



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
6/29/2011

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- NA	OGCC Facility ID Number 422272	Survey Plat
6. Well/Facility Name:	7. Well/Facility Number TR 41-35-597 #2	Directional Survey
8. Location (Qtr/Sec, Twp, Rng, Meridian): NENE S 35 T5S R97W 6th P.M		Surface Eqmpt Diagram
9. County: Garfield	10. Field Name: Trail Ridge	Technical Info Page
11. Federal, Indian or State Lease Number:		Other

General Notice

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:	FNL/FSL	FEL/FWL
Change of Surface Footage to Exterior Section Lines:		
Change of Bottomhole Footage from Exterior Section Lines:		
Change of Bottomhole Footage to Exterior Section Lines:		attach directional survey

Bottomhole location Qtr/Qtr, Sec, Twp, Rng, Mer _____
 Latitude _____ Distance to nearest property line _____ Distance to nearest bldg, public rd, utility or RR _____
 Longitude _____ Distance to nearest lease line _____ Is location in a High Density Area (rule 603b)? Yes/No _____
 Ground Elevation _____ Distance to nearest well same formation _____ Surface owner consultation date: _____

GPS DATA:
 Date of Measurement _____ PDOP Reading _____ Instrument Operator's Name _____

CHANGE SPACING UNIT
 Formation _____ Formation Code _____ Spacing order number _____ Unit Acreage _____ Unit configuration _____

Remove from surface bond
 Signed surface use agreement attached

CHANGE OF OPERATOR (prior to drilling):
 Effective Date: _____
 Plugging Bond: Blanket Individual

CHANGE WELL NAME NUMBER
 From: _____
 To: _____
 Effective Date: _____

ABANDONED LOCATION:
 Was location ever built? Yes No
 Is site ready for inspection? Yes No
 Date Ready for Inspection: _____

NOTICE OF CONTINUED SHUT IN STATUS
 Date well shut in or temporarily abandoned: _____
 Has Production Equipment been removed from site? Yes No
 MIT required if shut in longer than two years. Date of last MIT _____

SPUD DATE: _____

REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set)

SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK *submit cbl and cement job summaries

Method used	Cementing tool setting/perf depth	Cement volume	Cement top	Cement bottom	Date

RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.
 Final reclamation will commence on approximately _____ Final reclamation is completed and site is ready for inspection.

Technical Engineering/Environmental Notice

Notice of Intent
 Approximate Start Date: _____

Report of Work Done
 Date Work Completed: 6/28/2011

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"/> E&P Waste Disposal
<input type="checkbox"/> Change Drilling Plans	<input type="checkbox"/> Repair Well	<input type="checkbox"/> Beneficial Reuse of E&P Waste
<input type="checkbox"/> Gross Interval Changed?	<input type="checkbox"/> Rule 502 variance requested	<input type="checkbox"/> Status Update/Change of Remediation Plans
<input type="checkbox"/> Casing/Cementing Program Change	<input checked="" type="checkbox"/> Other: Form 15 COAs	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: 6/29/2011 Email: Karolina.Blaney@Williams.com
Print Name: Karolina Blaney Title: Environmental Specialist

COGCC Approved: Richard Allison Title: OGLA - EPS II Date: 11/16/2011

CONDITIONS OF APPROVAL, IF ANY:

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**

TR 41-35-597 open

FORM 15 Rev 6/99

State of Colorado Oil and Gas Conservation Commission



FOR OGCC USE ONLY

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

EARTHEN PIT REPORT/PERMIT

This form is to be used for both reporting and permitting pits. Rule 903 describes when a Permit with prior approval, or a Report within 30 days, is required for pits. Submit required attachments and forms.

Complete the Attachment Checklist

FORM SUBMITTED FOR:

Pit Report Pit Permit

Attachment Checklist table with columns for item, checked status, and Oper OGCC status.

OGCC Operator Number: 96850
Name of Operator: Williams Production RMT Co
Address: 1515 Arapahoe St., Tower 3, Suite 1000
City: Denver State: Co Zip: 80202

Contact Name and Telephone: Lisa Dee
No: (303) 260-4538
Fax: (303) 629-8268

API Number (of associated well): See attached Form 26 OGCC Facility ID (of other associated facility): Applied For 335760

Pit Location (QtrQtr, Sec, Twp, Rng, Meridian): Chevron TR 31-35-597 pad (NENE of Sec. 35: T5S-R97W 6th P.M.)
Latitude: N39.574512 NAD83 Longitude: W108.240620 NAD83 County: Garfield
Pit Use: Production Drilling Attach mud program Special Purpose (Describe Use): Multiwell Pit
Pit Type: Lined Unlined Surface Discharge Permit: Yes No
Offsite disposal of pit contents: Injection Commercial Pit/Facility Name: TR 31-35-597 Pit/Facility No: #2
Attach Form 26 to identify Source Wells and Form 25 to provide Produced Water Analysis results.

Existing Site Conditions

Is the location in a "Sensitive Area?" Yes No Attach data used for determination.
Distance (in feet) to nearest surface water: +/- 2000' ground water: +/- 3245' (spring) water wells: +/- 1.0 mi
LAND USE (or attach copy of Form 2A if previously submitted for associated well) Select one which best describes land use:
Crop Land: Irrigated Dry Land Improved Pasture Hay Meadow CRP
Non-Crop Land: Rangeland Timber Recreational Other (describe):
Subdivided: Industrial Commercial Residential
SOILS (or attach copy of Form 2A if previously submitted for associated well)
Soil map units from USNRCS survey: Sheet No: Website Data Soil Complex/Series No: 55
Soils Series Name: Parachute-Irigul Complex Horizon thickness (in inches): A: 0-10" ; B: 10-25" ; C: 25-29"
Soils Series Name: See attached Form 2A Horizon thickness (in inches): A: 0-6" ; B: 6-13" ; C: 13-17"
Attach detailed site plan and topo map with pit location.

Pit Design and Construction

Size of pit (feet): Length: 165' Width: 65' Depth: 15'
Calculated pit volume (bbls): 17,132 bbls Daily inflow rate (bbls/day): 20
Daily disposal rates (attach calculations): Evaporation: 10.612 bbls/day Percolation: none bbls/day
Type of liner material: Poly Thickness: 24mil x2
Attach description of proposed design and construction (include sketches and calculations).
Method of treatment of produced water prior to discharge into pit (separator, heater treater, other): Separator
Is pit fenced? Yes No Is pit netted? Yes No

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.
Print Name: Lisa Dee Signed: [Signature]
Title: Regulatory Specialist - Piceance Highlands Asset Team Date: 3/25/2009

OGCC Approved: [Signature] Title: OGLA SUPERVISOR Date: 3/22/2011

FACILITY NUMBER:

CONDITIONS OF APPROVAL, IF ANY:
- OPERATOR WILL PROVIDE ANALYTICAL DATA FOR A GRAB SAMPLE FROM PIT WATER ON FORM 4.
- OPERATOR WILL PROVIDE AS BUILT PLATS & CROSS SECTIONS TO OGCC BY 6/30/2011.

Hydrostatic Test Results

Hydrostatic Pit Testing

Data Collection & Computation Form

Fox Engineering Solutions



Pit Owner: Williams Production RMT
Pit Name: TR 41-35-597 Pit #2
COGCC Facility No. 422272
Pit Location: NE1/4 NE1/4 S35, T5S, R97W, 6th P.M.
 Latitude: N 39.574473° Longitude: W108.240640° NAD83
 Garfield County, Colorado
Approximate Elevation: 8703 ft. MSL
Test Conducted By: David Fox, Fox Engineering Solutions

Test Initiation:

Date: June 24, 2011
 Time: 11:00 PM
 Total Duration: 73 hours

Test Termination:

Date: June 27, 2011
 Time: 12:01 PM

	<u>Length</u>	<u>Width</u>	<u>Area</u>	<u>Comments</u>
Tributary Pit Liner Surface Area (ft ²):	-	-	8455 ft. ²	Surveyed by Bookcliff Survey
Initial Pit Water Surface Area:	-	-	4737 ft. ²	Surveyed by Bookcliff Survey
Final Pit Water Surface Area:	-	-	4737 ft. ²	Surveyed by Bookcliff Survey
Average Pit Surface Area:			4737 ft. ²	

Initial Pit Fluid Level: 94.83 ft.
Final Pit Fluid Level: 94.74 ft
Difference: 0.09 ft or
Est. Fluid Depth: 10 ft. 1.08 inches

Evaporation Pan Installed: Yes **Location:** SW of pit **Measured Pan Evaporation:** 1.49 inches
 during Test Duration

Rain Gauge Installed: Yes **Location:** SW of pit **Recorded Precipitation:** 0.00 inches
Equiv. 72-Hour Precip. Inflow: 0.00 inches

Other Inflow/Outflow: **Inflow (gal)** 0 **Equivalent Inflow:** 0.00 inches
 Outflow (gal) 0 **Equivalent Outflow:** 0.00 inches

Calculated Change in Inches: -1.49 inches
 (Precipitation - Evaporation + Inflows - Outflows)

Measure Change in Inches: (+ indicates storage increased) -1.08 inches

Difference between Calculated and Measured Pit Fluid Level: 0.41 inches

Summary: No observed loss of liner integrity. Evaporation exceeded measured fluid level drop in pit.
 Weather: Dry and hot 80 - 90° daytime temperatures.

Liner and Pit Condition: Fluid level at approximate 3' below freeboard.
 Visible portion of liner, approximately the top 5 ft., had no apparent tears, delamination or seam failures.

Comments: Bookcliff Survey utilized a Trimble Total Station for required area and elevation measurements.
 Williams staff, Brandon Baker, notified about 72-hour hydrostatic testing.
 Williams staff and security guards reported no inflows or outflows during testing period.
 Williams place a security guard at the site during the duration of the test.

Hydrostatic Testing Procedures for COGCC Earthen Pits

Version 5.0



The purpose for hydrostatic testing earthen pits is to comply with COGCC approval conditions for verifying the fluid holding integrity of the pit lining system. These procedures are specific to existing or active earthen pits holding oil and gas related fluids including, but not limited to, produced water. During testing, the pit shall have fluid level as high as practical, without encroaching into the 2 ft. freeboard, and the test shall be conducted for a minimum of 72 hours, if practical. Visible portions of the liner, including the anchor trench and seams, shall be inspected for defects. The test shall be scheduled and coordinated with personnel to ensure that oil and gas activities do not interfere with the test. Testing procedures may be subject to changes as dictated by field and climatic factors. All personnel involved with testing, while onsite, shall comply with their respective EH&S requirements.

- If practical, a sign shall be placed in a conspicuous location during the test stating "Hydrostatic Testing in Progress, Pit Closed to All Water Hauling Activities". Contact information shall also be placed on the sign.
- A semi-permanent datum elevation point shall be established at the pit location. The surface area of the water surface and the surface area of the liner area, tributary to the pit shall be measured. The date and time of each measurement shall be documented.
- The pit fluid level; fluid surface area; and the lined surface area, tributary to the pit, shall be measured and recorded at the beginning of the test. The pit fluid level shall be measured again at the end of the test. A survey grade total station shall be utilized for accuracy to capture this information. The date and time of measurements shall be documented.
- A 4" diameter official rain gauge with funnel inlet shall be installed at the pit site. Precipitation shall be recorded for the duration of the hydrostatic test.
- Pan Evaporation shall be measured during the duration of the test following the procedures established by the National Weather Service – NOAA in the document entitled "National Weather Service - Observing Handbook No. 2, dated July 1989. A Class A evaporation pan shall be placed at the site, or as near as practical, with evaporation measured per established procedures.
- For the duration of the test, all inflows and outflows, such as truck and piped transfers, shall cease. If the cessation of inflows and outflows is not practical, all pit inflows and outflows shall be accurately metered and documented during the test. 24-hour surveillance monitoring may be warranted.
- If no precipitation has occurred during the test, compare the change in the pit fluid level with the recorded pan evaporation.
- If precipitation has occurred during the test, precipitation falling onto tributary portions of the liner, outside of the fluid surface area, must be added as an inflow to the pit and converted into inches of depth over the fluid surface area.
- The calculated change in pit level during the test is: $\Delta S = P + I - O - E$ (all measurements converted to inches)

Where: ΔS = Change in pit storage
P = Precipitation Inflow
I = Measured Inflows
O = Measured Outflows
E = Evaporation

- The measured change in the pit fluid level shall be compared to the calculated change, utilizing precipitation and evaporation data, in the pit fluid level during the test duration. The test procedures and results will be reviewed and analyzed for discrepancies. If the test results indicate integrity issues with the lining system, the test will be repeated.

As-built Plat & Cross Sections



EXISTING ROAD

EDGE OF PAD

EXISTING WELLS

PIT 2

APPROX. PIT BOTTOM EDGE

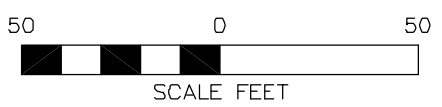
EDGE OF PAD

PIT 1

EXISTING PIPELINE R.O.W.

EXISTING ACCESS ROAD

- NOTES:
 1) ALL AZIMUTHS SHOWN ARE GRID AZIMUTHS.
 2) MULTI-WELL PIT 1 CAPACITY 6,369± Bbls.
 3) MULTI-WELL PIT 2 CAPACITY 8,136± Bbls.



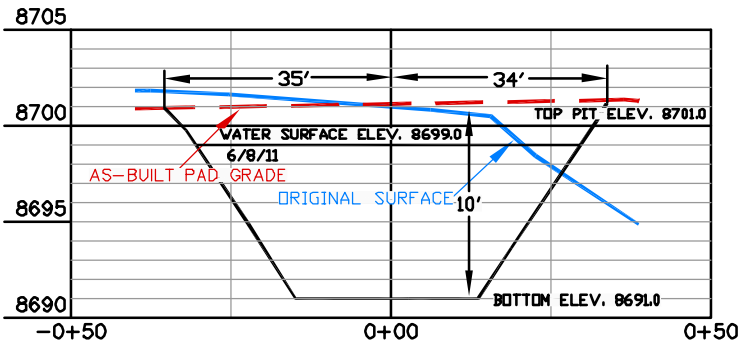
DRG RIFFIN & ASSOCIATES, INC.
 (307) 362-5026 1414 ELK ST., ROCK SPRINGS, WY 82901

DRAWN: 6/21/11 - RAB	SCALE: 1" = 50'
REVISED: 6/27/11 - RAB	DRG JOB No. 14321
CHANGED PIT NAMES	MULTI - WELL EXHIBIT

CONSTRUCTION LAYOUT

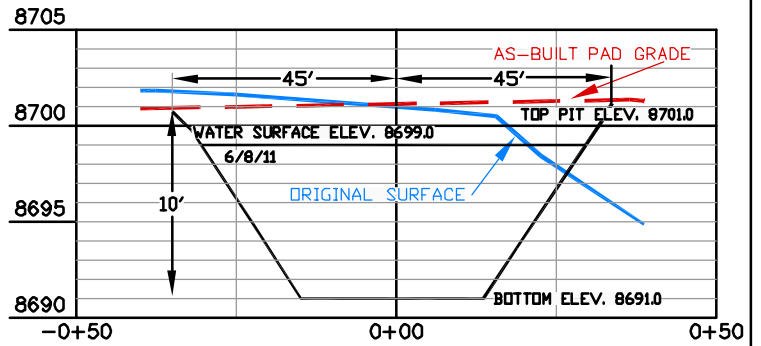
**WILLIAMS PRODUCTION RMT
 COMPANY**
TR 41-35-597 MULTI-WELL PIT LAYOUT
NENE, SECTION 35, T5S, R97W, 6th P.M.

PIT 1



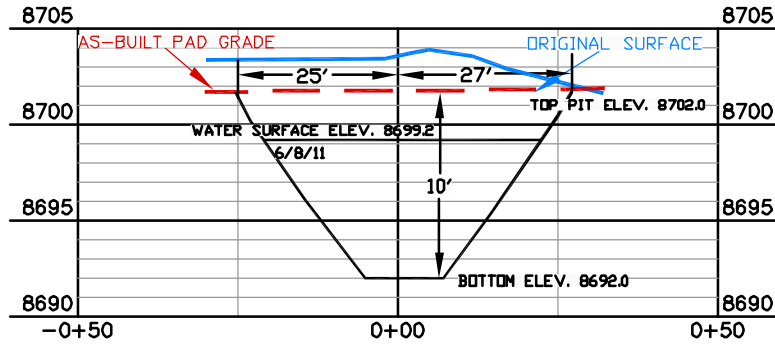
A-A'

PIT 1



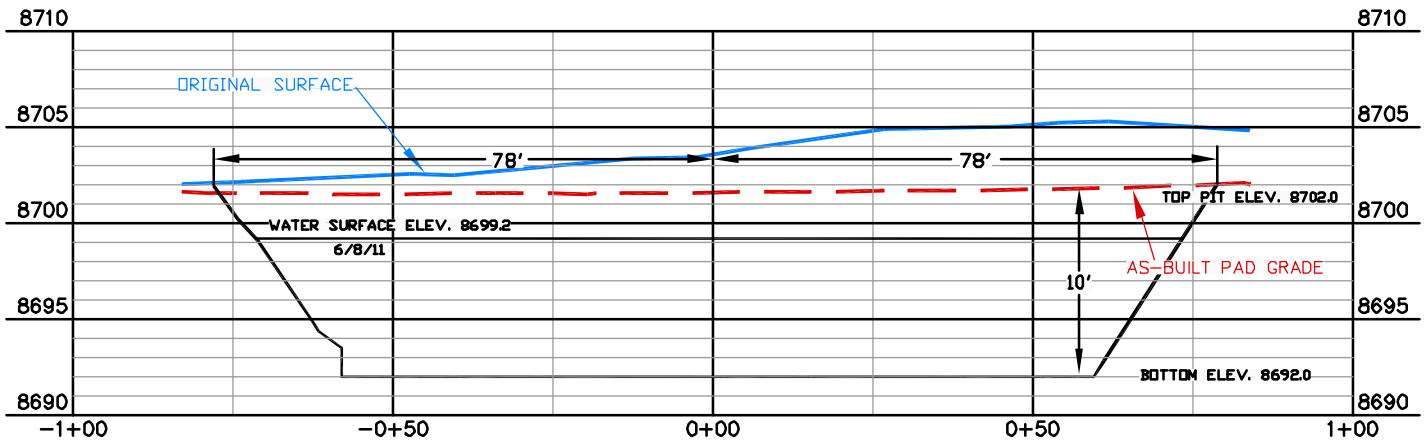
B-B'

PIT 2



C-C'

PIT 2



D-D'



CONSTRUCTION LAYOUT CROSS SECTIONS

WILLIAMS PRODUCTION RMT COMPANY
TR 41-35-597 MULTI-WELL PIT LAYOUT NENE, SECTION 35, T5S, R97W, 6th P.M.

DRAWN: 6/21/11 - RAB	HORZ. 1" = 30' VERT. 1" = 10'
REVISED: 6/27/11	DRG JOB No. 14321
REVISED PIT NAMES	MUTLI - WELL EXHIBIT

Analytical Data

Technical Report for

Williams Production RMT Company

TR41-35-597 Pit Sampling

Accutest Job Number: T77594

Sampling Date: 06/02/11

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: 46



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.



Paul Canevaro
Laboratory Director

Client Service contact: Sylvia Garza 713-271-4700

Certifications: TX (T104704220-10-3) AR (88-0756) 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

Job No: T77594

TR41-35-597 Pit Sampling

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
T77594-1	06/02/11	00:00	06/03/11	LIQ	Liquid, Non-aqueous	TR41-35-597 PIT 2
T77594-1A	06/02/11	00:00	06/03/11	AQ	Water	TR41-35-597 PIT 2
T77594-1F	06/02/11	00:00	06/03/11	AQ	Groundwater Filtered	TR41-35-597 PIT 2

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	TR41-35-597 PIT 2	Date Sampled:	06/02/11
Lab Sample ID:	T77594-1	Date Received:	06/03/11
Matrix:	LIQ - Liquid, Non-aqueous	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	TR41-35-597 Pit Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X0073168.D	1	06/15/11	JL	n/a	n/a	VX1055
Run #2	F035277.D	50	06/15/11	AK	n/a	n/a	VF4298

Run #	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	1830 ^a	2500	240	ug/l	J
71-43-2	Benzene	1770 ^a	100	25	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	0.49	ug/l	
75-25-2	Bromoform	ND	2.0	1.4	ug/l	
108-90-7	Chlorobenzene	ND	2.0	0.56	ug/l	
75-00-3	Chloroethane	ND	2.0	0.92	ug/l	
67-66-3	Chloroform	ND	2.0	0.64	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	0.66	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	0.52	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	0.62	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.62	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	0.56	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.48	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.45	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.68	ug/l	
100-41-4	Ethylbenzene	283 ^a	100	27	ug/l	
591-78-6	2-Hexanone	ND	10	3.2	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	9.9	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.94	ug/l	
74-87-3	Methyl chloride	2.4	2.0	0.84	ug/l	
75-09-2	Methylene chloride	ND	5.0	0.41	ug/l	
78-93-3	Methyl ethyl ketone	51.8	10	3.9	ug/l	
100-42-5	Styrene	ND	2.0	0.56	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.62	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	1.2	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.98	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	0.91	ug/l	
108-88-3	Toluene	6020 ^a	100	22	ug/l	
79-01-6	Trichloroethylene	ND	2.0	0.52	ug/l	

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: TR41-35-597 PIT 2	
Lab Sample ID: T77594-1	Date Sampled: 06/02/11
Matrix: LIQ - Liquid, Non-aqueous	Date Received: 06/03/11
Method: SW846 8260B	Percent Solids: n/a
Project: TR41-35-597 Pit Sampling	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	ND	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	4790 ^a	300	84	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%	99%	79-122%
17060-07-0	1,2-Dichloroethane-D4	109%	89%	75-121%
2037-26-5	Toluene-D8	110%	100%	87-119%
460-00-4	4-Bromofluorobenzene	95%	112%	80-133%

(a) Result is from Run# 2

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

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

Report of Analysis

Client Sample ID:	TR41-35-597 PIT 2	Date Sampled:	06/02/11
Lab Sample ID:	T77594-1	Date Received:	06/03/11
Matrix:	LIQ - Liquid, Non-aqueous	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	TR41-35-597 Pit Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	W5810.D	4	06/06/11	SG	06/06/11	OP18745	EW298
Run #2							

Run #	Initial Volume	Final Volume
Run #1	890 ml	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	339	45	22	ug/l	
95-57-8	2-Chlorophenol	ND	22	5.4	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	22	5.2	ug/l	
120-83-2	2,4-Dichlorophenol	ND	22	9.9	ug/l	
105-67-9	2,4-Dimethylphenol	134	22	5.7	ug/l	
51-28-5	2,4-Dinitrophenol	ND	110	68	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	45	6.2	ug/l	
95-48-7	2-Methylphenol	155	22	3.7	ug/l	
	3&4-Methylphenol	202	22	7.1	ug/l	
88-75-5	2-Nitrophenol	ND	22	8.9	ug/l	
100-02-7	4-Nitrophenol	ND	110	30	ug/l	
87-86-5	Pentachlorophenol	ND	110	59	ug/l	
108-95-2	Phenol	242	22	3.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	22	5.2	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	22	5.1	ug/l	
83-32-9	Acenaphthene	ND	22	7.0	ug/l	
208-96-8	Acenaphthylene	ND	22	5.4	ug/l	
120-12-7	Anthracene	ND	22	4.9	ug/l	
56-55-3	Benzo(a)anthracene	ND	22	4.9	ug/l	
50-32-8	Benzo(a)pyrene	ND	22	4.9	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	22	3.9	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	22	7.5	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	22	4.8	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	22	6.2	ug/l	
85-68-7	Butyl benzyl phthalate	ND	22	7.3	ug/l	
100-51-6	Benzyl Alcohol	50.5	22	5.8	ug/l	
91-58-7	2-Chloronaphthalene	ND	22	6.2	ug/l	
106-47-8	4-Chloroaniline	ND	22	19	ug/l	
86-74-8	Carbazole	ND	22	6.7	ug/l	
218-01-9	Chrysene	ND	22	4.4	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	22	5.8	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	22	5.8	ug/l	

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:	TR41-35-597 PIT 2	Date Sampled:	06/02/11
Lab Sample ID:	T77594-1	Date Received:	06/03/11
Matrix:	LIQ - Liquid, Non-aqueous	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	TR41-35-597 Pit Sampling		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	22	8.9	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	22	5.9	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	22	5.6	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	22	5.6	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	22	5.8	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	22	6.4	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	22	6.0	ug/l	
91-94-1	3,3' -Dichlorobenzidine	ND	45	14	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	22	7.0	ug/l	
132-64-9	Dibenzofuran	ND	22	6.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	22	4.6	ug/l	
117-84-0	Di-n-octyl phthalate	ND	22	5.9	ug/l	
84-66-2	Diethyl phthalate	ND	22	4.8	ug/l	
131-11-3	Dimethyl phthalate	ND	22	4.7	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	22	7.9	ug/l	
206-44-0	Fluoranthene	ND	22	4.4	ug/l	
86-73-7	Fluorene	ND	22	6.0	ug/l	
118-74-1	Hexachlorobenzene	ND	22	6.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	22	4.9	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	45	23	ug/l	
67-72-1	Hexachloroethane	ND	22	4.4	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	22	8.1	ug/l	
78-59-1	Isophorone	ND	22	5.4	ug/l	
91-57-6	2-Methylnaphthalene	100	22	5.8	ug/l	
88-74-4	2-Nitroaniline	ND	22	6.4	ug/l	
99-09-2	3-Nitroaniline	ND	22	15	ug/l	
100-01-6	4-Nitroaniline	ND	22	11	ug/l	
91-20-3	Naphthalene	38.6	22	5.1	ug/l	
98-95-3	Nitrobenzene	ND	22	7.8	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	22	6.4	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	22	7.5	ug/l	
85-01-8	Phenanthrene	ND	22	4.4	ug/l	
129-00-0	Pyrene	ND	22	7.5	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	22	5.7	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	37%		10-66%
4165-62-2	Phenol-d5	35%		10-53%
118-79-6	2,4,6-Tribromophenol	111%		32-128%

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:	TR41-35-597 PIT 2	Date Sampled:	06/02/11
Lab Sample ID:	T77594-1	Date Received:	06/03/11
Matrix:	LIQ - Liquid, Non-aqueous	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	TR41-35-597 Pit Sampling		

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%		29-115%
321-60-8	2-Fluorobiphenyl	67%		34-113%
1718-51-0	Terphenyl-d14	56%		12-145%

(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

Client Sample ID: TR41-35-597 PIT 2
Lab Sample ID: T77594-1
Matrix: LIQ - Liquid, Non-aqueous
Project: TR41-35-597 Pit Sampling

Date Sampled: 06/02/11
Date Received: 06/03/11
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate	564	5.0	0.66	mg/l	1	06/07/11	MC	SM 4500 CO2 D
Alkalinity, Carbonate	0.67 J	5.0	0.66	mg/l	1	06/07/11	MC	SM18 2320B
Alkalinity, Total as CaCO3	565	5.0	1.7	mg/l	1	06/07/11 07:00	MC	SM 2320B
Bromide	82.6	5.0		mg/l	10	06/05/11 12:29	CF	SM18 4500BRB
Chloride	10100	500	0.38	mg/l	1000	06/05/11 12:29	CF	SM 4500 CL C
Hydroxide Alkalinity	0.66 U	5.0	0.66	mg/l	1	06/07/11	MC	SM18 4500CO2D
Solids, Total Dissolved	16900	200	51	mg/l	1	06/03/11 16:33	BG	SM 2540C
Specific Conductivity	27000	1.0		umhos/cm	1	06/04/11 13:30	KD	EPA 120.1
pH	6.96			su	1	06/03/11 13:52	SS	SM 4500H+ B/9040

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:	TR41-35-597 PIT 2	Date Sampled:	06/02/11
Lab Sample ID:	T77594-1A	Date Received:	06/03/11
Matrix:	AQ - Water	Percent Solids:	n/a
Project:	TR41-35-597 Pit Sampling		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfate	3.5	0.50	3.1	mg/l	1	06/04/11	BF	SM 4500 SO4

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: TR41-35-597 PIT 2	Date Sampled: 06/02/11
Lab Sample ID: T77594-1F	Date Received: 06/03/11
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: TR41-35-597 Pit Sampling	

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	194000	50000	250	ug/l	10	06/04/11	06/09/11 NS	SW846 6010B ¹	SW846 3010A ²
Iron	12500	1000	230	ug/l	10	06/04/11	06/09/11 NS	SW846 6010B ¹	SW846 3010A ²
Magnesium	23100 J	50000	79	ug/l	10	06/04/11	06/09/11 NS	SW846 6010B ¹	SW846 3010A ²
Manganese	749	150	19	ug/l	10	06/04/11	06/09/11 NS	SW846 6010B ¹	SW846 3010A ²
Potassium	87200	50000	450	ug/l	10	06/04/11	06/09/11 NS	SW846 6010B ¹	SW846 3010A ²
Sodium	5710000	100000	2100	ug/l	20	06/04/11	06/09/11 NS	SW846 6010B ¹	SW846 3010A ²

(1) Instrument QC Batch: MA5800

(2) Prep QC Batch: MP14870

RL = Reporting Limit
MDL = Method Detection Limit

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Job Number: T77594 **Client:** WILLIAMS PRODUCTION **Project:** TR 41-35-597 PIT SAMPLING
Date / Time Received: 6/3/2011 10:10 **Delivery Method:** FedEx **Airbill #'s:** 875384872476
No. Coolers: 1 **Therm ID:** IRGUN4; **Temp Adjustment Factor:** -0.1;
Cooler Temps (Initial/Adjusted): #1: (5.4/5.3);

Cooler Security Y or N Y or N
 1. Custody Seals Present: 3. COC Present:
 2. Custody Seals Intact: 4. Smp'l 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


 6/3/11

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3

Job #: T77594

Date / Time Received: 6/3/2011 10:10:00 AM

Initials: VG

Client: WILLIAMS PRODUCTION

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	T77594-1	LAG	1	1H	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.4	-0.1	5.3
1	T77594-1	LAG	2	1H	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.4	-0.1	5.3
1	T77594-1	1000 ml	3	3C	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.4	-0.1	5.3
1	T77594-1	1000 ml	4	3C	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.4	-0.1	5.3
1	T77594-1	1000 ml	5	3C	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.4	-0.1	5.3
1	T77594-1	500 ml	6	1H	N/P	Note #2 - Preservative check not applicable.	IRGUN4	5.4	-0.1	5.3
1	T77594-1	40 ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN4	5.4	-0.1	5.3
1	T77594-1	40 ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN4	5.4	-0.1	5.3
1	T77594-1	40 ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN4	5.4	-0.1	5.3

T77594: Chain of Custody

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GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX1055-MB	X0073148.D	1	06/15/11	JL	n/a	n/a	VX1055

The QC reported here applies to the following samples:

Method: SW846 8260B

T77594-1

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	2.0	0.49	ug/l	
75-25-2	Bromoform	ND	2.0	1.4	ug/l	
108-90-7	Chlorobenzene	ND	2.0	0.56	ug/l	
75-00-3	Chloroethane	ND	2.0	0.92	ug/l	
67-66-3	Chloroform	ND	2.0	0.64	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.53	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	0.66	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	0.52	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	0.62	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.62	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	0.61	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	0.56	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.48	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.45	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.68	ug/l	
591-78-6	2-Hexanone	ND	10	3.2	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	9.9	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.94	ug/l	
74-87-3	Methyl chloride	ND	2.0	0.84	ug/l	
75-09-2	Methylene chloride	0.56	5.0	0.41	ug/l	J
78-93-3	Methyl ethyl ketone	ND	10	3.9	ug/l	
100-42-5	Styrene	ND	2.0	0.56	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.62	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	1.2	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.98	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	0.91	ug/l	
79-01-6	Trichloroethylene	ND	2.0	0.52	ug/l	
75-01-4	Vinyl chloride	ND	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	97% 79-122%
17060-07-0	1,2-Dichloroethane-D4	106% 75-121%
2037-26-5	Toluene-D8	98% 87-119%

Method Blank Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX1055-MB	X0073148.D	1	06/15/11	JL	n/a	n/a	VX1055

The QC reported here applies to the following samples:

Method: SW846 8260B

T77594-1

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	99% 80-133%

Method Blank Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VF4298-MB	F035275.D	1	06/15/11	AK	n/a	n/a	VF4298

The QC reported here applies to the following samples:

Method: SW846 8260B

T77594-1

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	50	4.7	ug/l	
71-43-2	Benzene	ND	2.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.55	ug/l	
108-88-3	Toluene	ND	2.0	0.43	ug/l	
1330-20-7	Xylene (total)	ND	6.0	1.7	ug/l	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	101%	79-122%
17060-07-0	1,2-Dichloroethane-D4	93%	75-121%
2037-26-5	Toluene-D8	101%	87-119%
460-00-4	4-Bromofluorobenzene	113%	80-133%

Blank Spike Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX1055-BS	X0073146.D	1	06/15/11	JL	n/a	n/a	VX1055

The QC reported here applies to the following samples:

Method: SW846 8260B

T77594-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-27-4	Bromodichloromethane	25	25.3	101	68-107
75-25-2	Bromoform	25	29.2	117* a	64-103
108-90-7	Chlorobenzene	25	22.8	91	74-111
75-00-3	Chloroethane	25	24.7	99	75-135
67-66-3	Chloroform	25	21.6	86	75-117
75-15-0	Carbon disulfide	25	22.3	89	57-126
56-23-5	Carbon tetrachloride	25	23.6	94	75-125
75-34-3	1,1-Dichloroethane	25	21.6	86	76-121
75-35-4	1,1-Dichloroethylene	25	23.3	93	71-128
107-06-2	1,2-Dichloroethane	25	23.2	93	70-111
78-87-5	1,2-Dichloropropane	25	22.4	90	71-113
124-48-1	Dibromochloromethane	25	26.9	103	69-104
156-59-2	cis-1,2-Dichloroethylene	25	20.1	80	68-113
10061-01-5	cis-1,3-Dichloropropene	25	24.2	97	71-111
156-60-5	trans-1,2-Dichloroethylene	25	21.9	88	70-125
10061-02-6	trans-1,3-Dichloropropene	25	25.5	102	75-111
591-78-6	2-Hexanone	125	156	125* a	60-113
108-10-1	4-Methyl-2-pentanone	125	152	122* a	63-115
74-83-9	Methyl bromide	25	20.1	80	59-132
74-87-3	Methyl chloride	25	22.7	91	56-150
75-09-2	Methylene chloride	25	20.1	80	70-113
78-93-3	Methyl ethyl ketone	125	132	106	62-117
100-42-5	Styrene	25	23.3	93	66-100
71-55-6	1,1,1-Trichloroethane	25	22.0	88	76-125
79-34-5	1,1,2,2-Tetrachloroethane	25	28.2	113* a	67-110
79-00-5	1,1,2-Trichloroethane	25	25.3	101	69-107
127-18-4	Tetrachloroethylene	25	20.4	82	77-120
79-01-6	Trichloroethylene	25	19.8	79	74-117
75-01-4	Vinyl chloride	25	22.3	89	64-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	96%	79-122%
17060-07-0	1,2-Dichloroethane-D4	105%	75-121%
2037-26-5	Toluene-D8	99%	87-119%

4.2.1
4

Blank Spike Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX1055-BS	X0073146.D	1	06/15/11	JL	n/a	n/a	VX1055

The QC reported here applies to the following samples:

Method: SW846 8260B

T77594-1

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	98%	80-133%

(a) Outside control limits biased high. Only ND results for this compound are reported for all the samples associated with this BS.

Blank Spike Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VF4298-BS	F035273.D	1	06/15/11	AK	n/a	n/a	VF4298

The QC reported here applies to the following samples:

Method: SW846 8260B

T77594-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	125	118	94	62-124
71-43-2	Benzene	25	24.1	96	76-118
100-41-4	Ethylbenzene	25	23.4	94	75-112
108-88-3	Toluene	25	23.6	94	77-114
1330-20-7	Xylene (total)	75	71.5	95	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	79-122%
17060-07-0	1,2-Dichloroethane-D4	95%	75-121%
2037-26-5	Toluene-D8	102%	87-119%
460-00-4	4-Bromofluorobenzene	113%	80-133%

4.2.2
4

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T78317-1MS	X0073151.D	1	06/15/11	JL	n/a	n/a	VX1055
T78317-1MSD	X0073152.D	1	06/15/11	JL	n/a	n/a	VX1055
T78317-1	X0073150.D	1	06/15/11	JL	n/a	n/a	VX1055

The QC reported here applies to the following samples:

Method: SW846 8260B

T77594-1

CAS No.	Compound	T78317-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-27-4	Bromodichloromethane	ND	25	25.2	101	26.9	108*	7	68-107/12	
75-25-2	Bromoform	ND	25	31.0	124*	33.7	135*	8	64-103/14	
108-90-7	Chlorobenzene	ND	25	22.6	90	23.7	95	5	74-111/11	
75-00-3	Chloroethane	ND	25	24.1	96	24.7	99	2	75-135/15	
67-66-3	Chloroform	ND	25	21.4	86	22.4	90	5	75-117/12	
75-15-0	Carbon disulfide	ND	25	24.1	96	22.7	91	6	57-126/13	
56-23-5	Carbon tetrachloride	ND	25	28.0	112	27.0	108	4	75-125/12	
75-34-3	1,1-Dichloroethane	ND	25	21.3	85	22.4	90	5	76-121/13	
75-35-4	1,1-Dichloroethylene	ND	25	22.8	91	21.4	86	6	71-128/19	
107-06-2	1,2-Dichloroethane	ND	25	23.2	93	24.8	99	7	70-111/14	
78-87-5	1,2-Dichloropropane	ND	25	21.9	88	23.4	94	7	71-113/12	
124-48-1	Dibromochloromethane	ND	25	27.2	109*	29.3	117*	7	69-104/12	
156-59-2	cis-1,2-Dichloroethylene	ND	25	20.2	81	21.2	85	5	68-113/13	
10061-01-5	cis-1,3-Dichloropropene	ND	25	24.0	96	25.9	104	8	71-111/12	
156-60-5	trans-1,2-Dichloroethylene	ND	25	21.2	85	21.6	86	2	70-125/14	
10061-02-6	trans-1,3-Dichloropropene	ND	25	25.8	103	28.0	112*	8	75-111/12	
591-78-6	2-Hexanone	ND	125	158	126*	189	151*	18	60-113/18	
108-10-1	4-Methyl-2-pentanone	ND	125	152	122*	177	142*	15	63-115/21	
74-83-9	Methyl bromide	ND	25	19.6	78	20.8	83	6	59-132/15	
74-87-3	Methyl chloride	ND	25	23.9	96	24.1	96	1	56-150/17	
75-09-2	Methylene chloride	ND	25	19.1	76	20.0	80	5	70-113/13	
78-93-3	Methyl ethyl ketone	ND	125	131	105	153	122*	15	62-117/21	
100-42-5	Styrene	ND	25	17.8	71	18.6	74	4	66-100/11	
71-55-6	1,1,1-Trichloroethane	ND	25	21.9	88	22.1	88	1	76-125/11	
79-34-5	1,1,2,2-Tetrachloroethane	ND	25	27.6	110	31.4	126*	13	67-110/20	
79-00-5	1,1,2-Trichloroethane	ND	25	25.3	101	27.8	111*	9	69-107/14	
127-18-4	Tetrachloroethylene	ND	25	19.7	79	19.9	80	1	77-120/13	
79-01-6	Trichloroethylene	ND	25	18.9	76	19.7	79	4	74-117/12	
75-01-4	Vinyl chloride	ND	25	22.4	90	21.2	85	6	64-121/19	

CAS No.	Surrogate Recoveries	MS	MSD	T78317-1	Limits
1868-53-7	Dibromofluoromethane	95%	96%	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	105%	107%	106%	75-121%
2037-26-5	Toluene-D8	99%	99%	99%	87-119%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T78317-1MS	X0073151.D	1	06/15/11	JL	n/a	n/a	VX1055
T78317-1MSD	X0073152.D	1	06/15/11	JL	n/a	n/a	VX1055
T78317-1	X0073150.D	1	06/15/11	JL	n/a	n/a	VX1055

The QC reported here applies to the following samples:

Method: SW846 8260B

T77594-1

CAS No.	Surrogate Recoveries	MS	MSD	T78317-1	Limits
460-00-4	4-Bromofluorobenzene	98%	100%	101%	80-133%

4.3.1
4

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T77594-1MS	F035278.D	50	06/15/11	AK	n/a	n/a	VF4298
T77594-1MSD	F035279.D	50	06/15/11	AK	n/a	n/a	VF4298
T77594-1	F035277.D	50	06/15/11	AK	n/a	n/a	VF4298

The QC reported here applies to the following samples:

Method: SW846 8260B

T77594-1

CAS No.	Compound	T77594-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	1830	J	6250	7380	89	7520	91	2	62-124/21
71-43-2	Benzene	1770		1250	2910	91	2860	87	2	76-118/16
100-41-4	Ethylbenzene	283		1250	1440	93	1420	91	1	75-112/12
108-88-3	Toluene	6020		1250	7070	84	6990	78	1	77-114/12
1330-20-7	Xylene (total)	4790		3750	8230	92	8180	90	1	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	T77594-1	Limits
1868-53-7	Dibromofluoromethane	100%	98%	99%	79-122%
17060-07-0	1,2-Dichloroethane-D4	93%	91%	89%	75-121%
2037-26-5	Toluene-D8	102%	101%	100%	87-119%
460-00-4	4-Bromofluorobenzene	112%	110%	112%	80-133%

4.3.2
4

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

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18745-MB	J159885.D	1	06/06/11	SC	06/06/11	OP18745	EJ1170

The QC reported here applies to the following samples:

Method: SW846 8270C

T77594-1

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	10	5.0	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	1.2	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	1.2	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	1.3	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	15	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	1.4	ug/l	
95-48-7	2-Methylphenol	ND	5.0	0.83	ug/l	
	3&4-Methylphenol	ND	5.0	1.6	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	6.7	ug/l	
87-86-5	Pentachlorophenol	ND	25	13	ug/l	
108-95-2	Phenol	ND	5.0	0.75	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.2	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	1.1	ug/l	
83-32-9	Acenaphthene	ND	5.0	1.6	ug/l	
208-96-8	Acenaphthylene	ND	5.0	1.2	ug/l	
120-12-7	Anthracene	ND	5.0	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	1.1	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	1.1	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	0.87	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	1.7	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	1.1	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.4	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	1.6	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	1.3	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.4	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	4.3	ug/l	
86-74-8	Carbazole	ND	5.0	1.5	ug/l	
218-01-9	Chrysene	ND	5.0	0.98	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	1.3	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	1.3	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	2.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	1.3	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.3	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.3	ug/l	

Method Blank Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18745-MB	J159885.D	1	06/06/11	SC	06/06/11	OP18745	EJ1170

The QC reported here applies to the following samples:

Method: SW846 8270C

T77594-1

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	5.0	1.3	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	1.4	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	1.3	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	3.2	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	1.6	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.3	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	1.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	1.3	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	1.1	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	1.1	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	1.8	ug/l	
206-44-0	Fluoranthene	ND	5.0	0.97	ug/l	
86-73-7	Fluorene	ND	5.0	1.3	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	1.3	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	1.1	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	5.2	ug/l	
67-72-1	Hexachloroethane	ND	5.0	0.97	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	1.8	ug/l	
78-59-1	Isophorone	ND	5.0	1.2	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.3	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	1.4	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	3.3	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	2.3	ug/l	
91-20-3	Naphthalene	ND	5.0	1.1	ug/l	
98-95-3	Nitrobenzene	ND	5.0	1.7	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	1.4	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	1.7	ug/l	
85-01-8	Phenanthrene	ND	5.0	0.97	ug/l	
129-00-0	Pyrene	ND	5.0	1.7	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.3	ug/l	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	30%	10-66%
4165-62-2	Phenol-d5	21%	10-53%

5.1.1
5

Method Blank Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18745-MB	J159885.D	1	06/06/11	SC	06/06/11	OP18745	EJ1170

The QC reported here applies to the following samples:

Method: SW846 8270C

T77594-1

CAS No.	Surrogate Recoveries	Limits	
118-79-6	2,4,6-Tribromophenol	55%	32-128%
4165-60-0	Nitrobenzene-d5	59%	29-115%
321-60-8	2-Fluorobiphenyl	57%	34-113%
1718-51-0	Terphenyl-d14	82%	12-145%

5.1.1
5

Blank Spike Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18745-BS	J159888.D	1	06/06/11	SC	06/06/11	OP18745	EJ1170

The QC reported here applies to the following samples:

Method: SW846 8270C

T77594-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	50	13.3	27	10-68
95-57-8	2-Chlorophenol	50	37.9	76	39-93
59-50-7	4-Chloro-3-methyl phenol	50	40.1	80	43-109
120-83-2	2,4-Dichlorophenol	50	40.1	80	42-106
105-67-9	2,4-Dimethylphenol	50	42.3	85	27-87
51-28-5	2,4-Dinitrophenol	50	21.6	43	43-107
534-52-1	4,6-Dinitro-o-cresol	50	38.8	78	47-112
95-48-7	2-Methylphenol	50	35.5	71	25-84
	3&4-Methylphenol	100	50.0	50	25-77
88-75-5	2-Nitrophenol	50	36.7	73	38-96
100-02-7	4-Nitrophenol	50	14.6	29	13-70
87-86-5	Pentachlorophenol	50	30.1	60	46-153
108-95-2	Phenol	50	18.3	37	10-53
95-95-4	2,4,5-Trichlorophenol	50	33.2	66	40-101
88-06-2	2,4,6-Trichlorophenol	50	39.3	79	41-102
83-32-9	Acenaphthene	50	40.2	80	41-110
208-96-8	Acenaphthylene	50	40.7	81	49-113
120-12-7	Anthracene	50	49.0	98	59-105
56-55-3	Benzo(a)anthracene	50	50.8	102	64-112
50-32-8	Benzo(a)pyrene	50	46.8	94	62-116
205-99-2	Benzo(b)fluoranthene	50	50.1	100	62-114
191-24-2	Benzo(g,h,i)perylene	50	62.2	124	55-124
207-08-9	Benzo(k)fluoranthene	50	52.4	105	62-119
101-55-3	4-Bromophenyl phenyl ether	50	48.8	98	56-99
85-68-7	Butyl benzyl phthalate	50	51.2	102	52-125
100-51-6	Benzyl Alcohol	50	34.9	70	28-83
91-58-7	2-Chloronaphthalene	50	28.1	56	42-97
106-47-8	4-Chloroaniline	50	27.9	56	37-128
86-74-8	Carbazole	50	45.7	91	59-142
218-01-9	Chrysene	50	52.7	105	67-112
111-91-1	bis(2-Chloroethoxy)methane	50	42.0	84	38-96
111-44-4	bis(2-Chloroethyl)ether	50	39.3	79	37-91
108-60-1	bis(2-Chloroisopropyl)ether	50	45.1	90	36-102
7005-72-3	4-Chlorophenyl phenyl ether	50	41.2	82	48-101
95-50-1	1,2-Dichlorobenzene	50	34.6	69	33-86
541-73-1	1,3-Dichlorobenzene	50	33.5	67	21-88

Blank Spike Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18745-BS	J159888.D	1	06/06/11	SC	06/06/11	OP18745	EJ1170

The QC reported here applies to the following samples:

Method: SW846 8270C

T77594-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-46-7	1,4-Dichlorobenzene	50	34.1	68	31-86
121-14-2	2,4-Dinitrotoluene	50	43.1	86	55-112
606-20-2	2,6-Dinitrotoluene	50	45.3	91	57-105
91-94-1	3,3'-Dichlorobenzidine	50	44.2	88	50-142
53-70-3	Dibenzo(a,h)anthracene	50	58.0	116	55-123
132-64-9	Dibenzofuran	50	39.0	78	45-99
84-74-2	Di-n-butyl phthalate	50	51.4	103	64-114
117-84-0	Di-n-octyl phthalate	50	45.3	91	55-118
84-66-2	Diethyl phthalate	50	50.4	101	52-113
131-11-3	Dimethyl phthalate	50	48.2	96	38-112
117-81-7	bis(2-Ethylhexyl)phthalate	50	50.3	101	56-131
206-44-0	Fluoranthene	50	49.3	99	62-116
86-73-7	Fluorene	50	39.8	80	47-99
118-74-1	Hexachlorobenzene	50	52.7	105* a	62-102
87-68-3	Hexachlorobutadiene	50	35.0	70	37-91
77-47-4	Hexachlorocyclopentadiene	50	16.7	33	23-102
67-72-1	Hexachloroethane	50	32.5	65	33-86
193-39-5	Indeno(1,2,3-cd)pyrene	50	60.1	120	52-126
78-59-1	Isophorone	50	43.9	88	42-105
91-57-6	2-Methylnaphthalene	50	36.4	73	36-91
88-74-4	2-Nitroaniline	50	44.7	89	49-109
99-09-2	3-Nitroaniline	50	37.3	75	46-139
100-01-6	4-Nitroaniline	50	41.1	82	73-174
91-20-3	Naphthalene	50	37.1	74	37-89
98-95-3	Nitrobenzene	50	40.2	80	42-97
621-64-7	N-Nitroso-di-n-propylamine	50	41.9	84	42-102
86-30-6	N-Nitrosodiphenylamine	50	42.0	84	64-119
85-01-8	Phenanthrene	50	48.3	97	59-103
129-00-0	Pyrene	50	50.1	100	58-110
120-82-1	1,2,4-Trichlorobenzene	50	33.5	67	37-88

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	42%	10-66%
4165-62-2	Phenol-d5	29%	10-53%

5.2.1
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Blank Spike Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18745-BS	J159888.D	1	06/06/11	SC	06/06/11	OP18745	EJ1170

The QC reported here applies to the following samples:

Method: SW846 8270C

T77594-1

CAS No.	Surrogate Recoveries	BSP	Limits
118-79-6	2,4,6-Tribromophenol	82%	32-128%
4165-60-0	Nitrobenzene-d5	78%	29-115%
321-60-8	2-Fluorobiphenyl	74%	34-113%
1718-51-0	Terphenyl-d14	90%	12-145%

(a) Not detected in associated samples.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18745-MS	W5811A.D	4	06/06/11	SG	06/06/11	OP18745	EW298
OP18745-MSD	W5812A.D	4	06/06/11	SG	06/06/11	OP18745	EW298
T77594-1 ^a	W5810.D	4	06/06/11	SG	06/06/11	OP18745	EW298

The QC reported here applies to the following samples:

Method: SW846 8270C

T77594-1

CAS No.	Compound	T77594-1 ug/l	Spike Q	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	339	106	108	-217* ^b	89.8	-234* ^b	18	10-68/27
95-57-8	2-Chlorophenol	ND	106	63.1	59	57.8	54	9	39-93/28
59-50-7	4-Chloro-3-methyl phenol	ND	106	92.9	87	85.5	80	8	43-109/28
120-83-2	2,4-Dichlorophenol	ND	106	84.5	79	75.8	71	11	42-106/25
105-67-9	2,4-Dimethylphenol	134	106	235	95*	215	76	9	27-87/26
51-28-5	2,4-Dinitrophenol	ND	106	ND	0*	ND	0*	nc	43-107/44
534-52-1	4,6-Dinitro-o-cresol	ND	106	79.0	74	76.8	72	3	47-112/24
95-48-7	2-Methylphenol	155	106	276	114*	266	104*	4	25-84/31
	3&4-Methylphenol	202	213	414	100*	387	87*	7	25-77/25
88-75-5	2-Nitrophenol	ND	106	76.4	72	66.8	63	13	38-96/26
100-02-7	4-Nitrophenol	ND	106	72.6	68	65.8	62	10	13-70/25
87-86-5	Pentachlorophenol	ND	106	168	158*	164	154*	2	46-153/18
108-95-2	Phenol	242	106	502	244* ^b	459	204* ^b	9	10-53/35
95-95-4	2,4,5-Trichlorophenol	ND	106	89.7	84	84.4	79	6	40-101/22
88-06-2	2,4,6-Trichlorophenol	ND	106	78.6	74	74.3	70	6	41-102/22
83-32-9	Acenaphthene	ND	106	75.8	71	73.6	69	3	41-110/21
208-96-8	Acenaphthylene	ND	106	67.3	63	68.1	64	1	49-113/23
120-12-7	Anthracene	ND	106	92.2	87	88.2	83	4	59-105/18
56-55-3	Benzo(a)anthracene	ND	106	82.9	78	74.8	70	10	64-112/20
50-32-8	Benzo(a)pyrene	ND	106	71.6	67	62.4	59*	14	62-116/23
205-99-2	Benzo(b)fluoranthene	ND	106	84.4	79	78.9	74	7	62-114/22
191-24-2	Benzo(g,h,i)perylene	ND	106	114	107	92.1	87	21	55-124/36
207-08-9	Benzo(k)fluoranthene	ND	106	89.0	84	74.4	70	18	62-119/30
101-55-3	4-Bromophenyl phenyl ether	ND	106	71.1	67	64.6	61	10	56-99/20
85-68-7	Butyl benzyl phthalate	ND	106	96.6	91	86.3	81	11	52-125/25
100-51-6	Benzyl Alcohol	50.5	106	134	78	129	74	4	28-83/32
91-58-7	2-Chloronaphthalene	ND	106	61.6	58	58.9	55	4	42-97/27
106-47-8	4-Chloroaniline	ND	106	ND	0*	36.5	34*	200*	37-128/29
86-74-8	Carbazole	ND	106	90.8	85	86.5	81	5	59-142/19
218-01-9	Chrysene	ND	106	93.1	88	79.5	75	16	67-112/19
111-91-1	bis(2-Chloroethoxy)methane	ND	106	54.7	51	48.9	46	11	38-96/30
111-44-4	bis(2-Chloroethyl)ether	ND	106	111	104*	108	102*	3	37-91/33
108-60-1	bis(2-Chloroisopropyl)ether	ND	106	55.2	52	53.3	50	4	36-102/32
7005-72-3	4-Chlorophenyl phenyl ether	ND	106	71.7	67	70.0	66	2	48-101/21
95-50-1	1,2-Dichlorobenzene	ND	106	64.2	60	62.3	59	3	33-86/29
541-73-1	1,3-Dichlorobenzene	ND	106	64.0	60	59.0	55	8	32-88/32

5.3.1
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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18745-MS	W5811A.D	4	06/06/11	SG	06/06/11	OP18745	EW298
OP18745-MSD	W5812A.D	4	06/06/11	SG	06/06/11	OP18745	EW298
T77594-1 ^a	W5810.D	4	06/06/11	SG	06/06/11	OP18745	EW298

The QC reported here applies to the following samples:

Method: SW846 8270C

T77594-1

CAS No.	Compound	T77594-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
106-46-7	1,4-Dichlorobenzene	ND	106	63.4	60	60.4	57	5	31-86/36	
121-14-2	2,4-Dinitrotoluene	ND	106	88.6	83	84.2	79	5	55-112/23	
606-20-2	2,6-Dinitrotoluene	ND	106	75.1	71	73.4	69	2	57-105/23	
91-94-1	3,3'-Dichlorobenzidine	ND	106	ND	0*	ND	0*	nc	50-142/21	
53-70-3	Dibenzo(a,h)anthracene	ND	106	119	112	102	96	15	55-123/37	
132-64-9	Dibenzofuran	ND	106	81.1	76	81.9	77	1	45-99/20	
84-74-2	Di-n-butyl phthalate	ND	106	96.7	91	95.5	90	1	64-114/16	
117-84-0	Di-n-octyl phthalate	ND	106	73.1	69	67.3	63	8	55-118/25	
84-66-2	Diethyl phthalate	ND	106	87.0	82	84.7	80	3	52-113/20	
131-11-3	Dimethyl phthalate	ND	106	77.6	73	74.7	70	4	38-112/19	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	106	122	115	103	97	17	56-131/19	
206-44-0	Fluoranthene	ND	106	87.5	82	84.3	79	4	62-116/24	
86-73-7	Fluorene	ND	106	97.8	92	97.6	92	0	47-99/22	
118-74-1	Hexachlorobenzene	ND	106	67.4	63	62.1	58*	8	62-102/21	
87-68-3	Hexachlorobutadiene	ND	106	72.0	68	64.1	60	12	37-91/28	
77-47-4	Hexachlorocyclopentadiene	ND	106	58.7	55	56.4	53	4	23-102/34	
67-72-1	Hexachloroethane	ND	106	82.1	77	76.3	72	7	33-86/30	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	106	153	144*	132	124	15	52-126/30	
78-59-1	Isophorone	ND	106	93.8	88	83.7	79	11	42-105/28	
91-57-6	2-Methylnaphthalene	100	106	262	152*	228	120*	14	36-91/29	
88-74-4	2-Nitroaniline	ND	106	82.4	77	79.0	74	4	49-109/22	
99-09-2	3-Nitroaniline	ND	106	63.9	60	67.2	63	5	46-139/23	
100-01-6	4-Nitroaniline	ND	106	71.4	67*	73.5	69*	3	73-174/24	
91-20-3	Naphthalene	38.6	106	135	91*	123	79	9	37-89/24	
98-95-3	Nitrobenzene	ND	106	79.7	75	69.8	66	13	42-97/26	
621-64-7	N-Nitroso-di-n-propylamine	ND	106	125	117*	108	102	15	42-102/27	
86-30-6	N-Nitrosodiphenylamine	ND	106	76.4	72	71.9	68	6	64-119/27	
85-01-8	Phenanthrene	ND	106	100	94	93.0	87	7	59-103/19	
129-00-0	Pyrene	ND	106	95.9	90	87.5	82	9	58-110/25	
120-82-1	1,2,4-Trichlorobenzene	ND	106	68.9	65	61.9	58	11	37-88/23	

CAS No.	Surrogate Recoveries	MS	MSD	T77594-1	Limits
367-12-4	2-Fluorophenol	59%	49%	37%	10-66%
4165-62-2	Phenol-d5	64%*	56%*	35%	10-53%

5.3.1
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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T77594
Account: WPRMTCOP Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18745-MS	W5811A.D	4	06/06/11	SG	06/06/11	OP18745	EW298
OP18745-MSD	W5812A.D	4	06/06/11	SG	06/06/11	OP18745	EW298
T77594-1 ^a	W5810.D	4	06/06/11	SG	06/06/11	OP18745	EW298

The QC reported here applies to the following samples:

Method: SW846 8270C

T77594-1

CAS No.	Surrogate Recoveries	MS	MSD	T77594-1	Limits
118-79-6	2,4,6-Tribromophenol	121%	114%	111%	32-128%
4165-60-0	Nitrobenzene-d5	87%	76%	71%	29-115%
321-60-8	2-Fluorobiphenyl	79%	73%	67%	34-113%
1718-51-0	Terphenyl-d14	76%	67%	56%	12-145%

- (a) Elevated reporting limits due to matrix interference. High concentration of non-target compounds were detected in the sample.
- (b) Outside control limits due to high level in sample relative to spike amount.

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Metals Analysis

QC Data Summaries

Includes the following where applicable:

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T77594
Account: WPRMTCOP - Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

QC Batch ID: MP14870
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 06/04/11

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	16.4	<5000
Chromium	10	.23	.27		
Cobalt	50	.15	.22		
Copper	25	1.1	5.9		
Iron	100	1.1	23	7.4	<100
Lead	3.0	1	1.8		
Lithium	300	2	2		
Magnesium	5000	7.7	7.9	-14	<5000
Manganese	15	.054	1.9	0.41	<15
Molybdenum	10	.39	.2		
Nickel	40	.69	1.4		
Potassium	5000	39	45	82.4	<5000
Selenium	5.0	1.5	.98		
Silver	10	1.2	.24		
Sodium	5000	9.2	100	195	<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 MP14870: T77594-1F

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: T77594
 Account: WPRMTCOP - Williams Production RMT Company
 Project: TR41-35-597 Pit Sampling

QC Batch ID: MP14870
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 06/04/11 06/04/11

Metal	T77594-1F Original DUP		RPD	QC Limits	T77594-1F Original MS		Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Boron									
Cadmium									
Calcium	194000	204000	4.5	0-20	194000	248000	50000	106.0	80-120
Chromium									
Cobalt									
Copper									
Iron	12500	13200	3.9	0-20	12500	62500	50000	99.6	80-120
Lead									
Lithium									
Magnesium	23100	24200	5.5	0-20	23100	72800	50000	99.8	80-120
Manganese	749	787	5.5	0-20	749	1180	400	108.8	80-120
Molybdenum									
Nickel									
Potassium	87200	91000	7.4	0-20	87200	140000	50000	111.0	80-120
Selenium									
Silver									
Sodium	5510000	5940000	3.9	0-20	5510000	5930000	50000	440.0(a)	80-120
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP14870: T77594-1F

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 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: T77594
 Account: WPRMTCOP - Williams Production RMT Company
 Project: TR41-35-597 Pit Sampling

QC Batch ID: MP14870
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 06/04/11

Metal	T77594-1F Original MSD		SpikeLot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	194000	250000	50000	110.0	3.5	20
Chromium						
Cobalt						
Copper						
Iron	12500	61600	50000	97.8	4.6	20
Lead						
Lithium						
Magnesium	23100	73000	50000	100.2	3.6	20
Manganese	749	1180	400	108.8	3.3	20
Molybdenum						
Nickel						
Potassium	87200	140000	50000	111.0	0.7	20
Selenium						
Silver						
Sodium	5510000	5990000	50000	560.0(a)	1.0	20
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP14870: T77594-1F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T77594
 Account: WPRMTCOP - Williams Production RMT Company
 Project: TR41-35-597 Pit Sampling

QC Batch ID: MP14870
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 06/04/11

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	53100	50000	106.2	80-120
Chromium				
Cobalt				
Copper				
Iron	50200	50000	100.4	80-120
Lead				
Lithium				
Magnesium	50400	50000	100.8	80-120
Manganese	421	400	105.3	80-120
Molybdenum				
Nickel				
Potassium	50900	50000	101.8	80-120
Selenium				
Silver				
Sodium	52800	50000	105.6	80-120
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP14870: T77594-1F

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: T77594
 Account: WPRMTCOP - Williams Production RMT Company
 Project: TR41-35-597 Pit Sampling

QC Batch ID: MP14870
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 06/04/11

Metal	T77594-1F		QC	
	Original	SDL 10:50%DIF		Limits

Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	194000	199000	1.8	0-10
Chromium				
Cobalt				
Copper				
Iron	12500	13000	2.1	0-10
Lead				
Lithium				
Magnesium	23100	22900	0.3	0-10
Manganese	749	753	1.1	0-10
Molybdenum				
Nickel				
Potassium	87200	87400	3.4	0-10
Selenium				
Silver				
Sodium	5510000	5850000	2.5	0-10
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP14870: T77594-1F

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

6.1.4
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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: T77594
Account: WPRMTCOP - Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate	GN31821	5.0	1.0	mg/l				
Alkalinity, Carbonate	GN31820	5.0	0.0	mg/l				
Alkalinity, Total as CaCO3	GN31819	5.0	0.0	mg/l	2500	2620	105.0	80-120%
Bromide	GP13277/GN31781	0.10	<0.10	mg/l	10	10.5	105.0	80-120%
Hydroxide Alkalinity	GN31822	5.0	0.0	mg/l				
Solids, Total Dissolved	GN31719	10	4.0	mg/l	500	498	99.6	80-120%
Specific Conductivity	GN31740	1.0	<1.0	umhos/cm				
Sulfate	GP13280/GN31783	0.50	0.0	mg/l	10	10.3	103.0	80-120%

Associated Samples:

- Batch GN31719: T77594-1
 - Batch GN31740: T77594-1
 - Batch GN31819: T77594-1
 - Batch GN31820: T77594-1
 - Batch GN31821: T77594-1
 - Batch GN31822: T77594-1
 - Batch GP13277: T77594-1
 - Batch GP13280: T77594-1A
- (*) Outside of QC limits

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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T77594
Account: WPRMTCOP - Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Bicarbonate	GN31821	T76891-1	mg/l	182	182	0.0	0-20%
Alkalinity, Carbonate	GN31820	T76891-1	mg/l	0.0	0.0	0.0	0-20%
Alkalinity, Total as CaCO3	GN31819	T76891-1	mg/l	182	182	0.0	0-10%
Bromide	GP13277/GN31781	T77594-1	mg/l	82.6	82.7	0.0	0-20%
Solids, Total Dissolved	GN31719	T77594-1	mg/l	16900	17000	0.6	0-5%
Specific Conductivity	GN31740	T77251-1	umhos/cm	994	994	0.0	0-20%
Sulfate	GP13280/GN31783	T76341-18	mg/l	13000	13100	0.5	0-20%
pH	GN31793	T77594-1	su	6.96	6.97	0.1	0-6.8%

Associated Samples:

Batch GN31719: T77594-1
Batch GN31740: T77594-1
Batch GN31793: T77594-1
Batch GN31819: T77594-1
Batch GN31820: T77594-1
Batch GN31821: T77594-1
Batch GP13277: T77594-1
Batch GP13280: T77594-1A
(*) Outside of QC limits

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MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T77594
Account: WPRMTCOP - Williams Production RMT Company
Project: TR41-35-597 Pit Sampling

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP13277/GN31781	T77594-1	mg/l	82.6	10	195	111.9	75-125%
Sulfate	GP13280/GN31783	T76341-18	mg/l	13000	10000	24300	113.0	75-125%

Associated Samples:

Batch GN31819: T77594-1

Batch GP13277: T77594-1

Batch GP13280: T77594-1A

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

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