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Prepared for:
Terminal 117
Port of Seattle

April 3, 2008; Revised October 1, 2008

Organic
Data Validation Report

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

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April 2008/October 2008
Document No.: 05482-023-210

Overview

The samples analyzed for the Port of Seattle - Terminal 117 soil event from February 2008 are listed in the Table of Samples Analyzed (page 2). Data validation was performed on thirty two soil samples and two equipment rinse blank water QC samples. This report was revised on October 1, 2008 to include revisions agreed to during a September 9, 2008 meeting between USEPA Region 10 and ENSR.

Samples were analyzed by Analytical Resources, Inc. (ARI) of Tukwila, WA. The validated analyses were Polychlorinated Biphenyls (PCBs) by SW-846 method 8082; and Diesel Range Hydrocarbons (DRH) as Diesel and Motor Oil by WDOE GC/FID method NWTPH-Dx.

The ENSR Analytical Data Validation Checklist is presented as pages 4-10. Data were evaluated based on validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, document number EPA540/R-99/008 of October 1999, and the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were 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*	
Chain-of-Custody form(s) and sample integrity	Organics		✓
Case Narrative	Organics		✓
Assigned laboratory flags and definitions	Organics		✓
Holding time	Organics		✓
Sample results including reporting limits and dilution	Organics	I	✓
Surrogate recoveries	Organics	II	✓
LCS, LCSD (blank spike) recoveries	Organics	III	✓
Matrix spike/ matrix spike duplicate recoveries	Organics	III	✓
Method and/or calibration blank summaries/results	Organics	IV	✓
Duplicate/Spike duplicate RPDs	Organics	III	✓
Analyte Identification/Quantitation	Organics	Chros, X	✓
Initial and continuing calibration data/summaries	Organics	VI, VII	✓
Internal standards areas and retention times	Organics	VIII	✓
Field Duplicate RPDs (calculated)	Organics		✓
Equipment Rinse Blank results	Organics		✓
Preparation log	Organics		✓
Analysis run log	Organics		✓
Reconstructed ion chromatograms (samples/standards)	Organics		✓
Raw Data (Quantitation lists, Instrument printouts)	Organics		✓
Electronic data deliverable (EDD) query	Organics		✓

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

Data Validation Qualifiers Assigned During this Review

J estimated concentration

Assigned qualifiers are detailed in the ENSR Analytical Data Validation Checklist and are summarized in the Table of Qualified Analytical Results (page 3).

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).

Overall Data Assessment

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable, based on the data submitted. There were no rejected data points associated with this data set. The reported data are suitable for their intended use with the qualifications and clarifications noted.

Table of Samples Analyzed
Port of Seattle - Terminal 117
Soil and Water QC Samples
Analytical Resources, Inc. (ARI) Laboratory Reports MK73 and MK74
February 2008

Matrix	Sample ID		Sample Date and Time		Lab SDG	Lab Sample ID
Soil	MW-05-0.5-2.0		2/27/2008	08:26	MK73	MK73A
Soil	MW-05-2.5-4.0		2/27/2008	08:40	MK73	MK73B
Soil	MW-05-5.0-6.5		2/27/2008	08:55	MK73	MK73C
Soil	MW-05-7.5-9.0		2/27/2008	09:00	MK73	MK73D
Soil	MW-05-10.0-11.5		2/27/2008	09:10	MK73	MK73E
Soil	MW-05-12.5-14.0		2/27/2008	09:20	MK73	MK73F
Soil	MW-10-0.5-2.0		2/28/2008	13:00	MK73	MK73G
Soil	MW-10-2.5-4.0		2/28/2008	13:06	MK73	MK73H
Soil	MW-10-5.0-6.5		2/28/2008	13:10	MK73	MK73I
Soil	MW-10-7.5-9.0		2/28/2008	13:22	MK73	MK73J
Soil	MW-10-10.0-11.5		2/28/2008	13:27	MK73	MK73K
Soil	MW-10-12.5-14.0		2/28/2008	13:31	MK73	MK73L
Soil	MW-09-0.5-2.0		2/27/2008	13:18	MK73	MK73M
Soil	MW-09-2.5-4.0		2/27/2008	13:23	MK73	MK73N
Soil	MW-09-5.0-6.5		2/27/2008	13:27	MK73	MK73O
Soil	MW-09-7.5-9.0		2/27/2008	13:32	MK73	MK73P
Soil	MW-09-10.0-11.5		2/27/2008	13:37	MK73	MK73Q
Soil	MW-09-12.5-14.0		2/27/2008	13:42	MK73	MK73R
Soil	MW-04R-0.5-2.0		2/28/2008	10:15	MK73	MK73S
Soil	MW-04R-2.5-4.0		2/28/2008	10:20	MK73	MK73T
Soil	MW-04R-5.0-6.5		2/28/2008	10:25	MK74	MK74A
Soil	MW-04R-7.5-9.0		2/28/2008	10:35	MK74	MK74B
Soil	MW-04R-10.0-11.5		2/28/2008	10:45	MK74	MK74C
Soil	MW-04R-12.5-14.0		2/28/2008	10:50	MK74	MK74D
Soil	MW-08-0.5-2.0		2/28/2008	07:59	MK74	MK74E
Soil	MW-08-2.5-4.0		2/28/2008	08:04	MK74	MK74F
Soil	MW-08-5.0-6.5		2/28/2008	08:09	MK74	MK74G
Soil	MW-08-7.5-9.0		2/28/2008	08:15	MK74	MK74H
Soil	MW-08-10.0-11.5		2/28/2008	08:20	MK74	MK74I
Soil	MW-08-12.5-14.0		2/28/2008	08:26	MK74	MK74J
Soil	DUP-01-022808	MW-08-7.5-9.0	2/28/2008	08:15	MK74	MK74K
Soil	DUP-02-022808	MW-10-7.5-9.0	2/28/2008	13:22	MK74	MK74L
Water QC	RB-01-022808		2/28/2008	07:22	MK74	MK74M
Water QC	RB-02-022808		2/28/2008	13:40	MK74	MK74N

Table of Qualified Analytical Results
Port of Seattle - Terminal 117
Soil and Water QC Samples
Analytical Resources, Inc. (ARI) Laboratory Reports MK73 and MK74
February 2008

Sample ID	Lab ID	Method	Dilution	Analyte	Concentration		Qualifier	Reason Code
MW-05-7.5-9.0	MK73D	SW8082	5	Aroclor 1260	1500	µg/kg	A	Aro1254/1260 mix
MW-05-10.0-11.5	MK73E	SW8082	5	Aroclor 1260	4200	µg/kg	A	Aro1254/1260 mix
MW-10-2.5-4.0	MK73H	SW8082	5	Aroclor 1260	1500	µg/kg	A	Aro1254/1260 mix
MW-10-5.0-6.5	MK73I	SW8082	5	Aroclor 1260	540	µg/kg	A	Aro1254/1260 mix
MW-10-7.5-9.0	MK73J	SW8082	1	Aroclor 1260	100	µg/kg	A	Aro1254/1260 mix
MW-09-0.5-2.0	MK73M	SW8082	5	Aroclor 1260	1400	µg/kg	A	Aro1254/1260 mix
MW-04R-2.5-4.0	MK73T	SW8082	5	Aroclor 1260	3800	µg/kg	A	Aro1254/1260 mix
MW-08-12.5-14.0	MK74J	SW8082	1	Aroclor 1260	160	µg/kg	J	column %D

Reason Codes:

%D – analyte percent difference between initial and confirmation analysis exceeded 40%, resulting in estimated concentration

A – reported result is likely combination of Aroclor 1254/Aroclor 1260; accurate identification of Aroclor 1254 can not be achieved

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 – 1Q2008	Sample Matrix: Soil and Water QC samples
ENSR Project: 05482-023-210	Sample Start Date: 02/27/2008
Validated By/Date Validated: Sue Milcan 04/03/2008 (completed); Revised 10/01/08 to include revisions requested by EPA Region 10	Sample End Date: 02/28/2008

Samples Analyzed: see Table of Samples Analyzed, Port of Seattle - Terminal 117, Soil and Water QC Samples, February 2008 (page 2).

Parameters Validated:

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

Diesel Range Hydrocarbons (DRH) as Diesel and Motor Oil by WDOE GC/FID method NWTPH-Dx.

Laboratory Project IDs (SDGs): MK73, MK74.

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). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD limits referenced EPA published or laboratory control charted QC limits. Although some data require qualification based on 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 equipment rinse blank results for evidence of contamination stemming from field activities. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample and laboratory control sample duplicate (LCS, LCSD), matrix spike and matrix spike duplicate (MS, MSD), and organic system monitoring compound (surrogate) percent recoveries (%Rs). LCS, LCSD %Rs demonstrated overall analytical performance. MS, MSD %Rs provided information on sample matrix interferences. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. %Rs were compared to EPA published and/or laboratory control charted QC limits. No data require qualification based on these measurements, and overall field and laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, 16, 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, instrument calibrations, internal standards, retention times, and organic sample chromatograms against method specified requirements. Although some data require qualification based on variance between column calculations and/or likely co-elution of target analytes (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.

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ENSR ANALYTICAL DATA VALIDATION CHECKLIST

Completeness also included 100% review of the laboratory sample data results and QC summary reports, with reference to supplied chromatograms and raw data. Electronic data deliverable (EDD) queries were QA'd 100% for positive target analytes and method reporting limits. EDD query corrections/additions were made by the data validator during this review procedure as outlined in item 23.

All of the reported data are useable, some with qualification. Since no data are missing or rejected, completeness of the data set is calculated to be 100% and is acceptable.

VALIDATION CRITERIA CHECK

Data validation qualifiers assigned during this review:

J estimated concentration

Other qualifiers used in this review for non-reportable data:

A reported result is likely a combination of Aroclor 1254/1260; accurate identification of Aroclor 1254 can not be achieved

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 (page 3).

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

Explanation: Matrix spike recoveries outside of laboratory QC limits and evidence of laboratory contamination were noted. Additionally, any assigned laboratory flags were reviewed during the data validation procedure.

Data qualification, if any, related to the narrative comments and/or 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 COC forms were completed by the laboratory.

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

Comments: Samples were delivered directly from the field to the laboratory by ENSR personnel. All samples were received at the laboratory intact with cooler temperatures of 7.4°C to 7.9°C as noted on the Cooler Receipt Forms submitted with each SDG. Samples received at greater than 6°C were determined to be in acceptable condition since no other preservation issues were noted, samples were delivered on ice directly from the field location, and temperatures were well below 24°C (room temperature). No action is required other than to note this observation.

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

Comments: The reported methods met COC directives and were in compliance with those methods listed in Tables 2-1 and 2-2 (Sample Handling and Preservation Requirements for Soil and Water) found in the *Quality Assurance Project Plan (*QAPP*), Terminal 117, Seattle, Washington, RETEC, September 11, 2006.*

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 for target analytes reported below the RL for any project samples.						
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 specific to the requested methods were reported. Specific target analyte lists were not provided to the data validator.						
8. Were sample holding times met?	**X**	Yes		No	SM	Initials
Comments: Method-required extraction and/or analytical holding times were met for all samples and analyses. The method required holding time periods for soil samples were as follows: 14 days from sample collection to extraction, and 40 days from extraction to analysis for methods 8082 and NWTPH-Dx. The method required holding time periods for water QC samples were as follows: 7 days from sample collection to extraction, and 40 days from extraction to analysis for method 8082; and 14 days from sample collection to extraction, and 40 days from extraction to analysis for method NWTPH-Dx.						
9. Were correct concentration units reported?	**X**	Yes		No	SM	Initials
Comments: Correct concentration units were reported. Soil sample results for method 8082 were reported as µg/kg-dry weight (ppb) while soil results for method NWTPH-Dx were reported as mg/kg-dry weight (ppm). Water QC results for method 8082 were reported as µg/L (ppb), while results for method NWTPH-Dx were reported as mg/L (ppm). 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: Data validation qualifiers override any assigned laboratory data flags.						
11. Were laboratory blank samples free of target analyte contamination?	**X**	Yes		No	SM	Initials
Comments: Laboratory blank samples were free of target analyte contamination or else trace method blank results were associated with undetected results I project samples.						
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	**X**	Yes		No	SM	Initials
Comments: Equipment rinse blank samples were free of target analyte contamination.						

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

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

Comments: The submitted initial and continuing calibrations were within data validation criteria for all target analytes provided. The frequency of both initial and continuing calibration verification checks (ICVs, CCVs) was sufficient for all provided methods, and sequential order was maintained.

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.)* 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, any 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 8082 calibration results that initiated data qualification of project samples, but the following observation was noted.

Instrument ECD5: The average %RSDs for aroclors 1016 (15.5%) and 1260 (17.2%) on column ZB5 exceeded 15% but were compliant at 9.3% and 6.9% respectively on column ZB35 for the 03/12/2008 ICV. Since secondary column RSDs are compliant, no action is required other than to document this occurrence.

Method NWR\TPH-Dx –

All calibrations were within these set limits: 0-20%RSD for ICV and 0-15%D for CCV for target analytes, or met the following 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, any 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. Note that only fuel standards from the appropriate WDOE method and carbon range were considered.

There were no method NWTPH-Dx calibration results that initiated data qualification of project samples.

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

Comments:

Method 8082 –

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

Method 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. Non-volatile method surrogate recoveries affected by required sample dilution did not require qualification, since extraction/analytical efficiency was demonstrated in associated blank or LCS spike surrogate %Rs.

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

15. Were laboratory control sample recoveries within control limits?	**X**	Yes		No	SM	Initials
Comments: Method 8082 – Reported LCS and LCSD %Rs were within data validation QC limits (70-130% for organics) and/or were within laboratory control-charted QC limits for organic target analytes as allowed for SW-846 organic methods, and as allowed per the QAPP. Method NWTPH-Dx – Reported LCS and LCSD %Rs were within data validation QC limits (70-130% for organics) and/or were within laboratory control-charted QC limits for organic target analytes as allowed for SW-846 organic methods, and as allowed per the QAPP.						
16. Were matrix spike recoveries within control limits?	**X**	Yes		No	SM	Initials
Comments: Method 8082 – Project specific MS and MSD recoveries for target analytes were within data validation and/or laboratory control-charted QC limits for the reported target analytes. Method NWTPH-Dx – Project specific MS and MSD recoveries for target analytes were within data validation and/or laboratory control-charted QC limits for the reported target analytes. The following observation was noted. SDG MK74: The MS and MSD %Rs for diesel (136-144%) in the spiked analysis of source sample MW-04R-7.5-9.0 were mentioned as being high in the case narrative comments. However, these %Rs are within the laboratory QC limits of 17-158% for this method, and are also within published spike QC limits of 50-150% for this method. The %Rs are considered to be compliant and no action is required other than to note this observation.						
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	**X**	Yes		No	SM	Initials
Comments: Laboratory RPDs for target analytes in LCS/LCSD and project-specific MS/MSD samples were within data validation and QAPP control limits of 0-20%. *Serial dilution data is not applicable for the reported methods*.						
18. Were organic system performance criteria met?	**X**	Yes		No	SM	Initials
Acceptable performance for 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 sample analyses?	**X**	Yes		No	SM	Initials
Comments: Internal standard (IS) area counts and retention times were within data validation QC criteria for all reported method 8082 project sample results. Note that samples with initial noncompliant internal standard area recoveries were correctly reanalyzed within holding time constraints with compliant areas in the subsequent analyses. Only results from compliant analytical runs were reported.						
20. Were inorganic system performance criteria met?		Yes		No	SM	Initials
Comments: Not applicable for the reported methods.						

ENSR ANALYTICAL DATA VALIDATION CHECKLIST

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

Duplicate Sample No.	DUP-01-022808	Primary Sample No.	MW-08-7.5-9.0
Duplicate Sample No.	DUP-02-022808	Primary Sample No.	MW-10-7.5-9.0

Comments: Field duplicate RPDs were within data validation QC limits of 0-50% for soil 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.

The following RPDs were calculated:

Method	Units	Analyte	MW-08-7.5-9.0	DUP-01-022808	RPD	Qualifier
NWTPHD	mg/kg	Motor Oil	530	390	+/- RL	
SW8082	µg/kg	Aroclor 1260	53	52	1.9	

Method	Units	Analyte	MW-10-7.5-9.0	DUP-02-022808	RPD	Qualifier
NWTPHD	mg/kg	Motor Oil	15	< 11	+/- RL	
SW8082	µg/kg	Aroclor 1260	100	140	33.3	

22. Were qualitative/quantitative criteria for organic target analytes 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 –

Current data validation guidance states that the percent difference (%D) for quantitated values of detected aroclor analytes between the two GC columns must be within ± 25%. This QC criteria is stricter than the SW-846 method requirement of ± 40%. Since analyte retention times and internal standards were compliant in all samples, the SW-846 method QC limit has been adopted for these review purposes since the SW-846 method is the method protocol followed and not CLP method protocol. Applying this QC limit, the following qualifiers were assigned:

SDG MK74: The %D for aroclor 1260 in sample MW-08-12.5-14.0 (67%) exceeded the method QC limit of ±40%. There were no obvious chromatographic interferences noted. Professional judgment determines that the aroclor 1260 result for this sample requires a J qualifier to indicate an estimated concentration due to possible inaccurate quantitation.

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-05-7.5-9.0, MW-05-10.0-11.5, MW-10-2.5-4.0, MW-10-5.0-6.5, MW-10-7.5-9.0, MW-09-0.5-2.0, and MW-04R-2.5-4.0 require an ENSR-defined A qualifier to indicate that the reported concentrations are likely mixtures of aroclor 1254 and aroclor 1260, even though accurate identification of aroclor 1254 can not be achieved.

Continued on next page

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Method NWTPH-Dx –

The laboratory noted that the diesel results reported for samples MW-05-0.5-2.0, MW-05-7.5-9.0, MW-05-10.0-11.5, MW-05-12.5-14.0, MW-10-0.5-2.0, MW-09-0.5-2.0, MW-04R-0.5-2.0, MW-04R-2.5-4.0, and MW-08-2.5-4.0 were affected by unidentifiable organics and/or hydrocarbons within the specified range. 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 diesel data other than to note this observation since the database contains the correct target analyte determination.

Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 3).

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

Comments: The submitted EDD query was reviewed 100% for positive concentrations and reporting limits. A few minor changes were made to the existing records:

The data validator changed the sample matrix code to WQ (water QC) from W (water) for the equipment rinse blank samples to more accurately reflect the sample matrix.

The ENSR database manager was informed of all changes made to the EDD query file via this Checklist. The updated EQuIS EDD query, with corrections made and data validation qualifiers and reason codes added, was returned to the ENSR project manager in Seattle, WA on 04/03/2008.

An updated EDD excerpt was sent to the ENSR project manager in Seattle, WA on 10/01/2008 to include identification of possible Aroclor 1254/1260 mixtures.

24. General Comments: Data were evaluated based on project criteria outlined in the *Quality Assurance Project Plan (*QAPP*), Terminal 117, Seattle, Washington, RETEC, September 11, 2006,* and based on validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, document number EPA540/R-99/008, October 1999, and the *USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-07-003, July 2007, as they applied to the reported methodology. Washington State Department of Ecology (WDOE) methods were 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.

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