0908. The non-recovery was below the lowest acceptable data validation QC limit of 10% for reportable data. The undetected 3,3'-dichlorobenzidine result in the source sample requires rejection (R qualifier) due to severe QC failure and confirmed matrix interference resulting in a low bias. Note that the same batch LCS/LCSD %Rs for this analyte were compliant at 61.7-62.3%, thereby demonstrating analytical accuracy, and confirming matrix effect.

Method 8082 –

Project specific MS, MSD %Rs for target analytes were within QAPP Table 1-1 Data Quality Objectives limits of 70-130% or laboratory control charted QC limits (as allowed for SW-846 methods), except as noted below.

Analyte aroclor 1260 was recovered high (148-160%) in the spiked analysis of source sample MW-01-0908. The MS/MSD outliers were not noted in the laboratory case narrative comments. Since the aroclor 1260 result for sample MW-01-0908 was a detection, the data point requires a J qualifier to indicate an estimated concentration, possibly biased high, due to confirmed matrix interference. Note that the same batch LCS/LCSD %Rs for this analyte were compliant at 76-78%, thereby demonstrating analytical accuracy.

Method 8021B –

Project specific MS, MSD %Rs for target analytes were within QAPP Table 1-1 Data Quality Objectives limits of 70-130% or laboratory control charted QC limits (as allowed for SW-846 methods).

Methods NWTPH-Gx and NWTPH-Dx –

Project specific MS, MSD %Rs for target analytes were within QAPP Table 1-1 Data Quality Objectives limits of 70-130% or laboratory control charted QC limits (as allowed for SW-846 methods).

Continued on next page

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

Methods 6010B and 7470A -

Project specific MS, MSD %Rs for target analytes were within QAPP Table 1-1 Data Quality Objectives limits of 70-130% and/or were within data validation QC limits of 75-125%.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

17. Were duplicate RPDs and/or serial dilution %Ds within control limits?		Yes	**X**	No	SM	Initials

Comments: Laboratory RPDs for target analytes in LCS/LCSD, and project-specific MS/MSD or laboratory duplicate samples were within QAPP Table 1-1 Data Quality Objectives limits of 0-20%, or RPDs were not applicable due to undetected results in both samples, or sample results were within ± the detection limit (RL), except as noted. High RPDs associated with undetected project sample results did not initiate data qualification since the precision of the reporting limit is not in question.

Serial dilutions for metals were not applicable for this data set due to lower sample concentrations reported.

Method 8270D –

SDG NO67: The LCS/LCSD RPD for bis(2-ethylhexyl)phthalate (37.7%) exceeded the 20% QAPP QC limit. Positive results for this analyte in associated samples require J qualifiers to indicate estimated concentrations due to the laboratory precision outlier.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

18. Were organic system performance criteria met?	**X**	Yes		No	SM	Initials

Comments: GC/MS method 8260B BFB and 8270D/SIM DFTPP tunes were within ion abundance and 12-hour clock method criteria for all analytical sequences. Method 8270D and 8270D SIM DDT degradation was <20% and benzidine response was compliant. Acceptable performance for all other organic GC methods were demonstrated by compliant correlation coefficients, instrument calibrations, and retention times as appropriate to the method.

19. Were internal standards within method criteria for GC/MS and/or ICP-MS sample analyses?	**X**	Yes		No	SM	Initials

Comments: Internal standard area counts and retention times (RTs) were within data validation QC criteria for all GC/MS method 8260B, 8270D, 8270D SIM, and GC/ECD method 8082 project sample results.

20. Were inorganic system performance criteria met?	**X**	Yes		No	SM	Initials

Comments: ICP interference check standards (ICS) and CRDL standard (CRI) frequency and percent recoveries were within data validation QC limits (80-120% for ICS; 70-130% for CRI) for all target analytes in associated project samples. Noncompliant ICS and CRI data associated with non-project samples were reviewed but were not utilized to initiate qualification of project samples.

21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.	**X**	Yes		No	SM	Initials

Duplicate Sample No.	MW-102-0908		Primary Sample No.	MW-02-0908

Comments: Field duplicate RPDs were within data validation QC limits of 0-30% for water matrices, or RPDs were not applicable due to results that were ± the detection limit or were undetected in both samples. Field duplicate and native sample concentrations that were both undetected are not reflected in the table below since RPDs are not applicable.

Continued on next page

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

The following RPDs were calculated:

Method	Units	Analyte	MW-02-0908	MW-102-0908	RPD	Qualifiers
SW8260B	µg/L	Acetone	< 3.0	4.0	+/- RL	
SW8260B	µg/L	Chlorobenzene	0.5	0.6	18.2	
SW8270D	µg/L	bis(2-Ethylhexyl)phthalate	2.1	< 1.0	**>2x RL**	**J/UJ**
SW8270D	µg/L	Phenol	20	9.6	**70.3**	**J/J**
SW8270D SIM	µg/L	1-Methylnaphthalene	0.10	0.10	0.0	
NWTPH-Dx	mg/L	Diesel Range Hydrocarbons	0.79	0.67	16.4	
SW6010B	mg/L	Arsenic	0.1	0.1	0.0	
SW6010B	mg/L	Arsenic, dissolved	0.09	0.11	20.0	
E160.2	mg/L	TSS	122	113	7.7	

The highlighted target analytes require J/UJ qualifiers (as appropriate) in the native sample and in the field duplicate sample to indicate estimated concentrations due to variability between field duplicate results (RPD exceeded QC limit or difference between sample concentrations exceeded twice the reporting limit).

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

22. Were qualitative/quantitative criteria for organic target analyte identification met?		Yes	**X**	No	SM	Initials

Comments: Organic method quantitation reports and chromatograms were reviewed by trained laboratory personnel in accordance with the laboratory's internal QA/QC program. No identification/quantitation flags were assigned, and no anomalies were identified during the data validation process, except as noted.

Method 8082 –

In several instances, accurate identification of aroclor 1254 was not achieved and was not reported by the laboratory as an identified detected target analyte per SW846 method requirements. However, the sample chromatograms show possible influence of aroclor 1254 on the reported aroclor 1260 results. For this reason, the reported aroclor 1260 results in samples MW-01-0908, MW-03-0908, MW-05R-0908, and MW-06-0908 require an ENSR-defined A qualifier to indicate that the reported concentration is likely a mixture of aroclor 1254 and aroclor 1260, even though accurate identification of aroclor 1254 can not be achieved.

Current guidance states that the percent difference (%D) for detected aroclor analytes between the two GC columns must be within ± 25%. This QC criteria was met for all reported aroclor 1260 results.

Method NWTPH-Dx –

The laboratory noted that the diesel results reported for samples MW-02-0908 and MW-102-0908 were affected by unidentifiable organics and/or hydrocarbons within the specified carbon ranges. Although the hardcopy laboratory report lists the target analyte as "diesel" in the report pages, the submitted EDD query correctly lists the analyte name as "Diesel Range Hydrocarbons" to correctly encompass not only diesel, but other co-eluting/interfering compounds found within the target range of C_{12}-C_{24}. No action is required for the NWTPH-Dx data other than to note these observations since the database contains the correct target analyte determinations.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	**X**	Yes		No	SM	Initials

Comments: 100% EDD QA/QC of positive concentrations and RLs was done as part of this data validation procedure. The EDD entries were resolved with the hardcopy data results and corrected as necessary for significant figures. According to validation protocol, the hardcopy data report was accepted as the correct reference.

Duplicate results within method 8082) were evaluated as documented within this checklist (see item 6). Duplicate results determined to be less reliable were maintained in the project database but were designated with NR qualifiers and identified as not-reportable since alternate, acceptable results were provided.

The ENSR project manager in Seattle, WA was informed of all EDD corrections made to the file via this checklist. The updated EDD file, with corrections and data validation qualifiers added, was sent to the ENSR project manager and database manager in Seattle, WA on 11/19/2008.

24. General Comments: Data were evaluated based on project criteria outlined in the *Quality Assurance Project Plan – Non-Time Critical Removal Action – Preliminary Investigation and Interim Groundwater Monitoring Plan DRAFT (QAPP), Lower Duwamish Waterway Superfund Site, Terminal T117 Early Action Area, ENSR, December 31, 2007,* and based on validation criteria set forth in the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-08-01, June 2008, and the *USEPA CLP National Functional Guidelines for Inorganic Data Review*, document number EPA 540-R-04-004, October 2004, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were also reviewed as per *WDOE Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602 of June 1997. Field duplicate RPD control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 16-17).

Table of Qualified Analytical Results
Port of Seattle - Terminal 117
Groundwater, Soil, and Water QC Samples
Analytical Resources, Inc. (ARI) Laboratory Reports NM92, NO67
September 2008

Sample ID	Lab Sample ID	Method	Sequence	Analyte		Concentration		Qualifier	Reason Code
Reportable, qualified Soil data:									
MW-11 22.75-23	NM92A	SW8260B	Initial 1:1	2-Chloroethylvinylether	<	3.0	µg/kg	UJ	CCV
MW-11 22.75-23	NM92A	SW8260B	Initial 1:1	Carbon Disulfide	<	0.6	µg/kg	UJ	CCV
MW-11 22.75-23	NM92A	SW8260B	Initial 1:1	Dichloromethane	<	1.6	µg/kg	U	MB
MW-11 22.75-23	NM92A	SW8260B	Initial 1:1	n-Butylbenzene	<	0.6	µg/kg	UJ	CCV
Reportable, qualified Groundwater data:									
MW-03-0908	NO67A	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-03-0908	NO67A	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV
MW-03-0908	NO67ADL	SW8082	Reanal 1:3	Aroclor 1260		0.52	µg/L	AJ	Aro1254/1260 max
MW-07-0908	NO67B	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-07-0908	NO67B	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV
MW-02-0908	NO67C	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-02-0908	NO67C	SW8270D	Initial 1:1	2-Nitroaniline	<	53	µg/L	Y	Interference/RL
MW-02-0908	NO67C	SW8270D	Initial 1:1	bis(2-Ethylhexyl)phthalate		2.1	µg/L	J	RPD, FD
MW-02-0908	NO67C	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV
MW-02-0908	NO67C	SW8270D	Initial 1:1	Phenol		20	µg/L	J	FD
MW-102-0908	NO67D	NWTPHD	Initial 1:1	Diesel Range Hydrocarbons		0.67	mg/L	J	SUR
MW-102-0908	NO67D	NWTPHD	Initial 1:1	Motor Oil Range Hydrocarbons	<	0.50	mg/L	UJ	SUR
MW-102-0908	NO67D	SW8260B	Initial 1:1	Acetone		4.0	µg/L	J	SUR
MW-102-0908	NO67D	SW8260B	Initial 1:1	Chlorobenzene		0.6	µg/L	J	SUR
MW-102-0908	NO67D	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-102-0908	NO67D	SW8270D	Initial 1:1	2-Nitroaniline	<	58	µg/L	Y	Interference/RL
MW-102-0908	NO67D	SW8270D	Initial 1:1	bis(2-Ethylhexyl)phthalate	<	1.0	µg/L	UJ	FD
MW-102-0908	NO67D	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV
MW-102-0908	NO67D	SW8270D	Initial 1:1	Phenol		9.6	µg/L	J	FD
MW-05R-0908	NO67E	SW8082	Initial 1:1	Aroclor 1260		0.014	µg/L	AJ	Aro1254/1260 max
MW-05R-0908	NO67E	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-05R-0908	NO67E	SW8270D	Initial 1:1	bis(2-Ethylhexyl)phthalate		4.8	µg/L	J	RPD
MW-05R-0908	NO67E	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV
MW-08R-0908	NO67F	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-08R-0908	NO67F	SW8270D	Initial 1:1	bis(2-Ethylhexyl)phthalate		1.8	µg/L	J	RPD
MW-08R-0908	NO67F	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV
MW-04R-0908	NO67G	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-04R-0908	NO67G	SW8270D	Initial 1:1	bis(2-Ethylhexyl)phthalate		16	µg/L	J	RPD
MW-04R-0908	NO67G	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV
MW-11-0908	NO67H	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-11-0908	NO67H	SW8270D	Initial 1:1	bis(2-Ethylhexyl)phthalate		19	µg/L	J	RPD
MW-11-0908	NO67H	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV

Continued on next page

Table of Qualified Analytical Results
Port of Seattle - Terminal 117
Groundwater, Soil, and Water QC Samples
Analytical Resources, Inc. (ARI) Laboratory Reports NM92, NO67
September 2008

Sample ID	Lab Sample ID	Method	Sequence	Analyte		Concentration		Qualifier	Reason Code
MW-06-0908	NO67I	SW8082	Initial 1:1	Aroclor 1260		0.026	µg/L	AJ	Aro1254/1260 max
MW-06-0908	NO67I	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-06-0908	NO67I	SW8270D	Initial 1:1	bis(2-Ethylhexyl)phthalate		1.5	µg/L	J	RPD
MW-06-0908	NO67I	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV
MW-01-0908	NO67J	SW8082	Initial 1:1	Aroclor 1260		0.088	µg/L	AJ	MS, Aro1254/1260 max
MW-01-0908	NO67J	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
MW-01-0908	NO67J	SW8270D	Initial 1:1	Indeno(1,2,3-cd)pyrene	<	1.0	µg/L	UJ	CCV
Reportable, qualified Water QC data:									
TB-090208	NM92B	SW8260B	Initial 1:1	2-Chloroethylvinylether	<	5.0	µg/L	UJ	CCV
TB-090208	NM92B	SW8260B	Initial 1:1	Carbon Disulfide	<	1.0	µg/L	UJ	CCV
TB-090208	NM92B	SW8260B	Initial 1:1	n-Butylbenzene	<	1.0	µg/L	UJ	CCV
TRIP BLANK_0908	NO67K	SW8260B	Initial 1:1	Dichloromethane	<	0.5	µg/L	UJ	CCV
Rejected (R) or Non-reportable duplicate (DNR) Groundwater data:									
MW-03-0908	NO67A	SW8082	Initial 1:1	Aroclor 1260		0.68	µg/L	NR	ECR - use Reanalysis 1:3, Aro1254/1260 max
MW-03-0908	NO67A	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%
MW-07-0908	NO67B	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%
MW-02-0908	NO67C	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%
MW-102-0908	NO67D	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%
MW-05R-0908	NO67E	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%
MW-08R-0908	NO67F	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%
MW-04R-0908	NO67G	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%
MW-11-0908	NO67H	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%
MW-06-0908	NO67I	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%
MW-01-0908	NO67J	SW8260B	Initial 1:1	2-Chloroethylvinylether	<	1.0	µg/L	R	MS 0%
MW-01-0908	NO67J	SW8270D	Initial 1:1	3,3'-Dichlorobenzidine	<	5.0	µg/L	R	MS 0%
MW-01-0908	NO67J	SW8270D	Initial 1:1	Hexachlorocyclopentadiene	<	5.0	µg/L	R	LCS <30%

Reason Codes:

Aro1254/1260 max - result is likely combination of Aroclor 1254/Aroclor 1260; accurate identification of Aroclor 1254 can not be achieved
CCV – continuing calibration outlier, demonstrated analytical system bias
ECR – target analyte concentration exceeded instrument calibration range, dilution required
FD – relative percent difference between field duplicates exceeds QC limits; field precision outlier
Interference/RL – reporting limit was raised due to presence of interference; qualifier is provided for informational purposes only
LCS <30% – laboratory control sample recovery below lowest acceptable limit of 30%; severe analytical accuracy/system bias demonstrated
MB - analyte was also detected in the associated method blank at a comparable concentration; evidence of laboratory contamination
MS - matrix spike recovery outlier; indicated or confirmed matrix interference
MS 0% - matrix spike was not recovered; confirmed matrix interference; severe noncompliance
RPD - relative percent difference between laboratory duplicates (or spiked duplicates) exceeds QC limits; laboratory precision outlier
SUR - surrogate spike recovery outlier; indicated or confirmed matrix interference

Table B-1 T-117 3Q08 Groundwater Results with Lab Flags and Data Validation Qualifiers

Location ID			FieldQC		FieldQC		MW-01		MW-02		MW-02		MW-03		MW-04R		MW-05R		MW-06		MW-07		MW-08R		MW-11	
Sample ID			TB-090208		TRIP BLANK_0908		MW-01-0908		MW-102-0908		MW-02-0908		MW-03-0908		MW-04R-0908		MW-05R-0908		MW-06-0908		MW-07-0908		MW-08R-0908		MW-11-0908	
Sample Date			9/2/2008		9/10/2008		9/11/2008		9/10/2008		9/10/2008		9/10/2008		9/11/2008		9/10/2008		9/11/2008		9/10/2008		9/10/2008		9/11/2008	
Sample Type			TB		TB		N		FD		N		N		N		N		N		N		N		N	
Chemical Name	**Total/ Dissolved**	**Unit**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**	**Result**	**Lab Flag**
E160.2																										
Total Suspended Solids		mg/L	NA		NA		< 1 U		**113**		**122**		**3140**		**2.9**		**3.3**		**9.5**		< 1.1 U		**2.2**		**2.1**	
NWTPH																										
Diesel Range Hydrocarbons		mg/L	NA		NA		< 0.25 U		**0.67**	**J**	**0.79**		**4**		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U	
Gasoline Range Hydrocarbons		mg/L	NA		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U	
Motor Oil Range Hydrocarbons		mg/L	NA		NA		< 0.5 U		< 0.5 U	J	< 0.5 U		**3.8**		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U	
Metals																										
Antimony	D	mg/L	NA		NA		< 0.05 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U	
Antimony	T	mg/L	NA		NA		< 0.05 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U	
Arsenic	D	mg/L	NA		NA		< 0.05 U		**0.11**		**0.09**		< 0.05 U		< 0.2 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U	
Arsenic	T	mg/L	NA		NA		< 0.05 U		**0.1**		**0.1**		< 0.05 U		< 0.2 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U	
Beryllium	D	mg/L	NA		NA		< 0.001 U		< 0.001 U		< 0.001 U		< 0.001 U		< 0.005 U		< 0.001 U		< 0.001 U		< 0.001 U		< 0.005 U		< 0.001 U	
Beryllium	T	mg/L	NA		NA		< 0.001 U		< 0.001 U		< 0.001 U		< 0.001 U		< 0.005 U		< 0.001 U		< 0.001 U		< 0.001 U		< 0.005 U		< 0.001 U	
Cadmium	D	mg/L	NA		NA		< 0.002 U		< 0.002 U		< 0.002 U		< 0.002 U		< 0.01 U		< 0.002 U		< 0.002 U		< 0.002 U		< 0.01 U		< 0.002 U	
Cadmium	T	mg/L	NA		NA		< 0.002 U		< 0.002 U		< 0.002 U		< 0.002 U		< 0.01 U		< 0.002 U		< 0.002 U		< 0.002 U		< 0.01 U		< 0.002 U	
Chromium	D	mg/L	NA		NA		< 0.005 U		< 0.005 U		< 0.005 U		< 0.005 U		< 0.02 U		< 0.005 U		< 0.005 U		< 0.005 U		< 0.02 U		< 0.005 U	
Chromium	T	mg/L	NA		NA		< 0.005 U		< 0.005 U		< 0.005 U		**0.012**		< 0.02 U		< 0.005 U		< 0.005 U		< 0.005 U		< 0.02 U		< 0.005 U	
Copper	D	mg/L	NA		NA		**0.002**		< 0.002 U		< 0.002 U		< 0.002 U		< 0.01 U		**0.004**		**0.005**		**0.002**		< 0.01 U		**0.002**	
Copper	T	mg/L	NA		NA		**0.002**		< 0.002 U		< 0.002 U		**0.024**		< 0.01 U		**0.004**		**0.01**		**0.002**		< 0.01 U		**0.004**	
Lead	D	mg/L	NA		NA		< 0.02 U		< 0.02 U		< 0.02 U		< 0.02 U		< 0.1 U		< 0.02 U		< 0.02 U		< 0.02 U		< 0.1 U		< 0.02 U	
Lead	T	mg/L	NA		NA		< 0.02 U		< 0.02 U		< 0.02 U		< 0.02 U		< 0.1 U		< 0.02 U		< 0.02 U		< 0.02 U		< 0.1 U		< 0.02 U	
Mercury	D	mg/L	NA		NA		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U	
Mercury	T	mg/L	NA		NA		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U		< 0.0001 U	
Nickel	D	mg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.05 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.05 U		**0.01**	
Nickel	T	mg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.05 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.05 U		**0.01**	
Selenium	D	mg/L	NA		NA		< 0.05 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U	
Selenium	T	mg/L	NA		NA		< 0.05 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U	
Silver	D	mg/L	NA		NA		< 0.003 U		< 0.003 U		< 0.003 U		< 0.003 U		**0.02**		**0.004**		**0.003**		< 0.003 U		**0.03**		< 0.003 U	
Silver	T	mg/L	NA		NA		< 0.003 U		< 0.003 U		< 0.003 U		< 0.003 U		**0.03**		**0.005**		**0.005**		< 0.003 U		**0.02**		< 0.003 U	
Thallium	D	mg/L	NA		NA		< 0.05 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U	
Thallium	T	mg/L	NA		NA		< 0.05 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U		< 0.05 U		< 0.05 U		< 0.2 U		< 0.05 U	
Zinc	D	mg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.05 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.05 U		< 0.01 U	
Zinc	T	mg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		**0.02**		< 0.05 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.05 U		< 0.01 U	
SW8021BMod																										
Benzene		µg/L	NA		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Ethylbenzene		µg/L	NA		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
o-Xylene		µg/L	NA		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Toluene		µg/L	NA		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Xylene (meta & para)		µg/L	NA		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
SW8082																										
Aroclor 1016		µg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U	
Aroclor 1221		µg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U	
Aroclor 1232		µg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U	
Aroclor 1254		µg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U	
Aroclor 1260		µg/L	NA		NA		**0.088**	**AJ**	< 0.01 U		< 0.01 U		**0.52**	**AJ**	< 0.01 U		**0.014**	**AJ**	**0.026**	**AJ**	< 0.01 U		< 0.01 U		< 0.01 U	
Aroclor-1242		µg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U	
Aroclor-1248		µg/L	NA		NA		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U		< 0.01 U	
SW8260B																										
1,1,1,2-Tetrachloroethane		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,1,1-Trichloroethane		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,1,2,2-Tetrachloroethane		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,1,2-Trichloroethane		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,1,2-Trichlorotrifluoroethane		µg/L	< 2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,1-Dichloroethane		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,1-Dichloroethene		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,1-Dichloropropene		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,2,3-Trichlorobenzene		µg/L	< 5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U	
1,2,3-Trichloropropane		µg/L	< 2 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U	
1,2,4-Trichlorobenzene		µg/L	< 5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U	
1,2,4-Trimethylbenzene		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,2-Dibromo-3-chloropropane		µg/L	< 5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U		< 0.5 U	
1,2-Dibromoethane (EDB)		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,2-Dichlorobenzene		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,2-Dichloroethane		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,2-Dichloropropane		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,3,5-Trimethylbenzene		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,3-Dichlorobenzene		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,3-Dichloropropane		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
1,4-Dichlorobenzene		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
2,2-Dichloropropane		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
2-Chloroethylvinylether		µg/L	< 5 U	J	< 1 U		NA		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
2-Chlorotoluene		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
2-Hexanone		µg/L	< 5 U		< 2.5 U		< 2.5 U		< 2.5 U		< 2.5 U		< 2.5 U		< 2.5 U		< 2.5 U		< 2.5 U		< 2.5 U		< 2.5 U		< 2.5 U	
4-Chlorotoluene		µg/L	< 1 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	

Table B-1 T-117 3Q08 Groundwater Results with Lab Flags and Data Validation Qualifiers

Location ID			FieldQC			FieldQC			MW-01			MW-02			MW-02			MW-03			MW-04R			MW-05R			MW-06			MW-07			MW-08R			MW-11		
Sample ID			TB-090208			TRIP BLANK_0908			MW-01-0908			MW-102-0908			MW-02-0908			MW-03-0908			MW-04R-0908			MW-05R-0908			MW-06-0908			MW-07-0908			MW-08R-0908			MW-11-0908		
Sample Date			9/2/2008			9/10/2008			9/11/2008			9/10/2008			9/10/2008			9/10/2008			9/11/2008			9/10/2008			9/11/2008			9/10/2008			9/10/2008			9/11/2008		
Sample Type			TB			TB			N			FD			N			N			N			N			N			N			N			N		
Chemical Name	**Total/ Dissolved**	**Unit**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**
4-Isopropyltoluene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Acetone		µg/L	< 5	U		< 3	U		< 3	U		**4**		**J**	< 3	U		**3.4**			< 3	U		< 3	U		< 3	U		< 3	U		< 3	U		**3.4**		
Acrolein		µg/L	< 10	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
Acrylonitrile		µg/L	< 5	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Benzene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Bromobenzene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Bromochloromethane		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Bromodichloromethane		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Bromoethane		µg/L	< 2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Bromoform		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Bromomethane		µg/L	< 1	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U	
Carbon Disulfide		µg/L	< 1	U	J	< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Carbon Tetrachloride		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Chlorobenzene		µg/L	< 1	U		< 0.2	U		< 0.2	U		**0.6**		**J**	**0.5**			< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Chloroethane		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Chloroform		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Chloromethane		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
cis-1,2-Dichloroethene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		**2.9**		
cis-1,3-Dichloropropene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Dibromochloromethane		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Dibromomethane		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Dichloromethane		µg/L	**2.9**	**B**		< 0.5	U	J	< 0.5	U	J	< 0.5	U	J	< 0.5	U	J	< 0.5	U	J	< 0.5	U	J	< 0.5	U	J	< 0.5	U	J	< 0.5	U	J	< 0.5	U	J	< 0.5	U	J
Ethylbenzene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Hexachlorobutadiene		µg/L	< 5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U	
Iodomethane		µg/L	< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Isopropylbenzene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Methyl ethyl ketone		µg/L	< 5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U	
Methyl isobutyl ketone		µg/L	< 5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U		< 2.5	U	
Naphthalene		µg/L	< 5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U		< 0.5	U	
n-Butylbenzene		µg/L	< 1	U	J	< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
n-Propylbenzene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
o-Xylene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
sec-Butylbenzene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Styrene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
tert-Butylbenzene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Tetrachloroethene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Toluene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
trans-1,2-Dichloroethene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
trans-1,3-Dichloropropene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
trans-1,4-Dichloro-2-butene		µg/L	< 5	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Trichloroethene		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Trichlorofluoromethane		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Vinyl Acetate		µg/L	< 5	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Vinyl Chloride		µg/L	< 1	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U		< 0.2	U	
Xylene (meta & para)		µg/L	< 1	U		< 0.4	U		< 0.4	U		< 0.4	U		< 0.4	U		< 0.4	U		< 0.4	U		< 0.4	U		< 0.4	U		< 0.4	U		< 0.4	U		< 0.4	U	
SW8270D																																						
1,2,4-Trichlorobenzene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
1,2-Dichlorobenzene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
1,3-Dichlorobenzene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
1,4-Dichlorobenzene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
1-Methylnaphthalene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
2,2'-Oxybis(1-Chloropropane)		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
2,4,5-Trichlorophenol		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
2,4,6-Trichlorophenol		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
2,4-Dichlorophenol		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
2,4-Dimethylphenol		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
2,4-Dinitrophenol		µg/L	NA			NA			< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U	
2,4-Dinitrotoluene		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
2,6-Dinitrotoluene		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
2-Chloronaphthalene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
2-Chlorophenol		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
2-Methylnaphthalene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
2-Methylphenol		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
2-Nitroaniline		µg/L	NA			NA			< 5	U		< 58	Y	Y	< 53	Y	Y	< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
2-Nitrophenol		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
3,3'-Dichlorobenzidine		µg/L	NA			NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
3-Nitroaniline		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
4,6-Dinitro-o-cresol		µg/L	NA			NA			< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U	
4-Bromophenyl phenyl ether		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
4-Chloro-3-methylphenol		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
4-Chloroaniline		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
4-Chlorophenyl phenyl ether		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
4-Methylphenol		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
4-Nitroaniline		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	

Table B-1 T-117 3Q08 Groundwater Results with Lab Flags and Data Validation Qualifiers

Location ID			FieldQC			FieldQC			MW-01			MW-02			MW-02			MW-03			MW-04R			MW-05R			MW-06			MW-07			MW-08R			MW-11		
Sample ID			TB-090208			TRIP BLANK_0908			MW-01-0908			MW-102-0908			MW-02-0908			MW-03-0908			MW-04R-0908			MW-05R-0908			MW-06-0908			MW-07-0908			MW-08R-0908			MW-11-0908		
Sample Date			9/2/2008			9/10/2008			9/11/2008			9/10/2008			9/10/2008			9/10/2008			9/11/2008			9/10/2008			9/11/2008			9/10/2008			9/10/2008			9/11/2008		
Sample Type			TB			TB			N			FD			N			N			N			N			N			N			N			N		
Chemical Name	**Total/ Dissolved**	**Unit**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**	**Result**	**Lab Flag**	**Qual**
4-NITROPHENOL		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
Acenaphthene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Acenaphthylene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Anthracene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Benzo(a)anthracene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Benzo(a)pyrene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Benzo(b)fluoranthene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Benzo(g,h,i)perylene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Benzo(k)fluoranthene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Benzoic Acid		µg/L	NA			NA			< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U		< 10	U	
Benzyl Alcohol		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
bis(2-chloroethoxy)methane		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
bis(2-chloroethyl)ether		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
bis(2-Ethylhexyl)phthalate		µg/L	NA			NA			< 1	U	J	**2.1**		**J**	< 1	U		< 1	U		**16**		**J**	**4.8**		**J**	**1.5**		**J**	< 1	U		**1.8**		**J**	**19**		**J**
Butyl benzyl phthalate		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Carbazole		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Chrysene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Dibenzo(a,h)anthracene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Dibenzofuran		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Diethyl phthalate		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Dimethyl phthalate		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Di-n-butyl phthalate		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Di-n-Octyl phthalate		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Fluoranthene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Fluorene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Hexachlorobenzene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Hexachlorobutadiene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Hexachloroethane		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Indeno(1,2,3-cd)pyrene		µg/L	NA			NA			< 1	U	J	< 1	U	J	< 1	U	J	< 1	U	J	< 1	U	J	< 1	U	J	< 1	U	J	< 1	U	J	< 1	U	J	< 1	U	J
Isophorone		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Naphthalene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Nitrobenzene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
N-Nitroso-Di-N-Propylamine		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
N-Nitrosodiphenylamine		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Pentachlorophenol		µg/L	NA			NA			< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U		< 5	U	
Phenanthrene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Phenol		µg/L	NA			NA			< 1	U		**9.6**		**J**	**20**		**J**	< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
Pyrene		µg/L	NA			NA			< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U		< 1	U	
SW8270D SIM																																						
1-Methylnaphthalene		µg/L	NA			NA			< 0.1	U		**0.1**			**0.1**			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
2-Methylnaphthalene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Acenaphthene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Acenaphthylene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Anthracene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Benzo(a)anthracene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Benzo(a)pyrene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Benzo(b)fluoranthene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Benzo(g,h,i)perylene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Benzo(k)fluoranthene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Chrysene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		**0.25**			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Dibenzo(a,h)anthracene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Dibenzofuran		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Fluoranthene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Fluorene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		**0.13**			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Indeno(1,2,3-cd)pyrene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Naphthalene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Phenanthrene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	
Pyrene		µg/L	NA			NA			< 0.1	U		< 0.1	U		< 0.1	U		**0.17**			< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U		< 0.1	U	

Notes:
Bold - Detected Result
< - Non Detect at the Reportling Limit shown
FD - Field Duplicate
J - Estimated concentration with possible high (indicated with +) and low (indicated with -) bias based on lab QC results.
A - Reported result is likely a combination of Aroclor 1254/1260; accurate identification of Aroclor 1254 can not be achieved (ENSR Qual)
NA - Not Analyzed
U - Non Detect
Qual - Qualifier

Table B-2 T-117 MW-11 Soil Results with Lab Flags and Data Validation Qualifiers

	Location ID	MW-11			
	Sample ID	MW-11 22.75-23			
	Sample Date	9/2/2008			
	Sample Type	N			
Chemical Name	**Unit**	**Result**		**Lab Flag**	**Qualifier**
SW8260B					
1,1,1,2-Tetrachloroethane	µg/kg	<	0.6	U	
1,1,1-Trichloroethane	µg/kg	<	0.6	U	
1,1,2,2-Tetrachloroethane	µg/kg	<	0.6	U	
1,1,2-Trichloroethane	µg/kg	<	0.6	U	
1,1,2-Trichlorotrifluoroethane	µg/kg	<	1.2	U	
1,1-Dichloroethane	µg/kg	<	0.6	U	
1,1-Dichloroethene	µg/kg	<	0.6	U	
1,1-Dichloropropene	µg/kg	<	0.6	U	
1,2,3-Trichlorobenzene	µg/kg	<	3	U	
1,2,3-Trichloropropane	µg/kg	<	1.2	U	
1,2,4-Trichlorobenzene	µg/kg	<	3	U	
1,2,4-Trimethylbenzene	µg/kg	<	0.6	U	
1,2-Dibromo-3-chloropropane	µg/kg	<	3	U	
1,2-Dibromoethane (EDB)	µg/kg	<	0.6	U	
1,2-Dichlorobenzene	µg/kg	<	0.6	U	
1,2-Dichloroethane	µg/kg	<	0.6	U	
1,2-Dichloropropane	µg/kg	<	0.6	U	
1,3,5-Trimethylbenzene	µg/kg	<	0.6	U	
1,3-Dichlorobenzene	µg/kg	<	0.6	U	
1,3-Dichloropropane	µg/kg	<	0.6	U	
1,4-Dichlorobenzene	µg/kg	<	0.6	U	
2,2-Dichloropropane	µg/kg	<	0.6	U	
2-Chloroethylvinylether	µg/kg	<	3	U	UJ
2-Chlorotoluene	µg/kg	<	0.6	U	
2-Hexanone	µg/kg	<	3	U	
4-Chlorotoluene	µg/kg	<	0.6	U	
4-Isopropyltoluene	µg/kg	<	0.6	U	
Acetone	µg/kg		**3.3**		
Acrolein	µg/kg	<	30	U	
Acrylonitrile	µg/kg	<	3	U	
Benzene	µg/kg	<	0.6	U	
Bromobenzene	µg/kg	<	0.6	U	
Bromochloromethane	µg/kg	<	0.6	U	
Bromodichloromethane	µg/kg	<	0.6	U	
Bromoethane	µg/kg	<	1.2	U	
Bromoform	µg/kg	<	0.6	U	
Bromomethane	µg/kg	<	0.6	U	
Carbon Disulfide	µg/kg	<	0.6	U	UJ
Carbon Tetrachloride	µg/kg	<	0.6	U	
Chlorobenzene	µg/kg	<	0.6	U	
Chloroethane	µg/kg	<	0.6	U	
Chloroform	µg/kg	<	0.6	U	
Chloromethane	µg/kg	<	0.6	U	
cis-1,2-Dichloroethene	µg/kg	<	0.6	U	
cis-1,3-Dichloropropene	µg/kg	<	0.6	U	
Dibromochloromethane	µg/kg	<	0.6	U	
Dibromomethane	µg/kg	<	0.6	U	
Dichloromethane	µg/kg	<	1.6	B	U
Ethylbenzene	µg/kg	<	0.6	U	
Hexachlorobutadiene	µg/kg	<	3	U	
Iodomethane	µg/kg	<	0.6	U	
Isopropylbenzene	µg/kg	<	0.6	U	
Methyl ethyl ketone	µg/kg	<	3	U	
Methyl isobutyl ketone	µg/kg	<	3	U	
Naphthalene	µg/kg	<	3	U	
n-Butylbenzene	µg/kg	<	0.6	U	UJ
n-Propylbenzene	µg/kg	<	0.6	U	
o-Xylene	µg/kg	<	0.6	U	
sec-Butylbenzene	µg/kg	<	0.6	U	
Styrene	µg/kg	<	0.6	U	
tert-Butylbenzene	µg/kg	<	0.6	U	
Tetrachloroethene	µg/kg	<	0.6	U	
Toluene	µg/kg	<	0.6	U	
trans-1,2-Dichloroethene	µg/kg	<	0.6	U	
trans-1,3-Dichloropropene	µg/kg	<	0.6	U	
trans-1,4-Dichloro-2-butene	µg/kg	<	3	U	
Trichloroethene	µg/kg	<	0.6	U	
Trichlorofluoromethane	µg/kg	<	0.6	U	
Vinyl Acetate	µg/kg	<	3	U	
Vinyl Chloride	µg/kg	<	0.6	U	
Xylene (meta & para)	µg/kg	<	0.6	U	

Notes:
Bold - Detected result
< - Non Detect at the Reporting Limit shown
FD - Field Duplicate
J - Estimated concentration with possible high (indicated with +) and low (indicated with -) bias based on lab QC results.
NA - Not Analyzed
U - Non Detect
UJ - Non Detect, reporting limit is estimated