Data Review

The data quality review of the 10 primary groundwater samples, two field duplicate groundwater samples and one trip blank collected on March 1st and 2nd, 2012 at the Harbor Island site in Seattle, Washington has been completed. Samples were submitted to Accutest Laboratories of San Jose, California. The samples submitted were analyzed for the following: benzene, toluene, ethylbenzene, and xylene (BTEX; EPA Method 8260B) and gasoline-range petroleum hydrocarbons (NWTPH-Gx).

The review included the analytical data presented in Accutest report C20687. The data were reviewed based on *USEPA Contract Laboratory Program National Functional Guidelines (NFGs) for Organic Data Review*, June 2008 and laboratory quality control criteria. Items reviewed included: chain-of-custody (COC) records, hold times, surrogate recoveries, matrix spike and matrix spike duplicate (MS/MSD) results, laboratory control and laboratory control duplicate (LCS/LCSD) results, laboratory duplicate results, field duplicate results, method blank results and trip blank results. Qualifiers assigned as a result of the review are discussed below. Data qualifiers assigned to sample results during this data review are presented in Table 1.

The following criteria were evaluated during the review:

- <u>COC Records</u> Acceptable
- <u>Temperature</u> Acceptable
- <u>Preservation</u> Acceptable
- <u>Hold Times</u> Acceptable
- <u>Trip Blanks</u> Acceptable
- <u>Method Blanks</u> Acceptable
- <u>Surrogates</u> Acceptable
- <u>Laboratory Control Samples (LCS/LCSD)</u> Acceptable
- <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u> Acceptable
- Field Duplicate Sample MW-305D-0312 (C20687-4) was submitted as a field duplicate of primary sample MW-305-0312 (C20687-3) and sample MW-301D-0312 (C20687-13) was submitted as a field duplicate of primary sample MW-301-0312 (C20687-12). Relative percent difference (RPD) calculations were performed on the field duplicate sample pair results when the sample results were greater than five times the method reporting limit. All RPDs for duplicate pairs were within the historical project control limit of 20% with the exception of benzene results for the MW-305D-0312 / MW-305-0312 pair. The RPD for benzene exceeded the 20% limit at 22%. Therefore, benzene results for the primary and duplicate samples were qualified as estimated and flagged 'J' due to

the RPD exceedances.

• <u>Reporting Limits</u> – The laboratory reported all detections between the MDL and MRL as estimated and flagged the results 'J'. Additional qualifiers were not added during the data review process. Reporting limits in a few instances were elevated due to the dilutions, no qualifications of the data is necessary.

Overall Assessment of Data

The completeness of the analytical reports for this groundwater monitoring event is 100%. The usefulness of the data is based on the USEPA guidance documents referenced in the introduction of this report. Upon consideration of the information presented above, the data are considered usable. The data qualifiers assigned by the laboratory are shown on the laboratory reports.

Data Qualifier Definitions

- 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.
- 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.
- DNR Do Not Report. Another result is available that is more reliable.

References

USEPA 2008a. U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review. June 2008.

Client Sample ID	Laboratory Sample ID	Analyte	Qualifier	Rationale
MW-305D-0312	C20687-4	Benzene	I	Field duplicate
MW-305-0312	C20687-3	Deližene	5	RPD

Table 1. Sample Qualification Summary

Data Review

The data quality review of the 12 primary groundwater samples, one field duplicate groundwater samples and one trip blank collected between June 11th and June 13th, 2012, and one primary groundwater sample and one trip blank collected on June 28th, 2012 at the Harbor Island site in Seattle, Washington has been completed. Samples were submitted to Accutest Laboratories of San Jose, California. The samples submitted were analyzed for one or more of the following: benzene, toluene, ethylbenzene, and xylene (BTEX; EPA Method 8260B); TPH gasoline (NWTPH-Gx); TPH diesel and TPH Motor Oil (NWTPH-Dx) with silica gel cleanup; polycyclic aromatic hydrocarbons (PAHs; EPA Method 8260C); and total lead (EPA Method 6010B).

The review included the analytical data presented in Accutest reports C22300 and C22512. The data were reviewed based on *USEPA Contract Laboratory Program National Functional Guidelines (NFGs) for Organic Data Review*, June 2008 and laboratory quality control criteria. Items reviewed included: chain-of-custody (COC) records, hold times, surrogate recoveries, matrix spike and matrix spike duplicate results, laboratory control and laboratory control duplicate results, laboratory duplicate results, field duplicate results, method blank results and trip blank results. Qualifiers assigned as a result of this review are discussed below and presented in Table 1.

The following criteria were evaluated during the review:

• <u>COC Records</u> – Acceptable

Sample MW-301-0612 was collected on June 12th, 2012 and misidentified on the COC as sample MW-302-0612. The field staff was not able to collect a sample at MW-302 during the initial sampling event due to a car being parked over the monitoring well. Field staff returned on June 28th to collect sample MW-302-0612. Table 2 of the Second Quarter Progress Report has been updated to account for the mislabeled sample. No further qualification is necessary.

- <u>Temperature</u> Acceptable
- <u>Preservation</u> Acceptable
- <u>Hold Times</u> Acceptable
- <u>Trip Blanks</u> Acceptable
- <u>Method Blanks</u> Acceptable with the following exceptions:
- <u>Surrogates</u> Acceptable
- <u>Laboratory Control Samples (LCS/LCSD)</u> Acceptable
- <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u> Acceptable with the following exceptions:

<u>PAHs by EPA Method 8260C</u> – The benzo(b)fluoranthene MSD recovery was below laboratory limits of 41% at 38% in batch ET197. The LCS/LCSD recoveries were acceptable indicating that the analytical batch was in control. Only the parent sample, MW-214D-0612 (C22300-7), result was qualified as estimated and flagged 'UJ' to account for the potential low bias.

The MS/MSD relative percent differences (RPDs) for benzo(a)anthracene (49%), benzo(a)pyrene (48%), benzo(b)fluoranthene (46%), benzo(g,h,i)perylene (47%), benzo(k)fluoranthene (52%), chrysene (46%), dibenzo(a,h)anthracene (46%), fluoranthene (42%), indeno(1,2,3-cd)pyrene (48%), and pyrene (33%) exceeded their respective laboratory control limits of 33%, 33%, 34%, 32%, 32%, 31%, 31%, 33%, 34%, and 29%. With the exception of the MSD noted above, all MS/MSD recoveries were acceptable, therefore; no qualification is necessary due to RPD exceedances.

- <u>Field Duplicate</u> Sample MW-214D-0612 (C22300-7) was submitted as a field duplicate of primary sample MW-214-0612 (C22300-6). RPD calculations were performed on the field duplicate sample pair results when the sample results were greater than five times the method reporting limit. All calculated RPDs for duplicate pairs were within the historical project control limit of 20%.
- <u>Reporting Limits</u> The laboratory reported all detections between the MDL and MRL as estimated and flagged the results 'J'. Additional qualifiers were not added during the data review process. Reporting limits in a few instances were elevated due to the dilutions, no qualifications of the data is necessary.

Overall Assessment of Data

The completeness of the analytical reports for this groundwater monitoring event is 100%. The usefulness of the data is based on the USEPA guidance documents referenced in the introduction of this report. Upon consideration of the information presented above, the data are considered usable. The data qualifiers assigned by the laboratory are shown on the laboratory reports.

References

USEPA, 2008. U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review. June 2008.

Client Sample ID	Laboratory Sample ID	Analyte	Qualifier	Rationale
MW-214D-0612	C22300-7	benzo(b)fluoranthene	UJ	Matrix spike recovery

Table 1. Sample Qualification Summary

Data Review

The data quality review of the 10 primary groundwater samples, two field duplicate groundwater samples and one trip blank collected on September 25th and September 26th, 2012 at the Harbor Island site in Seattle, Washington has been completed. Samples were submitted to Accutest Laboratories of San Jose, California. The samples submitted were analyzed for one or more of the following: benzene, toluene, ethylbenzene, and xylene (BTEX; EPA Method 8260B); and TPH gasoline (NWTPH-Gx).

The review included the analytical data presented in Accutest report C23895. The data were reviewed based on *United States Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines (NFGs) for Organic Data Review*, June 2008 and laboratory quality control criteria. Items reviewed included: chain-of-custody (COC) records, hold times, surrogate recoveries, matrix spike and matrix spike duplicate results, laboratory control and laboratory control duplicate results, laboratory duplicate results, method blank results and trip blank results. No data qualifiers were assigned as a result of this review.

The following criteria were evaluated during the review:

- <u>COC Records</u> Acceptable
- <u>Temperature</u> Acceptable
- <u>Preservation</u> Acceptable
- <u>Hold Times</u> Acceptable
- <u>Trip Blanks</u> Acceptable
- <u>Method Blanks</u> Acceptable
- <u>Surrogates</u> Acceptable
- <u>Laboratory Control Samples (LCS/LCSD)</u> Acceptable
- <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u> Acceptable
- <u>Field Duplicate</u> Sample MW-301D-0912 (C23895-5) was submitted as a field duplicate of primary sample MW-301-0912 (C23895-4) and sample MW-305D-0912 (C23895-11) was submitted as a field duplicate of primary sample MW-305-0912 (C23895-10). Relative percent difference (RPD) calculations were performed on the field duplicate sample pair results when the sample results were greater than five times the method reporting limit. All calculated RPDs for duplicate pairs were within the historical project control limit of 20%.

<u>Reporting Limits</u> – The laboratory reported all detections between the method detection limit (MDL) and method reporting limit (MRL) as estimated and flagged the results 'J'.

Overall Assessment of Data

The completeness of the analytical reports for this groundwater monitoring event is 100%. The usefulness of the data is based on the USEPA guidance documents referenced in the introduction of this report. Upon consideration of the information presented above, the data are considered usable. Additional qualifiers were not added during the data review process.

References

USEPA, 2008. U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review. June 2008.

Data Review

The data quality review of the 29 primary groundwater samples, three field duplicate groundwater samples and four trip blank collected on November 25th through November 29th, 2012 at the Harbor Island site in Seattle, Washington has been completed. Samples were submitted to Accutest Laboratories of San Jose, California. The samples submitted were analyzed for one or more of the following: benzene, toluene, ethylbenzene, and xylene (BTEX; EPA Method 8260B); TPH gasoline (NWTPH-Gx); TPH diesel and motor oil (NWTPH-Dx) with silica gel cleanup; polycyclic aromatic hydrocarbons (PAH; EPA Method 8270C SIM); methane and carbon dioxide (RSK-175); total metals (lead, calcium, iron and magnesium (EPA Method 6010B); total alkalinity (SM2320B); total hardness (SM 2340B); and sulfate (EPA Method 300).

The review included the analytical data presented in Accutest reports C24954, C24962, C25004, and C25081. The data were reviewed based on *United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) National Functional Guidelines (NFGs) for Organic Data Review*, June 2008, *USEPA CLP NFGs for Inorganic Superfund Data Review*, January 2010, and laboratory quality control criteria. Items reviewed included: chain-of-custody (COC) records, hold times, surrogate recoveries, matrix spike and matrix spike duplicate results, laboratory control and laboratory control duplicate results, laboratory duplicate results, field duplicate results, method blank results and trip blank results. Data qualifiers assigned to sample results during this data review are presented in Table 1.

The following criteria were evaluated during the review:

- <u>COC Records</u> Acceptable
- <u>Temperature</u> Acceptable
- <u>Preservation</u> Acceptable
- <u>Hold Times</u> Acceptable with the following exceptions:

<u>TPH Gasoline by NWTPH-Gx</u> – MW-102-1112 (C25004-12) was analyzed two days outside the fourteen day recommended holding time. The sample result is qualified as estimated and flagged 'UJ'.

- <u>Trip Blanks</u> Acceptable
- <u>Method Blanks</u> Acceptable with the following exceptions:

<u>Carbon Dioxide by RSK175</u> – Carbon dioxide was detected at a concentration of 29.0 μ g/L in the method blank associated with batch GAA71 of report C24962. Associated sample results were greater than five times the detected method blank concentration, therefore; no qualification is necessary.

Total Alkalinity by SM2320B – Total alkalinity was detected at a concentration of 1.6

mg/L in the method blank associated with batch GN9635 of report C25004. Associated sample results were greater than five times the detected method blank concentration, therefore; no qualification is necessary.

- <u>Surrogates</u> Acceptable
- <u>Laboratory Control Samples (LCS/LCSD)</u> Acceptable
- <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u> Acceptable
- <u>Laboratory Duplicate</u> Acceptable
- <u>Field Duplicate</u> Sample MW-301D-1112 (C25004-4) was submitted as a field duplicate of primary sample MW-301-1112 (C25004-3), sample MW-305D-1112 (C25004-7) was submitted as a field duplicate of primary sample MW-305-1112 (C25004-6) and sample MW-214D-1112 (C25081-6) was submitted as a field duplicate of primary sample MW-214-1122 (C25081-5) Relative percent difference (RPD) calculations were performed on the field duplicate sample pair results when the sample results were greater than five times the method reporting limit (MRL). All calculated RPDs for duplicate pairs were within the historical project control limit of 20%.
- <u>Reporting Limits</u> The laboratory reported all detections between the method detection limit (MDL) and MRL as estimated and flagged the results 'J'.

Overall Assessment of Data

The completeness of the analytical reports for this groundwater monitoring event is 100%. The usefulness of the data is based on the USEPA guidance documents referenced in the introduction of this report. Upon consideration of the information presented above, the data are considered usable. Additional qualifiers were not added during the data review process.

Data Qualifier Definitions

- 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.
- 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.
- DNR Do Not Report. Another result is available that is more reliable.

References

USEPA, 2008. U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review. June 2008.

USEPA, 2010. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review. January 2010.

Client Sample ID	Laboratory Sample ID	Analyte	Qualifier	Rationale
MW-102-1112	25004-12	TPH as gasoline	UJ	Hold time

Table 1. Sample Qualification Summary



03/21/12

Technical Report for

Shell Oil Products

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

46194315

Accutest Job Number: C20687



Sampling Dates: 03/01/12 - 03/02/12

Report to:

URS Corporation 111 SW Columbia, Suite 1500 Portland, OR 97201-5850 brian_pletcher@urscorp.com

ATTN: Brian Pletcher

Total number of pages in report: 53



manles

Kesavalu M. Bagawandoss, Ph.D., J.D., Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Vincent Vancil 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242) This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.



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Sample Summary

Shell Oil Products

Job No: C20687

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Project No: 46194315

Sample Number	Collected Date	Time By	Received	Matri Code	ix Type	Client Sample ID
C20687-1	03/01/12	00:00 DL	03/06/12	AQ	Trip Blank Water	TRIP BLANK
C20687-2	03/01/12	10:50 DL	03/06/12	AQ	Ground Water	MW-306-0312
C20687-3	03/01/12	11:45 DL	03/06/12	AQ	Ground Water	MW-305-0312
C20687-4	03/01/12	12:00 DL	03/06/12	AQ	Ground Water	MW-305D-0312
C20687-5	03/01/12	13:10 DL	03/06/12	AQ	Ground Water	SH-04-0312
C20687-6	03/01/12	14:15 DL	03/06/12	AQ	Ground Water	MW-104-0312
C20687-7	03/01/12	15:15 DL	03/06/12	AQ	Ground Water	MW-304-0312
C20687-8	03/01/12	16:10 DL	03/06/12	AQ	Ground Water	TX-03A-0312
C20687-9	03/01/12	16:55 DL	03/06/12	AQ	Ground Water	MW-302-0312
C20687-10	03/02/12	08:30 DL	03/06/12	AQ	Ground Water	MW-202-0312
C20687-11	03/02/12	09:20 DL	03/06/12	AQ	Ground Water	MW-303-0312
C20687-12	03/02/12	09:50 DL	03/06/12	AQ	Ground Water	MW-301-0312
C20687-13	03/02/12	10:30 DL	03/06/12	AQ	Ground Water	MW-301D-0312



N



Sample Results

Report of Analysis



Client Sample ID: Lab Sample ID: Matrix: Method: Project:		TRIP BLAN C20687-1 AQ - Trip E SW846 826 URSORP: S	VK Blank Water 0B Shell/Harbor Isla	and - 2555 1	3th Ave SW., Se	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a h Ave SW., Seattle, WA		
File II Run #1 N2909 Run #2		D .D 1	F Analy 03/13/	zed By (12 TF	Prep Date n/a	e Prep Batch n/a	Analytical Batch VN951	
Run #1 Run #2 Purgeable	Purge V 10.0 ml Aromatic	/olume cs						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	88%		60-1	30%	
2037-26-5	Toluene-D8	100%		60-1	30%	
460-00-4	4-Bromofluorobenzene	96%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sam Lab Sampl Matrix: Method: Project:	aple ID: TRIP le ID: C206 AQ - NWT URSC	BLANK 87-1 Trip Blank PH-GX DRP: Shell/	Water Harbor Island -	2555 13t	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1	File ID	DF	Analyzed 03/09/12	By TT	Prep Date	Prep Batch	Analytical Batch	
Run #2	31120275.0	I	03/07/12	11	11/ u	11/ a	GJX1005	
	Purge Volum	e						
Run #1 Run #2	10.0 ml							
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL Uni	ts Q		

	TPH (Gasoline)	ND	0.20	0.050 mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	102% 105%		50-150% 50-150%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW- ole ID: C206 AQ - SW8 URS	MW-306-0312 C20687-2 AQ - Ground Water SW846 8260B URSORP: Shell/Harbor Island - 2555 13th			Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a h Ave SW., Seattle, WA		
Run #1 Run #2	File ID DF Analyzed H Run #1 N29095.D 10 03/13/12 T Run #2 10 10 10 10 10			By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VN951
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	le					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	606	10	2.0	ug/l	
108-88-3	Toluene	15.0	10	2.0	ug/l	
100-41-4	Ethylbenzene	35.3	10	2.0	ug/l	
1330-20-7	Xylene (total)	718	20	4.6	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	92%		60-1	30%	
2037-26-5	Toluene-D8	99%		60-1	30%	
460-00-4	4-Bromofluorobenzene	96%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



TPH (Gasoline)

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

CAS No.

98-08-8

460-00-4

Client Sample ID:MW-306-0312Lab Sample ID:C20687-2Matrix:AQ - Ground WaterMethod:NWTPH-GXProject:URSORP: Shell/Harbor Island - 2555 13t					Date Sampled:03/01/12Date Received:03/06/12Percent Solids:n/a3th Ave SW., Seattle, WA			
Run #1 Run #2	File ID JK26277.D	DF 10	Analyzed 03/09/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1065	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL Units	s Q		

2.0

Run# 2

0.50

Limits

50-150%

50-150%

mg/l

4.74

Run#1

102%

110%

Report of Analysis

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- $J = \ Indicates \ an \ estimated \ value$
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Report of Analysis

Client San Lab Samp Matrix: Method: Project:	nple ID: le ID:	MW-305-0312 C20687-3 AQ - Ground V SW846 8260B URSORP: She	Water 11/Harbor Island -	2555 13t	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID N29096	.D 20	Analyzed 03/13/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VN951	
Run #1 Run #2 Purgeable	Purge V 10.0 ml Aromatic	/olume						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	1140 22.7 38.9 37.5	20 20 20 40	4.0 4.0 4.0 9.2	ug/l ug/l ug/l ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	91% 100% 97%		60-1 60-1 60-1	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



TPH (Gasoline)

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

CAS No.

98-08-8

460-00-4

Client Sample ID:MW-305-0312Lab Sample ID:C20687-3Date Sampled:03/01/2Matrix:AQ - Ground WaterDate Received:03/06/2Method:NWTPH-GXPercent Solids:n/aProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA							8/01/12 8/06/12 a			
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
Run #1 Run #2	JK26278.D	10	03/09/12	TT	n/a	n/a	GJK1065			
	Purge Volum	e								
Run #1 Run #2	10.0 ml									
Northwest	Northwest TPH-Gx									
CAS No.	Compound		Result	RL	MDL Unit	s Q				

2.0

Run# 2

0.50

Limits

50-150%

50-150%

mg/l

5.84

Run#1

109%

121%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Saı Lab Samp Matrix: Method: Project:	mple ID: MW- ble ID: C2063 AQ - SW84 URSC	805D-0312 87-4 Ground Wa 6 8260B DRP: Shell/	ater 'Harbor Island -	2555 13tl	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID W29232.D	DF 20	Analyzed 03/13/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW992	
Run #1 Run #2 Purgeable	Purge Volume 10.0 ml	e						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1420	20	4.0	ug/l	
108-88-3	Toluene	22.6	20	4.0	ug/l	
100-41-4	Ethylbenzene	40.0	20	4.0	ug/l	
1330-20-7	Xylene (total)	34.8	40	9.2	ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	102%		60-1	30%	
2037-26-5	Toluene-D8	94%		60-1	30%	
460-00-4	4-Bromofluorobenzene	99%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Report of Analysis	
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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C2068 AQ - NWT URSC	305D-0312 37-4 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a and - 2555 13th Ave SW., Seattle, WA					
Run #1	File ID IK26279 D	DF 10	Analyzed 03/09/12	By TT	Prep Date	Prep Batch	Analytical Batch		
Run #2	51120279.10	10	03/03/12		11/ u	11/ u	Controls		
Run #1 Run #2	Purge Volum 10.0 ml	e							
Northwest	TPH-Gx								
CAS No.	Compound		Result	RL	MDL Unit	s Q			

	TPH (Gasoline)	6.00	2.0	0.50 mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	107% 120%		50-150% 50-150%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Saı Lab Samı Matrix: Method: Project:	mple ID: SH-04 ple ID: C2060 AQ - SW84 URS0	4-0312 87-5 Ground Wa 46 8260B DRP: Shell/	ater Harbor Island -	2555 13th	Date Sampled:03/01/12Date Received:03/06/12Percent Solids:n/ath Ave SW., Seattle, WA			
Run #1 Run #2	File ID W29233.D	DF 10	Analyzed 03/13/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW992	
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	e						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	614	10	2.0	ug/l	
108-88-3	Toluene	22.7	10	2.0	ug/l	
100-41-4	Ethylbenzene	93.2	10	2.0	ug/l	
1330-20-7	Xylene (total)	12.4	20	4.6	ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	95%		60-1	30%	
2037-26-5	Toluene-D8	95%		60-1	30%	
460-00-4	4-Bromofluorobenzene	101%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Report of Analysis

Client Sar Lab Samp Matrix: Method: Project:	nple ID: SH-04 ole ID: C2068 AQ - NWT URSC	SH-04-0312 C20687-5 AQ - Ground Water NWTPH-GX URSORP: Shell/Harbor Island - 2555 13t				Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID JK26280.D	DF 10	Analyzed 03/09/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1065	
Run #1 Run #2	Purge Volume 10.0 ml	e							
Northwest	t TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasolir	ne)	5.53	2.0	0.50	mg/l			

Run# 2

Limits

50-150%

50-150%

Run#1

108%

128%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



C20687

2.5 2

Client San Lab Samp Matrix: Method: Project:	nple ID: MV de ID: C2 AQ SW UR	V-104-0312 0687-6 9 - Ground Wa 846 8260B SORP: Shell/	ater 'Harbor Island -	2555 13tl	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID W29234.D	DF 1	Analyzed 03/13/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW992	
Run #1 Run #2 Purgeable	Purge Volu 10.0 ml	me						

CAS No. Compound		Result	RL	MDL	Units	Q
71-43-2	Benzene	0.79	1.0	0.20	ug/l	J
108-88-3	Toluene	1.5	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	46.7	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	1.6	2.0	0.46	ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2 Limits		its	
1868-53-7	Dibromofluoromethane	94%		60-1	30%	
2037-26-5	Toluene-D8	94%		60-1	30%	
460-00-4	4-Bromofluorobenzene	100%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C2068 AQ - NWT URSC	104-0312 87-6 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a n Ave SW., Seattle, WA			
Run #1 Run #2	File ID JK26298.D	DF 10	Analyzed 03/12/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1065
Run #1 Run #2	Purge Volume 10.0 ml	e					
Northwest CAS No.	t TPH-Gx Compound		Result	RL	MDL Unit	s O	

	TPH (Gasoline)	3.69	2.0	0.50 mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	103% 122%		50-150% 50-150%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Client Saı Lab Samp Matrix: Method: Project:	mple ID: MW- ple ID: C206 AQ - SW84 URS0	304-0312 87-7 Ground Wa 6 8260B DRP: Shell/	ater Harbor Island -	2555 13th	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a th Ave SW., Seattle, WA		
Run #1 Run #2	File ID W29235.D	DF 10	Analyzed 03/13/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW992
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	e					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	686	10	2.0	ug/l	
108-88-3	Toluene	35.1	10	2.0	ug/l	
100-41-4	Ethylbenzene	214	10	2.0	ug/l	
1330-20-7	Xylene (total)	264	20	4.6	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2 Limits		its	
1868-53-7	Dibromofluoromethane	95%		60-1	30%	
2037-26-5	Toluene-D8	95%		60-1	30%	
460-00-4	4-Bromofluorobenzene	99%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



TPH (Gasoline)

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

CAS No.

98-08-8

460-00-4

Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C206 AQ - NWT URSC	304-0312 87-7 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	Date Sampled:03/01/12Date Received:03/06/12Percent Solids:n/aSth Ave SW., Seattle, WA					
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch		
Run #1 Run #2	JK26284.D	10	03/09/12	TT	n/a	n/a	GJK1065		
	Purge Volum	e							
Run #1 Run #2	10.0 ml								
Northwest	Northwest TPH-Gx								
CAS No.	Compound		Result	RL	MDL Unit	s Q			

2.0

Run# 2

0.50

Limits

50-150%

50-150%

mg/l

5.64

Run#1

101%

113%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sar Lab Samp Matrix: Method: Project:	nple ID: TX-0. ble ID: C206 AQ - SW84 URSC	3A-0312 87-8 Ground Wa 6 8260B DRP: Shell/	ater Harbor Island -	2555 13tł	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID W29236.D	DF 20	Analyzed 03/13/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW992	
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	e						

CAS No. Compound		Result	RL	MDL	Units	Q
71-43-2	Benzene	1740	20	4.0	ug/l	
108-88-3	Toluene	26.1	20	4.0	ug/l	
100-41-4	Ethylbenzene	27.2	20	4.0	ug/l	
1330-20-7	Xylene (total)	34.5	40	9.2	ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2 Limits		its	
1868-53-7	Dibromofluoromethane	100%		60-1	30%	
2037-26-5	Toluene-D8	95%		60-1	30%	
460-00-4	4-Bromofluorobenzene	101%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





TPH (Gasoline)

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

CAS No.

98-08-8

460-00-4

Client San Lab Samp Matrix: Method: Project:	nple ID: TX-03 de ID: C2063 AQ - NWT URSC	3A-0312 87-8 Ground W PH-GX DRP: Shell/	ater 'Harbor Island -	2555 13tl	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a .3th Ave SW., Seattle, WA				
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch		
Run #1 Run #2	JK26285.D	10	03/09/12	TT	n/a	n/a	GJK1065		
	Purge Volum	e							
Run #1 Run #2	10.0 ml								
Northwest	Northwest TPH-Gx								
CAS No.	Compound		Result	RL	MDL Unit	ts Q			

2.0

Run# 2

0.50

Limits

50-150%

50-150%

mg/l

5.58

Run#1

104%

114%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Saı Lab Samp Matrix: Method: Project:	mple ID: MW- ple ID: C206 AQ - SW84 URSC	302-0312 87-9 Ground W 6 8260B DRP: Shell/	ater 'Harbor Island -	2555 13tl	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID W29237.D	DF 10	Analyzed 03/13/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW992	
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	e						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	831	10	2.0	ug/l	
108-88-3	Toluene	27.5	10	2.0	ug/l	
100-41-4	Ethylbenzene	213	10	2.0	ug/l	
1330-20-7	Xylene (total)	248	20	4.6	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2 Limits		its	
1868-53-7	Dibromofluoromethane	94%		60-1	30%	
2037-26-5	Toluene-D8	93%		60-1	30%	
460-00-4	4-Bromofluorobenzene	98%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: MW- ole ID: C206 AQ - NWT URSC	302-0312 87-9 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	Date Sampled: 03/01/12 Date Received: 03/06/12 Percent Solids: n/a th Ave SW., Seattle, WA					
Run #1 Run #2	File ID JK26288.D	DF 10	Analyzed 03/10/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1065		
Run #1 Run #2	Purge Volum 10.0 ml	e							
Northwest	Northwest TPH-Gx								
CAS No.	Compound		Result	RL	MDL Unit	ts Q			

	TPH (Gasoline)	5.33	2.0	0.50 mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	105% 117%		50-150% 50-150%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Report of Analysis

Client San Lab Samp Matrix: Method: Project:	nple ID: le ID:	MW-202-03 C20687-10 AQ - Groun SW846 826 URSORP: S	12 d Water 0B Shell/Harbor Island	l - 2555 13t	Date Sampled: 03/02/12 Date Received: 03/06/12 Percent Solids: n/a 8th Ave SW., Seattle, WA				
Run #1 Run #2	File ID W29251	D I D 1	F Analyzed 03/14/12	l By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW993		
Run #1 Run #2 Purgeable	Purge V 10.0 ml Aromatic	/olume cs							

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3	Benzene Toluene	5.3 1.9	1.0 1.0	0.20 0.20	ug/l ug/l	
100-41-4 1330-20-7	Ethylbenzene Xylene (total)	10.7 1.3	1.0 2.0	0.20 0.46	ug/l ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 2037-26-5	Dibromofluoromethane Toluene-D8	101% 96%		60-1 60-1	30% 30%	
460-00-4	4-Bromofluorobenzene	102%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: M le ID: C A N U	AW-202-03 220687-10 AQ - Grour WTPH-G JRSORP: S	312 nd Water X Shell/Harbor	r Island - 2	2555 13th A	ve SW., S	Date Date Perce Seattle, V	Sampled: Received: ent Solids: VA	03/02/12 03/06/12 n/a
	File ID	D	F Aı	nalyzed	By	Prep Da	te	Prep Batcl	n Analytical Batch
Run #1 Run #2	JK26289.	D 10) 03	/10/12	TT	n/a		n/a	GJK1065
	Purge Vo	lume							
Run #1 Run #2	10.0 ml								
Northwest	TPH-Gx								
CAS No.	Compou	ınd		Result	RL	MDL	Units	Q	
	TPH (Ga	asoline)		3.87	2.0	0.50	mg/l		

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8	aaa-Trifluorotoluene	106%		50-150%
460-00-4	4-Bromofluorobenzene	113%		50-150%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Saı Lab Samp Matrix: Method: Project:	ent Sample ID: MW-303-0312 o Sample ID: C20687-11 trix: AQ - Ground Water thod: SW846 8260B oject: URSORP: Shell/Harbor Island - 2555 13th				Date Sampled: 03/02/12 Date Received: 03/06/12 Percent Solids: n/a th Ave SW., Seattle, WA				
Run #1 Run #2	File ID W29252.D	DF 50	Analyzed 03/14/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW993		
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	e							

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	3130	50	10	ug/l	
108-88-3	Toluene	75.9	50	10	ug/l	
100-41-4	Ethylbenzene	760	50	10	ug/l	
1330-20-7	Xylene (total)	232	100	23	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	100%		60-1	30%	
2037-26-5	Toluene-D8	95%		60-1	30%	
460-00-4	4-Bromofluorobenzene	99%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



TPH (Gasoline)

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

CAS No.

98-08-8

460-00-4

Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C206 AQ - NWT URSC	303-0312 87-11 Ground Wa PH-GX DRP: Shell/	ater 'Harbor Island -	2555 13tl	Da Da Pe h Ave SW., Seattle	ate Sampled: 03 ate Received: 03 ercent Solids: n/ e, WA	8/02/12 8/06/12 a
Run #1	File ID JK26290.D	DF 40	Analyzed 03/10/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1065
Run #2	Purgo Volum						
Run #1 Run #2	10.0 ml	L					
Northwest	TPH-Gx						
CAS No.	Compound		Result	RL	MDL Unit	ts Q	

8.0

Run# 2

2.0

mg/l

Limits

50-150%

50-150%

12.3

Run#1

105%

113%

Report of Analysis

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



Client Sar Lab Samp Matrix: Method: Project:	mple ID: MW- ble ID: C2063 AQ - SW84 URSC	301-0312 37-12 Ground Wa 6 8260B DRP: Shell/	ater Harbor Island -	2555 13th	Date Sampled:03/02/12Date Received:03/06/12Percent Solids:n/a3th Ave SW., Seattle, WA				
Run #1 Run #2	File ID W29253.D	DF 5	Analyzed 03/14/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW993		
Run #1 Run #2 Purgeable	Purge Volume 10.0 ml	e							

CAS NO.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	240	5.0	1.0	ug/l	
108-88-3	Toluene	13.8	5.0	1.0	ug/l	
100-41-4	Ethylbenzene	9.9	5.0	1.0	ug/l	
1330-20-7	Xylene (total)	21.2	10	2.3	ug/l	
				Limits		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 100%	Run# 2	Lim 60-1	its 30%	
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 100% 96%	Run# 2	Lim 60-1 60-1	its 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound




Client Sar Lab Samp Matrix: Method: Project:	nple ID: MV ble ID: C2 AQ NV UR	V-301-0312 0687-12 9 - Ground Wa VTPH-GX SORP: Shell/	ater 'Harbor Island -	2555 13tl	Da Da Pe h Ave SW., Seattle	tte Sampled: 03 tte Received: 03 rcent Solids: n/	3/02/12 3/06/12 ′a
Run #1 Run #2	File ID JK26291.D	DF 5	Analyzed 03/10/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1065
Run #1 Run #2 Northwes t	Purge Volu 10.0 ml t TPH-Gx	ime					

Report of Analysis

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (Gasoline)	3.37	1.0	0.25	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	107% 137%		50-1 50-1	50% 50%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Report of Analysis

Client Saı Lab Samı Matrix: Method: Project:	mple ID: MW- ble ID: C206 AQ - SW84 URSC	301D-0312 37-13 Ground Wa 6 8260B DRP: Shell/	ater Harbor Island -	2555 13th	Da Da Pe n Ave SW., Seattle	nte Sampled: 03 nte Received: 03 rcent Solids: n/a a, WA	//02/12 //06/12 a
Run #1 Run #2	File ID W29254.D	DF 5	Analyzed 03/14/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW993
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	e					

CAS No.	Compound	Result	RL	MDL	Units	Q	
71-43-2	Benzene	230	5.0	1.0	ug/l		
108-88-3	Toluene	13.7	5.0	1.0	ug/l		
100-41-4	Ethylbenzene	9.5	5.0	1.0	ug/l		
1330-20-7	Xylene (total)	21.1	10	2.3	ug/l		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	Limits		
1868-53-7	Dibromofluoromethane	94%		60-1	30%		
2037-26-5	Toluene-D8	94%		60-1	30%		
460-00-4	4-Bromofluorobenzene	98%		60-1	30%		

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sar Lab Samp Matrix: Method: Project:	mple ID: ple ID:	MW-30 C20687 AQ - G NWTP URSOF)1D-0312 7-13 Fround Wa H-GX RP: Shell/H	ter Harbor Isla	and - 2555	Date Sampled: 03/02/12 Date Received: 03/06/12 Percent Solids: n/a 55 13th Ave SW., Seattle, WA							
Run #1 Run #2	File ID JK2629	2.D	DF 5	Analy 03/10/	zed By 12 TT	Pre n/a	p Date	Prep Batch n/a	Analytical Batch GJK1065				
Run #1 Run #2	Purge 10.0 ml	Volume											
Northwes	t TPH-Gx	ſ											
CAS No.	Comp	ound		Re	sult F	RL MD	L Units	Q					
	TPH (Gasoline	;)	3.3	3 1	.0 0.25	5 mg/l						

Run# 2

Limits

50-150%

50-150%

Run#1

106%

135%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Page 1 of 1

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Misc. Forms
Custody Documents and Other Forms
includes the following where applicable:
Chain of Custody



				e h	SI	48	EL	Lu	110		66	00) 	4		.					
□ XENCO ()		lease.Che	ck Appropria	SN MBOVIC			nn.	Jac	CIS		ain			ust	οαγ	Re	corc	l V.see	100		
CALSCIENCE ()	ENV. SERVICE	s	MOTIVA RETAIL		TAIL	erin	CD10	10.0	niac	смат	e ;	eenee		1000		DENI	# (EN	VISEF		<u>=</u> \$)	CHECK IF NO INCIDENT # APPLIES
TEST AMERICA ()			CONSULTANT							212110						-					DATE:
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																					05/2/08 Revision

C20687: Chain of Custody Page 1 of 3



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		Ø	Shell	Oil	Produc	ts Chair	n Of Cus	tody Re	cord		
	Pleas	e Check Appropriate	Boxi	Print	Bill:To Con	act Name:		INCIDE	T# (ENV SEP	VICES)	CHECK IE NO INCIDENT # ABIR ICC
	ENV. SERVICES	MOTIVA RETAIL	SHELL RETAIL]							CHECK IF NO INCLUENT # APPLIES
	MOTIVA SD&CM	CONSULTANT	LUBES	1		PO #					DATE:
DOTHER (ACCUTEST)	SHELL PIPELINE	OTHER									PAGE: 2 of
CONSULTANT COMPANY				SITE AD	DRESS (Street, City	and State):					·
ADDRESS:	4 /			1 5	2555	1312	AL/E.	Sia)	SENT	m ul	4
III SW Colu	mba			CONSULTA	ANT PROJECT CONTAG	(Report to)	L1.	100	CONSULTANT PRO	LECT NOT	7
PORTLANI	>,OR			SAMPLER	NAME(S) (Print)	nine	rcher		46	1993	5/5
403-222-7200 FAX	E-MAL	al at le a com		1	DAVE.	1 Evols	70	(Z')	20/10	C	20007
TURNAROUND TIME (CALENDAR DAYS):	(<u>1,X*7,A,N</u>)		SULTS NEEDED		17.0		20	U JAI -	2004	<u> ::::</u> :::	× × × × × × × × × × × × × × × × × × ×
DELIVERABLES: TLEVEL 1 TLEVEL 2 TLEVEL 3		L_24 HOURS	ON WEEKEND					EQUESTED	NALYSIS		
TEMPERATURE ON RECEIPT C ² Confection	Carlos #2	lex (srecuri)		4 12	$\forall $						
	Cooler #2	Cooler #3		1.13	3						
SPECIAL INSTRUCTIONS OR NOTES :		SHELL CONTRACT RATE APP	LIES	171							55to.
		STATE REIMBURSEMENT RA	TE APPLIES	142							
		PROVIDE LEDD DISK		144]						= 5.6°C
	SAMPLING	PRESERVA	TIVE	Q3	2						
Field Sample Identification		ATRIX	NO. OF CONT.								Container PID Readings
600 Y		HCL HNO3 H2504	NONE OTHER								or Laboratory Notes
11 MW-303-0312	3/2/2 0920 H	NX	\$ 6	XX							
12 MW-301-0312	" 0450	11 X	6 6	×x							
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C20687: Chain of Custody Page 2 of 3



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Job#: C<u>20687</u>

Initial: _LS

<u>Review Chain of Custody</u> Chain of Custody is to be con	nplete and legible.			
Are these regulatory (NPDES) samples? CWA	Yes / No	Client Sample ID	pH Check	Other Comments/Issues
	Yes (No)			2. 10. 1/1101
Was Client informed that hold time is 15 min? Yes / No Continu	ue Yes/No	2 - 12		S× 40m /HC
Was ortho-Phosphate filtered with in 15 min? Yes / No Continue	ue Yes/No			6× 40ml /HC
Are sample within hold time?	(Yes / No			
Are sample in danger of exceeding hold-time	Yes (No			
Z Existing Client? (Yes) No Existing Project?	(Yes)/ No			
If No: Is Report to info complete and legible, including;	0			
🗆 deliverable 🗆 Name 👘 Address 🖙 phone 👘 e-mail				·
Is Bill to info complete and legible, including;				
PO# Credit card Contact caddress phone cemail				
Is Contact and/or Project Manager identified, including;				
o phone o e-mail				
Project name / number				
Special requirements?	Yes (No)			
Sample IDs / date & time of collection provided?	(Yes) No			
Is Matrix listed and correct?	(Yes) No			
Analyses listed, we do, or client has authorized a subcontract?	(Yes) No			
Chain is signed and dated by both client and sample custodian?	Yes No			
a/TAT requested available? Yes / No Approved by <u>PM</u>				
Review Coolers:	~			
✓Were all Coolers temperatures measured at ≤6°C?	(Yes) / No			
 If cooler is outside the ≤6°C; note down the affected bottles in that cooler on the left 				
Note that ANO door NOT construction from the ANO door to the term	Tes No			
Note that ANC does NOT accept evidentiary samples. (we do not lock refrigerator	s)			
Chipment Developed Marthad Fool Fx				
	6-			
Custody Seals. Present: res No If Yes; Unbroken:	(Yes) No			
Review of Sample Bottles: If you answer no ovalain to the side				
Chain matches bottle labels? Key/ No. coSample bottle intest?	Noolus			
Is there enough sample volume in proper bottle for requested analyses?	(IUS) NO			
Proper Preservatives?	(Tes) NO			
Check nH on preserved samples except 1664, 625, 8270 and VOAc; make nates on to	4			
Headspace.VIOAs? Greater than from in diamater	Mar. 14			
List sample ID and affected container	Tes MO.			
		L		

Non-Compliance issues and discrepancies on the COC are forwarded to Project Management

\\Accunca.accutest.com\\depts\\qa\sops\sop_completelist_2010\\current_active_sop_oct_2010\\sc001f1_0_form1_samplecontrol_samplereceivingchecklist_2009-01-01.doc

C20687: Chain of Custody Page 3 of 3



Section 4



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary

Job Number: Account: Project:	SHELLWIC SI URSORP: She	hell Oil P ll/Harbor	roducts Island - 2555 1	3th Ave	SW., Seatt	le, WA		
Sample VN951-MB	File ID N29077.D	DF 1	Analyzed 03/13/12	By TF	Prep n/a	Date	Prep Batch n/a	Analytical Batch VN951
The QC repor C20687-1, C20	ted here applies 0687-2, C20687-3	to the fo	llowing sample	s:		I	Method: SW840	5 8260B
CAS No. Co	ompound		Result	RL	MDL	Units (Q	

71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	Surrogate Recoveries	Limits		
1868-53-7	Dibromofluoromethane	88%	60-130%	
2037-26-5	Toluene-D8	101%	60-130%	
460-00-4	4-Bromofluorobenzene	97%	60-130%	





Method Blank Summary

Job Number: Account: Project:	C20687 SHELLWIC Sh URSORP: Shel	nell Oil P 1/Harbor	roducts Island - 2555 13	3th Ave S	W., Seattle, WA		
Sample VW992-MB	File ID W29224.D	DF 1	Analyzed 03/13/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW992
The QC repor	ted here applies	to the fo	llowing samples	I	Method: SW84	6 8260B	

C20687-4, C20687-5, C20687-6, C20687-7, C20687-8, C20687-9

Compound	Result	RL	MDL	Units Q
Benzene	ND	1.0	0.20	ug/l
Ethylbenzene	ND	1.0	0.20	ug/l
Toluene	ND	1.0	0.20	ug/l
Xylene (total)	ND	2.0	0.46	ug/l
				-
	Compound Benzene Ethylbenzene Toluene Xylene (total)	CompoundResultBenzeneNDEthylbenzeneNDTolueneNDXylene (total)ND	CompoundResultRLBenzeneND1.0EthylbenzeneND1.0TolueneND1.0Xylene (total)ND2.0	CompoundResultRLMDLBenzeneND1.00.20EthylbenzeneND1.00.20TolueneND1.00.20Xylene (total)ND2.00.46

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	96%	60-130%
2037-26-5	Toluene-D8	94%	60-130%
460-00-4	4-Bromofluorobenzene	97%	60-130%



C20687

Page 1 of 1

4.1.2 4

Method Blank Summary

Project:	URSORP: Shel	l/Harbor	Island - 2555 13	3th Ave S	W., Seattle, WA		
Sample VW993-MB	File ID W29249.D	DF 1	Analyzed 03/14/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW993
The QC repor	ted here applies	to the fo]	Method: SW84	6 8260B		

C20687-10, C20687-11, C20687-12, C20687-13

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	60-130%
2037-26-5	Toluene-D8	99%	60-130%
460-00-4	4-Bromofluorobenzene	99%	60-130%

4.1.3



Job Number:	C20687
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

VIII IOOO
V W 992
VW992

The QC reported here applies to the following samples:

Method: SW846 8260B

C20687-4, C20687-5, C20687-6, C20687-7, C20687-8, C20687-9

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	19.5	98	19.5	98	0	60-130/30
100-41-4	Ethylbenzene	20	18.7	94	18.7	94	0	60-130/30
108-88-3	Toluene	20	17.9	90	18.2	91	2	60-130/30
1330-20-7	Xylene (total)	60	57.3	96	57.4	96	0	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	99%	101%	60-130%
2037-26-5	Toluene-D8	92%	92%	60-130%
460-00-4	4-Bromofluorobenzene	98%	97%	60-130%



4.2.1

Job Number:	C20687
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN951-BS	N29078.D	1	03/13/12	TF	n/a	n/a	VN951
VN951-BSD	N29079.D	1	03/13/12	TF	n/a	n/a	VN951

The QC reported here applies to the following samples:

Method: SW846 8260B

C20687-1, C20687-2, C20687-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	16.9	85	18.1	91	7	60-130/30
100-41-4	Ethylbenzene	20	17.9	90	19.4	97	8	60-130/30
108-88-3	Toluene	20	17.4	87	19.6	98	12	60-130/30
1330-20-7	Xylene (total)	60	55.0	92	59.6	99	8	60-130/30
	•							

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	95%	94%	60-130%
2037-26-5	Toluene-D8	97%	103%	60-130%
460-00-4	4-Bromofluorobenzene	99%	100%	60-130%

40 of 53 ACCUTEST C20687



Job Number:	C20687
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW993-BS	W29246.D	1	03/14/12	TN	n/a	n/a	VW993
VW993-BSD	W29247.D	1	03/14/12	TN	n/a	n/a	VW993

The QC reported here applies to the following samples:

Method: SW846 8260B

C20687-10, C20687-11, C20687-12, C20687-13

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	18.5	93	19.3	97	4	60-130/30
100-41-4	Ethylbenzene	20	17.9	90	18.7	94	4	60-130/30
108-88-3	Toluene	20	17.4	87	18.4	92	6	60-130/30
1330-20-7	Xylene (total)	60	55.1	92	57.7	96	5	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	107%	102%	60-130%
2037-26-5	Toluene-D8	96%	96%	60-130%
460-00-4	4-Bromofluorobenzene	100%	102%	60-130%



Laborator Job Number: Account: Project:	C20687 SHELLWIC SH URSORP: Shel	ample nell Oil F 1/Harbor	e Summary Products Island - 2555 11	3th Ave S	W., Seattle, WA		Page 1 of 1
Sample VW992-LCS	File ID W29223.D	DF 1	Analyzed 03/13/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW992
The QC repor	rted here applies	to the fo	llowing samples	s:		Method: SW84	6 8260B

C20687-4, C20687-5, C20687-6, C20687-7, C20687-8, C20687-9

CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits
CAS No.	Surrogate Recoveries	BSP	Liı	nits	
1868-53-7	Dibromofluoromethane	95%	60-	130%	
2037-26-5	Toluene-D8	94%	60-	130%	
460-00-4	4-Bromofluorobenzene	96%	60-	130%	



4.3.1 4

Laborat Job Numbe Account: Project:	ory Control S r: C20687 SHELLWIC SH URSORP: Shel	ample & nell Oil Pro 1/Harbor I	Summa oducts sland - 25	ary 555 131	h Ave SW	., Seattle, WA		Page 1 of 1	
Sample VW993-LCS	File ID S W29248.D	DF 1	Analy 03/14/	zed 12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW993	4.3.2 4
The QC rep C20687-10,	ported here applies C20687-11, C2068 ⁷	to the foll 7-12, C206	owing san	mples:			Method: SW84	6 8260B	
CAS No.	Compound		Spike ug/l	LCS ug/l	5 LCS %	Limits			
CAS No.	Surrogate Recover	ies	BSP		Limits				

60-130%

60-130%

60-130%

1868-53-7

2037-26-5

460-00-4

Dibromofluoromethane

4-Bromofluorobenzene

Toluene-D8

103%

98%

98%



Job Number:	C20687
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C20650-21MS	W29238.D	1	03/13/12	TN	n/a	n/a	VW992
C20650-21MSD	W29239.D	1	03/13/12	TN	n/a	n/a	VW992
C20650-21	W29227.D	1	03/13/12	TN	n/a	n/a	VW992

The QC reported here applies to the following samples:

Method: SW846 8260B

C20687-4, C20687-5, C20687-6, C20687-7, C20687-8, C20687-9

CAS No.	Compound	C20650-21 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71 42 2	Donzono	ND	20	18.6	02	18 7	04	1	60 120/25
/1-43-2	Delizelle	ND	20	16.0	95	10.7	94	1	00-150/25
100-41-4	Ethylbenzene	ND	20	17.3	87	17.5	88	1	60-130/25
108-88-3	Toluene	ND	20	16.9	85	17.0	85	1	60-130/25
1330-20-7	Xylene (total)	ND	60	42.4	71	42.8	71	1	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C	20650-21	Limits			
1868-53-7	Dibromofluoromethane	98%	103%	10	4%	60-1309	%		
2037-26-5	Toluene-D8	93%	94%	93	%	60-1309	%		
460-00-4	4-Bromofluorobenzene	99%	102%	98	%	60-1309	%		





Job Number:	C20687
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C20666-7MS	N29097.D	1	03/13/12	TF	n/a	n/a	VN951
C20666-7MSD	N29098.D	1	03/13/12	TF	n/a	n/a	VN951
C20666-7	N29093.D	1	03/13/12	TF	n/a	n/a	VN951

The QC reported here applies to the following samples:

Method: SW846 8260B

C20687-1, C20687-2, C20687-3

CAS No.	Compound	C20666-7 ug/l (Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	17.2	86	17.0	85	1	60-130/25
100-41-4	Ethylbenzene	ND	20	17.7	89	17.5	88	1	60-130/25
108-88-3	Toluene	ND	20	17.1	86	16.4	82	4	60-130/25
1330-20-7	Xylene (total)	ND	60	54.9	92	54.4	91	1	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C2	20666-7	Limits			
1868-53-7	Dibromofluoromethane	97%	94%	96	%	60-130	%		
2037-26-5	Toluene-D8	96%	92%	98	%	60-130	%		
460-00-4	4-Bromofluorobenzene	101%	99%	10	0%	60-130	%		

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Page 1 of 1
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4.4.2 4



Job Number:	C20687
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C20676-2MS	W29265.D	1	03/14/12	TN	n/a	n/a	VW993
C20676-2MSD	W29266.D	1	03/14/12	TN	n/a	n/a	VW993
C20676-2	W29257.D	1	03/14/12	TN	n/a	n/a	VW993

The QC reported here applies to the following samples:

Method: SW846 8260B

C20687-10, C20687-11, C20687-12, C20687-13

CAS No.	Compound	C20676-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	20.6	103	19.0	95	8	60-130/25
100-41-4	Ethylbenzene	ND	20	19.3	97	17.8	89	8	60-130/25
108-88-3	Toluene	ND	20	18.5	93	17.3	87	7	60-130/25
1330-20-7	Xylene (total)	ND	60	58.9	98	54.8	91	7	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C2	20676-2	Limits			
1868-53-7	Dibromofluoromethane	98%	100%	96	%	60-130	%		
2037-26-5	Toluene-D8	92%	91%	93	%	60-130	%		
460-00-4	4-Bromofluorobenzene	99%	99%	97	%	60-130	%		

4.4.3



Section 5

S



QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C20687

Account:	SHELLWIC Shell Oil Products									
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample	File ID	DF	Analyzed 03/09/12	By	Prep Date	Prep Batch	Analytical Batch			
GJK1065-MB	JK26270.D	1		TT	n/a	n/a	GJK1065			
The QC repor	ted here applies	to the fo	ollowing samples	5:]	Method: NWTH	PH-GX			
C20687-1, C20 C20687-12, C2	0687-2, C20687-3 20687-13	, C2068	7-4, C20687-5, 0	C20687-7	7, C20687-8, C206	587-9, C20687-1	0, C20687-11,			

CAS No.	Compound	Result	RL	MDL	Units Q
	TPH (Gasoline)	ND	0.20	0.050	mg/l
CAS No.	Surrogate Recoveries		Limits		



Method Blank Summary Job Number: C20687

Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil Pro l/Harbor I	oducts sland - 2555	13th Ave	sW., Sea	attle, WA	A	
Sample GJK1065-M	File ID B1 JK26297.D	DF 1	Analyzed 03/12/12	By TT	Pre n/a	ep Date	Prep Batch n/a	Analytical Batch GJK1065
The QC rep	oorted here applies	to the foll	owing sampl	es:			Method: NWT	PH-GX
C20687-6								
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline)		ND	0.20	0.050	mg/l		
CAS No.	Surrogate Recover	ies		Limit	S			
98-08-8 460-00-4	aaa-Trifluorotoluen 4-Bromofluorobenz	e ene	93% 97%	50-150 50-150)%)%			

Blank Spike Summary Job Number: C20687

460-00-4

4-Bromofluorobenzene

Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil Produ l/Harbor Isla	icts nd - 25:	55 13th	Ave SW.	, Seattle, WA		
Sample GJK1065-I	File ID 3S1 JK26296.D	File IDDFAnalyzedByJK26296.D103/12/12TT					Prep Batch n/a	Analytical Batch GJK1065
The QC ro C20687-6	eported here applies	to the follow	ing san	nples:			Method: NWTF	PH-GX
CAS No.	Compound	S	Spike ng/l	BSP mg/l	BSP %	Limits		
	TPH (Gasoline)	C).4	0.426	107	60-140		
CAS No.	Surrogate Recover	ies I	BSP	L	imits			
98-08-8	aaa-Trifluorotoluene	e 7	'8%	5(0-150%			

50-150%

83%

Page 1 of 1

C20687

Job Number:	C20687
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed 03/09/12 03/09/12	By	Prep Date	Prep Batch	Analytical Batch
GJK1065-BS	JK26268.D	1		TT	n/a	n/a	GJK1065
GJK1065-BSD	JK26269.D	1		TT	n/a	n/a	GJK1065

The QC reported here applies to the following samples:

Method: NWTPH-GX

C20687-1, C20687-2, C20687-3, C20687-4, C20687-5, C20687-6, C20687-7, C20687-8, C20687-9, C20687-10, C20687-11, C20687-12, C20687-13

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.4	0.434	109	0.432	108	0	60-140/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
98-08-8	aaa-Trifluorotoluene	98%	10	2%	50-150%			
460-00-4	4-Bromofluorobenzene	103%	10	5%	50-150%			

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5.3.1

G



Job Number:	C20687
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C20687-6MS	JK26299.D	10	03/12/12	TT	n/a	n/a	GJK1065
C20687-6MSD	JK26300.D	10	03/12/12	TT	n/a	n/a	GJK1065
C20687-6	JK26298.D	10	03/12/12	TT	n/a	n/a	GJK1065

The QC reported here applies to the following samples:

Method: NWTPH-GX

C20687-1, C20687-2, C20687-3, C20687-4, C20687-5, C20687-6, C20687-7, C20687-8, C20687-9, C20687-10, C20687-11, C20687-12, C20687-13

CAS No.	Compound	C20687-6 mg/l Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	3.69	4	7.78	102	8.04	109	3	60-140/20
CAS No.	Surrogate Recoveries	MS	MSD	C20	687-6	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	102% 123%	93% 115%	1039 1229	% %	50-150% 50-150%			

5.4.1

S



Duplicate Summary Job Number: C20687

Account:	SHELLWIC Shell Oil Products									
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample	File ID	DF	Analyzed 03/09/12 03/09/12	By	Prep Date	Prep Batch	Analytical Batch			
C20687-8DUP	JK26286.D	10		TT	n/a	n/a	GJK1065			
C20687-8	JK26285.D	10		TT	n/a	n/a	GJK1065			
The QC report	ted here applies	to the fo	llowing samples	s:		Method: NWTH	PH-GX			

C20687-1, C20687-2, C20687-3, C20687-4, C20687-5, C20687-6, C20687-7, C20687-8, C20687-9, C20687-10, C20687-

C20687-1, C20687-2, C20687-3, C20687-4, C20687-5, C20687-6, C20687-7, C20687-8, C20687-9, C20687-10, C20687-11, C20687-12, C20687-13

CAS No.	Compound	C20687-8 mg/l Q	DUP mg/l Q	RPD Limits
	TPH (Gasoline)	5.58	5.44	3 20
CAS No.	Surrogate Recoveries	DUP	C20687-8	Limits
00.00.0	T : CI / 1	1050/	10.40/	50.1500/
98-08-8	aaa-1rifluorotoluene	105%	104%	50-150%
460-00-4	4-Bromofluorobenzene	115%	114%	50-150%

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5.5.1

G



06/28/12

Technical Report for

Shell Oil Products

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

46194341

Accutest Job Number: C22300



Sampling Dates: 06/11/12 - 06/13/12

Report to:

URS Corporation 111 SW Columbia, Suite 1500 Portland, OR 97201-5850 brian_pletcher@urscorp.com

ATTN: Brian Pletcher

Total number of pages in report: 78



manles

Kesavalu M. Bagawandoss, Ph.D., J.D., Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Vincent Vancil 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242) This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.



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Sections:

Sample Summary

Shell Oil Products

Job No: C22300

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Project No: 46194341

Sample Number	Collected Date	Time By	Received	Matri Code	ix Type	Client Sample ID
C22300-1	06/11/12	15:13 DL	06/15/12	AQ	Trip Blank Water	TRIP BLANK
C22300-2	06/11/12	11:15 DL	06/15/12	AQ	Ground Water	SH-04-0612
C22300-3	06/11/12	13:00 DL	06/15/12	AQ	Ground Water	MW-305-0612
C22300-4	06/11/12	14:10 DL	06/15/12	AQ	Ground Water	MW-306-0612
C22300-5	06/12/12	09:00 DL	06/15/12	AQ	Ground Water	MW-213-0612
C22200 6	06/12/12	10.00 DI	06/15/12	40	Cround Water	MW 214 0612
C22300-0	00/12/12	10.00 DL	00/13/12	AQ	Ground water	WIW-214-0012
C22300-7	06/12/12	10:30 DL	06/15/12	AO	Ground Water	MW-214D-0612
C22300-8	06/12/12	13:05 DL	06/15/12	AQ	Ground Water	TX-03A-0612
C22300-9	06/12/12	13:45 DL	06/15/12	AQ	Ground Water	MW-302-0612
C22300-10	06/12/12	14:45 DL	06/15/12	AQ	Ground Water	MW-304-0612
C22300-11	06/13/12	08:45 DL	06/15/12	AQ	Ground Water	MW-202-0612
G22200 12	06/10/10	11.05 DI	06/15/10			NUL 202 0/12
C22300-12	06/13/12	11:05 DL	06/15/12	AQ	Ground Water	MW-203-0612
C22300-13	06/13/12	12·55 DI	06/15/12	40	Ground Water	MW-303-0612
022500-15	00/13/12	12.33 DL	00/13/12	лү	Ground water	11111-303-0012



Sample Summary (continued)

Shell Oil Products

Job No: C22300 URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Project No: 46194341

Sample	Collected	Time By	Matrix		ix	Client
Number	Date		Received Code Type		Type	Sample ID
C22300-14	06/13/12	14:10 DL	06/15/12	AQ	Ground Water	MW-104-0612



N



Sample Results

Report of Analysis



Report of Analysis

Client Sar Lab Samp Matrix: Method: Project:	nple ID: TRIP ole ID: C2230 AQ - SW84 URSC	BLANK 00-1 Trip Blank 6 8260B 0RP: Shell/	Water Harbor Island -	2555 13tl	Da Da Pe 1 Ave SW., Seattle	nte Sampled: 06 nte Received: 06 rcent Solids: n/3 s, WA	5/11/12 5/15/12 a
Run #1 Run #2	File ID W31380.D	DF 1	Analyzed 06/20/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1081
Run #1 Run #2 Purgeable	Purge Volume 10.0 ml	e					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	96%		60-1	30%	
2037-26-5	Toluene-D8	99%		60-1	30%	
460-00-4	4-Bromofluorobenzene	99%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sam Lab Samp Matrix: Method: Project:	nple ID: TRIP le ID: C223(AQ - NWT) URSC	BLANK)0-1 Trip Blank PH-GX)RP: Shell/	Water Harbor Island -	2555 13th	Da Da Pe Ave SW., Seattle	nte Sampled: 06 nte Received: 06 rcent Solids: n/ e, WA	5/11/12 5/15/12 a
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 Run #2	JK28161.D	1	06/17/12	TT	n/a	n/a	GJK1138
Run #1 Run #2	Purge Volume 10.0 ml	2					
Northwest	TPH-Gx		Rocult	BI	MDI Unit	s 0	
CA5 110.	Compound		Kesun	KL		s V	

	TPH (Gasoline)	ND	0.20	0.050 mg/l
CAS No. Surrogate Recoveries		Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	100% 104%		50-150% 50-150%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Report of Analysis

Client San Lab Samp Matrix: Method: Project:	nple ID: SH-04 le ID: C2230 AQ - SW84 URSC	l-0612)0-2 Ground Wa 6 8260B)RP: Shell/	ater Harbor Island -	2555 13tl]] 1 Ave SW., Seat	Date Sampled: 06 Date Received: 06 Percent Solids: n/ tle, WA	5/11/12 5/15/12 a
Run #1 Run #2	File ID W31381.D	DF 10	Analyzed 06/20/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1081
Run #1 Run #2	Purge Volume 10.0 ml	2					

Purgeable Aromatics

71-43-2 Benzene 426 10 2.0 ug/l 108-88-3 Toluene 14.2 10 2.0 ug/l 100-41-4 Ethylbenzene 112 10 2.0 ug/l 1330-20-7 Xylene (total) 19.8 20 4.6 ug/l CAS No. Surrogate Recoveries Run# 1 Run# 2 Limits 1868-53-7 Dibromofluoromethane 95% 60-130% 2037-26-5 Toluene-D8 98% 60-130% 460-00-4 4-Bromofluorobenzene 100% 60-130%	CAS No.	Compound	Result	RL	MDL	Units	Q
108-88-3 Toluene 14.2 10 2.0 ug/l 100-41-4 Ethylbenzene 112 10 2.0 ug/l 1330-20-7 Xylene (total) 19.8 20 4.6 ug/l CAS No. Surrogate Recoveries Run# 1 Run# 2 Limits 1868-53-7 Dibromofluoromethane 95% 60-130% 60-130% 2037-26-5 Toluene-D8 98% 60-130% 60-130% 460-00-4 4-Bromofluorobenzene 100% 60-130% 60-130%	71-43-2	Benzene	426	10	2.0	ug/l	
100-41-4 Ethylbenzene 112 10 2.0 ug/l 1330-20-7 Xylene (total) 19.8 20 4.6 ug/l CAS No. Surrogate Recoveries Run# 1 Run# 2 Limits 1868-53-7 Dibromofluoromethane 95% 60-130% 2037-26-5 Toluene-D8 98% 60-130% 460-00-4 4-Bromofluorobenzene 100% 60-130%	108-88-3	Toluene	14.2	10	2.0	ug/l	
1330-20-7 Xylene (total) 19.8 20 4.6 ug/l CAS No. Surrogate Recoveries Run# 1 Run# 2 Limits 1868-53-7 Dibromofluoromethane 95% 60-130% 2037-26-5 Toluene-D8 98% 60-130% 460-00-4 4-Bromofluorobenzene 100% 60-130%	100-41-4	Ethylbenzene	112	10	2.0	ug/l	
CAS No. Surrogate Recoveries Run# 1 Run# 2 Limits 1868-53-7 Dibromofluoromethane 95% 60-130% 2037-26-5 Toluene-D8 98% 60-130% 460-00-4 4-Bromofluorobenzene 100% 60-130%	1330-20-7	Xylene (total)	19.8	20	4.6	ug/l	J
1868-53-7Dibromofluoromethane95%60-130%2037-26-5Toluene-D898%60-130%460-00-44-Bromofluorobenzene100%60-130%	CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	iits	
2037-26-5Toluene-D898%60-130%460-00-44-Bromofluorobenzene100%60-130%	1868-53-7	Dibromofluoromethane	95%		60-1	30%	
460-00-4 4-Bromofluorobenzene 100% 60-130%	2037-26-5	Toluene-D8	98%		60-1	30%	
	460-00-4	4-Bromofluorobenzene	100%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



ACCUTEST

C22300

Report of Analysis

Client San Lab Samp Matrix: Method: Project:	nple ID: SH-04 ble ID: C2230 AQ - 0 NWTI URSC	0612)0-2 Ground Wa PH-GX)RP: Shell/	ater Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle,	e Sampled: 06 e Received: 06 c ent Solids: n/ WA	5/11/12 5/15/12 a
Run #1 Run #2	File ID JK28182.D	DF 10	Analyzed 06/18/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1138
Run #1 Run #2	Purge Volume 10.0 ml	2						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TDH (Gasolin		6.00	2.0	0.50	ma/l		

	IPH (Gasoline)	6.00	2.0	0.50 mg/1	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
98-08-8	aaa-Trifluorotoluene	104%		50-150%	
460-00-4	4-Bromofluorobenzene	122%		50-150%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sam Lab Sampl Matrix: Method: Project:	nple ID: SH-04-0 le ID: C22300 AQ - G NWTPI URSOF	0612 -2 round Wa H-DX S' RP: Shell/2	ter W846 3510C Harbor Island -	2555 13tl	Da Da Pe n Ave SW., Seattle	ate Sampled: 06 ate Received: 06 ercent Solids: n/ e, WA	5/11/12 5/15/12 a
Run #1 Run #2	File ID HH023275.D	DF 1	Analyzed 06/16/12	By JH	Prep Date 06/15/12	Prep Batch OP6122	Analytical Batch GHH748
Run #1 Run #2	Initial Volume 1000 ml	Final V 1.0 ml	olume				
Northwest	TPH-Dx						
CAS No.	Compound		Result	RL	MDL Unit	s Q	

	TPH (Diesel) TPH (Motor Oil)	1.49 0.393	0.10 0.20	0.050 mg/l 0.10 mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
630-01-3	Havacosana	77%		50 150%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound


Client Sar Lab Samp Matrix: Method: Project:	mple ID: MW- ble ID: C2230 AQ - SW84 URSC	1W-305-0612 Date Sampled: 06/11/12 22300-3 Date Received: 06/15/12 AQ - Ground Water Date Received: 06/15/12 W846 8260B Percent Solids: n/a JRSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Seattle, WA					
Run #1 Run #2	File ID W31382.D	DF 20	Analyzed 06/20/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1081
Run #1 Run #2 Purgeable	Purge Volume 10.0 ml	e					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1340	20	4.0	ug/l	
108-88-3	Toluene	22.1	20	4.0	ug/l	
100-41-4	Ethylbenzene	51.7	20	4.0	ug/l	
1330-20-7	Xylene (total)	33.1	40	9.2	ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	96%		60-1	30%	
2037-26-5	Toluene-D8	99%		60-1	30%	
460-00-4 4-Bromofluorobenzene		101%		60-130%		

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sar Lab Samp Matrix: Method: Project:	mple ID: MW-3 ole ID: C2230 AQ - NWT URSC	MW-305-0612Date Sampled:06/11/C22300-3Date Sampled:06/11/AQ - Ground WaterDate Received:06/15/NWTPH-GXPercent Solids:n/aURSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WANA					5/11/12 5/15/12 a	
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	JK28183.D	10	06/18/12	TT	n/a		n/a	GJK1138
Run #1 Run #2	Purge Volume 10.0 ml	2						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolir	ie)	5.97	2.0	0.50	mg/l		

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	103% 117%		50-150% 50-150%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: MW-3 ble ID: C2230 AQ - SW84 URSC	MW-306-0612 C22300-4 AQ - Ground Water SW846 8260B URSORP: Shell/Harbor Island - 2555 13th A				Date Sampled: 06/11/12 Date Received: 06/15/12 Percent Solids: n/a Ave SW., Seattle, WA			
Run #1 Run #2	File ID W31383.D	DF 10	Analyzed 06/20/12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1081		
Run #1 Run #2	Purge Volum 10.0 ml	e							

Purgeable Aromatics

CAS No. Compound		Result	RL	MDL	Units	Q
71-43-2	Benzene	393	10	2.0	ug/l	
108-88-3	Toluene	11.5	10	2.0	ug/l	
100-41-4	Ethylbenzene	50.9	10	2.0	ug/l	
1330-20-7	Xylene (total)	763	20	4.6	ug/l	
CACN		D #1	D #0	.		
CAS NO.	Surrogate Recoveries	Kun# 1	Kun# 2	Limi	ts	
1868-53-7	Dibromofluoromethane	96%		60-13	30%	
2037-26-5	Toluene-D8	99%		60-13	30%	
460-00-4 4-Bromofluorobenzene		101%	60-130%			

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



Client San Lab Samj Matrix: Method: Project:	mple ID: MW-3 ple ID: C2230 AQ - NWT URSC	306-0612)0-4 Ground W PH-GX)RP: Shell/	ater /Harbor Island -	2555 13t	Date Sampled: 06/11/12 Date Received: 06/15/12 Percent Solids: n/a n Ave SW., Seattle, WA			
Run #1 Run #2	File ID JK28164.D	DF 10	Analyzed 06/17/12	By TT	Prep Date n/a	Prep Batc n/a	h Analytical Batch GJK1138	
Run #1	Purge Volum 10.0 ml	e						

Northwest TPH-Gx

Run #1 Run #2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (Gasoline)	5.09	2.0	0.50	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sam Lab Samp Matrix: Method: Project:	nple ID: le ID:	MW-213-0612 C22300-5 AQ - Ground V SW846 8260B URSORP: Shel	Vater Il/Harbor Island -	2555 13tl	Date Sampled: 06/12/12 Date Received: 06/15/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID R10288	DF .D 1	Analyzed 06/25/12	By BD	Prep Date n/a	Prep Batch n/a	Analytical Batch VR367	
Run #1 Run #2 Purgeable	Purge V 10.0 ml Aromatic	Volume						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	ND ND ND ND	$1.0 \\ 1.0 \\ 1.0 \\ 2.0$	0.20 0.20 0.20 0.46	ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	95% 89% 90%		60-13 60-13 60-13	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Se	mnle ID• MW_2	13-0612						
Lab Sam	ple ID: C2230	0-5			Da	5/12/12		
Matrix:	AQ - (Ground Wa	ater	Date Received: 06/15/12			6/15/12	
Method:	SW84	5 8270C B	SY SIM SW846	5 3510C	C Percent Solids: n/a			
Project:	URSO	RP: Shell/	Harbor Island -	2555 13tl	n Ave SW., Seattle	, WA		
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
Run #1	T4702.D	1	06/18/12	LW	06/15/12	OP6121	ET197	
Run #2								
	Initial Volume	Final V	Volume					

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run $#2$		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.50	0.050	ug/l	
208-96-8	Acenaphthylene	ND	0.50	0.050	ug/l	
120-12-7	Anthracene	ND	0.50	0.050	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.053	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.041	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.035	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.045	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.035	ug/l	
206-44-0	Fluoranthene	ND	0.50	0.050	ug/l	
86-73-7	Fluorene	ND	0.50	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.035	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-20-3	Naphthalene	ND	0.50	0.10	ug/l	
85-01-8	Phenanthrene	ND	0.50	0.050	ug/l	
129-00-0	Pyrene	ND	0.50	0.050	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
4165-60-0	Nitrobenzene-d5	44%		25-1	00%	
321-60-8	2-Fluorobiphenyl	42%		25-1	06%	
1718-51-0	Terphenyl-d14	50%		35-1	30%	

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Report of	f Analysis
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Client Sample ID:MW-213-0612Lab Sample ID:C22300-5Matrix:AQ - Ground WaterMethod:NWTPH-GXProject:URSORP: Shell/Harbor Island - 2555 13th				2555 13th	Date Sampled:06/12/12Date Received:06/15/12Percent Solids:n/a8th Ave SW., Seattle, WA			
Run #1 Run #2	File ID JK28165.D	DF 1	Analyzed 06/17/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1138
Run #1 Run #2	Purge Volume 10.0 ml	2						
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TDH (Gasolir		ND	0.20	0.050	ma/l		

	IFII (Gasolille)	ND	0.20	0.050 mg/1	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
98-08-8	aaa-Trifluorotoluene	101%		50-150%	
460-00-4	4-Bromofluorobenzene	104%		50-150%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sample ID:MW-213-0612Lab Sample ID:C22300-5Matrix:AQ - Ground WaterMethod:NWTPH-DXProject:URSORP: Shell/Harbor Island - 2555 13t				2555 13th	Date Sampled: 06/12/12 Date Received: 06/15/12 Percent Solids: n/a Sth Ave SW., Seattle, WA			
Run #1 Run #2	File ID HH023276.D	DF 1	Analyzed 06/16/12	By JH	Prep D 06/15/1	ate 2	Prep Batch OP6122	Analytical Batch GHH748
Run #1 Run #2	Initial Volume 1000 ml	Final V 1.0 ml	olume					
Northwest	t TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
			ND	0.10	0.050			

	TPH (Diesel) TPH (Motor Oil)	ND ND	0.10	0.050 1	ng/l ng/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
630-01-3	Hexacosane	91%		50-150	%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: le ID:	MW-214-0612 C22300-6 AQ - Ground SW846 8260B URSORP: She	2 Water ell/Harbor Island -	2555 13tl	Date Sampled: 06/12/12 Date Received: 06/15/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID R10289	DF .D 1	Analyzed 06/25/12	By BD	Prep Date n/a	Prep Batch n/a	Analytical Batch VR367	
Run #1 Run #2 Purgeable	Purge V 10.0 ml	/olume						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4	Benzene Toluene Ethylbenzene	ND ND ND	1.0 1.0 1.0	0.20 0.20 0.20	ug/l ug/l ug/l	
1330-20-7 CAS No.	Xylene (total) Surrogate Recoveries	ND Run# 1	2.0 Run# 2	0.46 Lim	ug/l its	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	98% 96% 95%		60-1 60-1 60-1	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sa	mnle ID• MW_	214-0612						
Lab Sam	ple ID: C2230)0-6			Da	ate Sampled: 0	6/12/12	
Matrix:	AQ -	Ground Wa	ater		Da	te Received: 0	6/15/12	
Method:	SW84	6 8270C B	Y SIM SW846	5 3510C	Pe	rcent Solids: n	n/a	
Project:	URSC	ORP: Shell/	Harbor Island -	2555 13tl	n Ave SW., Seattle	e, WA		
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
Run #1	T4703.D	1	06/18/12	LW	06/15/12	OP6121	ET197	
Run #2								
[Initial Volum	e Final V	olume					

	Initial Volume	Final Volum
Run #1	1030 ml	1.0 ml
Run #2		

BN PAH List

Compound	Result	RL	MDL	Units	Q
Acenaphthene	ND	0.49	0.049	ug/l	
Acenaphthylene	ND	0.49	0.049	ug/l	
Anthracene	ND	0.49	0.049	ug/l	
Benzo(a)anthracene	ND	0.097	0.051	ug/l	
Benzo(a)pyrene	ND	0.097	0.040	ug/l	
Benzo(b)fluoranthene	ND	0.097	0.034	ug/l	
Benzo(g,h,i)perylene	ND	0.097	0.035	ug/l	
Benzo(k)fluoranthene	ND	0.097	0.038	ug/l	
Chrysene	ND	0.097	0.044	ug/l	
Dibenzo(a,h)anthracene	ND	0.097	0.034	ug/l	
Fluoranthene	ND	0.49	0.049	ug/l	
Fluorene	ND	0.49	0.049	ug/l	
Indeno(1,2,3-cd)pyrene	ND	0.097	0.034	ug/l	
1-Methylnaphthalene	ND	0.49	0.097	ug/l	
2-Methylnaphthalene	ND	0.49	0.097	ug/l	
Naphthalene	ND	0.49	0.097	ug/l	
Phenanthrene	ND	0.49	0.049	ug/l	
Pyrene	ND	0.49	0.049	ug/l	
Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
Nitrobenzene-d5	45%		25-1	00%	
2-Fluorobiphenyl	45%		25-1	06%	
Terphenyl-d14	44%		35-1	30%	
	Compound Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene 1-Methylnaphthalene 2-Methylnaphthalene Phenanthrene Pyrene Surrogate Recoveries Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	CompoundResultAcenaphtheneNDAcenaphthyleneNDAnthraceneNDBenzo(a)anthraceneNDBenzo(a)pyreneNDBenzo(a)pyreneNDBenzo(b)fluorantheneNDBenzo(c), hi)peryleneNDBenzo(k)fluorantheneNDChryseneNDDibenzo(a, h)anthraceneNDFluorantheneNDFluorantheneNDFluorantheneNDIndeno(1,2,3-cd)pyreneND1-MethylnaphthaleneNDPhenanthreneNDPyreneNDSurrogate RecoveriesRun# 1Nitrobenzene-d5 2-Fluorobiphenyl45% 45% 45%Terphenyl-d1444%	CompoundResultRLAcenaphtheneND0.49AcenaphthyleneND0.49AnthraceneND0.49Benzo(a)anthraceneND0.097Benzo(a)pyreneND0.097Benzo(a)pyreneND0.097Benzo(g,h,i)peryleneND0.097Benzo(k)fluorantheneND0.097Benzo(k)fluorantheneND0.097Benzo(k)fluorantheneND0.097ChryseneND0.097Dibenzo(a, h)anthraceneND0.49FluoreneND0.49FluoreneND0.49Indeno(1,2,3-cd)pyreneND0.49NaphthaleneND0.49PhenanthreneND0.49PyreneND0.49Surrogate RecoveriesRum# 1Nitrobenzene-d545%2-Fluorobiphenyl45%Terphenyl-d1444%	Compound Result RL MDL Acenaphthene ND 0.49 0.049 Acenaphthylene ND 0.49 0.049 Anthracene ND 0.49 0.049 Benzo(a)anthracene ND 0.097 0.051 Benzo(a)anthracene ND 0.097 0.040 Benzo(a)pyrene ND 0.097 0.040 Benzo(a)hthracene ND 0.097 0.034 Benzo(g,h,i)perylene ND 0.097 0.035 Benzo(k)fluoranthene ND 0.097 0.038 Chrysene ND 0.097 0.034 Dibenzo(a, h)anthracene ND 0.097 0.034 Fluoranthene ND 0.49 0.049 Indeno(1,2,3-cd)pyrene ND 0.49 0.097 Indeno(1,2,3-cd)pyrene ND 0.49 0.097 Naphthalene ND 0.49 0.097 Pyrene ND 0.49 0.049 Pyrene ND	Compound Result RL MDL Units Acenaphthene ND 0.49 0.049 ug/l Acenaphthylene ND 0.49 0.049 ug/l Anthracene ND 0.49 0.049 ug/l Benzo(a)anthracene ND 0.097 0.051 ug/l Benzo(a)pyrene ND 0.097 0.040 ug/l Benzo(b)fluoranthene ND 0.097 0.034 ug/l Benzo(g,h,i)perylene ND 0.097 0.034 ug/l Benzo(k)fluoranthene ND 0.097 0.038 ug/l Chrysene ND 0.097 0.034 ug/l Dibenzo(a,h)anthracene ND 0.097 0.034 ug/l Fluoranthene ND 0.49 0.49 ug/l Indeno(1,2,3-cd)pyrene ND 0.49 0.097 ug/l Indeno(1,2,3-cd)pyrene ND 0.49 0.097 ug/l Naphthalene ND 0.49

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





Report of A	nalysis
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Client San Lab Samp Matrix: Method: Project:	nple ID: MW-2 le ID: C223(AQ - NWT) URSC	214-0612)0-6 Ground Wa PH-GX)RP: Shell/	ater Harbor Island -	2555 13tl	Da Da Pe h Ave SW., Seattle	nte Sampled: 06 nte Received: 06 rcent Solids: n/ 5, WA	5/12/12 5/15/12 a
Run #1 Run #2	File ID JK28166.D	DF 1	Analyzed 06/17/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1138
Run #1 Run #2	Purge Volume 10.0 ml	2					
Northwest	TPH-Gx						
CAS No.	Compound		Result	RL	MDL Unit	s Q	

	TPH (Gasoline)	ND	0.20	0.050 mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	102% 108%		50-150% 50-150%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

Report of A	nalysis
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Client San Lab Samp Matrix: Method: Project:	ple ID: MW-214-0612 e ID: C22300-6 Date Sampled: 06/12/12 AQ - Ground Water Date Received: 06/15/12 NWTPH-DX SW846 3510C Percent Solids: n/a URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Value				5/12/12 5/15/12 a			
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	HH023277.D	1	06/16/12	ЈН	06/15/1	2	OP6122	GHH748
Run #1 Run #2	Initial Volume 1000 ml	Final Vo 1.0 ml	lume					
Northwest	TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor O	il)	ND 0.135	0.10 0.20	0.050 0.10	mg/l mg/l	J	

Run# 2

Limits

50-150%

Run# 1

87%

ND = Not detected	MDL - Method Detection Limit
RL = Reporting Limit	
E = Indicates value exce	eds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





Report of Analysis

Client Sample ID:MW-214D-0612Lab Sample ID:C22300-7Matrix:AQ - Ground WaterMethod:SW846 8260BProject:URSORP: Shell/Harbor Island - 2		Date Sampled: 06/12/12 Date Received: 06/15/12 Percent Solids: n/a 2555 13th Ave SW., Seattle, WA					
Run #1 Run #2	File ID R10290	DF D 1	Analyzed 06/25/12	By BD	Prep Date n/a	Prep Batch n/a	Analytical Batch VR367
Run #1 Run #2 Purgeable	Purge V 10.0 ml	⁷ olume					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	ND ND ND ND	$1.0 \\ 1.0 \\ 1.0 \\ 2.0$	0.20 0.20 0.20 0.46	ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	93% 94% 91%		60-13 60-13 60-13	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sa	mple ID: MW-2	214D-0612					
Lab Sam	ple ID: C223	00-7			Da	te Sampled: (6/12/12
Matrix:	AQ -	Ground Wa	ater		Da	te Received: (6/15/12
Method:	SW84	6 8270C B	SY SIM SW846	5 3510C	Pe	rcent Solids: r	u/a
Project:	URSC	ORP: Shell/	'Harbor Island -	2555 13tl	n Ave SW., Seattle	, WA	
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	T4704.D	1	06/18/12	LW	06/15/12	OP6121	ET197
Run #2							
	Initial Volum	o Final V	Johnme				

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.50	0.050	ug/l	
208-96-8	Acenaphthylene	ND	0.50	0.050	ug/l	
120-12-7	Anthracene	ND	0.50	0.050	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.053	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.041	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.035	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.045	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.035	ug/l	
206-44-0	Fluoranthene	ND	0.50	0.050	ug/l	
86-73-7	Fluorene	ND	0.50	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.035	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-20-3	Naphthalene	ND	0.50	0.10	ug/l	
85-01-8	Phenanthrene	ND	0.50	0.050	ug/l	
129-00-0	Pyrene	ND	0.50	0.050	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
4165-60-0	Nitrobenzene-d5	41%		25-1	00%	
321-60-8	2-Fluorobiphenyl	42%		25-1	06%	
1718-51-0	Terphenyl-d14	36%		35-1	30%	

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 1

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CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Report	of	Anal	lvsis

Client Sar Lab Samp Matrix: Method: Project:	mple ID: MW- ole ID: C223 AQ - NWT URSC	214D-0612 00-7 Ground Wa PH-GX DRP: Shell/	ater 'Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle,	e Sampled: 06 e Received: 06 cent Solids: n/ WA	5/12/12 5/15/12 a
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	JK28167.D	1	06/17/12	TT	n/a		n/a	GJK1138
Run #1 Run #2	Purge Volum 10.0 ml	e						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoli	ne)	ND	0.20	0.050	mg/l		

Run# 2

Limits

50-150%

50-150%

Run# 1

102%

107%

ND = Not detected	MDL - Method Detection Limit
RL = Reporting Limit	
E = Indicates value exce	eeds calibration range

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



Client Sam Lab Sampl Matrix: Method: Project:	aple ID: MW-21 le ID: C22300 AQ - G NWTPI URSOF	4D-0612 -7 round Wa H-DX S RP: Shell/	tter W846 3510C Harbor Island -	2555 13tł	Da Da Pe 1 Ave SW., Seattle	te Sampled: 06 te Received: 06 rcent Solids: n/ , WA	5/12/12 5/15/12 a
Run #1 Run #2	File ID HH023278.D	DF 1	Analyzed 06/16/12	By JH	Prep Date 06/15/12	Prep Batch OP6122	Analytical Batch GHH748
Run #1 Run #2	Initial Volume 1000 ml	Final V 1.0 ml	olume				
Northwest	TPH-Dx						
CAS No.	Compound		Result	RL	MDL Unit	s Q	

	TPH (Diesel) TPH (Motor Oil)	ND 0.148	0.10 0.20	0.050 mg/l 0.10 mg/l	1 1
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
630-01-3	Hexacosane	89%		50-150%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

J



Client Sample ID:TX-03A-0612Lab Sample ID:C22300-8Matrix:AQ - Ground WaterMethod:SW846 8260BProject:URSORP: Shell/Harbor Island - 255					Da Da Pe 1 Ave SW., Seattle	ate Sampled: 06 ate Received: 06 ercent Solids: n/a e, WA	5/12/12 5/15/12 a
Run #1 Run #2	File ID R10283.D	DF 50	Analyzed 06/25/12	By BD	Prep Date n/a	Prep Batch n/a	Analytical Batch VR367
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	ie					

CAS No. Compound		Result	RL	MDL	Units	Q
71 /3 2	Banzana	1570	50	10	ug/1	
100.00.2	T 1	1370	50	10	ug/1	т
108-88-3	loluene	20.0	50	10	ug/I	J
100-41-4	Ethylbenzene	13.9	50	10	ug/l	J
1330-20-7	Xylene (total)	30.0	100	23	ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	92%		60-1	30%	
2037-26-5	Toluene-D8	93%		60-1	30%	
460-00-4	4-Bromofluorobenzene	91%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



TPH (Gasoline)

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

CAS No.

98-08-8

460-00-4

Client San Lab Samp Matrix: Method: Project:	nple ID: TX-03 le ID: C2230 AQ - NWT URSC	3A-0612 00-8 Ground W PH-GX DRP: Shell/	ater 'Harbor Island -	2555 131	Da Da Pe th Ave SW., Seattle	te Sampled: 06 te Received: 06 rcent Solids: n/a , WA	5/12/12 5/15/12 a
Run #1 Run #2	File ID JK28168.D	DF 10	Analyzed 06/17/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1138
Run #1 Run #2	Purge Volume 10.0 ml	e					
Northwest	TPH-Gx						
CAS No.	Compound		Result	RL	MDL Units	s Q	

2.0

Run# 2

0.50

Limits

50-150%

50-150%

mg/l

6.78

Run#1

100%

110%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Client San Lab Samp Matrix: Method: Project:	mple ID: MW- ble ID: C223 AQ - SW84 URSC	302-0612 00-9 Ground Wa 46 8260B DRP: Shell/	ater Harbor Island -	2555 13ti	Date Sampled: 06/12/12 Date Received: 06/15/12 Percent Solids: n/a h Ave SW., Seattle, WA		
Run #1 Run #2	File ID N31966.D	DF 10	Analyzed 06/25/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VN1023
Run #1 Run #2	Purge Volum 10.0 ml	e					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	574	10	2.0	ug/l	
108-88-3	Toluene	15.6	10	2.0	ug/l	
100-41-4	Ethylbenzene	18.3	10	2.0	ug/l	
1330-20-7	Xylene (total)	24.4	20	4.6	ug/l	
CLON	G (D)	D #1	D #0		•,	
CAS NO.	Surrogate Recoveries	Run# 1	Run# 2	Lim	IUS	
1868-53-7	Dibromofluoromethane	98%		60-1	30%	
2037-26-5	Toluene-D8	101%		60-1	30%	
460-00-4	4-Bromofluorobenzene	99%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samj Matrix: Method: Project:	mple ID: MW- ple ID: C2230 AQ - NWT URSC	302-0612 00-9 Ground W PH-GX DRP: Shell/	ater 'Harbor Island -	2555 13tl	Da Da Pe h Ave SW., Seattle	te Sampled: 06 te Received: 06 rcent Solids: n/ , WA	5/12/12 5/15/12 a
Run #1 Run #2	File ID JK28169.D	DF 20	Analyzed 06/18/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1138
Run #1 Run #2	Purge Volum 10.0 ml	e					
Northwes	t TPH-Gx			DI			

4.0

Run# 2

1.0

Limits

50-150%

50-150%

mg/l

4.18

Run#1

101%

110%

Report of Analysis

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit

E = Indicates value exceeds calibration range

TPH (Gasoline)

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

CAS No.

98-08-8

460-00-4

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	aple ID: le ID:	MW-304-0612 C22300-10 AQ - Ground W SW846 8260B URSORP: Shel	Vater I/Harbor Island -	2555 13ti	Date Sampled: 06/12/12 Date Received: 06/15/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID N31967	DF .D 20	Analyzed 06/25/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VN1023	
Run #1 Run #2 Purgeable	Purge V 10.0 ml	7olume 2s						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	1040 40.8 270 218	20 20 20 40	4.0 4.0 4.0 9.2	ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	99% 100% 100%		60-13 60-13 60-13	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Report	of	Analysis
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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C223 AQ - NWT URSC	304-0612 00-10 Ground W PH-GX DRP: Shell/	ater 'Harbor Island -	2555 13tl	Date Sampled: 06/12/12 Date Received: 06/15/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID JK28170.D	DF 20	Analyzed 06/18/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1138	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Northwest TPH-Gx								
CAS No.	Compound		Result	RL	MDL Unit	ts Q		

	TPH (Gasoline)	5.98	4.0	1.0 mg	;/ 1
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	101% 109%		50-150% 50-150%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



TPH (Gasoline)

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

CAS No.

98-08-8

460-00-4

Client Sample ID:MW-202-0612Lab Sample ID:C22300-11Matrix:AQ - Ground WaterMethod:NWTPH-GXProject:URSORP: Shell/Harbor Island - 2555 13th					Date Sampled: 06/13/12 Date Received: 06/15/12 Percent Solids: n/a th Ave SW., Seattle, WA				
Run #1 Run #2	File ID JK28173.D	DF 10	Analyzed 06/18/12	Ву ТТ	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1138		
Run #1 Run #2	Purge Volum 10.0 ml	e							
Northwest TPH-Gx									
CAS No.	Compound		Result	RL	MDL Unit	s Q			

2.0

Run# 2

0.50

Limits

50-150%

50-150%

mg/l

3.31

Run#1

103%

107%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$





TPH (Motor Oil)

Hexacosane

Surrogate Recoveries

CAS No.

630-01-3

Client San Lab Samp Matrix: Method: Project:	nple ID: MW-20 ole ID: C22300 AQ - G NWTPH URSOR	MW-202-0612 C22300-11 AQ - Ground Water NWTPH-DX SW846 3510C URSORP: Shell/Harbor Island - 2555 13th				Date Sampled: 06/13/12 Date Received: 06/15/12 Percent Solids: n/a n Ave SW., Seattle, WA			
	File ID	DF	Analyzed	By	By Prep Date P H 06/15/12 O		Prep Batch	Analytical Batch	
Run #1 Run #2	HH023279.D	1	06/16/12	JH			OP6122	GHH748	
Run #1	Initial Volume 1000 ml	Final Vo 1.0 ml	olume						
Run #2									
Northwest	t TPH-Dx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Diesel)		1.54	0.10	0.050	mg/l			

0.20

Run# 2

0.10

Limits

50-150%

mg/l

ND

90%

Run#1

ND = Not detected	MDL - Method Detection Limit
RL = Reporting Limit	
E = Indicates value exce	eeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sample ID:MW-203-0612Lab Sample ID:C22300-12Matrix:AQ - Ground WaterMethod:NWTPH-GXProject:URSORP: Shell/Harbor Island - 2555					Date Sampled: 06/13/12 Date Received: 06/15/12 Percent Solids: n/a 55 13th Ave SW., Seattle, WA				
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch		
Run #1 Run #2	JK28174.D	1	06/18/12	TT	n/a	n/a	GJK1138		
	Purge Volum	e							
Run #1 Run #2	10.0 ml								
Northwest TPH-Gx									
CAS No.	Compound		Result	RL	MDL Unit	ts Q			

	TPH (Gasoline)	0.459	0.20	0.050 mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	98% 107%		50-150% 50-150%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

Client San Lab Samp Matrix: Method: Project:	nple ID: MW-20 de ID: C22300 AQ - G NWTPI URSOR	MW-203-0612 222300-12 AQ - Ground Water NWTPH-DX SW846 3510C URSORP: Shell/Harbor Island - 2555 13th			Date Sampled: 06/13/12 Date Received: 06/15/12 Percent Solids: n/a n Ave SW., Seattle, WA			
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	HH023280.D	1	06/16/12	JH	06/15/1	2	OP6122	GHH748
Run #1 Run #2	Initial Volume 1000 ml	Final Vo 1.0 ml	lume					
Northwest	TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel)		0.134	0.10	0.050	mg/l		
	TPH (Motor O	il)	0.332	0.20	0.10	mg/l		

Run# 2

Limits

50-150%

Run# 1

83%

ND = Not detected	MDL - Method Detection Limit
RL = Reporting Limit	
E = Indicates value exce	eds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Saı Lab Samı Matrix: Method: Project:	nple ID: MW- ole ID: C223 AQ - SW84 URS6	MW-303-0612 C22300-13 AQ - Ground Water SW846 8260B URSORP: Shell/Harbor Island - 2555 13th			Date Sampled: 06/13/12 Date Received: 06/15/12 Percent Solids: n/a th Ave SW., Seattle, WA		
Run #1 Run #2	File ID N31968.D	DF 50	Analyzed 06/25/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VN1023
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	e					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	2900	50	10	ug/l	
108-88-3	Toluene	95.7	50	10	ug/l	
100-41-4	Ethylbenzene	884	50	10	ug/l	
1330-20-7	Xylene (total)	268	100	23	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	98%		60-1	30%	
2037-26-5	Toluene-D8	100%		60-1	30%	
460-00-4	4-Bromofluorobenzene	100%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





TPH (Gasoline)

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

CAS No.

98-08-8

460-00-4

Client Sample ID:MW-303-0612Lab Sample ID:C22300-13Matrix:AQ - Ground WaterMethod:NWTPH-GXProject:URSORP: Shell/Harbor Island - 2555 13t					Date Sampled: 06/13/12 Date Received: 06/15/12 Percent Solids: n/a Sth Ave SW., Seattle, WA			
Run #1 Run #2	File ID JK28176.D	DF 20	Analyzed 06/18/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1138	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Northwest TPH-Gx								
CAS No.	Compound		Result	RL	MDL Units	s Q		

4.0

Run# 2

1.0

Limits

50-150%

50-150%

12.5

Run#1

103%

113%

Report of Analysis

J = Indicates an estimated value

mg/l

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Report of Analys	is
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Client Sar Lab Samp Matrix: Method: Project:	mple ID: MW-1 ole ID: C223(AQ - NWT) URSC	MW-104-0612 Date Sampled: 06/13/12 C22300-14 Date Sampled: 06/13/12 AQ - Ground Water Date Received: 06/15/12 NWTPH-GX Percent Solids: n/a URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA VA					5/13/12 5/15/12 a	
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	JK28177.D	10	06/18/12	TT	n/a		n/a	GJK1138
Run #1 Run #2	Purge Volume 10.0 ml	2						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolir	ie)	4.78	2.0	0.50	mg/l		

Run# 2

Limits

50-150%

50-150%

Run# 1

99%

127%

ND = Not detected	MDL - Method Detection Limit
RL = Reporting Limit	
E = Indicates value exce	eeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sample ID:MW-104-0612Lab Sample ID:C22300-14Matrix:AQ - Ground WaterMethod:NWTPH-DXProject:URSORP: Shell/Harbor Island - 2555				2555 13ti	Date Sampled: 06/13/12 Date Received: 06/15/12 Percent Solids: n/a 13th Ave SW., Seattle, WA			
Run #1 Run #2	File ID HH023281.D	DF 1	Analyzed 06/16/12	By JH	Prep Date 06/15/12	Prep Batch OP6122	Analytical Batch GHH748	
Run #1 Run #2	Initial Volume 1000 ml	Final V 1.0 ml	Volume					
Northwest CAS No.	TPH-Dx Compound		Result	RL	MDL Units	Q		

	TPH (Diesel) TPH (Motor Oil)	0.423 ND	0.10 0.20	0.050 mg/l 0.10 mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
620 01 2	Haveneere	960/		50 1500/	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Accutest Laboratories

Report of Analysis

Total Metals Analysis						
Project:	URSORP: Shell/Harbor Island - 2555 13th Av	ve SW., Seattle, WA				
		Percent Solids:	n/a			
Matrix:	AQ - Ground Water	Date Received:	06/15/12			
Lab Sample ID:	C22300-14	Date Sampled:	06/13/12			
Client Sample ID:	MW-104-0612					

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	< 10	10	ug/l	1	06/18/12	06/19/12 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA2555

(2) Prep QC Batch: MP5010

2.14





Misc. Forms	
Custody Documents and Other For	ms
ncludes the following where applicable:	
Chain of Custody	



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STANDARD (14 DAY) S DAYS 3 C	DAYS 🗍 2 DAY	5 🗍 24 11	OURS	J RESULTS NEED	ED		REQUESTED ANALYSIS													
DELIVERABLES: LEVEL 1 [] LEVEL 2 [] LEV	EL 3 🗋 LEVEL 4	OTHER (SPE	CUFY)					()											1	1
TEMPERATURE ON RECEIPT C* Cooler #1	Cooler #2		Cooler #3					345	X I										58-04-54	, gr
SPECIAL INSTRUCTIONS OR NOTES :		SHER	L CONTRACT RATE	APPLIES		×		L ⁰ u						ĺ					3.5-04-2	à
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LAB Field Sample Identification	DATE THE	MATRIX			NO. OF	3	E.	自行	17									1	Container PID Readinos	
ONLY ONLY			HCL HNO3 H2SO	4 NONE OTHER		N	d)	ŝ.											or Laboratory Notes	
-1 TRIP BLANK	1112. 1513	Itzo			10	Х	X													7
-2 511-04-06/2_	9/1/12/1/15	1 11	X		8	X	\times	X												1
-3 MW-305-0612	11 1300	u	X		36	X	X													1
-4 MW - 306 - 06/2	14/0	11	X		6	Х	X													1
-5 mw-213-06/2	6/12/12 090	0	X		10	X	XI	K	X									1-		1
-6 MW-214-06/2	11 1000	4	X		10	X	X>	x '	X											1
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C22300: Chain of Custody Page 1 of 3



			Shell	Dil Products Chain Of Custody Record				
	Please C	Check Appropriate Bo	x:	Print Bill To Contact Name: INCIDENT # (ENV SERVICES) CRECK IF NO INCIDENT # A	CIDENT # (ENV SERVICES)			
	ENV. SERVICES	MOTIVA RETAIL	SHELL RETAIL	DATE				
	MOTIVA SD&CM	CONSULTANT [] LUBES	PO # SAP # 0	~			
A OTHER ACCUTEST	SHELL PIPELINE]	PAGE: of	<u>d</u> .			
URS				TREADDRESS (Should build)				
ADDRESS III SIL COL	UMBIA-	•		ASSS 154 AVE SW SEATTLE, WAT				
COTY. DOOT ANI	D OR			BRIDD PLETCHER 46194341				
TUEPONE TO TO FAIL				LAB USE ONLY				
505-246-740	brian.p	<u>letcherQur</u>	SILOW	DAVE LEWIS 206-321-3064 C22300				
STANDARD (14 DAY) 5 DAYS 3 DAYS		24 HOURS	ON WEEKEND	REQUESTED ANALYSIS	222			
DELIVERABLES: LEVEL 1 LEVEL 2 LEVEL 3		R (SPECIFY)						
	soler #2	1000ier#3						
SPECIAL-INSTRUCTIONS OR NOTES:	NUP	SHELL CONTRACT RATE APPLIES	s	X 2 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Í			
SILLA-OFEL CILL		STATE REIMBURSEMENT RATE /	VPLIES					
ON NWTPH-DX		PROVIDE LEDO DISK		#X9244				
	SAMPLING	PRESERVATIVE						
CAB Field Sample Identification	DATE TIME MATE		CONT.	3 17 57 FF Container PID Read 2 CD 3 1 Container PID Read or Laboratory Not	tings les			
-11 MW-202-0612 4	3/2 1845 H-	nx	5					
-12 MW-203-06/2	11 1105 11	X	58					
-13 MW-303-0612 1	1 1253- 11	x	6					
-14 MW-104-06/2	1410 .	XX	6					
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C22300: Chain of Custody Page 2 of 3



Accutest Laboratories Northern California Sample Receiving Check List

Job#: C<u>22300</u> Initial: <u>LS</u>

Review Chain of Custody Chai	n of Custody is to be complete	e and legible.			
Are these regulatory (NPDES) samples? CWA	Č	e)/No	Client Sample ID	pH Check	Other Comments/Issues
	Y	'es (No)	348010		6× 40ml via ul HCI
Was Client informed that hold time is 15 min? Yes /	No Conlinue Y	'es/No	12 12 10		
Was ortho-Phosphate filtered with in 15 min? Yes / i	No Continue Y	'es/No	12		
Are sample within hold time?	(C	es)/No	,		6× 40 al vial al HCI
Are sample in danger of exceeding hold-time	Y	es/No	~		22 1000 at an internet
Existing Client? (es)/ No Existing F	Project?	es)/No			22 1000 mil ag wi hip
If No: Is Report to info complete and legible, including;					$G \times HO$, P , H , H
🗅 deliverable 🗅 Name 👘 Address 🗇 phone 🗖	o e-mail		2,6,7		U 1000 1 11 / 110
is Bill to info complete and legible, including;					4× 1000 m ago w hp
PO# Credit card Contact caddress oph	none 🛛 e-mail		15		2,401 1 14/1
Is Contact and/or Project Manager identified, includ	ling;		I, 12		S× 40m val w/ MCI
🗅 phone 🛛 🖸 e-mail					2× 1000 m ag N/ Mp
Project name / number			i		2 . Up I all till
c/Special requirements?	Ye		19		3× 40ml vial of MCI
Sample IDs / date & time of collection provided?	Č	es) No		pH62	1x 250ml poly WHNO3
	(Yester and the second s	es) No			2× 1000 ml ag w/ mp
Analyses listed, we do, or client has authorized a subcontract	1?	es/No			~ /
Chain is signed and dated by both client and sample custodia	an? (Ye	'es)/ No			
c/TAT requested available? (Yes) / No	Approved by PYM	L			
Review Coolers:					
øWere all Coolers temperatures measured at ≤6°C?	Č	esy No			
 If cooler is outside the ≤6°C; note down the affected bottles 	s in that cooler on the left	No			
Vale samples on ice:	le de not lock refrigerators)				
Note that ANC does NOT accept evidentiary samples. (W	e do not lock lenigerators)				
Shinment Deceived Method Feel F-X					
dustody Seals: Present: Xas / No	If Yes: Unbroken:	R / No			
Pedalody Scals. Present. (1937) No					
Poview of Sample Bottles: If you answer no, explain to the	side				
Chain matches hollie labels? Ves No	ample hotile intact?	No			
of there enough sample volume in proper hollie for requested	anatyses?	(es) No			
d/Proper Preservatives? (Ves)/ No					
Check nH on preserved samples except 1664 625 8270 at	nd VOAs: make notes on left				
releadsnace-VOAs? Greater than 6mm in diameter	Υ	res /(No)			
List sample ID and affected contained	er .				

Non-Compliance issues and discrepancies on the COC are forwarded to Project Management

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C22300: Chain of Custody Page 3 of 3





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Section 4



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries


Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1081-MB	W31370.D	1	06/20/12	TN	n/a	n/a	VW1081

C22300-1, C22300-2, C22300-3, C22300-4

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	Surrogate Recoveries	Limits		
1868-53-7	Dibromofluoromethane	98%	60-130%	
2037-26-5	Toluene-D8	92%	60-130%	
460-00-4	4-Bromofluorobenzene	102%	60-130%	



4.1.1 4

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Job Number: Account: Project:	SHELLWIC SI URSORP: Shel	nell Oil Pr ll/Harbor	oducts Island - 2555 1	3th Ave	SW., Sea	ittle, WA		
Sample VN1023-MB	File ID N31962.D	DF 1	Analyzed 06/25/12	By TF	Pre n/a	p Date	Prep Batch n/a	Analytical Batch VN1023
The QC repo C22300-9, C2	rted here applies 2300-10, C22300	to the fol	lowing sample	es:			Method: SW84	5 8260B
CAS No. C	ompound		Result	RL	MDL	Units	Q	

71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	95%	60-130%
2037-26-5	Toluene-D8	100%	60-130%
460-00-4	4-Bromofluorobenzene	97%	60-130%

Page 1 of 1

48 of 78 ACCUTEST. C22300

Project:	URSORP: She	ll/Harbor	Island - 2555 13	3th Ave S	W., Seattle, WA		
Sample VR367-MB	File ID R10277.D	DF 1	Analyzed 06/25/12	By BD	Prep Date n/a	Prep Batch n/a	Analytical Batch VR367
The QC repor	ted here applies	to the fo	llowing samples	5:]	Method: SW84	6 8260B

C22300-5, C22300-6, C22300-7, C22300-8

Compound	Result	RL	MDL	Units Q
Benzene	ND	1.0	0.20	ug/l
Ethylbenzene	ND	1.0	0.20	ug/l
Toluene	ND	1.0	0.20	ug/l
Xylene (total)	ND	2.0	0.46	ug/l
•				Ç
	Compound Benzene Ethylbenzene Toluene Xylene (total)	CompoundResultBenzeneNDEthylbenzeneNDTolueneNDXylene (total)ND	CompoundResultRLBenzeneND1.0EthylbenzeneND1.0TolueneND1.0Xylene (total)ND2.0	CompoundResultRLMDLBenzeneND1.00.20EthylbenzeneND1.00.20TolueneND1.00.20Xylene (total)ND2.00.46

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	91%	60-130%
2037-26-5	Toluene-D8	94%	60-130%
460-00-4	4-Bromofluorobenzene	91%	60-130%



4.1.3

Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

			r	I top Dutten	Many incar Daten
1	06/20/12	TN	n/a	n/a	VW1081
1	06/20/12	TN	n/a	n/a	VW1081
)	1	06/20/12 06/20/12	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0 1 00/20/12 1N 1/a 0 1 06/20/12 TN n/a	0 1 00/20/12 TN 1/a 1/a 0 1 06/20/12 TN n/a n/a

The QC reported here applies to the following samples:

Method: SW846 8260B

C22300-1, C22300-2, C22300-3, C22300-4

CAS No.	Compound	Spik ug/l	ke BSP ug/l	BSI %	P BSD ug/l	BSI %	D RP	Limits D Rec/RPD
71-43-2	Benzene	20	19.4	97	19.4	97	0	60-130/30
100-41-4	Ethylbenzene	20	18.3	92	18.7	94	2	60-130/30
108-88-3	Toluene	20	17.9	90	18.3	92	2	60-130/30
1330-20-7	Xylene (total)	60	54.8	91	55.9	93	2	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	100%	100%	60-130%
2037-26-5	Toluene-D8	90%	92%	60-130%
460-00-4	4-Bromofluorobenzene	103%	103%	60-130%



Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR367-BS	R10274.D	1	06/25/12	BD	n/a	n/a	VR367
VR367-BSD	R10275.D	1	06/25/12	BD	n/a	n/a	VR367

The QC reported here applies to the following samples:

Method: SW846 8260B

C22300-5, C22300-6, C22300-7, C22300-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	19.1	96	19.7	99	3	60-130/30
100-41-4	Ethylbenzene	20	19.8	99	21.4	107	8	60-130/30
108-88-3	Toluene	20	19.2	96	20.8	104	8	60-130/30
1330-20-7	Xylene (total)	60	60.2	100	64.3	107	7	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	98%	93%	60-130%
2037-26-5	Toluene-D8	92%	93%	60-130%
460-00-4	4-Bromofluorobenzene	92%	92%	60-130%



Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
N31963.D	1	06/25/12	TF	n/a	n/a	VN1023
N31964.D	1	06/25/12	TF	n/a	n/a	VN1023
	File ID N31963.D N31964.D	File ID DF N31963.D 1 N31964.D 1	File IDDFAnalyzedN31963.D106/25/12N31964.D106/25/12	File IDDFAnalyzedByN31963.D106/25/12TFN31964.D106/25/12TF	File ID DF Analyzed By Prep Date N31963.D 1 06/25/12 TF n/a N31964.D 1 06/25/12 TF n/a	File IDDFAnalyzedByPrep DatePrep BatchN31963.D106/25/12TFn/an/aN31964.D106/25/12TFn/an/a

The QC reported here applies to the following samples:

Method: SW846 8260B

C22300-9, C22300-10, C22300-13

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	17.7	89	18.0	90	2	60-130/30
100-41-4	Ethylbenzene	20	18.3	92	18.2	91	1	60-130/30
108-88-3	Toluene	20	18.3	92	17.9	90	2	60-130/30
1330-20-7	Xylene (total)	60	54.9	92	55.0	92	0	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	98%	97%	60-130%
2037-26-5	Toluene-D8	104%	99%	60-130%
460-00-4	4-Bromofluorobenzene	102%	99%	60-130%

4.2.3

Laborato Job Number: Account: Project:	Laboratory Control Sample Summary Job Number: C22300 Account: SHELLWIC Shell Oil Products Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample VW1081-LCS	File ID S W31369.D	DF 1	Analy 06/20/	zed 12	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1081	4.3.1		
The QC repo C22300-1, C2	orted here applies t 22300-2, C22300-3,	o the follo	o wing sar 4	nples:	:		Method: SW840	6 8260B			
CAS No. (Compound		Spike ug/l	LCS ug/l	5 LCS %	Limits					
CAS No. S	Surrogate Recoveri	es	BSP		Limits						

60-130%

60-130%

60-130%

Dibromofluoromethane

4-Bromofluorobenzene

Toluene-D8

1868-53-7 2037-26-5

460-00-4

97%

93%

102%



Laborat	ory Control S	ample	Summa	ary				Page 1 of 1	
Job Numbe	r: C22300		no des oto						
Account:	SHELLWIC SI		roducts	EE 124		C (1) X7 A			
Project:	URSORP: She	ll/Harbor	Island - 25	55 13th	n Ave Sw	., Seattle, WA			4
Sample	File ID	DF	Analyz	zed	Bv	Prep Date	Prep Batch	Analytical Batch	ω
VR367-LCS	R10276.D	1	06/25/	12	BD	n/a	n/a	VR367	
									4
				_					
The QC rep	ported here applies	to the fo	llowing sar	nples:			Method: SW84	6 8260B	
C22200 5 (722200 6 (722200 ?	1 (2220)	1 8						
C22500-5, C	22300-0, C22300-	, C2250	J-0						
			Spike	LCS	LCS				
CAS No.	Compound		ug/l	ug/l	%	Limits			
	-		0	0					
CAS No.	Surrogate Recover	ries	BSP	L	Limits				

60-130%

60-130%

60-130%

Dibromofluoromethane

4-Bromofluorobenzene

Toluene-D8

1868-53-7 2037-26-5

460-00-4

91%

93%

91%



Labora Job Numb Account: Project:	aboratory Control Sample Summary bb Number: C22300 ccount: SHELLWIC Shell Oil Products coject: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample VN1023-L0	File ID D CS N31965.D 1	F Analy 06/25/	zed B (12 T)	y F	Prep Date n/a	Prep Batch n/a	Analytical Batch VN1023			
The QC re C22300-9,	ported here applies to t C22300-10, C22300-13	he following sa	mples:			Method: SW84	6 8260B			
CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits					
CAS No.	Surrogate Recoveries	BSP	Liı	nits						
1868-53-7	Dibromofluoromethane Toluene-D8	96% 100%	60- 60-	130%						

60-130%

98%

460-00-4

4-Bromofluorobenzene

Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C22227-11MS	W31387.D	50	06/20/12	TN	n/a	n/a	VW1081
C22227-11MSD	W31388.D	50	06/20/12	TN	n/a	n/a	VW1081
C22227-11	W31373.D	50	06/20/12	TN	n/a	n/a	VW1081

The QC reported here applies to the following samples:

Method: SW846 8260B

C22300-1, C22300-2, C22300-3, C22300-4

CAS No.	Compound	C22227-11 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	714	1000	1480	77	1530	82	3	60-130/25
100-41-4	Ethylbenzene	1300	1000	2100	80	2180	88	4	60-130/25
108-88-3	Toluene	197	1000	1040	84	1060	86	2	60-130/25
1330-20-7	Xylene (total)	2830	3000	5270	81	5450	87	3	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C2	2227-11	Limits			
1868-53-7	Dibromofluoromethane	99%	98%	98	%	60-130	%		
2037-26-5	Toluene-D8	98%	98%	94	%	60-130	%		
460-00-4	4-Bromofluorobenzene	101%	101%	10	6%	60-130	%		



Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C22371-2MS	R10295.D	1	06/25/12	BD	n/a	n/a	VR367
C22371-2MSD	R10296.D	1	06/25/12	BD	n/a	n/a	VR367
C22371-2	R10284.D	1	06/25/12	BD	n/a	n/a	VR367

The QC reported here applies to the following samples:

Method: SW846 8260B

C22300-5, C22300-6, C22300-7, C22300-8

CAS No.	Compound	C22371-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	19.6	98	18.9	95	4	60-130/25
100-41-4	Ethylbenzene	ND	20	19.7	99	18.1	91	8	60-130/25
108-88-3	Toluene	ND	20	19.2	96	17.7	89	8	60-130/25
1330-20-7	Xylene (total)	ND	60	49.2	82	43.9	73	11	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C2	22371-2	Limits			
1868-53-7	Dibromofluoromethane	92%	96%	97	%	60-130	%		
2037-26-5	Toluene-D8	90%	87%	91	%	60-130	%		
460-00-4	4-Bromofluorobenzene	93%	91%	91	%	60-130	%		



Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C22297-5MS	N31982.D	1	06/25/12	TF	n/a	n/a	VN1023
C22297-5MSD	N31983.D	1	06/25/12	TF	n/a	n/a	VN1023
C22297-5	N31975.D	1	06/25/12	TF	n/a	n/a	VN1023

The QC reported here applies to the following samples:

Method: SW846 8260B

C22300-9, C22300-10, C22300-13

CAS No.	Compound	C22297-5 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	21.1	106	18.7	94	12	60-130/25
100-41-4	Ethylbenzene	ND	20	20.9	105	18.7	94	11	60-130/25
108-88-3	Toluene	ND	20	20.6	103	18.4	92	11	60-130/25
1330-20-7	Xylene (total)	ND	60	63.1	105	56.2	94	12	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C2	2297-5	Limits			
1868-53-7	Dibromofluoromethane	100%	100%	102	2%	60-130	%		
2037-26-5	Toluene-D8	97%	99%	99	%	60-130	%		
460-00-4	4-Bromofluorobenzene	100%	101%	99	%	60-130	%		

Section 5

S



GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C22300

Account: Project:	SHELLWIC S URSORP: She	Shell Oil P ell/Harbor	roducts Island - 2555 13	3th Ave S	W., Seattle, WA		
Sample DP6121-MB	File ID T4695.D	DF 1	Analyzed 06/18/12	By LW	Prep Date 06/15/12	Prep Batch OP6121	Analytical Batch ET197

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

C22300-5, C22300-6, C22300-7

CAS No.	Compound	Result	RL	MDL	Units Q
83-32-9	Acenaphthene	ND	0.50	0.050	ug/l
208-96-8	Acenaphthylene	ND	0.50	0.050	ug/l
120-12-7	Anthracene	ND	0.50	0.050	ug/l
56-55-3	Benzo(a)anthracene	ND	0.10	0.053	ug/l
50-32-8	Benzo(a)pyrene	ND	0.10	0.041	ug/l
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.035	ug/l
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l
218-01-9	Chrysene	ND	0.10	0.045	ug/l
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.035	ug/l
206-44-0	Fluoranthene	ND	0.50	0.050	ug/l
86-73-7	Fluorene	ND	0.50	0.050	ug/l
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.035	ug/l
90-12-0	1-Methylnaphthalene ^a	ND	0.50	0.10	ug/l
91-57-6	2-Methylnaphthalene	ND	0.50	0.10	ug/l
91-20-3	Naphthalene	ND	0.50	0.10	ug/l
85-01-8	Phenanthrene	ND	0.50	0.050	ug/l
129-00-0	Pyrene	ND	0.50	0.050	ug/l

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	61%	25-100%
321-60-8	2-Fluorobiphenyl	63%	25-106%
1718-51-0	Terphenyl-d14	56%	35-130%

(a) AZ:T2,T6

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Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6121-BS	T4696.D	1	06/18/12	LW	06/15/12	OP6121	ET197
OP6121-BSD	T4697.D	1	06/18/12	LW	06/15/12	OP6121	ET197

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

C22300-5, C22300-6, C22300-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	5	3.2	64	3.2	64	0	25-130/30
208-96-8	Acenaphthylene	5	3.4	68	3.3	66	3	30-122/30
120-12-7	Anthracene	5	3.5	70	3.4	68	3	39-128/30
56-55-3	Benzo(a)anthracene	5	3.3	66	3.2	64	3	35-132/30
50-32-8	Benzo(a)pyrene	5	3.4	68	3.5	70	3	44-136/30
205-99-2	Benzo(b)fluoranthene	5	3.6	72	3.2	64	12	41-134/30
191-24-2	Benzo(g,h,i)perylene	5	3.3	66	3.3	66	0	30-134/30
207-08-9	Benzo(k)fluoranthene	5	3.1	62	3.6	72	15	40-134/30
218-01-9	Chrysene	5	3.3	66	3.3	66	0	39-134/30
53-70-3	Dibenzo(a,h)anthracene	5	3.4	68	3.3	66	3	33-137/30
206-44-0	Fluoranthene	5	3.3	66	3.3	66	0	40-129/30
86-73-7	Fluorene	5	3.4	68	3.1	62	9	32-125/30
193-39-5	Indeno(1,2,3-cd)pyrene	5	3.2	64	3.3	66	3	33-137/30
90-12-0	1-Methylnaphthalene	5	2.9	58	3.1	62	7	27-124/30
91-57-6	2-Methylnaphthalene	5	3.3	66	3.3	66	0	28-120/30
91-20-3	Naphthalene	5	3.2	64	3.1	62	3	28-122/30
85-01-8	Phenanthrene	5	3.2	64	3.2	64	0	38-128/30
129-00-0	Pyrene	5	3.2	64	3.1	62	3	35-126/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
4165-60-0	Nitrobenzene-d5	68%	66%	25-100%
321-60-8	2-Fluorobiphenyl	64%	61%	25-106%
1718-51-0	Terphenyl-d14	60%	61%	35-130%

Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6121-MS	T4698.D	1	06/18/12	LW	06/15/12	OP6121	ET197
OP6121-MSD	T4699.D	1	06/18/12	LW	06/15/12	OP6121	ET197
C22300-7	T4704.D	1	06/18/12	LW	06/15/12	OP6121	ET197

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

35-130%

C22300-5, C22300-6, C22300-7

CAS No.	Compound	C22300-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND	10	4.3	43	3.8	38	12	25-130/32
208-96-8	Acenaphthylene	ND	10	4.6	46	4.1	41	11	30-122/34
120-12-7	Anthracene	ND	10	5.2	52	4.4	44	17	39-128/29
56-55-3	Benzo(a)anthracene	ND	10	6.6	66	4.0	40	49* ^a	35-132/33
50-32-8	Benzo(a)pyrene	ND	10	7.2	72	4.4	44	48* a	44-136/33
205-99-2	Benzo(b)fluoranthene	ND	10	6.1	61	3.8	38* ^b	46* a	41-134/34
191-24-2	Benzo(g,h,i)perylene	ND	10	6.8	68	4.2	42	47* ^a	30-134/32
207-08-9	Benzo(k)fluoranthene	ND	10	7.3	73	4.3	43	52* a	40-134/32
218-01-9	Chrysene	ND	10	6.7	67	4.2	42	46* a	39-134/31
53-70-3	Dibenzo(a,h)anthracene	ND	10	6.9	69	4.3	43	46* ^a	33-137/31
206-44-0	Fluoranthene	ND	10	6.3	63	4.1	41	42* a	40-129/33
86-73-7	Fluorene	ND	10	4.5	45	3.9	39	14	32-125/35
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10	6.7	67	4.1	41	48* a	33-137/34
90-12-0	1-Methylnaphthalene	ND	10	4.3	43	3.8	38	12	27-124/36
91-57-6	2-Methylnaphthalene	ND	10	4.5	45	4.1	41	9	28-120/33
91-20-3	Naphthalene	ND	10	4.5	45	3.9	39	14	28-122/33
85-01-8	Phenanthrene	ND	10	4.9	49	4.0	40	20	38-128/33
129-00-0	Pyrene	ND	10	5.6	56	4.0	40	33* ^a	35-126/29
CAS No.	Surrogate Recoveries	MS	MSD		C22300-7	Limits			
4165-60-0	Nitrobenzene-d5	45%	42%		41%	25-100	%		
321-60-8	2-Fluorobiphenyl	47%	41%		42%	25-106	%		

38%

36%

59%

(a) Outside laboratory control limits. AZ:R9

1718-51-0 Terphenyl-d14

(b) Outside laboratory control limits. AZ:M2



5.3.1

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Section 6

6



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C22300

Account: Project:	SHELLWIC Sh URSORP: Shel						
Sample GJK1138-MB	File ID JK28149.D	DF 1	Analyzed 06/17/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1138
The QC repor	ted here applies	to the fo	ollowing samples	5:]	Method: NWT	PH-GX
C22300-1, C22 11, C22300-12	2300-2, C22300-3 , C22300-13, C2	3, C2230 2300-14	0-4, C22300-5, 0	C22300-6	5, C22300-7, C223	800-8, C22300-9	o, C22300-10, C22300

CAS No.	Compound	Result	RL	MDL	Units Q
	TPH (Gasoline)	ND	0.20	0.050	mg/l
CAS No.	Surrogate Recoveries		Limits		
		0.0.1			



Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GJK1138-BS	JK28150.D	1	06/17/12	TT	n/a	n/a	GJK1138
GJK1138-BSD	JK28151.D	1	06/17/12	TT	n/a	n/a	GJK1138

The QC reported here applies to the following samples:

Method: NWTPH-GX

C22300-1, C22300-2, C22300-3, C22300-4, C22300-5, C22300-6, C22300-7, C22300-8, C22300-9, C22300-10, C22300-11, C22300-12, C22300-13, C22300-14

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.4	0.357	89	0.347	87	3	60-140/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
98-08-8	aaa-Trifluorotoluene	95%	84%	6	50-150%			
460-00-4	4-Bromofluorobenzene	103%	96%	6	50-150%			

6.2.1

Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	Bv	Prep Date	Prep Batch	Analytical Batch
C22233-2MS	JK28178.D	1	06/18/12	TT	n/a	n/a	GJK1138
C22233-2MSD	JK28179.D	1	06/18/12	TT	n/a	n/a	GJK1138
C22233-2	JK28156.D	1	06/17/12	TT	n/a	n/a	GJK1138

The QC reported here applies to the following samples:

C22300-1, C22300-2, C22300-3, C22300-4, C22300-5, C22300-6, C22300-7, C22300-8, C22300-9, C22300-10, C22300-11, C22300-12, C22300-13, C22300-14

CAS No.	Compound	C22233-2 mg/l Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	ND	0.4	0.351	88	0.345	86	2	60-140/20
CAS No.	Surrogate Recoveries	MS	MSD	C2	2233-2	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	99% 105%	94% 102%	105 109	5% 9%	50-150% 50-150%	6 6		

Method: NWTPH-GX

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Duplicate Summary Job Number: C22300

Account:

SHELLWIC Shell Oil Products

Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA						
Sample	File ID IK28175 D	DF	Analyzed 06/18/12	By TT	Prep Date	Prep Batch	Analytical Batch
C22300-12	JK28174.D	1	06/18/12	TT	n/a	n/a	GJK1138
The QC reported	d here applies	to the fo	bllowing samples	s:]	Method: NWTH	PH-GX

C22300-1, C22300-2, C22300-3, C22300-4, C22300-5, C22300-6, C22300-7, C22300-8, C22300-9, C22300-10, C22300-11, C22300-12, C22300-13, C22300-14

CAS No.	Compound	C22300-12 mg/l Q	DUP mg/l Q	RPD Limits
	TPH (Gasoline)	0.459	0.472	3 20
CAS No.	Surrogate Recoveries	DUP	C22300-12	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	100% 109%	98% 107%	50-150% 50-150%

* = Outside of Control Limits.

6.4.1

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Section 7



GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Job Numbe Account: Project:	er: C22300 SHELLWIC Shell (URSORP: Shell/Ha	Dil Products rbor Island - 2555	13th Ave	e SW., Sea	attle, WA	A	
Sample OP6122-M	File ID DF B HH023265.D1	Analyzed 06/16/12	By JH	Pre 06/	ep Date 15/12	Prep Batch OP6122	Analytical Batch GHH748
The QC re C22300-2,	ported here applies to th C22300-5, C22300-6, C2	e following samp 2300-7, C22300-1	les: 1, C2230	00-12, C22	2300-14	Method: NWT	PH-DX
CAS No.	Compound	Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor Oil)	ND ND	0.10 0.20	0.050 0.10	mg/l mg/l		

CAS No.	Surrogate Recoveries		Limits	
630-01-3	Hexacosane	94%	50-150%	



Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6122-BS	HH023266	.D1	06/16/12	JH	06/15/12	OP6122	GHH748
OP6122-BSD	HH023267	.D1	06/16/12	JH	06/15/12	OP6122	GHH748

The QC reported here applies to the following samples:

Method: NWTPH-DX

C22300-2, C22300-5, C22300-6, C22300-7, C22300-11, C22300-12, C22300-14

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Diesel) TPH (Motor Oil)	1 1	0.741 0.934	74 93	0.761 0.998	76 100	3 7	45-140/30 45-140/30
CAS No.	Surrogate Recoveries	BSP	BSI	D	Limits			
630-01-3	Hexacosane	94%	98%	6	50-150%	6		



Job Number:	C22300
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6122-MS	HH023284	.D1	06/16/12	JH	06/15/12	OP6122	GHH748
OP6122-MSD	HH023285	5.D1	06/16/12	JH	06/15/12	OP6122	GHH748
C22300-6	HH023277	'.D1	06/16/12	JH	06/15/12	OP6122	GHH748

The QC reported here applies to the following samples:

Method: NWTPH-DX

C22300-2, C22300-5, C22300-6, C22300-7, C22300-11, C22300-12, C22300-14

CAS No.	Compound	C22300 mg/l	-6 Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Diesel) TPH (Motor Oil)	ND 0.135	J	1.94 1.94	1.23 2.02	63 97	1.48 2.03	76 98	18 0	45-140/25 45-140/25
CAS No.	Surrogate Recoveries	MS		MSD	C2	2300-6	Limits			
630-01-3	Hexacosane	92%		101%	879	6	50-150%	, D		



Duplicate Summary Job Number: C22300

Account: Project:	SHELLWIC S URSORP: She	hell Oil P ell/Harbor	W., Seattle, WA				
Sample OP6122-DUP1 C22300-5	File ID HH023282. HH023276.	DF .D1 .D1	Analyzed 06/16/12 06/16/12	By JH JH	Prep Date 06/15/12 06/15/12	Prep Batch OP6122 OP6122	Analytical Batch GHH748 GHH748

The QC reported here applies to the following samples:

Method: NWTPH-DX

C22300-2, C22300-5, C22300-6, C22300-7, C22300-11, C22300-12, C22300-14

CAS No.	Compound	C22300-5 mg/l Q	DUP mg/l Q	RPD Limits
	TPH (Diesel) TPH (Motor Oil)	ND ND	ND ND	nc 25 nc 25
CAS No.	Surrogate Recoveries	DUP	C22300-5	Limits
630-01-3	Hexacosane	90%	91%	50-150%



Section 8

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Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C22300 Account: SHELLWIC - Shell Oil Products Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5010 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:					06/18/12		
Metal	RL	IDL	MDL	MB raw	final		
Aluminum	200	13	8.5				
Antimony	6.0	.7	.51				
Arsenic	10	.7	.65				
Barium	200	.4	.35				
Beryllium	5.0	.2	.4				
Boron	100	.9	.64				
Cadmium	2.0	.2	.15				
Calcium	5000	7.1	12				
Chromium	10	.3	.41				
Cobalt	5.0	.2	.3				
Copper	10	1.2	3				
Iron	200	6.4	12				
Lead	10	.7	.85	0.60	<10		
Magnesium	5000	27	36				
Manganese	15	.1	1.3				
Molybdenum	20	. 2	.22				
Nickel	5.0	. 2	.12				
Potassium	10000	18	44				
Selenium	10	1.8	2.2				
Silicon	100	1.2	6.9				
Silver	5.0	.3	.47				
Sodium	10000	15	13				
Strontium	10	.2	.24				
Thallium	10	.5	.54				
Tin	50	.2	.7				
Titanium	10	.4	.34				
Vanadium	10	.3	.3				
Zinc	20	.3	4.2				

Associated samples MP5010: C22300-14

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

8.1.1

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C22300 Account: SHELLWIC - Shell Oil Products Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5010 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date.				00/10/12	
Metal	C22300-1 Original	14 1 MS	Spikelot MPIR4A	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron					
Lead	3.4	498	500	98.9	75-125
Magnesium					
Manganese					
lolybdenum					
Nickel	anr				
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc	anr				
Associated sa	mples MP50	010: C22	300-14		
Results < IDL (*) Outside c (N) Matrix Sr	are shown of QC limit oike Rec. (n as zero ts outside o	o for calcu of OC limit	lation pu	irposes





MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C22300 Account: SHELLWIC - Shell Oil Products Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5010 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:					06/18/12			
Metal	C22300-14 Original M	ISD	Spikelot MPIR4A	% Rec	MSD RPD	QC Limit		
Aluminum								
Antimony								
Arsenic	anr							
Barium	anr							
Beryllium								
Boron								
Cadmium	anr							
Calcium								
Chromium	anr							
Cobalt								
Copper	anr							
Iron								
Lead	3.4 4	199	500	99.1	0.2	20		
Magnesium								
Manganese								
Molybdenum								
Nickel	anr							
Potassium								
Selenium	anr							
Silicon								
Silver	anr							
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc	anr							
Associated sa	mples MP5010): C2230	0-14					
Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested								



Login Number: C22300 Account: SHELLWIC - Shell Oil Products Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5010 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Frep Date:			06/18/12				
Metal	BSP Result	Spikelot MPIR4A	% Rec	QC Limits			
Aluminum							
Antimony							
Arsenic	anr						
Barium	anr						
Beryllium							
Boron							
Cadmium	anr						
Calcium							
Chromium	anr						
Cobalt							
Copper	anr						
Iron							
Lead	492	500	98.4	80-120			
Magnesium							
Manganese							
Molybdenum							
Nickel	anr						
Potassium							
Selenium	anr						
Silicon							
Silver	anr						
Sodium							
Strontium							
Thallium							
Tin							
Titanium							
Vanadium							
Zinc	anr						
Associated sa	amples MP5	010: C2230	0-14				
Results < ID (*) Outside ((anr) Analyte	L are show of QC limi e not requ	n as zero ts ested	for calc	ulation purposes			



SERIAL DILUTION RESULTS SUMMARY

Login Number: C22300 Account: SHELLWIC - Shell Oil Products Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5010 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

06/18/12 Prep Date: C22300-14 QC Limits Original SDL 1:5 %DIF Metal Aluminum Antimony Arsenic anr Barium anr Beryllium Boron Cadmium anr Calcium Chromium anr Cobalt Copper anr Iron 100.0(a) 0-10 Lead 3.40 0.00 Magnesium Manganese Molybdenum Nickel anr Potassium Selenium anr Silicon Silver anr Sodium Strontium Thallium Tin Titanium Vanadium Zinc anr Associated samples MP5010: C22300-14 Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested (a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).





07/17/12

Technical Report for

Shell Oil Products

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

46194341

Accutest Job Number: C22512



Sampling Date: 06/28/12

Report to:

URS Corporation 111 SW Columbia, Suite 1500 Portland, OR 97201-5850 brian_pletcher@urscorp.com

ATTN: Brian Pletcher

Total number of pages in report: 30



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Kesavalu M. Bagawandoss, Ph.D., J.D., Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Vincent Vancil 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242) This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.



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Sample Summary

Shell Oil Products

Job No: C22512

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Project No: 46194341

Sample	Collected			Matr	ix	Client		
Number	Date	Time By	Received	Code	Туре	Sample ID		
C22512-1	06/28/12	00:00 DL	06/29/12	AQ	Trip Blank Water	TRIP BLANK		
C22512-2	06/28/12	11:10 DL	06/29/12	AQ	Ground Water	MW-302-0612		



Summary of Hits

Job Number:	C22512
Account:	Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	06/28/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method			
C22512-1	TRIP BLANK								
< no hits reported in this sample>									
C22512-2	MW-302-0612								
Benzene Toluene		1230 43.7	40 10	8.0 2.0	ug/l ug/l	SW846 8260B SW846 8260B			
Ethylbenzene Xylene (total) TPH (Gasoline)		403 289 5.65	10 20 4.0	2.0 4.6 1.0	ug/l ug/l mg/l	SW846 8260B SW846 8260B NWTPH-GX			

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Sample Results

Report of Analysis



CAS No.

Compound

Client San Lab Samp Matrix: Method: Project:	nple ID: le ID:	TRIP B C22512 AQ - T SW846 URSOF	LANK 2-1 rip Blank 8260B RP: Shell/	Water Harbor Island -	2555 13tl	Date Sampled: 06/28/12 Date Received: 06/29/12 Percent Solids: n/a th Ave SW., Seattle, WA								
Run #1 Run #2	File ID V07511	.D	DF 1	Analyzed 07/03/12	By BD	Prep Date n/a	Prep Batch n/a	Analytical Batch VV340						
Run #1 Run #2 Purgeable	Purge V 10.0 ml	Volume												

RL

MDL

Units

Q

Report of Analysis

71-43-2	Benzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	ts
1868-53-7	Dibromofluoromethane	104%		60-13	0%
2037-26-5	Toluene-D8	104%		60-13	0%
460-00-4	4-Bromofluorobenzene	100%		60-13	0%

Result

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



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C22512

Page 1 of 1

Client Sar Lab Samp Matrix: Method: Project:	nple ID: TRIP ole ID: C225 AQ - NWT URSC	BLANK 12-1 Trip Blank PH-GX DRP: Shell/	Water Harbor Island -	2555 13th	Ave SW., Sea	Date Sampled: Date Received: Percent Solids: tttle, WA	06/28/12 06/29/12 n/a
Run #1 Run #2	File ID JK28745.D	DF 1	Analyzed 07/10/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1158
Run #1 Run #2	Purge Volume 10.0 ml	e					
Northwest	t TPH-Gx						
CAS No.	Compound		Result	RL	MDL U	Inits Q	
		``		0.00	0.050	(1	

Report of Analysis

	TPH (Gasoline)	ND	0.20	0.050 mg/	I
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
98-08-8	aaa-Trifluorotoluene	97%		50-150%	
460-00-4	4-Bromofluorobenzene	105%		50-150%	

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

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Client San Lab Samj Matrix: Method: Project:	mple ID: MW-3 ple ID: C2251 AQ - 0 SW84 URSC	02-0612 2-2 Ground W 6 8260B 0RP: Shell/	ater 'Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle,	e Sampled: 06 e Received: 06 cent Solids: n/ WA	5/28/12 5/29/12 a
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1	U4982.D	10	07/02/12	TN	n/a		n/a	VU187
Run #2	U4997.D	40	07/03/12	TN	n/a		n/a	VU188
	Purge Volume	9						
Run #1	10.0 ml							
Run #2	10.0 ml							
Purgeable	e Aromatics							
CAS No.	Compound		Result	RL	MDL	Units	Q	
71-43-2	Benzene		1230 ^a	40	8.0	ug/l		

10

10

2.0

2.0

ug/l

ug/l

ug/l

Report of Analysis

71-43-2 Benzene 108-88-3 Toluene 100-41-4 Ethylbenzene

1330-20-7	Xylene (total)	289	20	4.6 ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%	93%	60-130%
2037-26-5	Toluene-D8	94%	98%	60-130%
460-00-4	4-Bromofluorobenzene	94%	96%	60-130%

43.7

403

(a) Result is from Run# 2

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



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3.2

Client San Lab Samı Matrix: Method: Project:	mple ID: MW- ple ID: C225 AQ - NWT URSC	302-0612 12-2 Ground W PH-GX DRP: Shell/	ater 'Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle,	e Sampled: 00 e Received: 00 eent Solids: n/ WA	5/28/12 5/29/12 ′a
	File ID	DF	Analyzed	Bv	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	JK28746.D	20	07/10/12	TŤ	n/a		n/a	GJK1158
	Purge Volum	e						
Run #1 Run #2	10.0 ml							
Northwes	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TDU (Casali)	E (E	4.0	1.0			

Report of Analysis

	TPH (Gasoline)	5.65	4.0	1.0 mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
98-08-8	aaa-Trifluorotoluene	100%		50-150%	
400-00-4	4-Bromonuorobenzene	111%		50-150%	

- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



3.2

Section 4

4



Misc. Forms
Custody Documents and Other Forms
ncludes the following where applicable:
Chain of Custody



.	LAB (LOCATION)					0		s	hell	0	il P	rod	uct	s C	hai	n O	f C	usto	ody	Re	cor	d	S	HE	لماذ	_WIC3660
ц. П.			Pi	ease Chec	k Ap	propria	ate Bo	x:		Pr	int B	ill To (Conta	oct Na	me:				INCI	DENT	f#(E	NV SI	ERV	CES)	In.	CHECK IE NO INCIDENT # APRI IES
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	PORTO	An	D,	OR						500	ITLER N	AME(S) (Pan	, -	10		101)	14	<u> </u>			- I	791	77	77	AB USE	ONLY
50	3-222-7200		bria	n.olot	che	ra	urs.	CO	n	1	DA	WE	LE	W)	S	7	Solo	-37	1-2	506	4				C?	22512
TURN	AROUND TIME (CALENDAR DAYS): ANDARD (14 DAY) 📋 5 DAYS 🔲 3 DAY	s	2 DAYS	<u>, 1 1 7 5 1</u> 24 H	OURS	[] RESU	TS NEEL	EKEND						-			REC	UEST	ED AN	ALYS	sis			<u></u>	
DELIVE	RABLES: [] LEVEL 1 [] LEVEL 2 [] LEVEL	3 🗋 це	WEL4 (] OTHER (SPE	CIFY)_					\uparrow	1		1			1					1	П	-	\top		
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LAB USE ONLY	Field Sample Identification	DATE	TIME	MATRIX	HCL	NO3 H25		OTHER	NO. OF CONT.	NW																Container PID Readings or Laboratory Notes
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C22512: Chain of Custody Page 1 of 2



4.1 4

Initial: <u>–</u>S

Are these regulatory (NPDES) samples? CWA	es) No Client Sample ID	pH Check Other Comments/Issues
v/s pH requested?	es / No)	
Was Client informed that hold time is 15 min? Yes / No Continue Yes	es / No	
Was ortho-Phosphate filtered with in 15 min? Yes / No Continue Ye	es / No	2×110-11 11-11-11-01
Are sample within hold time?	es/No	SA 4UML VIAL / HCC
Are sample in danger of exceeding hold-time Ye	os /(No)	
⊄Existing Client? (res) / No Existing Project?	es)No	
If No: Is Report to info complete and legible, including;		6×40mL VIAL / HCL
🗅 deliverable 🗆 Name 👘 Address 🙃 phone 👘 🖬 e-mail		· · · · · · · · · · · · · · · · · · ·
Is Bill to info complete and legible, including;		
PO# Credit card Contact address phone e-mail		
Is Contact and/or Project Manager identified, including;		
a phone a e-mail		
c Project name / number		
	es/No	
Sample IDs / date & time of collection provided?	BS No	
Is Matrix listed and correct?	ns) No	
& Analyses listed, we do, or client has authorized a subcontract?	No No	
Chain is signed and dated by both client and sample custodian?	95)/ No	
c/TAT requested available? (res)/ No Approved by PM		
Review Coolers:		
ø/Were all Coolers temperatures measured at ≤6°C? /Yes	es)/No	
 If cooler is outside the ≤6°C; note down the affected bottles in that cooler on the left 	ζ Γ	
Are samples on ice? (Yes)	es No	
Note that ANC does NOT accept evidentiary samples. (We do not lock refrigerators)		
L-OFV		
d Shipment Received Method + COLON		
Custody Seals: Present: Yes / 10) If Yes; Unbroken: Yes	os / No	
Review of Sample Bottles: If you answer no, explain to the side	~	
Chain matches bottle labels? (res/I No Sample bottle intact? (res	95 ¹ / No	
rads there enough sample volume in proper bottle for requested analyses? (Ye	es// No	
⊿Proper Preservalives? (Tes) No		
Check pH on preserved samples except 1664, 625, 8270 and VOAs; make notes on left.		
A Headspace-VOAs? Greater than 6mm in diameter Ye	es/No	· · · · · · · · · · · · · · · · · · ·
List sample in and affected container		

Non-Compliance issues and discrepancies on the COC are forwarded to Project Management

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C22512: Chain of Custody Page 2 of 2



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GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Account: Project:	SHELLWIC S URSORP: She	Shell Oil Produ ell/Harbor Isla	icts nd - 2555	attle, WA	A								
Sample VU187-ME	File ID 3 U4966.D	DF 1	Analyzed 07/02/12	By TN	Pro n/a	rep Date Prep Batch Analytical Ba a n/a VU187							
The QC re	ported here applies	s to the follow	ing sampl	es:			Method: SW84	6 8260B					
C22512-2													
CAS No.	Compound	I	Result	RL	MDL	Units	Q						
100-41-4	Ethylbenzene	N	ND	1.0	0.20	ug/l							
108-88-3	Toluene	Ν	ND	1.0	0.20	ug/l							
1330-20-7	Xylene (total)	Ν	ND	2.0	0.46	ug/l							

CAS No.	Surrogate Recoveries		Limits
1868-53-7 2037-26-5	Dibromofluoromethane Toluene-D8	95% 99%	60-130% 60-130%
460-00-4	4-Bromofluorobenzene	94%	60-130%

Page 1 of 1

460-00-4

4-Bromofluorobenzene

Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil Pro l/Harbor Is	ducts sland - 2555	13th Ave	SW., Sea	uttle, WA	A		
Sample VU188-ME	File ID 3 U4992.D	DF 1	Analyzed 07/03/12	By TN	Pre n/a	ep Date	Prep B n/a	atch	Analytical Batch VU188
The QC re	ported here applies	to the follo	owing sample	es:			Method:	SW846	5 8260B
C22512-2									
CAS No.	Compound		Result	RL	MDL	Units	Q		
71-43-2	Benzene		ND	1.0	0.20	ug/l			
CAS No.	Surrogate Recover	ies		Limits					
1868-53-7 2037-26-5	Dibromofluorometh Toluene-D8	ane	91% 98%	60-130 60-130	1% 1%				

60-130%

93%

C22512

5.1.2

G

1330-20-7 Xylene (total)

Account:SHELLWIC Shell Oil ProductsProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample VV340-MI	File ID 3 V07510.D	DF Anal 1 07/03	yzed By 8/12 BD	Pre j n/a	p Date	Prep Batch n/a	Analytical Batch VV340		
The QC re	ported here applies	to the following s	amples:			Method: SW84	5 8260B		
C22512-1									
CAS No.	Compound	Result	t RL	MDL	Units	Q			
71-43-2	Benzene	ND	1.0	0.20	ug/l				
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l				
108-88-3	Toluene	ND	1.0	0.20	ug/l				

2.0

0.46

ug/l

ND

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	60-130%
2037-26-5	Toluene-D8	105%	60-130%
460-00-4	4-Bromofluorobenzene	100%	60-130%





Blank Spike/Blank Spike Duplicate Summary

Job Number:	C22512
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU187-BS	U4962.D	1	07/02/12	TN	n/a	n/a	VU187
VU187-BSD	U4963.D	1	07/02/12	TN	n/a	n/a	VU187

The QC reported here applies to the following samples:

Method: SW846 8260B

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
100-41-4	Ethylbenzene	20	24.3	122	23.5	118	3	60-130/30
108-88-3	Toluene	20	23.9	120	23.4	117	2	60-130/30
1330-20-7	Xylene (total)	60	73.6	123	72.3	121	2	60-130/30
CAS No.	Surrogate Recoveries	BSP	BSE)	Limits			
1868-53-7	Dibromofluoromethane	96%	94%		60-130%			
2037-26-5	Toluene-D8	98%	97%		60-130%			
460-00-4	4-Bromofluorobenzene	98%	97%		60-130%			

Blank Spike/Blank Spike Duplicate Summary

Job Number: Account: Project:	C22512 SHELLWIC S URSORP: She	Shell Oil P ell/Harbor	Products Island - 2555 1	3th Ave S	W., Seattle, WA		
Sample VU188-BS	File ID U4989.D	DF	Analyzed 07/03/12	By TN	Prep Date	Prep Batch	Analytical Batch
VU188-BSD	U4990.D	1	07/03/12	TN	n/a	n/a	VU188
The QC repor	ted here applies	s to the fo	ollowing sample	s:	· · · · · · · · · · · · · · · · · · ·	Method: SW84	6 8260B

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	19.8	99	21.2	106	7	60-130/30
CAS No.	Surrogate Recoveries	BSP	BSE)	Limits			
1868-53-7	Dibromofluoromethane	91%	90%		60-130%)		
2037-26-5	Toluene-D8	97%	97%		60-130%)		
460-00-4	4-Bromofluorobenzene	97%	97%		60-130%)		



Blank Spike/Blank Spike Duplicate Summary

Job Number:	C22512
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV340-BS	V07506.D	1	07/03/12	BD	n/a	n/a	VV340
VV340-BSD	V07507.D	1	07/03/12	BD	n/a	n/a	VV340

The QC reported here applies to the following samples:

Method: SW846 8260B

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	18.3	92	18.5	93	1	60-130/30
100-41-4	Ethylbenzene	20	18.6	93	18.6	93	0	60-130/30
108-88-3	Toluene	20	18.6	93	18.6	93	0	60-130/30
1330-20-7	Xylene (total)	60	56.5	94	56.4	94	0	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	102%	102%	60-130%
2037-26-5	Toluene-D8	102%	103%	60-130%
460-00-4	4-Bromofluorobenzene	102%	103%	60-130%

Laboratory Control Sample Summary Job Number: C22512

Account: Project:	SHELLWIC Shel URSORP: Shell/H	l Oil Products Harbor Island - 2:	555 13th	Ave SW.	, Seattle, WA		
Sample VU187-LC	File ID I S U4965.D 1	DF Analy 07/02	v zed F /12 T	By TN	Prep Date n/a	Prep Batch n/a	Analytical Batch VU187
The QC re	ported here applies to	the following sa	mples:			Method: SW84	6 8260B
C22512-2							
CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits		
CAS No.	Surrogate Recoveries	s BSP	Li	mits			
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethar Toluene-D8 4-Bromofluorobenzen	e 91% 100% e 96%	60 60 60)-130%)-130%)-130%			

Laboratory Control Sample Summary Job Number: C22512

Account: Project:	SHELLWIC Shell Of URSORP: Shell/Harl	l Products oor Island - 25	555 13th	Ave SW	, Seattle, WA		
Sample VU188-LC	File ID DF S U4991.D 1	Analy 07/03/	zed B /12 T	y N	Prep Date n/a	Prep Batch n/a	Analytical Batch VU188
The QC re	ported here applies to the	following sa	mples:			Method: SW84	6 8260B
C22512-2							
CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits		
CAS No.	Surrogate Recoveries	BSP	Li	mits			
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	90% 98% 96%	60 60 60	-130% -130% -130%			

5.3.2

(J)

Laboratory Control Sample Summary Job Number: C22512 Account: SHELLWIC Shell Oil Products **Project:** URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Sample File ID DF By **Prep Date Prep Batch Analytical Batch** Analyzed VV340-LCS V07509.D 07/03/12 BD VV340 1 n/a n/a

The QC reported here applies to the following samples:

C22512-1

CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits
CAS No.	Surrogate Recoveries	BSP	Liı	mits	
1868-53-7	Dibromofluoromethane	98%	60-	-130%	
2037-26-5	Toluene-D8	106%	60-	-130%	
460-00-4	4-Bromofluorobenzene	101%	60-	-130%	

Method: SW846 8260B



Job Number:	C22512
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C22421-10MS	U4983.D	5	07/02/12	TN	n/a	n/a	VU187
C22421-10MSD	U4984.D	5	07/02/12	TN	n/a	n/a	VU187
C22421-10	U4969.D	5	07/02/12	TN	n/a	n/a	VU187

The QC reported here applies to the following samples:

Method: SW846 8260B

CAS No.	Compound	C22421-10 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
100-41-4	Ethylbenzene	ND	100	114	114	113	113	1	60-130/25
108-88-3	Toluene	ND	100	114	114	113	113	1	60-130/25
1330-20-7	Xylene (total)	ND	300	352	117	349	116	1	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C	22421-10	Limits			
1868-53-7	Dibromofluoromethane	93%	91%	97	'%	60-1309	%		
2037-26-5	Toluene-D8	98%	96%	10	1%	60-1309	%		
460-00-4	4-Bromofluorobenzene	98%	96%	99	%	60-1309	%		



Job Number:	C22512
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C22479-2MS	U5011.D	20	07/03/12	TN	n/a	n/a	VU188
C22479-2MSD	U5012.D	20	07/03/12	TN	n/a	n/a	VU188
C22479-2	U4998.D	20	07/03/12	TN	n/a	n/a	VU188

The QC reported here applies to the following samples:

Method: SW846 8260B

C22512-2

CAS No.	Compound	C22479-2 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1320	400	1650	83	1640	80	1	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C22	2479-2	Limits			
1868-53-7	Dibromofluoromethane	95%	90%	93%	,)	60-130%)		
2037-26-5	Toluene-D8	96%	97%	99%	, D	60-130%)		
460-00-4	4-Bromofluorobenzene	98%	97%	95%	, D	60-130%)		

5.4.2

G

Job Number:	C22512
Account:	SHELLWIC Shell Oil Products
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C22519-5MS	V07526.D	1	07/03/12	BD	n/a	n/a	VV340
C22519-5MSD	V07527.D	1	07/04/12	BD	n/a	n/a	VV340
C22519-5	V07518.D	1	07/03/12	BD	n/a	n/a	VV340

The QC reported here applies to the following samples:

Method: SW846 8260B

C22512-1

CAS No.	Compound	C22519-5 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	17.3	87	19.2	96	10	60-130/25
100-41-4	Ethylbenzene	ND	20	17.2	86	18.9	95	9	60-130/25
108-88-3	Toluene	ND	20	17.3	87	19.1	96	10	60-130/25
1330-20-7	Xylene (total)	ND	60	52.2	87	57.0	95	9	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C22	2519-5	Limits			
1868-53-7	Dibromofluoromethane	103%	104%	106	%	60-1309	6		
2037-26-5	Toluene-D8	102%	103%	105	%	60-130%	6		
460-00-4	4-Bromofluorobenzene	100%	104%	104	%	60-130%	6		

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C22512

Section 6

6



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Account: Project:	ccount:SHELLWIC Shell Oil Productsroject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample GJK1158-N	File ID /IB JK28719.D	DF 1	Analyzed 07/09/12	By TT	by Prep Date T n/a		Prep Batch n/a	Analytical Batch GJK1158		
The QC re C22512-1.	ported here applies	to the fol	lowing sample	es:			Method: NWT	PH-GX		
CAS No.	Compound		Dogult	Ы	MDI	T In:4a	0			
CAS NO.	Compound TPH (Gasoline)		ND	RL 0.20	0.050	mg/l	Q			
CAS No.	Surrogate Recover	ies		Limit	8					
98-08-8 460-00-4	aaa-Trifluorotoluend 4-Bromofluorobenzo	ene	98% 50-150% 105% 50-150%							

Blank Spike/Blank Spike Duplicate Summary Job Number: C22512

Account:SHELLWIC Shell Oil ProductsProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample	File ID	DF	Analy	zed B	y	Prep Da	te l	Prep Bat	ch Analytical l	Batch
GJK1158-BS GJK1158-BS	JK28720.D JK28721.D	1 1	07/09/ 07/09/	12 T 12 T	T T	n/a n/a	1	1/a 1/a	GJK1158 GJK1158	
The QC rep C22512-1, C	orted here applies	to the foll	owing sar	mples:			Me	thod: NV	WTPH-GX	
CAS No.	Compound		Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD	
	TPH (Gasoline)		0.4	0.357	89	0.341	85	5	60-140/30	
CAS No.	Surrogate Recover	ies	BSP	BS	SD	Limits				

101%

109%

96%

105%

50-150%

50-150%

28 of 30 ACCUTEST. C22512

98-08-8

460-00-4

aaa-Trifluorotoluene

4-Bromofluorobenzene

Job Number Account: Project:	C22512 SHELLWIC Sh URSORP: Shel	ell Oil Pro	oducts sland - 25	555 1	3th Ave	SW., Sea	ttle, WA				C
Sample	File ID	DF	Analy	zed	By	Pre	p Date	Prep I	Batch	Analyti	ical Batch
C22556-2MS	JK28749.D	20	07/10/	12	TT	n/a		n/a		GJK115	58
C22556-2MS	SD JK28750.D	20	07/10/	12	TT	n/a		n/a		GJK115	58
C22556-2	JK28747.D	20	07/10/	12	TT	n/a		n/a		GJK115	58
The QC rep C22512-1, C	orted here applies 22512-2	to the follo	owing sa	mple	s:			Method:	NWTPI	H-GX	,
CAS No.	Compound		C22556 mg/l	5-2 Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
,	TPH (Gasoline)		9.67		8	15.7	75	16.9	90	7	60-140/20
CAS No.	Surrogate Recover	ies	MS		MSD	C2	2556-2	Limits			
98-08-8	aaa-Trifluorotoluene	e	96%		98%	98	%	50-150%	%		

120%

117%

50-150%

114%

460-00-4

4-Bromofluorobenzene



Duplicate Summary Job Number: C22512

Account:SHELLWIC Shell Oil ProductsProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample C22476-4DUI C22476-4	File ID JK28734.D JK28733.D	DF 1 1	Analyzed 07/09/12 07/09/12	By TT TT		Prep Dat n/a n/a	te Prep Batch n/a n/a	Analytical Batch GJK1158 GJK1158	
The QC repo C22512-1, C2	rted here applies	to the foll	owing sample	s:			Method: NWT	PH-GX	
CAS No. C	Compound PH (Gasoline)		C22476-4 mg/l Q ND	DUP mg/l ND	Q	RPD nc	Limits 20		

CAS No.	Surrogate Recoveries	DUP	C22476-4	Limits
98-08-8	aaa-Trifluorotoluene	103%	100%	50-150%
460-00-4	4-Bromofluorobenzene	108%	105%	50-150%

6.4.1 6





10/12/12

Technical Report for

Shell Oil Company

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

46194341

Accutest Job Number: C23895



Sampling Dates: 09/25/12 - 09/26/12

Report to:

URS Corporation 111 SW Columbia, Suite 1500 Portland, OR 97201-5850 brian.pletcher@urs.com

ATTN: Brian Pletcher

Total number of pages in report: 63



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Kesavalu M. Bagawandoss, Ph.D., J.D., Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Vincent Vancil 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242)

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Sections:



Sample Summary

Shell Oil Company

Job No: C23895

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Project No: 46194341

Sample Number	Collected Date	Time By	Received	Matri Code	ix Type	Client Sample ID
C23895-1	09/25/12	00:00 DRL	09/27/12	AQ	Trip Blank Water	TRIP BLANK
C23895-2	09/25/12	11:30 DRL	09/27/12	AQ	Ground Water	MW-302-0912
C23895-3	09/25/12	12:15 DRL	09/27/12	AQ	Ground Water	TX-03A-0912
C23895-4	09/25/12	13:35 DRL	09/27/12	AQ	Ground Water	MW-301-0912
C23895-5	09/25/12	14:00 DRL	09/27/12	AQ	Ground Water	MW-301D-0912
C23895-6	09/25/12	14:35 DRL	09/27/12	AQ	Ground Water	MW-303-0912
C23895-7	09/25/12	15:20 DRL	09/27/12	AQ	Ground Water	MW-304-0912
C23895-8	09/25/12	16:10 DRL	09/27/12	AQ	Ground Water	SH-04-0912
C23895-9	09/26/12	08:45 DRL	09/27/12	AQ	Ground Water	MW-202-0912
C23895-10	09/26/12	10:50 DRL	09/27/12	AQ	Ground Water	MW-305-0912
C23895-11	09/26/12	11:15 DRL	09/27/12	AQ	Ground Water	MW-305D-0912
C23895-12	09/26/12	11:35 DRL	09/27/12	AQ	Ground Water	MW-306-0912
C23895-13	09/26/12	12:25 DRL	09/27/12	AQ	Ground Water	MW-104-0912



Summary of Hits

Job Number:	C23895
Account:	Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	09/25/12 thru 09/26/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C23895-1	TRIP BLANK					
No hits reported	in this sample.					
C23895-2	MW-302-0912					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		657 24.7 180 106 4.07	10 10 10 20 2.0	2.0 2.0 2.0 4.6 0.50	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C23895-3	TX-03A-0912					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		1700 29.8 41.0 50.1 5.53	25 25 25 50 4.0	5.0 5.0 5.0 12 1.0	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C23895-4	MW-301-0912					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		333 13.1 18.6 19.2 4.02	5.0 5.0 5.0 10 2.0	1.0 1.0 2.3 0.50	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C23895-5	MW-301D-0912					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		346 14.0 19.8 19.8 3.95	5.0 5.0 5.0 10 2.0	1.0 1.0 2.3 0.50	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C23895-6	MW-303-0912					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		1830 63.5 474 146 9.14	25 25 25 50 5.0	5.0 5.0 5.0 12 1.3	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX



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4 of 63 ACCUTEST: C23895

Summary of Hits

Job Number:	C23895
Account:	Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	09/25/12 thru 09/26/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C23895-7	MW-304-0912					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		630 24.0 198 105 3.93	10 10 10 20 2.0	2.0 2.0 2.0 4.6 0.50	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C23895-8	SH-04-0912					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		124 18.4 461 139 6.52	5.0 5.0 5.0 10 2.0	1.0 1.0 2.3 0.50	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C23895-9	MW-202-0912					
Benzene ^a Toluene ^a Ethylbenzene ^a TPH (Gasoline)		5.8 2.9 J 37.8 4.07	4.0 4.0 4.0 2.0	0.80 0.80 0.80 0.50	ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C23895-10	MW-305-0912					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		1270 22.9 38.8 35.5 J 5.89	20 20 20 40 4.0	4.0 4.0 9.2 1.0	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C23895-11	MW-305D-0912					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		1320 24.5 42.3 35.1 J 5.85	20 20 20 40 4.0	4.0 4.0 9.2 1.0	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C23895-12	MW-306-0912					
Benzene Toluene Ethylbenzene Xylene (total)		1050 26.1 135 147	20 20 20 40	4.0 4.0 9.2	ug/l ug/l ug/l ug/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B

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Summary of Hits

Job Number:	C23895
Account:	Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	09/25/12 thru 09/26/12

Lab Sample ID	Client Sample ID	Result/	DI	MDI	Unite	Mothod
Analyte		Quai	KL	MDL	Units	Methou
TPH (Gasoline)		6.56	4.0	1.0	mg/l	NWTPH-GX
C23895-13	MW-104-0912					
Benzene ^a		0.66 J	2.0	0.40	ug/l	SW846 8260B
Toluene ^a		2.4	2.0	0.40	ug/l	SW846 8260B
Ethylbenzene a		50.9	2.0	0.40	ug/l	SW846 8260B
Xylene (total) a		1.9 J	4.0	0.92	ug/l	SW846 8260B
TPH (Gasoline)		4.54	2.0	0.50	mg/l	NWTPH-GX

(a) Dilution required due to high concentration of non-target hydrocarbons.

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Sample Results

Report of Analysis



Client Sample ID:TRIP BLAILab Sample ID:C23895-1Matrix:AQ - Trip IMethod:SW846 826Project:URSORP: 3			3LANK 5-1 `rip Blank Water 5 8260B RP: Shell/Harbor Island - 2555 13th Ave 5			Date Sampled: 09/25/12 Date Received: 09/27/12 Percent Solids: n/a ave SW., Seattle, WA		
Run #1 Run #2	File ID V08496.D	DF 1	Analyzed 10/05/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VV372	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Purgeable	e Aromatics					<u>_</u>		

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3 100-41-4	Ethylbenzene	ND ND	1.0	0.20	ug/l ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	87%		60-1	30%	
2037-26-5	Toluene-D8	97%		60-1	30%	
460-00-4	4-Bromofluorobenzene	94%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

<u>3</u>

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ACCUTEST C23895 CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID: TRIP BLANK Lab Sample ID: C23895-1 Matrix: AQ - Trip Blank Water Method: NWTPH-GX Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								0/25/12 0/27/12 a
Run #1 Run #2	File ID JK30590.D	DF 1	Analyzed 10/03/12	By TT	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GJK1231
Run #1 Run #2	Purge Volume 10.0 ml	•						
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	e)	ND	0.20	0.050	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

109%

117%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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9 of 63 ACCUTEST C23895

Client San Lab Samp Matrix: Method: Project:	nple ID: MW ole ID: C238 AQ - SW8 URS	MW-302-0912 C23895-2 AQ - Ground Water SW846 8260B URSORP: Shell/Harbor Island - 2555 13th			Date Sampled: 09/25/12 Date Received: 09/27/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID V08499.D	DF 10	Analyzed 10/06/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VV372	
Run #1 Run #2 Purgeable	Purge Volun 10.0 ml	ne						

Report of Analysis

CAS No.	Compound	Result	RL	MDL	Units
71-43-2	Benzene	657 24 7	10 10	2.0	ug/l
100-41-4	Ethylbenzene	180	10 10 20	2.0 2.0	ug/1 ug/1
1330-20-7	Xylene (total)	106	20	4.0	ug/1
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
1868-53-7	Dibromofluoromethane	82%		60-13	30%
2037-26-5	Toluene-D8	93%		60-13	30%
460-00-4	4-Bromofluorobenzene	93%		60-13	30%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Page 1 of 1
98-08-8

460-00-4

Client Sample ID:MW-302-0912Lab Sample ID:C23895-2Date Sampled:09/25/Matrix:AQ - Ground WaterDate Received:09/27/Method:NWTPH-GXPercent Solids:n/aProject:URSORP:Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								0/25/12 0/27/12 a
Run #1 Run #2	File ID JK30591.D	DF 10	Analyzed 10/03/12	By TT	Prep D an/a	ate	Prep Batch n/a	Analytical Batch GJK1231
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	4.07	2.0	0.50	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

107%

122%

Report of Analysis	Report	of	Analysis
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3.2

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Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: TX-0 ble ID: C238 AQ - SW84 URS0	3A-0912 95-3 Ground W 6 8260B DRP: Shell/	ater 'Harbor Island -	2555 13t	Date Sampled: 09/25/12 Date Received: 09/27/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID V08500.D	DF 25	Analyzed 10/06/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VV372	
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	e						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1700	25	5.0	ug/l	
108-88-3	Toluene	29.8	25	5.0	ug/l	
100-41-4	Ethylbenzene	41.0	25	5.0	ug/l	
1330-20-7	Xylene (total)	50.1	50	12	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	80%		60-1	30%	
2037-26-5	Toluene-D8	92%		60-1	30%	
460-00-4	4-Bromofluorobenzene	91%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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ND = Not detected

Client Sample ID:TX-03A-0912Lab Sample ID:C23895-3Date Sampled:09/25/12Matrix:AQ - Ground WaterDate Received:09/27/12Method:NWTPH-GXPercent Solids:n/aProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Run #1 Run #2	File ID JK30592.D	DF 20	Analyzed 10/03/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1231	
Run #1 Run #2	Purge Volume 10.0 ml	2							
Northwest	TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasolin	ne)	5.53	4.0	1.0	mg/l			

Report of Analysis

	TTTT (Ousonne)	5.55	1.0	i.o iiig/i
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	90% 101%		50-150% 50-150%

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MDL - Method Detection Limit

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

13 of 63 ACCUTEST C23895

Compound

Client Sample ID: Lab Sample ID: Matrix: Method: Project:		MW-3 C2389 AQ - 0 SW84 URSC	801-0912 95-4 Ground Wa 6 8260B 0RP: Shell/	ater Harbor Island -	2555 13ti	Date Sampled: 09/25/12 Date Received: 09/27/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID V08501	l.D	DF 5	Analyzed 10/06/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VV372	
Run #1 Run #2 Purgeable	Purge 10.0 m	Volumo l cs	e						

RL

MDL

Units

0

Report of Analysis

5.0 71-43-2 Benzene 333 1.0 ug/l 108-88-3 Toluene 13.1 5.0 1.0ug/l 100-41-4 5.0 Ethylbenzene 18.6 1.0 ug/l 1330-20-7 Xylene (total) 19.2 10 2.3 ug/l CAS No. **Surrogate Recoveries** Run#1 **Run# 2** Limits 1868-53-7 Dibromofluoromethane 80% 60-130% Toluene-D8 93% 2037-26-5 60-130% 460-00-4 4-Bromofluorobenzene 93% 60-130%

Result

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

Page 1 of 1

3.4

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98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID: MW-301-0912 Lab Sample ID: C23895-4 Date Sampled: 09/25/12 Matrix: AQ - Ground Water Date Received: 09/27/12 Method: NWTPH-GX Percent Solids: n/a Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Run #1 Run #2	File ID JK30593.D	DF 10	Analyzed 10/03/12	By TT	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GJK1231
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	4.02	2.0	0.50	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

110%

132%

Page 1 of 1

3.4

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- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: MW le ID: C23 AQ SW8 URS	-301D-0912 895-5 - Ground Wa 346 8260B SORP: Shell/	iter Harbor Island -	2555 13t	Da Da Pe h Ave SW., Seattle	te Sampled: 09 te Received: 09 rcent Solids: n/ , WA	9/25/12 9/27/12 a
Run #1 Run #2	File ID V08502.D	DF 5	Analyzed 10/06/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VV372
Run #1 Run #2	Purge Volur 10.0 ml	ne					
Purgeable	Aromatics						
CAS No.	Compound		Result	RL	MDL Unit	s Q	

Report of Analysis

71-43-2	Benzene	346	5.0	1.0	ug/l
108-88-3	Toluene	14.0	5.0	1.0	ug/l
100-41-4	Ethylbenzene	19.8	5.0	1.0	ug/l
1330-20-7	Xylene (total)	19.8	10	2.3	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 80%	Run# 2	Limi 60-13	ts 30%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 80% 93%	Run# 2	Limi 60-13 60-13	ts 30% 30%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID:MW-301D-0912Lab Sample ID:C23895-5Matrix:AQ - Ground WaterMethod:NWTPH-GXProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW							Date Sampled: 09/25/12 Date Received: 09/27/12 Percent Solids: n/a ve SW., Seattle, WA			
	File ID	DF	Analyzed	Bv	Prep D	ate	Prep Batch	Analytical Batch		
Run #1 Run #2	JK30596.D	10	10/03/12	TT	n/a		n/a	GJK1231		
Run #1 Run #2	10.0 ml									
Northwest	TPH-Gx									
CAS No.	Compound		Result	RL	MDL	Units	Q			
	TPH (Gasoline	e)	3.95	2.0	0.50	mg/l				

Run# 2

Limits

50-150%

50-150%

Run#1

103%

124%

ω 5

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J = Indicates an estimated value

 $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$

N = Indicates presumptive evidence of a compound

Client Sample ID: Lab Sample ID: Matrix: Method: Project:		MW-303-0912 C23895-6 AQ - Ground W SW846 8260B URSORP: Shell	′ater /Harbor Island -	2555 13t	Date Sampled: 09/25/12 Date Received: 09/27/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID V08503.	D D 25	Analyzed 10/06/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VV372	
Run #1 Run #2 Purgeable	Purge V 10.0 ml	olume s						

Report of Analysis

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4	Benzene Toluene Ethylbenzene	1830 63.5 474	25 25 25	5.0 5.0 5.0	ug/l ug/l ug/l	
1330-20-7	Xylene (total)	146	50	12	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	84% 93%		60-1 60-1	30%	
460-00-4	4-Bromofluorobenzene	94%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client San Lab Samp Matrix: Method: Project:	0/25/12 0/27/12 a							
Run #1 Run #2	File ID JK30597.D	DF 25	Analyzed 10/03/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1231
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	9.14	5.0	1.3	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

106%

119%

Report of Analysis

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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Client San Lab Samp Matrix: Method: Project:	nple ID: MW le ID: C23 AQ SW8 URS	7-304-0912 895-7 - Ground Wa 846 8260B SORP: Shell/	ater Harbor Island -	2555 13ti	E D P h Ave SW., Seatt	Date Sampled: 09 Date Received: 09 Percent Solids: n/ le, WA	9/25/12 9/27/12 a
Run #1 Run #2	File ID V08579.D	DF 10	Analyzed 10/09/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VV374
Run #1 Run #2 Purgeable	Purge Volu 10.0 ml	ne					

Report of Analysis

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	630	10	2.0	ug/l	
108-88-3	Toluene	24.0	10	2.0	ug/l	
100-41-4	Ethylbenzene	198	10	2.0	ug/l	
1330-20-7	Xylene (total)	105	20	4.6	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	89%		60-1	30%	
2037-26-5	Toluene-D8	92%		60-1	30%	
460-00-4	4-Bromofluorobenzene	94%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client San Lab Samp Matrix: Method: Project:	nple ID: MW-30 le ID: C2389 AQ - C NWTP URSO	04-0912 5-7 Ground Wa H-GX RP: Shell/I	ter Harbor Island - 2	2555 13th	Ave SW.,	Date Date Perc Seattle, '	e Sampled: 09 e Received: 09 eent Solids: n/ WA	9/25/12 9/27/12 /a
Run #1 Run #2	File ID JK30598.D	DF 10	Analyzed 10/03/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1231
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	3.93	2.0	0.50	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

78%

90%

Page 1 of 1

3.7

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ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: SH de ID: C2 AQ SW UR	-04-0912 3895-8 2 - Ground Wy 7846 8260B SORP: Shell/	ater 'Harbor Island -	2555 13t	Date Sampled: 09/25/12 Date Received: 09/27/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID V08538.D	DF 5	Analyzed 10/08/12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VV373	
Run #1 Run #2 Purgeable	Purge Volu 10.0 ml	ime						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	124 18.4 461 139	5.0 5.0 5.0 10	1.0 1.0 1.0 2.3	ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	86% 92% 95%		60-12 60-12 60-12	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



Page 1 of 1

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Client Sam Lab Sampl Matrix: Method: Project:	nple ID: SH-04- le ID: C23895 AQ - G NWTP URSOI	0912 5-8 fround Wa H-GX RP: Shell/2	iter Harbor Island - 1	2555 13th	n Ave SW., S	Date Date Perc Seattle, `	e Sampled: 0 e Received: 0 ent Solids: n WA	9/25/12 9/27/12 /a
Run #1 Run #2	File ID JK30618.D	DF 10	Analyzed 10/03/12	By TT	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GJK1233
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	6.52	2.0	0.50	mg/l		

	IFH (Gasolille)	0.32	2.0	0.30 mg/
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	111% 129%		50-150% 50-150%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C238 AQ - SW84 URS0	202-0912 95-9 Ground W 46 8260B DRP: Shell/	ater 'Harbor Island -	Date Sampled:09/26/12Date Received:09/27/12Percent Solids:n/aAth Ave SW., Seattle, WA				
Run #1 ^a	File ID W34187.D	DF 4	Analyzed 10/06/12	By KN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1188	
Run #2								
D //1	Purge Volum	e						
Run #1 Run #2	10.0 ml							
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL Unit	s Q		

71-43-2	Benzene	5.8	4.0	0.80	ug/l	
108-88-3	Toluene	2.9	4.0	0.80	ug/l	J
100-41-4	Ethylbenzene	37.8	4.0	0.80	ug/l	
1330-20-7	Xylene (total)	ND	8.0	1.8	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lin	nits	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lin	nits	
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 91%	Run# 2	Lin 60-	nits 130%	
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 91% 96%	Run# 2	Lin 60- 60-	nits 130% 130%	

(a) Dilution required due to high concentration of non-target hydrocarbons.

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client Sample ID:MW-202-0912Lab Sample ID:C23895-9Date Sampled:09/26/12Matrix:AQ - Ground WaterDate Received:09/27/12Method:NWTPH-GXPercent Solids:n/aProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Run #1 Run #2	File ID JK30619.D	DF 10	Analyzed 10/03/12	By TT	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GJK1233	
Run #1 Run #2	Purge Volume 10.0 ml								
Northwest	TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasoline	e)	4.07	2.0	0.50	mg/l			

		2.0	ing i	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	110% 119%		50-150% 50-150%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- $J = \ Indicates \ an \ estimated \ value$
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client San Lab Samp Matrix: Method: Project:	nple ID: le ID:	MW-305-0912 C23895-10 AQ - Ground Water SW846 8260B URSORP: Shell/Harbor Island - 2555 13th				Date Sampled: 09/26/12 Date Received: 09/27/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID W34184	.D	DF 20	Analyzed 10/06/12	By KN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1188	
Run #1 Run #2 Purgeable	Purge V 10.0 ml	volume							

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1270	20	4.0	ug/l	
108-88-3	Toluene	22.9	20	4.0	ug/l	
100-41-4	Ethylbenzene	38.8	20	4.0	ug/l	
1330-20-7	Xylene (total)	35.5	40	9.2	ug/l	J
CAS No.	Surrogate Recoveries	Run# 1	1 Run# 2 Limits		its	
1868-53-7	Dibromofluoromethane	89%		60-1	30%	
2037-26-5	Toluene-D8	95%		60-1	30%	
460-00-4	4-Bromofluorobenzene	95%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

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Client Sample ID:MW-305-0912Lab Sample ID:C23895-10Date Sampled:09/26/12Matrix:AQ - Ground WaterDate Received:09/27/12Method:NWTPH-GXPercent Solids:n/aProject:URSORP:Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								0/26/12 0/27/12 a
Run #1 Run #2	File ID JK30620.D	DF 20	Analyzed 10/03/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1233
Run #1 Run #2	Purge Volume 10.0 ml	;						
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	e)	5.89	4.0	1.0	mg/l		

				C
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	112% 124%		50-150% 50-150%

- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

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Client San Lab Samp Matrix: Method: Project:	nple ID: MW le ID: C23 AQ SW3 URS	7-305D-0912 895-11 - Ground Wa 846 8260B SORP: Shell/	ater Harbor Island -	2555 13tł	Date Sampled: 09/26/12 Date Received: 09/27/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID W34185.D	DF 20	Analyzed 10/06/12	By KN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1188	
Run #1 Run #2 Purgeable	Purge Volu 10.0 ml Aromatics	ne						

CAS No.	Compound	Result	RL	MDL	Units	Q		
71-43-2 108-88-3	Benzene Toluene	1320 24.5	20 20	4.0 4.0	ug/l ug/l			
100-41-4 1330-20-7	Ethylbenzene Xylene (total)	42.3 35.1	20 40	4.0 9.2	ug/l ug/l	J		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2 Limits		its			
1868-53-7	Dibromofluoromethane	87% 07%		60-1	30%			
460-00-4	4-Bromofluorobenzene	96%		60-130%				

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Client Sample ID:MW-305D-0912Lab Sample ID:C23895-11Date Sampled:09/26/12Matrix:AQ - Ground WaterDate Received:09/27/12Method:NWTPH-GXPercent Solids:Project:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								0/26/12 0/27/12 a
Run #1 Run #2	File ID JK30622.D	DF 20	Analyzed 10/04/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1233
Run #1 Run #2	Purge Volume 10.0 ml	2						
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	e)	5.85	4.0	1.0	mg/l		

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8	aaa-Trifluorotoluene	109%		50-150%
460-00-4	4-Bromofluorobenzene	122%		50-150%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



3.11

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Report of Analysis

Client San Lab Samp Matrix: Method: Project:	nple ID: MW le ID: C238 AQ - SW8 URS	-306-0912 395-12 Ground Wa 46 8260B ORP: Shell/	ater 'Harbor Island -	2555 13tł	Date Sampled: 09/26/12 Date Received: 09/27/12 Percent Solids: n/a th Ave SW., Seattle, WA			
Run #1 Run #2	File ID W34186.D	DF 20	Analyzed 10/06/12	By KN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1188	
Run #1 Run #2 Purgeable	Purge Volun 10.0 ml	ne						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1050	20	4.0	ug/l	
108-88-3	Toluene	26.1	20	4.0	ug/l	
100-41-4	Ethylbenzene	135	20	4.0	ug/l	
1330-20-7	Xylene (total)	147	40	9.2	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	89%		60-1	30%	
2037-26-5	Toluene-D8	95%		60-1	30%	
460-00-4	4-Bromofluorobenzene	94%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sar Lab Samp Matrix: Method: Project:	mple ID: MW-3 ole ID: C2389 AQ - 0 NWTI URSC	806-0912 95-12 Ground Wa PH-GX 9RP: Shell/	ater 'Harbor Island -	2555 13th	Date Sampled: 09/26/12 Date Received: 09/27/12 Percent Solids: n/a 55 13th Ave SW., Seattle, WA				
Run #1 Run #2	File ID JK30623.D	DF 20	Analyzed 10/04/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1233	
Run #1 Run #2	Purge Volume 10.0 ml	2							
Northwest	t TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasolin	ne)	6.56	4.0	1.0	mg/l			

Run# 2

Limits

50-150%

50-150%

Run# 1

100%

112%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW- ole ID: C238 AQ - SW84 URS0	e Sampled: 09 e Received: 09 cent Solids: n/ WA	09/26/12 09/27/12 n/a							
Run #1 ^a Run #2	File ID W34188.D	DF 2	Analyzed 10/06/12	By KN	Prep D n/a	ate	Prep Batch n/a	Analytical Batch VW1188		
Run #1 Run #2	Purge Volum 10.0 ml	e								
Purgeable	Purgeable Aromatics									
CAS No.	Compound		Result	RL	MDL	Units	Q			
71-43-2	Benzene		0.66	2.0	0.40	ug/l	J			

/1-43-2	Benzene	0.00	2.0	0.40	ug/1
108-88-3	Toluene	2.4	2.0	0.40	ug/l
100-41-4	Ethylbenzene	50.9	2.0	0.40	ug/l
1330-20-7	Xylene (total)	1.9	4.0	0.92	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 88%	Run# 2	Lim	its 30%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 88% 98%	Run# 2	Lim 60-1 60-1	its 30% 30%

(a) Dilution required due to high concentration of non-target hydrocarbons.

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

J



98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client San Lab Samp Matrix: Method: Project:	nple ID: MW-1 de ID: C2389 AQ - O NWTF URSO	e Sampled: 09 e Received: 09 ent Solids: n/ WA	9/26/12 9/27/12 a					
Run #1 Run #2	File ID JK30644.D	DF 10	Analyzed 10/04/12	By TT	Prep D an/a	ate	Prep Batch n/a	Analytical Batch GJK1233
Run #1 Run #2	Purge Volume 10.0 ml	;						
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	e)	4.54	2.0	0.50	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

108%

143%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Section 4

4



Misc. Forms
Sustody Documents and Other Forms
Justody Documents and Other Torms
ncludes the following where applicable:
Chain of Custody



LAB (LOCATION)		0	Shell	il Products Chain Of Custoc	ly Record	SHELLWIC3660
[] XEXCO ()	Please	Check Appropriate	Box	int Bill To Contact Name:	NCIDENT # (ENV SERVICES	CHECK IF NO INCIDENT & APPLIES
	ENV. SERVICES	MOTIVA RETAIL	SHELL RETAIL			DATE: 9/26/12
TEST AMERICA ()	MOTIVA SD&CM	CONSULTANT	LUBES	PO #	SAP #	
SPL ()						PAGE: of
				E ADDRESS (Street, City and State);		
URS				2555 13th ave	SW Sente	Le WA
111 SW Columb	lia			SILTANT PROJECT CONTACT (PASATION PORT	CONSULTANT PROJECT NO.	4341
Portland OI	e			UPLEANINESSIPPINI		LABUSE ONLY
503-222-7200	brian. 0	letcher@ui	15 . Com	Dave Lews (206) 321-30	64	C 250 1 ~
TURNAROUND TIME (CALENDAR DAYS) STANDARD (14 DAY) 5 DAYS 3 DAYS	2 DAYS [24 HOURS	RESULTS NEEDED ON WEEKEND	REQU	ESTED ANALYSIS	
DELIVERABLES: LEVEL 1 LEVEL 2 LEVEL 3		ER (SPECIFY)				
TEMPERATURE ON RECEIPT C ^a Cooler #1	Cooler #2	Cooter #3				25+01=3.10°C
SPECIAL INSTRUCTIONS OF NOTES	. <u> </u>		PH 165			JUNON SIV
SPECIAL INSTRUCTIONS ON HOTES .	•		175 100100			
	L	_ STATE REIMBURSEMENT R	ATE APPLIES			
	í	_] PROVIDE LEDO DISK				
	SAMPLING	PRESERV	ATIVE	43		
LAB Field Sample Identification		ATRIX	NO. OF CONT,			Container PiD Readings or Laboratory Notes
ONLY	<u> </u>	HOL HINO3 H2SO4	NONE OTHER	┟╌┟╌┟╴┟╴┟╶╽╍┟╸┼╸╴┝╸	┼╌┼┅┼╌┼╶┼╴┼	
-1 TRIPBLANK	747-12 15-2	$x \chi$	3	×	+ + + + + + + + + + + + + + + + + + +	
-2 MW-302-0912	125/12 1130 H	240 X	6			
-3 TX-03A-0912	· 1215 ·	' X	6			
4 MW.301-0912	4 1335 1	' X	6			
-5 MW-301D-0912	11 1400 1	' X	6	X		
-10 IMW-303-0917-	11 11/25- 1	· x	6			
-7 $(011)-304-0917-$	11 1870 1	, <u>x</u>	6			
e 60 ml 0917	11 1/10 1		6			
2	1010					
-1 MW-402-0912	9-26-120845		0		┨──┠─┨─┨─┨	
-W MW-305-0912	" 1050 1		6			
Relocation (Signature)	Receivo	ed by: (Signature)			Date:	Time:
Dave Jews 9/26/12	- 1430					
	Kederv					mus
rever		1 ORC	e.s	1	4125/12	0847
mente mont (alliane)	Heceva	ດເດ, ໂດມີບສາຍສາ			Date	1918.
						di 200 Parisio
						VOCADO PRESIDENT

C23895: Chain of Custody Page 1 of 3



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LAB (LOCATION)			Ø	Shel	0	il Pi	rodu	cts (Chair	۱ Of	Cus	tod	y Re	ooe	ď				
□ XENCO ()	P	ease Check A	ppropriate	Boxi	Pr	int Bí	ll To Co	ntact N	ame;			IN	CIDEN	IT # (E	NV S	ERVI	CES)	С.СН	CK IF NO INCIDENT # APPLIES
CALSCIENCE ()	ENV. SERVICE	s 🛛 MOTI	VA RETAIL	SHELL RETAIL	<u>ן</u>								T	T		T	- <u>-</u>	DA	TE: 9/24/12
TEST AMERICA ()	HOTIVA SOS		INTAN		1 or			PO	Ħ					SA	<u>і</u> і Р#				····
D OTHER (accutent)	SHELL PIPELI	ав Отне	R		1 ⁱⁿ	$\overline{1}$				TT	<u></u>		<u> </u>	1		T	1	PAG	3E: <u>Z</u> of <u>Z</u>
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MORESS III SUD Caluer	Ri.				core	SULTANT	PROJECT CONT	CT (Report to	00	JI				100	NSULTANT	PROJECT	10		
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TURNAROUND TIME (CALENDAR DAYS)	AYS 2 DAYS	/ 24 HOURS	Ť) RI	SULTS NEEDED ON WEEKEND							F	REQUE	STED A	ANALY	SIS				
DELIVERABLES: UEVEL 1 UEVEL 2 UEVE	EL 3 🗌 LEVEL 4	OTHER (SPECIFY)				4			IT			T		T					
TEMPERATURE ON RECEIPT C ^a Cooler #1	Cooler #2	C00	oler #3			14					1								
SPECIAL INSTRUCTIONS OR NOTES :		SHELL CON	TRACT RATE APP	LIES	1	1×													
		STATE REIN	ABURSEMENT RA	TE APPLIES	17	12													
					Ιų	11													
			100 0135		15	13													
	SAMPLING		PRESERVA	TIVE	76	17													
LAB Field Sample Identification	DATE TIME	MATRIX		CONT															Container PiD Readings or Laboratory Notes
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																			05/2/06 Revision

C23895: Chain of Custody Page 2 of 3



4.1

Accutest Job Number: C23895	Client: SHELL OIL	Project: 2555 13TH AV	'E SW
Date / Time Received: 9/27/2012	Delivery Method:	FedEx Airbill #'s:	
Cooler Temps (Initial/Adjusted): #1:	<u>: (3.5/3.6); 0</u>		
Cooler Security Y or N	<u>Y or N</u>	Sample Integrity - Documentation	Y or N
1. Custody Seals Present:	3. COC Present:	1. Sample labels present on bottles:	
2. Custody Seals Intact:	4. Smpl Dates/Time OK	2. Container labeling complete:	
Cooler Temperature Y o	or N	3. Sample container label / COC agree:	
1. Temp criteria achieved:		Sample Integrity - Condition	Y or N
2. Cooler temp verification:	R Gun	1 Sample recyd within HT:	
3. Cooler media: Ice	e (Bag)	2. All containers accounted for:	
4. No. Coolers:	1	3. Condition of sample:	Intact
Quality Control_Preservation Y	or N N/A	Sample Integrity - Instructions	Y or N N/A
1. Trip Blank present / cooler:		1. Analysis requested is clear:	
2. Trip Blank listed on COC:		2. Bottles received for unspecified tests	
3. Samples preserved properly:		3. Sufficient volume recvd for analysis:	
4. VOCs headspace free:		4. Compositing instructions clear:	
—		E. Filtering instructions closer	

Accutest Laboratories V:408.588.0200 2105 Lundy Avenue F: 408.588.0201 San Jose, CA 95131 www/accutest.com 4.1 **4**

C23895: Chain of Custody Page 3 of 3



S



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C23895

Account:	SHELLWIC Shell Oil Company									
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
VV372-MB1	V08488.D	1	10/05/12	TF	n/a	n/a	VV372			
The QC repor	ted here applies	to the fo	llowing samples]	Method: SW84	6 8260B				

C23895-1, C23895-2, C23895-3, C23895-4, C23895-5, C23895-6

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
	-				-

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	85%	60-130%
2037-26-5	Toluene-D8	94%	60-130%
460-00-4	4-Bromofluorobenzene	92%	60-130%

5.1.1 **5**



Method Blank Summary

Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample VW1188-MB	File ID W34171.D	DF 1	Analyzed 10/06/12	By KN	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1188				
The QC repor	ted here applies	to the fo	llowing samples	5:	Method: SW846 8260B						

C23895-9, C23895-10, C23895-11, C23895-12, C23895-13

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
					-

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	90%	60-130%
2037-26-5	Toluene-D8	97%	60-130%
460-00-4	4-Bromofluorobenzene	92%	60-130%



5.1.2

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40 of 63 ACCUTEST 23895

C23895

Method Blank Summary Job Number: C23895

Account: Project:	SHELLWIC SI URSORP: Shel	hell Oil C ll/Harbor	ompany Island - 2555 1	3th Ave	SW., Sea	ttle, WA		
Sample VV373-MB	File ID V08531.D	DF 1	Analyzed 10/08/12	By TF	Pre n/a	p Date	Prep Batch n/a	Analytical Batch VV373
The QC repo	rted here applies	to the fo	llowing sample	s:			Method: SW840	5 8260B
C23895-8								
CAS No. C	ompound		Result	RL	MDL	Units	Q	

71-43-2 100-41-4 108-88-3 1330-20-7	Benzene Ethylbenzene Toluene Xylene (total)	ND ND ND	1.0 1.0 1.0 2.0	0.20 0.20 0.20 0.46	ug/l ug/l ug/l ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	Surrogate Recoveries		Limits		
1868-53-7	Dibromofluoromethane	85%	60-130%		
2037-26-5	Toluene-D8	95%	60-130%		
460-00-4	4-Bromofluorobenzene	93%	60-130%		



Method Blank Summary Job Number: C23895

Account: Project:	SHELLWIC SI URSORP: She	hell Oil C ll/Harbor	ompany Island - 2555 1	3th Ave	SW., Seattl	le, WA		
Sample VV374-MB	File ID V08575.D	DF 1	Analyzed 10/09/12	By TF	Prep n/a	Date	Prep Batch n/a	Analytical Batch VV374
The QC rep C23895-7	oorted here applies	to the fo	llowing sample	s:]	Method: SW84	5 8260B
CAS No.	Compound		Result	RL	MDL	Units (Q	

71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7 2037-26-5	Dibromofluoromethane Toluene-D8	85% 94%	60-130% 60-130%
460-00-4	4-Bromofluorobenzene	92%	60-130%



Method Blank Summary

Compound

Benzene

CAS No.

71-43-2

Job Number:	C23895								
Account:	SHELLWIC Shell Oil Company								
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Sample	File ID	DF	Analyzed 10/05/12	By	Prep Date	Prep Batch	Analytical Batch		
VV372-MB	V08481.D	1		TF	n/a	n/a	VV372		
The QC repor	ted here applies	to the fo	llowing samples	s:]	Method: SW84	6 8260B		
VV372-BSD, V	VV372-BS, VV37	72-LCS							

RL

1.0

MDL

0.20

Units Q

ug/l

CAS No.	Surrogate Recoveries		Limi	ts	
100-41-4 108-88-3 1330-20-7	Ethylbenzene Toluene Xylene (total)	ND ND ND	1.0 1.0 2.0	0.20 0.20 0.46	ug/l ug/l ug/l
	- <i>i i</i>				0

Result

ND

1868-53-7	Dibromofluoromethane	87%	60-130%
2037-26-5	Toluene-D8	93%	60-130%
460-00-4	4-Bromofluorobenzene	91%	60-130%





Blank Spike/Blank Spike Duplicate Summary

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV372-BS	V08482.D	1	10/05/12	TF	n/a	n/a	VV372
VV372-BSD	V08483.D	1	10/05/12	TF	n/a	n/a	VV372

The QC reported here applies to the following samples:

Method: SW846 8260B

C23895-1, C23895-2, C23895-3, C23895-4, C23895-5, C23895-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	20.9	105	20.3	102	3	60-130/30
100-41-4	Ethylbenzene	20	22.0	110	21.5	108	2	60-130/30
108-88-3	Toluene	20	21.8	109	21.4	107	2	60-130/30
1330-20-7	Xylene (total)	60	66.7	111	65.3	109	2	60-130/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			

	-			
1868-53-7	Dibromofluoromethane	86%	84%	60-130%
2037-26-5	Toluene-D8	91%	93%	60-130%
460-00-4	4-Bromofluorobenzene	94%	94%	60-130%



Blank Spike/Blank Spike Duplicate Summary

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1188-BS	W34168.D	1	10/06/12	KN	n/a	n/a	VW1188
VW1188-BSD	W34169.D	1	10/06/12	KN	n/a	n/a	VW1188

The QC reported here applies to the following samples:

Method: SW846 8260B

C23895-9, C23895-10, C23895-11, C23895-12, C23895-13

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	19.2	96	19.0	95	1	60-130/30
100-41-4	Ethylbenzene	20	19.4	97	18.4	92	5	60-130/30
108-88-3	Toluene	20	20.1	101	19.5	98	3	60-130/30
1330-20-7	Xylene (total)	60	60.4	101	58.8	98	3	60-130/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
1868-53-7	Dibromofluoromethane	90%	91	%	60-130	%		

96%

94%

60-130%

60-130%

96%

96%

G

2037-26-5 Toluene-D8

4-Bromofluorobenzene

460-00-4



Blank Spike/Blank Spike Duplicate Summary

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV373-BS	V08532.D	1	10/08/12	TF	n/a	n/a	VV373
VV373-BSD	V08533.D	1	10/08/12	TF	n/a	n/a	VV373

The QC reported here applies to the following samples:

Method: SW846 8260B

C23895-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	20.6	103	19.7	99	4	60-130/30
100-41-4	Ethylbenzene	20	21.3	107	20.3	102	5	60-130/30
108-88-3	Toluene	20	21.2	106	20.2	101	5	60-130/30
1330-20-7	Xylene (total)	60	64.6	108	62.2	104	4	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	88%	88%	60-130%
2037-26-5	Toluene-D8	92%	90%	60-130%
460-00-4	4-Bromofluorobenzene	95%	95%	60-130%
Blank Spike/Blank Spike Duplicate Summary

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV374-BS	V08576.D	1	10/09/12	TF	n/a	n/a	VV374
VV374-BSD	V08577.D	1	10/09/12	TF	n/a	n/a	VV374

The QC reported here applies to the following samples:

Method: SW846 8260B

C23895-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	19.8	99	19.9	100	1	60-130/30
100-41-4	Ethylbenzene	20	20.1	101	21.3	107	6	60-130/30
108-88-3	Toluene	20	20.3	102	20.8	104	2	60-130/30
1330-20-7	Xylene (total)	60	61.5	103	63.6	106	3	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	91%	84%	60-130%
2037-26-5	Toluene-D8	92%	92%	60-130%
460-00-4	4-Bromofluorobenzene	97%	94%	60-130%

Laboratory Control Sample Summary

Job Number: Account: Project:	C23895 SHELLWIC SHURSORP: Shel	nell Oil Con l/Harbor Isl	npany land - 25:	55 13th 2	Ave SW.	, Seattle, WA		
Sample VV372-LCS	File ID V08484.D	DF 1	Analyz 10/05/1	ed B 12 T	y F	Prep Date n/a	Prep Batch n/a	Analytical Batch VV372
The QC repor C23895-1, C23	ted here applies 895-2, C23895-3	to the follo 3, C23895-4	wing san , C23895	nples: 5-5, C23	895-6		Method: SW840	6 8260B
CAS No. Co	ompound		Spike ug/l	LCS ug/l	LCS %	Limits		

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	87%	60-130%
2037-26-5	Toluene-D8	93%	60-130%
460-00-4	4-Bromofluorobenzene	93%	60-130%



Page 1 of 1

5.3.1 **5**

Laborator Job Number:	y Control S C23895	ample S	umma	ary				Page 1 of 1
Account: Project:	SHELLWIC Sh URSORP: Shel	nell Oil Con l/Harbor Is	npany land - 255	55 13th A	ve SW.	, Seattle, WA		
Sample VW1188-LCS	File ID W34170.D	DF 1	Analyz 10/06/1	ed By 12 Ki	7 N	Prep Date n/a	Prep Batch n/a	Analytical Batch VW1188
The QC repor	ted here applies	to the follo	wing san	nples:			Method: SW84	5 8260B
C23895-9, C23	8895-10, C23895-	-11, C23895	5-12, C23	3895-13				
CAS No. Co	ompound		Spike ug/l	LCS ug/l	LCS %	Limits		

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	90%	60-130%
2037-26-5	Toluene-D8	97%	60-130%
460-00-4	4-Bromofluorobenzene	93%	60-130%



5.3.2

S

Laboratory Control Sample Summary

Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil Cor l/Harbor Is	npany sland - 25	555 13th	Ave SW	., Seattle, WA	L.	
Sample VV373-LC	File ID S V08534.D	DF 1	Analy 10/08/	zed 12	By TF	Prep Date n/a	Prep Batch n/a	Analytical Batch VV373
The QC re C23895-8	ported here applies	to the follo	owing sa	mples:			Method: SW84	6 8260B
CAS No.	Compound		Spike ug/l	LCS ug/l	LCS %	Limits		
CAS No.	Surrogate Recover	ies	BSP	L	imits			
1868-53-7 2037-26-5 460-00-4	Dibromofluorometh Toluene-D8 4-Bromofluorobenzy	ane	81% 94% 91%	6 6 6	0-130% 0-130% 0-130%			

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C23879-1MS	V08505.D	1	10/06/12	TF	n/a	n/a	VV372
C23879-1MSD	V08506.D	1	10/06/12	TF	n/a	n/a	VV372
C23879-1	V08489.D	1	10/05/12	TF	n/a	n/a	VV372

The QC reported here applies to the following samples:

Method: SW846 8260B

C23895-1, C23895-2, C23895-3, C23895-4, C23895-5, C23895-6

CAS No.	Compound	C23879-1 ug/l (Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	19.9	100	19.0	95	5	60-130/25
100-41-4	Ethylbenzene	ND	20	20.6	103	19.2	96	7	60-130/25
108-88-3	Toluene	ND	20	20.8	104	19.5	98	6	60-130/25
1330-20-7	Xylene (total)	ND	60	63.1	105	58.9	98	7	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C2	23879-1	Limits			
1868-53-7	Dibromofluoromethane	83%	80%	88	%	60-130	%		
2037-26-5	Toluene-D8	91%	91%	93	%	60-130	%		
460-00-4	4-Bromofluorobenzene	92%	92%	94	%	60-130	%		

5.4.1

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C23920-8MS	W34189.D	1	10/06/12	KN	n/a	n/a	VW1188
C23920-8MSD	W34190.D	1	10/06/12	KN	n/a	n/a	VW1188
C23920-8	W34179.D	1	10/06/12	KN	n/a	n/a	VW1188

The QC reported here applies to the following samples:

Method: SW846 8260B

C23895-9, C23895-10, C23895-11, C23895-12, C23895-13

CAS No.	Compound	C23920-8 ug/l	B Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		20	18.4	92	18.2	91	1	60-130/25
100-41-4	Ethylbenzene	ND		20	17.4	87	17.0	85	2	60-130/25
108-88-3	Toluene	ND		20	18.8	94	18.8	94	0	60-130/25
1330-20-7	Xylene (total)	ND		60	57.3	96	55.7	93	3	60-130/25
CAS No.	Surrogate Recoveries	MS		MSD	C	23920-8	Limits			
1868-53-7	Dibromofluoromethane	88%		88%	96	5%	60-1309	%		
2037-26-5	Toluene-D8	96%		96%	98	3%	60-1309	%		
460-00-4	4-Bromofluorobenzene	93%		92%	99	%	60-1309	%		

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5.4.2

S

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C23994-1MS	V08551.D	1	10/08/12	TF	n/a	n/a	VV373
C23994-1MSD	V08552.D	1	10/08/12	TF	n/a	n/a	VV373
C23994-1	V08541.D	1	10/08/12	TF	n/a	n/a	VV373

The QC reported here applies to the following samples:

Method: SW846 8260B

C23895-8

CAS No.	Compound	C23994-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	21.5	108	20.3	102	6	60-130/25
100-41-4	Ethylbenzene	ND	20	21.9	110	20.6	103	6	60-130/25
108-88-3	Toluene	ND	20	21.6	108	20.5	103	5	60-130/25
1330-20-7	Xylene (total)	ND	60	66.2	110	61.8	103	7	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C23	994-1	Limits			
1868-53-7	Dibromofluoromethane	86%	89%	88%		60-130%			
2037-26-5	Toluene-D8	91%	91%	93%		60-130%			
460-00-4	4-Bromofluorobenzene	93%	96%	94%		60-130%			



Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24017-4MS	V08595.D	1	10/09/12	TF	n/a	n/a	VV374
C24017-4MSD	V08596.D	1	10/09/12	TF	n/a	n/a	VV374
C24017-4	V08585.D	1	10/09/12	TF	n/a	n/a	VV374

The QC reported here applies to the following samples:

Method: SW846 8260B

C23895-7

CAS No.	Compound	C24017-4 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	19.8	99	20.4	102	3	60-130/25
100-41-4	Ethylbenzene	ND	20	19.6	98	20.8	104	6	60-130/25
108-88-3	Toluene	ND	20	19.5	98	20.7	104	6	60-130/25
1330-20-7	Xylene (total)	ND	60	58.2	97	61.5	103	6	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C24	017-4	Limits			
1060 52 7	Dibase of best of the set	0.20/	970/	0.40/		60 1200/			
1808-53-7	Dibromofluoromethane	92%	8/%	94%)	60-130%	1		
2037-26-5	Toluene-D8	91%	90%	93%)	60-130%	1		
460-00-4	4-Bromofluorobenzene	98%	94%	93%)	60-130%	1		



Section 6

6



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C23895

Account:SHELLWIC Shell Oil CompanyProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Sample GJK1231-MB	File ID JK30572.D	DF 1	Analyzed 10/02/12	By TT	Prep n/a	Date	Prep Batch n/a	Analytical Batch GJK1231
The QC repo C23895-1, C2	orted here applies 23895-2, C23895-3	to the follow , C23895-4,	ving sample C23895-5,	es: C23895	-6, C23895	-7	Method: NWTF	PH-GX
CAS No. (Compound		Result	RL 0.20	MDL	Units	Q	

CAS No.	Surrogate Recoveries		Limits
98-08-8	aaa-Trifluorotoluene	95%	50-150%
460-00-4	4-Bromofluorobenzene	103%	50-150%

Method Blank Summary Job Number: C23895

Account: Project:	ccount: SHELLWIC Shell Oil Company roject: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Sample GJK1233-ME	File ID JK30638.D	DF 1	Analyzed 10/04/12	By TT	Pre n/a	p Date	Prep Batch n/a	Analytical Batch GJK1233	
The QC repo C23895-8, C	orted here applies 23895-9, C23895-1	to the fol	lowing sample 5-11, C23895-	es: 12, C23	895-13		Method: NWTH	PH-GX	
CAS No.	С отроилd ГРН (Gasoline)		Result ND	RL 0.20	MDL 0.050	Units mg/l	Q		

CAS No.	Surrogate Recoveries	Limits	
98-08-8	aaa-Trifluorotoluene	109%	50-150%
460-00-4	4-Bromofluorobenzene	120%	50-150%

Blank Spike/Blank Spike Duplicate Summary

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GJK1231-BS	JK30573.D	1	10/02/12		n/a	n/a	GJK1231
GJK1231-BSD	JK30574.D	1	10/02/12	11	n/a	n/a	GJK1231

The QC reported here applies to the following samples:

Method: NWTPH-GX

C23895-1, C23895-2, C23895-3, C23895-4, C23895-5, C23895-6, C23895-7

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.4	0.365	91	0.379	95	4	60-140/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	102% 112%	99% 109	%	50-150% 50-150%	6		

6

Blank Spike/Blank Spike Duplicate Summary

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GJK1233-BS	JK30616.D	1	10/03/12	TT	n/a	n/a	GJK1233
GJK1233-BSD	JK30617.D	1	10/03/12	TT	n/a	n/a	GJK1233

The QC reported here applies to the following samples:

Method: NWTPH-GX

C23895-8, C23895-9, C23895-10, C23895-11, C23895-12, C23895-13

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.4	0.363	91	0.376	94	4	60-140/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	108% 118%	889 959	6 6	50-150% 50-150%			

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Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	Bv	Prep Date	Prep Batch	Analytical Batch
C23806-10MS	JK30599.D	1	10/03/12	ΤŤ	n/a	n/a	GJK1231
C23806-10MSD	JK30600.D	1	10/03/12	TT	n/a	n/a	GJK1231
C23806-10	JK30587.D	1	10/03/12	TT	n/a	n/a	GJK1231

The QC reported here applies to the following samples:

C23895-1, C23895-2, C23895-3, C23895-4, C23895-5, C23895-6, C23895-7

CAS No.	Compound	C23806-10 mg/l Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	ND	0.4	0.351	88	0.351	88	0	60-140/20
CAS No.	Surrogate Recoveries	MS	MSD	C2	3806-10	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	84% 92%	74% 80%	959 10	% 7%	50-150% 50-150%	, , o		

Page 1 of 1

Method: NWTPH-GX

Job Number:	C23895
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	Bv	Prep Date	Prep Batch	Analytical Batch
C23949-12MS	JK30642.D	1	10/04/12	ΤŤ	n/a	n/a	GJK1233
C23949-12MSD	JK30643.D	1	10/04/12	TT	n/a	n/a	GJK1233
C23949-12	JK30639.D	1	10/04/12	TT	n/a	n/a	GJK1233

The QC reported here applies to the following samples:

C23895-8, C23895-9, C23895-10, C23895-11, C23895-12, C23895-13

CAS No.	Compound	C23949 mg/l	-12 Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.126	J	0.4	0.455	82	0.452	82	1	60-140/20
CAS No.	Surrogate Recoveries	MS		MSD	С	23949-12	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	98% 113%		114% 126%	10 1	D1% 11%	50-150% 50-150%	6 6		

Method: NWTPH-GX



Duplicate Summary Job Number: C23895

Account:SHELLWIC Shell Oil CompanyProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
C23806-11DUP	JK30589.D	1	10/03/12	TT	n/a	n/a	GJK1231			
C23806-11	JK30588.D	1	10/03/12	TT	n/a	n/a	GJK1231			

C23895-1, C23895-2, C23895-3, C23895-4, C23895-5, C23895-6, C23895-7

The QC reported here applies to the following samples:

CAS No.	Compound	C23806-11 mg/l Q	DUP mg/l Q	RPD Limits
	TPH (Gasoline)	ND	ND	nc 20
CAS No.	Surrogate Recoveries	DUP	C23806-11	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	98% 106%	102% 110%	50-150% 50-150%

Method: NWTPH-GX



Duplicate Summary Job Number: C23895

Account: SHELLWIC Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample C23895-10DUP	File ID JK30621.D	DF 20	Analyzed 10/04/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1233			
C23895-10	JK30620.D	20	10/03/12	TT	n/a	n/a	GJK1233			

The QC reported here applies to the following samples:

C23895-8, C23895-9, C23895-10, C23895-11, C23895-12, C23895-13

CAS No.	Compound	C23895-10 mg/l Q	DUP mg/l Q	RPD Limits
	TPH (Gasoline)	5.89	5.67	4 20
CAS No.	Surrogate Recoveries	DUP	C23895-10	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	104% 119%	112% 124%	50-150% 50-150%

Page 1 of 1

Method: NWTPH-GX







Technical Report for

Shell Oil Company



URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

46194341.GW12U

Accutest Job Number: C24954



Sampling Dates: 11/25/12 - 11/26/12

Report to:

URS Corporation 111 SW Columbia, Suite 1500 Portland, OR 97201-5850 brian.pletcher@urs.com

ATTN: Brian Pletcher

Total number of pages in report: 80



Jung. Musy

James J. Rhudy Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Nutan Kabir 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242)

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Sample Summary

Shell Oil Company

Job No: C24954

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Project No: 46194341.GW12U

Sample Number	Collected Date	Time By	Received	Matri Code	ix Type	Client Sample ID
C24954-1	11/25/12	00:00 DRL	11/27/12	AQ	Trip Blank Water	TRIP BLANK
C24954-2	11/25/12	09:30 DRL	11/27/12	AQ	Ground Water	TX-06A-1112
C24954-3	11/25/12	10:35 DRL	11/27/12	AQ	Ground Water	SH-04-1112
C24954-4	11/25/12	11:45 DRL	11/27/12	AQ	Ground Water	MW-112A-1112
C24954-5	11/25/12	12:35 DRL	11/27/12	AQ	Ground Water	MW-302-1112
C24954-6	11/26/12	08:30 DRL	11/27/12	AQ	Ground Water	TX-04-1112
C24954-7	11/26/12	10:50 DRL	11/27/12	AQ	Ground Water	MW-101-1112
C24954-8	11/26/12	12:50 DRL	11/27/12	AQ	Ground Water	MW-307-1112
C24954-9	11/26/12	13:25 DRL	11/27/12	AQ	Ground Water	MW-308-1112
C24954-10	11/26/12	14:15 DRL	11/27/12	AQ	Ground Water	TES-MW-1-1112
C24954-11	11/26/12	15:25 DRL	11/27/12	AQ	Ground Water	MW-105-1112



Summary of Hits

Job Number:	C24954
Account:	Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	11/25/12 thru 11/26/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method			
C24954-1	TRIP BLANK								
No hits reported in this sample.									
C24954-2	TX-06A-1112								
TPH (Diesel)		0.716	0.098	0.049	mg/l	NWTPH-DX			
C24954-3	SH-04-1112								
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline) TPH (Diesel)		73.0 7.9 J 609 326 8.15 0.762	10 10 20 2.0 0.098	2.0 2.0 2.0 4.6 0.50 0.049	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX NWTPH-DX			
C24954-4	MW-112A-1112								
Benzene Toluene Ethylbenzene TPH (Gasoline) TPH (Diesel)		5.8 0.22 J 0.37 J 0.197 J 0.282	1.0 1.0 1.0 0.20 0.10	0.20 0.20 0.20 0.050 0.050	ug/l ug/l ug/l mg/l mg/l	SW846 8260B SW846 8260B SW846 8260B NWTPH-GX NWTPH-DX			
C24954-5	MW-302-1112								
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		449 15.2 191 177 4.58	10 10 10 20 2.0	2.0 2.0 2.0 4.6 0.50	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX			
C24954-6	TX-04-1112								
Benzene Toluene Xylene (total) TPH (Gasoline) TPH (Diesel)		1.3 0.38 J 0.52 J 0.0980 J 0.0807 J	1.0 1.0 2.0 0.20 0.10	0.20 0.20 0.46 0.050 0.050	ug/l ug/l ug/l mg/l mg/l	SW846 8260B SW846 8260B SW846 8260B NWTPH-GX NWTPH-DX			
C24954-7	MW-101-1112								
TPH (Gasoline) TPH (Diesel)		0.188 J 0.0937 J	0.20 0.10	0.050 0.050	mg/l mg/l	NWTPH-GX NWTPH-DX			

N

Summary of Hits

54
Oil Company
ORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
5/12 thru 11/26/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C24954-8	MW-307-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline) Methane Carbon Dioxide Calcium Iron Magnesium Alkalinity, Total Hardness, Total a Sulfate	as CaCO3 as CaCO3 ^a	2150 85.8 833 513 10.9 7920 16000 21800 33500 7390 144 84.9 1.5	25 25 25 50 4.0 25 5000 5000 5000 5000 5.0 33 0.50	5.0 5.0 5.0 12 1.0 13 400	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX RSK-175 RSK-175 SW846 6010B SW846 6010B SW846 6010B SW846 6010B SM18 2320B SW846 6010B/SM 2340B EPA 300/SW846 9056A
C24954-9	MW-308-1112				-	
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline) Methane Carbon Dioxide Calcium Iron Magnesium Alkalinity, Total Hardness, Total a Sulfate	as CaCO3 as CaCO3 ^a	144 1.0 J 7.2 1.3 J 0.778 2490 6170 135000 542 11400 298 384 97.0	$\begin{array}{c} 2.0\\ 2.0\\ 2.0\\ 4.0\\ 0.40\\ 25\\ 5000\\ 5000\\ 200\\ 5000\\ 5.0\\ 33\\ 5.0\\ \end{array}$	$\begin{array}{c} 0.40\\ 0.40\\ 0.40\\ 0.92\\ 0.10\\ 13\\ 400 \end{array}$	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX RSK-175 RSK-175 SW846 6010B SW846 6010B SW846 6010B SW846 6010B SM18 2320B SW846 6010B/SM 2340B EPA 300/SW846 9056A
C24954-10	TES-MW-1-1112					
No hits reported	in this sample.					
C24954-11	MW-105-1112					
TPH (Diesel)		0.291	0.098	0.049	mg/l	NWTPH-DX

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)

N





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Sample Results

Report of Analysis



Client San Lab Samj Matrix: Method: Project:	mple ID: TRIP ple ID: C249 AQ - SW84 URSC	BLANK 54-1 Trip Blank 46 8260B DRP: Shell/	Water Harbor Island -	Date Sampled: 11/25/12 Date Received: 11/27/12 Percent Solids: n/a 3th Ave SW., Seattle, WA				
Run #1 Run #2	File ID U7772.D	DF 1	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Purgeable	e Aromatics		Docult	DI	MDI Unit			

Report of Analysis

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	117%		60-1	30%	
2037-26-5	Toluene-D8	95%		60-1	30%	
460-00-4	4-Bromofluorobenzene	78%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



Page 1 of 1

<u>ω</u> -1

CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client San Lab Samp Matrix: Method: Project:	nple ID: TRIP de ID: C2495 AQ - NWTI URSC	BLANK 54-1 Trip Blank PH-GX DRP: Shell/	Water Harbor Island - 2	2555 13th	Ave SW., S	Date Date Perc Seattle, V	e Sampled: 11 e Received: 11 ent Solids: n/ WA	1/25/12 1/27/12 a
Run #1 Run #2	File ID JK31904.D	DF 1	Analyzed 12/01/12	By TT	Prep Da n/a	ite	Prep Batch n/a	Analytical Batch GJK1277
Run #1 Run #2	Purge Volume 10.0 ml	6						
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolir	ne)	ND	0.20	0.050	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

97%

101%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 1 of 1



Client San Lab Samp Matrix: Method: Project:	nple ID: TX-0 le ID: C249 AQ - SW8 URS	06A-1112 054-2 Ground Wa 46 8260B ORP: Shell/2	ıter Harbor Island -	2555 13t	Da Da Pe h Ave SW., Seattle	te Sampled: 11 te Received: 11 rcent Solids: n/ , WA	1/25/12 1/27/12 ja
Run #1 Run #2	File ID U7773.D	DF 1	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296
Run #1 Run #2	Purge Volun 10.0 ml	ne					
Purgeable	Aromatics						
CAS No.	Compound		Result	RL	MDL Unit	s Q	

Report of Analysis

71-43-2	Benzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	iits
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 112%	Run# 2	Lim 60-1	iits 130%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 112% 96%	Run# 2	Lim 60-1 60-1	iits 130% 130%

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

			Repo	rt of A	nalysis			Page 1 of 1
Client San Lab Samp Matrix: Method: Project:	nple ID: TX-00 ble ID: C249: AQ - NWT URSC	6A-1112 54-2 Ground Wa PH-GX DRP: Shell/	ater 'Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle,	e Sampled: 1 e Received: 1 cent Solids: n WA	1/25/12 1/27/12 /a
Run #1 Run #2	File ID JK31905.D	DF 1	Analyzed 12/01/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1277
Run #1 Run #2	Purge Volum 10.0 ml	e						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolii	ne)	ND	0.20	0.050	mg/l		

Run# 2

Limits

50-150%

50-150%

Run# 1

99%

103%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Accutest Laboratories

CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of An	nalysis			Page 1 of 1
Client Sam Lab Samp Matrix: Method: Project:	nple ID: TX-06A ole ID: C24954 AQ - G NWTPI URSOR	A-1112 -2 round Wa H-DX SV P: Shell/J	ter W846 3510C Harbor Island - 2	2555 13th A	Ave SW.,	Date Date Perc Seattle,	e Sampled: 11 e Received: 11 cent Solids: n/a WA	/25/12 /27/12 a
Run #1 Run #2	File ID HH028581.D	DF 1	Analyzed 11/29/12	By JH	Prep D 11/27/1	ate 12	Prep Batch OP7112	Analytical Batch GHH867
Run #1 Run #2	Initial Volume 1020 ml	Final V 1.0 ml	olume					
Northwest	t TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor O	il)	0.716 ND	0.098 0.20	0.049 0.098	mg/l mg/l		

Run# 2

Limits

50-150%

Run#1

81%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



ge 1 of 1

3.2

Client San Lab Samp Matrix: Method: Project:	mple ID: SH-0 ple ID: C249 AQ - SW8 URS	4-1112 954-3 96 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	2555 13t	Da Da Pe h Ave SW., Seattle	ate Sampled: 11 ate Received: 11 ercent Solids: n/	/25/12 /27/12 a
Run #1 Run #2	File ID U7783.D	DF 10	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296
Run #1 Run #2 Purgeable	Purge Volun 10.0 ml	ie					

Report of Analysis

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4	Benzene Toluene Ethylbenzene	73.0 7.9 609	10 10 10	2.0 2.0 2.0	ug/l ug/l ug/l	J
CAS No.	Surrogate Recoveries	326 Run# 1	20 Run# 2	4.6 Lim	ug/1	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	98% 112% 100%		60-1 60-1 60-1	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sar Lab Samp Matrix: Method: Project:	nple ID: SH-04- ble ID: C2495- AQ - C NWTP URSO	-1112 4-3 Ground Wa PH-GX RP: Shell/	ater 'Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle, '	e Sampled: 11 e Received: 11 ent Solids: n/ WA	1/25/12 1/27/12 a
Run #1 Run #2	File ID JK31906.D	DF 10	Analyzed 12/01/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1277
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	8.15	2.0	0.50	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

101%

108%

Report of Analysis

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



Accutest Laboratories

CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of An	nalysis			Page 1 of 1
Client Sar Lab Samp Matrix: Method: Project:	nple ID: SH-04- ble ID: C24954 AQ - G NWTPI URSOR	1112 3 round Wat H-DX SW RP: Shell/H	er V846 3510C Iarbor Island -	2555 13th A	Ave SW.,	Date Date Perc Seattle, '	e Sampled: 11 e Received: 11 cent Solids: n/ WA	1/25/12 1/27/12 a
Run #1 Run #2	File ID HH028582.D	DF 1	Analyzed 11/29/12	Ву ЈН	Prep D 11/27/1	ate 12	Prep Batch OP7112	Analytical Batch GHH867
Run #1 Run #2	Initial Volume 1020 ml	Final Vo 1.0 ml	blume					
Northwest	t TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor O	il)	0.762 ND	0.098 0.20	0.049 0.098	mg/l mg/l		

Run# 2

Limits

50-150%

Run#1

70%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 1 of 1 ယ ပ



Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C249 AQ - SW8 URS	-112A-1112 954-4 Ground Wa 46 8260B ORP: Shell/	ıter Harbor Island -	2555 13tl	Da Da Pe 1 Ave SW., Seattle	te Sampled: 11 te Received: 11 rcent Solids: n/ , WA	a/25/12 a/27/12 a
Run #1 Run #2	File ID U7774.D	DF 1	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296
Run #1 Run #2	Purge Volun 10.0 ml	ne					
Purgeable	Aromatics						
CAS No.	Compound		Result	RL	MDL Unit	s Q	

Report of Analysis

	-				
71-43-2	Benzene	5.8	1.0	0.20	ug/l
108-88-3	Toluene	0.22	1.0	0.20	ug/l
100-41-4	Ethylbenzene	0.37	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	5
1868-53-7	Dibromofluoromethane	105%		60-130)%
2037-26-5	Toluene-D8	91%		60-130)%
460-00-4	4-Bromofluorobenzene	96%		60-130)%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

J J



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CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID: MW-112A-1112 Lab Sample ID: C24954-4 Date Sampled: 11/25/12 Matrix: AQ - Ground Water Date Received: 11/27/12 Method: NWTPH-GX Percent Solids: n/a Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								/25/12 /27/12 a	
Run #1 Run #2	File ID JK31907.D	DF 1	Analyzed 12/01/12	By TT	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GJK1277	
Run #1 Run #2	Purge Volum 10.0 ml	e							
Northwest TPH-Gx									
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasolin	ne)	0.197	0.20	0.050	mg/l	J		

Run# 2

Limits

50-150%

50-150%

Run#1

99%

106%

Page 1 of 1

3.4

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ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Accutest Laboratories

CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of A	nalysis			Page 1 of 1	
Client Sam Lab Sampl Matrix: Method: Project:	pple ID: MW-11 le ID: C24954 AQ - G NWTPI URSOR	MW-112A-1112 C24954-4 AQ - Ground Water NWTPH-DX SW846 3510C URSORP: Shell/Harbor Island - 2555 13th				Date Sampled: 11/25/12 Date Received: 11/27/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID HH028583.D	DF 1	Analyzed 11/29/12	By JH	Prep D 11/27/1	ate 2	Prep Batch OP7112	Analytical Batch GHH867	
Run #1 Run #2	Initial Volume 1000 ml	Final Vo 1.0 ml	olume						
Northwest	TPH-Dx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Diesel) TPH (Motor O	il)	0.282 ND	0.10 0.20	0.050 0.10	mg/l mg/l			

Run# 2

Limits

50-150%

Run#1

82%

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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17 of 80 ACCUTEST C24954

Client San Lab Samp Matrix: Method: Project:	mple ID: MW ple ID: C24 AQ SW3 URS	7-302-1112 954-5 - Ground Wa 846 8260B SORP: Shell/	ater Harbor Island -	2555 13tl	Date Sampled: 11/25/12 Date Received: 11/27/12 Percent Solids: n/a n Ave SW., Seattle, WA			
Run #1 Run #2	File ID U7784.D	DF 10	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296	
Run #1 Run #2 Purgeable	Purge Volue 10.0 ml	ne						

Report of Analysis

CAS No.	Compound	Result	RL	MDL	Units
71-43-2	Benzene	449	10	2.0	ug/l
108-88-3	Toluene	15.2	10	2.0	ug/l
100-41-4	Ethylbenzene	191	10	2.0	ug/l
1330-20-7	Xylene (total)	177	20	4.6	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
1868-53-7	Dibromofluoromethane	110%		60-13	30%
2037-26-5	Toluene-D8	106%		60-13	30%
460-00-4	4-Bromofluorobenzene	97%	60-130%		

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID:MW-302-1112Lab Sample ID:C24954-5Date Sampled:Matrix:AQ - Ground WaterDate Received:Method:NWTPH-GXPercent Solids:Project:URSORP:Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Run #1 Run #2	File ID JK31908.D	DF 10	Analyzed 12/01/12	By TT	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GJK1277
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	e)	4.58	2.0	0.50	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

101%

110%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound


Client Sa Lab Sam Matrix: Method: Project:	mple ID: TX-0 ple ID: C249 AQ - SW8 URS	94-1112 954-6 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	2555 13t	Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID U7775.D	DF 1	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296	
Run #1 Run #2	Purge Volum 10.0 ml	ne						
Purgeable	e Aromatics		Docult	DI	MDI Unit	s 0		

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	1.3 0.38 ND 0.52	1.0 1.0 1.0 2.0	0.20 0.20 0.20 0.46	ug/l ug/l ug/l ug/l	J J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	107% 99% 97%		60-13 60-13 60-13	30% 30% 30%	

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N= \ \ Indicates \ presumptive \ evidence \ of \ a \ compound$

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CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client San Lab Samp Matrix: Method: Project:	mple ID: TX-04 ple ID: C2495 AQ - O NWTH URSO	 TX-04-1112 C24954-6 AQ - Ground Water NWTPH-GX URSORP: Shell/Harbor Island - 2555 13th 					Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a 3th Ave SW., Seattle, WA			
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch		
Run #1	JK31909.D	1	12/01/12	TT	n/a		n/a	GJK1277		
Run #2										
Run #1 Run #2	Purge Volume 10.0 ml	;								
Northwes	t TPH-Gx									
CAS No.	Compound		Result	RL	MDL	Units	Q			
	TPH (Gasolin	e)	0.0980	0.20	0.050	mg/l	J			

Run# 2

Limits

50-150%

50-150%

Run# 1

98%

105%

Report of Analysis

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of A	nalysis			Page 1 of 1	
Client San Lab Samp Matrix: Method: Project:	nple ID: TX-04- le ID: C24954 AQ - G NWTPI URSOF	 D: TX-04-1112 D: C24954-6 AQ - Ground Water NWTPH-DX SW846 3510C URSORP: Shell/Harbor Island - 2555 13th 				Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a 13th Ave SW., Seattle, WA			
Run #1 Run #2	File ID HH028584.D	DF 1	Analyzed 11/29/12	By JH	Prep D 11/27/1	ate 2	Prep Batch OP7112	Analytical Batch GHH867	
Run #1 Run #2	Initial Volume 1000 ml	Final V 1.0 ml	olume						
Northwest	TPH-Dx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Diesel) TPH (Motor O	il)	0.0807 ND	0.10 0.20	0.050 0.10	mg/l mg/l	J		

Run# 2

Limits

50-150%

Run#1

83%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: MW- ble ID: C249 AQ - SW8 URS	-101-1112 954-7 • Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	2555 13th	Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a th Ave SW., Seattle, WA				
Run #1 Run #2	File ID U7776.D	DF 1	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296		
Run #1 Run #2	Purge Volun 10.0 ml	ne							
Purgeable	Aromatics								
CAS No.	Compound		Result	RL	MDL Unit	s Q			

71-43-2	Benzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 107%	Run# 2	Limi 60-13	t s 30%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 107% 99%	Run# 2	Limi 60-13 60-13	ts 30% 30%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

3.7

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Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW-10 ole ID: C24954 AQ - C NWTP URSO	01-1112 4-7 Ground W H-GX RP: Shell/	ater Harbor Island -	2555 13th	Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a 3th Ave SW., Seattle, WA			
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	JK31910.D	1	12/01/12	TT	n/a		n/a	GJK1277
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	0.188	0.20	0.050	mg/l	J	

	TPH (Gasoline)	0.188	0.20	0.050	mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	s
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	85% 93%		50-15 50-15	0% 0%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of Ai	nalysis			Page 1 of 1		
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-10 ole ID: C24954 AQ - G NWTPI URSOF	 ID: MW-101-1112 C24954-7 AQ - Ground Water NWTPH-DX SW846 3510C URSORP: Shell/Harbor Island - 2555 13th 					Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a 13th Ave SW., Seattle, WA			
Run #1 Run #2	File ID HH028585.D	DF 1	Analyzed 11/29/12	By JH	Prep D 11/27/1	ate 2	Prep Batch OP7112	Analytical Batch GHH867		
Run #1 Run #2	Initial Volume 1000 ml	Final Vo 1.0 ml	olume							
Northwest	t TPH-Dx									
CAS No.	Compound		Result	RL	MDL	Units	Q			
	TPH (Diesel) TPH (Motor O	il)	0.0937 ND	0.10 0.20	0.050 0.10	mg/l mg/l	J			

Run# 2

Limits

50-150%

Run#1

84%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C249 AQ - SW8 URS	307-1112 54-8 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	2555 13th	Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a n Ave SW., Seattle, WA			
Run #1 Run #2	File ID R12997.D	DF 25	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR463	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Purgeable	Aromatics		_					

	P				
71-43-2	Benzene	2150	25	5.0	ug/l
108-88-3	Toluene	85.8	25	5.0	ug/l
100-41-4	Ethylbenzene	833	25	5.0	ug/l
1330-20-7	Xylene (total)	513	50	12	ug/l
CASNO	Summagata Decovarias	Dun#1	Dun# 2	T imi	ta
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 108%	Run# 2	Limi 60-13	ts 30%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 108% 107%	Run# 2	Limi 60-13 60-13	ts 80% 80%
CAS No. 1868-53-7 2037-26-5 460-00-4	Surrogate Recoveries Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	Run# 1 108% 107% 104%	Run# 2	Limi 60-13 60-13 60-13	ts 30% 30% 30%

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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Client San Lab Samp Matrix: Method: Project:	nple ID: MW-3 ole ID: C2495 AQ - C RSK-1 URSO	MW-307-1112 C24954-8 AQ - Ground Water RSK-175 URSORP: Shell/Harbor Island - 2555 13th				Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID AA001682.D	DF 50	Analyzed 11/28/12	By PH	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GAA71	
CAS No.	Compound		Result	RL	MDL	Units	Q		
74-82-8 124-38-9	Methane Carbon Dioxid	le	7920 16000	25 5000	13 400	ug/l ug/l			

Report of Analysis

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



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C24954

CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW-3 ole ID: C2495 AQ - C NWTF URSO	07-1112 4-8 Ground Wa PH-GX RP: Shell/	ater Harbor Island - :	2555 13th	Ave SW.,	Date Date Perc Seattle, V	e Sampled: 1 e Received: 1 eent Solids: n WA	1/26/12 1/27/12 /a
Run #1 Run #2	File ID JK31913.D	DF 20	Analyzed 12/01/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1277
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	e)	10.9	4.0	1.0	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

97%

105%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client Sample ID:	MW-307-1112		
Lab Sample ID:	C24954-8	Date Sampled:	11/26/12
Matrix:	AQ - Ground Water	Date Received:	11/27/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Sea	attle, WA	

Report of Analysis

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium Iron	21800 33500	5000 200	ug/l	1 1	11/28/12	11/28/12 RS	SW846 6010B ¹ SW846 6010B ¹	SW3010A ² SW3010A ²
Magnesium	7390	5000	ug/l	1	11/28/12	11/28/12 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA2855

(2) Prep QC Batch: MP5572

Page 1 of 1

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Client Sample ID:	MW-307-1112		
Lab Sample ID:	C24954-8	Date Sampled:	11/26/12
Matrix:	AQ - Ground Water	Date Received:	11/27/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SV	W., Seattle, WA	

Report of Analysis

General	Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	144	5.0	mg/l	1	11/28/12	AC	SM18 2320B
Hardness, Total as CaCO3 ^a	84.9	33	mg/l	1	11/28/12 22:01	RS	SW846 6010B/SM 2340B
Sulfate	1.5	0.50	mg/l	1	11/29/12 14:34	RL	EPA 300/SW846 9056A

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)

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Client Sam Lab Sampl Matrix: Method: Project:	nple ID: M le ID: C2 A(SV U)	W-308-1112 24954-9 Q - Ground Wa V846 8260B RSORP: Shell/	ater Harbor Island -	2555 131	Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a n Ave SW., Seattle, WA			
Run #1 Run #2	File ID R12998.D	DF 2	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR463	
Run #1 Run #2	Purge Vol 10.0 ml	ume						
Purgeable	Aromatics							
CAS No.	Compour	nd	Result	RL	MDL Uni	its Q		

71-43-2	Benzene	144	2.0	0.40	ug/l
108-88-3	Toluene	1.0	2.0	0.40	ug/l
100-41-4	Ethylbenzene	7.2	2.0	0.40	ug/l
1330-20-7	Xylene (total)	1.3	4.0	0.92	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 106%	Run# 2	Limi 60-13	ts 30%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 106% 105%	Run# 2	Limi 60-13 60-13	ts 80% 80%

- $J = \ Indicates \ an \ estimated \ value$
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

J

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Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW-3 ole ID: C2495 AQ - C RSK-1 URSO	08-1112 4-9 Ground W 75 RP: Shell	ater /Harbor Island -	2555 13th .	Ave SW.,	Date Date Perc Seattle, '	e Sampled: 1 e Received: 1 eent Solids: n WA	1/26/12 1/27/12 /a
Run #1 Run #2	File ID AA001685.D	DF 50	Analyzed 11/28/12	By PH	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GAA71
CAS No.	Compound		Result	RL	MDL	Units	Q	
74-82-8 124-38-9	Methane Carbon Dioxid	le	2490 6170	25 5000	13 400	ug/l ug/l		

Report of Analysis

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



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ACCUTEST C24954

CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

			Repo	rt of A	nalysis			Page 1 of 1
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-3 ble ID: C2495 AQ - NWT URSC	808-1112 54-9 Ground Wa PH-GX DRP: Shell/	ater 'Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle,	e Sampled: 11 e Received: 11 cent Solids: n/ WA	1/26/12 1/27/12 a
Run #1 Run #2	File ID JK31914.D	DF 2	Analyzed 12/01/12	By TT	Prep D n/a	Date	Prep Batch n/a	Analytical Batch GJK1277
Run #1 Run #2	Purge Volume 10.0 ml	2						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolir	ne)	0.778	0.40	0.10	mg/l		

Run# 2

Limits

50-150%

50-150%

Run# 1

103%

105%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 1 of 1

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Client Sample ID:	MW-308-1112		
Lab Sample ID:	C24954-9	Date Sampled:	11/26/12
Matrix:	AQ - Ground Water	Date Received:	11/27/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Se	attle, WA	

Report of Analysis

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	135000	5000	ug/l	1	11/28/12	11/28/12 RS	SW846 6010B ¹	SW3010A ²
Iron	542	200	ug/l	1	11/28/12	11/28/12 RS	SW846 6010B ¹	SW3010A ²
Magnesium	11400	5000	ug/l	1	11/28/12	11/28/12 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA2855

(2) Prep QC Batch: MP5572

Page 1 of 1

3.9

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Client Sample ID:	MW-308-1112		
Lab Sample ID:	C24954-9	Date Sampled:	11/26/12
Matrix:	AQ - Ground Water	Date Received:	11/27/12
	-	Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SV	W., Seattle, WA	

Report of Analysis

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	298	5.0	mg/l	1	11/28/12	AC	SM18 2320B
Hardness, Total as CaCO3 ^a	384	33	mg/l	1	11/28/12 22:08	RS	SW846 6010B/SM 2340B
Sulfate	97.0	5.0	mg/l	10	11/29/12 14:51	RL	EPA 300/SW846 9056A

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)

3.9



Client Sample ID:TES-MW-1-1112Lab Sample ID:C24954-10Matrix:AQ - Ground WaterMethod:SW846 8260BProject:URSORP: Shell/Harbor Island - 2555 13th					Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a 3th Ave SW., Seattle, WA			
Run #1 Run #2	File ID U7777.D	DF 1	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296	
Run #1 Run #2	Purge Volun 10.0 ml	ne						
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL Unit	s Q		

71-43-2	Benzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	2.0 0.46	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lin	nits
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lin	nits
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 113%	Run# 2	Lin 60-1	nits 130%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 113% 97%	Run# 2	Lin 60- 60-	nits 130% 130%

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



Client San Lab Samj Matrix: Method: Project:	mple ID: TES-1 ple ID: C249: AQ - NWT URSC	MW-1-1112 54-10 Ground Wa PH-GX DRP: Shell/	2 ater 'Harbor Island -	D D Pe r Island - 2555 13th Ave SW., Seatth			Date Sampled:11/26/12Date Received:11/27/12Percent Solids:n/atle, WA1000000000000000000000000000000000000		
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch	
Run #1	JK31915.D	1	12/01/12	TŤ	n/a		n/a	GJK1277	
Run #2									
	Purge Volum	e							
Run #1	10.0 ml								
Run #2									
Northwes	t TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TDU (Casalin	20)	ND	0.20	0.050	ma/1			

	TPH (Gasoline)	ND	0.20	0.050	mg/l
CAS No. Surrogate Recoveries		Run# 1	Run# 2	Limi	ts
98-08-8	aaa-Trifluorotoluene	96%		50-15	50%
460-00-4	4-Bromofluorobenzene	100%		50-15	50%

- B = Indicates analyte found in associated method blank
- $N= \ \ Indicates \ presumptive \ evidence \ of \ a \ compound$



CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of Ai	nalysis			Page 1 of 1
Client San Lab Samp Matrix: Method: Project:	ple ID: TES-MW-1-1112 le ID: C24954-10 AQ - Ground Water NWTPH-DX SW846 3510C URSORP: Shell/Harbor Island - 2555 13th				Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a 3th Ave SW., Seattle, WA			
Run #1 Run #2	File ID HH028598.D	DF 1	Analyzed 11/30/12	By JH	Prep D 11/27/1	ate 2	Prep Batch OP7112	Analytical Batch GHH867
Run #1 Run #2	Initial Volume 1000 ml	Final Vo 1.0 ml	olume					
Northwest	t TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor O	il)	ND ND	0.10 0.20	0.050 0.10	mg/l mg/l		

Run# 2

Limits

50-150%

Run#1

81%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- ble ID: C249 AQ - SW8 URS	105-1112 954-11 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a 3th Ave SW., Seattle, WA				
Run #1 Run #2	File ID U7778.D	DF 1	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296	
Run #1 Run #2	Purge Volum 10.0 ml	ne						
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL Units	s Q		

0120 1100	e om po una				C III US	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2 Limits		its	
1868-53-7	Dibromofluoromethane	112%		60-1	30%	
2037-26-5	Toluene-D8	89%		60-1	30%	
1 < 0 0 0 1						
460-00-4	4-Bromofluorobenzene	88%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samj Matrix: Method: Project:	mple ID: MW-1 ple ID: C2495 AQ - C NWTF URSO	ater 'Harbor Island -	2555 13th	Date Sampled: 11/26/12 Date Received: 11/27/12 Percent Solids: n/a 55 13th Ave SW., Seattle, WA				
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1	JK31917.D	1	12/01/12	ΤŤ	n/a		n/a	GJK1277
Run #2								
	Purge Volume	1						
Run #1	10.0 ml							
Run #2								
Northwes	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TDU (Casalin	a)	ND	0.20	0.050	ma/1		

	TPH (Gasoline)	ND	0.20	0.050	mg/1
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	S
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	75% 78%		50-15 50-15	0% 0%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of An	alysis			Page 1 of 1
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-10 le ID: C24954 AQ - G NWTPI URSOR	5-1112 -11 round Wat H-DX SW P: Shell/H	er /846 3510C larbor Island -	2555 13th A	Ave SW.,	Date Date Perc Seattle, V	e Sampled: 11 e Received: 11 ent Solids: n/a WA	/26/12 /27/12 a
Run #1 Run #2	File ID HH028563.D	DF 1	Analyzed 11/29/12	By JH	Prep D 11/27/1	ate 2	Prep Batch OP7112	Analytical Batch GHH867
Run #1 Run #2	Initial Volume 1020 ml	Final Vo 1.0 ml	lume					
Northwest	TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor O	il)	0.291 ND	0.098 0.20	0.049 0.098	mg/l mg/l		

Run# 2

Limits

50-150%

Run#1

81%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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	Report of Analysis			Page 1 of 1
Client Sample ID:	MW-105-1112			
Lab Sample ID:	C24954-11	Date Sampled:	11/26/12	
Matrix:	AQ - Ground Water	Date Received:	11/27/12	
		Percent Solids:	n/a	
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Sea	ttle, WA		
Total Metals Analy	rsis			

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	< 10	10	ug/l	1	11/28/12	11/28/12 rs	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA2855

(2) Prep QC Batch: MP5572

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Section 4

4



Misc. Forms	
Custody Documents and Other Forms	
ncludes the following where applicable:	
Chain of Custody	



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C24954: Chain of Custody Page 1 of 3



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C24954: Chain of Custody Page 2 of 3



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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C249	54		Client: SHELLWI	0		Project: HARBOR ISLA	ND			
Date / Time Received: 11/27	/2012		Delivery I	Nethod:	FedEx	Airbill #'s:				
Cooler Temps (Initial/Adjusted	d): <u>#</u>	l <u>: (3.8/3.</u>	<u>8); #2: (5.1/5.1); 0</u>							
Cooler Security Y	or N	_		Y or N	Sample Integr	ity - Documentation	Y	or	N	
1. Custody Seals Present:] 3.	COC Present:		1. Sample label	s present on bottles:	\checkmark			
2. Custody Seals Intact:] 4. Sr	npl Dates/Time OK		2. Container lab	eling complete:	\checkmark			
Cooler Temperature	Y	or N			3. Sample conta	ainer label / COC agree:	\checkmark			
1. Temp criteria achieved:	\checkmark				Sample Integ	rity - Condition	Y	or	N	
2. Cooler temp verification:		IR Gun			1. Sample recyc	within HT:	\checkmark			
3. Cooler media:	lo	e (Bag)			2. All containers	accounted for:				
4. No. Coolers:		2			3. Condition of s	sample:		Intact		
Quality Control _Preservation	Y	or N	N/A		Sample Integ	rity - Instructions	Y	or	N	N/A
1. Trip Blank present / cooler:	\checkmark				1 Analysis requ	uested is clear:		[
2. Trip Blank listed on COC:	\checkmark				2. Bottles recei	ved for unspecified tests		6	~	
3. Samples preserved properly:	\checkmark				3. Sufficient vol	lume recyd for analysis:		[
4. VOCs headspace free:					4. Compositing	instructions clear:		[\checkmark
			_		5. Filtering instr	ructions clear:		[
Comments										

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C24954: Chain of Custody Page 3 of 3



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GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C24954

Account: Project:	SHELLWIC SI URSORP: She	hell Oil C ll/Harbor	Company Island - 2555 13	3th Ave S	W., Seattle, WA		
Sample VR463-MB	File ID R12990.D	DF 1	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR463
The QC repor	ted here applies	to the fo]	Method: SW84	6 8260B		
C24954-8, C24	4954-9						

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	108%	60-130%
2037-26-5	Toluene-D8	108%	60-130%
460-00-4	4-Bromofluorobenzene	104%	60-130%



Method Blank Summary Job Number: C24954

Account: Project:	SHELLWIC S URSORP: She	Shell Oil C ell/Harbor	Company Island - 2555 13	3th Ave S	W., Seattle, WA		
Sample VU296-MB	File ID U7771.D	DF 1	Analyzed 11/28/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296
The QC repor	ted here applies	s to the fo	llowing samples		Method: SW84	6 8260B	

C24954-1, C24954-2, C24954-3, C24954-4, C24954-5, C24954-6, C24954-7, C24954-10, C24954-11

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
CAS No.	Surrogate Recoveries		Limi	ts	

1868-53-7	Dibromofluoromethane	113%	60-130%
2037-26-5	Toluene-D8	89%	60-130%
460-00-4	4-Bromofluorobenzene	90%	60-130%





Blank Spike/Blank Spike Duplicate Summary

Job Number:	C24954
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU296-BS	U7768.D	1	11/28/12	YP	n/a	n/a	VU296
VU296-BSD	U7769.D	1	11/28/12	YP	n/a	n/a	VU296

The QC reported here applies to the following samples:

4-Bromofluorobenzene

460-00-4

Method: SW846 8260B

C24954-1, C24954-2, C24954-3, C24954-4, C24954-5, C24954-6, C24954-7, C24954-10, C24954-11

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	20.8	104	20.3	102	2	60-130/30
100-41-4	Ethylbenzene	20	23.1	116	23.0	115	0	60-130/30
108-88-3	Toluene	20	22.5	113	21.8	109	3	60-130/30
1330-20-7	Xylene (total)	60	67.3	112	66.9	112	1	60-130/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
1868-53-7	Dibromofluoromethane	108%	103	3%	60-130	%		
2037-26-5	Toluene-D8	104%	989	%	60-130	%		

104%

60-130%

103%



Blank Spike/Blank Spike Duplicate Summary

Job Number:	C24954
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR463-BS	R12988.D	1	11/28/12	YP	n/a	n/a	VR463
VR463-BSD	R12991.D	1	11/28/12	YP	n/a	n/a	VR463

The QC reported here applies to the following samples:

Method: SW846 8260B

C24954-8, C24954-9

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	21.6	108	20.5	103	5	60-130/30
100-41-4	Ethylbenzene	20	23.4	117	21.9	110	7	60-130/30
108-88-3	Toluene	20	22.3	112	20.8	104	7	60-130/30
1330-20-7	Xylene (total)	60	71.6	119	66.6	111	7	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits	
1868-53-7	Dibromofluoromethane	110%	109%	60-130%	
2037-26-5	Toluene-D8	107%	107%	60-130%	
460-00-4	4-Bromofluorobenzene	106%	107%	60-130%	

Laborato Job Number: Account: Project:	ry Control S C24954 SHELLWIC SH URSORP: Shel	ample S nell Oil Con 1/Harbor Is	Summa npany sland - 25	ary 55 13th	n Ave SW.	, Seattle, WA		Page 1 of 1
Sample VR463-LCS	File ID R12989.D	DF 1	Analy 11/28/	zed 12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR463
The QC repo	rted here applies	to the follo	owing sar	nples:			Method: SW84	6 8260B
C24954-8, C2	24954-9							
CAS No. C	Compound		Spike ug/l	LCS ug/l	LCS %	Limits		

Limits

60-130%

60-130%

60-130%

BSP

106%

107%

105%

Surrogate Recoveries

Dibromofluoromethane

4-Bromofluorobenzene

Toluene-D8

CAS No.

1868-53-7

2037-26-5

460-00-4



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Laboratory Control Sample Summary Job Number: C24954

Account: Project:	SHELLWIC S URSORP: She	hell Oil Co ll/Harbor I	mpany sland - 255:	5 13th .	Ave SW.	, Seattle, WA		
Sample VU296-LCS	File ID U7770.D	DF 1	Analyze 11/28/12	d B 2 Y	y P	Prep Date n/a	Prep Batch n/a	Analytical Batch VU296
The QC repor	rted here applies	s to the foll	owing sam	ples:			Method: SW84	6 8260B
C24954-1, C24	4954-2, C24954-	3, C24954-	4, C24954-	5, C24	954-6, C	24954-7, C24	954-10, C24954-	-11
CAS No. C	ompound		Spike ug/l	LCS ug/l	LCS %	Limits		

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	60-130%
2037-26-5	Toluene-D8	97%	60-130%
460-00-4	4-Bromofluorobenzene	93%	60-130%



Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C24954
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24943-3MS	R13001.D	10	11/28/12	YP	n/a	n/a	VR463
C24943-3MSD	R13002.D	10	11/28/12	YP	n/a	n/a	VR463
C24943-3	R12993.D	10	11/28/12	YP	n/a	n/a	VR463

The QC reported here applies to the following samples:

Method: SW846 8260B

C24954-8, C24954-9

CAS No.	Compound	C24943-3 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	200	229	115	203	102	12	60-130/25
100-41-4	Ethylbenzene	ND	200	247	124	216	108	13	60-130/25
108-88-3	Toluene	ND	200	233	117	205	103	13	60-130/25
1330-20-7	Xylene (total)	ND	600	743	124	654	109	13	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C2	24943-3	Limits			
1868-53-7	Dibromofluoromethane	108%	106% 109%		9%	60-130	%		
2037-26-5	Toluene-D8	106%	106%	10	5%	60-130	%		
460-00-4	4-Bromofluorobenzene	104%	105%	102%		60-130	%		

Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C24954
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24954-2MS	U7785.D	1	11/28/12	YP	n/a	n/a	VU296
C24954-2MSD	U7786.D	1	11/28/12	YP	n/a	n/a	VU296
C24954-2	U7773.D	1	11/28/12	YP	n/a	n/a	VU296

The QC reported here applies to the following samples:

Method: SW846 8260B

C24954-1, C24954-2, C24954-3, C24954-4, C24954-5, C24954-6, C24954-7, C24954-10, C24954-11

CAS No.	Compound	C24954-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71_43_2	Benzene	ND	20	21.0	105	21.3	107	1	60-130/25
100-41-4	Ethylbenzene	ND	20	21.0	105	20.9	107	2	60-130/25
108-88-3	Toluene	ND	20	20.9	107	20.6	103	1	60-130/25
1330-20-7	Xylene (total)	ND	60	53.8	90	51.4	86	5	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C2	24954-2	Limits			
1868-53-7	Dibromofluoromethane	96%	97%	97% 112%		60-130%			
2037-26-5	Toluene-D8	100%	99%	96	96%		%		
460-00-4	4-Bromofluorobenzene	102%	101%	101% 84%		60-130%			
Section 6

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GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Account: Project:	SHELLWIC Sh URSORP: Shel	SHELLWIC Shell Oil Company URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA							
Sample GJK1277-M	File ID B JK31888.D	DF 1	Analyzed 11/30/12	By TT	Pre j n/a	p Date	Prep Batch n/a	Analytical Batch GJK1277	
The QC rep	ported here applies	to the follo	wing sample	es:	6 62405	4 7 62	Method: NWTP	PH-GX	
C24954-1, C 11	.24954-2, C24954-3	, C24954-4	, C24954-5,	C24954-	0, C24954	4-7, C24	4954-8, C24954-9.	, C24954-10, C24954·	
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasoline)		ND	0.20	0.050	mg/l			

CAS No.		Limits		
98-08-8	aaa-Trifluorotoluene	99%	50-150%	
460-00-4	4-Bromofluorobenzene	102%	50-150%	

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Carbon Dioxide

124-38-9

Account:SHELLWIC Shell Oil CompanyProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample GAA71-M	File ID DF B AA001679.D1	Analyzed 11/28/12	By PH	Prep Date n/a	Prep Batch n/a	Analytical Batch GAA71			
The QC re	eported here applies to th	e following sample	es:		Method: RSK-1	175			
C24954-8,	C24954-9								
CAS No.	Compound	Result	RL	MDL Units	Q				
74-82-8	Methane	ND	0.50	0.25 ug/l					

100

ND

7.9

ug/l

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6.1.2

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Account: Project:	SHELLWIC Shell C URSORP: Shell/Har	SHELLWIC Shell Oil Company URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Sample GAA71-M	File ID DF B1 AA001690.D1	Analyzed 11/29/12	By PH	Prej n/a	o Date	Prep Batch n/a	Analytical Batch GAA71			
The QC re C24949-11	eported here applies to th	e following sample	es:			Method: RSK-1	75			
CAS No.	Compound	Result	RL	MDL	Units	Q				
74-82-8 124-38-9	Methane Carbon Dioxide	ND 29.0	0.50 100	0.25 7.9	ug/l ug/l	J				

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C24954

Blank Spike Summary Job Number: C24954

Carbon Dioxide

124-38-9

Account: Project:							
Sample GAA71-BS	File ID D S AA001680.D1	F Analy: 11/28/	zed By 12 PH	[Prep Date n/a	Prep Batch n/a	Analytical Batch GAA71
The QC re C24954-8,	eported here applies to t C24954-9	he following sa	nples:			Method: RSK-1	75
CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits		
74-82-8	Methane	21.5	19.9	93	70-130		

77.1

76.7

99

70-130

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6.2.1

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Blank Spike/Blank Spike Duplicate Summary

Job Number:	C24954
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
GJK1277-BS	JK31889.D	1	11/30/12	TT	n/a	n/a	GJK1277	
GJK1277-BSD	JK31890.D	1	11/30/12	TT	n/a	n/a	GJK1277	
The QC reported here applies to the following samples: Method: NWTPH-GX								

C24954-1, C24954-2, C24954-3, C24954-4, C24954-5, C24954-6, C24954-7, C24954-8, C24954-9, C24954-10, C24954-11

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.4	0.397	99	0.400	100	1	60-140/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	96% 102%	989 103	% 3%	50-1509 50-1509	6		

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C24954
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24916-3MS	JK31918.D	1	12/01/12	TT	n/a	n/a	GJK1277
C24916-3MSD	JK31919.D	1	12/01/12	TT	n/a	n/a	GJK1277
C24916-3	JK31896.D	1	11/30/12	TT	n/a	n/a	GJK1277

The QC reported here applies to the following samples:

C24954-1, C24954-2, C24954-3, C24954-4, C24954-5, C24954-6, C24954-7, C24954-8, C24954-9, C24954-10, C24954-11

CAS No.	Compound	C24916-3 mg/l	Spike Q mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	ND	0.4	0.375	94	0.394	99	5	60-140/20
CAS No.	Surrogate Recoveries	MS	MSD	C2	24916-3	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	80% 86%	94% 101%	98 10	% 3%	50-1509 50-1509	% %		

Method: NWTPH-GX

Duplicate Summary Job Number: C24954

Account: Project:	at:SHELLWIC Shell Oil CompanyURSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Sample C24954-10DUP C24954-10	File ID JK31916.D JK31915.D	DF 1 1	Analyzed 12/01/12 12/01/12	By TT TT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GJK1277 GJK1277		
The QC reported here applies to the following samples: Method: NWTPH-GX									

C24954-1, C24954-2, C24954-3, C24954-4, C24954-5, C24954-6, C24954-7, C24954-8, C24954-9, C24954-10, C24954-11

CAS No.	Compound	C24954-10 mg/l Q	DUP mg/l Q	RPD Limits
	TPH (Gasoline)	ND	ND	nc 20
CAS No.	Surrogate Recoveries	DUP	C24954-10	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	100% 104%	96% 100%	50-150% 50-150%

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6.5.1

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DuplicateSummaryJob Number:C24954Account:SHELLWIC Shell Oil Company

Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Sample C24949-1DUP C24949-1	File ID AA001698 AA001697	DF 3.D1 7.D1	Analyzed 11/29/12 11/29/12	By PH PH	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GAA71 GAA71		
The QC report	ed here applie	es to the fo	llowing sample	s:]	Method: RSK-1	75		
C24954-8, C249	954-9								

	C24949-	1	DUP				
CAS No.	Compound	ug/l	Q	ug/l	Q	RPD	Limits
74-82-8	Methane	79.5		75.2		6	30
124-38-9	Carbon Dioxide	134000	Е	131000	Е	3	30

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C24954

Section 7



GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Account: Project:	SHELLWIC Shell Oil Company URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample OP7112-MB	File ID HH028555.1	DF D1	Analyzed 11/29/12	By JH	Pre 11/2	p Date 27/12	Prep Batch OP7112	Analytical Batch GHH867		
The QC repo	The QC reported here applies to the following samples: Method: NWTPH-DX									
C24954-2, C2	4954-3, C24954-4	, C24954-6	5, C24954-7,	C24954	-10, C249:	54-11				
CAS No. C	ompound		Result	RL	MDL	Units	Q			

CAS No.	Compound	Result	RL	MDL	Units (
	TPH (Diesel) TPH (Motor Oil)	ND ND	ND 0.10 ND 0.20		mg/l mg/l	
CAS No.	Surrogate Recoveries		Limits			
630-01-3	Hexacosane	82%	50-150	%		

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Blank Spike/Blank Spike Duplicate Summary

Job Number:	C24954
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample OP7112-BS OP7112-BSD	File ID HH028556 HH028557	DF .D1 .D1	Analyzed 11/29/12 11/29/12	Ву ЈН ЈН	Prep Date 11/27/12 11/27/12	Prep Batch OP7112 OP7112	Analytical Batch GHH867 GHH867

The QC reported here applies to the following samples:

Method: NWTPH-DX

C24954-2, C24954-3, C24954-4, C24954-6, C24954-7, C24954-10, C24954-11

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Diesel) TPH (Motor Oil)	1 1	0.779 0.920	78 92	0.759 0.887	76 89	3 4	45-140/30 45-140/30
CAS No.	Surrogate Recoveries	BSP	BSD)	Limits			
630-01-3	Hexacosane	84%	79%		50-150%			

C24954

Duplicate Summary Job Number: C24954

Account:	SHELLWIC Shell Oil Company								
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch		
OP7112-DUP1	HH028574	.D1	11/29/12	JH	11/27/12	OP7112	GHH867		
C24954-11	HH028563	.D1	11/29/12	JH	11/27/12	OP7112	GHH867		

The QC reported here applies to the following samples:

Method: NWTPH-DX

C24954-2, C24954-3, C24954-4, C24954-6, C24954-7, C24954-10, C24954-11

CAS No.	Compound	C24954-11 mg/l Q	DUP mg/l Q	RPD Limits
	TPH (Diesel) TPH (Motor Oil)	0.291 ND	0.287 ND	1 25 nc 25
CAS No.	Surrogate Recoveries	DUP	C24954-11	Limits
630-01-3	Hexacosane	81%	81%	50-150%

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Section 8

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Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C24954 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5572 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:					11/28/12
Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	13	8.5		
Antimony	6.0	.7	.51		
Arsenic	10	.7	.65		
Barium	200	.4	.35		
Beryllium	5.0	.2	.4		
Bismuth	20		2.9		
Boron	100	.9	.64		
Cadmium	2.0	.2	.15		
Calcium	5000	7.1	12	81.5	<5000
Chromium	10	.3	.41		
Cobalt	5.0	. 2	.3		
Copper	10	1.2	3		
Iron	200	6.4	12	1.9	<200
Lead	10	.7	.85	0.70	<10
Lithium	50		2		
Magnesium	5000	27	36	-9.9	<5000
Manganese	15	.1	1.3		
Molybdenum	20	.2	.22		
Nickel	5.0	.2	.12		
Potassium	10000	18	44		
Selenium	10	1.8	2.2		
Silicon	100	1.2	6.9		
Silver	5.0	.3	.47		
Sodium	10000	15	13		
Strontium	10	.2	.24		
Thallium	10	.5	.54		
Tin	50	. 2	.7		
Titanium	10	. 4	.34		
Vanadium	10	.3	.3		
Zinc	20	.3	4.2		

Associated samples MP5572: C24954-8, C24954-9, C24954-11

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C24954 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5572 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:				11/28/12			
Metal	C24899-1 Original	l7 L MS	Spikelot MPIR4	% Rec	QC Limits		
Aluminum	anr						
Antimony							
Arsenic	anr						
Barium							
Beryllium							
Bismuth							
Boron							
Cadmium	anr						
Calcium	49.9	5170	5000	102.4	75-125		
Chromium	anr						
Cobalt							
Copper	anr						
Iron	0.0	522	500	104.4	75-125		
Lead	0.0	482	500	96.4	75-125		
Lithium							
Magnesium	0.0	5050	5000	101.0	75-125		
Manganese							
Molybdenum							
Nickel	anr						
Potassium							
Selenium							
Silicon							
Silver	anr						
Sodium							
Strontium							
Thallium							
Tin							
Titanium							
Vanadium							
Zinc	anr						
Associated sar	mples MP55	572: C2495	54-8, C249	54-9, C24	954-11		
Results < IDL (*) Outside of (N) Matrix Sp: (anr) Analyte	are showr E QC limit ike Rec. c not reque	n as zero ts outside of ested	for calcu E QC limit	lation pu s	rposes		



8.1.2

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C24954 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5572 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:					11/28/12	2		
Metal	C24899- Origina	17 1 MSD	Spikelo MPIR4	t % Rec	MSD RPD	QC Limit		
Aluminum	anr							
Antimony								
Arsenic	anr							
Barium								
Beryllium								
Bismuth								
Boron								
Cadmium	anr							
Calcium	49.9	5140	5000	101.8	0.6	20		
Chromium	anr							
Cobalt								
Copper	anr							
Iron	0.0	517	500	103.4	1.0	20		
Lead	0.0	475	500	95.0	1.5	20		
Lithium								
Magnesium	0.0	5080	5000	101.6	0.6	20		
Manganese								
Molybdenum								
Nickel	anr							
Potassium								
Selenium								
Silicon								
Silver	anr							
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc	anr							
Associated sa	mples MP5	572: C249	954-8, C24	954-9, C24	4954-11			
Results < IDL (*) Outside o: (N) Matrix Sp: (anr) Analyte	Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested							



Login Number: C24954 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5572 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:			11/28/12	
Metal	BSP Result	Spikelot MPIR4	% Rec	QC Limits
Aluminum	anr			
ntimony				
rsenic	anr			
arium				
eryllium				
ismuth				
oron				
admium	anr			
alcium	5200	5000	104.0	80-120
hromium	anr			
obalt				
opper	anr			
ron	515	500	103.0	80-120
ad	477	500	95.4	80-120
thium				
agnesium	4980	5000	99.6	80-120
nganese				
olybdenum				
ckel	anr			
tassium				
elenium				
ilicon				
ilver	anr			
odium				
trontium				
nallium				
in				
itanium				
anadium				
inc	anr			
ssociated sa	mples MP5	572: C2495	4-8, C249	54-9, C24954-11
esults < IDL *) Outside o anr) Analyte	are show f QC limi not requ	n as zero ts ested	for calcu	lation purposes



SERIAL DILUTION RESULTS SUMMARY

Login Number: C24954 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5572 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

11/28/12 Prep Date: C24899-17 QC Original SDL 1:5 %DIF Limits Metal Aluminum anr Antimony Arsenic anr Barium Beryllium Bismuth Boron Cadmium anr Calcium 49.9 66.9 34.1 (a) 0-10 Chromium anr Cobalt Copper anr 0.00 0.00 0-10 Iron NC Lead 0.00 0.00 NC 0-10 Lithium 0-10 Magnesium 0.00 0.00 NC Manganese Molybdenum Nickel anr Potassium Selenium Silicon Silver anr Sodium Strontium Thallium Tin Titanium Vanadium Zinc anr Associated samples MP5572: C24954-8, C24954-9, C24954-11 Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested (a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Section 9

6



QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries



METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24954 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO3	GN9559	5.0	0.0	mg/l	250	250	100.0	75-125%
Chloride	GP4380/GN9574	0.50	0.0	mg/l	5	4.83	96.6	90-110%
Fluoride	GP4380/GN9574	0.10	0.020	mg/l	5	4.71	94.2	90-110%
Nitrogen, Nitrate	GP4380/GN9574	0.10	0.0	mg/l	5	4.87	97.4	90-110%
Nitrogen, Nitrite	GP4380/GN9574	0.10	0.0	mg/l	5	4.84	96.8	90-110%
Sulfate	GP4380/GN9574	0.50	0.0	mg/l	5	4.92	98.4	90-110%

Associated Samples: Batch GN9559: C24954-8, C24954-9 Batch GP4380: C24954-8, C24954-9 (*) Outside of QC limits





BLANK SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24954 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3 Chloride Fluoride Nitrogen, Nitrate Nitrogen, Nitrite Sulfate	GN9559 GP4380/GN9574 GP4380/GN9574 GP4380/GN9574 GP4380/GN9574 GP4380/GN9574	mg/l mg/l mg/l mg/l mg/l mg/l	250 5 5 5 5 5 5	252 4.81 4.71 4.88 4.83 4.95	0.8 0.4 0.0 0.2 0.2 0.6	25% 25% 25% 25% 25%

Associated Samples: Batch GN9559: C24954-8, C24954-9 Batch GP4380: C24954-8, C24954-9 (*) Outside of QC limits





DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24954 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN9559	C24954-8	mg/l	144	144	0.0	0-25%

Associated Samples: Batch GN9559: C24954-8, C24954-9 (*) Outside of QC limits





MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24954 Account: SHELLWIC - Shell Oil Company

Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte		Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride		GP4380/GN9574	C24976-1	mg/l	2170	200	1990	113.0(a)	80-120%
Chloride		GP4380/GN9574	C24976-1	mg/l	1760	200	1990	113.0(a)	80-120%
Fluoride		GP4380/GN9574	C24976-1	mg/l	2.9	200	190	93.6	80-120%
Nitrogen,	Nitrate	GP4380/GN9574	C24976-1	mg/l	9.5	200	198	94.3	80-120%
Nitrogen,	Nitrite	GP4380/GN9574	C24976-1	mg/l	0.0	200	190	95.0	80-120%
Sulfate		GP4380/GN9574	C24976-1	mg/l	365	200	560	97.5	80-120%

Associated Samples: Batch GP4380: C24954-8, C24954-9 (*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.





MATRIX SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24954 Account: SHELLWIC - Shell Oil Company

Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte		Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride		GP4380/GN9574	C24976-1	mg/l	2170	200	1990	0.0(a)	
Chloride		GP4380/GN9574	C24976-1	mg/l	1760	200	1990	0.0(a)	
Fluoride		GP4380/GN9574	C24976-1	mg/l	2.9	200	192	1.0	
Nitrogen,	Nitrate	GP4380/GN9574	C24976-1	mg/l	9.5	200	198	0.0	
Nitrogen,	Nitrite	GP4380/GN9574	C24976-1	mg/l	0.0	200	190	0.0	
Sulfate		GP4380/GN9574	C24976-1	mg/l	365	200	559	0.2	

Associated Samples: Batch GP4380: C24954-8, C24954-9 (*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.







12/13/12

Technical Report for

Shell Oil Company

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

46194341.GW12U

Accutest Job Number: C24962



Sampling Date: 11/27/12

Report to:

URS Corporation 111 SW Columbia, Suite 1500 Portland, OR 97201-5850 brian.pletcher@urs.com

ATTN: Brian Pletcher

Total number of pages in report: 65



Jung. Musy

James J. Rhudy Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Nutan Kabir 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242)

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Sample Summary

Shell Oil Company

Job No: C24962

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Project No: 46194341.GW12U

Sample Number	Collected Date	Time By	Received	Matri Code	ix Type	Client Sample ID
C24962-1	11/27/12	00:00 DL	11/28/12	AQ	Trip Blank Water	TRIP BLANK
C24962-2	11/27/12	08:55 DL	11/28/12	AQ	Ground Water	MW-206A-1112
C24962-3	11/27/12	10:15 DL	11/28/12	AQ	Ground Water	MW-204-1112
C24962-4	11/27/12	11:25 DL	11/28/12	AQ	Ground Water	MW-201-1112
C24962-5	11/27/12	13:30 DL	11/28/12	AQ	Ground Water	MW-202-1112
C24962-6	11/27/12	14:45 DL	11/28/12	AQ	Ground Water	MW-203-1112





Summary of Hits

Job Number:	C24962
Account:	Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	11/27/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C24962-1	TRIP BLANK					
No hits reported	in this sample.					
C24962-2	MW-206A-1112					
TPH (Diesel) TPH (Motor Oil)		0.116 0.111 J	0.10 0.20	0.050 0.10	mg/l mg/l	NWTPH-DX NWTPH-DX
C24962-3	MW-204-1112					
TPH (Diesel)		0.975	0.10	0.050	mg/l	NWTPH-DX
C24962-4	MW-201-1112					
TPH (Diesel)		0.122	0.10	0.050	mg/l	NWTPH-DX
C24962-5	MW-202-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline) Methane Carbon Dioxide TPH (Diesel) Calcium Iron Magnesium Alkalinity, Total Hardness, Total a Sulfate	as CaCO3 as CaCO3 ^a MW-203-1112	11.3 3.4 27.4 2.2 6.07 1070 10600 2.67 15700 35900 15100 110 101 15.0	$ \begin{array}{r} 1.0\\ 1.0\\ 1.0\\ 2.0\\ 4.0\\ 10\\ 2000\\ 0.30\\ 5000\\ 200\\ 5000\\ 5.0\\ 33\\ 1.3\\ \end{array} $	0.20 0.20 0.20 0.46 1.0 5.0 160 0.15	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX RSK-175 RSK-175 NWTPH-DX SW846 6010B SW846 6010B SW846 6010B SM18 2320B SW846 6010B/SM 2340B EPA 300/SW846 9056A
TPH (Gasoline) Methane Carbon Dioxide TPH (Diesel) Calcium Iron Magnesium Alkalinity, Total Hardness, Total a	as CaCO3 as CaCO3 ^a	1.05 582 16700 0.0943 J 45700 21200 6390 170 140	0.40 25 5000 0.10 5000 200 5000 5.0 33	0.10 13 400 0.050	mg/l ug/l ug/l ug/l ug/l ug/l mg/l mg/l	NWTPH-GX RSK-175 RSK-175 NWTPH-DX SW846 6010B SW846 6010B SW846 6010B SM18 2320B SW846 6010B/SM 2340B

N



Summary of Hits Job Number: C24962

Job Number:C24962Account:Shell Oil CompanyProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WACollected:11/27/12

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Sulfate	24.4	1.3		mg/l	EPA 300/SW846 9056A

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)

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Sample Results

Report of Analysis



Client San Lab Samp Matrix: Method: Project:	nple ID: TRIF ole ID: C249 AQ - SW8 URS	P BLANK 62-1 Trip Blank 46 8260B ORP: Shell/	Water Harbor Island -	2555 13tl	Date Sampled: 11/27/12 Date Received: 11/28/12 Percent Solids: n/a Ave SW., Seattle, WA				
Run #1 Run #2	File ID U7796.D	DF 1	Analyzed 11/29/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU297		
Run #1 Run #2	Purge Volum 10.0 ml	ie							
Purgeable CAS No.	Aromatics Compound		Result	RL	MDL Units	s O			

Report of Analysis

Compound	Result	RL	MDL	Units	
Benzene	ND	1.0	0.20	ug/l	
Toluene	ND	1.0	0.20	ug/l	
Ethylbenzene	ND	1.0	0.20	ug/l	
Xylene (total)	ND	2.0	0.46	ug/l	
Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
Dibromofluoromethane	109%		60-1	30%	
Toluene-D8	100%		60-1	30%	
	0.50/		CO 1	2004	
	Compound Benzene Toluene Ethylbenzene Xylene (total) Surrogate Recoveries Dibromofluoromethane Toluene-D8	CompoundResultBenzeneNDTolueneNDEthylbenzeneNDXylene (total)NDSurrogate RecoveriesRun# 1Dibromofluoromethane109%Toluene-D8100%	CompoundResultRLBenzeneND1.0TolueneND1.0EthylbenzeneND1.0Xylene (total)ND2.0Surrogate RecoveriesRun# 1Run# 2Dibromofluoromethane109%Toluene-D800%	CompoundResultRLMDLBenzeneND1.00.20TolueneND1.00.20EthylbenzeneND1.00.20Xylene (total)ND2.00.46Surrogate RecoveriesRun# 1Run# 2LimDibromofluoromethane109%60-1Toluene-D8100%60-1	Compound Result RL MDL Units Benzene ND 1.0 0.20 ug/l Toluene ND 1.0 0.20 ug/l Ethylbenzene ND 1.0 0.20 ug/l Xylene (total) ND 2.0 0.46 ug/l Surrogate Recoveries Run#1 Run#2 Limits Dibromofluoromethane 109% 60-130% 60-130% Valuene-D8 95% 60 120%

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sar Lab Samp Matrix:	mple ID: TRIP	BLANK 2-1 Frin Blank	Water		Date Sampled: 11/27/12 Date Received: 11/28/12					
Method:	NWTE	NWTPH-GX				Percent Solids: n/a				
Project:	URSO	RP: Shell/	Harbor Island - 2	2555 13th	Ave SW., S	Seattle,	WA			
Run #1 Run #2	File ID JK31929.D	DF 1	Analyzed 12/03/12	By TT	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GJK1278		
Run #1 Run #2	Purge Volume 10.0 ml	!								
Northwest	t TPH-Gx									
CAS No.	Compound		Result	RL	MDL	Units	Q			
	TPH (Gasolin	e)	ND	0.20	0.050	mg/l				

Run# 2

Limits

50-150%

50-150%

Run#1

98%

103%

Report of Analysis

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C249 AQ - SW8 URS	206A-1112 62-2 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	2555 13t	Date Sampled: 11/27/12 Date Received: 11/28/12 Percent Solids: n/a h Ave SW., Seattle, WA				
Run #1 Run #2	File ID R13045.D	DF 1	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465		
Run #1 Run #2	Purge Volum 10.0 ml	e							
Purgeable CAS No.	Aromatics Compound		Result	RL	MDL Unit	s Q			

Report of Analysis

71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	ND ND ND ND	1.0 1.0 1.0 2.0	0.20 0.20 0.20 0.46	ug/l ug/l ug/l ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1	Run# 2	Limi 60-12	its 30%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

Page 1 of 1

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Accutest Laboratories

CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client San Lab Samp Matrix: Method: Project:	nple ID: MW-2 ble ID: C2496 AQ - 0 NWTI URSO	le ID: MW-206A-1112 ID: C24962-2 Date Sampled: 11/27/12 AQ - Ground Water Date Received: 11/28/12 NWTPH-GX Percent Solids: n/a URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA							
Run #1 Run #2	File ID JK31930.D	DF 1	Analyzed 12/03/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1278	
Run #1 Run #2	Purge Volume 10.0 ml	2							
Northwest	t TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasolin	e)	ND	0.20	0.050	mg/l			

Run# 2

Limits

50-150%

50-150%

Run#1

94%

99%

Report of Analysis

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Page 1 of 1

3.2



Accutest Laboratories

630-01-3

Hexacosane

			Repor	rt of An	alysis			Page 1 of 1	
Client Sam Lab Samp Matrix: Method: Project:	nple ID: MW-20 le ID: C24962 AQ - G NWTP URSOI					Date Date Perc Seattle, V	e Sampled: 11 e Received: 11 ent Solids: n/a WA	1/27/12 1/28/12 /a	
Run #1 Run #2	File ID HH028672.D	DF 1	Analyzed 12/03/12	Ву ЈН	Prep D 11/29/1	ate 2	Prep Batch OP7127	Analytical Batch GHH869	
Run #1 Run #2	Initial Volume 1000 ml	Final Vo 1.0 ml	olume						
Northwest	TPH-Dx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Diesel) TPH (Motor C	bil)	0.116 0.111	0.10 0.20	0.050 0.10	mg/l mg/l	J		
CAS No.	Surrogate Rec	overies	Run# 1	Run# 2	Lim	its			

75%

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

3.2

C24962
Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW- ble ID: C249 AQ - SW84 URSC	204-1112 62-3 Ground Wa 6 8260B DRP: Shell/	ater 'Harbor Island -	2555 13ti	Date Sampled: 11/27/12 Date Received: 11/28/12 Percent Solids: n/a h Ave SW., Seattle, WA				
Run #1 Run #2	File ID R13046.D	DF 1	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465		
Run #1 Run #2	Purge Volum 10.0 ml	e							
Purgeable	Aromatics								
CAS No.	Compound		Result	RL	MDL Units	s Q			

Report of Analysis

71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	ND ND ND ND	1.0 1.0 1.0 2.0	0.20 ug/l 0.20 ug/l 0.20 ug/l 0.46 ug/l
CAS No.	Surrogate Recoveries	Dun#1	Dun# 2	T • •/
		Kull# 1	Kull# 2	Limits

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



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ယ ယ CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sar Lab Samp Matrix: Method: Project:	mple ID: MW-2 ole ID: C2490 AQ - NWT URSC	204-1112 62-3 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	2555 13th	Date Sampled:11/27/12Date Received:11/28/12Percent Solids:n/a3th Ave SW., Seattle, WA			
Run #1 Run #2	File ID JK31932.D	DF 1	Analyzed 12/03/12	By TT	Prep D an/a	ate	Prep Batch n/a	Analytical Batch GJK1278
Run #1 Run #2	Purge Volume 10.0 ml	e						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	ne)	ND	0.20	0.050	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

81%

85%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 1 of 1

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630-01-3

Hexacosane

			Repo	rt of Ana	alysis			Page 1 of 1	
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-20 ble ID: C24962 AQ - C NWTP URSOI)4-1112 2-3 iround Wε H-DX S' RP: Shell/	iter W846 3510C Harbor Island - 2	2555 13th A	Date Sampled: 11/27/12 Date Received: 11/28/12 Percent Solids: n/a 55 13th Ave SW., Seattle, WA				
Run #1 Run #2	File ID HH028673.D	DF 1	Analyzed 12/03/12	By JH	Prep D 11/29/1	Pate 12	Prep Batch OP7127	Analytical Batch GHH869	
Run #1 Run #2	Initial Volume 1000 ml	Final V 1.0 ml	olume						
Northwest	t TPH-Dx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Diesel) TPH (Motor C)il)	0.975 ND	0.10 0.20	0.050 0.10	mg/l mg/l			
CAS No.	Surrogate Re	coveries	Run# 1	Run# 2	Lim	its			

73%

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Page 1 of 1

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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C249 AQ - SW84 URS0	201-1112 62-4 Ground Wa 46 8260B DRP: Shell/	ater Harbor Island -	2555 13t	Date Sampled: 11/27/12 Date Received: 11/28/12 Percent Solids: n/a 55 13th Ave SW., Seattle, WA					
Run #1 Run #2	File ID R13047.D	DF 1	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465			
Run #1 Run #2	Purge Volum 10.0 ml	e								
Purgeable	Aromatics									
CAS No.	Compound		Result	RL	MDL Unit:	s Q				

Report of Analysis

71-43-2	Benzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lin	nits
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lin	nits
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 111%	Run# 2	Lin 60-1	nits 130%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 111% 104%	Run# 2	Lin 60- 60-	nits 130% 130%

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



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3.4

CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sar Lab Samp Matrix: Method: Project:	mple ID: MW-2 ble ID: C2496 AQ - 0 NWTI URSC	201-1112 52-4 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	2555 13th	Date Sampled:11/27/12Date Received:11/28/12Percent Solids:n/a3th Ave SW., Seattle, WA			
Run #1 Run #2	File ID JK31933.D	DF 1	Analyzed 12/03/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1278
Run #1 Run #2	Purge Volume 10.0 ml	2						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	ne)	ND	0.20	0.050	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

94%

98%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of Ai	nalysis			Page 1 of 1	
Client Sam Lab Sampl Matrix: Method: Project:	nple ID: MW-20 le ID: C24962 AQ - Gi NWTPF URSOR	 MW-201-1112 C24962-4 AQ - Ground Water NWTPH-DX SW846 3510C URSORP: Shell/Harbor Island - 2555 13t 				Date Sampled:11/27/12Date Received:11/28/12Percent Solids:n/a5 13th Ave SW., Seattle, WA			
Run #1 Run #2	File ID HH028674.D	DF 1	Analyzed 12/03/12	By JH	Prep D 11/29/1	ate 2	Prep Batch OP7127	Analytical Batch GHH869	
Run #1 Run #2	Initial Volume 1000 ml	Final Vo 1.0 ml	lume						
Northwest	TPH-Dx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Diesel) TPH (Motor O	il)	0.122 ND	0.10 0.20	0.050 0.10	mg/l mg/l			

Run# 2

Limits

50-150%

Run#1

76%

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- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client San Lab Samp Matrix: Method: Project:	nple ID: MW- ole ID: C249 AQ - SW84 URS6	202-1112 62-5 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	2555 13tl	Date Sampled: 11/27/12 Date Received: 11/28/12 Percent Solids: n/a n Ave SW., Seattle, WA			
Run #1 Run #2	File ID R13048.D	DF 1	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL Units	s Q		

Report of Analysis

71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	11.3 3.4 27.4 2.2	1.0 1.0 1.0 2.0	0.20 ug/l 0.20 ug/l 0.20 ug/l 0.46 ug/l	
CAS No.	Surrogate Recoveries	D # 1	Run# 2 Limits		
	Surrogate Recoveries	Kun# 1	Run# 2	Limits	
1868-53-7	Dibromofluoromethane	Run# 1 104%	Run# 2	60-130%	
1868-53-7 2037-26-5	Dibromofluoromethane Toluene-D8	104% 107%	Kun# 2	60-130% 60-130%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Page 1 of 1



Client San Lab Samp Matrix: Method: Project:	nple ID: MW-2 ole ID: C2496 AQ - C RSK-1 URSO	02-1112 2-5 Ground W 75 RP: Shell	ater /Harbor Island -	2555 13th .	Date Sampled: 11/27/12 Date Received: 11/28/12 Percent Solids: n/a Ave SW., Seattle, WA			
Run #1 Run #2	File ID AA001694.D	DF 20	Analyzed 11/29/12	By PH	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GAA71
CAS No.	Compound		Result	RL	MDL	Units	Q	
74-82-8 124-38-9	Methane Carbon Dioxid	le	1070 10600	10 2000	5.0 160	ug/l ug/l		

Report of Analysis

Page 1 of 1

ND = Not detected MDL - Method Detection Limit

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RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Client San Lab Samj Matrix: Method: Project:	mple ID: MW-2 ple ID: C2496 AQ - C NWTP URSO	02-1112 2-5 Ground Wa PH-GX RP: Shell/	ater 'Harbor Island -	2555 13th	Date Sampled:11/27/12Date Received:11/28/12Percent Solids:n/a3th Ave SW., Seattle, WA			
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1	JK31927.D	20	12/03/12	TT	n/a		n/a	GJK1278
Run #2								
Run #1 Run #2	Purge Volume 10.0 ml							
Northwes	st TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	6.07	4.0	1.0	mg/l		

Report of Analysis

	IFH (Gasolille)	0.07	4.0	1.0	iiig/1
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	s
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	95% 102%		50-150 50-150	0% 0%

- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



Page 1 of 1

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20 of 65 ACCUTEST C24962

630-01-3

Hexacosane

			Repo	rt of An	alysis			Page 1 of 1
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-20 le ID: C2496 AQ - C NWTP URSO	02-1112 2-5 Ground Wa H-DX SV RP: Shell/J	ter W846 3510C Harbor Island - 2	2555 13th A	ve SW.,	Date Date Perc Seattle,	e Sampled: 11 e Received: 11 cent Solids: n/ WA	/27/12 /28/12 a
Run #1 Run #2	File ID HH028680.D	DF 3	Analyzed 12/03/12	By JH	Prep D 11/29/1)ate 12	Prep Batch OP7127	Analytical Batch GHH869
Run #1 Run #2	Initial Volume 1000 ml	Final V 1.0 ml	olume					
Northwest	TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor Oil)		2.67 ND	0.30 0.60	0.15 0.30	mg/l mg/l		
CAS No.	Surrogate Re	coveries	Run# 1	Run# 2	Lim	iits		

63%

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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C24962

Client Sample ID:	MW-202-1112		
Lab Sample ID:	C24962-5	Date Sampled:	11/27/12
Matrix:	AQ - Ground Water	Date Received:	11/28/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Se		

Report of Analysis

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	15700	5000	ug/l	1	11/29/12	11/29/12 RS	SW846 6010B ¹	SW3010A ²
Iron Magnesium	35900 15100	200 5000	ug/l ug/l	1	11/29/12	11/29/12 RS 11/29/12 RS	SW846 6010B ⁻¹ SW846 6010B ⁻¹	SW3010A ² SW3010A ²

(1) Instrument QC Batch: MA2858

(2) Prep QC Batch: MP5576

Page 1 of 1

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Client Sample ID:	MW-202-1112		
Lab Sample ID:	C24962-5 Da	ate Sampled:	11/27/12
Matrix:	AQ - Ground Water Da	ate Received:	11/28/12
	Pe	ercent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle	e, WA	
General Chemistry			

Report of Analysis

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	110	5.0	mg/l	1	11/28/12	AC	SM18 2320B
Hardness, Total as CaCO3 ^a	101	33	mg/l	1	11/29/12 20:48	RS	SW846 6010B/SM 2340B
Sulfate	15.0	1.3	mg/l	2.5	11/28/12 20:07	RL	EPA 300/SW846 9056A

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)

Page 1 of 1

3.5 3



Client San Lab Samp Matrix: Method: Project:	nple ID: MW-2 ole ID: C2496 AQ - C RSK-1 URSO	ater /Harbor Island -	2555 13th .	Ave SW.,	Date Date Perc Seattle,	e Sampled: 11 e Received: 11 eent Solids: n/ WA	1/27/12 1/28/12 a	
Run #1 Run #2	File ID AA001696.D	DF 50	Analyzed 11/29/12	By PH	Prep D n/a	Pate	Prep Batch n/a	Analytical Batch GAA71
CAS No.	Compound		Result	RL	MDL	Units	Q	
74-82-8 124-38-9	Methane Carbon Dioxid	de	582 16700	25 5000	13 400	ug/l ug/l		

Report of Analysis

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

3.6

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C24962

Client Sam Lab Sampl Matrix: Method: Project:	nple ID: MW-2 le ID: C2490 AQ - NWT URSC	203-1112 52-6 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	2555 13tł	Date Sampled: 11/27/12 Date Received: 11/28/12 Percent Solids: n/a th Ave SW., Seattle, WA				
Run #1 Run #2	File ID JK31934.D	DF 2	Analyzed 12/03/12	By TT	Prep Date n/a	Prep Batch n/a	Analytical Batch GJK1278		
Run #1 Run #2	Purge Volume 10.0 ml	e							
Northwest	TPH-Gx								
CAS No.	Compound		Result	RL	MDL Uni	ts Q			

Report of Analysis

	TPH (Gasoline)	1.05	0.40	0.10 mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	96% 106%		50-150% 50-150%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

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3.6

CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of A	nalysis			Page 1 of 1
Client Sam Lab Sampl Matrix: Method: Project:	aple ID: MW-20. le ID: C24962 AQ - Gi NWTPH URSOR	3-1112 -6 cound Wate I-DX SW P: Shell/H	er '846 3510C arbor Island - 2	2555 13th	Ave SW.,	/27/12 /28/12 a		
Run #1 Run #2	File ID HH028676.D	DF 1	Analyzed 12/03/12	Ву ЈН	Prep D 11/29/1	ate 2	Prep Batch OP7127	Analytical Batch GHH869
Run #1 Run #2	Initial Volume 1000 ml	Final Vo 1.0 ml	lume					
Northwest	TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor Oi	1)	0.0943 ND	0.10 0.20	0.050 0.10	mg/l mg/l	J	

Run# 2

Limits

50-150%

Run#1

78%

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

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Client Sample ID:	MW-203-1112		
Lab Sample ID:	C24962-6	Date Sampled:	11/27/12
Matrix:	AQ - Ground Water	Date Received:	11/28/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Sea		

Report of Analysis

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	45700	5000	ug/l	1	11/29/12	11/29/12 rs	SW846 6010B ¹	SW3010A ²
Iron	21200	200	ug/l	1	11/29/12	11/29/12 rs	SW846 6010B ¹	SW3010A ²
Magnesium	6390	5000	ug/l	1	11/29/12	11/29/12 rs	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA2858

(2) Prep QC Batch: MP5576

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3.6



Client Sample ID:	MW-203-1112		
Lab Sample ID:	C24962-6 I	Date Sampled:	11/27/12
Matrix:	AQ - Ground Water	Date Received:	11/28/12
	I	Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA		
General Chemistry			

Report of Analysis

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 Hardness, Total as CaCO3 ^a	170 140	5.0 33	mg/l mg/l	1 1	11/28/12 11/29/12 20:56	AC RS	SM18 2320B SW846 6010B/SM 2340B
Sulfate	24.4	1.3	mg/l	2.5	11/28/12 20:25	RL	EPA 300/SW846 9056A

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)

Page 1 of 1

3.6

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Section 4

4



Misc. Forms
Custody Documents and Other Forms
ncludes the following where applicable:
Chain of Custody



		Ø	Shell	Oil	Proc	luct	s C	hai	n O	f Cı	ısto	ody	Rec	ore	ł	ç	SHEL	LWIC3660
	Please	e Check Appropriat	e Box:	Prin	nt Bill To	Conta	ect Na	me:				INC	DENT	# (EN	IV SEI	RVICE	s) 🗆	CHECK IF NO INCIDENT # APPLIES
TEST AMERICA ()	ENV. SERVICES	MOTIVA RETAIL	SHELL RETAIL															DATE-
SPL ()	MOTIVA SD&CM	CONSULTANT	UUBES				PO	#						SAP	#		- '	
	SHELL PIPELINE	OTHER					Ι			ΪT			T	TT		TT		PAGE: of
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PORTLAND OR.				543.01	BR	(AN	Pl	-ET	CH <u>F</u>	R			~~~	4	619	43	41,	EWIZU
503-222-7200	brian.	pletchere	455.0m	1	DAV	EL	En	s									CABUS	74967
TURNAROUND TIME (CALENDAR DAYS): STANDARD (14 DAY) S DAYS 3 DAYS	S 🗌 2 DAYS	24 HOURS	RESULTS NEEDED ON WEEKEND	1		·					REC	UEST	ED AN	ALYSI	s			21966
DELMERABLES: UEVEL 1 LEVEL 2 LEVEL	3 🗍 LEVEL 4 🗌 01	THER (SPECIFY)			i d					ΓΤ	Ţ		Т	П		TT		Chief and
TEMPERATURE ON RECEIPT C* Cooler #1	Cooler #2	Cooler #3]	0 3				ĺ				ł					SILICA-GEL
SPECIAL INSTRUCTIONS OR NOTES :		SHELL CONTRACT RATE /	PPLIES		600			2			2							CLEAN-UP
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	SAMPLING	PRESERV	ATIVE	1×	XS	\$1-3	2	긢	칠뜨	4	SOL	5	1					אע־דויו
LAB Field Sample Identification	DATE THE		NO. OF	E	되키	E	Z	H.	친구	3	<u>%</u>	М						
USE ONLY		HCL HN03 H2SO4	NONE OTHER	2	2 2	- F	Ŧ	H	ξŃ		щ							Container PID Readings or Laboratory Notes
-1 TRIP BLANK	^m (B) ₁₂ - H	20	3	X	X													
-2 MW-206.4-1112	1/27/12 0855	" ×	8	\mathbf{x}	××											1 1	+	
-3 MW-204-1112	11 1015	"X	8	X	XX												+-	
-4 MW-201-11/2	11 1125 1	/ X	8	X	XX							1			-	$^{++}$	-	
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C24962: Chain of Custody Page 1 of 2 44

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C24	962		Client: SHEL	LOIL			Project: HARBOR ISLA	ND			
Date / Time Received: 11/2	8/2012		Deliv	ery Method:		FedEx	Airbill #'s:				
Cooler Temps (Initial/Adjuste	d): <u>#</u>	<u>1: (2.7/2.7</u>	7); #2: (4.5/4.5	<u>i): 0</u>							
Cooler Security Y	or N	<u>I_</u>		<u>Y</u> or	N	Sample Integrit	y - Documentation	<u>Y</u>	or	N	
1. Custody Seals Present:		3.	COC Present:	\checkmark		1. Sample labels	present on bottles:	\checkmark			
2. Custody Seals Intact:] 4. Sm	npl Dates/Time	OK 🔽		2. Container labe	ing complete:	\checkmark			
Cooler Temperature	Y	or N				3. Sample contair	ner label / COC agree:	\checkmark			
1. Temp criteria achieved:	\checkmark					Sample Integri	v - Condition	Y	or	N	
2. Cooler temp verification:		IR Gun				1 Sample recycly	within HT [.]	\checkmark			
3. Cooler media:	ŀ	ce (Bag)				2. All containers a	accounted for:				
4. No. Coolers:		2				3. Condition of sa	mple:		Intac	t	
Quality Control Preservation	Y	or N	N/A			Sample Integri	ty - Instructions	Y	or	N	N/A
1. Trip Blank present / cooler:	\checkmark					1. Analysis reque	ested is clear:				
2. Trip Blank listed on COC:	\checkmark					2. Bottles receive	ed for unspecified tests			✓	
3. Samples preserved properly:	\checkmark					3. Sufficient volu	me recvd for analysis:				
4. VOCs headspace free:	\checkmark					4. Compositing in	nstructions clear:				\checkmark
						5 Filtering instru	ctions clear:				\checkmark

Accutest Laboratories V:408.588.0200 2105 Lundy Avenue F: 408.588.0201 San Jose, CA 95131 www/accutest.com 4.1 **4**

C24962: Chain of Custody Page 2 of 2



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GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C24962

Account: Project:	SHELLWIC S URSORP: She	Shell Oil C ell/Harbor	Company Island - 2555 1	3th Ave	SW., Seattl	le, WA		
Sample VU297-MB	File ID U7795.D	DF 1	Analyzed 11/29/12	By YP	Prep n/a	Date	Prep Batch n/a	Analytical Batch VU297
The QC repor C24962-1	ted here applies	s to the fo	llowing sample	es:		N	Method: SW840	5 8260B
CAS No. Co	ompound		Result	RL	MDL	Units (Q	

71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	112%	60-130%
2037-26-5	Toluene-D8	99%	60-130%
460-00-4	4-Bromofluorobenzene	83%	60-130%





Method Blank Summary

Account: Project:	SHELLWIC SI URSORP: She	hell Oil C ll/Harbor	ompany Island - 2555 13	3th Ave S	W., Seattle, WA		
Sample VR465-MB	File ID R13038.D	DF 1	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465
The QC repor	ted here applies	to the fo	llowing samples	5:]	Method: SW840	5 8260B

C24962-2, C24962-3, C24962-4, C24962-5

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	107%	60-130%
2037-26-5	Toluene-D8	106%	60-130%
460-00-4	4-Bromofluorobenzene	104%	60-130%



5.1.2

S

Blank Spike/Blank Spike Duplicate Summary

Job Number:	C24962
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU297-BS	U7792.D	1	11/29/12	YP	n/a	n/a	VU297
VU297-BSD	U7793.D	1	11/29/12	YP	n/a	n/a	VU297

The QC reported here applies to the following samples:

Method: SW846 8260B

C24962-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	19.6	98	20.0	100	2	60-130/30
100-41-4	Ethylbenzene	20	22.3	112	22.8	114	2	60-130/30
108-88-3	Toluene	20	21.6	108	22.2	111	3	60-130/30
1330-20-7	Xylene (total)	60	63.7	106	65.7	110	3	60-130/30
	•							

CAS No.	Surrogate Recoveries	BSP	BSD	Limits		
1868-53-7	Dibromofluoromethane	93%	92%	60-130%		
2037-26-5	Toluene-D8	102%	106%	60-130%		
460-00-4	4-Bromofluorobenzene	101%	106%	60-130%		

5.2.1

Blank Spike/Blank Spike Duplicate Summary

Job Number:	C24962
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR465-BS	R13036.D	1	11/30/12	YP	n/a	n/a	VR465
VR465-BSD	R13039.D	1	11/30/12	YP	n/a	n/a	VR465

The QC reported here applies to the following samples:

Method: SW846 8260B

C24962-2, C24962-3, C24962-4, C24962-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	17.7	89	16.5	83	7	60-130/30
100-41-4	Ethylbenzene	20	19.7	99	17.7	89	11	60-130/30
108-88-3	Toluene	20	18.3	92	16.7	84	9	60-130/30
1330-20-7	Xylene (total)	60	59.5	99	54.0	90	10	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	107%	105%	60-130%
2037-26-5	Toluene-D8	106%	106%	60-130%
460-00-4	4-Bromofluorobenzene	106%	107%	60-130%

Laboratory Control Sample Summary

Job Numbe Account: Project:	er: C24962 SHELLWIC Shel URSORP: Shell/H	C24962 SHELLWIC Shell Oil Company URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Sample VU297-LC	File ID I S U7794.D 1	DF Analy 11/29/	zed By (12 Y)	y P	Prep Date n/a	Prep Batch n/a	Analytical Batch VU297			
The QC re	ported here applies to	the following sa	mples:		· · · · · · · · · · · · · · · · · · ·	Method: SW84	6 8260B			
C24962-1										
CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits					
CAS No.	Surrogate Recoveries	s BSP	Limits							
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethan Toluene-D8 4-Bromofluorobenzen	e 105% 111% e 93%	60- 60- 60-	130% 130% 130%						

5.3.1

Laborate Job Number Account: Project:	r: C24962 SHELLWIC SI URSORP: Shel	ample S nell Oil Com l/Harbor Isl	umma npany and - 255	55 13th .	Ave SW.	, Seattle, WA		Page 1 of 1
Sample VR465-LCS	File ID R13037.D	DF 1	Analyz 11/30/1	ed B .2 Y	y P	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465
The QC rep C24962-2, C	oorted here applies C24962-3, C24962-4	to the follo , C24962-5	wing san	nples:			Method: SW840	5 8260B
CAS No.	Compound		Spike ug/l	LCS ug/l	LCS %	Limits		

Limits

60-130%

60-130%

60-130%

BSP

108%

106%

103%

Surrogate Recoveries

Dibromofluoromethane

4-Bromofluorobenzene

Toluene-D8

CAS No.

1868-53-7

2037-26-5

460-00-4



5.3.2

Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C24962
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24965-6MS	U7812.D	1	11/29/12	YP	n/a	n/a	VU297
C24965-6MSD	U7813.D	1	11/29/12	YP	n/a	n/a	VU297
C24965-6	U7800.D	1	11/29/12	YP	n/a	n/a	VU297

The QC reported here applies to the following samples:

Method: SW846 8260B

C24962-1

CAS No.	Compound	C24965-6 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71 40 0	D		20	01.7	100	00.1	101	0	CD 100/05
/1-43-2	Benzene	ND	20	21.7	109	20.1	101	8	60-130/25
100-41-4	Ethylbenzene	ND	20	22.4	112	21.8	109	3	60-130/25
108-88-3	Toluene	ND	20	21.6	108	20.8	104	4	60-130/25
1330-20-7	Xylene (total)	ND	60	63.3	106	61.7	103	3	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C24	965-6	Limits			
1868 53 7	Dibromofluoromethane	10/1%	107%	1110	0/4	60 130%			
1000-55-7	Dibionionuoromethane	10470	10770	111	70	00-130%			
2037-26-5	Toluene-D8	95%	97%	99%)	60-130%)		
460-00-4	4-Bromofluorobenzene	98%	100%	91%)	60-130%	,		

5.4.1

Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C24962
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24962-2MS	R13055.D	1	11/30/12	YP	n/a	n/a	VR465
C24962-2MSD	R13056.D	1	11/30/12	YP	n/a	n/a	VR465
C24962-2	R13045.D	1	11/30/12	YP	n/a	n/a	VR465

The QC reported here applies to the following samples:

Method: SW846 8260B

C24962-2, C24962-3, C24962-4, C24962-5

CAS No.	Compound	C24962-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	17.4	87	16.9	85	3	60-130/25
100-41-4	Ethylbenzene	ND	20	18.8	94	18.0	90	4	60-130/25
108-88-3	Toluene	ND	20	17.7	89	16.9	85	5	60-130/25
1330-20-7	Xylene (total)	ND	60	56.0	93	53.4	89	5	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C2	24962-2	Limits			
1868-53-7	Dibromofluoromethane	106%	108%	10	7%	60-130	%		
2037-26-5	Toluene-D8	106%	106%	10	4%	60-130	%		
460-00-4	4-Bromofluorobenzene	106%	107%	10	2%	60-130	%		

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Section 6

6



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C24962

Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil Cor l/Harbor Is	npany land - 2555 1	13th Ave	SW., Sea	nttle, WA	A	
Sample GJK1278-N	File ID //В JK31924.D	DF 1	Analyzed 12/03/12	By TT	Pre n/a	ep Date	Prep Batch n/a	Analytical Batch GJK1278
The QC re C24962-1,	ported here applies C24962-2, C24962-3	to the follo , C24962-4	owing sample 4, C24962-5,	es: C24962-	.6		Method: NWTH	PH-GX
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline)		ND	0.20	0.050	mg/l		
CAS No	Surrogate Recover	ies		Limits				

CAS NO.	Surrogate Recoveries		Linits
98-08-8	aaa-Trifluorotoluene	99%	50-150%
460-00-4	4-Bromofluorobenzene	103%	50-150%



Method Blank Summary Job Number: C24962

Account: Project:	SHELLWIC Shell O URSORP: Shell/Har	il Company bor Island - 2555	13th Ave	SW., Sea	ttle, WA	A	
Sample GAA71-M	File ID DF B1 AA001690.D1	Analyzed 11/29/12	By PH	Pre n/a	p Date	Prep Batch n/a	Analytical Batch GAA71
The QC ro C24962-5,	eported here applies to the	e following samp	les:			Method: RSK-1	75
CAS No.	Compound	Result	RL	MDL	Units	Q	
74-82-8 124-38-9	Methane Carbon Dioxide	ND 29.0	0.50	0.25 7.9	ug/l ug/l	J	

Blank Spike Summary Job Number: C24962

Carbon Dioxide

124-38-9

Account: Project:	SHELLWIC Shell URSORP: Shell/H	l Oil Company Iarbor Island - 25	55 13th A	ve SW.	, Seattle, WA		
Sample GAA71-BS	File ID I 51 AA001691.D1	DF Analy: 11/29/	zed By 12 PH	[Prep Date n/a	Prep Batch n/a	Analytical Batch GAA71
The QC re C24962-5,	eported here applies to C24962-6	the following sa	mples:			Method: RSK-1	75
CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits		
74-82-8	Methane	21.5	20.6	96	70-130		

77.1

79.7

103

70-130

Page 1 of 1

Blank Spike/Blank Spike Duplicate Summary

Job Number:	C24962
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
GJK1278-BS	JK31925.D	1	12/03/12	TT	n/a	n/a	GJK1278	
GJK1278-BSD	JK31926.D	1	12/03/12	TT	n/a	n/a	GJK1278	
The QC reported here applies to the following samples: Method: NWTPH-GX								

C24962-1, C24962-2, C24962-3, C24962-4, C24962-5, C24962-6

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.4	0.395	99	0.391	98	1	60-140/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	88% 95%	92 10	% 0%	50-150% 50-150%			

Page 1 of 1



Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C24962
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24962-3MS	JK31951.D	1	12/04/12	ΤŤ	n/a	n/a	GJK1278
C24962-3MSD	JK31952.D	1	12/04/12	TT	n/a	n/a	GJK1278
C24962-3	JK31932.D	1	12/03/12	TT	n/a	n/a	GJK1278

The QC reported here applies to the following samples:

Method: NWTPH-GX

C24962-1, C24962-2, C24962-3, C24962-4, C24962-5, C24962-6

CAS No.	Compound	C24962-3 mg/l Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	ND	0.4	0.363	91	0.401	100	10	60-140/20
CAS No.	Surrogate Recoveries	MS	MSD	C24	962-3	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	96% 102%	99% 106%	81% 85%)	50-150% 50-150%			



Duplicate Summary Job Number: C24962

Account:	SHELLWIC Shell Oil Company							
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA							
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
C24962-2DUP	JK31931.D	1	12/03/12	TT	n/a	n/a	GJK1278	
C24962-2	JK31930.D	1	12/03/12	TT	n/a	n/a	GJK1278	
The QC reported here applies to the following samples:					Method: NWTPH-GX			

C24962-1, C24962-2, C24962-3, C24962-4, C24962-5, C24962-6

CAS No.	Compound	C24962-2 mg/l Q	DUP mg/l Q	RPD Limits	
	TPH (Gasoline)	ND	ND	nc 20	
CAS No.	Surrogate Recoveries	DUP	C24962-2	Limits	
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	97% 101%	94% 99%	50-150% 50-150%	

Page 1 of 1


DuplicateSummaryJob Number:C24962Account:SHELLWIC Shell Oil Company

Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample C24949-1DUP C24949-1	File ID DF AA001698.D1 AA001697.D1		Analyzed 11/29/12 11/29/12	By PH PH	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GAA71 GAA71				
The QC report	ed here applie	s to the fo	llowing sample	s:]	Method: RSK-1	75				
C24962-5, C24	962-6										

		C24949-	1	DUP			
CAS No.	Compound	ug/l	Q	ug/l	Q	RPD	Limits
74-82-8	Methane	79.5		75.2		6	30
124-38-9	Carbon Dioxide	134000	Е	131000	Е	3	30

6.5.2

Section 7



GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C24962

630-01-3

Hexacosane

Account: Project:	SHELLWIC Shell Oil (URSORP: Shell/Harbo	Company r Island - 2555	13th Ave	e SW., Sea	attle, WA	ι.	
Sample OP7127-M	File ID DF IB HH028669.D1	Analyzed 12/03/12	By JH	Pre 11/	ep Date 29/12	Analytical Batch GHH869	
The QC re C24962-2,	eported here applies to the for C24962-3, C24962-4, C2496	ollowing sampl 52-5, C24962-6	es:			Method: NWT	PH-DX
CAS No.	Compound TPH (Diesel) TPH (Motor Oil)	Result ND ND	RL 0.10 0.20	MDL 0.050 0.10	Units mg/l mg/l	Q	
CAS No.	Surrogate Recoveries		Limit	s			

71% 50-150%



Blank Spike/Blank Spike Duplicate Summary

Job Number:	C24962
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
OP7127-BS	HH028670.	D1	12/03/12	ЈН	11/29/12	OP7127	GHH869
OP7127-BSD	HH028671.	D1	12/03/12	ЈН	11/29/12	OP7127	GHH869

The QC reported here applies to the following samples:

Method: NWTPH-DX

C24962-2, C24962-3, C24962-4, C24962-5, C24962-6

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Diesel) TPH (Motor Oil)	1 1	0.658 0.879	66 88	0.768 0.889	77 89	15 1	45-140/30 45-140/30
CAS No.	Surrogate Recoveries	BSP	BSI	D	Limits			
630-01-3	Hexacosane	78%	79%	6	50-1509	6		

Duplicate Summary Job Number: C24962

Account:	SHELLWIC Shell Oil Company									
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
OP7127-DUP1	HH028677	.D1	12/03/12	JH	11/29/12	OP7127	GHH869			
C24962-6	HH028676	.D1	12/03/12	JH	11/29/12	OP7127	GHH869			

The QC reported here applies to the following samples:

Method: NWTPH-DX

C24962-2, C24962-3, C24962-4, C24962-5, C24962-6

CAS No.	Compound	C24962- mg/l	•6 Q	DUP mg/l	Q	RPD	Limits
	TPH (Diesel) TPH (Motor Oil)	0.0943 ND	J	0.0935 ND	J	1 nc	25 25
CAS No.	Surrogate Recoveries	DUP		C24962	-6	Limits	
630-01-3	Hexacosane	74%		78%		50-150	%



Section 8

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Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5576 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

FIEP Date.					11/29/12
Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	13	8.5		
Antimony	6.0	.7	.51		
Arsenic	10	.7	.65		
Barium	200	.4	.35		
Beryllium	5.0	.2	.4		
Bismuth	20		2.9		
Boron	100	.9	.64		
Cadmium	2.0	.2	.15		
Calcium	5000	7.1	12	-4.4	<5000
Chromium	10	.3	.41		
Cobalt	5.0	.2	.3		
Copper	10	1.2	3		
Iron	200	б.4	12	0.10	<200
Lead	10	.7	.85		
Lithium	50		2		
Magnesium	5000	27	36	10.6	<5000
Manganese	15	.1	1.3		
Molybdenum	20	.2	.22		
Nickel	5.0	.2	.12		
Potassium	10000	18	44		
Selenium	10	1.8	2.2		
Silicon	100	1.2	6.9		
Silver	5.0	.3	.47		
Sodium	10000	15	13		
Strontium	10	.2	.24		
Thallium	10	.5	.54		
Tin	50	.2	.7		
Titanium	10	.4	.34		
Vanadium	10	.3	.3		
Zinc	20	.3	4.2		

Associated samples MP5576: C24962-5, C24962-6

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5576 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:				11/29/12				
Metal	C24967-1 Original	MS	Spikelot MPIR4	% Rec	QC Limits			
Aluminum	anr							
Antimony	anr							
Arsenic	anr							
Barium	anr							
Beryllium	anr							
Bismuth								
Boron								
Cadmium	anr							
Calcium	70300	74700	5000	88.0	75-125			
Chromium	anr							
Cobalt								
Copper	anr							
Iron	16.5	526	500	101.9	75-125			
Lead	anr							
Lithium								
Magnesium	27600	32200	5000	92.0	75-125			
Manganese	anr							
Molybdenum								
Nickel	anr							
Potassium								
Selenium	anr							
Silicon								
Silver	anr							
Sodium	anr							
Strontium								
Thallium	anr							
Tin								
Titanium								
Vanadium								
Zinc	anr							
Associated sam	mples MP55	76: C249	52-5, C249	62-6				
Results < IDL (*) Outside of (N) Matrix Sp (anr) Analyte	are shown f QC limit ike Rec. o not reque	as zero s outside o: sted	for calcu E QC limit	lation pu s	rposes			



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5576 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:					11/29/12	
Metal	C24967-1 Original	MSD	Spikelot MPIR4	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium	70300	73500	5000	64.0 (a)	1.6	20
Chromium	anr					
Cobalt						
Copper	anr					
Iron	16.5	526	500	101.9	0.0	20
Lead	anr					
Lithium						
Magnesium	27600	31600	5000	80.0	1.9	20
Manganese	anr					
Molybdenum						
Nickel	anr					
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Vanadium						
Zinc	anr					
Associated sam	nples MP55	76: C2496	2-5, C249	62-6		
Results < IDL (*) Outside of (N) Matrix Spi (anr) Analyte	are shown QC limit ke Rec. o not reque	as zero s utside of sted	for calcu QC limit	lation pu s	rposes	



56 of 65 ACCUTEST C24962

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5576 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

Metal

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.



Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5576 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:			11/29/12					
Metal	BSP Result	Spikelot MPIR4	% Rec	QC Limits				
Aluminum	anr							
Antimony	anr							
Arsenic	anr							
Barium	anr							
Beryllium	anr							
Bismuth								
Boron								
Cadmium	anr							
Calcium	4900	5000	98.0	80-120				
Chromium	anr							
Cobalt								
Copper	anr							
Iron	507	500	101.4	80-120				
Lead	anr							
Lithium								
Magnesium	4880	5000	97.6	80-120				
Manganese	anr							
Molybdenum								
Nickel	anr							
Potassium								
Selenium	anr							
Silicon								
Silver	anr							
Sodium	anr							
Strontium								
Thallium	anr							
ſin								
Fitanium								
Vanadium								
Zinc	anr							
Associated sa	mples MP5	576: C2496	2-5, C249	62-6				
Associated sa Results < IDL (*) Outside o (anr) Analyte	mples MP5 are shown f QC limit not reque	576: C2496 n as zero ts ested	2-5, C249 for calcu	62-6 lation purposes				



SERIAL DILUTION RESULTS SUMMARY

Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5576 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:			11/29/12					
Metal	C24967-1 Original	SDL 1:5	%DIF	QC Limits				
Aluminum	anr							
Antimony	anr							
Arsenic	anr							
Barium	anr							
Beryllium	anr							
Bismuth								
Boron								
Cadmium	anr							
Calcium	70300	75500	7.3	0-10				
Chromium	anr							
Cobalt								
Copper	anr							
Iron	16.5	0.00	100.0(a)	0-10				
Lead	anr							
Lithium								
Magnesium	27600	29100	5.7	0-10				
Manganese	anr							
Molybdenum								
Nickel	anr							
Potassium								
Selenium	anr							
Silicon								
Silver	anr							
Sodium	anr							
Strontium								
Thallium	anr							
Tin								
Titanium								
Vanadium								
Zinc	anr							
Associated sam	nples MP55	76: C2496	2-5, C249	62-6				
Results < IDL (*) Outside of (anr) Analyte (a) Percent di	Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (an) Analyte not requested (a) Percent difference acceptable due to low initial sample conceptration (< 50 times IDL)							

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Section 9

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QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries



METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO3	GN9559	5.0	0.0	mg/l	250	250	100.0	75-125%
Chloride	GP4380/GN9574	0.50	0.0	mg/l	5	4.83	96.6	90-110%
Fluoride	GP4380/GN9574	0.10	0.020	mg/l	5	4.71	94.2	90-110%
Nitrogen, Nitrate	GP4380/GN9574	0.10	0.0	mg/l	5	4.87	97.4	90-110%
Nitrogen, Nitrite	GP4380/GN9574	0.10	0.0	mg/l	5	4.84	96.8	90-110%
Sulfate	GP4380/GN9574	0.50	0.0	mg/l	5	4.92	98.4	90-110%

Associated Samples: Batch GN9559: C24962-5, C24962-6 Batch GP4380: C24962-5, C24962-6 (*) Outside of QC limits





BLANK SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24962 Account: SHELLWIC - Shell Oil Company

			1	1	
Project: URSORP	: Shell/Harbor	Island -	2555 13th A	Ave SW.,	Seattle, WA

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN9559	mg/l	250	252	0.8	
Chloride	GP4380/GN9574	mg/l	5	4.81	0.4	25%
Fluoride	GP4380/GN9574	mg/l	5	4.71	0.0	25%
Nitrogen, Nitrate	GP4380/GN9574	mg/l	5	4.88	0.2	25%
Nitrogen, Nitrite	GP4380/GN9574	mg/l	5	4.83	0.2	25%
Sulfate	GP4380/GN9574	mg/l	5	4.95	0.6	25%

Associated Samples: Batch GN9559: C24962-5, C24962-6 Batch GP4380: C24962-5, C24962-6 (*) Outside of QC limits





DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN9559	C24954-8	mg/l	144	144	0.0	0-25%

Associated Samples: Batch GN9559: C24962-5, C24962-6 (*) Outside of QC limits





MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte		Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride		GP4380/GN9574	C24976-1	mg/l	2170	200	1990	113.0	80-120%
Chloride		GP4380/GN9574	C24976-1	mg/l	1760	200	1990	113.0	80-120%
Fluoride		GP4380/GN9574	C24976-1	mg/l	2.9	200	190	93.6	80-120%
Nitrogen,	Nitrate	GP4380/GN9574	C24976-1	mg/l	9.5	200	198	94.3	80-120%
Nitrogen,	Nitrite	GP4380/GN9574	C24976-1	mg/l	0.0	200	190	95.0	80-120%
Sulfate		GP4380/GN9574	C24976-1	mg/l	365	200	560	97.5	80-120%

Associated Samples: Batch GP4380: C24962-5, C24962-6 (*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits





MATRIX SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C24962 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte		Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride		GP4380/GN9574	C24976-1	mg/l	2170	200	1990	0.0	
Chloride		GP4380/GN9574	C24976-1	mg/l	1760	200	1990	0.0	
Fluoride		GP4380/GN9574	C24976-1	mg/l	2.9	200	192	1.0	
Nitrogen, Nitr	ate	GP4380/GN9574	C24976-1	mg/l	9.5	200	198	0.0	
Nitrogen, Nitr	ite	GP4380/GN9574	C24976-1	mg/l	0.0	200	190	0.0	
Sulfate		GP4380/GN9574	C24976-1	mg/l	365	200	559	0.2	

Associated Samples: Batch GP4380: C24962-5, C24962-6 (*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



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12/18/12

Technical Report for

Shell Oil Company

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

46194341.GW12U

Accutest Job Number: C25004



Sampling Date: 11/28/12

Report to:

URS Corporation 111 SW Columbia, Suite 1500 Portland, OR 97201-5850 brian.pletcher@urs.com

ATTN: Brian Pletcher

Total number of pages in report: 87



Jung. Musy

James J. Rhudy Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Nutan Kabir 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242)

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Sample Summary

Shell Oil Company

Job No: C25004

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Project No: 46194341.GW12U

Sample Number	Collected Date	Time By	Received	Matri Code	ix Type	Client Sample ID
C25004-1	11/28/12	00:00 DL	11/29/12	AQ	Trip Blank Water	TRIP BLANK
C25004-2	11/28/12	09:10 DL	11/29/12	AQ	Ground Water	MW-304-1112
C25004-3	11/28/12	08:58 DL	11/29/12	AQ	Ground Water	MW-301-1112
C25004-4	11/28/12	00:00 DL	11/29/12	AQ	Ground Water	MW-301D-1112
C25004-5	11/28/12	10:05 DL	11/29/12	AQ	Ground Water	MW-303-1112
C25004-6	11/28/12	11:05 DL	11/29/12	AQ	Ground Water	MW-305-1112
C25004-7	11/28/12	00:00 DL	11/29/12	AQ	Ground Water	MW-305D-1112
C25004-8	11/28/12	11:12 DL	11/29/12	AQ	Ground Water	MW-306-1112
C25004-9	11/28/12	13:10 DL	11/29/12	AQ	Ground Water	TX-03A-1112
C25004-10	11/28/12	13:25 DL	11/29/12	AQ	Ground Water	MW-309-1112
C25004-11	11/28/12	14:27 DL	11/29/12	AQ	Ground Water	MW-310-1112
C25004-12	11/28/12	14:45 DL	11/29/12	AQ	Ground Water	MW-102-1112



Summary of Hits

Job Number:	C25004
Account:	Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	11/28/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C25004-1	TRIP BLANK					
No hits reported	in this sample.					
C25004-2	MW-304-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		411 24.4 306 252 5.89	10 10 10 20 2.0	2.0 2.0 2.0 4.6 0.50	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C25004-3	MW-301-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		241 9.9 12.5 10.6 2.76	5.0 5.0 5.0 10 1.0	1.0 1.0 2.3 0.25	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C25004-4	MW-301D-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		256 9.9 13.1 10.5 3.01	5.0 5.0 5.0 10 1.0	1.0 1.0 2.3 0.25	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C25004-5	MW-303-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		1940 87.3 1180 319 12.6	50 50 50 100 10	10 10 10 23 2.5	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C25004-6	MW-305-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		286 6.1 3.2 J 14.0 1.53	5.0 5.0 5.0 10 0.80	1.0 1.0 2.3 0.20	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX





Summary of Hits

Job Number:	C25004
Account:	Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	11/28/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C25004-7	MW-305D-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		303 6.3 2.8 J 13.7 1.58	5.0 5.0 5.0 10 0.80	1.0 1.0 2.3 0.20	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C25004-8	MW-306-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline)		393 12.5 18.3 89.5 3.06	10 10 10 20 0.80	2.0 2.0 2.0 4.6 0.20	ug/l ug/l ug/l ug/l mg/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX
C25004-9	TX-03A-1112					
Benzene Toluene Ethylbenzene Xylene (total) TPH (Gasoline) Methane Carbon Dioxide Calcium Iron Magnesium Alkalinity, Total Hardness, Total a	as CaCO3 as CaCO3 ^a	1180 18.8 J 23.2 35.7 J 4.91 6080 16400 24700 33900 15800 164 127	20 20 20 40 2.0 20 4000 5000 200 5000 5.0 33	4.0 4.0 9.2 0.50 10 320	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	SW846 8260B SW846 8260B SW846 8260B SW846 8260B NWTPH-GX RSK-175 RSK-175 SW846 6010B SW846 6010B SW846 6010B SM18 2320B SW846 6010B/SM 2340B
C25004-10	MW-309-1112					
Methane Carbon Dioxide Calcium Iron Magnesium Alkalinity, Total Hardness, Total a Sulfate	as CaCO3 as CaCO3 ^a	188 7340 28000 36600 6010 84.0 94.7 32.1	0.50 2000 5000 200 5000 5.0 33 2.5	0.25 160	ug/l ug/l ug/l ug/l ug/l mg/l mg/l	RSK-175 RSK-175 SW846 6010B SW846 6010B SW846 6010B SM18 2320B SW846 6010B/SM 2340B EPA 300/SW846 9056A
C25004-11	MW-310-1112					
Benzene		860	20	4.0	ug/l	SW846 8260B

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Summary of Hits

Job Number:	C25004
Account:	Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	11/28/12

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Toluene	26.5	20	4.0	ug/l	SW846 8260B
Ethylbenzene	211	20	4.0	ug/l	SW846 8260B
Xylene (total)	147	40	9.2	ug/l	SW846 8260B
TPH (Gasoline)	5.74	2.0	0.50	mg/l	NWTPH-GX
Methane	6700	20	10	ug/l	RSK-175
Carbon Dioxide	13300	4000	320	ug/l	RSK-175
Calcium	35100	5000		ug/l	SW846 6010B
Iron	29300	200		ug/l	SW846 6010B
Magnesium	10700	5000		ug/l	SW846 6010B
Alkalinity, Total as CaCO3	158	5.0		mg/l	SM18 2320B
Hardness, Total as CaCO3 ^a	132	33		mg/l	SW846 6010B/SM 2340B

C25004-12 MW-102-1112

No hits reported in this sample.

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)

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Sample Results

Report of Analysis



Project:

Run #1

Run #2

Run #1

Run #2

		Report of Analysis		
Client Sample ID:	TRIP BLANK			
Lab Sample ID:	C25004-1		Date Sampled:	11/28/12
Matrix:	AQ - Trip Blank Water		Date Received:	11/29/12
Method:	SW846 8260B		Percent Solids:	n/a

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

By

YP

Prep Date

n/a

Prep Batch

n/a

Analyzed

11/30/12

Report of Analysis

Analytical Batch

VR465

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Purgeable Aromatics

File ID

R13041.D

10.0 ml

Purge Volume

DF

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Compound	Result	RL	MDL	Units	Q
Benzene	ND	1.0	0.20	ug/l	
Toluene	ND	1.0	0.20	ug/l	
Ethylbenzene	ND	1.0	0.20	ug/l	
Xylene (total)	ND	2.0	0.46	ug/l	
Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
Dibromofluoromethane	111%		60-1	30%	
Toluene-D8	105%		60-1	30%	
4-Bromofluorobenzene	104%		60-1	30%	
	Compound Benzene Toluene Ethylbenzene Xylene (total) Surrogate Recoveries Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	CompoundResultBenzeneNDTolueneNDEthylbenzeneNDXylene (total)NDSurrogate RecoveriesRun# 1Dibromofluoromethane111%Toluene-D8105%4-Bromofluorobenzene104%	CompoundResultRLBenzeneND1.0TolueneND1.0EthylbenzeneND1.0Xylene (total)ND2.0Surrogate RecoveriesRun# 1Run# 2Dibromofluoromethane111%Toluene-D8105%4-Bromofluorobenzene104%	Compound Result RL MDL Benzene ND 1.0 0.20 Toluene ND 1.0 0.20 Ethylbenzene ND 1.0 0.20 Xylene (total) ND 2.0 0.46 Surrogate Recoveries Run#1 Rum#2 Lim Dibromofluoromethane 111% 60-1 Toluene-D8 105% 60-1 4-Bromofluorobenzene 104% 60-1	Compound Result RL MDL Units Benzene ND 1.0 0.20 ug/l Toluene ND 1.0 0.20 ug/l Ethylbenzene ND 1.0 0.20 ug/l Xylene (total) ND 2.0 0.46 ug/l Surrogate Recoveries Run#1 Run#2 Limits Dibromofluoromethane 111% 60-130% 60-130% 4-Bromofluorobenzene 104% 60-130% 60-130%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sample ID: TRIP BLANK Lab Sample ID: C25004-1 Date Sampled: 11/28/12 Matrix: AQ - Trip Blank Water Date Received: 11/29/12 Method: NWTPH-GX Percent Solids: n/a Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
	File ID	DF	Analyzed	By	Prep Dat	te	Prep Batch	Analytical Batch
Run #1 Run #2	JK31937.D	1	12/03/12	ŤŤ	n/a		n/a	GJK1278
	Purge Volum	e						
Run #1 Run #2	10.0 ml							
Northwes	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
		``	ND	0.00	0.050	/1		

	TPH (Gasoline)	ND	0.20	0.050 mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	97% 102%		50-150% 50-150%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

C25004

Page 1 of 1

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Client San Lab Samj Matrix: Method: Project:	mple ID: MV ple ID: C2 AQ SW UR	V-304-1112 5004-2 - Ground Wa 846 8260B SORP: Shell/	ater 'Harbor Island -	2555 13tl	Da Da Pe h Ave SW., Seattle	ate Sampled: 11 ate Received: 11 ercent Solids: n/ e, WA	1/28/12 1/29/12 a
Run #1 Run #2	File ID U7831.D	DF 10	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU298
Run #1 Run #2 Purgeable	Purge Volu 10.0 ml	me					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	411 24.4 306 252	10 10 10 20	2.0 2.0 2.0 4.6	ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	110% 97% 95%		60-13 60-13 60-13	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



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3.2

CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID: MW-304-1112 Lab Sample ID: C25004-2 Date Sampled: 11/28/12 Matrix: AQ - Ground Water Date Received: 11/29/12 Method: NWTPH-GX Percent Solids: n/a Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Run #1 Run #2	File ID JK31938.D	DF 10	Analyzed 12/03/12	Ву ТТ	Prep Da n/a	te	Prep Batch n/a	Analytical Batch GJK1278	
Run #1 Run #2	Purge Volume 10.0 ml	:							
Northwest	Northwest TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasolin	e)	5.89	2.0	0.50	mg/l			

Run# 2

Limits

50-150%

50-150%

Run#1

95%

106%

Page 1 of 1

3.2

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ND = Not detectedMDL - Method Detection LimitRL = Reporting LimitE = Indicates value exceeds calibration range

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



Client San Lab Samp Matrix: Method: Project:	nple ID: MW le ID: C250 AQ - SW8 URS	-301-1112 004-3 • Ground Wa 46 8260B ORP: Shell/	iter Harbor Island -	2555 13ti	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a n Ave SW., Seattle, WA			
Run #1 Run #2	File ID U7832.D	DF 5	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU298	
Run #1 Run #2	Purge Volun 10.0 ml	ne						
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL Unit	s Q		

71-43-2	Benzene	241	5.0	1.0	ug/l
108-88-3	Toluene	9.9	5.0	1.0	ug/l
100-41-4	Ethylbenzene	12.5	5.0	1.0	ug/l
1330-20-7	Xylene (total)	10.6	10	2.3	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 101%	Run# 2	Limi 60-13	ts 30%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 101% 96%	Run# 2	Limi 60-13 60-13	ts 30% 30%

- $J = \ Indicates \ an \ estimated \ value$
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



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ယ ပ CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID:MW-301-1112Lab Sample ID:C25004-3Matrix:AQ - Ground WaterMethod:NWTPH-GXProject:URSORP: Shell/Harbor Island - 255				2555 13t	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a 555 13th Ave SW., Seattle, WA				
Run #1 Run #2	File ID JK31939.D	DF 5	Analyzed 12/03/12	By TT	Prep Da n/a	ite	Prep Batch n/a	Analytical Batch GJK1278	
Run #1 Run #2	Purge Volume 10.0 ml								
Northwest	TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasoline	e)	2.76	1.0	0.25	mg/l			

Run# 2

Limits

50-150%

50-150%

Run#1

101%

121%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW- ble ID: C250 AQ - SW84 URSC	MW-301D-1112 C25004-4 AQ - Ground Water SW846 8260B URSORP: Shell/Harbor Island - 2555 13th			Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a h Ave SW., Seattle, WA			
Run #1 Run #2	File ID U7833.D	DF 5	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU298	
Run #1 Run #2 Purgeable	Purge Volum 10.0 ml	e						

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	256 9.9 13.1 10.5	5.0 5.0 5.0 10	1.0 1.0 1.0 2.3	ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	103% 92% 97%		60-13 60-13 60-13	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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3.4

CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID:MW-301D-1112Lab Sample ID:C25004-4Matrix:AQ - Ground WaterMethod:NWTPH-GXProject:URSORP: Shell/Harbor Island - 1			Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a 2555 13th Ave SW., Seattle, WA					
Run #1 Run #2	File ID JK31940.D	DF 5	Analyzed 12/03/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1278
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	3.01	1.0	0.25	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

101%

125%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client Sam Lab Sampl Matrix: Method: Project:	aple ID: MW- e ID: C250 AQ - SW8 URS6	303-1112 04-5 Ground Wa 46 8260B ORP: Shell/	iter Harbor Island -	2555 13th	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a Ave SW., Seattle, WA			
Run #1 Run #2	File ID U7834.D	DF 50	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU298	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Purgeable	Aromatics							

	-				
71-43-2	Benzene	1940	50	10	ug/l
108-88-3	Toluene	87.3	50	10	ug/l
100-41-4	Ethylbenzene	1180	50	10	ug/l
1330-20-7	Xylene (total)	319	100	23	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Liı	mits
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Liı	nits
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 101%	Run# 2	Lin 60-	mits -130%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 101% 105%	Run# 2	Lin 60- 60-	mits -130% -130%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW-30 ble ID: C25004 AQ - C NWTP URSOI	03-1112 4-5 Ground Wa PH-GX RP: Shell/	ater Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle,	e Sampled: 1 e Received: 1 eent Solids: 1 WA	11/28/12 11/29/12 n/a
-	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	JK31941.D	50	12/03/12	TT	n/a		n/a	GJK1278
	Purge Volume							
Run #1	10.0 ml							
Run #2								
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline)	12.6	10	25	mg/l		

	TPH (Gasoline)	12.6	10	2.5	mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	S
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	101% 108%		50-15 50-15	0% 0%

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C250 AQ - SW8 URS	305-1112 04-6 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	2555 13ti	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a n Ave SW., Seattle, WA			
Run #1 Run #2	File ID R13050.D	DF 5	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL Unit	s Q		

71-43-2	Benzene	286	5.0	1.0	ug/l	
108-88-3	Toluene	6.1	5.0	1.0	ug/l	
100-41-4	Ethylbenzene	3.2	5.0	1.0	ug/l]
1330-20-7	Xylene (total)	14.0	10	2.3	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2 Limits		nits	
1868-53-7	Dibromofluoromethane	105%		60-1	130%	
2037-26-5	Toluene-D8	95%		60-1	130%	
460-00-4	4-Bromofluorobenzene	106%		60-1	130%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N= \ \ Indicates \ presumptive \ evidence \ of \ a \ compound$



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3.6
CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client San Lab Samp Matrix: Method: Project:	mple ID: MW-3 ple ID: C2500 AQ - O NWTH URSO	05-1112 4-6 Ground Wa PH-GX RP: Shell/	ater Harbor Island -	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a th Ave SW., Seattle, WA				
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1	JK31942.D	4	12/04/12	TT	n/a		n/a	GJK1278
Run #2								
Run #1 Run #2	Purge Volume 10.0 ml	;						
Northwes	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	e)	1.53	0.80	0.20	mg/l		

Run# 2

Limits

50-150%

50-150%

Run# 1

95%

107%

Report of Analysis

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



3.6

Client San Lab Samp Matrix: Method: Project:	nple ID: MV le ID: C2: AQ SW UR	V-305D-1112 5004-7 - Ground Wa 846 8260B SORP: Shell/	ıter Harbor Island -	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a - 2555 13th Ave SW., Seattle, WA					
Run #1 Run #2	File ID R13051.D	DF 5	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465		
Run #1 Run #2	Purge Volu 10.0 ml	me							
Purgeable	Aromatics Compound	1	Result	RL	MDL Unit	s 0			

	-					
71-43-2	Benzene	303	5.0	1.0	ug/l	
108-88-3	Toluene	6.3	5.0	1.0	ug/l	
100-41-4	Ethylbenzene	2.8	5.0	1.0	ug/l	J
1330-20-7	Xylene (total)	13.7	10	2.3	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lin	nits	
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 104%	Run# 2	Lin 60-	nits 130%	
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 104% 94%	Run# 2	Lin 60- 60-	nits 130% 130%	
CAS No. 1868-53-7 2037-26-5 460-00-4	Surrogate Recoveries Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	Run# 1 104% 94% 105%	Run# 2	Lin 60- 60- 60-	nits 130% 130% 130%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



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3.7

Client San Lab Samj Matrix: Method: Project:	mple ID: MW- ple ID: C250 AQ - NWT URS0	305D-1112 04-7 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	2555 13th	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a 3th Ave SW., Seattle, WA				
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch	
Run #1	JK31943.D	4	12/04/12	TŤ	n/a		n/a	GJK1278	
Run #2									
	Purge Volum	e							
Run #1	10.0 ml								
Run #2									
Northwes	t TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TDU (Casali	na)	1 50	0.80	0.20	m a/1			

	IPH (Gasoline)	1.58	0.80	0.20 mg/1
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	56% 67%		50-150% 50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Page 1 of 1



Client San Lab Samp Matrix: Method: Project:	nple ID: MW le ID: C250 AQ - SW8 URS	-306-1112 004-8 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	2555 13tl	Da Da Pe h Ave SW., Seattle	te Sampled: 11 nte Received: 11 rcent Solids: n/	1/28/12 1/29/12 ia
Run #1 Run #2	File ID R13052.D	DF 10	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465
Run #1 Run #2 Purgeable	Purge Volun 10.0 ml Aromatics	ne					

Report of Analysis

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4	Benzene Toluene Ethylbenzene	393 12.5 18.3	10 10 10	2.0 2.0 2.0	ug/l ug/l ug/l	
1330-20-7	Xylene (total)	89.5	20	4.6	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	103%		60-1	30%	
2037-26-5	Toluene-D8	106%		60-1	30%	
460-00-4	4-Bromofluorobenzene	105%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID: MW-306-1112 Lab Sample ID: C25004-8 Date Sample Matrix: AQ - Ground Water Date Receint Method: NWTPH-GX Percent Sol Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								1/28/12 1/29/12 a
Run #1 Run #2	File ID JK31944.D	DF 4	Analyzed 12/04/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1278
Run #1 Run #2	Purge Volum 10.0 ml	e						
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolir	ne)	3.06	0.80	0.20	mg/l		

Run# 2

Limits

50-150%

50-150%

Run#1

103%

120%

Report of Analysis

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



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Client Samp Lab Sample Matrix: Method: Project:	le ID: T ID: C A S U	X-03A-1112 25004-9 .Q - Ground W W846 8260B IRSORP: Shell	√ater I/Harbor Island -	2555 13t	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a th Ave SW., Seattle, WA				
Run #1	File ID R13053.D	DF 20	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Ba VR465	itch	
Run #1 Run #2	Purge Vo 10.0 ml	lume							
Purgeable A	romatics								
Run #1 1 Run #2 Run #1 Run #2 Purgeable A CAS No.	File ID R13053.D Purge Vo 10.0 ml romatics Compou	DF 20 lume	Analyzed 11/30/12 Result	By YP RL	Prep Date n/a MDL Unit	Prep Batch n/a	Analytical VR465		

	F					Ň
71-43-2	Benzene	1180	20	4.0	ug/l	
108-88-3	Toluene	18.8	20	4.0	ug/l	J
100-41-4	Ethylbenzene	23.2	20	4.0	ug/l	
1330-20-7	Xylene (total)	35.7	40	9.2	ug/l	J
					•,	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 105%	Run# 2	Lim 60-1	uts 130%	
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 105% 108%	Run# 2	Lim 60-1 60-1	130% 130%	
CAS No. 1868-53-7 2037-26-5 460-00-4	Surrogate Recoveries Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	Run# 1 105% 108% 107%	Run# 2	60-1 60-1 60-1	130% 130% 130%	

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

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Accutest Laboratories

Client Sar Lab Samp Matrix: Method: Project:	nple ID: TX-03 ole ID: C2500 AQ - C RSK-1 URSO	A-1112 4-9 Ground W 75 RP: Shell	ater /Harbor Island -	2555 13th .	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a th Ave SW., Seattle, WA				
Run #1 Run #2	File ID AA001711.D	DF 40	Analyzed 12/03/12	By PH	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GAA72	
CAS No.	Compound		Result	RL	MDL	Units	Q		
74-82-8 124-38-9	Methane Carbon Dioxid	de	6080 16400	20 4000	10 320	ug/l ug/l			

Report of Analysis

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



3.9

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25 of 87 ACCUTEST C25004 CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID: TX-03A-1112 Lab Sample ID: C25004-9 Date Sampled: 11/28/12 Matrix: AQ - Ground Water Date Received: 11/29/12 Method: NWTPH-GX Percent Solids: n/a Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Run #1 Run #2	File ID JK31945.D	DF 10	Analyzed 12/04/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1278	
Run #1 Run #2	Purge Volume 10.0 ml								
Northwest	TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasoline	e)	4.91	2.0	0.50	mg/l			

Run# 2

Limits

50-150%

50-150%

Run#1

101%

112%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

C25004

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ა .9 Accutest Laboratories

Client Sample ID:	TX-03A-1112		
Lab Sample ID:	C25004-9	Date Sampled:	11/28/12
Matrix:	AQ - Ground Water	Date Received:	11/29/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Se	attle, WA	

Report of Analysis

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	24700	5000	ug/l	1	12/03/12	12/03/12 RS	SW846 6010B ¹	SW3010A ²
Iron	33900	200	ug/l	1	12/03/12	12/03/12 rs	SW846 6010B ¹	SW3010A ²
Magnesium	15800	5000	ug/l	1	12/03/12	12/03/12 rs	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA2864
 (2) Prep QC Batch: MP5591



3.9

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Accutest Laboratories

	Report of Analysis			Page 1 of 1
Client Sample ID:	TX-03A-1112			
Lab Sample ID:	C25004-9	Date Sampled:	11/28/12	
Matrix:	AQ - Ground Water	Date Received:	11/29/12	
		Percent Solids:	n/a	
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., S	Seattle, WA		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	164	5.0	mg/l	1	12/07/12	AC	SM18 2320B
Hardness, Total as CaCO3 ^a	127	33	mg/l	1	12/03/12 21:16	RS	SW846 6010B/SM 2340B
Sulfate	< 0.50	0.50	mg/l	1	12/14/12 17:38	PH	EPA 300/SW846 9056A

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)

3.9

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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C2500 AQ - SW84 URSC	309-1112 04-10 Ground Wa 6 8260B DRP: Shell/	ater Harbor Island -	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a th Ave SW., Seattle, WA				
Run #1 Run #2	File ID R13043.D	DF 1	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Purgeable CAS No.	Aromatics Compound		Result	RL	MDL Unit	s O		

0110 110	compound	ittouit			emus
71-43-2 108-88-3	Benzene Toluene	ND ND	1.0 1.0	0.20 0.20	ug/l ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 107%	Run# 2	Limi 60-13	ts 30%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 107% 101%	Run# 2	Limi 60-13 60-13	ts 30% 30%

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

Page 1 of 1



Client San Lab Samp Matrix: Method: Project:	nple ID: MW-3 ole ID: C2500 AQ - C RSK-1 URSO	09-1112 4-10 Ground W 75 RP: Shell/	ater 'Harbor Island -	2555 13th 4	Ave SW.,	Date Date Perc Seattle,	e Sampled: 11 e Received: 11 eent Solids: n/ WA	1/28/12 1/29/12 a
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1	AA001712.D	1	12/03/12	PH	n/a		n/a	GAA72
Run #2	AA001721.D	20	12/04/12	PH	n/a		n/a	GAA73
CAS No.	Compound		Result	RL	MDL	Units	Q	
74-82-8	Methane		188	0.50	0.25	ug/l		
124-38-9	Carbon Dioxi	de	7340 a	2000	160	ug/l		

Page 1 of 1

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



CAS No.

98-08-8

460-00-4

Client Sample ID: MW-309-1112 Lab Sample ID: C25004-10 Date Sampled: 11/28/12 Matrix: AQ - Ground Water Date Received: 11/29/12 Method: NWTPH-GX Percent Solids: n/a Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								/28/12 /29/12 a
Run #1 Run #2	File ID JK31948.D	DF 1	Analyzed 12/04/12	By TT	Prep Da n/a	nte	Prep Batch n/a	Analytical Batch GJK1278
Run #1 Run #2	Purge Volume 10.0 ml	;						
Northwest	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasolin	e)	ND	0.20	0.050	mg/l		

Run# 2

Limits

50-150%

50-150%

Run# 1

95%

99%

Page 1 of 1

3.10

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ND = Not detected MDL - Method Detection Limit

E = Indicates value exceeds calibration range

RL = Reporting Limit

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

- J = Indicates an estimated value
 - B = Indicates analyte found in associated method blank
 - N = Indicates presumptive evidence of a compound



Accutest Laboratories

Client Sample ID:	MW-309-1112		
Lab Sample ID:	C25004-10	Date Sampled:	11/28/12
Matrix:	AQ - Ground Water	Date Received:	11/29/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Se	attle, WA	

Report of Analysis

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	28000	5000	ug/l	1	12/03/12	12/03/12 RS	SW846 6010B 1	SW3010A ²
Iron	36600	200	ug/l	1	12/03/12	12/03/12 rs	SW846 6010B ¹	SW3010A ²
Magnesium	6010	5000	ug/l	1	12/03/12	12/03/12 rs	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA2864
 (2) Prep QC Batch: MP5591

3.10

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Accutest Laboratories

Client Sample ID:	MW-309-1112		
Lab Sample ID:	C25004-10	Date Sampled:	11/28/12
Matrix:	AQ - Ground Water	Date Received:	11/29/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW.	, Seattle, WA	

Report of Analysis

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	84.0	5.0	mg/l	1	12/07/12	AC	SM18 2320B
Hardness, Total as CaCO3 ^a	94.7	33	mg/l	1	12/03/12 21:23	RS	SW846 6010B/SM 2340B
Sulfate	32.1	2.5	mg/l	5	12/17/12 16:15	RL	EPA 300/SW846 9056A

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)





Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C250 AQ - SW8 URS6	310-1112 04-11 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	Date Sampled: 11/28/12 Date Received: 11/29/12 Percent Solids: n/a th Ave SW., Seattle, WA				
Run #1 Run #2	File ID R13054.D	DF 20	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465	
Run #1 Run #2	Purge Volum 10.0 ml	e						
Purgeable CAS No.	Aromatics Compound		Result	RL	MDL Unit:	s O		

	P				
71-43-2	Benzene	860	20	4.0	ug/l
108-88-3	Toluene	26.5	20	4.0	ug/l
100-41-4	Ethylbenzene	211	20	4.0	ug/l
1330-20-7	Xylene (total)	147	40	9.2	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 109%	Run# 2	Limi 60-13	ts 30%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 109% 106%	Run# 2	Limi 60-13 60-13	ts 30% 30%
CAS No. 1868-53-7 2037-26-5 460-00-4	Surrogate Recoveries Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	Run# 1 109% 106% 105%	Run# 2	Limi 60-13 60-13 60-13	ts 30% 30% 30%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

Page 1 of 1



Client San Lab Samp Matrix: Method: Project:	nple ID: MW-3 ole ID: C2500 AQ - C RSK-1 URSO	10-1112 4-11 Ground W 75 RP: Shell	ater /Harbor Island -	2555 13th .	Ave SW.,	Date Date Perc Seattle,	e Sampled: 1 e Received: 1 rent Solids: n/	1/28/12 1/29/12 ⁄a
Run #1 Run #2	File ID AA001722.D	DF 40	Analyzed 12/04/12	By PH	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GAA73
CAS No.	Compound		Result	RL	MDL	Units	Q	
74-82-8 124-38-9	Methane Carbon Dioxid	le	6700 13300	20 4000	10 320	ug/l ug/l		

ND = Not detected MDL - Method Detection Limit

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

3.11 **3**



RL = Reporting Limit

E = Indicates value exceeds calibration range

Client Sam Lab Sampl Matrix: Method: Project:	nple ID: MW-3 le ID: C25004 AQ - C NWTP URSO	10-1112 4-11 Ground Wate PH-GX RP: Shell/H	er arbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle, `	e Sampled: 11 e Received: 11 ent Solids: n/ WA	/28/12 /29/12 a
Run #1 Run #2	File ID JK31950.D	DF 10	Analyzed 12/04/12	By TT	Prep D an/a	ate	Prep Batch n/a	Analytical Batch GJK1278
Run #1 Run #2	Purge Volume 10.0 ml							
Northwest	TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline	e)	5.74	2.0	0.50	mg/l		

CAS No.	Compound	Result	RL	MDL	Units	(
	TPH (Gasoline)	5.74	2.0	0.50	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	
98-08-8	aaa-Trifluorotoluene	100%		50-1	50%	

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



Client Sample ID:	MW-310-1112		
Lab Sample ID:	C25004-11	Date Sampled:	11/28/12
Matrix:	AQ - Ground Water	Date Received:	11/29/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Se	eattle, WA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	35100	5000	ug/l	1	12/03/12	12/03/12 RS	SW846 6010B ¹	SW3010A ²
Iron	29300	200	ug/l	1	12/03/12	12/03/12 RS	SW846 6010B ¹	SW3010A ²
Magnesium	10700	5000	ug/l	1	12/03/12	12/03/12 RS	SW846 6010B ¹	SW3010A ²

(1) Instrument QC Batch: MA2864

(2) Prep QC Batch: MP5591

3.11

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Accutest Laboratories

Client Sample ID:	MW-310-1112		
Lab Sample ID:	C25004-11	Date Sampled:	11/28/12
Matrix:	AQ - Ground Water	Date Received:	11/29/12
		Percent Solids:	n/a
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW	., Seattle, WA	

Report of Analysis

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	158	5.0	mg/l	1	12/07/12	AC	SM18 2320B
Hardness, Total as CaCO3 ^a	132	33	mg/l	1	12/03/12 21:30	RS	SW846 6010B/SM 2340B
Sulfate	< 0.50	0.50	mg/l	1	12/14/12 18:13	PH	EPA 300/SW846 9056A

(a) Calculated as: (Calcium * 2.497) + (Magnesium * 4.118)

Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C250 AQ - SW84 URS0	102-1112 04-12 Ground Wa 46 8260B DRP: Shell/	ıter Harbor Island -	2555 13th	Da Da Pe n Ave SW., Seattle	te Sampled: 11 te Received: 11 rcent Solids: n/ , WA	1/28/12 1/29/12 a
Run #1 Run #2	File ID R13044.D	DF 1	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VR465
Run #1 Run #2	Purge Volum 10.0 ml	e					
Purgeable	Aromatics						
CAS No.	Compound		Result	RL	MDL Unit	s Q	

71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	ND ND ND ND	1.0 1.0 1.0 2.0	0.20 0.20 0.20 0.46	ug/l ug/l ug/l ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 1 of 1



460-00-4

Client San Lab Samp Matrix: Method: Project:	nple ID: MW- le ID: C2500 AQ - NWT URSC	MW-102-1112C25004-12Date Sampled: 11/28/12AQ - Ground WaterDate Received: 11/29/12NWTPH-GXPercent Solids: n/aURSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Run #1 ^a Run #2	File ID JK32233.D	DF 1	Analyzed 12/14/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1288		
Run #1 Run #2	Purge Volume 10.0 ml	e								
Northwest	TPH-Gx									
CAS No.	Compound		Result	RL	MDL	Units	Q			
	TPH (Gasolin	ne)	ND	0.20	0.050	mg/l				
CAS No.	Surrogate R	ecoveries	Run# 1	Run# 2	Lim	its				
98-08-8	aaa-Trifluoro	toluene	93%		50-1	50%				

50-150%

Report of Analysis

(a) Sample analyzed beyond hold time; reported runs are considered minimum values.

4-Bromofluorobenzene

102%

- $J = \ Indicates \ an \ estimated \ value$
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Page 1 of 1



CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

Report of Analysis								
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-10 le ID: C25004 AQ - Gi NWTPF URSOR	2-1112 -12 round Wat H-DX SW P: Shell/H	er /846 3510C Iarbor Island - 2	2555 13th	Ave SW.,	/28/12 /29/12 a		
Run #1 Run #2	File ID HH028678.D	DF 1	Analyzed 12/03/12	By JH	Prep D 11/29/1	ate 2	Prep Batch OP7127	Analytical Batch GHH869
Run #1 Run #2	Initial Volume 1000 ml	Final Vo 1.0 ml	olume					
Northwest	TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor O	il)	ND ND	0.10 0.20	0.050 0.10	mg/l mg/l		

Run# 2

Limits

50-150%

Run#1

76%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

3.12



Section 4

4



Misc. Forms	
Custody Documents and Other Forms	
ncludes the following where applicable:	
Chain of Custody	



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C25004: Chain of Custody Page 1 of 3



4

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503-222-720 brinn pletcher@urscom DAVE-LEWIS	C25004
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C25004: Chain of Custody Page 2 of 3



ACCUTEST
LABORATORIES

Accutest Laboratories Sample Receipt Summary

	04	CI	ient: SHELL OI	L	Project: SHELL/HAR	BOR ISLAND)		
Date / Time Received: 11/29	/2012		Delivery I	Method:	FedEx Airbill #'s:				
Cooler Temps (Initial/Adjusted	i): <u>#1: (</u>	<u>3.9/2.9);</u>	<u>0</u>						
Cooler Security Y	or N			Y or N	Sample Integrity - Documentation	Y	or	N	
1. Custody Seals Present:	✓	3. C0	DC Present:		1. Sample labels present on bottles:	\checkmark			
2. Custody Seals Intact:		4. Smpl	Dates/Time OK		2. Container labeling complete:	\checkmark			
Cooler Temperature	Y or	N			3. Sample container label / COC agree:	\checkmark			
1. Temp criteria achieved:	\checkmark				Sample Integrity - Condition	Y	or	N	
2. Cooler temp verification:	IR	Gun			1. Sample recyd within HT:	\checkmark			
3. Cooler media:	B. Cooler media: Ice (Bag)				2. All containers accounted for:				
4. No. Coolers:		1			3. Condition of sample:		Intac	:t	
Quality Control Preservation	Yo	r N	N/A		Sample Integrity - Instructions	Y	or	N	N/A
1. Trip Blank present / cooler:	\checkmark				1. Analysis requested is clear:	\checkmark			
2. Trip Blank listed on COC:	\checkmark				2. Bottles received for unspecified tests			\checkmark	
3. Samples preserved properly:	\checkmark				3. Sufficient volume recvd for analysis:				
4. VOCs headspace free:	\checkmark				4. Compositing instructions clear:				\checkmark
					5. Filtering instructions clear:				\checkmark

Accutest Laboratories V:408.588.0200 2105 Lundy Avenue F: 408.588.0201 San Jose, CA 95131 www/accutest.com 4.1 **4**

C25004: Chain of Custody Page 3 of 3



S



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary

Job Number: Account: Project:	SHELLWIC S URSORP: She	Shell Oil C ell/Harbor	ompany Island - 2555 13	3th Ave S	W., Seattle, WA					
Sample VU298-MB	File ID U7822.D	DF 1	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU298			
The QC repor	ted here applies	s to the fo	llowing samples	5:	Method: SW846 8260B					

C25004-2, C25004-3, C25004-4, C25004-5

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l

CAS No.	AS No. Surrogate Recoveries				
1868-53-7	Dibromofluoromethane	111%	60-130%		
2037-26-5	Toluene-D8	97%	60-130%		
460-00-4	4-Bromofluorobenzene	88%	60-130%		





Method Blank Summary Job Number: C25004

Account:	SHELLWIC Shell Oil Company										
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample	File ID	DF	Analyzed 11/30/12	By	Prep Date	Prep Batch	Analytical Batch				
VR465-MB	R13038.D	1		YP	n/a	n/a	VR465				
The QC repor	ted here applies	to the fo	-	Method: SW84	6 8260B						

C25004-1, C25004-6, C25004-7, C25004-8, C25004-9, C25004-10, C25004-11, C25004-12

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2 100-41-4 108-88-3	Benzene Ethylbenzene Toluene	ND ND	1.0 1.0	0.20 0.20 0.20	ug/l ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
CAS No.	Surrogate Recoveries		Limi	ts	

1868-53-7	Dibromofluoromethane	107%	60-130%
2037-26-5	Toluene-D8	106%	60-130%
460-00-4	4-Bromofluorobenzene	104%	60-130%



5.1.2

G



Blank Spike/Blank Spike Duplicate Summary

Job Number:	C25004
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VU298-BS	U7819.D	1	11/30/12	YP	n/a	n/a	VU298
VU298-BSD	U7820.D	1	11/30/12	YP	n/a	n/a	VU298

The QC reported here applies to the following samples:

Method: SW846 8260B

C25004-2, C25004-3, C25004-4, C25004-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	20.3	102	20.3	102	0	60-130/30
100-41-4	Ethylbenzene	20	22.2	111	22.2	111	0	60-130/30
108-88-3	Toluene	20	21.2	106	21.5	108	1	60-130/30
1330-20-7	Xylene (total)	60	63.9	107	64.0	107	0	60-130/30
	-							
CASNO	Surragata Dagavarias	DCD	DS	'D	Limita			

CAB ING.	Surrogate Recoveries	DOI	DOD	Linnts
1868-53-7	Dibromofluoromethane	98%	101%	60-130%
2037-26-5	Toluene-D8	99%	101%	60-130%
460-00-4	4-Bromofluorobenzene	101%	103%	60-130%

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C25004

Blank Spike/Blank Spike Duplicate Summary

Job Number:	C25004
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR465-BS	R13036.D	1	11/30/12	YP	n/a	n/a	VR465
VR465-BSD	R13039.D	1	11/30/12	YP	n/a	n/a	VR465

The QC reported here applies to the following samples:

Method: SW846 8260B

C25004-1, C25004-6, C25004-7, C25004-8, C25004-9, C25004-10, C25004-11, C25004-12

106%

106%

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	17.7	89	16.5	83	7	60-130/30
100-41-4	Ethylbenzene	20	19.7	99	17.7	89	11	60-130/30
108-88-3	Toluene	20	18.3	92	16.7	84	9	60-130/30
1330-20-7	Xylene (total)	60	59.5	99	54.0	90	10	60-130/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
1868-53-7	Dibromofluoromethane	107%	10	5%	60-130	%		

106%

107%

60-130%

60-130%

G

Page 1 of 1

2037-26-5 Toluene-D8

4-Bromofluorobenzene

460-00-4

Laborat Job Numbe Account: Project:	ory Control S r: C25004 SHELLWIC S URSORP: She	hell Oil Con ll/Harbor Is	npany land - 2555	7 13th Ave S	W., Seattle, WA		Page 1 of 1
Sample VU298-LCS	File ID U7821.D	DF 1	Analyzed 11/30/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU298
The QC rep C25004-2, C	ported here applies	to the follo 4, C25004-5	wing sampl	es:		Method: SW84	6 8260B
CAS No.	Compound		Spike L ug/l uį	CS LC g/l %	S Limits		

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	60-130%
2037-26-5	Toluene-D8	101%	60-130%
460-00-4	4-Bromofluorobenzene	88%	60-130%



5.3.1 5

Laboratory Control Sample Summary Job Number: C25004

Project:	URSORP: She	ll/Harbor	Island - 2555 13	3th Ave S	SW., Seattle, WA		
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR465-LCS	R13037.D	1	11/30/12	YP	n/a	n/a	VR465
The QC repor	ted here applies	to the fo	llowing samples	s:	I	Method: SW84	6 8260B
C25004-1, C25	5004-6, C25004-7	7, C25004	4-8, C25004-9, 0	225004-1	0, C25004-11, C2	25004-12	
			Spike LC	S LO	CS		

%

Limits

ug/l

ug/l

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	108%	60-130%
460-00-4	4-Bromofluorobenzene	108%	60-130% 60-130%

CAS No.

Compound

Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C25004
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24962-2MS	R13055.D	1	11/30/12	YP	n/a	n/a	VR465
C24962-2MSD	R13056.D	1	11/30/12	YP	n/a	n/a	VR465
C24962-2	R13045.D	1	11/30/12	YP	n/a	n/a	VR465

The QC reported here applies to the following samples:

Method: SW846 8260B

C25004-1, C25004-6, C25004-7, C25004-8, C25004-9, C25004-10, C25004-11, C25004-12

CAS No.	Compound	C24962-2 ug/l	Spiko Q ug/l	e MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	17.4	87	16.9	85	3	60-130/25
100-41-4	Ethylbenzene	ND	20	18.8	94	18.0	90	4	60-130/25
108-88-3	Toluene	ND	20	17.7	89	16.9	85	5	60-130/25
1330-20-7	Xylene (total)	ND	60	56.0	93	53.4	89	5	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	c C	24962-2	Limits			
1868-53-7	Dibromofluoromethane	106%	108%	. 10	7%	60-130	%		
2037-26-5	Toluene-D8	106%	106%	. 10	4%	60-130	%		
460-00-4	4-Bromofluorobenzene	106%	107%	. 10	2%	60-130	%		

5.4.1

Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C25004
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C25028-2MS	U7840.D	1	11/30/12	YP	n/a	n/a	VU298
C25028-2MSD	U7841.D	1	11/30/12	YP	n/a	n/a	VU298
C25028-2 ^a	U7824.D	1	11/30/12	YP	n/a	n/a	VU298

The QC reported here applies to the following samples:

Method: SW846 8260B

C25004-2, C25004-3, C25004-4, C25004-5

CAS No.	Compound	C25028-2 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	20.6	103	20.4	102	1	60-130/25
100-41-4	Ethylbenzene	ND	20	22.4	112	22.7	114	1	60-130/25
108-88-3	Toluene	ND	20	21.4	107	21.5	108	0	60-130/25
1330-20-7	Xylene (total)	ND	60	64.5	108	65.1	109	1	60-130/25
CAS No.	Surrogate Recoveries	MS	MSD	C25	028-2	Limits			

1868-53-7	Dibromofluoromethane	95%	99%	117%	60-130%
2027 26 5	Toluona D8	00%	10104	10104	60 120%
2037-20-3	1 Diverse barrens	9970 1000/	10170	10170	60 1200/
460-00-4	4-Bromoffuorobenzene	100%	103%	80%	60-130%

(a) Sample was not preserved to a pH < 2.

* = Outside of Control Limits.



СЛ




Section 6

6



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil Company I/Harbor Island -	2555 13th A	ve SW., Sea	ttle, WA	A	
Sample GJK1278-MB	File ID JK31924.D	DF Ana 1 12/0	hlyzed By 03/12 TT	Pre n/a	p Date	Prep Batch n/a	Analytical Batch GJK1278
The QC repo C25004-1, C2 11	rted here applies 5004-2, C25004-3	to the following , C25004-4, C25	samples: 004-5, C250	04-6, C2500	4-7, C2	Method: NWTF 5004-8, C25004-9	PH-GX , C25004-10, C25004
CAS No. C	Compound PH (Gasoline)	Resu ND	lt RL 0.20	MDL 0.050	Units mg/l	Q	

CAS No.	Surrogate Recoveries		Limits
98-08-8	aaa-Trifluorotoluene	99%	50-150%
460-00-4	4-Bromofluorobenzene	103%	50-150%

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Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil Co l/Harbor I	ompany Island - 2555 I	13th Ave	e SW., Sea	attle, WA	A	
Sample GJK1288-1	File ID MB JK32230.D	DF 1	Analyzed 12/14/12	By TT	Pre n/a	ep Date	Prep Batch n/a	Analytical Batch GJK1288
The QC re	eported here applies	to the foll	owing sample	es:			Method: NWTH	PH-GX
C25004-12	2							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Gasoline)		ND	0.20	0.050	mg/l		
CAS No.	Surrogate Recover	ies		Limit	S			
98-08-8 460-00-4	aaa-Trifluorotoluen 4-Bromofluorobenz	e ene	96% 104%	50-15 50-15	0% 0%			

Carbon Dioxide

124-38-9

Account: Project:	SHELLWIC Shell Oi URSORP: Shell/Hart	il Company bor Island - 2555 1	13th Ave	SW., Seattle, WA	A	
Sample GAA72-M	File ID DF B AA001705.D1	Analyzed 12/03/12	By PH	Prep Date n/a	Prep Batch n/a	Analytical Batch GAA72
The QC re	eported here applies to the	e following sample	es:		Method: RSK-1	175
C25004-9,	C25004-10					
CAS No.	Compound	Result	RL	MDL Units	Q	
74-82-8	Methane	ND	0.50	0.25 ug/l		

100

7.9

ND

ug/l

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Carbon Dioxide

124-38-9

Account: Project:	SHELLWIC Shell O URSORP: Shell/Har	il Company bor Island - 2555 1	13th Ave	SW., Seattle, W	A	
Sample GAA73-M	File ID DF B AA001719.D1	Analyzed 12/04/12	By PH	Prep Date n/a	Prep Batch n/a	Analytical Batch GAA73
The QC re	ported here applies to the	e following sample	es:		Method: RSK-1	175
C25004-10	, C25004-11					
CAS No.	Compound	Result	RL	MDL Units	Q	
74-82-8	Methane	ND	0.50	0.25 ug/l		

100

7.9

ND

ug/l

Page 1 of 1

Blank Spike Summary Job Number: C25004

Carbon Dioxide

124-38-9

Account: Project:	SHELLWIC Shell URSORP: Shell/Ha	Oil Company arbor Island - 25	55 13th A	ve SW.	, Seattle, WA		
Sample GAA72-BS	File ID D S AA001706.D1	F Analy: 12/03/	zed By 12 PH	, [Prep Date n/a	Prep Batch n/a	Analytical Batch GAA72
The QC re C25004-9,	eported here applies to t C25004-10	he following sa	mples:			Method: RSK-1	75
CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits		
74-82-8	Methane	21.5	19.4	90	70-130		

77.1

75.0

97

70-130



Blank Spike Summary Job Number: C25004

Methane

Carbon Dioxide

74-82-8

124-38-9

Account: Project:	SHELLWIC Shell Oil OURSORP: Shell/Harbor	Company : Island - 2555	13th Ave S	W., Seattle, WA		
Sample GAA73-BS	File ID DF AA001720.D1	Analyzed 12/04/12	By PH	Prep Date n/a	Prep Batch n/a	Analytical Batch GAA73
The QC repo C25004-10, C	rted here applies to the fo	ollowing sampl	es:		Method: RSK-1	.75
CAS No. (Compound	Spike B ug/l u	SP BS g/l %	P Limits		

21.5

77.1

24.0

92.7

112

120

70-130

70-130



Blank Spike/Blank Spike Duplicate Summary

Job Number:	C25004
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GJK1278-BS	JK31925.D	1	12/03/12	TT	n/a	n/a	GJK1278
GJK1278-BSD	JK31926.D	1	12/03/12	TT	n/a	n/a	GJK1278
The QC reporte	d here applies	to the fo	llowing samples	5:]	Method: NWTH	PH-GX

C25004-1, C25004-2, C25004-3, C25004-4, C25004-5, C25004-6, C25004-7, C25004-8, C25004-9, C25004-10, C25004-11

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.4	0.395	99	0.391	98	1	60-140/30
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	88% 95%	929 100	%)%	50-150% 50-150%	6 6		

6.3.1

Blank Spike/Blank Spike Duplicate Summary

Job Number: Account: Project:	C25004 SHELLWIC Sh URSORP: Shel	ell Oil C l/Harbor	ompany Island - 25	55 13th	Ave SW	., Seattle, V	WA		C C
Sample GJK1288-BS GJK1288-BSD	File ID JK32231.D JK32232.D	DF 1 1	Analy : 12/14/ 12/14/	zed H 12 T 12 T	3у ГТ ГТ	Prep Dat n/a n/a	te I r r	Prep Bate n/a n/a	ch Analytical Batch GJK1288 GJK1288
The QC repor	ted here applies	to the fo	llowing sa	mples:			Met	hod: NV	WTPH-GX
C25004-12									
CAS No. Co	ompound		Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
TI	PH (Gasoline)		0.4	0.411	103	0.407	102	1	60-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
98-08-8	aaa-Trifluorotoluene	94%	89%	50-150%
460-00-4	4-Bromofluorobenzene	104%	99%	50-150%



Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C25004
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24962-3MS	JK31951.D	1	12/04/12	TT	n/a	n/a	GJK1278
C24962-3MSD	JK31952.D	1	12/04/12	TT	n/a	n/a	GJK1278
C24962-3	JK31932.D	1	12/03/12	TT	n/a	n/a	GJK1278

The QC reported here applies to the following samples:

C25004-1, C25004-2, C25004-3, C25004-4, C25004-5, C25004-6, C25004-7, C25004-8, C25004-9, C25004-10, C25004-11

CAS No.	Compound	C24962-3 mg/l	Spike Q mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	ND	0.4	0.363	91	0.401	100	10	60-140/20
CAS No.	Surrogate Recoveries	MS	MSD	C2	4962-3	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	96% 102%	99% 106%	819 859	% %	50-1509 50-1509	% %		

Method: NWTPH-GX

Matrix Spike/Matrix Spike Duplicate Summary Job Number: C25004

Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil Co l/Harbor I	mpany sland - 255	55 1	3th Ave \$	SW., 1	Seatt	ile, WA				
Sample	File ID	DF	Analyz	ed	By]	Prep	Date	Prep B	atch	Analyti	cal Batch
C25004-12	2MS JK32235.D	1	12/14/1	2	TT	1	n/a		n/a		GJK128	88
C25004-12	2MSD JK32236.D	1	12/14/1	2	TT	1	n/a		n/a		GJK128	88
C25004-12	2 a JK32233.D	1	12/14/1	2	TT	1	n/a		n/a		GJK128	88
The QC re	eported here applies	to the foll	owing san	ıple	s:]	Method:	NWTPH	I-GX]
C25004-12	2											
CAS No.	Compound		C25004- mg/l	12 Q	Spike mg/l	MS mg/	1	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)		ND		0.4	0.40	02	101	0.407	102	1	60-140/20
CAS No.	Surrogate Recover	ies	MS		MSD		C25	5004-12	Limits			
98-08-8	aaa-Trifluorotoluen	e	94%		94%		93%	,)	50-150%	ó		
460-00-4	4-Bromofluorobenz	ene	105%		105%		102	%	50-150%	ó		

(a) Sample analyzed beyond hold time; reported results are considered minimum values.



DuplicateSummaryJob Number:C25004Account:SHELLWIC Shell Oil Company

Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample C25004-10DUP C25004-10	File ID JK31949.D JK31948.D	DF 1 1	Analyzed 12/04/12 12/04/12	By TT TT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GJK1278 GJK1278			
The QC reporte	d here applies	to the fo	llowing sample	5:]	Method: NWT	PH-GX			
C25004-1, C2500	04-2, C25004-3	, C25004	4-4, C25004-5,	C25004-6	, C25004-7, C250	004-8, C25004-9	, C25004-10, C25004			

CAS No.	Compound	C25004-10 mg/l Q	DUP mg/l Q	RPD Limits
	TPH (Gasoline)	ND	0.0655 J	200* a 20
CAS No.	Surrogate Recoveries	DUP	C25004-10	Limits
98-08-8	aaa-Trifluorotoluene	98%	95%	50-150%
460-00-4	4-Bromofluorobenzene	101%	99%	50-150%

(a) High RPD due to low concentrations of hits.

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Duplicate Summary Job Number: C25004

Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil Cor l/Harbor Is	npany sland - 255	5 1:	3th Ave	SW.,	Seattle,	WA		
Sample C25004-12D	File ID UP JK32234.D	DF 1	Analyze 12/14/12	ed 2	Ву ТТ		Prep Da n∕a	nte	Prep Batch n/a	Analytical Batch GJK1288
C25004-12 a	JK32233.D	1	12/14/12	2	TT		n/a		n/a	GJK1288
The QC rep	orted here applies	to the follo	owing sam	ple	s:			M	ethod: NWT	PH-GX
C25004-12										
CAS No.	Compound		C25004-: mg/l	12 Q	DUP mg/l	Q	RPD	Limit	S	
	TPH (Gasoline)		ND		ND		nc	20		
CAS No.	Surrogate Recover	ies	DUP		C25004	-12	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluend 4-Bromofluorobenzo	e ene	97% 106%		93% 102%		50-150 50-150	% %		

(a) Sample analyzed beyond hold time; reported results are considered minimum values.



6

DuplicateSummaryJob Number:C25004Account:SHELLWIC Shell Oil Company

Project:	URSORP: She	ell/Harbor	Island - 2555 1.	3th Ave S	W., Seattle, WA		
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C24949-2DUP	AA001708	.D1	12/03/12	PH	n/a	n/a	GAA72
C24949-2	AA001707	.D1	12/03/12	PH	n/a	n/a	GAA72
The QC report	ed here applies	s to the fo	llowing samples	s:	 	Method: RSK-1	75
C25004-9, C250	004-10						

CAS No.	Compound	C24949- ug/l	2 Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	92.7		90.2		3	30
124-38-9	Carbon Dioxide	72400	Е	73200	Е	1	30

DuplicateSummaryJob Number:C25004Account:SHELLWIC Shell Oil Company

Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample C24965-1DUP C24965-1	File ID AA001724. AA001723.	DF D1 D1	Analyzed 12/04/12 12/04/12	By PH PH	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GAA73 GAA73				
The QC report	ed here applies	to the fo	ollowing samples	5:		Method: RSK-1	75				
C25004-10, C2	5004-11										

		C24965-	1	DUP			
CAS No.	Compound	ug/l	Q	ug/l	Q	RPD	Limits
74-82-8	Methane	65.1		71.5		9	30
124-38-9	Carbon Dioxide	145000	Е	156000	Е	8	30

6.5.4

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Section 7



GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Account: Project:	SHELLWIC Shell Oi URSORP: Shell/Hart	ll Company por Island - 2555	13th Ave	e SW., Sea	attle, WA	Υ.	
Sample OP7127-MI	File ID DF 3 HH028669.D1	Analyzed 12/03/12	By JH	Pre 11/	ep Date 29/12	Prep Batch OP7127	Analytical Batch GHH869
The QC rej	ported here applies to the	e following sample	es:			Method: NWTI	PH-DX
C25004-12							
CAS No.	Compound	Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor Oil)	ND ND	0.10 0.20	0.050 0.10	mg/l mg/l		
CAS No.	Surrogate Recoveries		Limit	s			
630-01-3	Hexacosane	71%	50-15	0%			

7.1.1 7

Blank Spike/Blank Spike Duplicate Summary

		_
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA	
Account:	SHELLWIC Shell Oil Company	
Job Number:	C25004	

Sample File ID DF OP7127-BS HH028670.D1 OP7127-BSD HH028671.D1		Analy 12/03/ 12/03/	zed B 12 JF 12 JF	y I I	Prep Date 1 11/29/12 0 11/29/12 0		Prep Bate DP7127 DP7127	ch Analytical Batch GHH869 GHH869				
The QC reported here applies to the following samples: Method: NWTPH-DX C25004-12 C25004-12												
C23004-12												
CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD				
	TPH (Diesel) TPH (Motor Oil)	1 1	0.658 0.879	66 88	0.768 0.889	77 89	15 1	45-140/30 45-140/30				
CAS No.	Surrogate Recoveries	BSP	BS	D	Limits							
630-01-3	Hexacosane	78%	799	%	50-1509	%						

Duplicate Summary Job Number: C25004 Account: SHELLWIC Shell Oil Co

Account: Project:	URSORP: Shell/I	Harbor Island - 25	55 1	3th Ave S	SW.,	Seattle, V	WA	
Sample OP7127-DI	File ID UP1 HH028677.D	DF Analyz 1 12/03/	zed 12	By JH		Prep Dat	e Prep Batch OP7127	Analytical Batch GHH869
The QC re	Method: NWT	PH-DX						
C25004-12								
CASNo	Compound	C24962	-6	DUP	0	DDD	Limita	
CAS NO.	Compound	mg/1	Q	mg/1	Q	KPD	Linnts	
	TPH (Diesel)	0.0943	J	0.0935	J	1	25	
	TDU (Motor $O(1)$)	ND		ND		no	25	

	TPH (Motor Oil)	ND	ND	nc 25
CAS No.	Surrogate Recoveries	DUP	C24962-6	Limits
630-01-3	Hexacosane	74%	78%	50-150%



Section 8

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Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5591 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:					12/03/12
Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	13	8.5		
Antimony	6.0	.7	.51		
Arsenic	10	.7	.65		
Barium	200	.4	.35		
Beryllium	5.0	.2	.4		
Bismuth	20		2.9		
Boron	100	.9	.64		
Cadmium	2.0	.2	.15		
Calcium	5000	7.1	12	59.8	<5000
Chromium	10	.3	.41		
Cobalt	5.0	.2	.3		
Copper	10	1.2	3		
Iron	200	6.4	12	3.7	<200
Lead	10	.7	.85		
Lithium	50		2		
Magnesium	5000	27	36	21.1	<5000
Manganese	15	.1	1.3		
Molybdenum	20	.2	.22		
Nickel	5.0	.2	.12		
Potassium	10000	18	44		
Selenium	10	1.8	2.2		
Silicon	100	1.2	6.9		
Silver	5.0	.3	.47		
Sodium	10000	15	13		
Strontium	10	.2	.24		
Thallium	10	.5	.54		
Tin	50	. 2	.7		
Titanium	10	.4	.34		
Vanadium	10	.3	.3		
Zinc	20	.3	4.2		

Associated samples MP5591: C25004-9, C25004-10, C25004-11

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5591 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:				12/03/12					
Metal	C25003-1F Original M	IS	Spikelot MPIR4	% Rec	QC Limits				
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	202000 2	207000	5000	100.0	75-125				
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	23.6 5	514	500	100.5	75-125				
Lead	anr								
Lithium									
Magnesium	101000 1	07000	5000	120.0	75-125				
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Vanadium	anr								
Zinc	anr								
Associated sa	mples MP5591	: C2500	4-9, C250	04-10, C2	5004-11				
Results < IDI (*) Outside o (N) Matrix Sp (anr) Analyte	tesults < IDL are shown as zero for calculation purposes *) Outside of QC limits N) Matrix Spike Rec. outside of QC limits anr) Analyte not requested								



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5591 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:					12/03/12	
Metal	C25003-1 Original	lf L MSD	Spikelot MPIR4	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium	202000	208000	5000	120.0	0.5	20
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	23.6	522	500	102.1	1.5	20
Lead	anr					
Lithium						
Magnesium	101000	108000	5000	140.0(a)	0.9	20
Manganese	anr					
Molybdenum	anr					
Nickel	anr					
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Vanadium	anr					
Zinc	anr					
Associated sam	mples MP5	591: C2500	04-9, C250	04-10, C2	5004-11	
Results < IDL (*) Outside o: (N) Matrix Sp: (anr) Analyte	are shown f QC limit ike Rec. o not reque	n as zero ts outside of ested	for calcu E QC limit	lation pu s	rposes	



C25004

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5591 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

Metal

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.



Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5591 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:			12/03/12	
Metal	BSP Result	Spikelot MPIR4	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Bismuth				
Boron				
Cadmium	anr			
Calcium	5350	5000	107.0	80-120
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	518	500	103.6	80-120
Lead	anr			
Lithium				
Magnesium	5030	5000	100.6	80-120
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Vanadium	anr			
Zinc	anr			
Associated sa	mples MP5	591: C2500	4-9, C250	04-10, C25004-11
Results < IDL (*) Outside o (anr) Analyte	are shown f QC limi not requ	n as zero ts ested	for calcu	lation purposes



SERIAL DILUTION RESULTS SUMMARY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5591 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:		12/03/12	
Metal	C25003-1F Original SDL 1:5	%DIF	QC Limits
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	anr		
Calcium	202000 238000	18.0*(a)	0-10
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	33.0 0.00	100.0(b)	0-10
Lead	anr		
Lithium			
Magnesium	101000 116000	14.8*(a)	0-10
Manganese	anr		
Molybdenum	anr		
Nickel	anr		
Potassium			
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Thallium	anr		
Tin			
Titanium			
Vanadium	anr		
Zinc	anr		
Associated sar	mples MP5591: C2500	04-9, C250	004-10, C25004-11
Results < IDL (*) Outside of (anr) Analyte (a) Serial di	are shown as zero f QC limits not requested lution indicates po	for calcu ossible ma	ulation purposes



SERIAL DILUTION RESULTS SUMMARY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

QC Batch ID: MP5591 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

Metal

(b) Percent difference acceptable due to low initial sample $\$ concentration (< 50 times IDL).



Section 9

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QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries



METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company

Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO3	GN9635	5.0	1.6	mg/l	250	248	99.2	75-125%
Chloride	GP4432/GN9697	0.50	0.0	mg/l	5	5.03	100.6	90-110%
Nitrogen, Nitrate	GP4432/GN9697	0.10	0.0	mg/l	5	5.05	101.0	90-110%
Nitrogen, Nitrite	GP4432/GN9697	0.10	0.0	mg/l	5	5.01	100.2	90-110%
Sulfate	GP4432/GN9697	0.50	0.0	mg/l	5	5.03	100.6	90-110%
Sulfate	GP4442/GN9712	0.50	0.0	mg/l	5	4.94	98.8	90-110%

Associated Samples: Batch GN9635: C25004-9, C25004-10, C25004-11 Batch GP4432: C25004-9, C25004-11 Batch GP4442: C25004-10 (*) Outside of QC limits





BLANK SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN9635	mg/l	250	250	0.8	
Chloride	GP4432/GN9697	mg/l	5	5.04	0.2	25%
Nitrogen, Nitrate	GP4432/GN9697	mg/l	5	5.05	0.0	25%
Nitrogen, Nitrite	GP4432/GN9697	mg/l	5	5.01	0.0	25%
Sulfate	GP4432/GN9697	mg/l	5	5.03	0.0	25%
Sulfate	GP4442/GN9712	mg/l	5	4.98	0.8	25%

Associated Samples: Batch GN9635: C25004-9, C25004-10, C25004-11 Batch GP4432: C25004-9, C25004-11 Batch GP4442: C25004-10 (*) Outside of QC limits





DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN9635	C25076-2	mg/l	266	268	0.7	0-25%

Associated Samples: Batch GN9635: C25004-9, C25004-10, C25004-11 (*) Outside of QC limits





MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP4432/GN9697	C25127-2	mg/l	53.4	160	234	112.9	80-120%
Nitrogen, Nitrate	GP4432/GN9697	C25127-2	mg/l	41.5	160	221	112.2	80-120%
Nitrogen, Nitrite	GP4432/GN9697	C25127-2	mg/l	0.0	160	174	108.8	80-120%
Sulfate	GP4432/GN9697	C25127-2	mg/l	384	160	565	113.1	80-120%
Sulfate	GP4442/GN9712	C25004-10	mg/l	32.1	20	51.4	96.5	80-120%

Associated Samples: Batch GP4432: C25004-9, C25004-11 Batch GP4442: C25004-10 (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits





MATRIX SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C25004 Account: SHELLWIC - Shell Oil Company Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride Nitrogen, Nitrate Nitrogen, Nitrite Sulfate Sulfate	GP4432/GN9697 GP4432/GN9697 GP4432/GN9697 GP4432/GN9697 GP4432/GN9697 GP4442/GN9712	C25127-2 C25127-2 C25127-2 C25127-2 C25127-2 C25004-10	mg/l mg/l mg/l mg/l mg/l	53.4 41.5 0.0 384 32.1	160 160 160 160 20	234 221 173 566 51.5	0.0 0.0 0.6 0.2 0.2	

Associated Samples: Batch GP4432: C25004-9, C25004-11 Batch GP442: C25004-10 (*) Outside of QC limits (N) Matrix Spike Rec. outside of QC limits







12/15/12

Technical Report for

Shell Oil Company

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

46194341.GW12U

Accutest Job Number: C25081



Sampling Date: 11/29/12

Report to:

URS Corporation 111 SW Columbia, Suite 1500 Portland, OR 97201-5850 brian.pletcher@urs.com

ATTN: Brian Pletcher

Total number of pages in report: 53



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James J. Rhudy Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Nutan Kabir 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242)

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Sample Summary

Shell Oil Company

Job No: C25081

URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Project No: 46194341.GW12U

Sample Number	Collected Date	Time By	Received	Matri Code	ix Type	Client Sample ID
C25081-1	11/29/12	00:00 DRW	12/01/12	AQ	Trip Blank Water	TRIP BLANK
C25081-2	11/29/12	09:15 DRW	12/01/12	AQ	Ground Water	MW-05-1112
C25081-3	11/29/12	09:05 DRW	12/01/12	AQ	Ground Water	MW-104-1112
C25081-4	11/29/12	11:30 DRW	12/01/12	AQ	Ground Water	MW-213-1112
C25081-5	11/29/12	11:40 DRW	12/01/12	AQ	Ground Water	MW-214-1112
C25081-6	11/29/12	00:00 DRW	12/01/12	AQ	Ground Water	MW-214D-1112
C25081-7	11/29/12	14:20 DRW	12/01/12	AQ	Ground Water	MW-111-1112


Summary of Hits

Job Number:	C25081
Account:	Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA
Collected:	11/29/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method			
C25081-1	TRIP BLANK								
No hits reported	No hits reported in this sample.								
C25081-2	MW-05-1112								
TPH (Diesel)		0.0954	0.095	0.048	mg/l	NWTPH-DX			
C25081-3	MW-104-1112								
Benzene Toluene Ethylbenzene TPH (Gasoline) TPH (Diesel)		0.38 J 0.37 J 11.3 0.592 0.315	1.0 1.0 1.0 0.50 0.098	0.20 0.20 0.20 0.13 0.049	ug/l ug/l ug/l mg/l mg/l	SW846 8260B SW846 8260B SW846 8260B NWTPH-GX NWTPH-DX			
C25081-4	MW-213-1112								
No hits reported	in this sample.								
C25081-5	MW-214-1112								
No hits reported	in this sample.								
C25081-6	MW-214D-1112								
No hits reported	in this sample.								
C25081-7	MW-111-1112								
Benzene Toluene Xylene (total) TPH (Gasoline) TPH (Diesel)		24.8 1.0 1.2 J 0.371 0.269	1.0 1.0 2.0 0.20 0.10	0.20 0.20 0.46 0.050 0.050	ug/l ug/l ug/l mg/l mg/l	SW846 8260B SW846 8260B SW846 8260B NWTPH-GX NWTPH-DX			



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Sample Results

Report of Analysis



Report	of	Analysis
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Client Sar Lab Samp Matrix: Method: Project:	nple ID: TRIP ole ID: C250 AQ - SW8 URS	TRIP BLANKC25081-1Date Sampled: 11/29/12AQ - Trip Blank WaterDate Received: 12/01/12SW846 8260BPercent Solids: n/aURSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA					
Run #1 Run #2	File ID U7912.D	DF 1	Analyzed 12/05/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU302
Run #1 Run #2	Purge Volum 10.0 ml	e					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	110%		60-1	30%	
2037-26-5	Toluene-D8	95%		60-1	30%	
460-00-4	4-Bromofluorobenzene	96%		60-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



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Client Sample ID: TRIP BLANK Lab Sample ID: C25081-1 Matrix: AQ - Trip Blank Water Date Received: 12/01/12 Method: NWTPH-GX Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
	File ID	DF	Analyzed	Bv	Prep Da	te	Prep Batch	Analytical Batch	
Run #1 Run #2	JK31975.D	1	12/04/12	TT	n/a		n/a	GJK1279	
	Purge Volume	e							
Run #1 Run #2	10.0 ml								
Northwes	t TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TDU (Casalir		ND	0.20	0.050	ma/1			

	IFII (Gasolille)	ND	0.20	0.050 mg/1
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	99% 104%		50-150% 50-150%

- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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Client Sample ID:MW-05-1112Lab Sample ID:C25081-2Date Sampled:11/29/12Matrix:AQ - Ground WaterDate Received:12/01/12Method:SW846 8260BPercent Solids:n/aProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA							/29/12 2/01/12 a
Run #1 Run #2	File ID U7913.D	DF 1	Analyzed 12/05/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU302
Run #1 Run #2 Purgeable	Purge Volur 10.0 ml	ne					

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	ND ND ND ND	1.0 1.0 1.0 2.0	0.20 0.20 0.20 0.46	ug/l ug/l ug/l ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	ts	
1868-53-7 2037-26-5 460-00-4	Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	109% 87% 96%		60-13 60-13 60-13	30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



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3.2

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

	Report of AnalysisPage 1 of 1											
Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW-(ble ID: C2508 AQ - NWT URSC	95-1112 81-2 Ground Wa PH-GX 9RP: Shell/	ater 'Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle,	e Sampled: 1 e Received: 12 cent Solids: n/ WA	1/29/12 2/01/12 ⁄a				
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch				
Run #1 Run #2	JK31978.D	1	12/04/12	TT	n/a		n/a	GJK1279				
Run #1 Run #2	Purge Volume 10.0 ml	2										
Northwest	t TPH-Gx											
CAS No.	Compound		Result	RL	MDL	Units	Q					
	TPH (Gasolir	ne)	ND	0.20	0.050	mg/l						

Run# 2

Limits

50-150%

50-150%

Run# 1

98%

103%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Accutest Laboratories

CAS No.

630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of An	alysis			Page 1 of 1
Client Sar Lab Samp Matrix: Method: Project:	1/29/12 2/01/12 a							
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	HH028699.D	1	12/04/12	JH	12/03/1	2	OP7141	GHH869
	Initial Volume	Final Vo	olume					
Run #1 Run #2	1050 ml	1.0 ml						
Northwest	t TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel)		0.0954	0.095	0.048	mg/l		
	TPH (Motor O	il)	ND	0.19	0.095	mg/l		

Run# 2

Limits

50-150%

Run#1

78%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



3.2

Client Sample ID: MW-104-1112 Lab Sample ID: C25081-3 Date Sampled: 11/29/12 Matrix: AQ - Ground Water Date Received: 12/01/12 Method: SW846 8260B Percent Solids: n/a Project: URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Run #1 Run #2	File ID U7914.D	DF 1	Analyzed 12/05/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU302		
Run #1 Run #2	Purge Volun 10.0 ml	ne							
Purgeable	Aromatics								
CAS No.	Compound		Result	RL	MDL Unit	s O			

	-					
71-43-2	Benzene	0.38	1.0	0.20	ug/l	J
108-88-3	Toluene	0.37	1.0	0.20	ug/l	J
100-41-4	Ethylbenzene	11.3	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
CAS No	Surragata Dagavarias	Dun# 1	Dun# 2	Limi	ita	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its	
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 106%	Run# 2	Limi 60-13	its 30%	
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 106% 90%	Run# 2	Limi 60-11 60-11	its 30% 30%	
CAS No. 1868-53-7 2037-26-5 460-00-4	Surrogate Recoveries Dibromofluoromethane Toluene-D8 4-Bromofluorobenzene	Run# 1 106% 90% 103%	Run# 2	Limi 60-11 60-11 60-11	its 30% 30% 30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Sample ID:MW-104-1112Lab Sample ID:C25081-3Date Sampled:11/29/12Matrix:AQ - Ground WaterDate Received:12/01/12Method:NWTPH-GXPercent Solids:n/aProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Run #1 Run #2	File ID JK31979.D	DF 2.5	Analyzed 12/04/12	By TT	Prep D n/a	ate	Prep Batch n/a	Analytical Batch GJK1279	
Run #1 Run #2	Purge Volume 10.0 ml								
Northwest	t TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasoline	e)	0.592	0.50	0.13	mg/l			

Run# 2

Limits

50-150%

50-150%

Run# 1

98%

116%

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- $J = \ Indicates \ an \ estimated \ value$
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of An	alysis			Page 1 of 1
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-10 le ID: C25081 AQ - Gi NWTPF URSOR	MW-104-1112 C25081-3 AQ - Ground Water NWTPH-DX SW846 3510C URSORP: Shell/Harbor Island - 2555 13th				Date Sampled: 11/29/12 Date Received: 12/01/12 Percent Solids: n/a Sth Ave SW., Seattle, WA		
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	HH028700.D	1	12/04/12	JH	12/03/1	2	OP7141	GHH869
	Initial Volume	Final Vo	olume					
Run #1 Run #2	1020 ml	1.0 ml						
Northwest	TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor O	il)	0.315 ND	0.098 0.20	0.049 0.098	mg/l mg/l		

Run# 2

Limits

50-150%

Run#1

79%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



AQ - Gro SW846 8 URSORF	ound Water 260B ?: Shell/Har	bor Island - 2	2555 13th A	Date Sampled: 11/29/12 Date Received: 12/01/12 Percent Solids: n/a th Ave SW., Seattle, WA			
ile ID 17915.D	DF 1	Analyzed 12/05/12	Ву ҮР	Prep Date n/a	Prep Batch n/a	Analytical Batch VU302	
furge Volume 0.0 ml							
omatics							
	AQ - Gro SW846 8 URSORF ile ID 7915.D urge Volume).0 ml omatics Compound	AQ - Ground Water SW846 8260B URSORP: Shell/Har ile ID DF 7915.D 1 urge Volume 0.0 ml omatics Compound	AQ - Ground Water SW846 8260B URSORP: Shell/Harbor Island - : ile ID DF Analyzed 7915.D 1 12/05/12 urge Volume 0.0 ml comatics Compound Result	AQ - Ground Water SW846 8260B URSORP: Shell/Harbor Island - 2555 13th A ile ID DF Analyzed By 7915.D 1 12/05/12 YP urge Volume 0.0 ml comatics Compound Result RL	AQ - Ground Water Date SW846 8260B Perc URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, V ile ID DF Analyzed By Prep Date 7915.D 1 12/05/12 YP n/a urge Volume 0.0 ml comatics Compound Result RL MDL Units	AQ - Ground Water Date Received: 12/ SW846 8260B Percent Solids: n/a URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA Maile ID DF Analyzed By Prep Date Prep Batch 7915.D 1 12/05/12 YP n/a n/a	

71 42 0	D	ND	1.0	0.00	/1
/1-43-2	Benzene	ND	1.0	0.20	ug/I
108-88-3	Toluene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	s
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	s
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 106%	Run# 2	Limit 60-13	s 0%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 106% 97%	Run# 2	Limit 60-13 60-13	s 0% 0%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client Sa Lab Sam	ample ID: MW-22 ple ID: C2508	13-1112 1-4			Da	te Sampled: 1	1/29/12
Matrix:	AQ - C	Fround Wa	ater		Da	te Received: 1	2/01/12
Method:	SW846	5 8270C B	SY SIM SW846	5 3510C	Pe	rcent Solids: n	/a
Project:	URSO	RP: Shell/	Harbor Island -	2555 13tł	Ave SW., Seattle	e, WA	
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	File ID X26806.D	DF 1	Analyzed 12/04/12	By LW	Prep Date 12/04/12	Prep Batch OP7143	Analytical Batch EX1211
Run #1 Run #2	File ID X26806.D	DF 1	Analyzed 12/04/12	By LW	Prep Date 12/04/12	Prep Batch OP7143	Analytical Batch EX1211

Run #1 1000 ml

Run #2

1.0 ml

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.50	0.050	ug/l	
208-96-8	Acenaphthylene	ND	0.50	0.050	ug/l	
120-12-7	Anthracene	ND	0.50	0.050	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.053	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.041	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.035	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.045	ug/l	
53-70-3	Dibenzo(a, h)anthracene	ND	0.10	0.035	ug/l	
206-44-0	Fluoranthene	ND	0.50	0.050	ug/l	
86-73-7	Fluorene	ND	0.50	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.035	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-20-3	Naphthalene	ND	0.50	0.10	ug/l	
85-01-8	Phenanthrene	ND	0.50	0.050	ug/l	
129-00-0	Pyrene	ND	0.50	0.050	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
4165-60-0	Nitrobenzene-d5	95%		25-1	00%	
321-60-8	2-Fluorobiphenyl	79%		25-1	06%	
1718-51-0	Terphenyl-d14	84%		35-1	30%	

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound



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3.4

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98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client Saı Lab Samı Matrix:	mple ID: MW-2 ple ID: C2508 AQ - 0	213-1112 31-4 Ground Wa	ater			Date Date	e Sampled: 11 e Received: 12	/29/12 2/01/12	
Method:NWTPH-GXPercent Solids:n/aProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Run #1 Run #2	File ID JK31980.D	DF 1	Analyzed 12/05/12	By TT	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GJK1279	
Run #1 Run #2	Purge Volume 10.0 ml	2							
Northwes	t TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasolin	ie)	ND	0.20	0.050	mg/l			

Run# 2

Limits

50-150%

50-150%

Run#1

99%

106%

Report of Analysis

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of Aı	nalysis			Page 1 of 1	
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-21 le ID: C25081 AQ - G NWTPI URSOR	3-1112 -4 round Wate H-DX SW P: Shell/H	Date Sampled: Date Received: W846 3510C Percent Solids: Harbor Island - 2555 13th Ave SW., Seattle, WA				e Sampled: 11 e Received: 12 ent Solids: n/ WA	11/29/12 12/01/12 n/a	
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch	
Run #1 Run #2	HH028702.D	1	12/04/12	JH	12/03/1	.2	OP7141	GHH869	
	Initial Volume	Final Vo	lume						
Run #1 Run #2	1000 ml	1.0 ml							
Northwest	TPH-Dx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Diesel) TPH (Motor O	il)	ND ND	0.10 0.20	0.050 0.10	mg/l mg/l			

Run# 2

Limits

50-150%

Run#1

77%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



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3.4

Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW ole ID: C25(AQ - SW8 URS	-214-1112 081-5 • Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	Date Sampled: 11/29/12 Date Received: 12/01/12 Percent Solids: n/a n Ave SW., Seattle, WA			
Run #1 Run #2	File ID U7916.D	DF 1	Analyzed 12/05/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU302
Run #1 Run #2	Purge Volun 10.0 ml	ıe					
Purgeable	Aromatics						
CAS No.	Compound		Result	RL	MDL Unit	s Q	

71-43-2	Benzene	ND	1.0	0.20 ug	;/ 1
108-88-3	Toluene	ND	1.0	0.20 ug	;/ 1
100-41-4	Ethylbenzene	ND	1.0	0.20 ug	;/1
1330-20-7	Xylene (total)	ND	2.0	0.46 ug	;/ 1
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 110%	Run# 2	Limits 60-130%	
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 110% 96%	Run# 2	Limits 60-130% 60-130%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$

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3.5 3

	Initial Volume	e Final V	olume				
Run #2	1120007.12		12,01,12	2.0	12,01/12	01,115	
Run #1	X26807 D	DF 1	12/04/12	Бу LW	12/04/12	OP7143	EX1211
	File ID	DF	Analyzad	D _{xy}	Prop Data	Drop Rotah	Analytical Batch
Project:	URSC	RP: Shell/	Harbor Island -	2555 13th	h Ave SW., Seattle	, WA	
Method:	SW84	6 8270C B	Y SIM SW846	5 3510C	Pe	rcent Solids: n/	'a
Matrix:	AQ - 0	Ground Wa	ater		Da	te Received: 12	2/01/12
Lab Samp	le ID: C2508	31-5			Da	te Sampled: 1	1/29/12
Client Sam	ple ID: MW-2	14-1112					

Run #1 1060 ml

Run #2

1.0 ml

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.47	0.047	ug/l	
208-96-8	Acenaphthylene	ND	0.47	0.047	ug/l	
120-12-7	Anthracene	ND	0.47	0.047	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.094	0.050	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.094	0.039	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.094	0.033	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.094	0.034	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.094	0.037	ug/l	
218-01-9	Chrysene	ND	0.094	0.042	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.094	0.033	ug/l	
206-44-0	Fluoranthene	ND	0.47	0.047	ug/l	
86-73-7	Fluorene	ND	0.47	0.047	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.094	0.033	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.47	0.094	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.47	0.094	ug/l	
91-20-3	Naphthalene	ND	0.47	0.094	ug/l	
85-01-8	Phenanthrene	ND	0.47	0.047	ug/l	
129-00-0	Pyrene	ND	0.47	0.047	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
4165-60-0	Nitrobenzene-d5	100%		25-1	00%	
321-60-8	2-Fluorobiphenyl	87%		25-1	06%	
1718-51-0	Terphenyl-d14	86%		35-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client San Lab Samı Matrix: Method: Project:	mple ID: MW-2 ple ID: C2508 AQ - NWT URSC	214-1112 81-5 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	2555 13th	Ave SW.,	Date Date Perc Seattle, '	e Sampled: 1 2 Received: 12 2 rent Solids: n/ WA	1/29/12 2/01/12 ⁄a
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	JK31981.D	1	12/05/12	ΤŤ	n/a		n/a	GJK1279
	Purge Volum	e						
Run #1 Run #2	10.0 ml							
Northwes	t TPH-Gx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TDU (Cosolin	20)	ND	0.20	0.050	m a/1		

	TPH (Gasoline)	ND	0.20	0.050 mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	97% 104%		50-150% 50-150%	

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Page 1 of 1



630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of An	alysis			Page 1 of 1
Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW-21 ble ID: C25081 AQ - G NWTPI URSOF	4-1112 -5 round Wa H-DX SW RP: Shell/H	ter V846 3510C Harbor Island -	2555 13th A	Ave SW.,	Date Date Perc Seattle, '	e Sampled: 11 e Received: 12 eent Solids: n/a WA	/29/12 /01/12 a
Run #1 Run #2	File ID HH028703.D	DF 1	Analyzed 12/04/12	By JH	Prep D 12/03/1	ate 12	Prep Batch OP7141	Analytical Batch GHH869
Run #1 Run #2	Initial Volume 1050 ml	Final V 1.0 ml	olume					
Northwest	t TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor O	il)	ND ND	0.095 0.19	0.048 0.095	mg/l mg/l		

Run# 2

Limits

50-150%

Run#1

72%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



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Client San Lab Samp Matrix: Method: Project:	nple ID: MW- ole ID: C250 AQ - SW8 URS	214D-1112 981-6 Ground Wa 46 8260B ORP: Shell/	ıter Harbor Island -	2555 13tł	Da Da Pe 1 Ave SW., Seattle	te Sampled: 11 te Received: 12 rcent Solids: n/ , WA	1/29/12 2/01/12 a
Run #1 Run #2	File ID U7917.D	DF 1	Analyzed 12/05/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU302
Run #1 Run #2	Purge Volum 10.0 ml	ne					
Purgeable	Aromatics		Docult	DI	MDI Unit		

71-43-2	Benzene	ND	1.0	0.20 u	ıg/l
108-88-3	Toluene	ND	1.0	0.20 u	ıg/l
100-41-4	Ethylbenzene	ND	1.0	0.20 u	ıg/l
1330-20-7	Xylene (total)	ND	2.0	0.46 u	ıg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 107%	Run# 2	Limits 60-130 ⁰	%
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 107% 97%	Run# 2	Limits 60-130 60-130	% %

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Client Sa	mple ID: MW-21	4D-1112			_		
Lab Sam	ple ID: C25081	-6			Da	ite Sampled: 1	1/29/12
Matrix:	AQ - G	round Wa	ater		Da	te Received: 1	2/01/12
Method:	SW846	8270C B	SY SIM SW846	5 3510C	Pe	rcent Solids: n	/a
Project:	URSOI	RP: Shell/	Harbor Island -	2555 13th	Ave SW., Seattle	, WA	
9							
	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	File ID X26808.D	DF 1	Analyzed 12/04/12	By LW	Prep Date 12/04/12	Prep Batch OP7143	Analytical Batch EX1211
Run #1 Run #2	File ID X26808.D	DF 1	Analyzed 12/04/12	By LW	Prep Date 12/04/12	Prep Batch OP7143	Analytical Batch EX1211

Run #1 1060 ml

Run #2

1.0 ml

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.47	0.047	ug/l	
208-96-8	Acenaphthylene	ND	0.47	0.047	ug/l	
120-12-7	Anthracene	ND	0.47	0.047	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.094	0.050	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.094	0.039	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.094	0.033	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.094	0.034	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.094	0.037	ug/l	
218-01-9	Chrysene	ND	0.094	0.042	ug/l	
53-70-3	Dibenzo(a, h)anthracene	ND	0.094	0.033	ug/l	
206-44-0	Fluoranthene	ND	0.47	0.047	ug/l	
86-73-7	Fluorene	ND	0.47	0.047	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.094	0.033	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.47	0.094	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.47	0.094	ug/l	
91-20-3	Naphthalene	ND	0.47	0.094	ug/l	
85-01-8	Phenanthrene	ND	0.47	0.047	ug/l	
129-00-0	Pyrene	ND	0.47	0.047	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
4165-60-0	Nitrobenzene-d5	98%		25-1	00%	
321-60-8	2-Fluorobiphenyl	87%		25-1	06%	
1718-51-0	Terphenyl-d14	88%		35-1	30%	

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Client San Lab Samj Matrix: Method: Project:	mple ID: MW-2 ple ID: C2508 AQ - 0 NWT1 URSC	214D-1112 31-6 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	2555 13th	Date Sampled: 11/29/12 Date Received: 12/01/12 Percent Solids: n/a 555 13th Ave SW., Seattle, WA				
	File ID	DF	Analyzed	By	Prep Da	ate	Prep Batch	Analytical Batch	
Run #1	JK31982.D	1	12/05/12	ΤŤ	n/a		n/a	GJK1279	
Run #2									
Run #1 Run #2	Purge Volume 10.0 ml	2							
Northwes	t TPH-Gx								
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasolin	ne)	ND	0.20	0.050	mg/l			

Run# 2

Limits

50-150%

50-150%

Run# 1

95%

103%

Report of Analysis

- J = Indicates an estimated value
- $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$
- N = Indicates presumptive evidence of a compound

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Accutest Laboratories

630-01-3

			Repo	rt of An	alysis			Page 1 of 1
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-2 le ID: C2508 AQ - C NWTP URSOI	l4D-1112 l-6 dround Wa H-DX S RP: Shell/	ater W846 3510C Harbor Island - 2	2555 13th A	ve SW.,	Date Date Perc Seattle, '	e Sampled: 11 e Received: 12 cent Solids: n/ WA	/29/12 2/01/12 a
Run #1 ^a Run #2	File ID HH028704.D	DF 1	Analyzed 12/04/12	By JH	Prep D 12/03/1)ate 12	Prep Batch OP7141	Analytical Batch GHH869
Run #1 Run #2	Initial Volume 500 ml	Final V 1.0 ml	olume					
Northwest	TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor C)il)	ND ND	0.20 0.40	0.10 0.20	mg/l mg/l		
CAS No.	Surrogate Re	coveries	Run# 1	Run# 2	Lim	iits		

(a) Reporting Limits raised due to insufficient sample volume.

Hexacosane

73%

ND = Not detected MDL - Method Detection Limit RL = Reporting Limit E = Indicates value exceeds calibration range

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound
 - 25 of 53 ACCUTEST C25081

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3.6

Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW- ole ID: C250 AQ - SW8 URS	111-1112 81-7 Ground Wa 46 8260B ORP: Shell/	ater Harbor Island -	Date Sampled: 11/29/12 Date Received: 12/01/12 Percent Solids: n/a h Ave SW., Seattle, WA				
Run #1 Run #2	File ID U7918.D	DF 1	Analyzed 12/05/12	By YP	Prep Date n/a	Prep Batch n/a	Analytical Batch VU302	
Run #1 Run #2	Purge Volum 10.0 ml	ie						
Purgeable	Aromatics							
CAS No.	Compound		Result	RL	MDL Units	s Q		

71-43-2	Benzene	24.8	1.0	0.20	ug/l	
108-88-3	Toluene	1.0	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	1.2	2.0	0.46	ug/l	J
					-	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lin	nits	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lin	nits	
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 106%	Run# 2	Lin 60-2	nits 130%	
CAS No. 1868-53-7 2037-26-5	Surrogate Recoveries Dibromofluoromethane Toluene-D8	Run# 1 106% 90%	Run# 2	Lin 60-2 60-2	nits 130% 130%	
CAS No.	Surrogate Recoveries Dibromofluoromethane	Run# 1	Run# 2	60-1	nits 130%	
CAS No.	Surrogate Recoveries Dibromofluoromethane	Run# 1	Run# 2	60-1	nits 130%	

- $J = \ Indicates \ an \ estimated \ value$
- B = Indicates analyte found in associated method blank
- $N = \ Indicates \ presumptive \ evidence \ of \ a \ compound$



3.7 3

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

-											
Client Sar Lab Samp Matrix: Method: Project:	nple ID: MW-1 ole ID: C2508 AQ - NWT URSC	111-1112 31-7 Ground Wa PH-GX DRP: Shell/	ater Harbor Island -	2555 13th	Date Sampled: 11/29/12 Date Received: 12/01/12 Percent Solids: n/a th Ave SW., Seattle, WA						
Run #1 Run #2	File ID JK32006.D	DF 1	Analyzed 12/05/12	By TT	Prep Da n/a	ate	Prep Batch n/a	Analytical Batch GJK1280			
Run #1 Run #2	Purge Volume 10.0 ml	2									
Northwest	t TPH-Gx										
CAS No.	Compound		Result	RL	MDL	Units	Q				
	TPH (Gasolir	ne)	0.371	0.20	0.050	mg/l					

Run# 2

Limits

50-150%

50-150%

Run#1

99%

121%

Report of Analysis

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Page 1 of 1



630-01-3

Surrogate Recoveries

Hexacosane

			Repo	rt of Ai	nalysis			Page 1 of 1
Client San Lab Samp Matrix: Method: Project:	nple ID: MW-11 le ID: C25081 AQ - G NWTPH URSOR	1-1112 -7 round Wat H-DX SW P: Shell/H	er /846 3510C Iarbor Island - 2	2555 13th .	Ave SW.,	Date Date Perc Seattle, '	e Sampled: 11 e Received: 12 ent Solids: n/ WA	1/29/12 2/01/12 a
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 Run #2	HH028705.D	1	12/04/12	JH	12/03/1	.2	OP7141	GHH869
	Initial Volume	Final Vo	olume					
Run #1 Run #2	1000 ml	1.0 ml						
Northwest	TPH-Dx							
CAS No.	Compound		Result	RL	MDL	Units	Q	
	TPH (Diesel) TPH (Motor O	il)	0.269 ND	0.10 0.20	0.050 0.10	mg/l mg/l		

Run# 2

Limits

50-150%

Run#1

76%

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

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Section 4



Misc. Forms	
ustody Documents and Other Forms	
cludes the following where applicable:	
Chain of Custody	



4

				⑳	S	Shel	I C)il F	Pro	odu	cts	C	hair	ı Of	Сι	ıst	ody	Re	cor	'd		St	HELLWIC3	660
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C25081: Chain of Custody Page 1 of 2





Accutest Laboratories Sample Receipt Summary

Accutest Job Number:	C25081	Client:	SHELL OIL		Project: S	HELL/HARBOR ISLAND, SEATTLE, WA
Date / Time Received:	12/1/2012		Delivery Method:	FedEx	Airbill #'s	:
Cooler Temps (Initial/Ac	ljusted): <u>#1: (4.1/4.</u>	1); #2: (<u>5.3/5.3); 0</u>			

Cooler Security	Y or N			Y	or N	Sample Integrity - Documentation	Y	or	N	
 Custody Seals Present: Custody Seals Intact: 		3. COC Pre 4. Smpl Dates	esent: /Time OK	✓		 Sample labels present on bottles: Container labeling complete: 	✓			
Cooler Temperature	Y or	N				3. Sample container label / COC agree:	\checkmark			
1. Temp criteria achieved:	☑ IR G					Sample Integrity - Condition	<u>Y</u>	or	<u>N</u>	
3. Cooler media:	Ice (E	Bag)				 Sample recvd within HT: All containers accounted for: 				
4. No. Coolers:	2					3. Condition of sample:		Intact		
Quality Control Preservat	<u>ion Y or</u>	<u>N N/A</u>				Sample Integrity - Instructions	Y	or	N	N/A
1. Trip Blank present / cooler:	\checkmark					1. Analysis requested is clear:				
2. Trip Blank listed on COC:	\checkmark					2. Bottles received for unspecified tests			\checkmark	
3. Samples preserved proper	ly: 🔽					3. Sufficient volume recvd for analysis:	\checkmark			
4. VOCs headspace free:	\checkmark					4. Compositing instructions clear:				\checkmark
						5. Filtering instructions clear:				\checkmark

Comments

Accutest Laboratories V:408.588.0200 2105 Lundy Avenue F: 408.588.0201 San Jose, CA 95131 www/accutest.com 4.1 **4**

C25081: Chain of Custody Page 2 of 2



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GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C25081

Account:	SHELLWIC S	HELLWIC Shell Oil Company										
Project:	URSORP: She	JRSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample	File ID	DF	Analyzed 12/05/12	By	Prep Date	Prep Batch	Analytical Batch					
VU302-MB	U7911.D	1		YP	n/a	n/a	VU302					
The QC repor	ted here applies	s to the fo	llowing samples	s:]	Method: SW84	6 8260B					

C25081-1, C25081-2, C25081-3, C25081-4, C25081-5, C25081-6, C25081-7

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.20	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l
108-88-3	Toluene	ND	1.0	0.20	ug/l
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l
	•				e

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	104%	60-130%
2037-26-5	Toluene-D8	100%	60-130%
460-00-4	4-Bromofluorobenzene	100%	60-130%





Blank Spike/Blank Spike Duplicate Summary

Job Number:	C25081
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
U7908.D	1	12/05/12	YP	n/a	n/a	VU302
U7909.D	1	12/05/12	YP	n/a	n/a	VU302
	File ID U7908.D U7909.D	File ID DF U7908.D 1 U7909.D 1	File IDDFAnalyzedU7908.D112/05/12U7909.D112/05/12	File IDDFAnalyzedByU7908.D112/05/12YPU7909.D112/05/12YP	File ID DF Analyzed By Prep Date U7908.D 1 12/05/12 YP n/a U7909.D 1 12/05/12 YP n/a	File IDDFAnalyzedByPrep DatePrep BatchU7908.D112/05/12YPn/an/aU7909.D112/05/12YPn/an/a

The QC reported here applies to the following samples:

Method: SW846 8260B

C25081-1, C25081-2, C25081-3, C25081-4, C25081-5, C25081-6, C25081-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	20.8	104	22.1	111	6	60-130/30
100-41-4	Ethylbenzene	20	21.3	107	21.9	110	3	60-130/30
108-88-3	Toluene	20	21.6	108	22.4	112	4	60-130/30
1330-20-7	Xylene (total)	60	64.0	107	65.9	110	3	60-130/30
CAC N	G (D	DCD	DO	D	. ,			

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	108%	107%	60-130%
2037-26-5	Toluene-D8	98%	97%	60-130%
460-00-4	4-Bromofluorobenzene	104%	101%	60-130%

Laboratory Control Sample Summary

Job Number: Account: Project:	C25081 SHELLWIC S URSORP: She	hell Oil Co ll/Harbor I	mpany sland - 255	55 13th	Ave SW.	, Seattle, WA		
Sample VU302-LCS	File ID U7910.D	DF 1	Analyz 12/05/1	ed B 2 Y	y P	Prep Date n/a	Prep Batch n/a	Analytical Batch VU302
The QC repor	ted here applies	to the foll	owing san	nples:]	Method: SW84	6 8260B
C25081-1, C25	5081-2, C25081-	3, C25081-	4, C25081	-5, C25	081-6, C	25081-7		
CAS No. Co	ompound		Spike ug/l	LCS ug/l	LCS %	Limits		

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	106%	60-130%
2037-26-5	Toluene-D8	100%	60-130%
460-00-4	4-Bromofluorobenzene	98%	60-130%





5.3.1 **5**

Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C25081
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C25082-6MS	U7928.D	10	12/05/12	YP	n/a	n/a	VU302
C25082-6MSD	U7929.D	10	12/05/12	YP	n/a	n/a	VU302
C25082-6	U7927.D	10	12/05/12	YP	n/a	n/a	VU302

The QC reported here applies to the following samples:

Method: SW846 8260B

 $C25081\text{-}1,\ C25081\text{-}2,\ C25081\text{-}3,\ C25081\text{-}4,\ C25081\text{-}5,\ C25081\text{-}6,\ C25081\text{-}7$

CAS No.	Compound	C25082-6 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	348	200	611	132* a	594	123	3	60-130/25
100-41-4	Ethylbenzene	654	200	963	155* ^b	953	150* ^b	1	60-130/25
108-88-3	Toluene	35.2	200	253	109	249	107	2	60-130/25
1330-20-7	Xylene (total)	681	600	1420	123	1410	122	1	60-130/25
					\mathcal{O}				
CAS No.	Surrogate Recoveries	MS	MSD	C25	6082-6	Limits			
1868-53-7	Dibromofluoromethane	102%	102%	104	%	60-130%)		
2037-26-5	Toluene-D8	99%	98%	99%)	60-130%)		
460-00-4	4-Bromofluorobenzene	111%	113%	108	%	60-130%	,)		

(a) Outside control limits.

(b) Outside control limits due to high level in sample relative to spike amount.

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Section 6

6



GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary

Job Number: Account: Project:	SHELLWIC Shell Oil Company URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA											
Sample	File ID	DF	Analyzed	By	Prep Date 12/04/12	Prep Batch	Analytical Batch					
OP7143-MB	X26801.D	1	12/04/12	LW		OP7143	EX1211					

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

C25081-4, C25081-5, C25081-6

CAS No.	Compound	Result	RL	MDL	Units Q
83-32-9	Acenaphthene	ND	0.50	0.050	ug/l
208-96-8	Acenaphthylene	ND	0.50	0.050	ug/l
120-12-7	Anthracene	ND	0.50	0.050	ug/l
56-55-3	Benzo(a)anthracene	ND	0.10	0.053	ug/l
50-32-8	Benzo(a)pyrene	ND	0.10	0.041	ug/l
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.035	ug/l
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l
218-01-9	Chrysene	ND	0.10	0.045	ug/l
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.035	ug/l
206-44-0	Fluoranthene	ND	0.50	0.050	ug/l
86-73-7	Fluorene	ND	0.50	0.050	ug/l
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.035	ug/l
90-12-0	1-Methylnaphthalene	ND	0.50	0.10	ug/l
91-57-6	2-Methylnaphthalene	ND	0.50	0.10	ug/l
91-20-3	Naphthalene	ND	0.50	0.10	ug/l
85-01-8	Phenanthrene	ND	0.50	0.050	ug/l
129-00-0	Pyrene	ND	0.50	0.050	ug/l

CAS No.	Surrogate Recoveries		Limits
4165-60-0 321-60-8	Nitrobenzene-d5 2-Fluorobinhenyl	78% 71%	25-100% 25-106%
1718-51-0	Terphenyl-d14	111%	35-130%



Blank Spike/Blank Spike Duplicate Summary

Job Number:	C25081
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7143-BS	X26802.D	1	12/04/12	LW	12/04/12	OP7143	EX1211
OP7143-BSD	X26803.D	1	12/04/12	LW	12/04/12	OP7143	EX1211

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

C25081-4, C25081-5, C25081-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	5	4.6	92	4.3	86	7	25-130/30
208-96-8	Acenaphthylene	5	4.8	96	4.6	92	4	30-122/30
120-12-7	Anthracene	5	5.1	102	4.9	98	4	39-128/30
56-55-3	Benzo(a)anthracene	5	5.9	118	5.7	114	3	35-132/30
50-32-8	Benzo(a)pyrene	5	5.4	108	5.3	106	2	44-136/30
205-99-2	Benzo(b)fluoranthene	5	5.4	108	5.4	108	0	41-134/30
191-24-2	Benzo(g,h,i)perylene	5	6.2	124	6.1	122	2	30-134/30
207-08-9	Benzo(k)fluoranthene	5	5.5	110	5.1	102	8	40-134/30
218-01-9	Chrysene	5	5.2	104	5.0	100	4	39-134/30
53-70-3	Dibenzo(a,h)anthracene	5	5.8	116	5.8	116	0	33-137/30
206-44-0	Fluoranthene	5	5.5	110	5.3	106	4	40-129/30
86-73-7	Fluorene	5	4.9	98	4.7	94	4	32-125/30
193-39-5	Indeno(1,2,3-cd)pyrene	5	6.3	126	6.2	124	2	33-137/30
90-12-0	1-Methylnaphthalene	5	4.5	90	4.2	84	7	27-124/30
91-57-6	2-Methylnaphthalene	5	4.5	90	4.2	84	7	28-120/30
91-20-3	Naphthalene	5	4.4	88	4.0	80	10	28-122/30
85-01-8	Phenanthrene	5	4.7	94	4.6	92	2	38-128/30
129-00-0	Pyrene	5	5.0	100	4.7	94	6	35-126/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
4165-60-0	Nitrobenzene-d5	98%	90%	25-100%
321-60-8	2-Fluorobiphenyl	90%	84%	25-106%
1718-51-0	Terphenyl-d14	105%	98%	35-130%
Section 7



QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary Job Number: C25081

Job Number:C25081Account:SHELLWIC Shell Oil CompanyProject:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA									
Sample GJK1279-N	File ID 1B JK31955.D	DF 1	Analyzed 12/04/12	By TT	Pre n/a	p Date	Prep Batch n/a	Analytical Batch GJK1279	
The QC re C25081-1,	ported here applies C25081-2, C25081-3	to the follo , C25081	owing sample 4, C25081-5,	es: C25081-	-6		Method: NWT	PH-GX	
CAS No.	Compound		Result	RL	MDL	Units	Q		
	TPH (Gasoline)		ND	0.20	0.050	mg/l			
CASNo	Surrogata Pacavar	ioc		I imite					

CAS NO.	Surrogate Recoveries		Limits
98-08-8	aaa-Trifluorotoluene	93%	50-150%
460-00-4	4-Bromofluorobenzene	97%	50-150%

Page 1 of 1



Method Blank Summary Job Number: C25081

Account: Project:	Int:SHELLWIC Shell Oil CompanyInt:URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA										
Sample GJK1280-N	File ID MB JK31989.D	DF 1	Prep Batch n/a	Analytical Batch GJK1280							
The QC re	eported here applies	to the follo	owing sampl	es:			Method: NWT	PH-GX			
C25081-7											
CAS No.	Compound		Result	RL	MDL	Units	Q				
	TPH (Gasoline)		ND	0.20	0.050	mg/l					
CAS No.	Surrogate Recover	ies		Limit	5						
98-08-8 460-00-4	aaa-Trifluorotoluen 4-Bromofluorobenz	e ene	85% 91%	50-150 50-150)%)%						



Blank Spike/Blank Spike Duplicate Summary

Job Number:	C25081
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GJK1279-BS	JK31956.D	1	12/04/12	TT	n/a	n/a	GJK1279
GJK1279-BSD	JK31957.D	1	12/04/12	TT	n/a	n/a	GJK1279
The QC reported here applies to the following samples:					I	Method: NWT	PH-GX

C25081-1, C25081-2, C25081-3, C25081-4, C25081-5, C25081-6

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.4	0.389	97	0.378	95	3	60-140/30
CAS No.	Surrogate Recoveries	BSP	BSD)	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	97% 104%	92% 97%		50-150% 50-150%			



Blank Spike/Blank Spike Duplicate Summary

Job Number: Account: Project:	C25081 SHELLWIC Sh URSORP: Shel	ell Oil C l/Harbor	Company Island - 2555 11	3th Ave S	SW., Seattle, WA	
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch
GJK1280-BS	JK31990.D	1	12/05/12	TT	n/a	n/a
GJK1280-BSD	JK31991.D	1	12/05/12	TT	n/a	n/a

The QC reported here applies to the following samples:

Method: NWTPH-GX

C25081-7

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	0.4	0.405	101	0.402	101	1	60-140/30
CAS No.	Surrogate Recoveries	BSP	В	SD	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	93% 101%	89 10	9% 00%	50-150% 50-150%)		

Analytical Batch GJK1280 GJK1280

Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C25081
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C25081-2MS	JK31985.D	1	12/05/12	TT	n/a	n/a	GJK1279
C25081-2MSD	JK31986.D	1	12/05/12	TT	n/a	n/a	GJK1279
C25081-2	JK31978.D	1	12/04/12	TT	n/a	n/a	GJK1279

The QC reported here applies to the following samples:

Method: NWTPH-GX

C25081-1, C25081-2, C25081-3, C25081-4, C25081-5, C25081-6

CAS No.	Compound	C25081-2 mg/l Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)	ND	0.4	0.421	105	0.417	104	1	60-140/20
CAS No.	Surrogate Recoveries	MS	MSD	C2	5081-2	Limits			
98-08-8 460-00-4	aaa-Trifluorotoluene 4-Bromofluorobenzene	96% 103%	96% 104%	989 103	% \$%	50-150% 50-150%	, b		

Page 1 of 1

Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C25081
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample C25082-7M C25082-7M C25082-7	File ID S JK32002.D SD JK32003.D JK32000.D	DF 1 1 1	Analyze 12/05/12 12/05/12 12/05/12	e d 2 2 2	By TT TT TT	Prep n/a n/a n/a) Date	Prep E n/a n/a n/a	Satch	Analyti GJK128 GJK128 GJK128	cal Batch 30 30 30
The QC reported here applies to the following samples:Method: NWTPH-GX											
C25081-7											
CAS No.	Compound		C25082-7 mg/l	7 Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Gasoline)		0.289		0.4	0.653	91	0.672	96	3	60-140/20

CAS No.	Surrogate Recoveries	MS	MSD	C25082-7	Limits
98-08-8	aaa-Trifluorotoluene	93%	96%	96%	50-150%
460-00-4	4-Bromofluorobenzene	105%	108%	107%	50-150%



Duplicate Summary Job Number: C25081

Account: Project:	SHELLWIC Sh URSORP: Shel	ell Oil C l/Harbor	Company Island - 2555 1	3th Ave S	W., Seattle, WA		
Sample C25081-6DUP C25081-6	File ID JK31983.D JK31982.D	DF 1 1	Analyzed 12/05/12 12/05/12	By TT TT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GJK1279 GJK1279
The QC report	ed here applies	to the fo	llowing samples	s:		Method: NWTH	PH-GX

C25081-1, C25081-2, C25081-3, C25081-4, C25081-5, C25081-6

CAS No.	Compound	C25081-6 mg/l Q	DUP mg/l Q	RPD Limits
	TPH (Gasoline)	ND	ND	nc 20
CAS No.	Surrogate Recoveries	DUP	C25081-6	Limits
98-08-8	aaa-Trifluorotoluene	93%	95%	50-150%
460-00-4	4-Bromofluorobenzene	102%	103%	50-150%



DuplicateSummaryJob Number:C25081Account:SHELLWIC Shell Oil Company

CAS No.

98-08-8

460-00-4

Surrogate Recoveries

aaa-Trifluorotoluene

4-Bromofluorobenzene

Project:	URSORP: Shel	l/Harbor Isl	land - 255	5 13	3th Ave	SW.,	Seattle,	WA	
Sample C25082-3D C25082-3	File ID UP JK31995.D JK31994.D	DF 1 1	Analyze 12/05/1 12/05/1	ed 2 2	By TT TT		Prep Da n/a n/a	te Prep Batch n/a n/a	Analytical Batch GJK1280 GJK1280
The QC re	ported here applies	to the follo	wing sam	ple	s:			Method: NW	TPH-GX
C25081-7									
CAS No.	Compound		C25082- mg/l	3 Q	DUP mg/l	Q	RPD	Limits	
	TPH (Gasoline)		ND		ND		nc	20	

C25082-3

95%

101%

Limits

50-150%

50-150%

DUP

94%

101%



Section 8

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GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary

TPH (Motor Oil)

Job Number Account: Project:	r: C25081 SHELLWIC Shel URSORP: Shell/H	l Oil Company Harbor Island - 255:	5 13th Ave	SW., Seat	ttle, WA		
Sample OP7141-ME	File ID I B HH028683.D	DF Analyze	d By 2 JH	Prej 12/0	p Date)3/12	Prep Batch OP7141	Analytical Batch GHH869
The QC rep	C 25081-3 C25081-4 (the following sam	ples:	-7]	Method: NWT	PH-DX
e23001 2, e	22001 3, C2001 4, 4			,			
CAS No.	Compound	Result	RL	MDL	Units	Q	
	TPH (Diesel)	ND	0.10	0.050	mg/l		

0.20

0.10

mg/l

CAS No.Surrogate RecoveriesLimits630-01-3Hexacosane77%50-150%

ND

8.1.1

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Blank Spike/Blank Spike Duplicate Summary

Job Number:	C25081
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
OP7141-BS	HH028681.I	D1	12/03/12	ЈН	12/03/12	OP7141	GHH869
OP7141-BSD	HH028682.I	D1	12/03/12	ЈН	12/03/12	OP7141	GHH869

The QC reported here applies to the following samples:

Method: NWTPH-DX

C25081-2, C25081-3, C25081-4, C25081-5, C25081-6, C25081-7

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Diesel) TPH (Motor Oil)	1 1	0.736 0.921	74 92	0.708 0.895	71 90	4 3	45-140/30 45-140/30
CAS No.	Surrogate Recoveries	BSP	BSD)	Limits			
630-01-3	Hexacosane	81%	83%		50-150%			

Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	C25081
Account:	SHELLWIC Shell Oil Company
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7141-MS	HH028708.I	D1	12/04/12	JH	12/03/12	OP7141	GHH869
OP7141-MSD	HH028709.I	D1	12/04/12	JH	12/03/12	OP7141	GHH869
C25055-8	HH028698.I	D1	12/03/12	JH	12/03/12	OP7141	GHH869

The QC reported here applies to the following samples:

Method: NWTPH-DX

C25081-2, C25081-3, C25081-4, C25081-5, C25081-6, C25081-7

CAS No.	Compound	C25055-8 mg/l Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD	8.3.1
	TPH (Diesel) TPH (Motor Oil)	0.116 ND	1.96 1.96	1.19 1.26	55 64	1.04 1.24	47 63	13 2	45-140/25 45-140/25	00
CAS No.	Surrogate Recoveries	MS	MSD	C2	5055-8	Limits				
630-01-3	Hexacosane	64%	59%	64%	%	50-1509	%			

Duplicate Summary Job Number: C25081

Account:	SHELLWIC Shell Oil Company								
Project:	URSORP: Shell/Harbor Island - 2555 13th Ave SW., Seattle, WA								
Sample	File ID	DF	Analyzed	Ву	Prep Date 12/03/12 12/03/12	Prep Batch	Analytical Batch		
OP7141-DUP1	HH028695	.D1	12/03/12	ЈН		OP7141	GHH869		
C25054-2	HH028685	.D1	12/03/12	ЈН		OP7141	GHH869		

The QC reported here applies to the following samples:

Method: NWTPH-DX

C25081-2, C25081-3, C25081-4, C25081-5, C25081-6, C25081-7

CAS No.	Compound	C25054-2 mg/l Q	DUP mg/l Q	RPD Limits	
	TPH (Diesel) TPH (Motor Oil)	0.0985 ND	0.0834 J ND	17 25 nc 25	
CAS No.	Surrogate Recoveries	DUP	C25054-2	Limits	
630-01-3	Hexacosane	73%	77%	50-150%	

