Appendix D

Data Validation Report

EcoChem, INC.
Environmental Data Quality

DATA VALIDATION REPORT

AMENDED DECEMBER 29, 2010

WASHINGTON DOE TOXICS CLEANUP PROGRAM
NORTH BOEING FIELD/GEORGETOWN STEAM PLANT SITE RIFS
STORMWATER SAMPLING

Prepared for:

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EcoChem Project: C4140-1

December 29, 2010

Approved for Release

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PROJECT NARRATIVE

Basis for Data Validation

This report summarizes the results of the full (QA2) data validation performed on stormwater samples, filter bag sediment samples, and quality control (QC) sample data for the North Boeing Field/Georgetown Steam Plant Site RIFS, Seattle, Washington. A complete list of samples is provided in the **Sample Index**.

Dioxin analyses were performed by Axys Analytical, Sydney, British Columbia. Fremont Analytical, Seattle, Washington analyzed some stormwater samples for total and dissolved metals. All other analyses were performed by Analytical Resources, Inc., Tukwila, Washington. The analytical methods and EcoChem project chemists are listed below.

Analysis	Method of Analysis	Primary Review	Secondary Review
Volatile Organic Compounds	SW8260B	Lucy Pantaleeff Megan Kilner Melissa Swanson Mark Brindle Dorothy Kerlin	Melissa Swanson Christine Ransom
Semivolatile Organic Compounds	SW8270D and 8270D-SIM	Lucy Pantaleeff Megan Kilner Melissa Swanson Mark Brindle Dorothy Kerlin	Melissa Swanson Christine Ransom
PCB Aroclors	SW8082	Lucy Panteleeff Megan Kilner Melissa Swanson Mark Brindle	Melissa Swanson Christine Ransom
Dioxin and Furan Compounds	Axys MLA-017 (EPA 1613B)	Christina Mott Melissa Swanson	Eric Strout, Christine Ransom
Metals and Mercury	SW6010B, 200.8, 7470A	Lea Beard Dorothy Kerlin Megan Kilner Tomas Urgai Jim Hall Jeremy Maute	Christine Ransom
Conventionals	300.0, 353.2, 2320, 150.1, 160.2, 415.1, PSEP	Lea Beard Dorothy Kerlin Megan Kilner Tomas Urgai Jim Hall Jeremy Maute	Christine Ransom

The data were reviewed using guidance and quality control criteria documented in the analytical methods; The *North Boeing Field/Georgetown Steam Plant Site Remedial Investigation/Feasibility Study; Sampling and Analysis Plan and Quality Assurance Project Plan for the Preliminary Stormwater and Filtered Suspended Solids Sampling, Seattle, Washington* (SAIC, August 5, 2009); *USEPA National Functional Guidelines for Organic Data Review* (EPA, 1999); *USEPA National Functional Guidelines for Chlorinated Dioxin/Furan Data Review* (EPA, 2002); and *USEPA National Functional Guidelines for Inorganic Data Review* (EPA, 1994, 2004).

EcoChem's goal in assigning data validation qualifiers is to assist in proper data interpretation. If values are estimated (assigned a J), data may be used for site evaluation purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. Data that have been rejected (R) should not be used for any purpose. Values with no data qualifier meet all data quality goals as outlined in the EPA Functional Guidelines.

Data qualifier definitions, reason codes, and validation criteria are included as **Appendix A**. **Appendix B** contains the Qualified Data Summary Table. Data validation worksheets are kept on file at EcoChem. A qualified laboratory electronic data deliverable (EDD) is also submitted with this report.

SAMPLE INDEX
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample_ID	Lab ID	Dioxins	VOC	SVOC	SIM	PCB	Total Metals	Diss. Metals	Total Mercury	Diss. Mercury	TOC	DOC	Grain Size	Conv
QJ67	NBF-MH108A-021110-S	QJ67A					✓								
	NBF-LS431A-021110-S	QJ67C					✓								
	NBF-MH108-021110-W	QJ67E		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-LS431-021110-W	QJ67F		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-MH108-021110-W	QJ67I											✓		
	NBF-LS431-021110-W	QJ67J											✓		
	NBF-MH108A-021110-S	QJ67K						✓		✓				✓	
	NBF-LS431A-021110-S	QJ67L						✓		✓				✓	
QJ68	NBF-MH108-021110-W	QJ68A							✓		✓				
	NBF-LS431-021110-W	QJ68B							✓		✓				
QL13	NBF-MH108-022310-W	QL13A		✓	✓	✓	✓				✓	✓			✓
	NBF-LS431-022310-W	QL13B		✓	✓	✓	✓				✓	✓			✓
	NBF-MH108-022310-W	QL13C											✓		
	NBF-LS431-022310-W	QL13D											✓		
	NBF-MH108A-022310-S	QL13E					✓								
	NBF-MH108A-022310-S	QL13F						✓		✓				✓	
QL14	NBF-MH108-022310-W	QL14A									✓				
	NBF-LS431-022310-W	QL14B									✓				
QP21	NBF-LS431A-032010-S	QP21A					✓								
	NBF-LS431A-032010-S	QP21B						✓		✓				✓	
QQ37	NBF-LS431-032910-W	QQ37A		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-MH108-032910-W	QQ37B		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-LS431-032910-W	QQ37C							✓				✓		
	NBF-MH108-032910-W	QQ37D							✓				✓		
	NBF-LS431A-032910-S	QQ37E					✓								
	NBF-LS431A-032910-S	QQ37F						✓		✓				✓	
	NBF-MH108A-032910-S	QQ37G					✓								
	NBF-MH108A-032910-S	QQ37H						✓		✓				✓	
QQ41	NBF-LS431-032910-W	QQ41A									✓				
	NBF-MH108-032910-W	QQ41B									✓				
QR70	NBF-LS431-S-<63	QR70A					✓	✓		✓					
	NBF-LS431-S-63-250	QR70B					✓	✓		✓					
	NBF-LS431-S-250-500	QR70C					✓	✓		✓					
	NBF-LS431-S->500	QR70D					✓	✓		✓					
QU49	NBF-MH108-042710-W	QU49A		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-LS431-042710-W	QU49B		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-MH108-042710-W	QU49C							✓				✓		
QU49	NBF-LS431-042710-W	QU49D							✓				✓		
	NBF-MH108A-042710-S	QU49E					✓								
	NBF-MH434A-042710-S	QU49F					✓								
	NBF-LS431A-042710-S	QU49G					✓								
	NBF-CB423A-042710-S	QU49H					✓								
	NBF-MH356A-042710-S	QU49I					✓								
	NBF-MH369A-042710-S	QU49J					✓								
	NBF-MH226A-042710-S	QU49K					✓								
	NBF-MH152A-042710-S	QU49L					✓								
	NBF-CB165A-042710-S	QU49M					✓								
	NBF-MH178A-042710-S	QU49N					✓								
	NBF-CB173A-042710-S	QU49O					✓								
QU59	NBF-MH108-042710-W	QU59A									✓				
	NBF-LS431-042710-W	QU59B									✓				

SAMPLE INDEX
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample_ID	Lab ID	Dioxins	VOC	SVOC	SIM	PCB	Total Metals	Diss. Metals	Total Mercury	Diss. Mercury	TOC	DOC	Grain Size	Conv
QU60	NBF-MH108A-042710-S	QU60A						✓		✓				✓	
	NBF-MH434A-042710-S	QU60B						✓		✓					
	NBF-LS431A-042710-S	QU60C						✓		✓				✓	
	NBF-MH356A-042710-S	QU60E						✓		✓					
	NBF-MH369A-042710-S	QU60F						✓		✓					
	NBF-MH226A-042710-S	QU60G						✓		✓					
	NBF-MH152A-042710-S	QU60H						✓		✓				✓	
	NBF-CB165A-042710-S	QU60I						✓		✓				✓	
	NBF-MH178A-042710-S	QU60J						✓		✓				✓	
	NBF-CB173A-042710-S	QU60K						✓		✓				✓	
QU97	NBF-MH369B-042710-S	QU97A			✓										
	NBF-MH226B-042710-S	QU97B			✓										
	NBF-MH152B-042710-S	QU97C			✓										
	NBF-CB165B-042710-S	QU97D			✓										
	NBF-MH178B-042710-S	QU97E			✓										
	NBF-CB173B-042710-S	QU97F			✓										
	NBF-MH108B-042710-S	QU97G			✓										
	NBF-MH434B-042710-S	QU97H			✓										
QU97	NBF-LS431B-042710-S	QU97I			✓										
	NBF-CB423B-042710-S	QU97J			✓										
	NBF-MH356B-042710-S	QU97K			✓										
QX25	NBF-MH108-052010-W	QX25A		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-LS431-052010-W	QX25B		✓	✓	✓	✓		✓		✓	✓			✓
QX25	NBF-MH108-052010-W	QX25C							✓				✓		
	NBF-LS431-052010-W	QX25D							✓				✓		
	NBF-MH108A-052010-S	QX25E					✓								
	NBF-MH108A-052010-S	QX25F						✓		✓				✓	
	NBF-LS431A-052010-S	QX25G					✓								
	NBF-LS431A-052010-S	QX25H						✓		✓				✓	
	NBF-CB423A-052010-S	QX25I					✓								
	NBF-CB423A-052010-S	QX25J						✓		✓				✓	
	NBF-MH356A-052010-S	QX25K					✓								
	NBF-MH356A-052010-S	QX25L						✓		✓					
	NBF-MH369A-052010-S	QX25M					✓								
	NBF-MH369A-052010-S	QX25N						✓		✓					
	NBF-MH226A-052010-S	QX25O					✓								
	NBF-MH226A-052010-S	QX25P						✓		✓					
	NBF-MH152A-052010-S	QX25Q					✓								
	NBF-MH152A-052010-S	QX25R						✓		✓				✓	
	NBF-CB165A-052010-S	QX25S					✓								
	NBF-CB165A-052010-S	QX25T						✓		✓					
	NBF-MH178A-052010-S	QX25U					✓								
	NBF-MH178A-052010-S	QX25V						✓		✓				✓	
	NBF-CB173A-052010-S	QX25W					✓								
	NBF-CB173A-052010-S	QX25X						✓		✓					
	NBF-MH133A-052010-S	QX25Y					✓								
	NBF-MH133A-052010-S	QX25Z						✓		✓					
	NBF-MH138A-052010-S	QX25AA					✓								
	NBF-MH138A-052010-S	QX25AB						✓		✓					
QX26	NBF-MH108-052010-W	QX26A									✓				
	NBF-LS431-052010-W	QX26B									✓				

SAMPLE INDEX
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample_ID	Lab ID	Dioxins	VOC	SVOC	SIM	PCB	Total Metals	Diss. Metals	Total Mercury	Diss. Mercury	TOC	DOC	Grain Size	Conv
QX99	NBF-LS431-S-<63	QX99A										✓			
	NBF-LS431-S-63-250	QX99B										✓			
	NBF-LS431-S-250-500	QX99C										✓			
	NBF-LS431-S->500	QX99D										✓			
QY41	NBF-LS431V-Composite3>500	QY41A				✓	✓					✓			
	NBF-LS431V-Composite3 500-250	QY41B				✓	✓					✓			
	NBF-LS431V-Composite3 250-63	QY41C				✓	✓					✓			
	NBF-LS431V-Composite3 <63	QY41D				✓	✓					✓			
	NBF-LS431V-Composite4 >500	QY41E				✓	✓					✓			
QY41	NBF-LS431V-Composite4 500-250	QY41F				✓	✓					✓			
	NBF-LS431V-Composite4 250-63	QY41G				✓	✓					✓			
	NBF-LS431V-Composite4 <63	QY41H				✓	✓					✓			
QY59	NBF-MH434A-052810-S	QY59A					✓								
	NBF-MH434A-052810-S	QY59B						✓		✓				✓	
	NBF-MH423A-052810-S	QY59C					✓								
	NBF-MH423A-052810-S	QY59D						✓		✓					
	NBF-LS431A-052810-S	QY59E					✓								
	NBF-LS431A-052810-S	QY59F						✓		✓					
QZ03	NBF-MH108B-021110-S	QZ03A			✓										
	NBF-LS431B-021110-S	QZ03B			✓										
	NBF-LS431B-032910-S	QZ03C			✓										
	NBF-MH108B-032910-S	QZ03D			✓										
QZ07	NBF-MH108-060210-W	QZ07A		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-LS431-060210-W	QZ07B		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-MH108-060210-W	QZ07C							✓				✓		
	NBF-LS431-060210-W	QZ07D							✓				✓		
QZ08	NBF-MH108-060210-W	QZ08A									✓				
	NBF-LS431-060210-W	QZ08B									✓				
QZ31	NBF-MH434A-060210-S	QZ31A					✓								
	NBF-MH434A-060210-S	QZ31B						✓		✓					
	NBF-MH356A-060210-S	QZ31C					✓								
	NBF-MH356A-060210-S	QZ31D						✓		✓					
	NBF-LS431A-060210-S	QZ31E					✓								
	NBF-LS431A-060210-S	QZ31F						✓		✓					
	NBF-MH423A-060210-S	QZ31G					✓								
	NBF-MH423A-060210-S	QZ31H						✓		✓					
	NBF-MH369A-060210-S	QZ31I					✓								
	NBF-MH369A-060210-S	QZ31J						✓		✓					
	NBF-MH108A-060210-S	QZ31K					✓								
	NBF-MH108A-060210-S	QZ31L						✓		✓					
	NBF-MH226A-060210-S	QZ31M					✓								
	NBF-MH226A-060210-S	QZ31N						✓		✓					
	NBF-MH133A-060210-S	QZ31O					✓								
	NBF-MH133A-060210-S	QZ31P						✓		✓					
	NBF-MH138A-060210-S	QZ31Q					✓								
	NBF-MH138A-060210-S	QZ31R						✓		✓					

SAMPLE INDEX
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample_ID	Lab ID	Dioxins	VOC	SVOC	SIM	PCB	Total Metals	Diss. Metals	Total Mercury	Diss. Mercury	TOC	DOC	Grain Size	Conv
QZ31	NBF-MH152A-060210-S	QZ31S					✓								
	NBF-MH152A-060210-S	QZ31T						✓		✓					
	NBF-CB165A-060210-S	QZ31U					✓								
	NBF-CB165A-060210-S	QZ31V						✓		✓					
	NBF-CB173A-060210-S	QZ31W					✓								
	NBF-CB173A-060210-S	QZ31X						✓		✓					
	NBF-MH178A-060210-S	QZ31Y					✓								
	NBF-MH178A-060210-S	QZ31Z						✓		✓				✓	
	NBF-MH434B-060210-S	QZ31AA			✓										
	NBF-MH356B-060210-S	QZ31AB			✓										
	NBF-LS431B-060210-S	QZ31AC			✓										
	NBF-MH423B-060210-S	QZ31AD			✓										
	NBF-MH369B-060210-S	QZ31AE			✓										
	NBF-MH108B-060210-S	QZ31AF			✓										
	NBF-MH226B-060210-S	QZ31AG			✓										
	NBF-MH133B-060210-S	QZ31AH			✓										
	NBF-MH138B-060210-S	QZ31AI			✓										
	NBF-MH152B-060210-S	QZ31AJ			✓										
	NBF-CB165B-060210-S	QZ31AK			✓										
	NBF-CB173B-060210-S	QZ31AL			✓										
	NBF-MH178B-060210-S	QZ31AM			✓										
RC27	NBF-MH108-062910-W	RC27A		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-MH108-062910-W	RC27B							✓				✓		
RC29	NBF-MH108-062910-W	RC29A									✓				
RC46	NBF-LS431-063010-W	RC46A		✓	✓	✓	✓		✓		✓	✓			✓
	NBF-LS431-063010-W	RC46B							✓						
RC63	NBF-LS431-063010-W	RC63A									✓				
RC75	NBF-MH108A-063010-S	RC75A					✓								
	NBF-MH108A-063010-S	RC75B						✓		✓				✓	
	NBF-CB173A-063010-S	RC75D					✓								
	NBF-CB173A-063010-S	RC75E						✓		✓					
	NBF-LS431A-063010-S	RC75G					✓								
	NBF-LS431A-063010-S	RC75H						✓		✓				✓	
RD45	NBF-ER-070810-W	RD45A			✓		✓		✓		✓				
RD97	NBF-D435BS-071310-S	RD97A				✓	✓	✓		✓		✓		✓	
	NBF-D435BN-071310-S	RD97B				✓	✓	✓		✓		✓		✓	
	NBF-D434AS-071310-S	RD97C				✓	✓	✓		✓		✓		✓	
	NBF-D434AN-071310-S	RD97D				✓	✓	✓		✓		✓		✓	
	NBF-D283A-071310-S	RD97E				✓	✓	✓		✓		✓		✓	
	NBF-D436A-071310-S	RD97F				✓	✓	✓		✓		✓		✓	

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North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample_ID	Lab ID	Dioxins	VOC	SVOC	SIM	PCB	Total Metals	Diss. Metals	Total Mercury	Diss. Mercury	TOC	DOC	Grain Size	Conv
WG32291	NBF-MH108B-022310-S	L14460-1	✓												
WG33003	NBF-MH108B-052010-S	L14824-1 LW	✓												
	NBF-LS431B-052010-S	L14824-2 LW	✓												
	NBF-CB423B-052010-S and NBF-MH423B-052810-S	L14824-3 LW	✓												
	NBF-MH356B-052010-S	L14824-4 LW	✓												
	NBF-MH369B-052010-S	L14824-5 LW	✓												
	NBF-MH226B-052010-S	L14824-6 LW	✓												
	NBF-MH152B-052010-S	L14824-7 LW	✓												
	NBF-CB165B-052010-S	L14824-8 LW	✓												
	NBF-MH178B-052010-S	L14824-9 LW	✓												
	NBF-CB173B-052010-S	L14824-10 LW	✓												
	NBF-MH133B-052010-S	L14824-11 LW	✓												
	NBF-MH138B-052010-S	L14824-12 LW	✓												
	NBF-MH434B-052810-S	L14824-13 LW	✓												
WG33328	NBF-MH108B-063010-S	L14969-1 W	✓												
	NBF-CB173B-063010-S	L14969-2 W	✓												
	NBF-LS431B-063010-S	L14969-3 i	✓												

DATA VALIDATION REPORT
North Boeing Field RIFS - Stormwater Sampling
Dioxin & Furan Compounds by Axys Method MLA-017 (EPA 1613B)

This report documents the review of analytical data from the analyses of filter bag samples and the associated laboratory quality control (QC) samples. Samples were analyzed by Axys Analytical Services, Ltd. of Sidney, British Columbia, Canada. See the Sample Index for a list of samples that were reviewed.

SDG	Number of Samples	DV Level
WG33003	13 Filter Bag Sediment	Full (QA-2)
WG33328	3 Filter Bag Sediment	Full (QA-2)
WG32291	1 Filter Bag Sediment	Full (QA-2)

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements reviewed are summarized in the following table:

1	Sample Preservation and Holding Times	1	Standard Reference Materials (SRM)
	System Performance and Resolution Checks		Ongoing Precision and Recovery (OPR)
	Initial Calibration (ICAL)		Target Analyte List
	Calibration Verification (CVER)	2	Reported Results
1	Method Blanks	2	Compound Identification
1	Labeled Compounds	1	Calculation Verification
1	Matrix Spike/Matrix Spike Duplicates (MS/MSD)		

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

SDG WG32291: The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The temperature of the sample upon receipt at

the laboratory was 1°C. This temperature outlier did not impact data quality and no action was taken.

SDG WG33328: The temperature of the samples upon receipt at the laboratory was 20°C. This temperature outlier did not impact data quality and no action was taken.

Method Blanks

In order to assess the impact of blank contamination on the reported sample results, action levels at five times the blank concentrations are established. If the concentrations in the associated field samples are less than the action levels, the results are qualified as not detected (U-7).

The laboratory assigned K-flags to results when a peak was detected but did not meet identification criteria. These values cannot be considered as positive identifications, but are "estimated maximum possible concentrations". When these occurred in the method blank the results were considered as false positives. No action levels were established for these analytes.

SDG WG32291: The compound OCDD was detected in the method blank. All sample results were greater than five times the blank concentrations; no qualification of data was necessary.

SDG WG33003: The compounds OCDD and OCDF were detected in the method blank. All sample results were greater than five times the blank concentrations; no qualification of data was necessary.

SDG WG33328: The compounds 1,2,3,4,6,7,8-HpCDF and OCDF were detected in the method blank. All sample results were greater than five times the blank concentrations; no qualification of data was necessary.

Labeled Compounds

SDG WG33328: The labeled compounds $^{13}C_{12}$-2,3,7,8-TCDD and $^{37}C_{12}$-2,3,7,8-TCDD were not recovered in the ongoing precision and recovery (OPR) sample and the method blank. There were no reported results for 2,3,7,8-TCDD in the method blank or OPR.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicates (MS/MSD) or laboratory duplicates were not analyzed due to insufficient sample volume. Accuracy was assessed using the labeled compound, standard reference material, and OPR results. Precision for the analytical batch could not be assessed; however OPR results within the laboratory control limits indicate acceptable laboratory precision from batch to batch.

Standard Reference Materials

SDG WG33003: The standard reference material (SRM) NIST 1944 was analyzed. All results were within the control limits of ±20% of the 95% confidence interval.

SDG WG32291, WG33328: No SRM results were submitted with these data packages.

Reported Results

Several samples were diluted and analyzed a second time because certain dioxin results exceeded the calibration range of the instrument. In each case the laboratory reported only the most appropriate positive result for each compound, from either the original or diluted analysis.

SDG WG33003: Samples NBF-CB423B-052010-S and NBF-MH423B-0528510-S were combined and reported as one sample at the request of SAIC.

SDG WG33328: The labeled compound $^{13}C_{12}$-2,3,7,8-TCDD was not recovered in the method blank or OPR samples. Because of this, there are no reported results for 2,3,7,8-TCDD for these samples. All results for 2,3,7,8-TCDD in the field samples have been estimated (J/UJ-14) due to the lack of method blank or OPR information for this compound.

Compound Identification

All results for 2,3,7,8-TCDF were confirmed on a DB-225 column as required by the method. Although the 2,3,7,8-TCDF results from both columns were reported in the raw data, only the results from the DB-225 column were reported in the EDD. No action was necessary.

The laboratory assigned K-flags to numerous values to indicate that the criterion for ion abundance ratio was not met. Since the ion abundance ratio is the primary identification criterion for high resolution mass spectroscopy (HRMS), an outlier indicates that the reported value may be a false positive or estimated maximum possible concentration (EMPC). All laboratory K-flagged results were qualified as not detected (U-22) at the reported value.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the labeled compound, SRM, and OPR recovery values. Precision could not be assessed.

Data were qualified as not detected due to ion ratio criteria outliers. Data were estimated based on the lack of method blank or OPR data for one compound.

All data, as reported, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS – Stormwater Sampling
Volatile Organic Compounds by SW846 Method 8260C

This report documents the review of analytical data from the analyses of stormwater samples and the associated laboratory quality control (QC) samples. Analytical Resources, Inc., Tukwila, Washington, analyzed the samples. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QQ37	2 Stormwater	Full (QA2)
QU49	2 Stormwater	Full (QA2)
QX25	2 Stormwater	Full (QA2)
RC27	1 Stormwater	Full (QA2)
RC46	1 Stormwater	Full (QA2)

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

	Sample Preservation and Holding Times		Internal Standards
1	Initial Calibration (ICAL)		Target Analyte list
2	Continuing Calibration (CCAL)		Reporting Limits
	Laboratory Blanks		Compound Identification
	Surrogate Compounds		Reported Results
1	Laboratory Control Samples (LCS/LCSD)	1	Calculation Verification
1	Matrix Spikes/Matrix Spike Duplicate (MS/MSD)		

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[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, the highest at 16.1°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within 6 hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Initial Calibration

SDG QJ67: The average response factors (RF) for acrolein and 2-butanone were less than the control limit of 0.05. No action was taken as the responses for these compounds are historically low and were stable as indicated by the acceptable percent relative standard deviations (%RSD).

SDG QL13: The RRF values for acetone, acrolein, 2-butanone, 4-methyl-2-penanone, and 1,2-dibromo-3-chloropropane were less than the control limit. These RRF outliers are historically low, however the response was stable and no action was taken.

SDG QZ07: The RRF value for 2-butanone was less than the control limit. No action was taken as the response for this compound is historically low and was stable as indicated by the %RSD value.

SDG RC46: The RRF value for 2-butanone was less than the control limit. No action was taken as the response for this compound is historically low and was stable as indicated by the %RSD value.

Continuing Calibration

SDG QJ67: The continuing calibration (CCAL) percent difference (%D) value for acrolein was outside of the control limits of ±25% and represented a decrease in response. Acrolein was not detected in the associated samples; reporting limits were estimated (UJ-5B) to indicate a potential low bias. The %D value for bromomethane was outside of the control limits and indicative of a high bias. This compound was not detected in the associated samples; no qualification of data was necessary.

SDG QL13: The RRF values for acetone, acrolein, 2-butanone, 4-methyl-2-penanone, and 1,2-dibromo-3-chloropropane were less than the control limit in the CCAL. These RRF outliers are historically low and the response was stable as indicated by the acceptable %D values. No action was taken.

SDGs QU49 & QZ07: The RRF value for 2-butanone was less than the control limit. No action was taken as the response for this compound is historically low and was stable as indicated by the %D value.

Laboratory Control Samples

SDG QJ67: The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries for acrolein were greater than the upper control limit. This analyte was not detected in the associated samples. No action was necessary based on the potential high bias.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed due to insufficient sample volume. Precision and accuracy were evaluated using LCS/LCSD results.

Calculation Verification

Several results in each SDG were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate and LCS/LCSD percent recovery (%R) values. Precision was also acceptable as demonstrated by the LCS/LCSD relative percent difference (RPD) values.

Data were estimated based on a CCAL %D outlier.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS Stormwater Sampling
Semivolatile Organic Compounds by SW846 Method 8270D

This report documents the review of analytical data from the analysis of stormwater samples and the associated laboratory and field quality control (QC) samples. Analytical Resources, Inc., Tukwila, Washington, analyzed the samples. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QJ67	2 Stormwater	Full (QA2)
QL13	2 Stormwater	Full (QA2)
QQ37	2 Stormwater	Full (QA2)
QU49	2 Stormwater	Full (QA2)
QX25	2 Stormwater	Full (QA2)
QZ07	2 Stormwater	Full (QA2)
RC27	1 Stormwater	Full (QA2)
RC46	1 Stormwater	Full (QA2)
RD45	1 Equipment Blank	Screening

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times	1	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
	Initial Calibration (ICAL)		Internal Standards
2	Continuing Calibration (CCAL)		Target Analyte list
1	Laboratory Blanks		Reporting Limits
2	Field Blank		Compound Identification
2	Surrogate Compounds		Reported Results
2	Laboratory Control Samples (LCS)	1	Calculation Verification

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, ranging from 1.8° to 17.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within 6 hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Continuing Calibration

All values for the relative response factor (RRF) values were greater than the 0.05 minimum control limit. The values for percent difference (%D) were within the ±25% control limit, with the exceptions noted below.

SDG QJ67: The %D values for pentachlorophenol, indeno(1,2,3-cd)pyrene and dibenzo(a,h)anthracene in the CCAL analyzed 2/17/10 on instrument NT4 were outside control limits and indicated a potential high bias. These analytes were not detected in the associated samples; no qualifiers were necessary.

The %D values for benzyl alcohol and benzo(b)fluoranthene in the CCAL analyzed 2/18/10 on instrument NT4 were outside control limits and indicated a potential low bias. The reporting limits were estimated (UJ-5B) in the associated samples.

SDG QL13: The %D value for pentachlorophenol in the CCAL analyzed 3/10/10 on instrument NT6 was outside control limits and indicated a potential low bias. The reporting limits were estimated (UJ-5B) in the associated samples.

SDG RC46: The %D value for nitrobenzene in the CCAL was outside of the control limits and indicated a potential low bias. This analyte was not detected in the associated sample; the reporting limit was estimated (UJ-5B).

Laboratory Blanks

SDG RC46: Bis-(2-ethylhexyl) phthalate was detected in the method blank. No action was required as the associated sample results were greater than the action level.

Field Blanks

SDG RD45: One equipment rinsate, NBF-ER-070810-W, was submitted. There was a positive result for bis(2-ethylhexyl)phthalate in this sample. All positive results for this compound in the associated samples were less than the action level of 10x the blank concentration and were qualified as not-detected (U-6).

Surrogate Compounds

SDG QJ67: The % R values for phenol-d5 was greater than the upper control limit in the laboratory control sample duplicate (LCSD). No qualifiers are applied to QC samples. No further action was taken.

SDG RC46: The %R value for 2-fluorophenol in the LCSD was greater than the upper control limit. No qualifiers are applied to QC samples. No further action was taken.

Laboratory Control Samples

SDG QQ37: The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) relative percent difference (RPD) value for bis(2-ethylhexyl)phthalate was greater than the control limit of 35%. After qualification based on field blank contamination, there were no positive results for this compound in the associated samples. No qualifiers were required.

SDG QU49: The LCS/LCSD percent recovery (%R) values for pentachlorophenol were less than the lower control limit. This analyte was not detected in the associated samples; reporting limits were estimated (UJ-10) to indicate a potential low bias.

SDG QX25: The LCS/LCSD %R values for benzyl alcohol were greater than the upper control limit. This analyte was not detected in the associated samples; no qualifiers were applied. The LCSD %R value for 4-methylphenol was greater than the upper control limit. The LCS was within control limits; no qualifiers were required.

SDG RC46: The LCS/LCSD recovery values for benzyl alcohol, 2,6-dinitrotoluene and 1-methylnaphthalene were greater than the upper control limit. There were no positive results for these compounds in the associated sample; no action was necessary based on the potential high bias.

SDG RD45: The LCSD %R value for benzo(b)fluoranthene was greater than the upper control limit. LCS was within control limits; therefore no qualifiers were assigned.

The LCS/LCSD RPD value for 2,4-dimethylphenol was greater than 35%. This analyte was not detected in the associated sample; no qualification of data was necessary.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed due to insufficient sample volume. Precision and accuracy were evaluated using the LCS/LCSD analyses.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate and LCS/LCSD %R values, with the exceptions previously noted. Precision was also acceptable as demonstrated by the LCS/LCSD RPD values, with the exception noted above.

Data were estimated based on CCAL %D and LCS/LCSD %R outliers. Data were qualified as not-detected based on equipment rinsate contamination.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS - Sediment Sampling
Semivolatile Organic Compounds by SW846 Method 8270D

This report documents the review of analytical data from the analyses of filter bag sediment samples and the associated laboratory quality control (QC) samples. Analytical Resources, Inc., Tukwila, Washington, analyzed the samples. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QU97	11 Filter Bag Sediment	Full (QA2)
QZ03	4 Filter Bag Sediment	Full (QA2)
QZ31	13 Filter Bag Sediment	Full (QA2)

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times	2	Internal Standards
	Initial Calibration (ICAL)		Target Analyte list
	Continuing Calibration (CCAL)	1	Reporting Limits
	Laboratory Blanks	2	Compound Identification
2	Surrogate Compounds	1	Reported Results
	Laboratory Control Samples (LCS/LCSD)	1	Calculation Verification
1	Matrix Spike/Matrix Spike Duplicate (MS/MSD)		

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, ranging from 1.8° to 17.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within 6 hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Surrogate Compounds

SDG QU97: The percent recovery (%R) value of d14-p-terphenyl was greater than the upper control limit in Sample NBF-MH356B-S. As only two surrogates were analyzed, all positive results were estimated (J-13) to indicate a potential high bias.

SDG QZ31: The %R value for 2-fluorophenol was greater than the upper control limit in the 15x dilution of Sample NBF-MH356B-060210-S. Only fluoranthene was reported from this dilution. The fluoranthene result was estimated (J-13) top indicate a potential high bias.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed due to insufficient sample. Precision and accuracy were evaluated using the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses.

Internal Standards

SDG QU97: The recoveries for the internal standard (IS) perylene-d12 were greater than the 200% upper control limit in samples NBF-MH369B-042710-S, NBF-LSF431B-042710-S, and NBF-CB423-B-42710-S. These samples were re-analyzed at dilution (3x) with acceptable internal standard recoveries. The results from the re-analyses support the original analyses. Only the results for the original analyses were included in the EDD. The positive results for benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene were estimated (J-19) in these samples.

The recoveries for the IS chrysene-d12 were greater than the upper control limit in samples NBF-LS431B-042710-S and NBF-CB423B-042710-S. The samples were re-analyzed at dilution (3x) with acceptable internal standard recoveries. The positive results for benzo(a)anthracene, chrysene, and pyrene in these samples estimated (J-19).

Sample NBF-MH152B-042710 was re-analyzed at a 5x dilution for chrysene and pyrene. The recovery of the IS chrysene-d12 was greater than the 200% upper control limit in the 5x dilution. The results for chrysene and pyrene were estimated (J-19).

Reporting Limits

SDG QZ31: Several samples were diluted due to matrix interferences resulting in saturation of the detector in the undiluted analyses. Reporting limits were elevated accordingly.

Compound Identification

At the retention times for benzo(b)fluoranthene and benzo(k)fluoranthene, a single peak was present. The laboratory used half of the peak area to calculate a concentration for benzo(b)fluoranthene, and the other half to calculate benzo(k)fluoranthene. Since it is not possible to determine whether only

one or both analytes were present, the positive results for these analytes were tentatively identified and estimated (NJ-14).

Reported Results

Several samples required dilution due to analytes that exceeded the linear range of the instrument in the original, un-diluted analyses. The laboratory only reported the most appropriate result from both analyses in the EDDs; therefore no qualification of data was necessary. Sample requiring dilution are noted below:

SDG QU97: NBF-MH152B-042710 (5x) – chrysene and pyrene

SDG QZ03: NBF-MH108B-032910-S (10x) – fluoranthene

SDG QZ31: NBF-MH356B-060210-S (15x) – fluoranthene

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate and LCS/LCSD recoveries, except as noted above. Precision was also acceptable as demonstrated by the LCS/LCSD relative percent difference values.

Data were qualified as estimated and tentatively identified based on peak co-elutions. Data were also estimated based on surrogate and internal standard outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS - Stormwater Sampling
Semivolatile Organic Compounds by SW846 Method 8270D-SIM

This report documents the review of analytical data from the analyses of stormwater samples and the associated laboratory quality control (QC) samples. Analytical Resources, Inc., Tukwila, Washington, analyzed the samples. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QJ67	2 Stormwater	Full (QA2)
QL13	2 Stormwater	Full (QA2)
QU49	2 Stormwater	Full (QA2)
QX25	2 Stormwater	Full (QA2)
QZ07	2 Stormwater	Full (QA2)
RC27	1 Stormwater	Full (QA2)
RC46	1 Stormwater	Full (QA2)

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times		Field Duplicates
	Initial Calibration (ICAL)		Internal Standards
1	Continuing Calibration (CCAL)		Target Analyte list
	Laboratory Blanks		Reporting Limits
	Field Blanks	2	Compound Identification
	Surrogate Compounds	1	Reported Results
2	Laboratory Control Samples (LCS/LCSD)	1	Calculation Verification
1	Matrix Spike/Matrix Spike Duplicate (MS/MSD)		

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, ranging from 1.8° to 17.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within 6 hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Continuing Calibration

All values for the relative response factor (RRF) values were greater than the 0.05 minimum control limit. The values for percent difference (%D) were within the ±25% control limit, with the exceptions noted below.

SDG RC27: The %D value for benzo(a)anthracene in the CCAL was outside the control limit and indicated a potential high bias. This analyte was not detected in the associated sample; no qualification was necessary.

SDG RC46: The %D value for benzo(a)anthracene in the CCAL was outside the control limit and indicated a potential high bias. This analyte was not detected in the associated samples; no qualifier was necessary.

Laboratory Control Samples

SDG QZ07: The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries for benzo(a)anthracene and benzo(a)pyrene were greater than the upper control limits. Positive results for these analytes in the associated samples were estimated (J-10) to indicate a potential high bias.

SDG RC27: The LCS/LCSD recoveries for benzo(a)anthracene were greater than the upper control limit. This analytes was not detected in the associated sample; no qualification of data was necessary. The LCS recovery for benzo(a)pyrene was also greater than the upper control limit. The LCSD recovery was acceptable; therefore no action was taken.

SDG RC46: The LCS/LCSD recoveries for benzo(a)anthracene and benzo(a)pyrene were greater than the upper control limits. These analytes were not detected in the associated sample; therefore no qualification of data was necessary. The LCS recovery for anthracene was also greater than the upper control limit. The LCSD recovery was acceptable; therefore no action was taken.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed due to insufficient sample volume. Precision and accuracy were evaluated using the LCS/LCSD results.

Compound Identification

At the retention times for benzo(b)fluoranthene and benzo(k)fluoranthene, a single peak was present. The laboratory used half of the peak area to calculate a concentration for benzo(b)fluoranthene, and the other half to calculate benzo(k)fluoranthene. Since it is not possible to determine whether only one or both analytes were present, the positive results for these analytes were tentatively identified and estimated (NJ-14).

Reported Results

SDG QX25: The phenanthrene result in sample NBF-LS431-05210-W exceeded the linear range. The sample was re-analyzed at a 2X dilution. The lab reported only the most appropriate result from each analysis; therefore no qualifiers were necessary.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate and LCS/LCSD recovery values, with the exceptions noted above. Precision was also acceptable as demonstrated by the LCS/LCSD relative percent difference values.

Data were estimated based on LCS/LCSD recovery outliers. Data were qualified as estimated and tentatively identified based on peak co-elutions.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing RIFS - Soil Sampling
Semivolatile Organic Compounds by SW846 Method 8270D-SIM

This report documents the review of analytical data from the analyses of soil samples and the associated laboratory quality control (QC) samples. Analytical Resources, Inc., Tukwila, Washington, analyzed the samples. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QY41	8 Soil	Full (QA2)
RD97	6 Soil	Full (QA2)

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times		Field Duplicates
	Initial Calibration (ICAL)	2	Internal Standards
	Continuing Calibration (CCAL)		Target Analyte list
	Laboratory Blanks	1	Reporting Limits
	Field Blanks	2	Compound Identification
2	Surrogate Compounds	1	Reported Results
	Laboratory Control Samples (LCS/LCSD)	1	Calculation Verification
1	Matrix Spike/Matrix Spike Duplicate (MS/MSD)		

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received a sample cooler with a temperature outside of these control limits, at 20.4°C. The sample cooler was received within one hour of the last sample's collection and there was insufficient time for the samples temperature to equilibrate with the ice used as a preservative. This temperature outlier did not impact data quality and no qualifiers were assigned.

Surrogate Compounds

SDG QY41: The percent recovery (%R) values for d14-dibenz(a,h)anthracene were greater than the upper control limit in Sample NBF-LS431V-Composite3>500 and the original analysis of Sample NBF-LS431V-Composite4>500. As only two surrogates were analyzed per sample, all positive results in these samples were estimated (J-13) to indicate a potential high bias.

Matrix Spike/Matrix Spike Duplicates

SDG QY41: For QC sample NBF-LS431V-Composite4 500-250, the matrix spike/matrix spike duplicate (MS/MSD) recoveries for phenanthrene, fluoranthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthrene, benzo(k)fluoranthrene, and benzo(a)pyrene were less than the lower control limits. All results for these compounds in the parent sample were estimated (J-8) to indicate a potential low bias.

Internal Standards

SDG QY41: The recoveries for the internal standard perylene-d12 were greater than the 200% upper control limit in samples: NBF-L431V-Composite3 250-63, NBF-L431V-Composite3 <63, and NBF-LSF431V-Composite4 <63. These samples were re-analyzed at dilution 3x and 10x. The results form the dilution supported the original analyses. Only the original analyses were reported in the EDD. The positive results for benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene and benzo(g,h,i)perylene were estimated (J-19) in these three samples.

Compound Identification

At the retention times for benzo(b)fluoranthene and benzo(k)fluoranthene, a single peak was present. The laboratory used half of the peak area to calculate a concentration for benzo(b)fluoranthene, and the other half to calculate benzo(k)fluoranthene. Since it is not possible to determine whether only one or both analytes were present, the positive results for these analytes were tentatively identified and estimated (NJ-14).

Reported Results

SDG QY41: Several samples required dilution due to analytes that exceeded the linear range of the instrument in the original analyses. The laboratory only reported the most appropriate result from both analyses in the EDDs; therefore no qualification of data was necessary.

Reporting Limits

SDG RD97: All samples were analyzed at dilution (5x) due to matrix interference. Reporting limits were elevated accordingly.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate MS/MSD and LCS/LCSD recovery values with the exceptions noted above. Precision was also acceptable as demonstrated by the MS/MSD and LCS/LCSD relative percent difference values.

Data were estimated based on MS/MSD, surrogate, and internal standard recovery outliers. Data were qualified as estimated and tentatively identified based on peak co-elutions.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS - Stormwater Sampling
PCB Aroclors by SW846 Method 8082

This report documents the review of analytical data from the analysis of stormwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QJ67	2 Stormwater	Full (QA2)
QL13	2 Stormwater	Full (QA2)
QQ37	2 Stormwater	Full (QA2)
QU49	2 Stormwater	Full (QA2)
QX25	2 Stormwater	Full (QA2)
QZ07	2 Stormwater	Full (QA2)
RC27	1 Stormwater	Full (QA2)
RC46	1 Stormwater	Full (QA2)
RD45	1 Equipment Blank	Screening

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%).

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times		Field Duplicate
	Initial Calibration (ICAL)		Reference Material
	Continuing Calibration (CCAL)	2	Internal Standards
	Laboratory Blanks		Target Analyte list
1	Field Blanks	1	Reporting Limits
	Surrogate Compounds		Compound Identification
	Laboratory Control Samples (LCS)	2	Reported Results
1	Matrix Spikes/Matrix Spike Duplicate (MS/MSD)	1	Calculation Verification

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, ranging to 20.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within six hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Field Blanks

SDG RD45: One equipment rinsate, NBF-ER-070810-W, was submitted in this SDG. No target analytes were detected in this blank.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. Precision and accuracy were evaluated using the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses.

Reporting Limits

Several chromatograms indicated non-target background interference. The reporting limits (RL) for these analytes were flagged "Y" by the laboratory. These "Y" flagged results were qualified (U-22) to indicate that they were not-detected at an elevated RL. The following results were qualified:

SDG QQ37: Aroclor 1248 – both samples

SDG QU49: Aroclor 1248 – both samples

SDG QX25: Aroclor 1248 – both samples

SDG QZ07: Aroclor 1248 – both samples

SDG RC27: Aroclor 1260 - Sample NBF-MH108-062910-W

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory performed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate and LCS/LCSD recoveries. Precision was acceptable as demonstrated by the relative percent difference values for the LCS/LCSD analyses.

Reporting limits were elevated based on non-target background interference.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS - Sediment Sampling
PCB Aroclors by SW846 Method 8082

This report documents the review of analytical data from the analyses of soil and sediment samples and the associated laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QR70	4 Sediment	Full (QA2)
QY41	8 Soil	Full (QA2)
RD97	6 Soil	Full (QA2)

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%).

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times		Reference Material
	Initial Calibration (ICAL)		Internal Standards
	Continuing Calibration (CCAL)		Target Analyte list
	Laboratory Blanks	1	Reporting Limits
	Surrogate Compounds		Compound Identification
	Laboratory Control Samples (LCS)	2	Reported Results
1	Matrix Spikes/Matrix Spike Duplicate (MS/MSD)	1	Calculation Verification

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside

control limits, ranging to 20.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within 6 hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Matrix Spike/Matrix Spike Duplicates

SDG QR70: Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed using Sample LS431-S-250-500. The MS/MSD percent recovery (%R) for Aroclor 1016 was greater than the upper control limit. This Aroclor was not detected in the associated samples; no qualifiers were necessary.

Reporting Limits

Several chromatograms indicated non-target background interference. The reporting limits (RL) for these analytes were flagged "Y" by the laboratory. These "Y" flagged results were qualified (U-22) to indicate that they were not-detected at an elevated RL. The following results were qualified:

SDG QR70: Aroclor 1248 – all samples

SDG QY41: Aroclor 1248 – all samples

SDG RD97: Aroclor 1248 - samples NBF-D283A-071310-S and NBF-D436A-071310-S

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory performed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate, MS/MSD, laboratory control sample, with the exception noted above. Precision was acceptable as demonstrated by the relative percent difference values for the MS/MSD analyses.

Data were also qualified as not detected to indicate that the laboratory "Y" flags represent elevated reporting limits due to matrix interferences.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS - Sediment Sampling
PCB Aroclors by SW846 Method 8082

This report documents the review of analytical data from the analyses of filter bag sediment sample and the associated laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QJ67	2 Filter Bag Sediment	Full (QA2)
QL13	1 Filter Bag Sediment	Full (QA2)
QP21	1 Filter Bag Sediment	Full (QA2)
QQ37	2 Filter Bag Sediment	Full (QA2)
QU49	11 Filter Bag Sediment	Full (QA2)
QX25	12 Filter Bag Sediment	Full (QA2)
QY59	3 Filter Bag Sediment	Full (QA2)
QZ31	13 Filter Bag Sediment	Full (QA2)
RC75	3 Filter Bag Sediment	Full (QA2)

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%).

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1 Sample Preservation and Holding Times
Initial Calibration (ICAL)
Continuing Calibration (CCAL)
Laboratory Blanks
Field Blanks
1 Surrogate Compounds
Laboratory Control Samples (LCS)
1 Matrix Spikes/Matrix Spike Duplicate (MS/MSD)
Reference Material
2 Internal Standards
Target Analyte list
2 Reporting Limits
Compound Identification
Reported Results
1 Calculation Verification

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[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, ranging to 20.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within 6 hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Surrogate Compounds

SDG QQ37: The percent recovery (%R) value for tetrachlorometaxylene was greater than the upper control limit in Sample NBF-MH108A-032910-S. No qualifiers were applied for this single outlier.

SDG QZ31: Both surrogate compounds were diluted out (500x) in the analysis of Sample NBF-CB173A-060210-S. No action was required.

SDG RC75: Both surrogate compounds were diluted out (500x) in the analyses of Samples NBF-CB173A-063010-S and NBF-MH108A-063010-S. No action was required.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. Precision and accuracy were evaluated using the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses.

Internal Standards

SDG QY59: The areas for the internal standard (IS) hexabromobiphenyl in Samples NBF-MH434A-052810-S and NBF-MH723A-052810-S were less than the lower control limit. The positive results for Aroclor 1254 and Aroclor 1260 were estimated (J-19) in these samples.

Reporting Limits

Most samples were analyzed at dilution due to matrix interference. Reporting limits were elevated accordingly.

Several chromatograms indicated non-target background interference. The reporting limits (RL) for these analytes were flagged "Y" by the laboratory. These "Y" flagged results were qualified (U-22) to indicate that they were not-detected at an elevated RL. The following results were qualified:

SDG QL13: Aroclor 1248 - Sample NBF-MH108A-022310-S

SDG QQ37: Aroclor 1248 - both samples

SDG QU49: Aroclor 1248 - 7 samples; Aroclor 1260 - Sample NBF-CB173A-042710-S

SDG QX25: Aroclor 1248 - all samples; Aroclor 1260 –Sample NBF-CB173A-052010-S

SDG QY59: Aroclor 1248 - all samples

SDG QZ07: Aroclor 1248 - all samples

SDG QZ31: Aroclor 1248 - all samples

SDG RC27: The reporting limit for Aroclor 1260 was flagged as "Y" by the laboratory for Sample NBF-MH108-062910-W; this result was qualified as not-detected (U-22).

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory performed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate and LCS/LCSD recoveries. Precision was acceptable as demonstrated by the relative percent difference values for the LCS/LCSD analyses.

Reporting limits were elevated based on non-target background interference. Data were estimated based on internal standard outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS – Stormwater Sampling
Total and Dissolved Metals by Methods 6010B, 200.8, and 7470A

This report documents the review of analytical data from the analyses of stormwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington and Fremont Analytical, Seattle, Washington. See the **Sample Index** for a complete list of samples for which data were reviewed.

SDG	Number of Samples	Validation Level
QJ67	2 Stormwater	Full (QA2)
QJ68	2 Stormwater (Hg only)	Full (QA2)
QL13	2 Stormwater	Full (QA2)
QL14	2 Stormwater (Hg only)	Full (QA2)
QQ37	2 Stormwater	Full (QA2)
QQ41	2 Stormwater (Hg only)	Full (QA2)
QU49	2 Stormwater	Full (QA2)
QU59	2 Stormwater (Hg only)	Full (QA2)
QX25	2 Stormwater	Full (QA2)
QX26	2 Stormwater (Hg only)	Full (QA2)
QZ07	2 Stormwater	Full (QA2)
QZ08	2 Stormwater (Hg only)	Full (QA2)
RC27	1 Stormwater	Full (QA2)
RC29	1 Stormwater	Full (QA2)
RC46	1 Stormwater	Full (QA2)
RC63	1 Stormwater (Hg only)	Full (QA2)
RD45	1 Equipment Rinsate	Full (QA2)

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative, with the exceptions listed below.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%).

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times	2	Laboratory Duplicates
2	Initial Calibration	2	Field Duplicates
2	Calibration Verification		Interference Check Samples
	Reporting Limit Standards		Serial Dilutions
2	Laboratory Blanks		ICP-MS Internal Standards
1	Laboratory Control Samples (LCS)		Reporting Limits
2	Matrix Spike/Matrix Spike Duplicate (MS/MSD)	2	Reported Results
1	Field Blanks	1	Calculation Verification

[1] Quality control results are discussed below, but no data were qualified.
[2] Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, ranging to 20.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within 6 hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Initial Calibration

SDGs QJ67, QL13: The independent calibration verification standard (ICV) recovery for selenium was greater than the upper control limit of 110%. Positive results in the associated samples were estimated (J-5A) to indicate a potential high bias.

Calibration Verification

SDG QJ67: The recovery for nickel in one continuing calibration verification (CCV) sample was less than the lower control limit of 90%. The nickel results in the associated samples were estimated (J-5B) to indicate a potential low bias.

SDG QL13: The nickel recovery for two CCV and the copper recovery for one CCV were less than the lower control limit. Associated results were estimated (J-5B) to indicate a potential low bias.

Laboratory Blanks

Various analytes were detected in the method and instrument blanks at levels greater than the method detection limits (MDL). To evaluate the effect on the sample data, action levels of five times (5x) the blank concentrations were established. Positive results less than the action levels in the associated samples were qualified as not detected (U) at the reported concentration. No action was taken for non-detects.

The results for some instrument blanks were less than the negative MDL. Action levels of 5x the absolute value of the blank concentration were established. Positive results less than the action levels and non-detects in the associated samples were estimated (J/UJ-7) to indicate a potential low bias.

Results for the following analytes were qualified in one or more samples based on laboratory blank results:

SDG QJ67: dissolved lead, dissolved selenium, total silver, dissolved silver – (UJ) low bias

SDG QL13: total and dissolved lead, total and dissolved selenium, total and dissolved silver – (J/UJ) low bias

SDG QZ07: dissolved copper - (U) not-detected

Laboratory Control Samples

SDG QX25: The copper and nickel recoveries of the laboratory control sample (LCS) associated with the total sample fraction were greater than the upper control limit. An LCS for the dissolved fraction was prepared and analyzed in the same batch. The copper and nickel recoveries for this LCS were within the control limits. It was determined that the outliers did not impact data quality; therefore no qualifiers were assigned.

Matrix Spikes

SDG QJ67: The matrix spike (MS) recovery for total zinc was less than the lower control limit of 75%. All total zinc results in the associated samples were estimated (J-8) to indicate a potential low bias.

SDG RC46: The MS recovery for dissolved silver was less than the lower control limit. The dissolved silver result in the associated sample was estimated (UJ-8).

Field Blanks

SDG RD45: One equipment rinsate, NBF-ER-070810-W, was submitted. Copper was detected in this blank. In order to establish the effect on the sample data, an action level of 5x the blank concentration was established. All total copper results in the stormwater samples that were less than the action level were qualified as not-detected (U-6).

Laboratory Duplicates

SDG QJ67: The relative percent difference (RPD) value for total zinc was greater than the control limit of 20%. The total zinc results in the associated samples were estimated (J-9).

SDG QL13: The RPD value for total zinc was greater than the control limit of 20%. The total zinc results in the associated samples were estimated (J-9).

Reported Results

There were several instances where the dissolved result was greater than the total. These results fell within in the normal analytical precision requirement of 20%, with the following exceptions:

SDG QL13: The dissolved copper results were significantly greater than the total copper results for both samples. All copper results were estimated (J-14).

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the LCS and MS recoveries, except as noted. Precision was also acceptable as demonstrated by the RPD values for the laboratory duplicate analyses, except as noted above.

Detection limits were elevated and/or results were estimated based on laboratory and field blank results. Data were estimated based on ICV %R, CCV %R, laboratory duplicate RPD, and MS %R outliers and when the dissolved metals result was significantly greater than the total result.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS – Sediment Sampling
Metals by SW846 Methods 6010B, 200.8 and 7471A

This report documents the review of analytical data from the analyses of sediment samples and the associated laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington and Fremont Analytical, Seattle, Washington. See the **Sample Index** for a complete list of samples for which data were reviewed.

SDG	Number of Samples	Validation Level
QJ67	2 Filter Bag Sediment	Full (QA2)
QL13	2 Filter Bag Sediment	Full (QA2)
QP21	2 Filter Bag Sediment	Full (QA2)
QQ37	2 Filter Bag Sediment	Full (QA2)
QR70	4 Sediment	Full (QA2)
QU60	11 Filter Bag Sediment	Full (QA2)
QX25	12 Filter Bag Sediment	Full (QA2)
QY59	3 Filter Bag Sediment	Full (QA2)
QZ31	13 Filter Bag Sediment	Full (QA2
RC75	3 Filter Bag Sediment	Full (QA2)
RD97	6 Filter Bag Sediment	Full (QA2)

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

SDG QU60: There was insufficient sample available to analyze Sample NBF-CB423A-042710-S.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%).

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times	2	Laboratory Duplicates
	Initial Calibration		Interference Check Samples
	Calibration Verification		Serial Dilutions
2	Reporting Limit Standards		ICP-MS Internal Standards
1	Laboratory Blanks	1	Reporting Limits
1	Laboratory Control Samples (LCS)		Reported Results
2	Matrix Spike/Matrix Spike Duplicate (MS/MSD)	1	Calculation Verification
1	Field Blanks		

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, ranging to 20.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within 6 hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Reporting Limit Standard

SDG RC75: The reporting limit standard recovery for mercury was greater than the upper control limit. The associated mercury result was estimated (J-14) to indicate a potential high bias.

Matrix Spikes

SDG QP21: The matrix spike (MS) percent recovery (%R) values for copper, lead, and zinc were greater than the upper control limit of 125%. All associated results were estimated (J-8) to indicate a potential high bias.

SDGs QQ37, QU60: The MS %R for mercury was less than the lower control limit of 75%. Associated results were estimated (J-8) to indicate a potential low bias

SDG QX25: The MS %R for copper was less than the lower control limit. All associated copper results were estimated (J-8).

Laboratory Duplicates

SDG QP21: The RPD values for chromium, copper, lead, and zinc were greater than the control limit of 20%. All associated results were estimated (J-9).

SDG QQ37: RPD exceeded the control limit of 20% for mercury (69.1%). All associated sample results were estimated (J-9).

SDG QU60: The RPD values for chromium, mercury, and zinc exceeded the control limit. All associated sample results were estimated (J-9).

SDG QX25: The RPD value for mercury was greater than the control limit. All associated sample results were estimated (J-9).

SDG QY59: The RPD value for chromium was greater than the control limit. All associated sample results were estimated (J-9).

SDG QZ31: The RPD value for mercury was greater than the control limit. All associated sample results were estimated (J/UJ-9).

Reporting Limits

SDG QY59: Sample NBF-MH431A-052810-S was re-analyzed at 5x dilution due to high concentration of the interfering element iron. Reporting limits were elevated accordingly.

SDG QZ31: Samples NBF-LS431A-060210-S, NBF-MH369A-060210-S, NBF-MH133A-060210-S, and NBF-MH138A-060210-S were re-analyzed at 5x and 10x dilutions due to high concentration of the interfering element iron. Reporting limits were elevated accordingly.

SDG RD97: Samples NBF-D435BS-071310-S, NBF-D435BN-071310-S, NBF-434AN-071310-S, and NBF-D436A-071310-S were re-analyzed at 5x dilution due to high concentration of the interfering element iron. Reporting limits were elevated accordingly.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

III. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the LCS and MS recoveries, except as noted. Precision was acceptable as demonstrated by the RPD values for the laboratory duplicate analyses, except as noted above.

Data were qualified for reporting limit standard %R, laboratory duplicate RPD, and MS %R outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS – Stormwater Sampling
Conventional Analyses

This report documents the review of analytical data from the analysis of stormwater samples and the associated laboratory and field quality control (QC) samples. Analytical Resources, Incorporated, Tukwila, Washington, analyzed the samples. Refer to the **Sample Index** for a list of the individual samples.

SDG	Number of Samples	Validation Level
QJ67	2 Stormwater	Full (QA2)
QL13	2 Stormwater	Full (QA2)
QQ37	2 Stormwater	Full (QA2)
QU49	2 Stormwater	Full (QA2)
QX25	2 Stormwater	Full (QA2)
QZ07	2 Stormwater	Full (QA2)
RC27	1 Stormwater	Full (QA2)
RC29	1 Stormwater	Full (QA2)
RC46	1 Stormwater	Full (QA2)
RC63	1 Stormwater	Full (QA2)

The analytical tests that were performed are summarized below:

Parameter	Method
Anions (Cl, NO_3, SO_4)	EPA 300.0
Alkalinity	SM 2320
Hardness	SM 2340B
pH	EPA 150.1
Nitrate	EPA 353.2
Total Suspended Solids (TSS)	EPA 160.2
Total Organic Carbon (TOC)	EPA 415.1
Dissolved Organic Carbon	EPA 415.1

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all necessary deliverables for a summary validation. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%).

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times		Matrix Spikes (MS)
	Initial Calibration	2	Laboratory Replicates
	Calibration Verification		Reporting Limits
	Laboratory Blanks		Reported Results
	Laboratory Control Samples	1	Calculation Verification

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, ranging to 20.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within 6 hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Laboratory Replicates

SDG QJ67: The relative percent difference (RPD) value for total suspended solids (TSS) was greater than the control limit of 20%. The results for TSS in the associated samples were estimated (J-9).

SDG QQ37: The RPD value for TSS was greater than the control limit. Associated results were estimated (J-9).

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were found.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the laboratory control sample and matrix spike recoveries. Precision was also acceptable as demonstrated by the laboratory duplicate RPD values, except as noted.

Data were estimated based on laboratory duplicate RPD outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
North Boeing Field RIFS – Sediment Sampling
Conventional Analyses

This report documents the review of analytical data from the analysis of sediment samples and the associated laboratory quality control (QC) samples. Analytical Resources, Incorporated, Tukwila, Washington, analyzed the samples. Refer to the **Sample Index** for a list of the individual samples.

SDG	Number of Samples	Validation Level
QJ67	2 Filter Bag Sediment	Full (QA2)
QL13	1 Filter Bag Sediment	Full (QA2)
QP21	1 Filter Bag Sediment	Full (QA2)
QQ37	2 Filter Bag Sediment	Full (QA2)
QU60	11 Filter Bag Sediment	Full (QA2)
QX99	4 Filter Bag Sediment	Full (QA2)
QX25	12 Filter Bag Sediment	Full (QA2)
QY41	3 Filter Bag Sediment	Full (QA2)
QY59	1 Filter Bag Sediment	Full (QA2)
QZ31	13 Filter Bag Sediment	Full (QA2)
RC75	3 Filter Bag Sediment	Full (QA2)
RD97	6 Filter Bag Sediment	Full (QA2)

The analytical tests that were performed are summarized below:

Parameter	Method
Grain Size	PSEP, 1986/ Laser SediGraph
Total Organic Carbon	Plumb, 1981
Total Solids	EPA 160.3

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all necessary deliverables for a summary validation. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

SDG QU60: There was insufficient sample quantity to analyze Sample NBF-CB423A-042710-S.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%).

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Preservation and Holding Times	1	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
	Initial Calibration		Laboratory Replicates
	Calibration Verification		Reported Results
	Laboratory Blanks	1	Calculation Verification
	Laboratory Control Samples		

[1] Quality control results are discussed below, but no data were qualified.
[2] Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits, ranging to 20.4°C. Where temperatures greater than the upper control limit occurred, there was insufficient time for the samples and coolers to achieve a lower temperature as the laboratory received the samples within six hours of collection. These temperature outliers did not impact data quality and no qualifiers were assigned.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were found.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the laboratory control sample and matrix spike/matrix spike duplicate recovery values, except as noted. Precision was also acceptable as demonstrated by the laboratory replicate relative percent difference and percent relative standard deviation values.

No data were qualified for any reason.

All data, as reported, are acceptable for use.

EcoChem, INC.
Environmental Data Quality

APPENDIX A
DATA QUALIFIER DEFINITIONS REASON CODES AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

1	Holding Time/Sample Preservation
2	Chromatographic pattern in sample does not match pattern of calibration standard.
3	Compound Confirmation
4	Tentatively Identified Compound (TIC) (associated with NJ only)
5A	Calibration (initial)
5B	Calibration (continuing)
6	Field Blank Contamination
7	Lab Blank Contamination (e.g., method blank, instrument, etc.)
8	Matrix Spike(MS & MSD) Recoveries
9	Precision (all replicates)
10	Laboratory Control Sample Recoveries
11	A more appropriate result is reported (associated with “R” and “DNR” only)
12	Reference Material
13	Surrogate Spike Recoveries (a.k.a., labeled compounds & recovery standards)
14	Other (define in validation report)
15	GFAA Post Digestion Spike Recoveries
16	ICP Serial Dilution % Difference
17	ICP Interference Check Standard Recovery
18	Trip Blank Contamination
19	Internal Standard Performance (e.g., area, retention time, recovery)
20	Linear Range Exceeded
21	Potential False Positives
22	Elevated Detection Limit Due to Interference (i.e., laboratory, chemical and/or matrix)

EcoChem Validation Guidelines for Dioxin/Furan Analysis by HRMS
(Based on EPA Reg. 10 SOP, Rev. 2, 1996 & EPA SW-846, Methods 1613b and 8290)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler/Storage Temperature	Waters/Solids < 4°C Tissues <-10°C	EcoChem PJ, see TM-05	1
Holding Time	Extraction - Water: 30 days from collection *Note:* Under CWA, SDWA, and RCRA the HT for H2O is 7 days* Extraction - Soil: 30 days from collection Analysis: 40 days from extraction	J(+)/UJ(-) if ext > 30 days J(+)/UJ(-) if analysis > 40 Days EcoChem PJ, see TM-05	1
Mass Resolution	>=10,000 resolving power at m/z 304.9824 Exact mass of m/z 380.9760 w/in 5 ppm of theoretical value (380.97410 to 380.97790) . Analyzed prior to ICAL and at the start and end of each 12 hr. shift	R(+/-) if not met	14
Window Defining Mix and Column Performance Mix	Window defining mixture/Isomer specificity std run before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) x = ht. of TCDD y = baseline to bottom of valley For all isomers eluting near 2378-TCDD/TCDF isomers (TCDD only for 8290)	J(+) if valley > 25%	5A (ICAL) 5B (CCAL
Initial Calibration	Minimum of five standards %RSD < 20% for native compounds %RSD <30% for labeled compounds (%RSD <35% for labeled compounds under 1613b)	J(+) natives if %RSD > 20%	5A
	Abs. RT of $^{13}C_{12}$-1234-TCDD >25 min on DB5 >15 min on DB-225	EcoChem PJ, see TM-05	
	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Table 9 of method 1613B)	EcoChem PJ, see TM-05	
	S/N ratio > 10 for all native and labeled compounds in CS1 std.	If <10, elevate Det. Limit or R(-)	

EcoChem Validation Guidelines for Dioxin/Furan Analysis by HRMS
(Based on EPA Reg. 10 SOP, Rev. 2, 1996 & EPA SW-846, Methods 1613b and 8290)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Continuing Calibration	Analyzed at the start and end of each 12 hour shift. %D+/-20% for native compounds %D +/-30% for labeled compounds (Must meet limits in Table 6, Method 1613B) (If %Ds in the closing CCAL are w/in 25%/35% the avg RF from the two CCAL may be used to calculate samples per Method 8290, Section 8.3.2.4)	Do not qualify labeled compounds. Narrate in report for labeled compound %D outliers. For native compound %D outliers: 8290: J(+)/UJ(-) if %D = 20% - 75% J(+)/R(-) if %D > 75% 1613: J(+)/UJ(-) if %D is outside Table 6 limits J(+)/R(-) if %D is +/- 75% of Table 6 limit	5B
	Abs. RT of $^{13}C_{12}$-1234-TCDD and $^{13}C12$-123789-HxCDD +/- 15 sec of ICAL.	EcoChem PJ, see ICAL section of TM-05	
	RRT of all other compounds must meet Table 2 of 1613B.	EcoChem PJ, see TM-05	
	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Table 9 of method 1613B)	EcoChem PJ, see TM-05	
	S/N ratio > 10	If <10, elevate Det. Limit or R(-)	
Method Blank	One per matrix per batch No positive results	If sample result <5X action level, qualify U at reported value.	7
Field Blanks (Not Required)	No positive results	If sample result <5X action level, qualify U at reported value.	6
LCS / OPR	Concentrations must meet limits in Table 6, Method 1613B or lab limits.	J(+) if %R > UCL J(+)/UJ(-) if %R < LCL J(+)/R(-) using PJ if %R <<LCL (< 10%)	10
MS/MSD (recovery)	May not analyze MS/MSD %R should meet lab limits.	Qualify parent only unless other QC indicates systematic problems: J(+) if both %R > UCL J(+)/UJ(-) if both %R < LCL J(+)/R(-) if both %R < 10% PJ if only one %R outlier	8
MS/MSD (RPD)	May not analyze MS/MSD RPD < 20%	J(+) in parent sample if RPD > CL	9

EcoChem Validation Guidelines for Dioxin/Furan Analysis by HRMS
(Based on EPA Reg. 10 SOP, Rev. 2, 1996 & EPA SW-846, Methods 1613b and 8290)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Lab Duplicate	RPD <25% if present.	J(+)/UJ(-) if outside limts	9
Labeled Compounds / Internal Standards	*Method 8290:* %R = 40% - 135% in all samples *Method 1613B:* %R must meet limits specified in Table 7, Method 1613	J(+)/UJ(-) if %R = 10% to LCL J(+) if %R > UCL J(+)/R(-) if %R < 10%	13
Quantitation/ Identification	Ions for analyte, IS, and rec. std. must max w/in 2 sec. S/N >2.5 IA ratios meet limits in Table 9 of 1613B or Table 8 of 8290 RRTs w/in limits in Table 2 of 1613B	If RT criteria not met, use PJ (see TM-05) If S/N criteria not met, J(+). if unlabelled ion abundance not met, change to EMPC If labelled ion abundance not met, J(+).	21
EMPC (estimated maximum possible concentration)	If quantitation idenfication criteria are not met, laboratory should report an EMPC value.	If laboratory correctly reported an EMPC value, qualify with U to indicate that the value is a detection limit.	14
Interferences	PCDF interferences from PCDPE	If both detected, change PCDF result to EMPC	14
Second Column Confirmation	All 2378-TCDF hits must be confirmed on a DB-225 (or equiv) column. All QC specs in this table must be met for the confirmation analysis.	Report lower of the two values. If not performed use PJ (see TM-05).	3
Field Duplicates	Use QAPP limits. If no QAPP: Solids: RPD <50% OR absolute diff. < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR absolute diff. < 1X RL (for results < 5X RL)	Narrate and qualify if required by project (EcoChem PJ)	9
Two analyses for one sample	Report only one result per analyte	"DNR" results that should not be used	11

EcoChem Validation Guidelines for Volatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6 deg. C (EcoChem PJ)	1
Hold Time	Waters: 14 days preserved 7 Days: unpreserved (for aromatics) Solids: 14 Days	J(+)/UJ(-) if hold times exceeded If exceeded by > 3X HT: J(+)/R(-) (EcoChem PJ)	1
Tuning	BFB Beginning of each 12 hour period Method acceptance criteria	R(+/-) all analytes in all samples associated with the tune	5A
Initial Calibration (Minimum 5 stds.)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5A
	%RSD < 30%	(EcoChem PJ, see TM-06) J(+) if %RSD > 30%	5A
Continuing Calibration (Prior to each 12 hr. shift)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5B
	%D <25%	(EcoChem PJ, see TM-06) If > +/-90%: J+/R- If -90% to -26%: J+ (high bias) If 26% to 90%: J+/UJ- (low bias)	5B
Method Blank	One per matrix per batch No results > CRQL	U(+) if sample (+) result is less than CRQL and less than appropriate 5X or 10X rule (raise sample value to CRQL)	7
		U(+) if sample (+) result is greater than or equal to CRQL and less than appropriate 5X and 10X rule (at reported sample value)	7
	No TICs present	R(+) TICs using 10X rule	7
Storage Blank	One per SDG <CRQL	U(+) the specific analyte(s) results in all assoc.samples using the 5x or 10x rule	7
Trip Blank	Frequency as per project QAPP	Same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned	18
Field Blanks (if required in QAPP)	No results > CRQL	Apply 5X/10X rule; U(+) < action level	6

EcoChem Validation Guidelines for Volatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
MS/MSD (recovery)	One per matrix per batch Use method acceptance criteria	Qualify parent only unless other QC indicates systematic problems: J(+) if both %R > UCL J(+)/UJ(-) if both %R < LCL J(+)/R(-) if both %R < 10% PJ if only one %R outlier	8
MS/MSD (RPD)	One per matrix per batch Use method acceptance criteria	J(+) in parent sample if RPD > CL	9
LCS *low conc. H2O VOA*	One per lab batch Within method control limits	J(+) assoc. cmpd if > UCL J(+)/R(-) assoc. cmpd if < LCL J(+)/R(-) all cmpds if half are < LCL	10
LCS *regular VOA (H2O & solid)*	One per lab batch Lab or method control limits	J(+) if %R > UCL J(+)/UJ(-) if %R <LCL J(+)/R(-) if %R < 10% (EcoChem PJ)	10
LCS/LCSD *(if required)*	One set per matrix and batch of 20 samples RPD < 35%	J(+)/UJ(-) assoc. cmpd. in all samples	9
Surrogates	Added to all samples Within method control limits	J(+) if %R >UCL J(+)/UJ(-) if %R <LCL but >10% (see PJ[1]) J(+)/R(-) if <10%	13
Internal Standard (IS)	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	J(+) if > 200% J(+)/UJ(-) if < 50% J(+)/R(-) if < 25% RT>30 seconds, narrate and Notify PM	19
Field Duplicates	Use QAPP limits. If no QAPP: Solids: RPD <50% OR absolute diff. < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR absolute diff. < 1X RL (for results < 5X RL)	Narrate and qualify if required by project (EcoChem PJ)	9
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NJ the TIC unless: R(+) common laboratory contaminants See Technical Director for ID issues	4
Quantitation/ Identification	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	See Technical Director if outliers	14 21 (false +)

PJ[1] No action if there are 4+ surrogates and only 1 outlier.

EcoChem Validation Guidelines for Semivolatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature	4°C ±2°	J(+)/UJ(-) if greater than 6 deg. C (EcoChem PJ)	1
Holding Time	Water: 7 days from collection Soil: 14 days from collection Analysis: 40 days from extraction	Water: J(+)/UJ(-) if ext. > 7 and < 21 days J(+)/R(-) if ext > 21 days (EcoChem PJ) Solids/Wastes: J(+)/UJ(-) if ext. > 14 and < 42 days J(+)/R(-) if ext. > 42 days (EcoChem PJ) J(+)/UJ(-) if analysis >40 days	1
Tuning	DFTPP Beginning of each 12 hour period Method acceptance criteria	R(+/-) all analytes in all samples associated with the tune	5A
Initial Calibration (Minimum 5 stds.)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5A
	%RSD < 30%	(EcoChem PJ, see TM-06) J(+) if %RSD > 30%	5A
Continuing Calibration (Prior to each 12 hr. shift)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5B
	%D <25%	(EcoChem PJ, see TM-06) If > +/-90%: J+/R- If -90% to -26%: J+ (high bias) If 26% to 90%: J+/UJ- (low bias)	5B
Method Blank	One per matrix per batch No results > CRQL	U(+) if sample (+) result is less than CRQL and less than appropriate 5X or 10X rule (raise sample value to CRQL)	7
		U(+) if sample (+) result is greater than or equal to CRQL and less than appropriate 5X and 10X rule (at reported sample value)	7
	No TICs present	R(+) TICs using 10X rule	7
Field Blanks (Not Required)	No results > CRQL	Apply 5X/10X rule; U(+) < action level	6

EcoChem Validation Guidelines for Semivolatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
MS/MSD (recovery)	One per matrix per batch Use method acceptance criteria	Qualify parent only unless other QC indicates systematic problems: J(+) if both %R > UCL J(+)/UJ(-) if both %R < LCL J(+)/R(-) if both %R < 10% PJ if only one %R outlier	8
MS/MSD (RPD)	One per matrix per batch Use method acceptance criteria	J(+) in parent sample if RPD > CL	9
LCS low conc. H2O SVOA	One per lab batch Within method control limits	J(+) assoc. cmpd if > UCL J(+)/R(-) assoc. cmpd if < LCL J(+)/R(-) all cmpds if half are < LCL	10
LCS regular SVOA (H2O & solid)	One per lab batch Lab or method control limits	J(+) if %R > UCL J(+)/UJ(-) if %R <LCL J(+)/R(-) if %R < 10% (EcoChem PJ)	10
LCS/LCSD *(if required)*	One set per matrix and batch of 20 samples RPD < 35%	J(+)/UJ(-) assoc. cmpd. in all samples	9
Surrogates	Minimum of 3 acid and 3 base/neutral compounds Use method acceptance criteria	Do not qualify if only 1 acid and/or 1 B/N surrogate is out unless <10% J(+) if %R > UCL J(+)/UJ(-) if %R < LCL J(+)/R(-) if %R < 10%	13
Internal Standards	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	J(+) if > 200% J(+)/UJ(-) if < 50% J(+)/R(-) if < 25% RT>30 seconds, narrate and Notify PM	19
Field Duplicates	Use QAPP limits. If no QAPP: Solids: RPD <50% OR absolute diff. < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR absolute diff. < 1X RL (for results < 5X RL)	Narrate and qualify if required by project (EcoChem PJ)	9
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NJ the TIC unless: R(+) common laboratory contaminants See Technical Director for ID issues	4
Quantitation/ Identification	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	See Technical Director if outliers	14 21 (false +)

EcoChem Validation Guidelines for Pesticides/PCBs by GC/ECD (Based on Organic NFG 1999 & EPA SW-846 Method 8081/8082)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature	4°C ±2°	J(+)/UJ(-) if greater than 6 deg. C (EcoChem PJ)	1
Holding Time	Water: 7 days from collection Soil: 14 days from collection Analysis: 40 days from extraction	J(+)/UJ(-) if ext/analyzed > HT J(+)/R(-) if ext/analyzed > 3X HT (EcoChem PJ)	1
Resolution Check	Beginning of ICAL Sequence Within RTW Resolution >90%	Narrate (Use Professional Judgement to qualify)	14
Instrument Performance (Breakdown)	DDT Breakdown: < 20% Endrin Breakdown: <20% Combined Breakdown: <30% Compounds within RTW	J(+) DDT NJ(+) DDD and/or DDE R(-) DDT - If (+) for either DDE or DDD J(+) Endrin NJ(+) EK and/or EA R(-) Endrin - If (+) for either EK or EA	5A
Retention Times	Surrogates: TCX (+/- 0.05); DCB (+/- 0.10) Target compounds: elute before heptachlor epoxide (+/- 0.05) elute after heptachlor epoxide (+/- 0.07)	NJ(+)/R(-) results for analytes with RT shifts For full DV, use PJ based on examination of raw data	5B
Initial Calibration	Pesticides: Low=CRQL, Mid=4X, High=16X Multiresponse - one point Calibration %RSD<20% %RSD<30% for surr; two comp. may exceed if <30% Resolution in Mix A and Mix B >90%	J(+)/UJ(-)	5A
Continuing Calibration	Alternating PEM standard and INDA/INDB standards every 12 hours (each preceeded by an inst. Blank) %D < 25% Resolution >90% in IND mixes; 100% for PEM	J(+)/UJ(-) J(+)R(-) if %D > 90% PJ for resolution	5B
Method Blank	One per matrix per batch No results > CRQL	U(+) if sample result is < CRQL and < 5X rule (raise sample value to CRQL) U(+) if sample result is > or equal to CRQL and < 5X rule (at reported sample value)	7
Instrument Blanks	Analyzed at the beginning of every 12 hour sequence No analyte > 1/2 CRQL	Same as Method Blank	7
Field Blanks	Not addressed by NFG No results > CRQL	Apply 5X rule; U(+) < action level	6

EcoChem Validation Guidelines for Pesticides/PCBs by GC/ECD (Based on Organic NFG 1999 & EPA SW-846 Method 8081/8082)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
MS/MSD (recovery)	One set per matrix per batch Method Acceptance Criteria	Qualify parent only unless other QC indicates systematic problems: J(+) if both %R > UCL J(+)/UJ(-) if both %R < LCL J(+)/R(-) if both %R < 10% PJ if only one %R outlier	8
MS/MSD (RPD)	One set per matrix per batch Method Acceptance Criteria	J(+) in parent sample if RPD > CL	9
LCS	One per SDG Method Acceptance Criteria	J(+) if %R > UCL J(+)/UJ(-) if %R < LCL J(+)/R(-) using PJ if %R <<LCL (< 10%)	10
LCS/LCSD *(if required)*	One set per matrix and batch of 20 samples RPD < 35%	J(+)/UJ(-) assoc. cmpd. in all samples	9
Surrogates	TCX and DCB added to every sample %R = 30-150%	J(+)/UJ(-) if both %R = 10 - 60% J(+) if both >150% J(+)/R(-) if any %R <10%	13
Quantitation/ Identification	Quantitated using ICAL calibration factor (CF) RPD between columns <40%	J(+) if RPD = 40 - 60% NJ(+) if RPD >60% EcoChem PJ - See TM-08	3
Two analyses for one sample	Report only one result per analyte	"DNR" results that should not be used to avoid reporting two results for one sample	11
Sample Clean-up	GPC required for soil samples Florisil required for all samples Sulfur is optional Clean-up standard check %R within CLP limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL	14
Field Duplicates	Use QAPP limits. If no QAPP: Solids: RPD <50% OR absolute diff. < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR absolute diff. < 1X RL (for results < 5X RL)	Narrate (Qualifiy if required by project QAPP)	9

EcoChem Validation Guidelines for Metals Analysis by ICP (Based on Inorganic NFG 1994 & 2004)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature and Preservation	Cooler temperature: 4°C ±2° Waters: Nitric Acid to pH < 2 For Dissolved Metals: 0.45um filter & preserve after filtration Tissues: Frozen	EcoChem Professional Judgment - no qualification based on cooler temperature outliers J(+)/UJ(-) if pH preservation requirements are not met	1
Holding Time	180 days from date sampled Frozen tissues - HT extended to 2 years	J(+)/UJ(-) if holding time exceeded	1
Initial Calibration	Blank + minimum 1 standard If more than 1 standard, r > 0.995	J(+)/UJ(-) if r < 0.995 (multi point cal)	5A
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R within ±10% of true value	J(+)/UJ(-) if %R 75-89% J(+) if %R = 111-125% R(+) if %R > 125% R(+/-) if %R < 75%	5A
Continuing Calibration Verification (CCV)	Every ten samples, immediately following ICV/ICB and at end of run %R within ±10% of true value	J(+)/UJ(-) if %R = 75-89% J(+) if %R 111-125% R(+) if %R > 125% R(+/-) if %R < 75%	5B

Initial and Continuing Calibration Blank (ICB/CCB)	After each ICV and CCV
	every ten samples and end of run
	| blank | < IDL (MDL)
		Action level is 5x absolute value of blank conc.
		For (+) blanks, U(+) results < action level
		For (-) blanks, J(+)/UJ(-) results < action level
		(Refer to TM-02 for additional information)
			7

Reporting Limit Standard	2x RL analyzed beginning of run Not required for Al, Ba, Ca, Fe, Mg, Na, K %R = 70%-130% (50%-150% Sb, Pb, Tl)	R(-)/J(+) < 2x RL if %R <50% (< 30% Sb, Pb, Tl) J(+) < 2x RL, UJ(-) if %R 50-69% (30-49% Sb, Pb,Tl) J(+) < 2x RL if %R 130-180% (150-200% Sb, Pb, Tl) R(+) < 2x RL if %R > 180% (200% Sb, Pb, Tl)	14
Interference Check Samples (ICSA/ICSAB)	ICSAB %R 80 - 120% for all spiked elements | ICSA | < MDL for all unspiked elements except: K, Na	For samples with Al, Ca, Fe, or Mg > ICS levels R(+/-) if %R < 50% J(+) if %R >120% J(+)/UJ(-) if %R= 50 to 79% Use Professional Judgment for ICSA to determine if bias is present see TM-09 for additional details	17
Method Blank	One per matrix per batch (batch not to exceed 20 samples) blank < MDL	Action level is 5x blank concentration U(+) results < action level	7
Laboratory Control Sample (LCS)	One per matrix per batch		10
	Blank Spike: %R within 80-120%	R(+/-) if %R < 50% J(+)/UJ(-) if %R = 50-79% J(+) if %R >120%	
	CRM: Result within manufacturer's certified acceptance range or project guidelines	J(+)/UJ(-) if < LCL, J(+) if > UCL	

EcoChem Validation Guidelines for Metals Analysis by ICP
(Based on Inorganic NFG 1994 & 2004)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Matrix Spikes	One per matrix per batch 75-125% for samples less than 4x spike level	J(+) if %R > 125% J(+)/UJ(-) if %R < 75% J(+)/R(-) if %R < 30% or J(+)/UJ(-) if Post Spike %R 75-125% Qualify all samples in batch	8
Post-digestion Spike	If Matrix Spike is outside 75-125%, spike at twice the sample conc.	No qualifiers assigned based on this element	
Laboratory Duplicate (or MS/MSD)	One per matrix per batch RPD < 20% for samples > 5x RL Diff < RL for samples >RL and < 5x RL (Diff < 2x RL for solids)	J(+)/UJ(-) if RPD > 20% or diff > RL (2x RL for solids) qualify all samples in batch	9
Serial Dilution	5x dilution one per matrix %D < 10% for original sample conc. > 50x MDL	J(+)/UJ(-) if %D >10% qualify all samples in batch	16
Field Blank	Blank < MDL	Action level is 5x blank conc. U(+) sample values < action level in associated field samples only	6
Field Duplicate	For results > 5x RL: Water: RPD < 35% Solid: RPD < 50% For results < 5 x RL: Water: Diff < RL Solid: Diff < 2x RL	J(+)/UJ(-) in parent samples only	9
Linear Range	Sample concentrations must fall within range	J values over range	20

EcoChem Validation Guidelines for Metals Analysis by ICP-MS (Based on Inorganic NFG 1994 & 2004)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature and Preservation	Cooler temperature: 4°C ±2° Waters: Nitric Acid to pH < 2 For Dissolved Metals: 0.45um filter & preserve after filtration	EcoChem Professional Judgment - no qualification based on cooler temperature outliers J(+)/UJ(-) if pH preservation requirements are not met	1
Holding Time	180 days from date sampled Frozen tissues - HT extended to 2 years	J(+)/UJ(-) if holding time exceeded	1
Tune	Prior to ICAL monitoring compounds analyzed 5 times wih Std Dev. ≤ 5% mass calibration <0.1 amu from True Value Resolution < 0.9 AMU @ 10% peak height or <0.75 amu @ 5% peak height	Use Professional Judgment to evaluate tune J(+)/UJ(-) if tune criteria not met	5A
Initial Calibration	Blank + minimum 1 standard If more than 1 standard, r>0.995	J(+)/UJ(-) if r<0.995 (for multi point cal)	5A
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R within ±10% of true value	J(+)/UJ(-) if %R 75-89% J(+) if %R = 111-125% R(+) if %R > 125% R(+/-) if %R < 75%	5A
Continuing Calibration Verification (CCV)	Every ten samples, immediately following ICV/ICB and at end of run ±10% of true value	J(+)/UJ(-) if %R = 75-89% J(+) if %R 111-125% R(+) if %R > 125% R(+/-) if %R < 75%	5B

Initial and Continuing Calibration Blanks (ICB/CCB)	After each ICV and CCV
	every ten samples and end of run
	| blank | < IDL (MDL)
		Action level is 5x absolute value of blank conc.
		For (+) blanks, U(+) results < action level
		For (-) blanks, J(+)/UJ(-) results < action level
		refer to TM-02 for additional details
			7

Reporting Limit Standard (CRI)	2x RL analyzed beginning of run Not required for Al, Ba, Ca, Fe, Mg, Na, K %R = 70%-130% (50%-150% Co,Mn, Zn)	R(-),(+) < 2x RL if %R < 50% (< 30% Co,Mn, Zn) J(+) < 2x RL, UJ(-) if %R 50-69% (30%-49% Co,Mn, Zn) J(+) < 2x RL if %R 130%-180% (150%-200% Co,Mn, Zn) R(+) < 2x RL if %R > 180% (200% Co, Mn, Zn)	14
Interference Check Samples (ICSA/ICSAB)	Required by SW 6020, but not 200.8 ICSAB %R 80% - 120% for all spiked elements | ICSA | < IDL (MDL) for all unspiked elements	For samples with Al, Ca, Fe, or Mg > ICS levels R(+/-) if %R < 50% J(+) if %R >120% J(+)/UJ(-) if %R = 50% to 79% Use Professional Judgment for ICSA to determine if bias is present see TM-09 for additional details	17
Method Blank	One per matrix per batch (batch not to exceed 20 samples) blank < MDL	Action level is 5x blank concentration U(+) results < action level	7

EcoChem Validation Guidelines for Metals Analysis by ICP-MS
(Based on Inorganic NFG 1994 & 2004)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Laboratory Control Sample (LCS)	One per matrix per batch Blank Spike: %R within 80%-120%	R(+/-) if %R < 50% J(+)/UJ(-) if %R = 50-79% J(+) if %R >120%	10
	CRM: Result within manufacturer's certified acceptance range or project guidelines	J(+)/UJ(-) if < LCL, J(+) if > UCL	
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	One per matrix per batch 75-125% for samples where results do not exceed 4x spike level	J(+) if %R>125% J(+)/UJ(-) if %R <75% J(+)/R(-) if %R<30% or J(+)/UJ(-) if Post Spike %R 75%-125% Qualify all samples in batch	8
Post-digestion Spike	If Matrix Spike is outside 75-125%, Spike parent sample at 2x the sample conc.	No qualifiers assigned based on this element	
Laboratory Duplicate (or MS/MSD)	One per matrix per batch RPD < 20% for samples > 5x RL Diff < RL for samples > RL and < 5 x RL (Diff < 2x RL for solids)	J(+)/UJ(-) if RPD > 20% or diff > RL all samples in batch	9
Serial Dilution	5x dilution one per matrix %D < 10% for original sample values > 50x MDL	J(+)/UJ(-) if %D >10% All samples in batch	16
Internal Standards	Every sample SW6020: 60%-125% of cal blank IS 200.8: 30%-120% of cal blank IS	J (+)/UJ (-) all analytes associated with IS outlier	19
Field Blank	Blank < MDL	Action level is 5x blank conc. U(+) sample values < AL in associated field samples only	6
Field Duplicate	For results > 5x RL: Water: RPD < 35% Solid: RPD < 50% For results < 5 x RL: Water: Diff < RL Solid: Diff < 2x RL	J(+)/UJ(-) in parent samples only	9
Linear Range	Sample concentrations must fall within range	J values over range	20

EcoChem Validation Guidelines for Mercury Analysis by CVAA (Based on Inorganic NFG 1994 & 2004)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature and Preservation	Cooler temperature: 4°C ±2° Waters: Nitric Acid to pH < 2 For Dissolved Metals: 0.45um filter & preserve after filtration	EcoChem Professional Judgment - no qualification based on cooler temperature outliers J(+)/UJ(-) if pH preservation requirements are not met	1
Holding Time	28 days from date sampled Frozen tissues: HT extended to 6 months	J(+)/UJ(-) if holding time exceeded	1
Initial Calibration	Blank + 4 standards, one at RL r > 0.995	J(+)/UJ(-) if r<0.995	5A
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R within ±20% of true value	J(+)/UJ(-) if %R = 65%-79% J(+) if %R = 121-135% R(+/-) if %R < 65% R(+) if %R > 135%	5A
Continuing Calibration Verification (CCV)	Every ten samples, immediately following ICV/ICB and at end of run %R within ±20% of true value	J(+)/UJ(-) if %R = 65%-79% J(+) if %R = 121-135% R(+/-) if %R < 65% R(+) if %R > 135%	5B

Initial and Continuing Calibration Blanks (ICB/CCB)	after each ICV and CCV
	every ten samples and end of run
	| blank | < IDL (MDL)
		Action level is 5x absolute value of blank conc.
		For (+) blanks, U(+) results < action level
		For (-) blanks, J(+)/UJ(-) results < action level
		refer to TM-02 for additional details
			7

Reporting Limit Standard (CRA)	conc at RL - analyzed beginning of run %R = 70-130%	R(-),(+)<2xRL if %R <50% J(+)<2x RL, UJ(-) if %R 50-69% J(+) <2x RL if %R 130-180% R(+)<2x RL if %R>180%	14
Method Blank	One per matrix per batch (batch not to exceed 20 samples) blank < MDL	Action level is 5x blank concentration U(+) results < action level	7
Laboratory Control Sample (LCS)	One per matrix per batch		10
	Blank Spike: %R within 80-120%	R(+/-) if %R < 50% J(+)/UJ(-) if %R = 50-79% J(+) if %R >120%	
	CRM: Result within manufacturer's certified acceptance range or project guidelines	J(+)/UJ(-) if < LCL, J(+) if > UCL	
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One per matrix per batch 5% frequency 75-125% for samples less than 4x spike level	J(+) if %R>125% J(+)/UJ(-) if %R <75% J(+)/R(-) if %R<30% all samples in batch	8
Laboratory Duplicate (or MS/MSD)	One per matrix per batch RPD < 20% for samples > 5x RL Diff < RL for samples > RL and < 5x RL (Diff < 2x RL for solids)	J(+)/UJ(-) if RPD > 20% or diff > RL all samples in batch	9

EcoChem Validation Guidelines for Mercury Analysis by CVAA (Based on Inorganic NFG 1994 & 2004)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Field Blank	Blank < MDL	Action level is 5x blank conc. U(+) sample values < action level in associated field samples only	6
Field Duplicate	For results > 5x RL: Water: RPD < 35% Solid: RPD < 50% For results < 5x RL: Water: Diff<RL Solid: Diff < 2x RL	J(+)/UJ(-) in parent samples only	9
Linear Range	Sample concentrations must be less than 110% of high standard	J values over range	20

EcoChem Validation Guidelines for Conventional Chemistry Analysis (Based on EPA Standard Methods)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature and Preservation	Cooler Temperature 4°C ±2°C Preservation: Method Specific	Use Professional Judgment to qualify based to qualify for coole temp outliers J(+)/UJ(-) if preservation requirements not met	1
Holding Time	Method Specific	Professional Judgment J(+)/UJ(-) if holding time exceeded J(+)/R(-) if HT exceeded by > 3X	1
Initial Calibration	Method specific r>0.995	Use professional judgment J(+)/UJ(-) for r < 0.995	5A
Initial Calibration Verification (ICV)	Where applicable to method Independent source analyzed immediately after calibration %R method specific, usually 90% - 110%	R(+/-) if %R significantly < LCL J(+)/UJ(-) if %R < LCL J(+) if %R > UCL R(+) if %R significantly > UCL	5A
Continuing Cal Verification (CCV)	Where applicable to method Every ten samples, immed. following ICV/ICB and end of run %R method specific, usually 90% - 110%	R(+/-) if %R significantly < LCL J(+)/UJ(-) if %R < LCL J(+) if %R > UCL R(+) if %R significantly > UCL	5B

Initial and Continuing Cal Blanks (ICB/CCB)	Where applicable to method
	After each ICV and CCV every ten samples and end of run
	| blank| < MDL
		Action level is 5x absolute value of blank conc.
		For (+) blanks, U(+) results < action level
		For (-) blanks, J(+)/UJ(-) results < action level
		refer to TM-02 for additional details
			7

Method Blank	One per matrix per batch
	(not to exceed 20 samples)
	blank < MDL
		Action level is 5x absolute value of blank conc.
		For (+) blk value, U(+) results < action level
		For (-) blk value, J(+)/UJ(-) results < action level
			7

Laboratory Control Sample	Waters: One per matrix per batch %R (80-120%)	R(+/-) if %R < 50% J(+)/UJ(-) if %R = 50-79% J(+) if %R >120%	10
	Soils: One per matrix per batch Result within manufacturer's certified acceptance range	J(+)/UJ(-) if < LCL, J(+) if > UCL	10
Matrix Spike	One per matrix per batch; 5% frequency 75-125% for samples less than 4 x spike level	J(+) if %R > 125% or < 75% UJ(-) if %R = 30-74% R(+/-) results < IDL if %R < 30%	8
Laboratory Duplicate	One per matrix per batch RPD <20% for samples > 5x RL Diff <RL for samples >RL and <5 x RL (may use RPD < 35%, Diff < 2X RL for solids)	J(+)/UJ(-) if RPD > 20% or diff > RL all samples in batch	9

EcoChem Validation Guidelines for Conventional Chemistry Analysis (Based on EPA Standard Methods)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Field Blank	blank < MDL	Action level is 5x blank conc. U(+) sample values < action level in associated field samples only	6
Field Duplicate	For results > 5X RL: Water: RPD < 35% Solid: RPD < 50% For results < 5 x RL: Water: Diff<RL Solid: Diff < 2X RL	J(+)/UJ(-) in parent samples only	9

EcoChem, INC.
Environmental Data Quality

APPENDIX B
QUALIFIED DATA SUMMARY TABLE

QUALIFIED DATA SUMMARY TABLE
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qual	DV Qual	Val Reason
QJ67	NBF-MH108-021110-W	QJ67E	EPA160.2	Total Suspended Solids	16.8	mg/L		J	9
QJ67	NBF-LS431-021110-W	QJ67F	EPA160.2	Total Suspended Solids	22	mg/L		J	9
QJ67	NBF-MH108-021110-W	QJ67E	EPA200.8	Selenium	5.1	ug/L		J	5A
QJ67	NBF-MH108-021110-W	QJ67E	EPA200.8	Nickel	2.1	ug/L		J	5B
QJ67	NBF-LS431-021110-W	QJ67F	EPA200.8	Copper	2.5	ug/L		U	6
QJ67	NBF-LS431-021110-W	QJ67F	EPA200.8	Zinc	12.5	ug/L		J	9
QJ67	NBF-LS431-021110-W	QJ67F	EPA200.8	Zinc	38.1	ug/L		J	9
QJ67	NBF-LS431-021110-W	QJ67F	EPA200.8	Selenium	3.85	ug/L		J	5A
QJ67	NBF-LS431-021110-W	QJ67F	EPA200.8	Nickel	1.1	ug/L		J	5B
QJ67	NBF-MH108-021110-W	QJ67E	SW8260C	Acrolein	5	ug/l	U	UJ	5B
QJ67	NBF-LS431-021110-W	QJ67F	SW8260C	Acrolein	5	ug/l	U	UJ	5B
QJ67	NBF-MH108-021110-W	QJ67E	SW8270D	bis(2-Ethylhexyl)phthalate	2.1	ug/l		U	6
QJ67	NBF-MH108-021110-W	QJ67E	SW8270D	Benzyl Alcohol	5	ug/l	U	UJ	5B
QJ67	NBF-MH108-021110-W	QJ67E	SW8270D	Benzo(b)fluoranthene	1	ug/l	U	UJ	5B
QJ67	NBF-LS431-021110-W	QJ67F	SW8270D	Benzyl Alcohol	5	ug/l	U	UJ	5B
QJ67	NBF-LS431-021110-W	QJ67F	SW8270D	Benzo(b)fluoranthene	1	ug/l	U	UJ	5B
QJ67	NBF-LS431-021110-W	QJ67F	SW8270DSIM	Benzo(k)fluoranthene	0.042	ug/l		NJ	14
QJ67	NBF-LS431-021110-W	QJ67F	SW8270DSIM	Benzo(b)fluoranthene	0.042	ug/l		NJ	14
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Selenium	1	ug/L	U	UJ	7
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Lead	1.85	ug/L		J	7
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Nickel	2.15	ug/L		J	5B
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Selenium	4.8	ug/L		J	5A,7
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Zinc	13.1	ug/L		J	9
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Copper	8.9	ug/L		J	14
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Lead	0.2	ug/L	U	UJ	7
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Copper	2.55	ug/L		UJ	5B,6,14
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Nickel	2	ug/L		J	5B
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Silver	0.04	ug/L	U	UJ	7
QL13	NBF-MH108-022310-W	QL13A	EPA200.8	Silver	0.04	ug/L	U	UJ	7
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Selenium	5.8	ug/L		J	5A,7
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Lead	0.2	ug/L	U	UJ	7
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Nickel	1.5	ug/L		J	5B
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Selenium	1	ug/L	U	UJ	7
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Copper	11.3	ug/L		J	14
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Silver	0.04	ug/L	U	UJ	7
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Silver	0.04	ug/L	U	UJ	7
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Nickel	1.4	ug/L		J	5B
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Lead	3.05	ug/L		J	7
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Copper	0.85	ug/L		UJ	5B,6,14
QL13	NBF-LS431-022310W	QL13B	EPA200.8	Zinc	16.5	ug/L		J	9
QL13	NBF-MH108A-022310-S	QL13E	SW8082	Aroclor 1260	50	ug	Y	U	22
QL13	NBF-MH108-022310-W	QL13A	SW8270D	Pentachlorophenol	5	ug/l	U	UJ	5B
QL13	NBF-LS431-022310-W	QL13B	SW8270D	Pentachlorophenol	5	ug/l	U	UJ	5B
QL13	NBF-LS431-022310-W	QL13B	SW8270DSIM	Benzo(b)fluoranthene	0.025	ug/l		NJ	14
QL13	NBF-LS431-022310-W	QL13B	SW8270DSIM	Benzo(k)fluoranthene	0.026	ug/l		NJ	14
QP21	NBF-LS431A-032010-S	QP21B	SW6010B	Zinc	245	mg/kg		J	8,9
QP21	NBF-LS431A-032010-S	QP21B	SW6010B	Chromium	61	mg/kg		J	9
QP21	NBF-LS431A-032010-S	QP21B	SW6010B	Copper	50.9	mg/kg		J	8,9

QUALIFIED DATA SUMMARY TABLE
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qual	DV Qual	Val Reason
QP21	NBF-LS431A-032010-S	QP21B	SW6010B	Lead	293	mg/kg		J	8,9
QQ37	NBF-LS431-032910-W	QQ37A	EPA160.2	Total Suspended Solids	62.3	mg/L		J	9
QQ37	NBF-MH108-032910-W	QQ37B	EPA160.2	Total Suspended Solids	75.9	mg/L		J	9
QQ37	NBF-LS431A-032910-S	QQ37F	SW7471A	Mercury	0.37	mg/kg		J	8,9
QQ37	NBF-MH108A-032910-S	QQ37H	SW7471A	Mercury	0.75	mg/kg		J	8,9
QQ37	NBF-LS431-032910-W	QQ37A	SW8082	Aroclor 1248	0.025	ug/l	Y	U	22
QQ37	NBF-MH108-032910-W	QQ37B	SW8082	Aroclor 1248	0.1	ug/l	Y	U	22
QQ37	NBF-LS431A-032910-S	QQ37E	SW8082	Aroclor 1248	25	ug	Y	U	22
QQ37	NBF-MH108A-032910-S	QQ37G	SW8082	Aroclor 1248	62	ug	Y	U	22
QQ37	NBF-LS431-032910-W	QQ37A	SW8270D	bis(2-Ethylhexyl)phthalate	1.4	ug/l		U	6
QQ37	NBF-MH108-032910-W	QQ37B	SW8270D	bis(2-Ethylhexyl)phthalate	4.4	ug/l		U	6
QQ37	NBF-LS431-032910-W	QQ37A	SW8270DSIM	Benzo(b)fluoranthene	0.14	ug/l		NJ	14
QQ37	NBF-LS431-032910-W	QQ37A	SW8270DSIM	Benzo(k)fluoranthene	0.14	ug/l		NJ	14
QQ37	NBF-MH108-032910-W	QQ37B	SW8270DSIM	Benzo(b)fluoranthene	0.22	ug/l		NJ	14
QQ37	NBF-MH108-032910-W	QQ37B	SW8270DSIM	Benzo(k)fluoranthene	0.22	ug/l		NJ	14
QR70	NBF-LS431-S-<63	QR70A	SW8082	Aroclor 1248	330	ug/kg	Y	U	22
QR70	NBF-LS431-S-63-250	QR70B	SW8082	Aroclor 1248	160	ug/kg	Y	U	22
QR70	NBF-LS431-S-250-500	QR70C	SW8082	Aroclor 1248	97	ug/kg	Y	U	22
QR70	NBF-LS431-S->500	QR70D	SW8082	Aroclor 1248	160	ug/kg	Y	U	22
QU49	NBF-MH108-042710-W	QU49A	SW8082	Aroclor 1248	0.038	ug/l	Y	U	22
QU49	NBF-LS431-042710-W	QU49B	SW8082	Aroclor 1248	0.024	ug/l	Y	U	22
QU49	NBF-MH108A-042710-S	QU49E	SW8082	Aroclor 1248	18	ug	Y	U	22
QU49	NBF-MH434A-042710-S	QU49F	SW8082	Aroclor 1248	3.8	ug	Y	U	22
QU49	NBF-LS431A-042710-S	QU49G	SW8082	Aroclor 1248	7.5	ug	Y	U	22
QU49	NBF-MH356A-042710-S	QU49I	SW8082	Aroclor 1248	6.2	ug	Y	U	22
QU49	NBF-MH226A-042710-S	QU49K	SW8082	Aroclor 1248	1.5	ug	Y	U	22
QU49	NBF-MH152A-042710-S	QU49L	SW8082	Aroclor 1248	25	ug	Y	U	22
QU49	NBF-MH178A-042710-S	QU49N	SW8082	Aroclor 1248	2.5	ug	Y	U	22
QU49	NBF-CB173A-042710-S	QU49O	SW8082	Aroclor 1260	30	ug	Y	U	22
QU49	NBF-MH108-042710-W	QU49A	SW8270D	Pentachlorophenol	5	ug/l	U	UJ	10
QU49	NBF-LS431-042710-W	QU49B	SW8270D	bis(2-Ethylhexyl)phthalate	1.8	ug/l		U	6
QU49	NBF-LS431-042710-W	QU49B	SW8270D	Pentachlorophenol	5	ug/l	U	UJ	10
QU49	NBF-LS431-042710-W	QU49B	SW8270DSIM	Benzo(b)fluoranthene	0.042	ug/l		NJ	14
QU49	NBF-LS431-042710-W	QU49B	SW8270DSIM	Benzo(k)fluoranthene	0.042	ug/l		NJ	14
QU60	NBF-MH108A-042710-S	QU60A	SW6010B	Zinc	950	mg/kg		J	9
QU60	NBF-MH108A-042710-S	QU60A	SW6010B	Chromium	53	mg/kg		J	9
QU60	NBF-MH434A-042710-S	QU60B	SW6010B	Chromium	76	mg/kg		J	9
QU60	NBF-MH434A-042710-S	QU60B	SW6010B	Zinc	923	mg/kg		J	9
QU60	NBF-LS431A-042710-S	QU60C	SW6010B	Zinc	610	mg/kg		J	9
QU60	NBF-LS431A-042710-S	QU60C	SW6010B	Chromium	44	mg/kg		J	9
QU60	NBF-MH356A-042710-S	QU60E	SW6010B	Chromium	94	mg/kg		J	9
QU60	NBF-MH356A-042710-S	QU60E	SW6010B	Zinc	1420	mg/kg		J	9
QU60	NBF-MH369A-042710-S	QU60F	SW6010B	Chromium	108	mg/kg		J	9
QU60	NBF-MH369A-042710-S	QU60F	SW6010B	Zinc	820	mg/kg		J	9
QU60	NBF-MH226A-042710-S	QU60G	SW6010B	Zinc	1170	mg/kg		J	9
QU60	NBF-MH226A-042710-S	QU60G	SW6010B	Chromium	56	mg/kg		J	9

QUALIFIED DATA SUMMARY TABLE
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qual	DV Qual	Val Reason
QU60	NBF-MH152A-042710-S	QU60H	SW6010B	Zinc	869	mg/kg		J	9
QU60	NBF-MH152A-042710-S	QU60H	SW6010B	Chromium	59	mg/kg		J	9
QU60	NBF-CB165A-042710-S	QU60I	SW6010B	Zinc	4770	mg/kg		J	9
QU60	NBF-CB165A-042710-S	QU60I	SW6010B	Chromium	133	mg/kg		J	9
QU60	NBF-MH178A-042710-S	QU60J	SW6010B	Zinc	652	mg/kg		J	9
QU60	NBF-MH178A-042710-S	QU60J	SW6010B	Chromium	57	mg/kg		J	9
QU60	NBF-CB173A-042710-S	QU60K	SW6010B	Chromium	67	mg/kg		J	9
QU60	NBF-CB173A-042710-S	QU60K	SW6010B	Zinc	2040	mg/kg		J	9
QU60	NBF-MH108A-042710-S	QU60A	SW7471A	Mercury	1.4	mg/kg		J	8,9
QU60	NBF-MH434A-042710-S	QU60B	SW7471A	Mercury	0.1	mg/kg		J	8,9
QU60	NBF-LS431A-042710-S	QU60C	SW7471A	Mercury	0.16	mg/kg		J	8,9
QU60	NBF-MH356A-042710-S	QU60E	SW7471A	Mercury	0.3	mg/kg		J	8,9
QU60	NBF-MH369A-042710-S	QU60F	SW7471A	Mercury	0.2	mg/kg		J	8,9
QU60	NBF-MH226A-042710-S	QU60G	SW7471A	Mercury	0.4	mg/kg		J	8,9
QU60	NBF-MH152A-042710-S	QU60H	SW7471A	Mercury	1.3	mg/kg		J	8,9
QU60	NBF-CB165A-042710-S	QU60I	SW7471A	Mercury	12.4	mg/kg		J	8,9
QU60	NBF-MH178A-042710-S	QU60J	SW7471A	Mercury	0.36	mg/kg		J	8,9
QU60	NBF-CB173A-042710-S	QU60K	SW7471A	Mercury	0.57	mg/kg		J	8,9
QU97	NBF-MH369B-042710-S	QU97A	SW8270D	Dibenz(a,h)anthracene	2	ug		J	19
QU97	NBF-MH369B-042710-S	QU97A	SW8270D	Benzo(g,h,i)perylene	6.5	ug		J	19
QU97	NBF-MH369B-042710-S	QU97A	SW8270D	Indeno(1,2,3-cd)pyrene	5.1	ug		J	19
QU97	NBF-MH369B-042710-S	QU97A	SW8270D	Benzo(a)pyrene	7.4	ug		J	19
QU97	NBF-MH369B-042710-S	QU97A	SW8270D	Benzo(k)fluoranthene	7	ug		NJ	14,19
QU97	NBF-MH369B-042710-S	QU97A	SW8270D	1-Methylnaphthalene	2.5	ug	Y	U	22
QU97	NBF-MH369B-042710-S	QU97A	SW8270D	Benzo(b)fluoranthene	7	ug		NJ	14,19
QU97	NBF-MH226B-042710-S	QU97B	SW8270D	1-Methylnaphthalene	2	ug	Y	U	22
QU97	NBF-MH226B-042710-S	QU97B	SW8270D	Benzo(k)fluoranthene	29	ug		NJ	14
QU97	NBF-MH226B-042710-S	QU97B	SW8270D	Benzo(b)fluoranthene	29	ug		NJ	14
QU97	NBF-MH152B-042710-S	QU97C	SW8270D	Benzo(k)fluoranthene	24	ug		NJ	14
QU97	NBF-MH152B-042710-S	QU97C	SW8270D	1-Methylnaphthalene	2.6	ug	Y	U	22
QU97	NBF-MH152B-042710-S	QU97C	SW8270D	Pyrene	32	ug		J	19
QU97	NBF-MH152B-042710-S	QU97C	SW8270D	Chrysene	56	ug		J	19
QU97	NBF-MH152B-042710-S	QU97C	SW8270D	Benzo(b)fluoranthene	24	ug		NJ	14
QU97	NBF-CB165B-042710-S	QU97D	SW8270D	Benzo(b)fluoranthene	13	ug		NJ	14
QU97	NBF-CB165B-042710-S	QU97D	SW8270D	1-Methylnaphthalene	3.8	ug	Y	U	22
QU97	NBF-CB165B-042710-S	QU97D	SW8270D	Benzo(k)fluoranthene	13	ug		NJ	14
QU97	NBF-MH178B-042710-S	QU97E	SW8270D	1-Methylnaphthalene	3.7	ug	Y	U	22
QU97	NBF-MH178B-042710-S	QU97E	SW8270D	Benzo(b)fluoranthene	40	ug		NJ	14
QU97	NBF-MH178B-042710-S	QU97E	SW8270D	Benzo(k)fluoranthene	40	ug		NJ	14
QU97	NBF-CB173B-042710-S	QU97F	SW8270D	1-Methylnaphthalene	4.6	ug	Y	U	22
QU97	NBF-CB173B-042710-S	QU97F	SW8270D	Benzo(b)fluoranthene	12	ug		NJ	14
QU97	NBF-CB173B-042710-S	QU97F	SW8270D	Benzo(k)fluoranthene	12	ug		NJ	14
QU97	NBF-MH108B-042710-S	QU97G	SW8270D	1-Methylnaphthalene	2.9	ug	Y	U	22
QU97	NBF-MH108B-042710-S	QU97G	SW8270D	Benzo(b)fluoranthene	7.4	ug		NJ	14
QU97	NBF-MH108B-042710-S	QU97G	SW8270D	Benzo(k)fluoranthene	7.4	ug		NJ	14
QU97	NBF-MH434B-042710-S	QU97H	SW8270D	Benzo(b)fluoranthene	18	ug		NJ	14
QU97	NBF-MH434B-042710-S	QU97H	SW8270D	1-Methylnaphthalene	4.6	ug	Y	U	22
QU97	NBF-MH434B-042710-S	QU97H	SW8270D	Benzo(k)fluoranthene	18	ug		NJ	14
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	Indeno(1,2,3-cd)pyrene	8.4	ug		J	19

QUALIFIED DATA SUMMARY TABLE
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qual	DV Qual	Val Reason
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	1-Methylnaphthalene	3.1	ug	Y	U	22
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	Benzo(k)fluoranthene	10	ug		NJ	14,19
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	Benzo(g,h,i)perylene	8.4	ug		J	19
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	Dibenz(a,h)anthracene	3	ug		J	19
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	Benzo(a)pyrene	5.2	ug		J	19
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	Benzo(b)fluoranthene	10	ug		NJ	14,19
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	Chrysene	15	ug		J	19
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	Benzo(a)anthracene	3.4	ug		J	19
QU97	NBF-LS431B-042710-S	QU97I	SW8270D	Pyrene	16	ug		J	19
QU97	NBF-CB423B-042710-S	QU97J	SW8270D	1-Methylnaphthalene	3	ug	Y	U	22
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Dibenz(a,h)anthracene	18	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Pyrene	89	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Benzo(g,h,i)perylene	26	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Indeno(1,2,3-cd)pyrene	34	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Benzo(a)pyrene	30	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Benzo(k)fluoranthene	140	ug		J	13,14
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Benzo(b)fluoranthene	140	ug		J	13,14
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Chrysene	200	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Benzo(a)anthracene	25	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	2-Methylnaphthalene	3.6	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Fluoranthene	380	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Dibenzofuran	5.3	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	1-Methylnaphthalene	3.7	ug	Y	U	22
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Acenaphthylene	0.7	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Acenaphthene	2.6	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Fluorene	3.9	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Phenanthrene	34	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Anthracene	33	ug		J	13
QU97	NBF-MH356B-042710-S	QU97K	SW8270D	Naphthalene	3.6	ug		J	13
QX25	NBF-MH138A-052010-S	QX25AB	SW6010B	Copper	126	mg/kg		J	8
QX25	NBF-MH108A-052010-S	QX25F	SW6010B	Copper	386	mg/kg		J	8
QX25	NBF-LS431A-052010-S	QX25H	SW6010B	Copper	137	mg/kg		J	8
QX25	NBF-CB423A-052010-S	QX25J	SW6010B	Copper	264	mg/kg		J	8
QX25	NBF-MH356A-052010-S	QX25L	SW6010B	Copper	254	mg/kg		J	8
QX25	NBF-MH369A-052010-S	QX25N	SW6010B	Copper	111	mg/kg		J	8
QX25	NBF-MH226A-052010-S	QX25P	SW6010B	Copper	291	mg/kg		J	8
QX25	NBF-MH152A-052010-S	QX25R	SW6010B	Copper	328	mg/kg		J	8
QX25	NBF-CB165A-052010-S	QX25T	SW6010B	Copper	87.4	mg/kg		J	8
QX25	NBF-MH178A-052010-S	QX25V	SW6010B	Copper	397	mg/kg		J	8
QX25	NBF-CB173A-052010-S	QX25X	SW6010B	Copper	278	mg/kg		J	8
QX25	NBF-MH133A-052010-S	QX25Z	SW6010B	Copper	125	mg/kg		J	8
QX25	NBF-MH138A-052010-S	QX25AB	SW7471A	Mercury	0.4	mg/kg		J	9
QX25	NBF-MH108A-052010-S	QX25F	SW7471A	Mercury	0.55	mg/kg		J	9
QX25	NBF-LS431A-052010-S	QX25H	SW7471A	Mercury	0.38	mg/kg		J	9
QX25	NBF-CB423A-052010-S	QX25J	SW7471A	Mercury	0.2	mg/kg		J	9
QX25	NBF-MH356A-052010-S	QX25L	SW7471A	Mercury	0.3	mg/kg		J	9
QX25	NBF-MH369A-052010-S	QX25N	SW7471A	Mercury	0.2	mg/kg		J	9
QX25	NBF-MH226A-052010-S	QX25P	SW7471A	Mercury	0.3	mg/kg		J	9
QX25	NBF-MH152A-052010-S	QX25R	SW7471A	Mercury	0.52	mg/kg		J	9

QUALIFIED DATA SUMMARY TABLE
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qual	DV Qual	Val Reason
QX25	NBF-CB165A-052010-S	QX25T	SW7471A	Mercury	2.08	mg/kg		J	9
QX25	NBF-MH178A-052010-S	QX25V	SW7471A	Mercury	0.25	mg/kg		J	9
QX25	NBF-CB173A-052010-S	QX25X	SW7471A	Mercury	12.9	mg/kg		J	9
QX25	NBF-MH133A-052010-S	QX25Z	SW7471A	Mercury	3.24	mg/kg		J	9
QX25	NBF-MH108-052010-W	QX25A	SW8082	Aroclor 1248	0.1	ug/l	Y	U	22
QX25	NBF-MH138A-052010-S	QX25AA	SW8082	Aroclor 1248	5	ug	Y	U	22
QX25	NBF-LS431-052010-W	QX25B	SW8082	Aroclor 1248	0.025	ug/l	Y	U	22
QX25	NBF-MH108A-052010-S	QX25E	SW8082	Aroclor 1248	20	ug	Y	U	22
QX25	NBF-LS431A-052010-S	QX25G	SW8082	Aroclor 1248	4	ug	Y	U	22
QX25	NBF-CB423A-052010-S	QX25I	SW8082	Aroclor 1248	2	ug	Y	U	22
QX25	NBF-MH356A-052010-S	QX25K	SW8082	Aroclor 1248	4	ug	Y	U	22
QX25	NBF-MH369A-052010-S	QX25M	SW8082	Aroclor 1248	1.2	ug	Y	U	22
QX25	NBF-MH226A-052010-S	QX25O	SW8082	Aroclor 1248	5	ug	Y	U	22
QX25	NBF-MH152A-052010-S	QX25Q	SW8082	Aroclor 1248	30	ug	Y	U	22
QX25	NBF-CB165A-052010-S	QX25S	SW8082	Aroclor 1248	50	ug	Y	U	22
QX25	NBF-MH178A-052010-S	QX25U	SW8082	Aroclor 1248	1.5	ug	Y	U	22
QX25	NBF-CB173A-052010-S	QX25W	SW8082	Aroclor 1248	100	ug	Y	U	22
QX25	NBF-CB173A-052010-S	QX25W	SW8082	Aroclor 1260	30	ug	Y	U	22
QX25	NBF-MH133A-052010-S	QX25Y	SW8082	Aroclor 1248	3	ug	Y	U	22
QX25	NBF-MH108-052010-W	QX25A	SW8270DSIM	Benzo(k)fluoranthene	0.16	ug/l		NJ	14
QX25	NBF-MH108-052010-W	QX25A	SW8270DSIM	Benzo(b)fluoranthene	0.16	ug/l		NJ	14
QX25	NBF-LS431-052010-W	QX25B	SW8270DSIM	Benzo(k)fluoranthene	0.3	ug/l		NJ	14
QX25	NBF-LS431-052010-W	QX25B	SW8270DSIM	Benzo(b)fluoranthene	0.3	ug/l		NJ	14
QY41	NBF-LS431V-Composite3>500	QY41A	SW8082	Aroclor 1248	190	ug/kg	Y	U	22
QY41	NBF-LS431V-Composite3 500-250	QY41B	SW8082	Aroclor 1248	63	ug/kg	Y	U	22
QY41	NBF-LS431V-Composite3 250-63	QY41C	SW8082	Aroclor 1248	160	ug/kg	Y	U	22
QY41	NBF-LS431V-Composite3 <63	QY41D	SW8082	Aroclor 1248	330	ug/kg	Y	U	22
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8082	Aroclor 1248	320	ug/kg	Y	U	22
QY41	NBF-LS431V-Composite4 500-250	QY41F	SW8082	Aroclor 1248	64	ug/kg	Y	U	22
QY41	NBF-LS431V-Composite4 250-63	QY41G	SW8082	Aroclor 1248	160	ug/kg	Y	U	22
QY41	NBF-LS431V-Composite4 <63	QY41H	SW8082	Aroclor 1248	410	ug/kg	Y	U	22
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Benzo(a)anthracene	590	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	2-Methylnaphthalene	27	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Chrysene	810	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Benzo(k)fluoranthene	680	ug/kg		NJ	13,14
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Benzo(a)pyrene	910	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Indeno(1,2,3-cd)pyrene	610	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Dibenz(a,h)anthracene	260	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Benzo(g,h,i)perylene	730	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Fluoranthene	1200	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Benzo(b)fluoranthene	680	ug/kg		NJ	13,14
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Dibenzofuran	20	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Anthracene	84	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Acenaphthene	26	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Pyrene	1100	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Phenanthrene	270	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Fluorene	40	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Naphthalene	23	ug/kg		J	13
QY41	NBF-LS431V-Composite3>500	QY41A	SW8270DSIM	Acenaphthylene	20	ug/kg		J	13

QUALIFIED DATA SUMMARY TABLE
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qual	DV Qual	Val Reason
QY41	NBF-LS431V-Composite3 500-250	QY41B	SW8270DSIM	Benzo(k)fluoranthene	98	ug/kg		NJ	14
QY41	NBF-LS431V-Composite3 500-250	QY41B	SW8270DSIM	Benzo(b)fluoranthene	98	ug/kg		NJ	14
QY41	NBF-LS431V-Composite3 250-63	QY41C	SW8270DSIM	Benzo(g,h,i)perylene	340	ug/kg		J	19
QY41	NBF-LS431V-Composite3 250-63	QY41C	SW8270DSIM	Dibenz(a,h)anthracene	96	ug/kg		J	19
QY41	NBF-LS431V-Composite3 250-63	QY41C	SW8270DSIM	Indeno(1,2,3-cd)pyrene	250	ug/kg		J	19
QY41	NBF-LS431V-Composite3 250-63	QY41C	SW8270DSIM	Benzo(a)pyrene	310	ug/kg		J	19
QY41	NBF-LS431V-Composite3 250-63	QY41C	SW8270DSIM	Benzo(k)fluoranthene	300	ug/kg		NJ	14,19
QY41	NBF-LS431V-Composite3 250-63	QY41C	SW8270DSIM	Benzo(b)fluoranthene	300	ug/kg		NJ	14,19
QY41	NBF-LS431V-Composite3 <63	QY41D	SW8270DSIM	Dibenz(a,h)anthracene	270	ug/kg		J	19
QY41	NBF-LS431V-Composite3 <63	QY41D	SW8270DSIM	Benzo(g,h,i)perylene	1100	ug/kg		J	19
QY41	NBF-LS431V-Composite3 <63	QY41D	SW8270DSIM	Benzo(a)pyrene	790	ug/kg		J	19
QY41	NBF-LS431V-Composite3 <63	QY41D	SW8270DSIM	Benzo(k)fluoranthene	1000	ug/kg		NJ	14,19
QY41	NBF-LS431V-Composite3 <63	QY41D	SW8270DSIM	Benzo(b)fluoranthene	1000	ug/kg		NJ	14,19
QY41	NBF-LS431V-Composite3 <63	QY41D	SW8270DSIM	Indeno(1,2,3-cd)pyrene	810	ug/kg		J	19
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	Benzo(b)fluoranthene	8100	ug/kg		NJ	14
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	Anthracene	3900	ug/kg		J	13
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	Dibenz(a,h)anthracene	3200	ug/kg		J	13
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	Naphthalene	1400	ug/kg		J	13
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	Dibenzofuran	1600	ug/kg		J	13
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	Benzo(k)fluoranthene	8100	ug/kg		NJ	14
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	Acenaphthene	1900	ug/kg		J	13
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	Acenaphthylene	160	ug/kg		J	13
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	2-Methylnaphthalene	540	ug/kg		J	13
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	1-Methylnaphthalene	560	ug/kg		J	13
QY41	NBF-LS431V-Composite4 >500	QY41E	SW8270DSIM	Fluorene	2800	ug/kg		J	13
QY41	NBF-LS431V-Composite4 500-250	QY41F	SW8270DSIM	Benzo(a)anthracene	190	ug/kg		J	8
QY41	NBF-LS431V-Composite4 500-250	QY41F	SW8270DSIM	Benzo(a)pyrene	200	ug/kg		J	8
QY41	NBF-LS431V-Composite4 500-250	QY41F	SW8270DSIM	Benzo(k)fluoranthene	160	ug/kg		NJ	8,14
QY41	NBF-LS431V-Composite4 500-250	QY41F	SW8270DSIM	Benzo(b)fluoranthene	160	ug/kg		NJ	8,14
QY41	NBF-LS431V-Composite4 500-250	QY41F	SW8270DSIM	Chrysene	250	ug/kg		J	8
QY41	NBF-LS431V-Composite4 500-250	QY41F	SW8270DSIM	Pyrene	380	ug/kg		J	8
QY41	NBF-LS431V-Composite4 500-250	QY41F	SW8270DSIM	Phenanthrene	290	ug/kg		J	8
QY41	NBF-LS431V-Composite4 500-250	QY41F	SW8270DSIM	Fluoranthene	540	ug/kg		J	8
QY41	NBF-LS431V-Composite4 250-63	QY41G	SW8270DSIM	Benzo(b)fluoranthene	270	ug/kg		NJ	14
QY41	NBF-LS431V-Composite4 250-63	QY41G	SW8270DSIM	Benzo(k)fluoranthene	270	ug/kg		NJ	14
QY41	NBF-LS431V-Composite4 <63	QY41H	SW8270DSIM	Benzo(b)fluoranthene	1000	ug/kg		NJ	14,19
QY41	NBF-LS431V-Composite4 <63	QY41H	SW8270DSIM	Benzo(k)fluoranthene	1000	ug/kg		NJ	14,19
QY41	NBF-LS431V-Composite4 <63	QY41H	SW8270DSIM	Benzo(a)pyrene	860	ug/kg	M	J	19
QY41	NBF-LS431V-Composite4 <63	QY41H	SW8270DSIM	Indeno(1,2,3-cd)pyrene	660	ug/kg		J	19
QY41	NBF-LS431V-Composite4 <63	QY41H	SW8270DSIM	Dibenz(a,h)anthracene	200	ug/kg		J	19
QY41	NBF-LS431V-Composite4 <63	QY41H	SW8270DSIM	Benzo(g,h,i)perylene	820	ug/kg		J	19
QY59	NBF-MH434A-052810-S	QY59B	SW6010B	Chromium	65.8	mg/kg		J	9
QY59	NBF-MH423A-052810-S	QY59D	SW6010B	Chromium	65	mg/kg		J	9
QY59	NBF-LS431A-052810-S	QY59F	SW6010B	Chromium	36	mg/kg		J	9
QY59	NBF-MH434A-052810-S	QY59A	SW8082	Aroclor 1248	8	ug	Y	U	22
QY59	NBF-MH434A-052810-S	QY59A	SW8082	Aroclor 1254	8.6	ug		J	19
QY59	NBF-MH434A-052810-S	QY59A	SW8082	Aroclor 1260	7.2	ug		J	19
QY59	NBF-MH423A-052810-S	QY59C	SW8082	Aroclor 1260	2.3	ug		J	19
QY59	NBF-MH423A-052810-S	QY59C	SW8082	Aroclor 1254	2.4	ug		J	19

QUALIFIED DATA SUMMARY TABLE
North Boeing Field Task 3.4 Stormwater Sampling

SDG	Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qual	DV Qual	Val Reason
QY59	NBF-MH423A-052810-S	QY59C	SW8082	Aroclor 1248	4	ug	Y	U	22
QY59	NBF-LS431A-052810-S	QY59E	SW8082	Aroclor 1260	3	ug		J	19
QY59	NBF-LS431A-052810-S	QY59E	SW8082	Aroclor 1254	7	ug		J	19
QY59	NBF-LS431A-052810-S	QY59E	SW8082	Aroclor 1248	5	ug	Y	U	22
QZ03	NBF-MH108B-021110-S	QZ03A	SW8270D	Benzo(k)fluoranthene	8.3	ug		NJ	14
QZ03	NBF-MH108B-021110-S	QZ03A	SW8270D	Benzo(b)fluoranthene	8.3	ug		NJ	14
QZ03	NBF-LS431B-021110-S	QZ03B	SW8270D	Benzo(k)fluoranthene	12	ug		NJ	14
QZ03	NBF-LS431B-021110-S	QZ03B	SW8270D	Benzo(b)fluoranthene	12	ug		NJ	14
QZ03	NBF-LS431B-032910-S	QZ03C	SW8270D	Benzo(b)fluoranthene	140	ug		NJ	14
QZ03	NBF-LS431B-032910-S	QZ03C	SW8270D	Benzo(k)fluoranthene	140	ug		NJ	14
QZ03	NBF-MH108B-032910-S	QZ03D	SW8270D	Benzo(b)fluoranthene	110	ug		NJ	14
QZ03	NBF-MH108B-032910-S	QZ03D	SW8270D	Benzo(k)fluoranthene	110	ug		NJ	14
QZ07	NBF-LS431-060210-W	QZ07B	EPA200.8	Copper	5	ug/l		U	6
QZ07	NBF-LS431-060210-W	QZ07D	EPA200.8	Copper	3	ug/l		U	7
QZ07	NBF-MH108-060210-W	QZ07A	SW8082	Aroclor 1248	0.05	ug/l	Y	U	22
QZ07	NBF-LS431-060210-W	QZ07B	SW8082	Aroclor 1248	0.015	ug/l	Y	U	22
QZ07	NBF-MH108-060210-W	QZ07A	SW8270D	bis(2-Ethylhexyl)phthalate	1.1	ug/l		U	6
QZ07	NBF-MH108-060210-W	QZ07A	SW8270DSIM	Benzo(a)pyrene	0.013	ug/l		J	10
QZ07	NBF-MH108-060210-W	QZ07A	SW8270DSIM	Benzo(k)fluoranthene	0.015	ug/l		NJ	14
QZ07	NBF-MH108-060210-W	QZ07A	SW8270DSIM	Benzo(b)fluoranthene	0.015	ug/l		NJ	14
QZ07	NBF-LS431-060210-W	QZ07B	SW8270DSIM	Benzo(a)anthracene	0.029	ug/l		J	10
QZ07	NBF-LS431-060210-W	QZ07B	SW8270DSIM	Benzo(b)fluoranthene	0.064	ug/l		NJ	14
QZ07	NBF-LS431-060210-W	QZ07B	SW8270DSIM	Benzo(k)fluoranthene	0.064	ug/l		NJ	14
QZ07	NBF-LS431-060210-W	QZ07B	SW8270DSIM	Benzo(a)pyrene	0.053	ug/l		J	10
QZ31	NBF-MH434A-060210-S	QZ31B	SW7471A	Mercury	0.2	mg/kg		J	9
QZ31	NBF-MH356A-060210-S	QZ31D	SW7471A	Mercury	0.3	mg/kg	U	UJ	9
QZ31	NBF-LS431A-060210-S	QZ31F	SW7471A	Mercury	0.1	mg/kg		J	9
QZ31	NBF-MH423A-060210-S	QZ31H	SW7471A	Mercury	0.26	mg/kg		J	9
QZ31	NBF-MH369A-060210-S	QZ31J	SW7471A	Mercury	0.1	mg/kg		J	9
QZ31	NBF-MH108A-060210-S	QZ31L	SW7471A	Mercury	0.6	mg/kg		J	9
QZ31	NBF-MH226A-060210-S	QZ31N	SW7471A	Mercury	0.3	mg/kg		J	9
QZ31	NBF-MH133A-060210-S	QZ31P	SW7471A	Mercury	3.46	mg/kg		J	9
QZ31	NBF-MH138A-060210-S	QZ31R	SW7471A	Mercury	0.37	mg/kg		J	9
QZ31	NBF-MH152A-060210-S	QZ31T	SW7471A	Mercury	0.4	mg/kg		J	9
QZ31	NBF-CB165A-060210-S	QZ31V	SW7471A	Mercury	2.17	mg/kg		J	9
QZ31	NBF-CB173A-060210-S	QZ31X	SW7471A	Mercury	0.8	mg/kg		J	9
QZ31	NBF-MH178A-060210-S	QZ31Z	SW7471A	Mercury	0.3	mg/kg		J	9
QZ31	NBF-MH434A-060210-S	QZ31A	SW8082	Aroclor 1248	4	ug	Y	U	22
QZ31	NBF-MH356A-060210-S	QZ31C	SW8082	Aroclor 1248	3	ug	Y	U	22
QZ31	NBF-LS431A-060210-S	QZ31E	SW8082	Aroclor 1248	4	ug	Y	U	22
QZ31	NBF-MH423A-060210-S	QZ31G	SW8082	Aroclor 1248	5	ug	Y	U	22
QZ31	NBF-MH369A-060210-S	QZ31I	SW8082	Aroclor 1248	1.2	ug	Y	U	22
QZ31	NBF-MH108A-060210-S	QZ31K	SW8082	Aroclor 1248	35	ug	Y	U	22
QZ31	NBF-MH133A-060210-S	QZ31O	SW8082	Aroclor 1248	3	ug	Y	U	22
QZ31	NBF-MH138A-060210-S	QZ31Q	SW8082	Aroclor 1248	20	ug	Y	U	22
QZ31	NBF-MH152A-060210-S	QZ31S	SW8082	Aroclor 1248	30	ug	Y	U	22
QZ31	NBF-CB165A-060210-S	QZ31U	SW8082	Aroclor 1248	75	ug	Y	U	22
QZ31	NBF-CB173A-060210-S	QZ31W	SW8082	Aroclor 1248	500	ug	Y	U	22

QUALIFIED DATA SUMMARY TABLE
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SDG	Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qual	DV Qual	Val Reason
QZ31	NBF-MH178A-060210-S	QZ31Y	SW8082	Aroclor 1248	6.2	ug	Y	U	22
QZ31	NBF-MH434B-060210-S	QZ31AA	SW8270D	Benzo(k)fluoranthene	38	ug		NJ	14
QZ31	NBF-MH434B-060210-S	QZ31AA	SW8270D	Benzo(b)fluoranthene	38	ug		NJ	14
QZ31	NBF-MH356B-060210-S	QZ31AB	SW8270D	Fluoranthene	390	ug		J	13
QZ31	NBF-MH356B-060210-S	QZ31AB	SW8270D	Benzo(b)fluoranthene	150	ug		NJ	14
QZ31	NBF-MH356B-060210-S	QZ31AB	SW8270D	Benzo(k)fluoranthene	150	ug		NJ	14
QZ31	NBF-LS431B-060210-S	QZ31AC	SW8270D	Benzo(b)fluoranthene	20	ug		NJ	14
QZ31	NBF-LS431B-060210-S	QZ31AC	SW8270D	Benzo(k)fluoranthene	20	ug		NJ	14
QZ31	NBF-MH369B-060210-S	QZ31AE	SW8270D	Benzo(b)fluoranthene	3.7	ug		NJ	14
QZ31	NBF-MH369B-060210-S	QZ31AE	SW8270D	Benzo(k)fluoranthene	3.7	ug		NJ	14
QZ31	NBF-MH108B-060210-S	QZ31AF	SW8270D	Benzo(b)fluoranthene	34	ug		NJ	14
QZ31	NBF-MH108B-060210-S	QZ31AF	SW8270D	Benzo(k)fluoranthene	34	ug		NJ	14
QZ31	NBF-MH226B-060210-S	QZ31AG	SW8270D	Benzo(k)fluoranthene	79	ug		NJ	14
QZ31	NBF-MH226B-060210-S	QZ31AG	SW8270D	Benzo(b)fluoranthene	79	ug		NJ	14
QZ31	NBF-MH133B-060210-S	QZ31AH	SW8270D	Benzo(k)fluoranthene	110	ug		NJ	14
QZ31	NBF-MH133B-060210-S	QZ31AH	SW8270D	Benzo(b)fluoranthene	110	ug		NJ	14
QZ31	NBF-MH138B-060210-S	QZ31AI	SW8270D	Benzo(b)fluoranthene	7.2	ug		NJ	14
QZ31	NBF-MH138B-060210-S	QZ31AI	SW8270D	Benzo(k)fluoranthene	7.2	ug		NJ	14
QZ31	NBF-MH152B-060210-S	QZ31AJ	SW8270D	Benzo(b)fluoranthene	19	ug		NJ	14
QZ31	NBF-MH152B-060210-S	QZ31AJ	SW8270D	Benzo(k)fluoranthene	19	ug		NJ	14
QZ31	NBF-CB165B-060210-S	QZ31AK	SW8270D	Benzo(b)fluoranthene	12	ug		NJ	14
QZ31	NBF-CB165B-060210-S	QZ31AK	SW8270D	Benzo(k)fluoranthene	12	ug		NJ	14
QZ31	NBF-CB173B-060210-S	QZ31AL	SW8270D	Benzo(b)fluoranthene	6.7	ug		NJ	14
QZ31	NBF-CB173B-060210-S	QZ31AL	SW8270D	Benzo(k)fluoranthene	6.7	ug		NJ	14
QZ31	NBF-MH178B-060210-S	QZ31AM	SW8270D	Benzo(k)fluoranthene	59	ug		NJ	14
QZ31	NBF-MH178B-060210-S	QZ31AM	SW8270D	Benzo(b)fluoranthene	59	ug		NJ	14
RC27	NBF-MH108-062910-W	RC27A	EPA200.8	Copper	3.9	ug/l		U	6
RC27	NBF-MH108-062910-W	RC27A	SW8082	Aroclor 1260	0.012	ug/l	Y	U	22
RC46	NBF-LS431-063010-W	RC46A	EPA200.8	Copper	2.2	ug/l		U	6
RC46	NBF-LS431-063010-W	RC46B	EPA200.8	Silver	0.2	ug/l	U	UJ	8
RC46	NBF-LS431-063010-W	RC46A	SW8270D	Nitrobenzene	1	ug/l	U	UJ	5B
RC75	NBF-LS431A-063010-S	RC75H	SW7471A	Mercury	0.15	mg/kg		J	14
RD97	NBF-D283A-071310-S	RD97E	SW8082	Aroclor 1248	74	ug/kg	Y	U	22
RD97	NBF-D436A-071310-S	RD97F	SW8082	Aroclor 1248	48	ug/kg	Y	U	22
WG33003	NBF-MH108B-052010-S	L14824-1 LW	E1613	1,2,3,4,7,8-HXCDD	249	PG/Sample	K J	U	22
WG33003	NBF-MH108B-052010-S	L14824-1 LW	E1613	1,2,3,7,8,9-HXCDF	13.5	PG/Sample	K J	U	22
WG33003	NBF-MH108B-052010-S	L14824-1 LW	E1613	1,2,3,7,8-PECDD	181	PG/Sample	K J	U	22
WG33003	NBF-CB173B-052010-S	L14824-10 LW	E1613	1,2,3,7,8,9-HXCDF	42.8	PG/Sample	K J	U	22
WG33003	NBF-MH133B-052010-S	L14824-11 LW	E1613	1,2,3,7,8,9-HXCDF	22.8	PG/Sample	K J	U	22
WG33003	NBF-MH138B-052010-S	L14824-12 LW	E1613	1,2,3,7,8,9-HXCDF	5.56	PG/Sample	K J	U	22
WG33003	NBF-MH138B-052010-S	L14824-12 LW	E1613	1,2,3,7,8-PECDD	42.4	PG/Sample	K J	U	22
WG33003	NBF-MH138B-052010-S	L14824-12 LW	E1613	1,2,3,7,8-PECDF	42.4	PG/Sample	K J	U	22
WG33003	NBF-MH138B-052010-S	L14824-12 LW	E1613	2,3,7,8-TCDD	9.13	PG/Sample	K J	U	22
WG33003	NBF-MH434B-052810-S	L14824-13 LW	E1613	1,2,3,7,8,9-HXCDF	33.9	PG/Sample	K J	U	22
WG33003	NBF-LS431B-052010-S	L14824-2 LW	E1613	1,2,3,4,7,8-HXCDD	118	PG/Sample	K J	U	22
WG33003	NBF-LS431B-052010-S	L14824-2 LW	E1613	1,2,3,7,8,9-HXCDF	4.64	PG/Sample	K J	U	22
WG33003	NBF-LS431B-052010-S	L14824-2 LW	E1613	1,2,3,7,8-PECDD	79.1	PG/Sample	K J	U	22

QUALIFIED DATA SUMMARY TABLE
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SDG	Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qual	DV Qual	Val Reason
WG33003	NBF-MH356B-052010-S	L14824-4 LW	E1613	1,2,3,7,8,9-HXCDF	7.37	PG/Sample	K J	U	22
WG33003	NBF-MH369B-052010-S	L14824-5 LW	E1613	1,2,3,4,7,8,9-HPCDF	56	PG/Sample	K J	U	22
WG33003	NBF-MH369B-052010-S	L14824-5 LW	E1613	1,2,3,7,8,9-HXCDF	3.34	PG/Sample	K J	U	22
WG33003	NBF-MH369B-052010-S	L14824-5 LW	E1613	2,3,7,8-TCDD	5.25	PG/Sample	K J	U	22
WG33003	NBF-MH226B-052010-S	L14824-6 LW	E1613	1,2,3,7,8,9-HXCDF	11.7	PG/Sample	K J	U	22
WG33328	NBF-MH108B-063010-S	L14969-1 W	E1613	1,2,3,6,7,8-HXCDD	122	PG/Sample	K D J	U	22
WG33328	NBF-MH108B-063010-S	L14969-1 W	E1613	1,2,3,7,8-PECDD	43.6	PG/Sample	K D J	U	22
WG33328	NBF-MH108B-063010-S	L14969-1 W	E1613	2,3,7,8-TCDD	23.6	PG/Sample	K D J	UJ	14,22
WG33328	NBF-CB173B-063010-S	L14969-2 W	E1613	2,3,7,8-TCDD	64.1	PG/Sample	D	J	14
WG33328	NBF-LS431B-063010-S	L14969-3 i	E1613	1,2,3,7,8-PECDD	25.8	PG/Sample	K J	U	22
WG33328	NBF-LS431B-063010-S	L14969-3 i	E1613	1,2,3,7,8-PECDF	18.9	PG/Sample	K B J	U	22
WG33328	NBF-LS431B-063010-S	L14969-3 i	E1613	2,3,7,8-TCDD	6.68	PG/Sample	J	J	14