



12/14/11

Technical Report for

KRW Consulting, Inc.

XOM FRU 297-32A

1108-12A

Accutest Job Number: D30146

Sampling Date: 12/08/11

Report to:

KRW Consulting, Inc.
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Lakewood, CO 80214
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ATTN: Dwayne Knudson

Total number of pages in report: 32



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.


Brad Madadian
Laboratory Director

Client Service contact: 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

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Test results relate only to samples analyzed.

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Sample Summary

KRW Consulting, Inc.

Job No: D30146

XOM FRU 297-32A
Project No: 1108-12A

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D30146-1	12/08/11	10:10 DS	12/09/11	SO	Soil	RP BERM SOUTH
D30146-2	12/08/11	10:40 DS	12/09/11	SO	Soil	RP BERM NORTH

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D30146

Site: XOM FRU 297-32A

Report Dat 12/14/2011 11:37:25 A

On 12/09/2011, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D30146 was assigned to the project. The lab sample IDs, client sample IDs, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO	Batch ID: V3V871
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30146-2MS, D30146-2MSD were used as the QC samples indicated.
- Sample(s) V3V871-MB have surrogates outside control limits.

Matrix SO	Batch ID: V3V872
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30146-1MS, D30146-1MSD were used as the QC samples indicated.
- The blank spike (BS) recovery(s) of Benzene, Ethylbenzene, Toluene, Xylene (total) are outside control limits.

Volatiles by GC By Method SW846 8015B

Matrix SO	Batch ID: GGB803
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30098-1MS, D30098-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO	Batch ID: OP4986
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30152-1MS, D30152-1MSD were used as the QC samples indicated.

Wet Chemistry By Method SM19 2540B M

Matrix SO	Batch ID: GN12841
------------------	--------------------------

- The data for SM19 2540B M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	RP BERM SOUTH	Date Sampled:	12/08/11
Lab Sample ID:	D30146-1	Date Received:	12/09/11
Matrix:	SO - Soil	Percent Solids:	84.6
Method:	SW846 8260B		
Project:	XOM FRU 297-32A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V15063.D	1	12/13/11	KV	n/a	n/a	V3V872
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.03 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	68	30	ug/kg	
108-88-3	Toluene	ND	140	68	ug/kg	
100-41-4	Ethylbenzene	ND	140	34	ug/kg	
1330-20-7	Xylene (total)	ND	270	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	110%		61-130%
460-00-4	4-Bromofluorobenzene	119%		53-131%
17060-07-0	1,2-Dichloroethane-D4	109%		62-130%

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 Sample ID: RP BERM SOUTH
Lab Sample ID: D30146-1
Matrix: SO - Soil
Method: SW846 8015B
Project: XOM FRU 297-32A

Date Sampled: 12/08/11
Date Received: 12/09/11
Percent Solids: 84.6

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB14228.D	1	12/12/11	SK	n/a	n/a	GGB803
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	6.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	104%		60-140%		

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 Sample ID:	RP BERM SOUTH	Date Sampled:	12/08/11
Lab Sample ID:	D30146-1	Date Received:	12/09/11
Matrix:	SO - Soil	Percent Solids:	84.6
Method:	SW846-8015B SW846 3546		
Project:	XOM FRU 297-32A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD12205.D	1	12/11/11	TR	12/10/11	OP4986	GFD631
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	3740	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	65%		43-136%		

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 Sample ID:	RP BERM NORTH	Date Sampled:	12/08/11
Lab Sample ID:	D30146-2	Date Received:	12/09/11
Matrix:	SO - Soil	Percent Solids:	85.4
Method:	SW846 8260B		
Project:	XOM FRU 297-32A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V15036.D	1	12/13/11	KV	n/a	n/a	V3V871
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.06 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	66	29	ug/kg	
108-88-3	Toluene	ND	130	66	ug/kg	
100-41-4	Ethylbenzene	ND	130	33	ug/kg	
1330-20-7	Xylene (total)	ND	270	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	108%		61-130%
460-00-4	4-Bromofluorobenzene	119%		53-131%
17060-07-0	1,2-Dichloroethane-D4	111%		62-130%

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 Sample ID:	RP BERM NORTH	Date Sampled:	12/08/11
Lab Sample ID:	D30146-2	Date Received:	12/09/11
Matrix:	SO - Soil	Percent Solids:	85.4
Method:	SW846 8015B		
Project:	XOM FRU 297-32A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB14229.D	1	12/12/11	SK	n/a	n/a	GGB803
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.6	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	91%		60-140%		

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 Sample ID:	RP BERM NORTH	Date Sampled:	12/08/11
Lab Sample ID:	D30146-2	Date Received:	12/09/11
Matrix:	SO - Soil	Percent Solids:	85.4
Method:	SW846-8015B SW846 3546		
Project:	XOM FRU 297-32A		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD12206.D	1	12/11/11	TR	12/10/11	OP4986	GFD631
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	339	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	73%		43-136%		

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

Client / Reporting Information		Project Information										Requested Analysis (see TEST CODE sheet)										Matrix Codes
Company Name KRW CONSULTING		Project Name FRU 297-32A										<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-right: 10px;">TPH CDR/CRO</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold;">BTX</div> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OIL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Street Address 8000 W 14TH AVE STE 200		Street FRU 297-32A																				
City LAKEWOOD CO 80214		City LAKEWOOD CO 80214																				
Project Contact JOE HESS		Project 1108-12A																				
Phone # 303 239 9011		Client PO# 1108-12A										City LAKEWOOD CO 80214										LAB USE ONLY <div style="font-size: 2em; font-weight: bold; text-align: center;">81 82</div>
Fax # 303 239 9011		Attention: PO#																				
Sample(s) Name(s) DAVID SANDERS		Phone # 720 273 9941																				
Field ID / Point of Collection RP BERM SOUTH RP BERM NORTH		MECH/DI Vial # 12-8-11 10:10 DLS 50 3 12-8-11 10:40 DLS 50 3																				
Accutest Sample #		Collection Date Time Sampled by Matrix # of bottles										Number of preserved bottles HCl NaOH HMDS HMDS None DI Water MECH ENCORE Substrate										TPH CDR/CRO BTX
Field ID / Point of Collection RP BERM SOUTH RP BERM NORTH		MECH/DI Vial # 12-8-11 10:10 DLS 50 3 12-8-11 10:40 DLS 50 3										Number of preserved bottles HCl NaOH HMDS HMDS None DI Water MECH ENCORE Substrate										
Field ID / Point of Collection RP BERM SOUTH RP BERM NORTH		MECH/DI Vial # 12-8-11 10:10 DLS 50 3 12-8-11 10:40 DLS 50 3										Number of preserved bottles HCl NaOH HMDS HMDS None DI Water MECH ENCORE Substrate										
Field ID / Point of Collection RP BERM SOUTH RP BERM NORTH		MECH/DI Vial # 12-8-11 10:10 DLS 50 3 12-8-11 10:40 DLS 50 3										Number of preserved bottles HCl NaOH HMDS HMDS None DI Water MECH ENCORE Substrate										
Turnaround Time (Business days) <input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day R/ SH <input checked="" type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY		Approved By (Accutest PM) / Date: 										<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> Commercial "B" + Narrative <input type="checkbox"/> FULLT1 (Level 3-4) Commercial "A" = Results Only Commercial "B" = Results + QC Summary										Comments / Special Instructions <div style="font-size: 1.5em; font-weight: bold; text-align: center;">PLEASE EMAIL RESULTS TO XOM KRW PICEANKE FIELD TEAM</div>
Emergency & Rush T/A date available VIA Lablink		Date Deliverable Information										Comments / Special Instructions										
Emergency & Rush T/A date available VIA Lablink		Date Deliverable Information										Comments / Special Instructions										
Emergency & Rush T/A date available VIA Lablink		Date Deliverable Information										Comments / Special Instructions										
Relinquished by: Sampler: 1 [Signature]		Date Time: 2/8/11 17:00										Received By: 2 [Signature]										12/11/11 1400
Relinquished by: Sampler: 3		Date Time:										Received By:										
Relinquished by: Sampler: 4		Date Time:										Received By:										
Relinquished by: Sampler: 5		Date Time:										Received By:										
Relinquished by: Sampler: 5		Date Time:										Received By:										Intact <input checked="" type="checkbox"/> Not Intact
Relinquished by: Sampler: 5		Date Time:										Received By:										
Relinquished by: Sampler: 5		Date Time:										Received By:										
Relinquished by: Sampler: 5		Date Time:										Received By:										
Relinquished by: Sampler: 5		Date Time:										Received By:										Preserved where applicable <input checked="" type="checkbox"/> Not Intact
Relinquished by: Sampler: 5		Date Time:										Received By:										
Relinquished by: Sampler: 5		Date Time:										Received By:										
Relinquished by: Sampler: 5		Date Time:										Received By:										
Relinquished by: Sampler: 5		Date Time:										Received By:										On Ice <input checked="" type="checkbox"/> Not Intact
Relinquished by: Sampler: 5		Date Time:										Received By:										
Relinquished by: Sampler: 5		Date Time:										Received By:										
Relinquished by: Sampler: 																						

D30146: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D30146

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 12/9/2011 2:00:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: FRU 297-32A

Airbill #'s: HD/CO

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:			Infrared gun
3. Cooler media:			Ice (bag)

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:			Intact

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

GC/MS Volatiles

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QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V871-MB	3V15034.D	1	12/12/11	KV	n/a	n/a	V3V871

The QC reported here applies to the following samples:

Method: SW846 8260B

D30146-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	22	ug/kg	
100-41-4	Ethylbenzene	ND	100	25	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	110% 61-130%
460-00-4	4-Bromofluorobenzene	0% * 53-131%
17060-07-0	1,2-Dichloroethane-D4	110% 62-130%

Method Blank Summary

Page 1 of 1

Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V872-MB	3V15057.D	1	12/13/11	KV	n/a	n/a	V3V872

The QC reported here applies to the following samples:

Method: SW846 8260B

D30146-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	22	ug/kg	
100-41-4	Ethylbenzene	ND	100	25	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	113% 61-130%
460-00-4	4-Bromofluorobenzene	112% 53-131%
17060-07-0	1,2-Dichloroethane-D4	121% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V871-BS	3V15035.D	1	12/13/11	KV	n/a	n/a	V3V871

The QC reported here applies to the following samples:

Method: SW846 8260B

D30146-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	54.2	108	70-130
100-41-4	Ethylbenzene	50	50.1	100	70-130
108-88-3	Toluene	50	50.2	100	70-130
1330-20-7	Xylene (total)	150	149	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	112%	61-130%
460-00-4	4-Bromofluorobenzene	125%	53-131%
17060-07-0	1,2-Dichloroethane-D4	117%	62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V872-BS	3V15058.D	1	12/13/11	KV	n/a	n/a	V3V872

The QC reported here applies to the following samples:

Method: SW846 8260B

D30146-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	51.2	102	70-130
100-41-4	Ethylbenzene	50	47.3	95	70-130
108-88-3	Toluene	50	48.4	97	70-130
1330-20-7	Xylene (total)	150	144	96	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	109%	61-130%
460-00-4	4-Bromofluorobenzene	122%	53-131%
17060-07-0	1,2-Dichloroethane-D4	113%	62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V872-BS	3V15059.D	1	12/13/11	KV	n/a	n/a	V3V872

The QC reported here applies to the following samples:

Method: SW846 8260B

D30146-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	ND	0*	70-130
100-41-4	Ethylbenzene	50	ND	0*	70-130
108-88-3	Toluene	50	ND	0*	70-130
1330-20-7	Xylene (total)	150	ND	0*	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	109%	61-130%
460-00-4	4-Bromofluorobenzene	116%	53-131%
17060-07-0	1,2-Dichloroethane-D4	109%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30146-2MS	3V15037.D	1	12/13/11	KV	n/a	n/a	V3V871
D30146-2MSD	3V15038.D	1	12/13/11	KV	n/a	n/a	V3V871
D30146-2	3V15036.D	1	12/13/11	KV	n/a	n/a	V3V871

The QC reported here applies to the following samples:

Method: SW846 8260B

D30146-2

CAS No.	Compound	D30146-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3320	3720	112	3720	112	0	70-134/30
100-41-4	Ethylbenzene	ND		3320	3420	103	3440	104	1	70-137/30
108-88-3	Toluene	ND		3320	3450	104	3390	102	2	70-130/30
1330-20-7	Xylene (total)	ND		9950	10300	103	10300	103	0	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D30146-2	Limits
2037-26-5	Toluene-D8	107%	109%	108%	61-130%
460-00-4	4-Bromofluorobenzene	128%	130%	119%	53-131%
17060-07-0	1,2-Dichloroethane-D4	105%	111%	111%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30146-1MS	3V15064.D	1	12/13/11	KV	n/a	n/a	V3V872
D30146-1MSD	3V15065.D	1	12/13/11	KV	n/a	n/a	V3V872
D30146-1	3V15063.D	1	12/13/11	KV	n/a	n/a	V3V872

The QC reported here applies to the following samples:

Method: SW846 8260B

D30146-1

CAS No.	Compound	D30146-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3390	3850	113	3930	116	2	70-134/30
100-41-4	Ethylbenzene	ND		3390	3620	107	3650	108	1	70-137/30
108-88-3	Toluene	ND		3390	3590	106	3620	107	1	70-130/30
1330-20-7	Xylene (total)	ND		10200	10900	107	11000	108	1	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D30146-1	Limits
2037-26-5	Toluene-D8	106%	104%	110%	61-130%
460-00-4	4-Bromofluorobenzene	127%	128%	119%	53-131%
17060-07-0	1,2-Dichloroethane-D4	107%	102%	109%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D30146
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30146-1MS	3V15066.D	1	12/13/11	KV	n/a	n/a	V3V872
D30146-1MSD	3V15067.D	1	12/13/11	KV	n/a	n/a	V3V872
D30146-1	3V15063.D	1	12/13/11	KV	n/a	n/a	V3V872

The QC reported here applies to the following samples:

Method: SW846 8260B

D30146-1

CAS No.	Compound	D30146-1 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
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CAS No.	Surrogate Recoveries	MS	MSD	D30146-1	Limits
2037-26-5	Toluene-D8	109%	108%	110%	61-130%
460-00-4	4-Bromofluorobenzene	126%	128%	119%	53-131%
17060-07-0	1,2-Dichloroethane-D4	103%	108%	109%	62-130%

GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

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Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB803-MB	GB14221.D	1	12/12/11	SK	n/a	n/a	GGB803

The QC reported here applies to the following samples:

Method: SW846 8015B

D30146-1, D30146-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	97% 60-140%

Blank Spike Summary

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Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB803-BS	GB14222.D	1	12/12/11	SK	n/a	n/a	GGB803

The QC reported here applies to the following samples:

Method: SW846 8015B

D30146-1, D30146-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	113	103	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	112%	60-140%

6.2.1

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Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D30098-1MS	GB14224.D	1	12/12/11	SK	n/a	n/a	GGB803
D30098-1MSD	GB14225.D	1	12/12/11	SK	n/a	n/a	GGB803
D30098-1	GB14223.D	1	12/12/11	SK	n/a	n/a	GGB803

The QC reported here applies to the following samples:

Method: SW846 8015B

D30146-1, D30146-2

CAS No.	Compound	D30098-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		127	128	101	127	100	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D30098-1	Limits
120-82-1	1,2,4-Trichlorobenzene	107%	104%	97%	60-140%

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

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Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4986-MB	FD12197.D	1	12/10/11	TR	12/10/11	OP4986	GFD631

The QC reported here applies to the following samples:

Method: SW846-8015B

D30146-1, D30146-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	13	8.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	85% 43-136%

Blank Spike Summary

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Job Number: D30146

Account: KRWCCOL KRW Consulting, Inc.

Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4986-BS	FD12198.D	1	12/10/11	TR	12/10/11	OP4986	GFD631

The QC reported here applies to the following samples:

Method: SW846-8015B

D30146-1, D30146-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	534	80	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	82%	43-136%

7.2.1

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D30146
Account: KRWCCOL KRW Consulting, Inc.
Project: XOM FRU 297-32A

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4986-MS	FD12199.D	1	12/10/11	TR	12/10/11	OP4986	GFD631
OP4986-MSD	FD12200.D	1	12/11/11	TR	12/10/11	OP4986	GFD631
D30152-1	FD12213.D	1	12/11/11	TR	12/10/11	OP4986	GFD631

The QC reported here applies to the following samples: Method: SW846-8015B

D30146-1, D30146-2

CAS No.	Compound	D30152-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	13.2	J	793	596	73	581	72	3	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D30152-1	Limits
84-15-1	o-Terphenyl	75%	62%	71%	43-136%