



10/21/10

Technical Report for

Williams Production

3.co Deep 1-27

PIT

Accutest Job Number: D15881

Sampling Date: 08/02/10

Report to:

Environmental Audit & Assessment

jsanders@eaa-co.com

ATTN: Jana Sanders

Total number of pages in report: 17



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.

A handwritten signature in black ink, appearing to read 'J. Hamilton'.

John Hamilton
Laboratory Director

Client Service contact: Amanda Kissell 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

Williams Production

Job No: D15881

3.co Deep 1-27
Project No: PIT

Sample Number	Collected		Matrix Code	Type	Client Sample ID
	Date	Time By			
D15881-1	08/02/10	11:00 JS	08/04/10	SO Soil	B2EA-P-AD127

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Williams Production**Job No** D15881**Site:** 3.co Deep 1-27**Report Dat** 10/21/2010 1:52:15 PM

On 08/04/2010, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3 °C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D15881 was assigned to the project. The lab sample ID, client sample ID, 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 GC By Method SW846 8015B

Matrix SO**Batch ID:** GGA474

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D15881-1MS and D15881-1MSD were used as the QC samples indicated.
- D15881-1MS and D15881-1MSD for 1,2,4-Trichlorobenzene: Outside control limits due to matrix interference.

Extractables by GC By Method SW846-8015B

Matrix SO**Batch ID:** OP2290

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D15878-1MS and D15878-1MSD were used as the QC samples indicated.

Wet Chemistry By Method SM19 2540B M

Matrix SO**Batch ID:** GN5709

- 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: B2EA-P-AD127
Lab Sample ID: D15881-1
Matrix: SO - Soil
Method: SW846 8015B
Project: 3.co Deep 1-27

Date Sampled: 08/02/10
Date Received: 08/04/10
Percent Solids: 78.4

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA8096.D	1	08/06/10	KV	n/a	n/a	GGA474
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	634	28	28	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	135%		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:	B2EA-P-AD127	Date Sampled:	08/02/10
Lab Sample ID:	D15881-1	Date Received:	08/04/10
Matrix:	SO - Soil	Percent Solids:	78.4
Method:	SW846-8015B SW846 3550B		
Project:	3.co Deep 1-27		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD3227.D	1	08/05/10	CP	08/05/10	OP2290	GFD152
Run #2							

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

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	918	17	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	112%		63-130%	

ND = Not detected
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

10165 Harwin Dr, Ste 150 Houston, TX 77036
TEL: 713-271-4700 FAX: 713-271-4770
www.acctest.com

[illegible]

D15881: Chain of Custody

Page 1 of 1

GC 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: D15881
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA474-MB	GA8094.D	1	08/06/10	KV	n/a	n/a	GGA474

The QC reported here applies to the following samples:

Method: SW846 8015B

D15881-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	20	20	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	100% 60-140%

Blank Spike Summary

Job Number: D15881
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA474-BS	GA8095.D	1	08/06/10	KV	n/a	n/a	GGA474

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

D15881-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	220	220	100	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	117%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D15881
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D15881-1MS	GA8097.D	1	08/06/10	KV	n/a	n/a	GGA474
D15881-1MSD	GA8098.D	1	08/06/10	KV	n/a	n/a	GGA474
D15881-1	GA8096.D	1	08/06/10	KV	n/a	n/a	GGA474

The QC reported here applies to the following samples:

Method: SW846 8015B

D15881-1

CAS No.	Compound	D15881-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	634		311	909	88	903	87	1	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D15881-1	Limits
120-82-1	1,2,4-Trichlorobenzene	168% * a	153% * a	135%	60-140%

(a) Outside control limits due to matrix interference.

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

Page 1 of 1

Job Number: D15881
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2290-MB	FD3215.D	1	08/05/10	CP	08/05/10	OP2290	GFD152

The QC reported here applies to the following samples:

Method: SW846-8015B

D15881-1

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

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	114% 63-130%

Blank Spike Summary

Page 1 of 1

Job Number: D15881
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2290-BS	FD3216.D	1	08/05/10	CP	08/05/10	OP2290	GFD152

The QC reported here applies to the following samples:

Method: SW846-8015B

D15881-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	811	122	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	117%	63-130%

6.2.1

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Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D15881
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2290-MS	FD3217.D	1	08/05/10	CP	08/05/10	OP2290	GFD152
OP2290-MSD	FD3218.D	1	08/05/10	CP	08/05/10	OP2290	GFD152
D15878-1	FD3219.D	1	08/05/10	CP	08/05/10	OP2290	GFD152

The QC reported here applies to the following samples:

Method: SW846-8015B

D15881-1

CAS No.	Compound	D15878-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	55.9		687	777	105	935	128	18	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D15878-1	Limits
84-15-1	o-Terphenyl	103%	122%	124%	63-130%



10/19/10

Technical Report for

Williams Production

3.co Deep 1-27

ARCO DEEP 1-27 PIT

Accutest Job Number: D15313

Sampling Date: 07/15/10

Report to:

Environmental Audit & Assessment

jsanders@eaa-co.com

ATTN: Jana Sanders

Total number of pages in report: **72**



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.

A handwritten signature in black ink, appearing to read 'John Hamilton'.

John Hamilton
Laboratory Director

Client Service contact: Amanda Kissell 303-425-6021

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

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Sample Summary

Williams Production

Job No: D15313

3.co Deep 1-27
Project No: ARCO DEEP 1-27 PIT

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
D15313-1	07/15/10	14:44	JR	07/17/10	SO	Soil	E-P-AD127
D15313-1A	07/15/10	14:44	JR	07/17/10	SO	Soil	E-P-AD127

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Williams Production

Job No D15313

Site: 3.co Deep 1-27

Report Dat 10/19/2010 4:43:54 PM

On 07/17/2010, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 5 °C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D15313 was assigned to the project. The lab sample ID, client sample ID, 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.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO

Batch ID: OP2194

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15314-1MS, D15314-1MSD were used as the QC samples indicated.
- The RPD(s) for the MS and MSD recoveries of Pyrene are outside control limits for sample OP2194-MSD. Probable cause due to sample homogeneity.

Volatiles by GC By Method SW846 8015

Matrix SO

Batch ID: M:GBH744

- The data for SW846 8015 meets quality control requirements.
- D15313-1: Analysis performed at Accutest Laboratories, Marlborough, MA.

Volatiles by GC By Method SW846 8021

Matrix SO

Batch ID: M:GAB3244

- The data for SW846 8021 meets quality control requirements.
- D15313-1: Analysis performed at Accutest Laboratories, Marlborough, MA.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP2198

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D15348-1MS, D15348-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP2382

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15313-1AMS, D15313-1AMSD were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP2375

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15266-1MS, D15266-1MSD, D15266-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) for Copper, Nickel, Zinc are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Nickel, Zinc are outside control limits. Probable cause due to matrix interference.
- RPD(s) for Serial Dilution for Selenium, Barium, Cadmium, Chromium, Lead, Nickel, Zinc are outside control limits for sample MP2375-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals By Method SW846 6020

Matrix SO

Batch ID: MP2376

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15266-1MS, D15266-1MSD, D15266-1SDL were used as the QC samples for the metals analysis.
- The RPD(s) for the MS and MSD recoveries of Arsenic are outside control limits for sample MP2376-S2. High RPD due to possible sample matrix or nonhomogeneity.
- RPD(s) for Serial Dilution for Arsenic are outside control limits for sample MP2376-SD1. Probable cause due to sample homogeneity.

Metals By Method SW846 7471A

Matrix SO

Batch ID: MP2364

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15314-1MS, D15314-1MSD were used as the QC samples for the metals analysis.
- The matrix spike and matrix spike duplicate recovery(s) for Mercury are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

Wet Chemistry By Method ASTM E1498-76M

Matrix SO

Batch ID: M:GN32434

- The data for ASTM E1498-76M meets quality control requirements.
- The following sample was run outside of holding time for method ASTM E1498-76M: D15313-1.
- D15313-1 for Redox Potential Vs H2: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method LADNR29B

Matrix SO

Batch ID: R3298

- The data for LADNR29B meets quality control requirements.
- D15313-1A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

Wet Chemistry By Method SM19 2540B M

Matrix SO	Batch ID: GN5426
------------------	-------------------------

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO	Batch ID: R3389
------------------	------------------------

- The data for SW846 3060/7196A M meets quality control requirements.
- D15313-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO	Batch ID: M:GP11820
------------------	----------------------------

- The data for SW846 3060A/7196A meets quality control requirements.
- D15313-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix SO	Batch ID: GN5419
------------------	-------------------------

- The following sample was run outside of holding time for method SW846 9045C: D15313-1.

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 DELIVERY GROUP CASE NARRATIVE

Client: Accutest Mountain States

Job No D15313

Site: WILLCOP: Williams Production, Parachute, CO

Report Date 7/29/2010 4:08:35 PM

2 Sample(s) were collected on 07/15/2010 and were received at Accutest on 07/17/2010 properly preserved, at 1.8, 3.7 Deg. C and intact. These Samples received an Accutest job number of D15313. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GC By Method SW846 8015

Matrix SO	Batch ID: GBH744
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15314-2MS, D15314-2MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8021

Matrix SO	Batch ID: GAB3244
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15314-1MS, D15314-1MSD were used as the QC samples indicated.

Wet Chemistry By Method ASTM E1498-76M

Matrix SO	Batch ID: GN32434
------------------	--------------------------

- Sample(s) D15340-1DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO	Batch ID: GP11820
------------------	--------------------------

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15090-7DUP, D15090-7MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D15313).

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	E-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15313-1	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	89.0
Method:	SW846 8270C BY SIM SW846 3540C		
Project:	3.co Deep 1-27		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G01541.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	37	35	ug/kg	
208-96-8	Acenaphthylene	ND	190	39	ug/kg	
120-12-7	Anthracene	ND	37	24	ug/kg	
56-55-3	Benzo(a)anthracene	ND	37	37	ug/kg	
50-32-8	Benzo(a)pyrene	ND	37	24	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	37	27	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	37	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	37	24	ug/kg	
218-01-9	Chrysene	ND	37	19	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	37	28	ug/kg	
206-44-0	Fluoranthene	ND	37	23	ug/kg	
86-73-7	Fluorene	ND	37	37	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	37	25	ug/kg	
90-12-0	1-Methylnaphthalene	ND	37	33	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	57	ug/kg	
91-20-3	Naphthalene	ND	190	41	ug/kg	
85-01-8	Phenanthrene	ND	37	30	ug/kg	
129-00-0	Pyrene	ND	37	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	52%		10-193%
321-60-8	2-Fluorobiphenyl	58%		20-138%
1718-51-0	Terphenyl-d14	60%		17-174%

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:	E-P-AD127						
Lab Sample ID:	D15313-1				Date Sampled:	07/15/10	
Matrix:	SO - Soil				Date Received:	07/17/10	
Method:	SW846 8015				Percent Solids:	89.0	
Project:	3.co Deep 1-27						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BH14472.D	1	07/28/10	AMA	n/a	n/a	M:GBH744
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.5 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	6.0	4.3	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
615-59-8	2,5-Dibromotoluene	109%		36-148%		

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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:	E-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15313-1	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	89.0
Method:	SW846 8021		
Project:	3.co Deep 1-27		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	AB58926.D	1	07/28/10	AMA	n/a	n/a	M:GAB3244
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.5 g	10.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	60	8.2	ug/kg	
108-88-3	Toluene	ND	60	9.2	ug/kg	
100-41-4	Ethylbenzene	ND	60	10	ug/kg	
1330-20-7	Xylenes (total)	ND	60	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
615-59-8	2,5-Dibromotoluene	89%		70-130%
	2,3,4-Trifluorotoluene	102%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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:	E-P-AD127		
Lab Sample ID:	D15313-1	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846-8015B SW846 3550B	Percent Solids:	89.0
Project:	3.co Deep 1-27		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD2837.D	1	07/21/10	CP	07/21/10	OP2198	GFD140
Run #2							

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

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	350	15	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	105%		63-130%	

ND = Not detected
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: E-P-AD127

Lab Sample ID: D15313-1

Matrix: SO - Soil

Project: 3.co Deep 1-27

Date Sampled: 07/15/10

Date Received: 07/17/10

Percent Solids: 89.0

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.1	0.43	mg/kg	5	07/21/10	07/22/10 JM	SW846 6020 ²	SW846 3050B ⁶
Barium	310	1.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Cadmium	< 1.1	1.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Chromium	36.4	1.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Copper	15.1	0.54	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Lead	21.7	5.4	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Mercury	< 0.11	0.11	mg/kg	1	07/20/10	07/20/10 RN	SW846 7471A ¹	SW846 7471A ⁴
Nickel	18.6	3.2	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Selenium	< 5.4	5.4	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Silver	< 3.2	3.2	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Zinc	48.7	3.2	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵

(1) Instrument QC Batch: MA836

(2) Instrument QC Batch: MA843

(3) Instrument QC Batch: MA844

(4) Prep QC Batch: MP2364

(5) Prep QC Batch: MP2375

(6) Prep QC Batch: MP2376

RL = Reporting Limit

Report of Analysis

Client Sample ID: E-P-AD127**Lab Sample ID:** D15313-1**Matrix:** SO - Soil**Project:** 3.co Deep 1-27**Date Sampled:** 07/15/10**Date Received:** 07/17/10**Percent Solids:** 89.0**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 2.2	2.2	mg/kg	1	07/22/10 17:40	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	36.4	3.3	mg/kg	1	07/22/10 19:07	JM	SW846 3060/7196A M
Redox Potential Vs H2 ^a	371		mv	1	07/23/10	AMA	ASTM E1498-76M
Solids, Percent	89		%	1	07/19/10	CJ	SM19 2540B M
Specific Conductivity	334	1.0	umhos/cm	1	07/21/10	CJ	DEPT.OF AG, BOOK N9
pH	8.83		su	1	07/19/10 12:00	JK	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15313-1A	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	89.0
Project:	3.co Deep 1-27		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	48.2	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ²
Magnesium	7.89	1.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ²
Sodium	29.5	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA839
(2) Prep QC Batch: MP2382

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15313-1A	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	89.0
Project:	3.co Deep 1-27		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	1.04		ratio	1	07/22/10 02:33	JM	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D15313

Client: WILLIAMS RMT COMPANY

Immediate Client Services Action Required: No

Date / Time Received: 7/17/2010 10:00:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: ARCO DEEP 1-27-PRR

Airbill #'s: ups

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

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

D15313: Chain of Custody
Page 2 of 2

GC/MS Semi-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: D15313
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2194-MB	3G01539.D	2	07/23/10	TMB	07/20/10	OP2194	E3G41

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D15313-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	13	12	ug/kg	
208-96-8	Acenaphthylene	ND	67	14	ug/kg	
120-12-7	Anthracene	ND	13	8.6	ug/kg	
56-55-3	Benzo(a)anthracene	ND	13	13	ug/kg	
50-32-8	Benzo(a)pyrene	ND	13	8.4	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	13	9.7	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	13	8.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	13	8.4	ug/kg	
218-01-9	Chrysene	ND	13	6.7	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	13	9.9	ug/kg	
206-44-0	Fluoranthene	ND	13	8.2	ug/kg	
86-73-7	Fluorene	ND	13	13	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	13	8.7	ug/kg	
90-12-0	1-Methylnaphthalene	ND	13	12	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	20	ug/kg	
91-20-3	Naphthalene	ND	67	15	ug/kg	
85-01-8	Phenanthrene	ND	13	11	ug/kg	
129-00-0	Pyrene	ND	13	9.0	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	53% 10-193%
321-60-8	2-Fluorobiphenyl	53% 20-138%
1718-51-0	Terphenyl-d14	65% 17-174%

Blank Spike Summary

Page 1 of 1

Job Number: D15313
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2194-BS	3G01540.D	2	07/23/10	TMB	07/20/10	OP2194	E3G41

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D15313-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	41.4	50	40-136
208-96-8	Acenaphthylene	83.3	41.2	49	42-139
120-12-7	Anthracene	83.3	40.5	49	40-141
56-55-3	Benzo(a)anthracene	83.3	41.5	50	38-143
50-32-8	Benzo(a)pyrene	83.3	38.3	46	39-145
205-99-2	Benzo(b)fluoranthene	83.3	36.4	44	38-151
191-24-2	Benzo(g,h,i)perylene	83.3	37.1	45	35-136
207-08-9	Benzo(k)fluoranthene	83.3	42.2	51	38-147
218-01-9	Chrysene	83.3	41.1	49	39-137
53-70-3	Dibenzo(a,h)anthracene	83.3	37.6	45	35-139
206-44-0	Fluoranthene	83.3	41.5	50	34-132
86-73-7	Fluorene	83.3	41.9	50	41-136
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	37.3	45	31-144
90-12-0	1-Methylnaphthalene	83.3	41.0	49	36-130
91-57-6	2-Methylnaphthalene	83.3	41.0	49	40-131
91-20-3	Naphthalene	83.3	43.5	52	36-130
85-01-8	Phenanthrene	83.3	43.2	52	40-135
129-00-0	Pyrene	83.3	40.2	48	29-157

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	53%	10-193%
321-60-8	2-Fluorobiphenyl	52%	20-138%
1718-51-0	Terphenyl-d14	54%	17-174%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D15313
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2194-MS	3G01544.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41
OP2194-MSD	3G01545.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41
D15314-1	3G01543.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D15313-1

CAS No.	Compound	D15314-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		90.6	56.8	63	67.2	74	17	20-151/30
208-96-8	Acenaphthylene	ND		90.6	52.5	58	64.9	72	21	23-156/30
120-12-7	Anthracene	ND		90.6	46.2	51	59.3	65	25	25-149/30
56-55-3	Benzo(a)anthracene	ND		90.6	51.1	56	64.2	71	23	22-157/30
50-32-8	Benzo(a)pyrene	ND		90.6	44.5	49	56.1	62	23	23-153/30
205-99-2	Benzo(b)fluoranthene	ND		90.6	48.9	54	62.1	68	24	22-161/30
191-24-2	Benzo(g,h,i)perylene	ND		90.6	40.7	45	51.3	57	23	20-158/30
207-08-9	Benzo(k)fluoranthene	ND		90.6	45.6	50	58.9	65	25	17-161/30
218-01-9	Chrysene	ND		90.6	46.2	51	59.6	66	25	16-159/30
53-70-3	Dibenzo(a,h)anthracene	ND		90.6	41.9	46	53.5	59	24	21-154/30
206-44-0	Fluoranthene	ND		90.6	60.6	67	73.3	81	19	16-140/30
86-73-7	Fluorene	70.4		90.6	104	37	129	65	21	15-153/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		90.6	38.9	43	51.1	56	27	21-159/30
90-12-0	1-Methylnaphthalene	77.2		90.6	107	33	121	48	12	10-148/30
91-57-6	2-Methylnaphthalene	130	J	90.6	152	24	171	45	12	10-181/30
91-20-3	Naphthalene	ND		90.6	58.6	65	64.3	71	9	10-176/30
85-01-8	Phenanthrene	53.8		90.6	85.0	34	105	56	21	22-152/30
129-00-0	Pyrene	ND		90.6	46.2	51	64.5	71	33*	10-200/30

CAS No.	Surrogate Recoveries	MS	MSD	D15314-1	Limits
4165-60-0	Nitrobenzene-d5	54%	60%	71%	10-193%
321-60-8	2-Fluorobiphenyl	59%	70%	76%	20-138%
1718-51-0	Terphenyl-d14	61%	82%	75%	17-174%

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

Page 1 of 1

Job Number: D15313
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2198-MB	FD2830.D	1	07/21/10	CP	07/21/10	OP2198	GFD140

The QC reported here applies to the following samples:

Method: SW846-8015B

D15313-1

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

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	102% 63-130%

Blank Spike Summary

Page 1 of 1

Job Number: D15313
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2198-BS	FD2831.D	1	07/21/10	CP	07/21/10	OP2198	GFD140

The QC reported here applies to the following samples:

Method: SW846-8015B

D15313-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	672	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	111%	63-130%

6.2.1

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Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D15313
Account: WILLCOP Williams Production
Project: 3.co Deep 1-27

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2198-MS	FD2832.D	5	07/21/10	CP	07/21/10	OP2198	GFD140
OP2198-MSD	FD2833.D	5	07/21/10	CP	07/21/10	OP2198	GFD140
D15348-1	FD2834.D	5	07/21/10	CP	07/21/10	OP2198	GFD140

The QC reported here applies to the following samples:

Method: SW846-8015B

D15313-1

CAS No.	Compound	D15348-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	7090		738	7740	88	7530	60 ^a	3	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D15348-1	Limits
84-15-1	o-Terphenyl	102%	116%	117%	63-130%

(a) Outside control limits due to high level in sample relative to spike amount.

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: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2364
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 07/20/10

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.0012	0.0046	<0.10

Associated samples MP2364: D15313-1

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: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2364
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 07/20/10

Metal	D15314-1		Spikelot		QC	
	Original	MS	HGWSR1	% Rec	Limits	
Mercury	0.028	0.38	0.427	82.5N(a)	85-115	

Associated samples MP2364: D15313-1

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

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

7.1.2

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2364
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 07/20/10

Metal	D15314-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.028	0.36	0.427	77.8N(a)	5.4	20

Associated samples MP2364: D15313-1

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

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2364
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 07/20/10

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.34	0.4	85.0	80-120

Associated samples MP2364: D15313-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 07/21/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.7	2		
Antimony	3.0	.17	.5		
Arsenic	2.5	.28	.72		
Barium	1.0	.014	.05	0.060	<1.0
Beryllium	1.0	.14	.21		
Boron	5.0	.35	.91		
Cadmium	1.0	.022	.12	0.030	<1.0
Calcium	40	1.7	2.7		
Chromium	1.0	.027	.18	0.050	<1.0
Cobalt	0.50	.048	.058		
Copper	0.50	.16	.38	-0.090	<0.50
Iron	7.0	.77	.91		
Lead	5.0	.13	.24	0.0	<5.0
Lithium	0.20	.076	.09		
Magnesium	20	.58	.93		
Manganese	0.50	.021	.028		
Molybdenum	1.0	.041	.16		
Nickel	3.0	.038	.075	0.0	<3.0
Phosphorus	10	1.5	3.5		
Potassium	200	38	130		
Selenium	5.0	.28	.54	-0.36	<5.0
Silicon	5.0	1.2	.68		
Silver	3.0	.098	.068	0.0	<3.0
Sodium	40	23	6.3		
Strontium	5.0	.0091	.02		
Thallium	1.0	.31	.21		
Tin	5.0	1.4	.56		
Titanium	1.0	.0098	.041		
Uranium	5.0	.22	.53		
Vanadium	1.0	.027	.034		
Zinc	3.0	.076	.49	0.10	<3.0

Associated samples MP2375: D15313-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 07/21/10

Metal	D15266-1 Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	90.2	286	225	87.2	75-125
Beryllium	anr				
Boron	anr				
Cadmium	1.2	49.0	56.2	85.1	75-125
Calcium	anr				
Chromium	12.7	56.9	56.2	78.7	75-125
Cobalt					
Copper	30.6	69.4	56.2	69.1N(a)	75-125
Iron	anr				
Lead	13.6	105	112	81.4	75-125
Lithium					
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	32.1	64.9	56.2	58.4N(a)	75-125
Phosphorus					
Potassium	anr				
Selenium	3.8	101	112	86.5	75-125
Silicon					
Silver	0.0	20.0	22.5	89.0	75-125
Sodium	anr				
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	90.6	120	56.2	52.3N(a)	75-125

Associated samples MP2375: D15313-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
Account: WILLCOF - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 07/21/10

Metal	D15266-1 Original MSD		Spikelot MPICPALL % Rec		MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	90.2	302	207	102.2	5.4	20
Beryllium	anr					
Boron	anr					
Cadmium	1.2	45.1	51.8	84.7	8.3	20
Calcium	anr					
Chromium	12.7	53.5	51.8	78.8	6.2	20
Cobalt						
Copper	30.6	71.2	51.8	78.4	2.6	20
Iron	anr					
Lead	13.6	104	104	87.2	1.0	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	32.1	64.4	51.8	62.3N(a)	0.8	20
Phosphorus						
Potassium	anr					
Selenium	3.8	91.3	104	84.4	10.1	20
Silicon						
Silver	0.0	18.5	20.7	89.3	7.8	20
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	90.6	114	51.8	45.2N(a)	5.1	20

Associated samples MP2375: D15313-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2375
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 07/21/10

Metal	BSP Result	Spikelot MPICPAL	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	182	200	91.0	80-120
Beryllium	anr			
Boron	anr			
Cadmium	46.5	50	93.0	80-120
Calcium	anr			
Chromium	49.4	50	98.8	80-120
Cobalt				
Copper	49.2	50	98.4	80-120
Iron	anr			
Lead	95.7	100	95.7	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	47.4	50	94.8	80-120
Phosphorus				
Potassium	anr			
Selenium	92.1	100	92.1	80-120
Silicon				
Silver	19.3	20	96.5	80-120
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	47.1	50	94.2	80-120

Associated samples MP2375: D15313-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2375
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 07/21/10

Metal	D15266-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	931	1110	18.7*(a)	0-10
Beryllium	anr			
Boron	anr			
Cadmium	12.6	14.0	11.1*(a)	0-10
Calcium	anr			
Chromium	131	154	17.2*(a)	0-10
Cobalt				
Copper	316	329	4.0	0-10
Iron	anr			
Lead	141	160	13.3*(a)	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	331	399	20.6*(a)	0-10
Phosphorus				
Potassium	anr			
Selenium	39.4	43.5	10.4 (b)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	935	1180	26.2*(a)	0-10

Associated samples MP2375: D15313-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

(a) Serial dilution indicates possible matrix interference.

(b) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

7.2.4

7

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2376
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 07/21/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	.89		
Antimony	0.20	.001	.045		
Arsenic	0.40	.049	.26	0.051	<0.40
Barium	1.0	.0035	.17		
Beryllium	0.10	.0075	.014		
Boron	20	.97	2		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	6.1		
Chromium	1.0	.021	.23		
Cobalt	0.10	.0033	.088		
Copper	1.0	.011	.14		
Iron	20	.81	6.1		
Lead	0.25	.0012	.18		
Magnesium	50	.067	1.3		
Manganese	0.50	.007	.089		
Molybdenum	0.50	.0044	.2		
Nickel	1.0	.0029	.074		
Phosphorus	30	1.8	5.6		
Potassium	100	2	9.1		
Selenium	0.20	.075	.14		
Silver	0.050	.0008	.029		
Sodium	250	.8	1.8		
Strontium	10	.004	.047		
Thallium	0.10	.015	.071		
Tin	5.0	.006	.17		
Titanium	1.0	.035	.071		
Uranium	0.25	.00038	.12		
Vanadium	2.0	.052	.99		
Zinc	5.0	.039	.53		

Associated samples MP2376: D15313-1

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: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2376
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 07/21/10

Metal	D15266-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	21.3	137	112	103.0	60-119
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP2376: D15313-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2376
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 07/21/10

Metal	D15266-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	21.3	102	104	77.9	29.3 (a)	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP2376: D15313-1

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
 (a) High RPD due to possible sample matrix or nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2376
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 07/21/10

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	98.8	100	98.8	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP2376: D15313-1

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

7.3.3
7

SERIAL DILUTION RESULTS SUMMARY

Login Number: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2376
 Matrix Type: SOLID

Methods: SW846 6020
 Units: ug/l

Prep Date: 07/21/10

Metal	D15266-1 Original	SDL	5:25 %DIF	QC Limits
Aluminum				
Antimony				
Arsenic	220	273	24.0*(a)	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP2376: D15313-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested
 (a) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2382
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 07/21/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	35	250		
Antimony	150	8.5	65		
Arsenic	130	14	33		
Barium	50	.7	12		
Beryllium	50	7	22		
Boron	250	18	93		
Cadmium	50	1.1	6		
Calcium	2000	85	46	2.5	<2000
Chromium	50	1.4	8		
Cobalt	25	2.4	1.5		
Copper	25	8	14		
Iron	350	39	50		
Lead	250	6.5	16		
Lithium	10	3.8	8		
Magnesium	1000	29	62	74.5	<1000
Manganese	25	1.1	3.5		
Molybdenum	50	2.1	6		
Nickel	150	1.9	3		
Phosphorus	500	75	270		
Potassium	5000	1900	2700		
Selenium	250	14	36		
Silicon	250	60	100		
Silver	150	4.9	1.5		
Sodium	2000	1200	110	396	<2000
Strontium	25	.46	17		
Thallium	50	16	11		
Tin	250	70	22		
Titanium	50	.49	3.5		
Uranium	250	11	20		
Vanadium	50	1.4	1.5		
Zinc	150	3.8	8.5		

Associated samples MP2382: D15313-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2382
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2382
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 07/21/10

Metal	D15313-1A Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	48200	181000	125000	106.2	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	7890	139000	125000	104.9	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	29500	158000	125000	102.8	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP2382: D15313-1A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2382
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

7.4.2

7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
 Account: WILLCOP - Williams Production
 Project: 3.co Deep 1-27

QC Batch ID: MP2382
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 07/21/10

Metal	D15313-1A Original MSD	Spikelot MPICPAL % Rec	MSD RPD	QC Limit
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	48200	184000	125000	108.6
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	7890	141000	125000	106.5
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	29500	160000	125000	104.4
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP2382: D15313-1A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2382
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2382
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 07/21/10

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	136000	125000	108.8	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	131000	125000	104.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	130000	125000	104.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP2382: D15313-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

QC Batch ID: MP2382
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

General Chemistry

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: D15313
Account: WILLCOP - Williams Production
Project: 3.co Deep 1-27

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP2395/GN5474			umhos/cm	9985	9850	98.6	90-110%
pH	GN5419			su	8.00	8.02	100.3	99.3-100.7%
pH	GN5419			su	8.00	8.02	100.3	99.3-100.7%

Associated Samples:
Batch GN5419: D15313-1
Batch GP2395: D15313-1
(*) Outside of QC limits

8.1
8

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #: ~~D44343~~ JB

Accutest Quote #: D15313

AMS P.O. #:

Project No.:

Client Information			Subcontract Laboratory Information										Analytical Information												
Name Accutest Mountain States (AMS)			Name Accutest - New England																						
Address 4036 Youngfield St.			Address 495 Technology Center West, BLDG O																						
City Wheat Ridge,	State CO	Zip 80033	City Marlborough	State MA	Zip 01752																				
Send Report to: Tiffany Pham			Contact: Sample Management																						
Any questions contact: Amanda Kissell																									
Phone/Fax #: (303) 425-6021; (303) 425-6854			Phone: (508) 481-6200																						
Field ID / Point of Collection			Collection			Matrix	# of bottles	Preservation					Xcra	eh	Comments										
			Date	Time	HCl			NaOH	HNO3	H2SO4	None														
10 D14343 -1			7/15/10	2:44 PM		Soil	1							X	X										
015313 -2				3:00 PM		Soil	1							X	X										
Turnaround Information			Data Deliverable Information										Comments / Remarks												
<input checked="" type="checkbox"/> 10 Business Day Standard <input type="checkbox"/> Other 3-5 days (Days)			Approved By:		<input type="checkbox"/> Commercial "A" <input type="checkbox"/> Commercial "B" <input type="checkbox"/> Commercial "BN" <input type="checkbox"/> Reduced Tier 1 <input type="checkbox"/> Full Tier 1								<input type="checkbox"/> PDF <input type="checkbox"/> Compact Disk Deliverable <input type="checkbox"/> Electronic Delivery: <input type="checkbox"/> State Forms <input type="checkbox"/> Other (Specify)								Please use Colorado regulations and RLs. ac				
10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.																									
Sample Custody must be documented below each time samples change possession, including courier delivery.																									
Relinquished by:			Date & Time:			Received By:			Date & Time:			Seal #:			Headspace:										
1			7/20/10			1 FedEx			1						Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>										
Relinquished by:			Date & Time:			Received By:			Date & Time:			Preserved where applicable:													
2			7/21/10 15:00			2 [Signature]			2 7/21/10 15:00			<input type="checkbox"/>													
Relinquished by:			Date & Time:			Received By:			Date & Time:			Temperature °C			On Ice										
3												37			<input checked="" type="checkbox"/>										

9.1

D15313: Chain of Custody

Page 1 of 3

Accutest Labs of New England, Inc.

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #: D15313

Accutest Quote #:

AMS P.O. #:

Project No.:

[illegible]

D15313: Chain of Custody

Page 2 of 3



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D15313

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 7/21/2010 3:00:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: N/A

Airbill #'s:

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

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Marlborough, MA
www.accutest.com

9.1
9

D15313: Chain of Custody

Page 3 of 3

GC Volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

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

Method Blank Summary

Job Number: D15313
Account: ALMS Accutest Mountain States
Project: WILLCOP: Williams Production, Parachute, CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GBH744-MB	BH14468.D	1	07/28/10	AP	n/a	n/a	GBH744

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

D15313-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.0	3.6	mg/kg	

CAS No.	Surrogate Recoveries	Limits
615-59-8	2,5-Dibromotoluene	90% 36-148%

10.1.1
10

Method Blank Summary

Job Number: D15313
Account: ALMS Accutest Mountain States
Project: WILLCOP: Williams Production, Parachute, CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB3244-MB	AB58912A.D1		07/28/10	AP	n/a	n/a	GAB3244

The QC reported here applies to the following samples: Method: SW846 8021

D15313-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	6.9	ug/kg	
100-41-4	Ethylbenzene	ND	50	8.7	ug/kg	
108-88-3	Toluene	ND	50	7.7	ug/kg	
1330-20-7	Xylenes (total)	ND	50	9.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
615-59-8	2,5-Dibromotoluene	82% 70-130%
	2,3,4-Trifluorotoluene	104% 70-130%

Blank Spike Summary

Job Number: D15313
Account: ALMS Accutest Mountain States
Project: WILLCOP: Williams Production, Parachute, CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GBH744-BSP	BH14469.D	1	07/28/10	AP	n/a	n/a	GBH744

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

D15313-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (VOA)	20	21.8	109	67-133

CAS No.	Surrogate Recoveries	BSP	Limits
615-59-8	2,5-Dibromotoluene	99%	36-148%

10.2.1
10

Blank Spike/Blank Spike Duplicate Summary

Job Number: D15313
Account: ALMS Accutest Mountain States
Project: WILLCOP: Williams Production, Parachute, CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB3244-BSP	AB58913A.D1		07/28/10	AP	n/a	n/a	GAB3244
GAB3244-BSD	AB58914A.D1		07/28/10	AP	n/a	n/a	GAB3244

The QC reported here applies to the following samples: Method: SW846 8021

D15313-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	2500	2480	99	2460	98	1	70-130/25
100-41-4	Ethylbenzene	2500	2520	101	2500	100	1	70-130/25
108-88-3	Toluene	2500	2510	100	2490	100	1	70-130/25
1330-20-7	Xylenes (total)	7500	7570	101	7510	100	1	70-130/25

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
615-59-8	2,5-Dibromotoluene	87%	88%	70-130%
	2,3,4-Trifluorotoluene	109%	108%	70-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D15313
Account: ALMS Accutest Mountain States
Project: WILLCOP: Williams Production, Parachute, CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D15314-2MS	BH14477.D	1	07/28/10	AP	n/a	n/a	GBH744
D15314-2MSD	BH14478.D	1	07/28/10	AP	n/a	n/a	GBH744
D15314-2	BH14476.D	1	07/28/10	AP	n/a	n/a	GBH744

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

D15313-1

CAS No.	Compound	D15314-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	ND		23.2	20.1	87	20.3	88	1	40-154/20

CAS No.	Surrogate Recoveries	MS	MSD	D15314-2	Limits
615-59-8	2,5-Dibromotoluene	106%	106%	106%	36-148%

10.4.1
10

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D15313
Account: ALMS Accutest Mountain States
Project: WILLCOP: Williams Production, Parachute, CO

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D15314-1MS	AB58931.D	1	07/28/10	AP	n/a	n/a	GAB3244
D15314-1MSD	AB58932.D	1	07/28/10	AP	n/a	n/a	GAB3244
D15314-1	AB58930.D	1	07/28/10	AP	n/a	n/a	GAB3244

The QC reported here applies to the following samples: Method: SW846 8021

D15313-1

CAS No.	Compound	D15314-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		2910	2820	97	2840	97	1	70-130/30
100-41-4	Ethylbenzene	ND		2910	2870	98	2890	99	1	70-130/30
108-88-3	Toluene	ND		2910	2870	98	2880	99	0	70-130/30
1330-20-7	Xylenes (total)	ND		8740	8600	98	8650	99	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D15314-1	Limits
615-59-8	2,5-Dibromotoluene	92%	94%	96%	70-130%
	2,3,4-Trifluorotoluene	105%	106%	102%	70-130%

10.4.2
10

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

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: D15313
Account: ALMS - Accutest Mountain States
Project: WILLCOP: Williams Production, Parachute, CO

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP11820/GN32422	2.0	0.0	mg/kg	40	41.6	104.0	80-120%
Chromium, Hexavalent	GP11820/GN32422			mg/kg	792	851	107.4	80-120%

Associated Samples:
Batch GP11820: D15313-1, D15313-2
(*) Outside of QC limits

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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D15313
Account: ALMS - Accutest Mountain States
Project: WILLCOP: Williams Production, Parachute, CO

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP11820/GN32422	D15090-7	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN32434	D15340-1	mv	288	266	4.0	0-20%

Associated Samples:
Batch GN32434: D15313-1, D15313-2
Batch GP11820: D15313-1, D15313-2
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D15313
Account: ALMS - Accutest Mountain States
Project: WILLCOP: Williams Production, Parachute, CO

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP11820/GN32422	D15090-7	mg/kg	0.0	40.5	33.3	82.3	75-125%
Chromium, Hexavalent	GP11820/GN32422	D15090-7	mg/kg	0.0	1150	1250	109.0	75-125%

Associated Samples:

Batch GP11820: D15313-1, D15313-2

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



07/29/10

Technical Report for

Williams Production

Arco Deep 1-27 Tank

Accutest Job Number: D15314

Sampling Date: 07/15/10

Report to:

Environmental Audit & Assessment
225 North 5th Street Suite 8
Grand Junction, CO 81501
jsanders@eaa-co.com

ATTN: Jana Sanders

Total number of pages in report: 96



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.

Jesse L. Smith
Laboratory Director

Client Service contact: Amanda Kissell 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

Williams Production

Job No: D15314

Arco Deep 1-27 Tank

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D15314-1	07/15/10	15:14 JS	07/17/10	SO	Soil	N-P-AD127
D15314-1A	07/15/10	15:14 JS	07/17/10	SO	Soil	N-P-AD127
D15314-2	07/15/10	14:13 JS	07/17/10	SO	Soil	S-P-AD127
D15314-2A	07/15/10	14:13 JS	07/17/10	SO	Soil	S-P-AD127
D15314-3	07/15/10	15:50 JS	07/17/10	SO	Soil	W-P-AD127
D15314-3A	07/15/10	15:50 JS	07/17/10	SO	Soil	W-P-AD127
D15314-4	07/15/10	15:26 JS	07/17/10	SO	Soil	B1W-P-AD127
D15314-4A	07/15/10	15:26 JS	07/17/10	SO	Soil	B1W-P-AD127

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Williams Production

Job No D15314

Site: Arco Deep 1-27 Tank

Report Dat 7/29/2010 3:45:49 PM

On 07/17/2010, four (4) samples, 0 Trip Blanks and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 13.9°C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D15314 was assigned to the project. The lab sample IDs, client sample IDs, and dates 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.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO	Batch ID: OP2194
------------------	-------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Samples D15314-1MS and D15314-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The RPD for the MS and MSD recoveries of Pyrene are outside control limits for sample OP2194-MSD; however, the recoveries are within control limits.

Volatiles by GC By Method SW846 8015

Matrix SO	Batch ID: M:GBH744
------------------	---------------------------

- The data for SW846 8015 meets quality control requirements.
- Analysis performed at Accutest Laboratories, Marlborough, MA.

Volatiles by GC By Method SW846 8021

Matrix SO	Batch ID: M:GAB3244
------------------	----------------------------

- The data for SW846 8021 meets quality control requirements.
- Analysis performed at Accutest Laboratories, Marlborough, MA.

Extractables by GC By Method SW846-8015B

Matrix SO	Batch ID: OP2198
------------------	-------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D15348-1MS and D15348-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP2386

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D15314-1AMS and D15314-1AMSD were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP2375

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D15266-1MS, D15266-1MSD, and D15266-1SDL were used as the QC samples for the metals analysis.
- The matrix spike and matrix spike duplicate (MS/MSD) recoveries of Nickel and Zinc and the MS recovery of Copper are outside control limits. The blank spike (BS) recovery of these analytes are within control limits, proving the analysis is in control.
- The serial dilution RPDs for Barium, Cadmium, Chromium, Lead, Nickel, Selenium, and Zinc are outside control limits for sample MP2375-SD1. The percent difference is acceptable for Selenium due to low initial sample concentration (< 50 times IDL).
- MP2375-SD1 for Barium, Cadmium, Chromium, Lead, Nickel, and Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020

Matrix SO

Batch ID: MP2376

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D15266-1MS, D15266-1MSD, and D15266-1SDL were used as the QC samples for the metals analysis.
- The RPD for the MS and MSD recovery of Arsenic is outside control limits for sample MP2376-S2; however, the recovery of Arsenic is within control limits.
- The serial dilution RPD for Arsenic is outside control limits for sample MP2376-SD1. Serial dilution indicates possible matrix interference.

Metals By Method SW846 7471A

Matrix SO

Batch ID: MP2364

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D15314-1MSD and D15314-1MS were used as the QC samples for the Mercury analysis.
- The matrix spike and matrix spike duplicate (MS/MSD) recoveries of Mercury are outside control limits. The blank spike (BS) recovery of Mercury is within control limits, proving the analysis is in control.

Wet Chemistry By Method ASTM E1498-76M

Matrix SO

Batch ID: M:GN32434

- The data for ASTM E1498-76M meets quality control requirements.
- The following samples were run outside of holding time for method ASTM E1498-76M: D15314-1, D15314-2, D15314-3, D15314-4
- Redox Potential Vs H2: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method LADNR29B

Matrix SO	Batch ID: R3308
------------------	------------------------

- The data for LADNR29B meets quality control requirements.
- Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

Wet Chemistry By Method SM19 2540B M

Matrix SO	Batch ID: GN5426
------------------	-------------------------

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

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO	Batch ID: R3382
------------------	------------------------

- The data for SW846 3060/7196A M meets quality control requirements.
- Trivalent Chromium, : Calculated as: (Chromium) - (Hexavalent Chromium)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO	Batch ID: M:GP11820
------------------	----------------------------

- The data for SW846 3060A/7196A meets quality control requirements.
- Hexavalent Chromium: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SW846 9045C

Matrix SO	Batch ID: GN5419
------------------	-------------------------

- The following samples were run outside of holding time for method SW846 9045C: D15314-1, D15314-2, D15314-3, D15314-4

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 DELIVERY GROUP CASE NARRATIVE

Client: Accutest Mountain States

Job No D15314

Site: WILLCOP: Arco Deep 1-27 Tank

Report Date 7/29/2010 4:12:43 PM

4 Sample(s) were collected on 07/15/2010 and were received at Accutest on 07/17/2010 properly preserved, at 1.8, 3.7 Deg. C and intact. These Samples received an Accutest job number of D15314. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GC By Method SW846 8015

Matrix SO	Batch ID: GBH744
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15314-2MS, D15314-2MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8021

Matrix SO	Batch ID: GAB3244
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15314-1MS, D15314-1MSD were used as the QC samples indicated.

Wet Chemistry By Method ASTM E1498-76M

Matrix SO	Batch ID: GN32434
------------------	--------------------------

- Sample(s) D15340-1DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO	Batch ID: GP11820
------------------	--------------------------

- All samples were distilled within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D15090-7DUP, D15090-7MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D15314).



Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	N-P-AD127		
Lab Sample ID:	D15314-1	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846 8270C BY SIM SW846 3540C	Percent Solids:	91.9
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G01543.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	36	34	ug/kg	
208-96-8	Acenaphthylene	ND	180	37	ug/kg	
120-12-7	Anthracene	ND	36	23	ug/kg	
56-55-3	Benzo(a)anthracene	ND	36	36	ug/kg	
50-32-8	Benzo(a)pyrene	ND	36	23	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	36	26	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	36	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	36	23	ug/kg	
218-01-9	Chrysene	ND	36	18	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	36	27	ug/kg	
206-44-0	Fluoranthene	ND	36	22	ug/kg	
86-73-7	Fluorene	70.4	36	36	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	36	24	ug/kg	
90-12-0	1-Methylnaphthalene	77.2	36	32	ug/kg	
91-57-6	2-Methylnaphthalene	130	180	55	ug/kg	J
91-20-3	Naphthalene	ND	180	40	ug/kg	
85-01-8	Phenanthrene	53.8	36	29	ug/kg	
129-00-0	Pyrene	ND	36	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%		10-193%
321-60-8	2-Fluorobiphenyl	76%		20-138%
1718-51-0	Terphenyl-d14	75%		17-174%

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:	N-P-AD127		
Lab Sample ID:	D15314-1	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846 8015	Percent Solids:	91.9
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BH14473.D	1	07/28/10	AMA	n/a	n/a	M:GBH744
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.1 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.8	4.2	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
615-59-8	2,5-Dibromotoluene	109%		36-148%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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:	N-P-AD127		
Lab Sample ID:	D15314-1	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846 8021	Percent Solids:	91.9
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	AB58930.D	1	07/28/10	AMA	n/a	n/a	M:GAB3244
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.1 g	10.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	58	8.0	ug/kg	
108-88-3	Toluene	ND	58	9.0	ug/kg	
100-41-4	Ethylbenzene	ND	58	10	ug/kg	
1330-20-7	Xylenes (total)	ND	58	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
615-59-8	2,5-Dibromotoluene	96%		70-130%
	2,3,4-Trifluorotoluene	102%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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:	N-P-AD127			
Lab Sample ID:	D15314-1		Date Sampled:	07/15/10
Matrix:	SO - Soil		Date Received:	07/17/10
Method:	SW846-8015B SW846 3550B		Percent Solids:	91.9
Project:	Arco Deep 1-27 Tank			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD2839.D	1	07/21/10	CP	07/21/10	OP2198	GFD140
Run #2							

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

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	232	15	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	90%		63-130%	

ND = Not detected
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: N-P-AD127

Lab Sample ID: D15314-1

Matrix: SO - Soil

Project: Arco Deep 1-27 Tank

Date Sampled: 07/15/10

Date Received: 07/17/10

Percent Solids: 91.9

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.7	0.40	mg/kg	5	07/21/10	07/22/10 JM	SW846 6020 ²	SW846 3050B ⁶
Barium	304	0.99	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Cadmium	< 0.99	0.99	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Chromium	47.9	0.99	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Copper	11.9	0.49	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Lead	12.1	4.9	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Mercury	< 0.11	0.11	mg/kg	1	07/20/10	07/20/10 RN	SW846 7471A ¹	SW846 7471A ⁴
Nickel	19.2	3.0	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Selenium	< 4.9	4.9	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Silver	< 3.0	3.0	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Zinc	43.9	3.0	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵

(1) Instrument QC Batch: MA836

(2) Instrument QC Batch: MA843

(3) Instrument QC Batch: MA844

(4) Prep QC Batch: MP2364

(5) Prep QC Batch: MP2375

(6) Prep QC Batch: MP2376

RL = Reporting Limit

Report of Analysis

Client Sample ID: N-P-AD127**Lab Sample ID:** D15314-1**Matrix:** SO - Soil**Project:** Arco Deep 1-27 Tank**Date Sampled:** 07/15/10**Date Received:** 07/17/10**Percent Solids:** 91.9**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 2.2	2.2	mg/kg	1	07/22/10 17:40	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	47.9	3.2	mg/kg	1	07/22/10 19:18	JM	SW846 3060/7196A M
Redox Potential Vs H2 ^a	289		mv	1	07/23/10	AMA	ASTM E1498-76M
Solids, Percent	91.9		%	1	07/19/10	CJ	SM19 2540B M
Specific Conductivity	1060	1.0	umhos/cm	1	07/21/10	CJ	DEPT.OF AG, BOOK N9
pH	9.01		su	1	07/19/10 12:00	JK	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	N-P-AD127		
Lab Sample ID:	D15314-1A	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
		Percent Solids:	91.9
Project:	Arco Deep 1-27 Tank		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	91.3	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ²
Magnesium	16.9	1.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ²
Sodium	118	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA839
(2) Prep QC Batch: MP2386

RL = Reporting Limit

Report of Analysis

Client Sample ID:	N-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15314-1A	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	91.9
Project:	Arco Deep 1-27 Tank		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	2.97		ratio	1	07/22/10 04:10	JM	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	S-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15314-2	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	92.5
Method:	SW846 8270C BY SIM SW846 3540C		
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G01546.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	36	34	ug/kg	
208-96-8	Acenaphthylene	ND	180	37	ug/kg	
120-12-7	Anthracene	ND	36	23	ug/kg	
56-55-3	Benzo(a)anthracene	ND	36	35	ug/kg	
50-32-8	Benzo(a)pyrene	ND	36	23	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	36	26	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	36	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	36	23	ug/kg	
218-01-9	Chrysene	ND	36	18	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	36	27	ug/kg	
206-44-0	Fluoranthene	ND	36	22	ug/kg	
86-73-7	Fluorene	ND	36	35	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	36	24	ug/kg	
90-12-0	1-Methylnaphthalene	ND	36	32	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	55	ug/kg	
91-20-3	Naphthalene	ND	180	40	ug/kg	
85-01-8	Phenanthrene	ND	36	29	ug/kg	
129-00-0	Pyrene	ND	36	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	64%		10-193%
321-60-8	2-Fluorobiphenyl	65%		20-138%
1718-51-0	Terphenyl-d14	65%		17-174%

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:	S-P-AD127						
Lab Sample ID:	D15314-2				Date Sampled:	07/15/10	
Matrix:	SO - Soil				Date Received:	07/17/10	
Method:	SW846 8015				Percent Solids:	92.5	
Project:	Arco Deep 1-27 Tank						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BH14476.D	1	07/28/10	AMA	n/a	n/a	M:GBH744
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.0 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.8	4.2	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
615-59-8	2,5-Dibromotoluene	106%		36-148%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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:	S-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15314-2	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	92.5
Method:	SW846 8021		
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	AB58927.D	1	07/28/10	AMA	n/a	n/a	M:GAB3244
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.0 g	10.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	58	8.0	ug/kg	
108-88-3	Toluene	12.4	58	8.9	ug/kg	J
100-41-4	Ethylbenzene	ND	58	10	ug/kg	
1330-20-7	Xylenes (total)	ND	58	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
615-59-8	2,5-Dibromotoluene	93%		70-130%
	2,3,4-Trifluorotoluene	103%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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:	S-P-AD127		
Lab Sample ID:	D15314-2	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846-8015B SW846 3550B	Percent Solids:	92.5
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD2841.D	1	07/21/10	CP	07/21/10	OP2198	GFD140
Run #2							

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

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	26.5	14	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	82%		63-130%	

ND = Not detected
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: S-P-AD127

Lab Sample ID: D15314-2

Matrix: SO - Soil

Project: Arco Deep 1-27 Tank

Date Sampled: 07/15/10

Date Received: 07/17/10

Percent Solids: 92.5

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.3	0.42	mg/kg	5	07/21/10	07/22/10 JM	SW846 6020 ²	SW846 3050B ⁶
Barium	388	1.0	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Cadmium	< 1.0	1.0	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Chromium	44.9	1.0	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Copper	13.2	0.52	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Lead	12.0	5.2	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Mercury	< 0.11	0.11	mg/kg	1	07/20/10	07/20/10 RN	SW846 7471A ¹	SW846 7471A ⁴
Nickel	19.0	3.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Selenium	< 5.2	5.2	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Silver	< 3.1	3.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Zinc	43.2	3.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵

(1) Instrument QC Batch: MA836

(2) Instrument QC Batch: MA843

(3) Instrument QC Batch: MA844

(4) Prep QC Batch: MP2364

(5) Prep QC Batch: MP2375

(6) Prep QC Batch: MP2376

RL = Reporting Limit

Report of Analysis

Client Sample ID: S-P-AD127**Lab Sample ID:** D15314-2**Matrix:** SO - Soil**Project:** Arco Deep 1-27 Tank**Date Sampled:** 07/15/10**Date Received:** 07/17/10**Percent Solids:** 92.5**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 2.1	2.1	mg/kg	1	07/22/10 17:45	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	44.2	3.1	mg/kg	1	07/22/10 19:24	JM	SW846 3060/7196A M
Redox Potential Vs H2 ^a	325		mv	1	07/23/10	AMA	ASTM E1498-76M
Solids, Percent	92.5		%	1	07/19/10	CJ	SM19 2540B M
Specific Conductivity	488	1.0	umhos/cm	1	07/21/10	CJ	DEPT.OF AG, BOOK N9
pH	9.41		su	1	07/19/10 12:00	JK	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	S-P-AD127		
Lab Sample ID:	D15314-2A	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
		Percent Solids:	92.5
Project:	Arco Deep 1-27 Tank		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	41.4	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ²	EPA 200.7 ³
Magnesium	7.66	1.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ³
Sodium	77.9	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ³

- (1) Instrument QC Batch: MA839
- (2) Instrument QC Batch: MA844
- (3) Prep QC Batch: MP2386

RL = Reporting Limit

Report of Analysis

Client Sample ID:	S-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15314-2A	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	92.5
Project:	Arco Deep 1-27 Tank		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	2.92		ratio	1	07/22/10 15:44	JM	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	W-P-AD127		
Lab Sample ID:	D15314-3	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846 8270C BY SIM SW846 3540C	Percent Solids:	82.2
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G01547.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	41	38	ug/kg	
208-96-8	Acenaphthylene	ND	200	42	ug/kg	
120-12-7	Anthracene	ND	41	26	ug/kg	
56-55-3	Benzo(a)anthracene	ND	41	40	ug/kg	
50-32-8	Benzo(a)pyrene	ND	41	26	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	41	29	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	41	25	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	41	26	ug/kg	
218-01-9	Chrysene	ND	41	20	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	41	30	ug/kg	
206-44-0	Fluoranthene	ND	41	25	ug/kg	
86-73-7	Fluorene	ND	41	40	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	41	27	ug/kg	
90-12-0	1-Methylnaphthalene	ND	41	36	ug/kg	
91-57-6	2-Methylnaphthalene	ND	200	62	ug/kg	
91-20-3	Naphthalene	ND	200	45	ug/kg	
85-01-8	Phenanthrene	ND	41	32	ug/kg	
129-00-0	Pyrene	ND	41	27	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	54%		10-193%
321-60-8	2-Fluorobiphenyl	63%		20-138%
1718-51-0	Terphenyl-d14	59%		17-174%

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:	W-P-AD127						
Lab Sample ID:	D15314-3				Date Sampled:	07/15/10	
Matrix:	SO - Soil				Date Received:	07/17/10	
Method:	SW846 8015				Percent Solids:	82.2	
Project:	Arco Deep 1-27 Tank						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BH14474.D	1	07/28/10	AMA	n/a	n/a	M:GBH744
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.6 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	6.8	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
615-59-8	2,5-Dibromotoluene	112%		36-148%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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:	W-P-AD127		
Lab Sample ID:	D15314-3	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846 8021	Percent Solids:	82.2
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	AB58928.D	1	07/28/10	AMA	n/a	n/a	M:GAB3244
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.6 g	10.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	68	9.4	ug/kg	
108-88-3	Toluene	15.9	68	11	ug/kg	J
100-41-4	Ethylbenzene	ND	68	12	ug/kg	
1330-20-7	Xylenes (total)	ND	68	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
615-59-8	2,5-Dibromotoluene	96%		70-130%
	2,3,4-Trifluorotoluene	102%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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: W-P-AD127**Lab Sample ID:** D15314-3**Date Sampled:** 07/15/10**Matrix:** SO - Soil**Date Received:** 07/17/10**Method:** SW846-8015B SW846 3550B**Percent Solids:** 82.2**Project:** Arco Deep 1-27 Tank

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD2842.D	1	07/21/10	CP	07/21/10	OP2198	GFD140
Run #2							

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

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	191	16	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	92%		63-130%	

ND = Not detected

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: W-P-AD127

Lab Sample ID: D15314-3

Matrix: SO - Soil

Date Sampled: 07/15/10

Date Received: 07/17/10

Percent Solids: 82.2

Project: Arco Deep 1-27 Tank

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.6	0.42	mg/kg	5	07/21/10	07/22/10 JM	SW846 6020 ²	SW846 3050B ⁶
Barium	361	1.0	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Cadmium	< 1.0	1.0	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Chromium	47.0	1.0	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Copper	12.0	0.52	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Lead	12.0	5.2	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Mercury	< 0.12	0.12	mg/kg	1	07/20/10	07/20/10 RN	SW846 7471A ¹	SW846 7471A ⁴
Nickel	20.3	3.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Selenium	< 5.2	5.2	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Silver	< 3.1	3.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Zinc	44.9	3.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵

(1) Instrument QC Batch: MA836

(2) Instrument QC Batch: MA843

(3) Instrument QC Batch: MA844

(4) Prep QC Batch: MP2364

(5) Prep QC Batch: MP2375

(6) Prep QC Batch: MP2376

RL = Reporting Limit

Report of Analysis

Client Sample ID:	W-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15314-3	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	82.2
Project:	Arco Deep 1-27 Tank		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 2.4	2.4	mg/kg	1	07/22/10 17:45	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	46.6	3.4	mg/kg	1	07/22/10 19:30	JM	SW846 3060/7196A M
Redox Potential Vs H2 ^a	336		mv	1	07/23/10	AMA	ASTM E1498-76M
Solids, Percent	82.2		%	1	07/19/10	CJ	SM19 2540B M
Specific Conductivity	261	1.0	umhos/cm	1	07/21/10	CJ	DEPT.OF AG, BOOK N9
pH	9.37		su	1	07/19/10 12:00	JK	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	W-P-AD127		
Lab Sample ID:	D15314-3A	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
		Percent Solids:	82.2
Project:	Arco Deep 1-27 Tank		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	19.4	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ²	EPA 200.7 ³
Magnesium	3.71	1.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ³
Sodium	45.8	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ³

- (1) Instrument QC Batch: MA839
- (2) Instrument QC Batch: MA844
- (3) Prep QC Batch: MP2386

RL = Reporting Limit

Report of Analysis

Client Sample ID:	W-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15314-3A	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	82.2
Project:	Arco Deep 1-27 Tank		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	2.49		ratio	1	07/22/10 15:50	JM	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	B1W-P-AD127		
Lab Sample ID:	D15314-4	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846 8270C BY SIM SW846 3540C	Percent Solids:	75.9
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G01548.D	1	07/23/10	TMB	07/20/10	OP2194	E3G41
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.8	8.2	ug/kg	
208-96-8	Acenaphthylene	ND	44	9.0	ug/kg	
120-12-7	Anthracene	ND	8.8	5.7	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.8	8.6	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.8	5.5	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.8	6.4	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	8.8	5.5	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.8	5.5	ug/kg	
218-01-9	Chrysene	ND	8.8	4.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.8	6.5	ug/kg	
206-44-0	Fluoranthene	ND	8.8	5.4	ug/kg	
86-73-7	Fluorene	ND	8.8	8.6	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.8	5.7	ug/kg	
90-12-0	1-Methylnaphthalene	ND	8.8	7.8	ug/kg	
91-57-6	2-Methylnaphthalene	ND	44	13	ug/kg	
91-20-3	Naphthalene	ND	44	9.7	ug/kg	
85-01-8	Phenanthrene	ND	8.8	7.0	ug/kg	
129-00-0	Pyrene	ND	8.8	5.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	66%		10-193%
321-60-8	2-Fluorobiphenyl	64%		20-138%
1718-51-0	Terphenyl-d14	73%		17-174%

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:	B1W-P-AD127		
Lab Sample ID:	D15314-4	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846 8015	Percent Solids:	75.9
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BH14475.D	1	07/28/10	AMA	n/a	n/a	M:GBH744
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.4 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	7.9	5.8	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
615-59-8	2,5-Dibromotoluene	108%		36-148%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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:	B1W-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15314-4	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	75.9
Method:	SW846 8021		
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	AB58929.D	1	07/28/10	AMA	n/a	n/a	M:GAB3244
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	10.4 g	10.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	79	11	ug/kg	
108-88-3	Toluene	21.4	79	12	ug/kg	J
100-41-4	Ethylbenzene	ND	79	14	ug/kg	
1330-20-7	Xylenes (total)	ND	79	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
615-59-8	2,5-Dibromotoluene	95%		70-130%
	2,3,4-Trifluorotoluene	102%		70-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

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:	B1W-P-AD127		
Lab Sample ID:	D15314-4	Date Sampled:	07/15/10
Matrix:	SO - Soil	Date Received:	07/17/10
Method:	SW846-8015B SW846 3550B	Percent Solids:	75.9
Project:	Arco Deep 1-27 Tank		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD2843.D	1	07/21/10	CP	07/21/10	OP2198	GFD140
Run #2							

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

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	190	18	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	80%		63-130%	

ND = Not detected
 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: B1W-P-AD127

Lab Sample ID: D15314-4

Matrix: SO - Soil

Project: Arco Deep 1-27 Tank

Date Sampled: 07/15/10

Date Received: 07/17/10

Percent Solids: 75.9

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.0	0.44	mg/kg	5	07/21/10	07/22/10 JM	SW846 6020 ²	SW846 3050B ⁶
Barium	276	1.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Cadmium	< 1.1	1.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Chromium	48.9	1.1	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Copper	10.5	0.55	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Lead	12.4	5.5	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Mercury	< 0.13	0.13	mg/kg	1	07/20/10	07/20/10 RN	SW846 7471A ¹	SW846 7471A ⁴
Nickel	20.4	3.3	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Selenium	< 5.5	5.5	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Silver	< 3.3	3.3	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵
Zinc	44.0	3.3	mg/kg	1	07/21/10	07/22/10 JM	SW846 6010B ³	SW846 3050B ⁵

(1) Instrument QC Batch: MA836

(2) Instrument QC Batch: MA843

(3) Instrument QC Batch: MA844

(4) Prep QC Batch: MP2364

(5) Prep QC Batch: MP2375

(6) Prep QC Batch: MP2376

RL = Reporting Limit

Report of Analysis

Client Sample ID: B1W-P-AD127**Lab Sample ID:** D15314-4**Matrix:** SO - Soil**Project:** Arco Deep 1-27 Tank**Date Sampled:** 07/15/10**Date Received:** 07/17/10**Percent Solids:** 75.9**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	< 2.6	2.6	mg/kg	1	07/22/10 17:45	AMA	SW846 3060A/7196A
Chromium, Trivalent ^b	48.9	3.7	mg/kg	1	07/22/10 19:35	JM	SW846 3060/7196A M
Redox Potential Vs H2 ^a	300		mv	1	07/23/10	AMA	ASTM E1498-76M
Solids, Percent	75.9		%	1	07/19/10	CJ	SM19 2540B M
Specific Conductivity	1510	1.0	umhos/cm	1	07/21/10	CJ	DEPT.OF AG, BOOK N9
pH	9.55		su	1	07/19/10 12:00	JK	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	B1W-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15314-4A	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	75.9
Project:	Arco Deep 1-27 Tank		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	16.6	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ²	EPA 200.7 ³
Magnesium	2.18	1.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ³
Sodium	312	2.0	mg/l	1	07/21/10	07/22/10 JM	SW846 6010B ¹	EPA 200.7 ³

- (1) Instrument QC Batch: MA839
- (2) Instrument QC Batch: MA844
- (3) Prep QC Batch: MP2386

RL = Reporting Limit

Report of Analysis

Client Sample ID:	B1W-P-AD127	Date Sampled:	07/15/10
Lab Sample ID:	D15314-4A	Date Received:	07/17/10
Matrix:	SO - Soil	Percent Solids:	75.9
Project:	Arco Deep 1-27 Tank		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	19.1		ratio	1	07/22/10 15:56	JM	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Client / Reporting Information		Project Information		Requested Analyses												Matrix Codes					
Environmental Audit - Assessment Street Address: 225 N 5TH ST, SUITE 8 City: GRAND JUNCTION, CO 81501 Project Contact: JANA SANDERS Phone #: 970-745-8897 Fax #: 970-745-0759 Email: jsanders@percon.com Project Manager: JS Phone #: 970-640-9972		Project Name: ARCO DEEP 1-27 PIT Street: _____ City: _____ State: _____ Billing Information (if different from Report to): Company Name: WILLIAMS BMT COMPANY Street Address: PO BOX City: PARACHUTE, CO 81635 Attention: JASON BROWN		BTEX TPH TE PH SEMI VOLATILES (PAH) PH, EC, SAR ARSENIC, BARIUM (LOW TOX) CHROMIUM, CHROMIUM (VI) CHROMIUM (VI) COPPER LEAD (INORGANIC) MERCURY NICKEL (SOLUBLE SALT) SILICA SILVER ZINC												DW - Drinking Water GW - Ground Water WW - Waste SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WIP - Wipes FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank					
Accutest Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	ICI	MECH	ZINC	INQ3	ARSENIC	CHROMIUM	CHROMIUM (VI)	COPPER	LEAD	MERCURY	NICKEL	SILICA	SILVER	ZINC	LAB USE ONLY
N-P-AD127		07/15/10	1514	JS	SO	6															01
S-P-AD127		07/15/10	1413	JS	SO	6															02
E-P-AD127		07/15/10	1444	JS	SO	6															03
W-P-AD127		07/15/10	1550	JS	SO	6															04
BLW-P-AD127		07/15/10	1526	JS	SO	6															
ATE-P-AD127		07/15/10	1500	JS	SO	6															
Turnaround Time (Business days)		Data Deliverable Information		Comments / Special Instructions																	
<input checked="" type="checkbox"/> Standard - 10 DAY <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 4 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available VIA Lablink		Approved By (Accutest PM): / Date: _____ <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULT1 (Level 3+4) <input type="checkbox"/> REDT1 (Level 3+4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> TRRP <input type="checkbox"/> EDD Format <input type="checkbox"/> Other _____		ANALYSES -> COCOC TABLE 910-1 WILLIAMS STD DUTY/REACTIVES WILLIAMS STD T.A.T.																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																					
Relinquished by Sampler:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Relinquished By:		Date Time:	
1		07/14/10 0930		3		4				5		Custody Seal #		<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Preserved where applicable <input checked="" type="checkbox"/>		On Ice <input checked="" type="checkbox"/>		Cooler Temp: 13.9	



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D15314

Client: ENIRONMENTAL AUDIT&ASS.

Immediate Client Services Action Required: No

Date / Time Received: 7/17/2010 10:00:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: ARCO DEEP 1-27-PIT

Airbill #'s: ups

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 type="checkbox"/> | <input checked="" 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

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

D15314: Chain of Custody
Page 2 of 2



GC/MS Semi-volatiles

5

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: D15314
Account: WILLCOP Williams Production
Project: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2194-MB	3G01539.D	2	07/23/10	TMB	07/20/10	OP2194	E3G41

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	13	12	ug/kg	
208-96-8	Acenaphthylene	ND	67	14	ug/kg	
120-12-7	Anthracene	ND	13	8.6	ug/kg	
56-55-3	Benzo(a)anthracene	ND	13	13	ug/kg	
50-32-8	Benzo(a)pyrene	ND	13	8.4	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	13	9.7	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	13	8.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	13	8.4	ug/kg	
218-01-9	Chrysene	ND	13	6.7	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	13	9.9	ug/kg	
206-44-0	Fluoranthene	ND	13	8.2	ug/kg	
86-73-7	Fluorene	ND	13	13	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	13	8.7	ug/kg	
90-12-0	1-Methylnaphthalene	ND	13	12	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	20	ug/kg	
91-20-3	Naphthalene	ND	67	15	ug/kg	
85-01-8	Phenanthrene	ND	13	11	ug/kg	
129-00-0	Pyrene	ND	13	9.0	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	53% 10-193%
321-60-8	2-Fluorobiphenyl	53% 20-138%
1718-51-0	Terphenyl-d14	65% 17-174%

Blank Spike Summary

Page 1 of 1

Job Number: D15314

Account: WILLCOP Williams Production

Project: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2194-BS	3G01540.D	2	07/23/10	TMB	07/20/10	OP2194	E3G41

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	41.4	50	40-136
208-96-8	Acenaphthylene	83.3	41.2	49	42-139
120-12-7	Anthracene	83.3	40.5	49	40-141
56-55-3	Benzo(a)anthracene	83.3	41.5	50	38-143
50-32-8	Benzo(a)pyrene	83.3	38.3	46	39-145
205-99-2	Benzo(b)fluoranthene	83.3	36.4	44	38-151
191-24-2	Benzo(g,h,i)perylene	83.3	37.1	45	35-136
207-08-9	Benzo(k)fluoranthene	83.3	42.2	51	38-147
218-01-9	Chrysene	83.3	41.1	49	39-137
53-70-3	Dibenzo(a,h)anthracene	83.3	37.6	45	35-139
206-44-0	Fluoranthene	83.3	41.5	50	34-132
86-73-7	Fluorene	83.3	41.9	50	41-136
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	37.3	45	31-144
90-12-0	1-Methylnaphthalene	83.3	41.0	49	36-130
91-57-6	2-Methylnaphthalene	83.3	41.0	49	40-131
91-20-3	Naphthalene	83.3	43.5	52	36-130
85-01-8	Phenanthrene	83.3	43.2	52	40-135
129-00-0	Pyrene	83.3	40.2	48	29-157

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	53%	10-193%
321-60-8	2-Fluorobiphenyl	52%	20-138%
1718-51-0	Terphenyl-d14	54%	17-174%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D15314
Account: WILLCOP Williams Production
Project: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2194-MS	3G01544.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41
OP2194-MSD	3G01545.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41
D15314-1	3G01543.D	5	07/23/10	TMB	07/20/10	OP2194	E3G41

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	D15314-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		90.6	56.8	63	67.2	74	17	20-151/30
208-96-8	Acenaphthylene	ND		90.6	52.5	58	64.9	72	21	23-156/30
120-12-7	Anthracene	ND		90.6	46.2	51	59.3	65	25	25-149/30
56-55-3	Benzo(a)anthracene	ND		90.6	51.1	56	64.2	71	23	22-157/30
50-32-8	Benzo(a)pyrene	ND		90.6	44.5	49	56.1	62	23	23-153/30
205-99-2	Benzo(b)fluoranthene	ND		90.6	48.9	54	62.1	68	24	22-161/30
191-24-2	Benzo(g,h,i)perylene	ND		90.6	40.7	45	51.3	57	23	20-158/30
207-08-9	Benzo(k)fluoranthene	ND		90.6	45.6	50	58.9	65	25	17-161/30
218-01-9	Chrysene	ND		90.6	46.2	51	59.6	66	25	16-159/30
53-70-3	Dibenzo(a,h)anthracene	ND		90.6	41.9	46	53.5	59	24	21-154/30
206-44-0	Fluoranthene	ND		90.6	60.6	67	73.3	81	19	16-140/30
86-73-7	Fluorene	70.4		90.6	104	37	129	65	21	15-153/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		90.6	38.9	43	51.1	56	27	21-159/30
90-12-0	1-Methylnaphthalene	77.2		90.6	107	33	121	48	12	10-148/30
91-57-6	2-Methylnaphthalene	130	J	90.6	152	24	171	45	12	10-181/30
91-20-3	Naphthalene	ND		90.6	58.6	65	64.3	71	9	10-176/30
85-01-8	Phenanthrene	53.8		90.6	85.0	34	105	56	21	22-152/30
129-00-0	Pyrene	ND		90.6	46.2	51	64.5	71	33*	10-200/30

CAS No.	Surrogate Recoveries	MS	MSD	D15314-1	Limits
4165-60-0	Nitrobenzene-d5	54%	60%	71%	10-193%
321-60-8	2-Fluorobiphenyl	59%	70%	76%	20-138%
1718-51-0	Terphenyl-d14	61%	82%	75%	17-174%



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

Page 1 of 1

Job Number: D15314

Account: WILLCOP Williams Production

Project: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2198-MB	FD2830.D	1	07/21/10	CP	07/21/10	OP2198	GFD140

The QC reported here applies to the following samples:

Method: SW846-8015B

D15314-1, D15314-2, D15314-3, D15314-4

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

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	102% 63-130%

Blank Spike Summary

Job Number: D15314
Account: WILLCOP Williams Production
Project: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2198-BS	FD2831.D	1	07/21/10	CP	07/21/10	OP2198	GFD140

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

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	672	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	111%	63-130%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D15314
Account: WILLCOP Williams Production
Project: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2198-MS	FD2832.D	5	07/21/10	CP	07/21/10	OP2198	GFD140
OP2198-MSD	FD2833.D	5	07/21/10	CP	07/21/10	OP2198	GFD140
D15348-1	FD2834.D	5	07/21/10	CP	07/21/10	OP2198	GFD140

The QC reported here applies to the following samples:

Method: SW846-8015B

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	D15348-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	7090	738	7740	88	7530	60 ^a	3	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D15348-1	Limits
84-15-1	o-Terphenyl	102%	116%	117%	63-130%

(a) Outside control limits due to high level in sample relative to spike amount.



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: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2364
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 07/20/10

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.0012	0.0046	<0.10

Associated samples MP2364: D15314-1, D15314-2, D15314-3, D15314-4

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: D15314
 Account: WILLCOP - Williams Production
 Project: Arco Deep 1-27 Tank

QC Batch ID: MP2364
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 07/20/10

Metal	D15314-1 Original MS	Spikelot HGWSR1	% Rec	QC Limits
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Mercury 0.028 0.38 0.427 82.5N(a) 85-115

Associated samples MP2364: D15314-1, D15314-2, D15314-3, D15314-4

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

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

7.1.2

7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
 Account: WILLCOP - Williams Production
 Project: Arco Deep 1-27 Tank

QC Batch ID: MP2364
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 07/20/10

Metal	D15314-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
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Mercury 0.028 0.36 0.427 77.8N(a) 5.4 20

Associated samples MP2364: D15314-1, D15314-2, D15314-3, D15314-4

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

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

7.1.2

7

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

Methods: SW846 7471A
Units: mg/kg

Prep Date: 07/20/10

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.34	0.4	85.0	80-120

Associated samples MP2364: D15314-1, D15314-2, D15314-3, D15314-4

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15314
Account: WILLCOF - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 07/21/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.7	2		
Antimony	3.0	.17	.5		
Arsenic	2.5	.28	.72		
Barium	1.0	.014	.05	0.060	<1.0
Beryllium	1.0	.14	.21		
Boron	5.0	.35	.91		
Cadmium	1.0	.022	.12	0.030	<1.0
Calcium	40	1.7	2.7		
Chromium	1.0	.027	.18	0.050	<1.0
Cobalt	0.50	.048	.058		
Copper	0.50	.16	.38	-0.090	<0.50
Iron	7.0	.77	.91		
Lead	5.0	.13	.24	0.0	<5.0
Lithium	0.20	.076	.09		
Magnesium	20	.58	.93		
Manganese	0.50	.021	.028		
Molybdenum	1.0	.041	.16		
Nickel	3.0	.038	.075	0.0	<3.0
Phosphorus	10	1.5	3.5		
Potassium	200	38	130		
Selenium	5.0	.28	.54	-0.36	<5.0
Silicon	5.0	1.2	.68		
Silver	3.0	.098	.068	0.0	<3.0
Sodium	40	23	6.3		
Strontium	5.0	.0091	.02		
Thallium	1.0	.31	.21		
Tin	5.0	1.4	.56		
Titanium	1.0	.0098	.041		
Uranium	5.0	.22	.53		
Vanadium	1.0	.027	.034		
Zinc	3.0	.076	.49	0.10	<3.0

Associated samples MP2375: D15314-1, D15314-2, D15314-3, D15314-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

7.2.1

7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 07/21/10

Metal	D15266-1 Original MS	Spikelot MPICPALL % Rec	QC Limits
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	90.2	286	225
Beryllium	anr		
Boron	anr		
Cadmium	1.2	49.0	56.2
Calcium	anr		
Chromium	12.7	56.9	56.2
Cobalt			
Copper	30.6	69.4	56.2
Iron	anr		
Lead	13.6	105	112
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	32.1	64.9	56.2
Phosphorus			
Potassium	anr		
Selenium	3.8	101	112
Silicon			
Silver	0.0	20.0	22.5
Sodium	anr		
Strontium			
Thallium	anr		
Tin			
Titanium			
Uranium			
Vanadium			
Zinc	90.6	120	56.2

Associated samples MP2375: D15314-1, D15314-2, D15314-3, D15314-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 07/21/10

Metal	D15266-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	90.2	302	207	102.2	5.4	20
Beryllium	anr					
Boron	anr					
Cadmium	1.2	45.1	51.8	84.7	8.3	20
Calcium	anr					
Chromium	12.7	53.5	51.8	78.8	6.2	20
Cobalt						
Copper	30.6	71.2	51.8	78.4	2.6	20
Iron	anr					
Lead	13.6	104	104	87.2	1.0	20
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	32.1	64.4	51.8	62.3N(a)	0.8	20
Phosphorus						
Potassium	anr					
Selenium	3.8	91.3	104	84.4	10.1	20
Silicon						
Silver	0.0	18.5	20.7	89.3	7.8	20
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	90.6	114	51.8	45.2N(a)	5.1	20

Associated samples MP2375: D15314-1, D15314-2, D15314-3, D15314-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 07/21/10

Metal	BSP Result	Spikelot MPICPAL	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	182	200	91.0	80-120
Beryllium	anr			
Boron	anr			
Cadmium	46.5	50	93.0	80-120
Calcium	anr			
Chromium	49.4	50	98.8	80-120
Cobalt				
Copper	49.2	50	98.4	80-120
Iron	anr			
Lead	95.7	100	95.7	80-120
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	47.4	50	94.8	80-120
Phosphorus				
Potassium	anr			
Selenium	92.1	100	92.1	80-120
Silicon				
Silver	19.3	20	96.5	80-120
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	47.1	50	94.2	80-120

Associated samples MP2375: D15314-1, D15314-2, D15314-3, D15314-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

Login Number: D15314
 Account: WILLCOP - Williams Production
 Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Metal

7.2.3

SERIAL DILUTION RESULTS SUMMARY

Login Number: D15314
 Account: WILLCOP - Williams Production
 Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 07/21/10

Metal	D15266-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	931	1110	18.7*(a)	0-10
Beryllium	anr			
Boron	anr			
Cadmium	12.6	14.0	11.1*(a)	0-10
Calcium	anr			
Chromium	131	154	17.2*(a)	0-10
Cobalt				
Copper	316	329	4.0	0-10
Iron	anr			
Lead	141	160	13.3*(a)	0-10
Lithium				
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	331	399	20.6*(a)	0-10
Phosphorus				
Potassium	anr			
Selenium	39.4	43.5	10.4 (b)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	935	1180	26.2*(a)	0-10

Associated samples MP2375: D15314-1, D15314-2, D15314-3, D15314-4

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2375
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

(a) Serial dilution indicates possible matrix interference.

(b) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

7.2.4

7

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2376
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 07/21/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	.89		
Antimony	0.20	.001	.045		
Arsenic	0.40	.049	.26	0.051	<0.40
Barium	1.0	.0035	.17		
Beryllium	0.10	.0075	.014		
Boron	20	.97	2		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	6.1		
Chromium	1.0	.021	.23		
Cobalt	0.10	.0033	.088		
Copper	1.0	.011	.14		
Iron	20	.81	6.1		
Lead	0.25	.0012	.18		
Magnesium	50	.067	1.3		
Manganese	0.50	.007	.089		
Molybdenum	0.50	.0044	.2		
Nickel	1.0	.0029	.074		
Phosphorus	30	1.8	5.6		
Potassium	100	2	9.1		
Selenium	0.20	.075	.14		
Silver	0.050	.0008	.029		
Sodium	250	.8	1.8		
Strontium	10	.004	.047		
Thallium	0.10	.015	.071		
Tin	5.0	.006	.17		
Titanium	1.0	.035	.071		
Uranium	0.25	.00038	.12		
Vanadium	2.0	.052	.99		
Zinc	5.0	.039	.53		

Associated samples MP2376: D15314-1, D15314-2, D15314-3, D15314-4

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: D15314
 Account: WILLCOP - Williams Production
 Project: Arco Deep 1-27 Tank

QC Batch ID: MP2376
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 07/21/10

Metal	D15266-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	21.3	137	112	103.0	60-119
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP2376: D15314-1, D15314-2, D15314-3, D15314-4

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
 Account: WILLCOP - Williams Production
 Project: Arco Deep 1-27 Tank

QC Batch ID: MP2376
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 07/21/10

Metal	D15266-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	21.3	102	104	77.9	29.3 (a)	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP2376: D15314-1, D15314-2, D15314-3, D15314-4

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
 (a) High RPD due to possible sample matrix or nonhomogeneity.

7.3.3

Prep Date: 07/21/10

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	98.8	100	98.8	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP2376: D15314-1, D15314-2, D15314-3, D15314-4

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2376
Matrix Type: SOLID

Methods: SW846 6020
Units: ug/l

Prep Date: 07/21/10

Metal	D15266-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	220	273	24.0*(a)	0-10	
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP2376: D15314-1, D15314-2, D15314-3, D15314-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2386
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 07/21/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	35	250		
Antimony	150	8.5	65		
Arsenic	130	14	33		
Barium	50	.7	12		
Beryllium	50	7	22		
Boron	250	18	93		
Cadmium	50	1.1	6		
Calcium	2000	85	46	-37	<2000
Chromium	50	1.4	8		
Cobalt	25	2.4	1.5		
Copper	25	8	14		
Iron	350	39	50		
Lead	250	6.5	16		
Lithium	10	3.8	8		
Magnesium	1000	29	62	46.0	<1000
Manganese	25	1.1	3.5		
Molybdenum	50	2.1	6		
Nickel	150	1.9	3		
Phosphorus	500	75	270		
Potassium	5000	1900	2700		
Selenium	250	14	36		
Silicon	250	60	100		
Silver	150	4.9	1.5		
Sodium	2000	1200	110	386	<2000
Strontium	25	.46	17		
Thallium	50	16	11		
Tin	250	70	22		
Titanium	50	.49	3.5		
Uranium	250	11	20		
Vanadium	50	1.4	1.5		
Zinc	150	3.8	8.5		

Associated samples MP2386: D15314-1A, D15314-2A, D15314-3A, D15314-4A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2386
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
 Account: WILLCOP - Williams Production
 Project: Arco Deep 1-27 Tank

QC Batch ID: MP2386
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 07/21/10

Metal	D15314-1A Original MS		SpikeLot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	91300	227000	125000	108.6	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	16900	148000	125000	104.9	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	118000	247000	125000	103.2	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP2386: D15314-1A, D15314-2A, D15314-3A, D15314-4A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2386
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
 Account: WILLCOP - Williams Production
 Project: Arco Deep 1-27 Tank

QC Batch ID: MP2386
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 07/21/10

Metal	D15314-1A Original MSD	Spikelot MPICPAL % Rec	MSD RPD	QC Limit
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	91300	224000	125000	106.2
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	16900	147000	125000	104.1
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	118000	245000	125000	101.6
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP2386: D15314-1A, D15314-2A, D15314-3A, D15314-4A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2386
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D15314
 Account: WILLCOP - Williams Production
 Project: Arco Deep 1-27 Tank

QC Batch ID: MP2386
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 07/21/10

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	137000	125000	109.6	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	132000	125000	105.6	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	131000	125000	104.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP2386: D15314-1A, D15314-2A, D15314-3A, D15314-4A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

QC Batch ID: MP2386
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested



General Chemistry

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: D15314
Account: WILLCOP - Williams Production
Project: Arco Deep 1-27 Tank

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP2395/GN5474			umhos/cm	9985	9850	98.6	90-110%
pH	GN5419			su	8.00	8.02	100.3	99.3-100.7%
pH	GN5419			su	8.00	8.02	100.3	99.3-100.7%

Associated Samples:
Batch GN5419: D15314-1, D15314-2, D15314-3, D15314-4
Batch GP2395: D15314-1, D15314-2, D15314-3, D15314-4
(*) Outside of QC limits

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Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

Accutest Job #:	B14314 JB
Accutest Quote #:	D15314
AMS P.O. #:	
Project No.:	

Client Information			Subcontract Laboratory Information										Analytical Information												
Name Accutest Mountain States (AMS)			Name Accutest - New England																						
Address 4036 Youngfield St.			Address 495 Technology Center West, BLDG O																						
City Wheat Ridge,	State CO	Zip 80033	City Marlborough		State MA		Zip 01752																		
Send Report to: Tiffany Pham			Contact: Sample Management																						
Any questions contact: Amanda Kissell			Phone: (508) 481-6200																						
Phone/Fax #: (303) 425-6021; (303) 425-6854																									
			Collection										Preservation												
Field ID / Point of Collection			Date	Time		Matrix	# of bottles	HCL	NH ₄ OH	HNO ₃	H ₂ SO ₄	None	Xcra	eh				Comments							
JB-014314-1			7/15/10	3:14 PM		Soil	1						X	X											
b15314 -2				2:13 PM		Soil	1						X	X											
-3				3:50 PM		Soil	1						X	X											
-4				3:26 PM		Soil	1						X	X											
-																									
-																									
-																									
-																									
-																									
-																									
-																									
-																									
Turnaround Information			Data Deliverable Information										Comments / Remarks												
<input checked="" type="checkbox"/> 10 Business Day Standard <input type="checkbox"/> Other _____ (Days)			Approved By: _____ <input type="checkbox"/> Commercial "A" <input type="checkbox"/> PDF <input type="checkbox"/> Commercial "B" <input type="checkbox"/> Compact Disk Deliverable <input type="checkbox"/> Commercial "BN" <input type="checkbox"/> Electronic Delivery: _____ <input type="checkbox"/> Reduced Tier 1 <input type="checkbox"/> State Forms <input type="checkbox"/> Full Tier 1 <input type="checkbox"/> Other (Specify) _____										Please use Colorado regulations and RLS. <div style="text-align: center; font-size: 2em;">2C</div>												
10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.																									
Sample Custody must be documented below each time samples change possession, including courier delivery.													For Subcontract Laboratory Use Only												
Relinquished by:			Date & Time:			Received By:			Date & Time:			Seal #:			Headspace:										
1			7/20/10			1 FedEx			1						Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>										
2			7/21/10 15:00			2 FedEx			27/21/10 15:00						Preserved where applicable: <input type="checkbox"/>										
3						3			3						Temperature °C 37 On Ice <input checked="" type="checkbox"/>										

9.1

D15314: Chain of Custody
Page 1 of 3
Accutest Labs of New England, Inc.



4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #: D15314

Accutest Quote #:

AMS P.O. #:

Project No.:

[illegible]

D15314: Chain of Custody

Page 2 of 3



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D15314

Client: AMS

Immediate Client Services Action Required: No

Date / Time Received: 7/21/2010 3:00:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: N/A

Airbill #'s:

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

Accutest Laboratories
V:508.481.6200

495 Technology Center West, Bldg One
F: 508.481.7753

Marlborough, MA
www.accutest.com

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D15314: Chain of Custody

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GC Volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

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

Method Blank Summary

Job Number: D15314
Account: ALMS Accutest Mountain States
Project: WILLCOP: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GBH744-MB	BH14468.D	1	07/28/10	AP	n/a	n/a	GBH744

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

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (VOA)	ND	5.0	3.6	mg/kg	

CAS No.	Surrogate Recoveries	Limits
615-59-8	2,5-Dibromotoluene	90% 36-148%

10.1.1
10

Method Blank Summary

Job Number: D15314
Account: ALMS Accutest Mountain States
Project: WILLCOP: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB3244-MB	AB58912A.D1		07/28/10	AP	n/a	n/a	GAB3244

The QC reported here applies to the following samples: Method: SW846 8021

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	6.9	ug/kg	
100-41-4	Ethylbenzene	ND	50	8.7	ug/kg	
108-88-3	Toluene	ND	50	7.7	ug/kg	
1330-20-7	Xylenes (total)	ND	50	9.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
615-59-8	2,5-Dibromotoluene	82% 70-130%
	2,3,4-Trifluorotoluene	104% 70-130%

10.1.2
10

Blank Spike Summary

Job Number: D15314
Account: ALMS Accutest Mountain States
Project: WILLCOP: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GBH744-BSP	BH14469.D	1	07/28/10	AP	n/a	n/a	GBH744

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

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (VOA)	20	21.8	109	67-133

CAS No.	Surrogate Recoveries	BSP	Limits
615-59-8	2,5-Dibromotoluene	99%	36-148%

10.2.1
10

Blank Spike/Blank Spike Duplicate Summary

Job Number: D15314
Account: ALMS Accutest Mountain States
Project: WILLCOP: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GAB3244-BSP	AB58913A.D1		07/28/10	AP	n/a	n/a	GAB3244
GAB3244-BSD	AB58914A.D1		07/28/10	AP	n/a	n/a	GAB3244

The QC reported here applies to the following samples: Method: SW846 8021

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	2500	2480	99	2460	98	1	70-130/25
100-41-4	Ethylbenzene	2500	2520	101	2500	100	1	70-130/25
108-88-3	Toluene	2500	2510	100	2490	100	1	70-130/25
1330-20-7	Xylenes (total)	7500	7570	101	7510	100	1	70-130/25

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
615-59-8	2,5-Dibromotoluene	87%	88%	70-130%
	2,3,4-Trifluorotoluene	109%	108%	70-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D15314
Account: ALMS Accutest Mountain States
Project: WILLCOP: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D15314-2MS	BH14477.D	1	07/28/10	AP	n/a	n/a	GBH744
D15314-2MSD	BH14478.D	1	07/28/10	AP	n/a	n/a	GBH744
D15314-2	BH14476.D	1	07/28/10	AP	n/a	n/a	GBH744

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

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	D15314-2 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (VOA)	ND	23.2	20.1	87	20.3	88	1	40-154/20

CAS No.	Surrogate Recoveries	MS	MSD	D15314-2	Limits
615-59-8	2,5-Dibromotoluene	106%	106%	106%	36-148%

10.4.1
10

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D15314
Account: ALMS Accutest Mountain States
Project: WILLCOP: Arco Deep 1-27 Tank

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D15314-1MS	AB58931.D	1	07/28/10	AP	n/a	n/a	GAB3244
D15314-1MSD	AB58932.D	1	07/28/10	AP	n/a	n/a	GAB3244
D15314-1	AB58930.D	1	07/28/10	AP	n/a	n/a	GAB3244

The QC reported here applies to the following samples: Method: SW846 8021

D15314-1, D15314-2, D15314-3, D15314-4

CAS No.	Compound	D15314-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		2910	2820	97	2840	97	1	70-130/30
100-41-4	Ethylbenzene	ND		2910	2870	98	2890	99	1	70-130/30
108-88-3	Toluene	ND		2910	2870	98	2880	99	0	70-130/30
1330-20-7	Xylenes (total)	ND		8740	8600	98	8650	99	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D15314-1	Limits
615-59-8	2,5-Dibromotoluene	92%	94%	96%	70-130%
	2,3,4-Trifluorotoluene	105%	106%	102%	70-130%

10.4.2
10



General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

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: D15314
Account: ALMS - Accutest Mountain States
Project: WILLCOP: Arco Deep 1-27 Tank

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP11820/GN32422	2.0	0.0	mg/kg	40	41.6	104.0	80-120%
Chromium, Hexavalent	GP11820/GN32422			mg/kg	792	851	107.4	80-120%

Associated Samples:
Batch GP11820: D15314-1, D15314-2, D15314-3, D15314-4
(*) Outside of QC limits

11.1
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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D15314
Account: ALMS - Accutest Mountain States
Project: WILLCOP: Arco Deep 1-27 Tank

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP11820/GN32422	D15090-7	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN32434	D15340-1	mv	288	266	4.0	0-20%

Associated Samples:
Batch GN32434: D15314-1, D15314-2, D15314-3, D15314-4
Batch GP11820: D15314-1, D15314-2, D15314-3, D15314-4
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D15314
Account: ALMS - Accutest Mountain States
Project: WILLCOP: Arco Deep 1-27 Tank

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP11820/GN32422	D15090-7	mg/kg	0.0	40.5	33.3	82.3	75-125%
Chromium, Hexavalent	GP11820/GN32422	D15090-7	mg/kg	0.0	1150	1250	109.0	75-125%

Associated Samples:

Batch GP11820: D15314-1, D15314-2, D15314-3, D15314-4

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits