

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109



DOCUMENT
#2216753

SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form.) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b).

RECEIVED
10/20/2011

1. OGCC Operator Number: 96850	4. Contact Name: Karolina Blaney	Complete the Attachment Checklist OP OGCC
2. Name of Operator: Williams Production RMT	Phone: 970 683 2295	
3. Address: 1058 County Road 215 City: Parachute State: CO Zip: 81635	Fax: 970 285 9573	
5. API Number 05-103-11276	OGCC Facility ID Number 335969	Survey Plat
6. Well/Facility Name:	7. Well/Facility Number RG 23-14-298	Directional Survey
8. Location (QtrQtr, Sec, Twp, Rng, Meridian): NESW- 14-25-98W 06M		Surface Eqpm Diagram
9. County: Rio Blanco	10. Field Name: Ryan Gulch	Technical Info Page
11. Federal, Indian or State Lease Number:		Other

General Notice

<input type="checkbox"/> CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)	
Change of Surface Footage from Exterior Section Lines:	<input type="checkbox"/> FNL/FSL <input type="checkbox"/> FEL/FWL
Change of Surface Footage to Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/>
Change of Bottomhole Footage from Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/>
Change of Bottomhole Footage to Exterior Section Lines:	<input type="checkbox"/> attach directional survey
Bottomhole location Qtr/Qtr, Sec, Twp, Rng, Mer	
Latitude	Distance to nearest property line
Longitude	Distance to nearest bldg, public rd, utility or RR
Ground Elevation	Distance to nearest lease line
	Is location in a High Density Area (rule 603b)? Yes/No
	Distance to nearest well same formation
	Surface owner consultation date:
GPS DATA:	
Date of Measurement	PDOP Reading
	Instrument Operator's Name
<input type="checkbox"/> CHANGE SPACING UNIT	<input type="checkbox"/> Remove from surface bond
Formation	Signed surface use agreement attached
Formation Code	
Spacing order number	
Unit Acreage	
Unit configuration	
<input type="checkbox"/> CHANGE OF OPERATOR (prior to drilling):	<input type="checkbox"/> CHANGE WELL NAME
Effective Date:	From:
Plugging Bond: <input type="checkbox"/> Blanket <input type="checkbox"/> Individual	To:
	Effective Date:
<input type="checkbox"/> ABANDONED LOCATION:	<input type="checkbox"/> NOTICE OF CONTINUED SHUT IN STATUS
Was location ever built? <input type="checkbox"/> Yes <input type="checkbox"/> No	Date well shut in or temporarily abandoned:
Is site ready for inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No	Has Production Equipment been removed from site? <input type="checkbox"/> Yes <input type="checkbox"/> No
Date Ready for Inspection:	MIT required if shut in longer than two years. Date of last MIT
<input type="checkbox"/> SPUD DATE:	<input type="checkbox"/> REQUEST FOR CONFIDENTIAL STATUS (5 mos from date casing set)
<input type="checkbox"/> SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK	
Method used	*submit cbl and cement job summaries
Cementing tool setting/perf depth	
Cement volume	
Cement top	
Cement bottom	
Date	
<input type="checkbox"/> RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.	
Final reclamation will commence on approximately	<input type="checkbox"/> Final reclamation is completed and site is ready for inspection.

Technical Engineering/Environmental Notice

<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Report of Work Done
Approximate Start Date:	Date Work Completed:
Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)	
<input type="checkbox"/> Intent to Recomplete (submit form 2)	<input type="checkbox"/> Request to Vent or Flare
<input type="checkbox"/> Change Drilling Plans	<input type="checkbox"/> Repair Well
<input type="checkbox"/> Gross Interval Changed?	<input type="checkbox"/> Rule 502 variance requested
<input type="checkbox"/> Casing/Cementing Program Change	<input checked="" type="checkbox"/> Other: Background
	<input type="checkbox"/> E&P Waste Disposal
	<input type="checkbox"/> Beneficial Reuse of E&P Waste
	<input type="checkbox"/> Status Update/Change of Remediation Plans for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Karolina Blaney Date: 10/20/2011 Email: Karolina.Blaney@Williams.com
Print Name: Karolina Blaney Title: Environmental Specialist

COGCC Approved: Chris Canfield Title: FOR Date: 10/20/2011
CONDITIONS OF APPROVAL, IF ANY: EPS NW Region

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: _____ API Number: _____

2. Name of Operator: _____ OGCC Facility ID # _____

3. Well/Facility Name: _____ Well/Facility Number: _____

4. Location (QtrQtr, Sec, Twp, Rng, Meridian): _____

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5.

DESCRIBE PROPOSED OR COMPLETED OPERATIONS



08/15/11

Technical Report for

Williams Production RMT Company

RG 23-14-298 Pit TD

Accutest Job Number: T83198

Sampling Date: 08/02/11

Report to:

**Williams Production RMT Company
1058 County Road 215
Parachute, CO 81635
karolina.blaney@williams.com**

ATTN: Karolina Blaney

Total number of pages in report: 50



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 that reads 'Paul K Canevaro'.

**Paul Canevaro
Laboratory Director**

Client Service contact: Sylvia Garza 713-271-4700

Certifications: TX (T104704220-10-3) AR (88-0756) AZ (AZ0769) FL (E87628) KS (E-10366)
LA (85695/04004) OK (9103)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

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Sample Summary

Williams Production RMT Company
RG 23-14-298 Pit TD

Job No: T83198

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
T83198-1	08/02/11	13:25	08/03/11	SO	Soil	RG 23-14-298 PIT
T83198-1A	08/02/11	13:25	08/03/11	SO	Soil	RG 23-14-298 PIT

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

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: RG 23-14-298 PIT
Lab Sample ID: T83198-1
Matrix: SO - Soil
Method: SW846 8260B
Project: RG 23-14-298 Pit TD

Date Sampled: 08/02/11
Date Received: 08/03/11
Percent Solids: 49.0

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q000714.D	1	08/04/11	FI	n/a	n/a	VQ28
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.14 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	125	610	80	ug/kg	J
108-88-3	Toluene	829	610	110	ug/kg	
100-41-4	Ethylbenzene	233	610	110	ug/kg	J
1330-20-7	Xylene (total)	2410	1800	210	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-121%
2037-26-5	Toluene-D8	115%		76-132%
460-00-4	4-Bromofluorobenzene	109%		73-165%
17060-07-0	1,2-Dichloroethane-D4	96%		57-122%

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:	RG 23-14-298 PIT			Date Sampled:	08/02/11
Lab Sample ID:	T83198-1			Date Received:	08/03/11
Matrix:	SO - Soil			Percent Solids:	49.0
Method:	SW846 8270C BY SIM SW846 3550B				
Project:	RG 23-14-298 Pit TD				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	V6060.D	4	08/09/11	GJ	08/08/11	OP19686	EV354
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	54	9.1	ug/kg	
208-96-8	Acenaphthylene	ND	54	19	ug/kg	
120-12-7	Anthracene	ND	54	10	ug/kg	
56-55-3	Benzo(a)anthracene	ND	54	8.7	ug/kg	
50-32-8	Benzo(a)pyrene	ND	54	29	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	54	29	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	54	54	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	54	35	ug/kg	
218-01-9	Chrysene	ND	54	13	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	54	52	ug/kg	
206-44-0	Fluoranthene	ND	54	12	ug/kg	
86-73-7	Fluorene	29.7	54	19	ug/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	54	41	ug/kg	
90-12-0	1-Methylnaphthalene	76.9	54	10	ug/kg	
91-57-6	2-Methylnaphthalene	135	54	9.4	ug/kg	
91-20-3	Naphthalene	48.6	54	8.3	ug/kg	J
85-01-8	Phenanthrene	54.7	54	7.6	ug/kg	
129-00-0	Pyrene	ND	54	18	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	36%		10-127%
321-60-8	2-Fluorobiphenyl	48%		11-133%
1718-51-0	Terphenyl-d14	76%		15-187%

(a) Elevated reporting limits due to matrix interference. High concentration of non-target compounds were detected in the sample.

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

Page 1 of 1

Client Sample ID:	RG 23-14-298 PIT	Date Sampled:	08/02/11
Lab Sample ID:	T83198-1	Date Received:	08/03/11
Matrix:	SO - Soil	Percent Solids:	49.0
Method:	SW846 8015		
Project:	RG 23-14-298 Pit TD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH0005878.D	1	08/05/11	AT	n/a	n/a	GHH287
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.14 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	55.6	15	0.91	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	101%		46-127%
98-08-8	aaa-Trifluorotoluene	100%		44-120%

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:	RG 23-14-298 PIT	Date Sampled:	08/02/11
Lab Sample ID:	T83198-1	Date Received:	08/03/11
Matrix:	SO - Soil	Percent Solids:	49.0
Method:	SW846 8015 M SW846 3550B		
Project:	RG 23-14-298 Pit TD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	IF209129.D	1	08/06/11	HD	08/05/11	OP19651	GIF1257
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	292	6.8	5.6	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	55%		33-115%		

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: RG 23-14-298 PIT

Lab Sample ID: T83198-1

Matrix: SO - Soil

Date Sampled: 08/02/11

Date Received: 08/03/11

Percent Solids: 49.0

Project: RG 23-14-298 Pit TD

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.1	1.2	0.21	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ²	SW846 3050B ⁴
Barium	10700	120	0.84	mg/kg	5	08/04/11	08/10/11 EG	SW846 6010B ²	SW846 3050B ⁴
Cadmium	0.28 J	0.62	0.035	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ²	SW846 3050B ⁴
Calcium	33200	620	3.3	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ²	SW846 3050B ⁴
Chromium	25.3	1.2	0.057	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ³	SW846 3050B ⁴
Copper	30.5	3.1	0.14	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ²	SW846 3050B ⁴
Lead	12.9	1.2	0.12	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ³	SW846 3050B ⁴
Mercury	0.12	0.031	0.012	mg/kg	1	08/09/11	08/09/11 TW	SW846 7471A ¹	SW846 7471A ⁵
Nickel	15.7	4.9	0.14	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ²	SW846 3050B ⁴
Selenium	0.71 J	1.2	0.35	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ²	SW846 3050B ⁴
Silver	0.36 J	1.2	0.14	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ²	SW846 3050B ⁴
Zinc	53.4	2.5	0.21	mg/kg	1	08/04/11	08/10/11 EG	SW846 6010B ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA5996

(2) Instrument QC Batch: MA5998

(3) Instrument QC Batch: MA6002

(4) Prep QC Batch: MP15417

(5) Prep QC Batch: MP15446

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result < MDL

J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	RG 23-14-298 PIT	Date Sampled:	08/02/11
Lab Sample ID:	T83198-1	Date Received:	08/03/11
Matrix:	SO - Soil	Percent Solids:	49.0
Project:	RG 23-14-298 Pit TD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.092 J	4.0	mg/kg	1	08/10/11 17:10	BF	SW846 3060A/7196A
Chromium, Trivalent ^a	25.2	5.2	mg/kg	1	08/10/11 17:10	BF	SW846 6010/7196A M
Solids, Percent	49		%	1	08/06/11	EB	SM 2540 G
Specific Conductivity	8460	1.0	umhos/cm	1	08/10/11 10:30	MC	EPA 120.1
pH	9.12		su	1	08/10/11 13:32	SS	SW846 9045C

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	RG 23-14-298 PIT	Date Sampled:	08/02/11
Lab Sample ID:	T83198-1A	Date Received:	08/03/11
Matrix:	SO - Soil	Percent Solids:	49.0
Project:	RG 23-14-298 Pit TD		

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	45.1	25	0.12	mg/l	5	08/09/11	08/12/11 EG	SW846 6010B ¹	LADNR 29B ³
Magnesium	4.74 J	25	0.040	mg/l	5	08/09/11	08/12/11 EG	SW846 6010B ¹	LADNR 29B ³
Sodium	19500	250	5.2	mg/l	50	08/09/11	08/12/11 EG	SW846 6010B ²	LADNR 29B ³

- (1) Instrument QC Batch: MA6006
- (2) Instrument QC Batch: MA6008
- (3) Prep QC Batch: MP15447

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	RG 23-14-298 PIT	Date Sampled:	08/02/11
Lab Sample ID:	T83198-1A	Date Received:	08/03/11
Matrix:	SO - Soil	Percent Solids:	49.0
Project:	RG 23-14-298 Pit TD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	737		ratio	1	08/12/11 16:06	EG	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 Job Number: T83198 Client: WILLIAMS PRODUCTION Project: RG 23-14-298 PIT TD
 Date / Time Received: 8/3/2011 Delivery Method: Airbill #'s: 874480684365
 No. Coolers: 1 Therm ID: IRGUN4; Temp Adjustment Factor: -0.1;
 Cooler Temps (Initial/Adjusted): #1: (3.6/3.5);

Cooler Security Y or N Y or N
 1. Custody Seals Present: ☒ ☐ 3. COC Present: ☒ ☐
 2. Custody Seals Intact: ☒ ☐ 4. Smpl Dates/Time OK: ☒ ☐

Cooler Temperature Y or N
 1. Temp criteria achieved: ☒ ☐
 2. Cooler temp verification: IR Gun
 3. Cooler media: Ice (Bag)

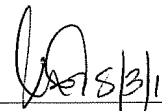
Quality Control Preservation Y or N N/A WTB STB
 1. Trip Blank present / cooler: ☐ ☒ ☐ ☐ ☐
 2. Trip Blank listed on COC: ☐ ☒ ☐
 3. Samples preserved properly: ☒ ☐ ☐
 4. VOCs headspace free: ☒ ☐ ☐

Sample Integrity - Documentation Y or N
 1. Sample labels present on bottles: ☒ ☐
 2. Container labeling complete: ☒ ☐
 3. Sample container label / COC agree: ☒ ☐

Sample Integrity - Condition Y or N
 1. Sample recvd within HT: ☒ ☐
 2. All containers accounted for: ☒ ☐
 3. Condition of sample: Intact

Sample Integrity - Instructions Y or N N/A
 1. Analysis requested is clear: ☒ ☐
 2. Bottles received for unspecified tests: ☐ ☒
 3. Sufficient volume recvd for analysis: ☒ ☐
 4. Compositing instructions clear: ☐ ☐ ☒
 5. Filtering instructions clear: ☐ ☐ ☒

Comments



Sample Receipt Log

Job #: T83198

Date / Time Received: 8/3/2011 9:35:00 AM

Initials: VG

Client: WILLIAMS PRODUCTION

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	T83198-1	32oz	1	2-89	N/P	Note #2 - Preservative check not applicable.	IRGUN4	3.6	-0.1	3.5
1	T83198-1	16oz	2	VR	N/P	Note #2 - Preservative check not applicable.	IRGUN4	3.6	-0.1	3.5

T83198: Chain of Custody
Page 3 of 3

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: T83198
Account: WPRMTCOP Williams Production RMT Company
Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VQ28-MB	Q000702.D	1	08/04/11	FI	n/a	n/a	VQ28

The QC reported here applies to the following samples:

Method: SW846 8260B

T83198-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	4.0	0.53	ug/kg	
100-41-4	Ethylbenzene	ND	4.0	0.70	ug/kg	
108-88-3	Toluene	ND	4.0	0.70	ug/kg	
1330-20-7	Xylene (total)	ND	12	1.4	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	103% 70-121%
2037-26-5	Toluene-D8	114% 76-132%
460-00-4	4-Bromofluorobenzene	109% 73-165%
17060-07-0	1,2-Dichloroethane-D4	102% 57-122%

Blank Spike Summary

Job Number: T83198
Account: WPRMTCOP Williams Production RMT Company
Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VQ28-BS	Q000700.D	1	08/04/11	FI	n/a	n/a	VQ28

The QC reported here applies to the following samples: Method: SW846 8260B

T83198-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	45.0	90	70-114
100-41-4	Ethylbenzene	50	45.7	91	60-119
108-88-3	Toluene	50	45.5	91	68-115
1330-20-7	Xylene (total)	150	138	92	61-115

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	109%	70-121%
2037-26-5	Toluene-D8	111%	76-132%
460-00-4	4-Bromofluorobenzene	109%	73-165%
17060-07-0	1,2-Dichloroethane-D4	101%	57-122%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: T83198

Account: WPRMTCOP Williams Production RMT Company

Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T83196-1MS	Q000712.D	1	08/04/11	FI	n/a	n/a	VQ28
T83196-1MSD	Q000713.D	1	08/04/11	FI	n/a	n/a	VQ28
T83196-1 ^a	Q000709.D	1	08/04/11	FI	n/a	n/a	VQ28

The QC reported here applies to the following samples:

Method: SW846 8260B

T83198-1

CAS No.	Compound	T83196-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	112	J	3530	3330	91	3110	85	7	70-114/38
100-41-4	Ethylbenzene	241	J	3530	3540	94	3370	89	5	60-119/40
108-88-3	Toluene	1180		3530	4790	102	4620	98	4	68-115/38
1330-20-7	Xylene (total)	1810		10600	12100	97	11700	93	3	61-115/39

CAS No.	Surrogate Recoveries	MS	MSD	T83196-1	Limits
1868-53-7	Dibromofluoromethane	99%	100%	93%	70-121%
2037-26-5	Toluene-D8	112%	112%	113%	76-132%
460-00-4	4-Bromofluorobenzene	109%	107%	107%	73-165%
17060-07-0	1,2-Dichloroethane-D4	94%	92%	93%	57-122%

(a) Sample reported for QC purposes only.

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: T83198**Account:** WPRMTCOP Williams Production RMT Company**Project:** RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP19686-MB	V6027.D	1	08/08/11	GJ	08/08/11	OP19686	EV353

The QC reported here applies to the following samples:**Method:** SW846 8270C BY SIM

T83198-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	1.1	ug/kg	
208-96-8	Acenaphthylene	ND	6.7	2.3	ug/kg	
120-12-7	Anthracene	ND	6.7	1.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	6.7	1.1	ug/kg	
50-32-8	Benzo(a)pyrene	ND	6.7	3.6	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	6.7	3.5	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	6.7	6.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	6.7	4.3	ug/kg	
218-01-9	Chrysene	ND	6.7	1.6	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	6.7	6.4	ug/kg	
206-44-0	Fluoranthene	ND	6.7	1.5	ug/kg	
86-73-7	Fluorene	ND	6.7	2.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	6.7	5.0	ug/kg	
90-12-0	1-Methylnaphthalene	ND	6.7	1.2	ug/kg	
91-57-6	2-Methylnaphthalene	ND	6.7	1.2	ug/kg	
91-20-3	Naphthalene	ND	6.7	1.0	ug/kg	
85-01-8	Phenanthrene	ND	6.7	0.93	ug/kg	
129-00-0	Pyrene	ND	6.7	2.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	27% 10-127%
321-60-8	2-Fluorobiphenyl	29% 11-133%
1718-51-0	Terphenyl-d14	74% 15-187%

Blank Spike Summary

Page 1 of 1

Job Number: T83198

Account: WPRMTCOP Williams Production RMT Company

Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP19686-BS	V6028.D	1	08/08/11	GJ	08/08/11	OP19686	EV353

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T83198-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	167	117	70	18-118
208-96-8	Acenaphthylene	167	97.8	59	35-125
120-12-7	Anthracene	167	106	64	24-116
56-55-3	Benzo(a)anthracene	167	135	81	32-132
50-32-8	Benzo(a)pyrene	167	99.1	59	36-130
205-99-2	Benzo(b)fluoranthene	167	107	64	35-134
191-24-2	Benzo(g,h,i)perylene	167	140	84	18-149
207-08-9	Benzo(k)fluoranthene	167	115	69	30-131
218-01-9	Chrysene	167	130	78	37-124
53-70-3	Dibenzo(a,h)anthracene	167	143	86	23-150
206-44-0	Fluoranthene	167	119	71	28-118
86-73-7	Fluorene	167	106	64	32-106
193-39-5	Indeno(1,2,3-cd)pyrene	167	146	88	18-150
90-12-0	1-Methylnaphthalene	167	104	62	10-128
91-57-6	2-Methylnaphthalene	167	96.5	58	28-113
91-20-3	Naphthalene	167	77.6	47	31-106
85-01-8	Phenanthrene	167	126	76	37-112
129-00-0	Pyrene	167	126	76	24-132

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	62%	10-127%
321-60-8	2-Fluorobiphenyl	53%	11-133%
1718-51-0	Terphenyl-d14	72%	15-187%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: T83198

Account: WPRMTCOP Williams Production RMT Company

Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP19686-MS	V6056.D	4	08/09/11	GJ	08/08/11	OP19686	EV354
OP19686-MSD	V6057.D	4	08/09/11	GJ	08/08/11	OP19686	EV354
T83196-1 ^a	V6055.D	4	08/09/11	GJ	08/08/11	OP19686	EV354

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T83198-1

CAS No.	Compound	T83196-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		207	132	64	150	73	13	10-153/80
208-96-8	Acenaphthylene	ND		207	115	55	133	65	15	10-144/71
120-12-7	Anthracene	ND		207	153	74	132	64	15	10-176/57
56-55-3	Benzo(a)anthracene	6.5	J	207	152	70	125	58	19	10-174/73
50-32-8	Benzo(a)pyrene	ND		207	124	60	108	53	14	10-182/74
205-99-2	Benzo(b)fluoranthene	ND		207	147	71	119	58	21	10-188/86
191-24-2	Benzo(g,h,i)perylene	ND		207	143	69	114	55	23	10-150/62
207-08-9	Benzo(k)fluoranthene	ND		207	149	72	116	56	25	10-170/94
218-01-9	Chrysene	12.5	J	207	154	68	129	57	18	10-165/73
53-70-3	Dibenzo(a,h)anthracene	ND		207	166	80	123	60	30	10-192/74
206-44-0	Fluoranthene	ND		207	171	83	147	71	15	10-141/73
86-73-7	Fluorene	17.3	J	207	141	60	142	61	1	10-164/72
193-39-5	Indeno(1,2,3-cd)pyrene	ND		207	163	79	131	64	22	10-150/73
90-12-0	1-Methylnaphthalene	77.7		207	170	45	225	72	28	10-154/82
91-57-6	2-Methylnaphthalene	160		207	311	73	404	119	26	10-171/75
91-20-3	Naphthalene	56.8		207	121	31	149	45	21	10-138/82
85-01-8	Phenanthrene	39.4		207	200	77	189	73	6	10-191/77
129-00-0	Pyrene	ND		207	151	73	125	61	19	10-150/66

CAS No.	Surrogate Recoveries	MS	MSD	T83196-1	Limits
4165-60-0	Nitrobenzene-d5	43%	49%	43%	10-127%
321-60-8	2-Fluorobiphenyl	48%	58%	49%	11-133%
1718-51-0	Terphenyl-d14	74%	60%	71%	15-187%

(a) Elevated reporting limits due to matrix interference. High concentration of non-target compounds were detected in the sample.

GC 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: T83198
Account: WPRMTCOP Williams Production RMT Company
Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GHH287-MB	HH0005870.D		08/05/11	AT	n/a	n/a	GHH287

The QC reported here applies to the following samples:

Method: SW846 8015

T83198-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	5.0	0.30	mg/kg	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	94%	46-127%
98-08-8	aaa-Trifluorotoluene	101%	44-120%

Blank Spike Summary

Job Number: T83198
Account: WPRMTCOP Williams Production RMT Company
Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GHH287-BS	HH0005867.D		08/05/11	AT	n/a	n/a	GHH287

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

T83198-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	0.4	0.396	99	78-115

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	94%	46-127%
98-08-8	aaa-Trifluorotoluene	109%	44-120%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: T83198

Account: WPRMTCOP Williams Production RMT Company

Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T83200-1MS	HH0005872.D		08/05/11	AT	n/a	n/a	GHH287
T83200-1MSD	HH0005873.D		08/05/11	AT	n/a	n/a	GHH287
T83200-1	HH0005871.D		08/05/11	AT	n/a	n/a	GHH287

The QC reported here applies to the following samples:

Method: SW846 8015

T83198-1

CAS No.	Compound	T83200-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	58.8		27.8	87.5	103	84.4	92	4	78-115/14

CAS No.	Surrogate Recoveries	MS	MSD	T83200-1	Limits
460-00-4	4-Bromofluorobenzene	118%	112%	107%	46-127%
98-08-8	aaa-Trifluorotoluene	113%	111%	104%	44-120%

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: T83198
Account: WPRMTCOP Williams Production RMT Company
Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP19651-MB	IF209085.D	1	08/06/11	HD	08/05/11	OP19651	GIF1257

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

T83198-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	3.3	2.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	80% 33-115%

Blank Spike Summary

Job Number: T83198
Account: WPRMTCOP Williams Production RMT Company
Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP19651-BS	IF209087.D	1	08/06/11	HD	08/05/11	OP19651	GIF1257

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

T83198-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH (C10-C28)	33.3	25.3	76	45-107

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	81%	33-115%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: T83198

Account: WPRMTCOP Williams Production RMT Company

Project: RG 23-14-298 Pit TD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP19651-MS	IF209088.D	50	08/06/11	HD	08/05/11	OP19651	GIB1257
OP19651-MSD	IF209089.D	50	08/06/11	HD	08/05/11	OP19651	GIF1257

The QC reported here applies to the following samples:

Method: SW846 8015 M

T83198-1

CAS No.	Compound	mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)			41.6	1440	-937* ^a	1190	-1535* ^a	19	45-107/34

CAS No.	Surrogate Recoveries	MS	MSD	Limits
84-15-1	o-Terphenyl	0% * ^b	0% * ^b	33-115%

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

(b) Outside control limits due to dilution.

Metals Analysis

QC Data Summaries

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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: T83198
Account: WPRMTCOP - Williams Production RMT Company
Project: RG 23-14-298 Pit TD

QC Batch ID: MP15417
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 08/04/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.41	.73		
Antimony	0.50	.05	.085		
Arsenic	0.50	.085	.085	-0.0075	<0.50
Barium	10	.049	.069	0.0035	<10
Beryllium	0.25	.0028	.0055		
Boron	5.0	.07	.17		
Cadmium	0.25	.0055	.014	0.014	<0.25
Calcium	250	.37	1.3	0.84	<250
Chromium	0.50	.012	.023	0.0075	<0.50
Cobalt	2.5	.0075	.03		
Copper	1.3	.056	.056	0.012	<1.3
Iron	5.0	.057	1.1		
Lead	0.50	.05	.05	-0.031	<0.50
Lithium	15	.1			
Magnesium	250	.38	1.3		
Manganese	0.75	.0027	.037		
Molybdenum	0.50	.02	.025		
Nickel	2.0	.035	.057	0.0035	<2.0
Potassium	250	2	10		
Selenium	0.50	.077	.14	0.11	<0.50
Silver	0.50	.058	.058	0.010	<0.50
Sodium	250	.46	1.6		
Strontium	1.0	.0031	.059		
Thallium	0.50	.034	.04		
Tin	1.0	.035	.035		
Titanium	1.0	.015	.029		
Vanadium	2.5	.015	.034		
Zinc	1.0	.026	.084	0.021	<1.0

Associated samples MP15417: T83198-1

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: T83198
Account: WPRMTCOP - Williams Production RMT Company
Project: RG 23-14-298 Pit TD

QC Batch ID: MP15417
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

08/04/11

08/04/11

Metal	T83196-1 Original	DUP	RPD	QC Limits	T83196-1 Original	MS	Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic	8.3	6.8	40.0 (a)	0-20	8.3	29.1	29.6	63.8N(b)	80-120
Barium	2490	3320	17.7	0-20	2490	3620	29.6	2836.0(c)	80-120
Beryllium									
Boron									
Cadmium	0.30	0.26	20.7 (a)	0-20	0.30	23.6	29.6	78.6N(b)	80-120
Calcium	41800	51500	11.0	0-20	41800	50100	3700	-199.9(c)	80-120
Chromium	14.0	18.6	12.0	0-20	14.0	43.5	29.6	67.2N(b)	80-120
Cobalt									
Copper	19.8	19.2	25.5 (a)	0-20	19.8	44.8	29.6	67.5N(b)	80-120
Iron									
Lead	11.2	12.8	4.6	0-20	11.2	42.5	29.6	91.5	80-120
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	12.3	11.5	16.7	0-20	12.3	38.3	29.6	83.4	80-120
Potassium									
Selenium	0.90	0.69	54.0 (a)	0-20	0.90	24.7	29.6	79.3N(b)	80-120
Silver	0.14	0.22	200.0(a)	0-20	0.14	25.5	29.6	86.1	80-120
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	51.3	58.2	10.7	0-20	51.3	85.4	29.6	69.6N(b)	80-120

Associated samples MP15417: T83198-1

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) RPD acceptable due to low duplicate and sample concentrations.

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

(c) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T83198
Account: WPRMTCOP - Williams Production RMT Company
Project: RG 23-14-298 Pit TD

QC Batch ID: MP15417
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 08/04/11

Metal	T83196-1 Original	MSD	SpikeLot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	8.3	28.4	29.5	61.6N(a)	12.9	20
Barium	2490	3690	29.5	3079.6(b)	11.5	20
Beryllium						
Boron						
Cadmium	0.30	22.9	29.5	76.4N(a)	13.8	20
Calcium	41800	55800	3690	-46.0(b)	8.4	20
Chromium	14.0	42.8	29.5	65.0N(a)	28.3 (c)	20
Cobalt						
Copper	19.8	39.3	29.5	49.1N(a)	21.0 (d)	20
Iron						
Lead	11.2	41.4	29.5	88.0	4.7	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	12.3	34.5	29.5	70.7N(a)	6.2	20
Potassium						
Selenium	0.90	23.2	29.5	74.5N(a)	16.2	20
Silver	0.14	25.1	29.5	84.9	6.2	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	51.3	71.1	29.5	21.3N(a)	30.4 (d)	20

Associated samples MP15417: T83198-1

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.

(b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

(c) High RPD due to possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T83198
Account: WPRMTCOP - Williams Production RMT Company
Project: RG 23-14-298 Pit TD

QC Batch ID: MP15417
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(d) High RPD due to possible sample nonhomogeneity.

8.1.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T83198
 Account: WPRMTCOP - Williams Production RMT Company
 Project: RG 23-14-298 Pit TD

QC Batch ID: MP15417
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 08/04/11

Metal	LCS Result	Spikelot MPLC055	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	101	109	92.7	83-117
Barium	203	206	98.5	83-117
Beryllium				
Boron				
Cadmium	74.7	80.2	93.1	84-116
Calcium	6550	6700	97.8	83-117
Chromium	120	117	102.6	82-118
Cobalt				
Copper	115	117	98.3	84-116
Iron				
Lead	79.5	76.2	104.3	84-117
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	77.7	71.2	109.1	83-117
Potassium				
Selenium	122	127	96.1	80-120
Silver	38.8	41	94.6	66-134
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	263	280	93.9	82-118

Associated samples MP15417: T83198-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: T83198
 Account: WPRMTCOP - Williams Production RMT Company
 Project: RG 23-14-298 Pit TD

QC Batch ID: MP15417
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 08/04/11

Metal	T83196-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	111	135	1.9	0-10
Barium	33600	39000	4.0	0-10
Beryllium				
Boron				
Cadmium	4.01	3.33	23.6 (a)	0-10
Calcium	563000	707000	8.7	0-10
Chromium	189	257	19.1*(b)	0-10
Cobalt				
Copper	266	309	7.4	0-10
Iron				
Lead	151	176	15.4 (a)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	165	168	8.0	0-10
Potassium				
Selenium	12.1	14.9	10.3 (a)	0-10
Silver	1.95	0.00		0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	692	821	6.0	0-10

Associated samples MP15417: T83198-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

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

(b) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T83198
Account: WPRMTCOP - Williams Production RMT Company
Project: RG 23-14-298 Pit TD

QC Batch ID: MP15446
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 08/09/11

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.017	.0041	.0067	-0.00067	<0.017

Associated samples MP15446: T83198-1

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: T83198
 Account: WPRMTCOP - Williams Production RMT Company
 Project: RG 23-14-298 Pit TD

QC Batch ID: MP15446
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 08/09/11 08/09/11

Metal	T83201-1		QC	Limits	T83201-1		Spikelot	% Rec	QC
	Original	DUP			Original	MS			
Mercury	0.015	0.015	0.0	0-20	0.015	0.19	0.248	70.5N(a)	75-125

Associated samples MP15446: T83198-1

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.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T83198
 Account: WPRMTCOP - Williams Production RMT Company
 Project: RG 23-14-298 Pit TD

QC Batch ID: MP15446
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 08/09/11

Metal	T83201-1 Original	MSD	Spikelot HGTXWS1	% Rec	MSD RPD	QC Limit
-------	----------------------	-----	---------------------	-------	------------	-------------

Mercury	0.015	0.20	0.278	66.6N(a)	5.1	
---------	-------	------	-------	----------	-----	--

Associated samples MP15446: T83198-1

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: T83198
 Account: WPRMTCOP - Williams Production RMT Company
 Project: RG 23-14-298 Pit TD

QC Batch ID: MP15446
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 08/09/11

Metal	LCS Result	Spikelot HGLC055	% Rec	QC Limits
-------	---------------	---------------------	-------	--------------

Mercury	9.0	8.61	104.5	72-128
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Associated samples MP15446: T83198-1

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: T83198
Account: WPRMTCOP - Williams Production RMT Company
Project: RG 23-14-298 Pit TD

QC Batch ID: MP15447
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
Units: ug/l

Prep Date: 08/09/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	8.3	12		
Antimony	5.0	1	1		
Arsenic	5.0	1.7	1		
Barium	200	.97	3.4		
Beryllium	5.0	.056	.16		
Boron	100	1.4	7.8		
Cadmium	4.0	.11	.09		
Calcium	5000	7.4	25	1.2	<5000
Chromium	10	.23	.27		
Cobalt	50	.15	.22		
Copper	25	1.1	5.9		
Iron	100	1.1	23		
Lead	3.0	1	1.8		
Lithium	300	2	2		
Magnesium	5000	7.7	7.9	6.2	<5000
Manganese	15	.054	1.9		
Molybdenum	10	.39	.2		
Nickel	40	.69	1.4		
Potassium	5000	39	45		
Selenium	5.0	1.5	.98		
Silver	10	1.2	.24		
Sodium	5000	9.2	100	2.4	<5000
Strontium	10	.061	.4		
Thallium	10	.67	1.2		
Tin	20	.69	2.8		
Titanium	20	.29	.3		
Vanadium	50	.3	.3		
Zinc	20	.51	3.5		

Associated samples MP15447: T83198-1A

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: T83198
 Account: WPRMTCOP - Williams Production RMT Company
 Project: RG 23-14-298 Pit TD

QC Batch ID: MP15447
 Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
 Units: ug/l

Prep Date: 08/09/11

Metal	T83200-1A Original DUP		RPD	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	67600	66600	3.5	0-20
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	1490	1440	11.0	0-20
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium	1130000	1110000	4.4	0-20
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP15447: T83198-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: T83198
 Account: WPRMTCOP - Williams Production RMT Company
 Project: RG 23-14-298 Pit TD

QC Batch ID: MP15447
 Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B
 Units: ug/l

Prep Date: 08/09/11

Metal	T83200-1A			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	67600	66400	3.8	0-10	
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	1490	1770	37.2 (a)	0-10	
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silver					
Sodium	1130000	1120000	3.8	0-10	
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					

Associated samples MP15447: T83198-1A

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

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

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: T83198
Account: WPRMTCOP - Williams Production RMT Company
Project: RG 23-14-298 Pit TD

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN33812	2.0	<2.0	mg/kg	40	41.5	104.0	80-120%
Specific Conductivity	GN33764	1.0	<1.0	umhos/cm				

Associated Samples:
Batch GN33764: T83198-1
Batch GN33812: T83198-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T83198
Account: WPRMTCOP - Williams Production RMT Company
Project: RG 23-14-298 Pit TD

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN33812	T83198-1	mg/kg	0.092	<4.0	98.0(a)	0-20%
Solids, Percent	GN33704	T82582-1	%	95.1	94	1.2	0-5%
Specific Conductivity	GN33764	D26224-1	umhos/cm	48.7	49.0	0.6	0-20%
pH	GN33822	T83196-1	su	12.06	12.06	0.0	0-20%

Associated Samples:

Batch GN33704: T83198-1

Batch GN33764: T83198-1

Batch GN33812: T83198-1

Batch GN33822: T83198-1

(*) Outside of QC limits

(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T83198
Account: WPRMTCOP - Williams Production RMT Company
Project: RG 23-14-298 Pit TD

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN33812	T83198-1	mg/kg	0.092	82	84.9	102.0	75-125%

Associated Samples:
Batch GN33812: T83198-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits



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Est. 1970

Karolina Blaney
Williams
1058 County Road 215
Parachute, CO 81635

Report Summary

Friday September 23, 2011

Report Number: L536500

Samples Received: 09/16/11

Client Project:

Description: RG 23-14-298 Pit Sampling

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915, PA - 68-02979

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REPORT OF ANALYSIS

Karolina Blaney
Williams
1058 County Road 215
Parachute, CO 81635

September 23, 2011

Date Received : September 16, 2011
Description : RG 23-14-298 Pit Sampling
Sample ID : RG 23-14-298-B-1 0.5FT
Collected By : SG
Collection Date : 09/14/11 18:17

ESC Sample # : L536500-01

Site ID : RGU 23-14298

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.5	1.0	mg/kg	6010B	09/22/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 09/23/11 11:15 Printed: 09/23/11 13:04



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REPORT OF ANALYSIS

Karolina Blaney
Williams
1058 County Road 215
Parachute, CO 81635

September 23, 2011

Date Received : September 16, 2011
Description : RG 23-14-298 Pit Sampling
Sample ID : RG 23-14-298-B-2 0.5FT
Collected By : SG
Collection Date : 09/14/11 18:22

ESC Sample # : L536500-02

Site ID : RGU 23-14298

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.6	1.0	mg/kg	6010B	09/22/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Karolina Blaney
Williams
1058 County Road 215
Parachute, CO 81635

September 23, 2011

Date Received : September 16, 2011
Description : RG 23-14-298 Pit Sampling
Sample ID : RG 23-14-298-B-3 0.5FT
Collected By : SG
Collection Date : 09/14/11 18:25

ESC Sample # : L536500-03

Site ID : RGU 23-14298

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	3.5	1.0	mg/kg	6010B	09/22/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 09/23/11 11:15 Printed: 09/23/11 13:04



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REPORT OF ANALYSIS

Karolina Blaney
Williams
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Parachute, CO 81635

September 23, 2011

Date Received : September 16, 2011
Description : RG 23-14-298 Pit Sampling
Sample ID : RG 23-14-298-B-4 0.5FT
Collected By : SG
Collection Date : 09/14/11 18:31

ESC Sample # : L536500-04

Site ID : RGU 23-14298

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	3.4	1.0	mg/kg	6010B	09/22/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Karolina Blaney
Williams
1058 County Road 215
Parachute, CO 81635

September 23, 2011

Date Received : September 16, 2011
Description : RG 23-14-298 Pit Sampling
Sample ID : RG 23-14-298-B-5 0.5FT
Collected By : SG
Collection Date : 09/14/11 18:36

ESC Sample # : L536500-05

Site ID : RGU 23-14298

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.3	1.0	mg/kg	6010B	09/22/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 09/23/11 11:15 Printed: 09/23/11 13:04

Summary of Remarks For Samples Printed
09/23/11 at 13:04:34

TSR Signing Reports: 364
R5 - Desired TAT

use WILPCO-910-1 for 910 list use WILPCO-910-1 for 910 list, \$100 min invoice removed per
Rodney Mann 9/19/11 TAH

Sample: L536500-01 Account: WILPCO Received: 09/16/11 09:00 Due Date: 09/23/11 00:00 RPT Date: 09/23/11 11:15

Sample: L536500-02 Account: WILPCO Received: 09/16/11 09:00 Due Date: 09/23/11 00:00 RPT Date: 09/23/11 11:15

Sample: L536500-03 Account: WILPCO Received: 09/16/11 09:00 Due Date: 09/23/11 00:00 RPT Date: 09/23/11 11:15

Sample: L536500-04 Account: WILPCO Received: 09/16/11 09:00 Due Date: 09/23/11 00:00 RPT Date: 09/23/11 11:15

Sample: L536500-05 Account: WILPCO Received: 09/16/11 09:00 Due Date: 09/23/11 00:00 RPT Date: 09/23/11 11:15



YOUR LAB OF CHOICE

Williams
Karolina Blaney
1058 County Road 215
Parachute, CO 81635

Quality Assurance Report
Level II

L536500

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September 23, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed			
		Units	% Rec						
Arsenic	< 1	mg/kg			WG556089	09/23/11 09:29			
Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch		
		Result	Duplicate						
Arsenic	mg/kg	3.80	4.40	16.0	20	L536515-05	WG556089		
Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch			
		Known Val	Result						
Arsenic	mg/kg	92.6	92.8	100.	82.9-117	WG556089			
Analyte	Units	Matrix Spike		% Rec	Limit	Ref Samp	Batch		
		MS Res	Ref Res						
Arsenic	mg/kg	50.6	4.40	50	92.4	75-125	L536515-05	WG556089	
Analyte	Units	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch	
		MSD	Ref						
Arsenic	mg/kg	50.2	50.6	91.6	75-125	0.794	20	L536515-05	WG556089

Batch number /Run number / Sample number cross reference

WG556089: R1869175 R1869176: L536500-01 03 04 05 02

* * Calculations are performed prior to rounding of reported values.

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



Williams
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Quality Assurance Report
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September 23, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.