Aspect consulting
earth+water

April 9, 2010

Mr. Joe Hickey
Washington State Department of Ecology - NWRO
3190 160th Avenue NE
Bellevue, Washington 98008-5482

Re: Comments on Periodic Review Draft Report
Jacobson Terminals, Inc.
5350 30th Avenue NW, Seattle, Washington
Facility Site ID#6662658
Project No. 020030-001-04

Dear Mr. Hickey:

This letter provides comments on behalf of our client, Jacobson Terminals, Inc., on the Periodic Review Draft Report (Draft Report) published in the Site Register by Ecology on March 11, 2010 regarding the above-referenced site. Our client is owner of the property referred to as 5355 28th Avenue NW in the Draft Report. The mailing address for the subject property has been updated by the U.S. Postal Service and is now listed as 5350 30th Avenue NW, Seattle, Washington.

The Draft Report concludes that because "groundwater is very possibly contaminated and likely exceeds the property boundaries" the action "is not protective of the environment". The Draft Report also states that "since the contaminated soil straddles a property line, a conditional point of compliance for groundwater is probably impossible without additional cleanup actions…the August 4, 1998 'No Further Action' letter may be rescinded." We believe that the completed action remains protective of the environment and that there are available mechanisms that would allow setting a conditional point of compliance. The purpose of this letter is to provide additional data to Ecology concerning the site and to propose a process through which the August 4, 1998 letter does not need to be rescinded.

Groundwater Monitoring Data

The Draft Report indicates that groundwater monitoring data subsequent to the initial monitoring round in September 1996 had not been reported to Ecology. Attached with this letter (under separate cover) is a copy of the report titled 'Results of December 1997 Groundwater Sampling and Analysis' dated January 29, 1998. Results were consistent with the September 1996 data provided to Ecology, in which neither diesel nor PCBs were detected in groundwater downgradient of the residual contaminated soil. The estimated direction of groundwater flow is to the east-southeast (see Figure 1 of the attached report), and well MW-2 is located in the downgradient direction from the residual contaminated soil. This groundwater flow direction is also consistent with the flow direction documented during regular monitoring at the adjacent Market Street Property/Jacobson Terminals site for the past 12 years.

In response to the Site Register publication and to evaluate current conditions, Aspect Consulting conducted additional groundwater monitoring at the site in March 2010. A new well, MW-4, was installed on March 19, 2010, in the area where residual material was left in place. This well and two existing wells, MW-3 (upgradient of the residual contaminated soil) and MW-2 (downgradient of the residual contaminated soil) were sampled on March 23, 2010 and analyzed for diesel and PCBs. Well locations are shown on Figure 1. A boring log with well construction details for MW-4 is also attached.

Data for the March 2010 sampling are provided in the laboratory certificates of analysis (attached). Diesel was not detected in the three wells. PCBs were not detected in MW-2 or MW-3, but were detected at a concentration of 0.6 µg/L at well MW-4. This concentration slightly exceeds the MTCA Method A cleanup level for PCBs in groundwater of 0.1 µg/L. The data are consistent with the assumptions and previously collected data, and indicate that impacts to groundwater are localized in the immediate vicinity of the soil contamination. Diesel and PCBs were not detected in groundwater at the closest practicable downgradient monitoring point (MW-2, approximately 70 feet away) in any of the recent or historical monitoring events (1996, 1997, and 2010).

Proposed Actions

Based on the Draft Report and discussions at the meeting on March 8th, we understand that Ecology's primary concerns are that: 1) The Restrictive Covenant on file has not been signed by one of the affected property owners, namely the U.S. Army Corps of Engineers; and, 2) a conditional point of compliance cannot be set for groundwater crossing a property boundary. However, we believe that there are mechanisms under MTCA which can address these issues. Proposed actions to address Ecology's concerns are described below.

Restrictive Covenant

The Corps property is owned by the federal government. In accordance with MTCA regulations (173-340-440(8) WAC), for properties owned by a local, state, or federal government entity, a restrictive covenant may not be required if that entity demonstrates that it 1) does not routinely file with the county recording officer such records; and 2) it will implement an effective alternative that meets the substantive requirements of the restrictive covenant described under 173-340-400(9) WAC.

Our client is discussing with the Corps a proposal for an effective alternative that may be implemented on the Corps property to take the place of a Restrictive Covenant. We believe that an alternative mechanism can be employed that will meet Ecology's requirements.

Conditional Point of Compliance

The Jacobson Terminals property abuts a surface water body, the Lake Washington Ship Canal. For properties abutting surface water, and those near surface water, MTCA allows for a conditional point of compliance to be established as close as practicable to the source, not to exceed the point or points where the groundwater flows into the surface water (173-340-720(8)(d)). All affected property owners between the source of contamination and the surface water body must agree in writing to the use of the conditional point of compliance. For this site, that would include the Corps and Jacobson Terminals, Inc.

We understand that to set a conditional point of compliance requires a demonstration that it is not practicable to meet the cleanup level throughout the site in a reasonable restoration time frame (173-340-720(8)(c) WAC). Such a demonstration typically involves conducting a Disproportionate Cost Analysis (DCA) of possible cleanup alternatives. Because removing the rest of the contaminated soil would require removal and replacement of two buildings, a transformer pad, and disruption of both Jacobson Terminals and Corps site operations, we believe that a DCA would support setting a conditional point of compliance at this site. We propose to submit a DCA for this purpose.

Summary

The 1996 cleanup action removed all accessible contaminated soil from the site. Based on the historical and recent monitoring data, residual contamination at the site is limited to a small area of soil and groundwater, and that groundwater contamination does not reach the Lake Washington Ship Canal. Institutional controls, including a Restrictive Covenant on the Jacobson Terminals property, have been implemented to maintain protectiveness.

The 'No Further Action' letter issued in 1998 did not require a Restrictive Covenant on the Corps property or a DCA to set a conditional point of compliance. As described above, we believe that an alternative mechanism can be used in place of the Restrictive Covenant on the Corps property, and that a DCA will indicate that cleanup at the site has been performed to the extent practicable. These measures would allow the 'No Further Action' letter to remain effective.

We request confirmation that Ecology would agree to consider the measures proposed in this letter as an alternative to rescinding the August 4, 1998 NFA letter.

Please contact me if you have any questions regarding this information.

Sincerely,

Aspect consulting, LLC

Jeremy Porter
Associate Engineer
jporter@aspectconsulting.com

Doug Hillman
Principal Hydrogeologist
dhillman@aspectconsulting.com

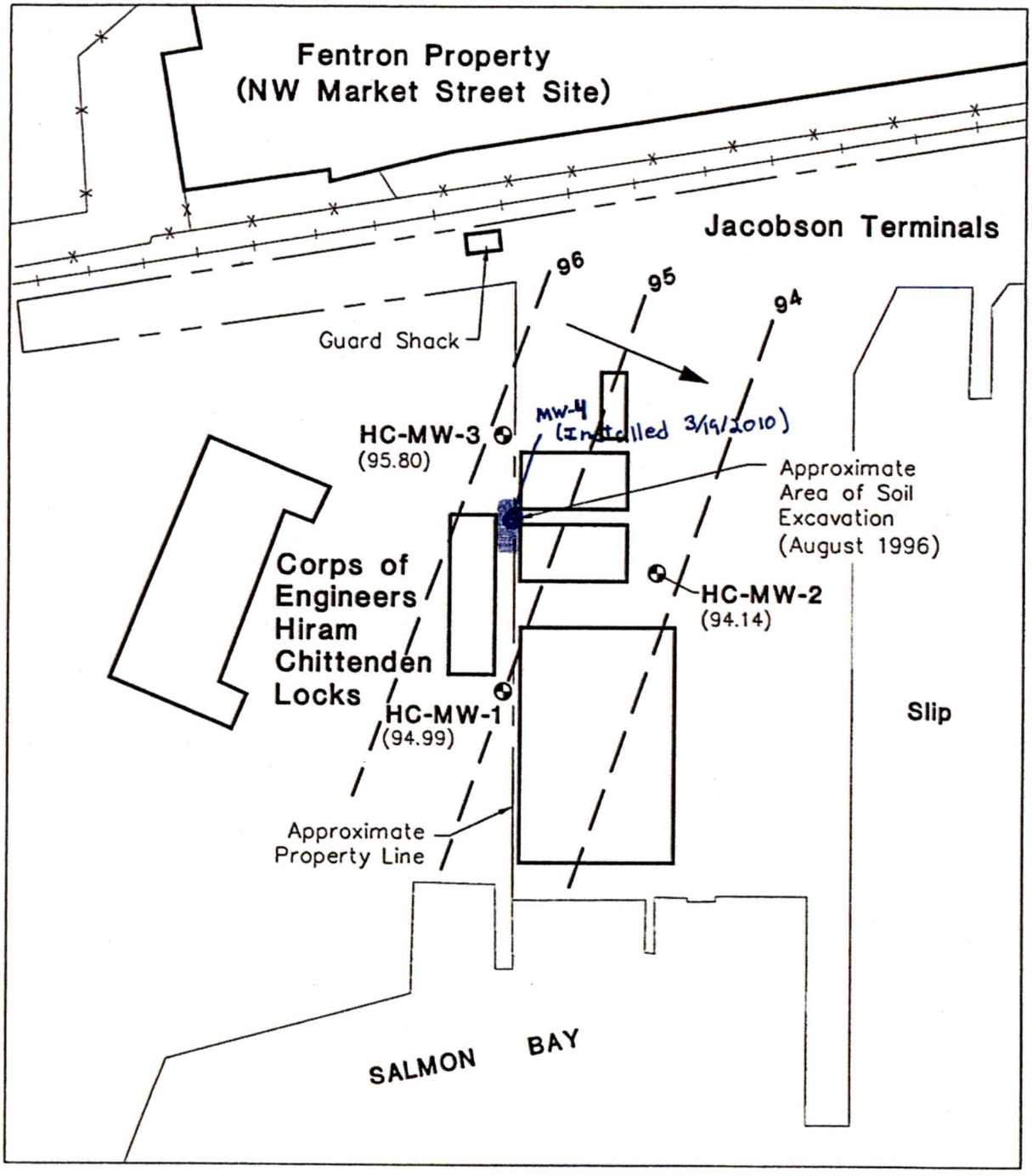
Attachments: Figure 1 – Monitoring Well Locations
Boring Log and Well Construction Details – MW-4
Laboratory Certificates of Analysis – Analytical Resources, Inc.
Results of December 1997 Groundwater Sampling and Analysis (under separate cover)

cc: Alan Jacobson, Jacobson Terminals, Inc.
Keith Moxon, Gordon Derr

V:\020030 Jacobson Terminals\april8 letter\Aspect draft Ecology letter 040710.doc

Monitoring Well Location Plan (Updated Mar. 2010)

Groundwater Elevation Contour Map (Dec. 1997)



HC-MW-1 Groundwater Monitoring Well Location and Number

(94.99) Groundwater Elevation in Feet (Measured on December 9, 1997)

—94— Groundwater Elevation Contour in Feet

→ Inferred Groundwater Flow Direction

0 100 200

Scale in Feet

Notes:
1. Base map prepared from 1977 aerial photograph by Walker and Associates and figure prepared by EMCON entitled "Northwest Market Street Site", dated June 1995.
2. Building locations and dimensions are approximate.
3. Elevations are relative to arbitrary datum (top of HC-MW-2 PVC casing = 100.00 feet)

HARTCROWSER

J-4617 1/98

Figure 1

CVD 12/30/97 1=100 wdstk.pcp
46170004

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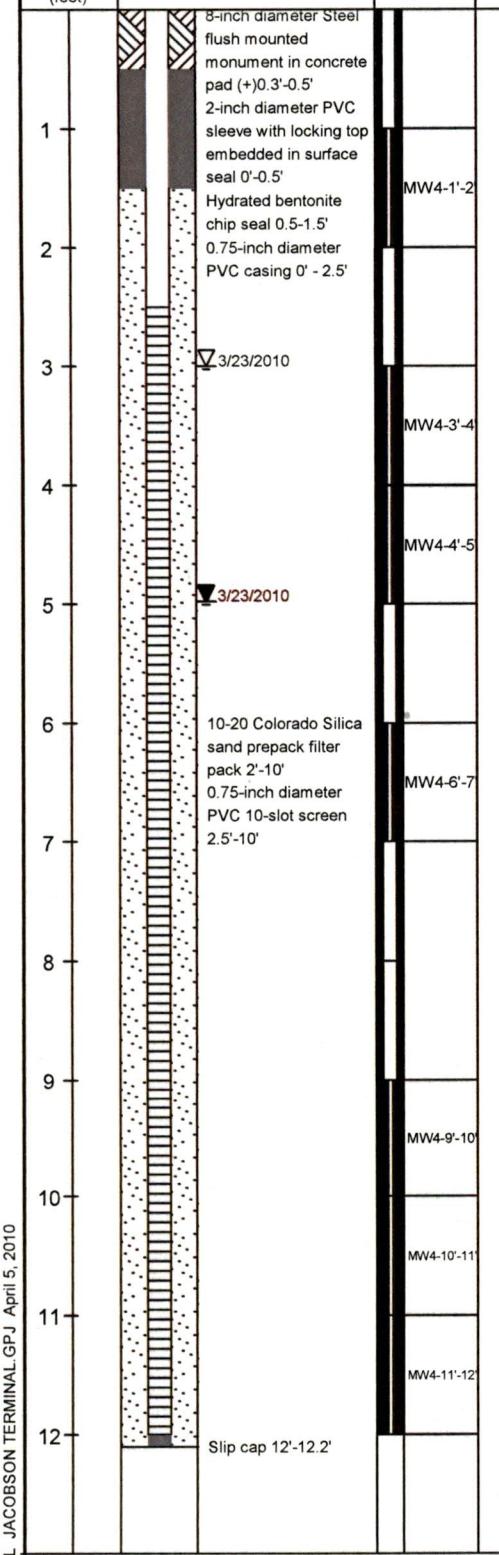
Monitoring Well Construction Log

Project Number	Well Number	Sheet
020030	MW-4	1 of 1

Project Name: Jacobson Terminal
Location: Seattle, Washington
Driller/Method: ESN / Direct push soil probe
Sampling Method: Contiuous Core

Ground Surface Elev
Top of Casing Elev.
Depth to Water (ft bgs) 4.98 - 3/23/2010
Start/Finish Date 3/23/2010



Depth / Elevation (feet)	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
	0			Loose, dry, brown, slightly silty to silty, sandy GRAVEL (GM); fine to coarse sand; fine to coarse gravel	
1	0			Loose, slightly moist, brown, silty, sandy GRAVEL (GM); fine to coarse sand; fine gravel; iron-oxide staining	1
2	0				2
	0				
3	0			Medium dense, very moist to wet, dark gray, gravelly, silty SAND (SM); fine gravel, fine to medium sand; abundant organics and occasional roots	3
4	0				4
5	0			Very silty at 4.5' - 5'	5
	0			Medium stiff, wet, gray, very sandy SILT (ML); mostly fine sand; trace fine gravel	
6	0			Stiff and moist at 6' - 6.5'	6
7	0				7
8	0			Loose, wet, dark gray, silty SAND (SM)	8
9	0				9
10	0			Medium stiff, very moist to moist, gray to brown SILT (ML); gray 10'-11'	10
11	0			Occasional wood at 10.5'	11
	0			Becomes brown at 11'; abundant organics; varve-like laminations	
12	0			Occasional wood at 11.5'	12
				Bottom of boring at 12'.	

Sampler Type:
- No Recovery
- Continuous Core
- Soil sample

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: JTL
Approved by: JJP
Figure No. 2

MONITORING WELL JACOBSON TERMINAL.GPJ April 5, 2010

Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 30, 2010

Jeremy Porter
Aspect Consulting
401 - 2nd Avenue, Suite 201
Seattle, WA 98104

RE: Jacobsen Terminals
ARI Job No: QP47

Dear Jeremy:

Please find enclosed the original chain of custody (COC) record and analytical results for the samples from the project referenced above. Analytical Resources, Inc. accepted three water samples in good condition on March 24, 2010.

The samples were analyzed for low-level PCBs and Acid/Silica Gel cleaned NWTPHD.

No analytical complications were noted for these analyses.

Copies of these reports and all raw data will be kept on file at ARI. If you have questions or require additional information, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Susan Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile QP47

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: QPH7	Turn-around Requested: 7 day (need results by 4/2/10)	Page: 1 of 1	
ARI Client Company: Aspect Consulting, LLC	Phone: (206)328-7443	Date: 3/23/10	Ice Present? Yes, gel
Client Contact: Jeremy Porter		No. of Coolers:	Cooler Temps:
Client Project Name: Jacobsen Terminals (JT)			
Client Project #: 020030	Samplers: JTL (Jeff Landrum)		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-Dx w/ Si. Ia. gel cleanup	Analysis Requested: Lower Limit PCBs	Notes/Comments
MW-2-032310	3.23.10	1340	W	4	X	X	2x500 ml AG, 2x1
MW-3-032310	↓	1500	↓	↓	X	X	↓
MW-4-032310	↓	1245	↓	↓	X	X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
• Use silica gel cleanup for NW-TPH-Dx. • Use low limits for PCBs. • return results by 4.2.2010 (Friday)	Printed Name: Jeff Landrum	Printed Name: Rich Hudson	Printed Name:	Printed Name:
	Company: Aspect Consulting	Company: ARI	Company:	Company:
	Date & Time: 3/24/10 08:00	Date & Time: 3/24/10 1250	Date & Time:	Date & Time:

Analytical Resources, orporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Aspect

Project Name: Jacobsen Terminals

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: _____

Assigned ARI Job No: QP47

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	(YES)	NO
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.3

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: _____ Date: 3/24/10 Time: 1250

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ...	(Bubble Wrap) Wet Ice (Gel Packs) Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)	_____	

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

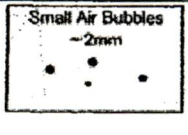
Samples Logged by: AV Date: 3/24/10 Time: 1315

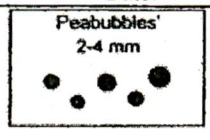
*** Notify Project Manager of discrepancies or concerns ***

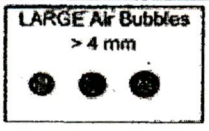
Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:







Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MB-032510
METHOD BLANK

Lab Sample ID: MB-032510
LIMS ID: 10-7574
Matrix: Water
Data Release Authorized: VB
Reported: 03/30/10

QC Report No: QP47-Aspect Consulting
Project: Jacobsen Terminals (JT) 020030
Date Sampled: NA
Date Received: NA

Date Extracted: 03/25/10
Date Analyzed: 03/26/10 15:14
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.010	< 0.010 U
37324-23-5	Aroclor 1262	0.010	< 0.010 U
11100-14-4	Aroclor 1268	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	86.0%
Tetrachlorometaxylene	85.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MW-2-032310
SAMPLE

Lab Sample ID: QP47A
LIMS ID: 10-7574
Matrix: Water
Data Release Authorized: VTS
Reported: 03/30/10

QC Report No: QP47-Aspect Consulting
Project: Jacobsen Terminals (JT) 020030
Date Sampled: 03/23/10
Date Received: 03/24/10

Date Extracted: 03/25/10
Date Analyzed: 03/26/10 15:57
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.010	< 0.010 U
37324-23-5	Aroclor 1262	0.010	< 0.010 U
11100-14-4	Aroclor 1268	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	69.8%
Tetrachlorometaxylene	69.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MW-3-032310
SAMPLE

Lab Sample ID: QP47B
LIMS ID: 10-7575
Matrix: Water
Data Release Authorized: VR
Reported: 03/30/10

QC Report No: QP47-Aspect Consulting
Project: Jacobsen Terminals (JT) 020030
Date Sampled: 03/23/10
Date Received: 03/24/10

Date Extracted: 03/25/10
Date Analyzed: 03/26/10 16:18
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.010	< 0.010 U
37324-23-5	Aroclor 1262	0.010	< 0.010 U
11100-14-4	Aroclor 1268	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	64.5%
Tetrachlorometaxylene	57.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MW-4-032310
SAMPLE

Lab Sample ID: QP47C
LIMS ID: 10-7576
Matrix: Water
Data Release Authorized: VTS
Reported: 03/30/10

QC Report No: QP47-Aspect Consulting
Project: Jacobsen Terminals (JT) 020030
Date Sampled: 03/23/10
Date Received: 03/24/10

Date Extracted: 03/25/10
Date Analyzed: 03/27/10 09:35
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 5.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	0.050	< 0.050 U
53469-21-9	Aroclor 1242	0.050	< 0.050 U
12672-29-6	Aroclor 1248	0.075	< 0.075 Y
11097-69-1	Aroclor 1254	0.25	< 0.25 Y
11096-82-5	**Aroclor 1260**	**0.050**	**0.60**
11104-28-2	Aroclor 1221	0.050	< 0.050 U
11141-16-5	Aroclor 1232	0.050	< 0.050 U
37324-23-5	Aroclor 1262	0.050	< 0.050 U
11100-14-4	Aroclor 1268	0.050	< 0.050 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	82.6%
Tetrachlorometaxylene	75.1%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QP47-Aspect Consulting
Project: Jacobsen Terminals (JT) 020030

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-032510	86.0%	32-108	85.8%	31-100	0
LCS-032510	91.2%	32-108	87.5%	31-100	0
MW-2-032310	69.8%	19-111	69.0%	21-100	0
MW-3-032310	64.5%	19-111	57.5%	21-100	0
MW-4-032310	82.6%	19-111	75.1%	21-100	0

Prep Method: SW3510C
Log Number Range: 10-7574 to 10-7576

FORM-II SW8082

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082

Sample ID: LCS-032510
LAB CONTROL

Lab Sample ID: LCS-032510
LIMS ID: 10-7574
Matrix: Water
Data Release Authorized: VB
Reported: 03/30/10

QC Report No: QP47-Aspect Consulting
Project: Jacobsen Terminals (JT) 020030
Date Sampled: NA
Date Received: NA

Date Extracted: 03/25/10
Date Analyzed: 03/26/10 15:35
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	0.061	0.050	122%
Aroclor 1260	0.053	0.050	106%

PCB Surrogate Recovery

Decachlorobiphenyl	91.2%
Tetrachlorometaxylene	87.5%

Results reported in µg/L

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1
Matrix: Water

QC Report No: QP47-Aspect Consulting
Project: Jacobsen Terminals (JT)
020030

Data Release Authorized:
Reported: 03/29/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
MB-032510	Method Blank	03/25/10	03/26/10	1.00	Diesel	0.25	< 0.25 U
10-7574	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		86.6%
QP47A	MW-2-032310	03/25/10	03/26/10	1.00	Diesel	0.25	< 0.25 U
10-7574	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		84.7%
QP47B	MW-3-032310	03/25/10	03/26/10	1.00	Diesel	0.25	< 0.25 U
10-7575	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		78.5%
QP47C	MW-4-032310	03/25/10	03/27/10	1.00	Diesel	0.25	< 0.25 U
10-7576	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		83.9%

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QP47-Aspect Consulting
Project: Jacobsen Terminals (JT) 020030

Client ID	OTER	TOT OUT
MB-032510	86.6%	0
LCS-032510	88.0%	0
MW-2-032310	84.7%	0
MW-3-032310	78.5%	0
MW-4-032310	83.9%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(51-120)	(41-121)

Prep Method: SW3510C
Log Number Range: 10-7574 to 10-7576

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-032510**
Page 1 of 1 **LAB CONTROL**

Lab Sample ID: LCS-032510
LIMS ID: 10-7574
Matrix: Water
Data Release Authorized:
Reported: 03/29/10

QC Report No: QP47-Aspect Consulting
Project: Jacobsen Terminals (JT) 020030
Date Sampled: 03/23/10
Date Received: 03/24/10

Date Extracted: 03/25/10
Date Analyzed: 03/26/10 22:14
Instrument/Analyst: FID/MS

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	2.12	3.00	70.7%

TPHD Surrogate Recovery

o-Terphenyl	88.0%

Results reported in mg/L

FORM III

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: QP47
Matrix: Water
Project: Jacobsen Terminals (JT)
Date Received: 03/24/10
020030

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
10-7574-032510MB1	Method Blank	500 mL	1.00 mL	03/25/10
10-7574-032510LCS1	Lab Control	500 mL	1.00 mL	03/25/10
10-7574-QP47A	MW-2-032310	500 mL	1.00 mL	03/25/10
10-7575-QP47B	MW-3-032310	500 mL	1.00 mL	03/25/10
10-7576-QP47C	MW-4-032310	500 mL	1.00 mL	03/25/10