DOCUMENT #2214607

Page 1

FORM 4
Rev 12/05

State of Colorado
Oil and Gas Conservation Commission

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

CC | ET | OE | ES

RECEIVED 5/31/2011

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.)

1. OGCC Operator Number: 96850
2. Name of Operator: Williams Production RMT
3. Address: 1058 County Road 215
City: Parachute State: CO Zip: 81635

4. Contact Name: Karolina Blaney
Phone: 970 683 2295
Fax: 970 285 9573

Complete the Attachment Checklist — OP OGCC

5. API Number 05-
6. Well/Facility Name:
7. Well/Facility Number: Cottonwood
OGCC Facility ID Number: 414567
8. Location (QtrQtr, Sec, Twp, Rng, Meridian): NWSE S28 T6S R95W 6th PM
9. County: Garfield
10. Field Name: Parachute
11. Federal, Indian or State Lease Number:

Attachment Checklist	OP	OGCC
Survey Plat		
Directional Survey		
Surface Eqpmt Diagram		
Technical Info Page	X	
Other	X	

General Notice

☐ CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)

	FNL/FSL		FEL/FWL	
Change of **Surface** Footage **from** Exterior Section Lines:				
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: 5/26/11

Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)

☐ Intent to Recomplete (submit form 2)	☐ Request to Vent or Flare	☐ E&P Waste Disposal
☐ Change Drilling Plans	☐ Repair Well	☐ Beneficial Reuse of E&P Waste
☐ Gross Interval Changed?	☐ Rule 502 variance requested	☐ Status Update/Change of Remediation Plans for Spills and Releases
☐ Casing/Cementing Program Change	☒ Other: Form 15 COAs	

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: 5/31/2011 Email: Karolina.Blaney@Williams.com

Print Name: Karolina Blaney Title: Environmental Specialist

COGCC Approved: Richard Allison Title: OGLA - EPS II Date: 11/17/2011

CONDITIONS OF APPROVAL, IF ANY:

Click here to reset form

FORM 4 Rev 12/05

TECHNICAL INFORMATION PAGE

FOR OGCC USE ONLY

1. OGCC Operator Number: 96850 API Number:
2. Name of Operator: Williams Production RMT OGCC Facility ID # 414567
3. Well/Facility Name: Well/Facility Number: Cottonwood
4. Location (QtrQtr, Sec, Twp, Rng, Meridian): NWSE S28 T6S R95W 6th PM

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**

In accordance with the Cottonwood Pit Permit Form 15 conditions of approval (see attached), Williams is submiting the following documents in order to stay in compliance:

- Hydrostatic test of pit liner
- Analytical data pf the grab water sample collected from pit

Form 15

FORM 15 Rev 6/99

Doc # 1631042

State of Colorado
Oil and Gas Conservation Commission

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

FOR OGCC USE ONLY

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

	Oper	OGCC
Detailed Site Plan	✓	
Topo Map w/ Pit Location	✓	
Water Analysis (Form 25)		
Source Wells (Form 26)		
Pit Design/Plan & Cross Sect	✓	
Design Calculations	✓	
Sensitive Area Determ.	✓	
Mud Program		
Form 2A		

FORM SUBMITTED FOR:

☐ Pit Report ☑ Pit Permit

OGCC Operator Number: 96850

Name of Operator: Williams Production RMT Company

Address: 1058 CR 215

City: Parachute State: CO Zip: 81635

Contact Name and Telephone:
Karolina Blaney
No: 970-683-2295
Fax: 970-285-9573

API Number (of associated well): N/A ~~[illegible]~~ OGCC Facility ID (of other associated facility): ~~PARACHUTE 67350~~ Location ID 335358

Pit Location (QtrQtr, Sec, Twp, Rng, Meridian): NW SE S28 T6S R95W 6th PM

Latitude: ~~39° 29' 36.87"~~ 39.49940 Longitude: ~~108° 00' 09.29"~~ 108.00258 NAD County: Garfield

Pit Use: GD ~~☑ Production~~ ☐ Drilling (Attach mud program) ☑ Special Purpose (Describe Use): MULTI-WELL

Pit Type: ☑ Lined ☐ Unlined Surface Discharge Permit: ☐ Yes ☑ No

Offsite disposal of pit contents: ☐ Injection ☐ Commercial Pit/Facility Name: COTTONWOOD GULCH Pit/Facility No:

Attach Form 26 to identify Source Wells and Form 25 to provide Produced Water Analysis results.

5640 130 5510

Existing Site Conditions

Is the location in a "Sensitive Area?" ☐ Yes ☑ No -270 **Attach data used for determination.**

Distance (in feet) to nearest surface water: 153 ft ground water: > 6.5 ft water wells: 1,161 ft

5760 5310 250

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 form USNRCS survey: Sheet No: N/A Soil Complex/Series No: 29

Soils Series Name: Heldt Clay Loam Horizon thickness (in inches): A: 0-6 ; B: 6-60 ; C:

Soils Series Name: Horizon thickness (in inches): A: ; B: ; C:

Attach detailed site plan and topo map with pit location.

Pit Design and Construction

Size of pit (feet): Length: 246 Width: 71 Depth: 17

Calculated pit volume (bbls): 70,100 ~~60,000~~ GD +2' (FREEBOARD)

Daily inflow rate (bbls/day): Variable

Daily disposal rates (attach calculations): Evaporation: N/A bbls/day Percolation: N/A bbls/day

Type of liner material: Synthetic polypropylene Thickness: 36 mil

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): N/A

Is pit fenced? ☑ Yes GD ~~☐ 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: Karolina Blaney Signed: Karolina Blaney

Title: Environmental Specialist Date: 12/5/2008

OGCC Approved: Title: OGLA Supervisor Date: 3/22/11

CONDITIONS OF APPROVAL, IF ANY:

- OPERATOR WILL CONDUCT AND DOCUMENT TO COGCC A HYDROSTATIC TEST OF PIT LINER BY 5/31/2011.
- OPERATOR WILL PROVIDE ANALYTICAL DATA FOR GRAB SAMPLE COLLECTED FROM PIT WATER WITH FORM 4.

FACILITY NUMBER: 414567

Hydrostatic Test Results

Williams Production RMT

Hydrostatic Testing Requirements for
COGCC Form 15 Earthen Pits
Version 3.0

The purpose for hydrostatic testing earthen pits is to comply with COGCC Form 15 conditions of approval by 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 Williams' production 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 Williams' 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 datum point shall be established at the edge of the pit. The distance from the datum point to the fluid level along the pit sidewall, shall be measured and documented at the beginning and end of the test. The date and time of each measurement shall be documented.

- The pit fluid level surface area and the lined surface area tributary to the pit shall be measured and recorded at the beginning of the test. The date and time shall be documented.

- The pit sidewall slope, if unknown, shall be measured and documented recording the rise and run of the slope.

- A 4" diameter rain gauge with funnel inlet shall be installed at the pit site. Rainfall shall be recorded for the duration of the hydrostatic test.

- Evaporation during the test shall be accounted utilizing guidelines from the NOAA and the Colorado Division of Water Resources. Pan evaporation, for the subject location, shall be determined from evaporation atlases in NOAA Technical Report NWS 33, "Evaporation Atlas for the Contiguous 48 United States', by the U.S, Department of Commerce, dated June 1982. The total annual pan evaporation estimate from NOAA NWS 33 shall be distributed by the appropriate month. The monthly distribution for elevations below 6500 feet msl is: Jan - 3.0%, Feb - 3.5%, Mar - 5.5%, Apr - 9.0%, May - 12.0%, Jun - 14.5%, Jul - 15.0%, Aug - 13.5%, Sep - 10.0%, Oct - 7.0%, Nov - 4.0%, and Dec - 3.0%. The monthly distribution for elevations above 6500 feet msl is: Jan - 1.0%, Feb - 3.0%, Mar - 6.0%, Apr - 9.0%, May - 12.5%, Jun -15.5%, Jul - 16.0%, Aug - 13.0%, Sep - 11.0%, Oct - 7.5%, Nov - 4.0%, and Dec - 1.5%. The calculated monthly pan evaporation shall be prorated for the three-day hydrostatic test period. Evaporation does not need to be calculated for an ice-cover period.

- 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.

- The measured change in pit volume shall be the volume difference, as determined from the pit capacity table, between the slope or elevation measurements taken at beginning and end of the test.

- The calculated change in pit volume during the test is: $\Delta S = P + I - O - E$

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

- The measured change in storage shall be compared to the calculated change in volume 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.

Hydrostatic Pit Test Data Collection & Computation Form

Pit Owner:	Williams Production RMT Company
Pit Name:	Cottonwood Gulch (PA 33-28)
COGCC Facility No.	414567
Pit Location:	NW 1/4 SE 1/4, Section 28, T6S, R95W, 6th P.M. Latitude: 39.49440° Longitude: 108.00258° Garfield County, Colorado
Elevation:	5568 ft. MSL
Test Conducted By:	David Fox, Fox Engineering Solutions

Test Initiation:
Date: May 27, 2011
Time: 1:00 PM
Total Duration: 72 hours

Test Termination:
Date: May 30, 2011
Time: 1:00 PM

	Length	Width	Area		Comments
Tributary Pit Liner Surface Area (ft^2):	270	108	29160	$ft.^2$	
Initial Pit Water Surface Area:	249	101	25149	$ft.^2$	
Final Pit Water Surface Area:	249	101	25149	$ft.^2$	
Average Pit Surface Area:			25149	$ft.^2$	

Initial Pond Elevation:	97.28 ft.	Initial Pit Volume:	2290260 gallons
Final Pond Elevation	97.25 ft	Final Pit Volume:	2284296 gallons
Annual Pan Evaporation: (NOAA Techical Report NWS 33)	62.5 inches	Monthly Evap Distribution:	13%
		72-hour Evaporation Rate:	0.801 inches
		72-Hour Pit Evaporation:	12563 gallons
Rain Gauge Installed: Yes	Location: North Side of Pit	Recorded Precipitation:	0 inches
		72-Hour Precip. Inflow:	0 gallons
Other Inflow/Outflow:		Inflow:*	6725.00 gallons
		Outflow:	0.00 gallons
Calculated Change in Volume: (Precipitation - Evaporation + Inflows - Outflows)			-5838 gallons
Measure Change in Volume: (+ indicates storage increased) Final Pit Volume - Initial Pit Volume (From Side Slope Measurements & Corresponding Capacity Table Values)			-5964 gallons

Difference between Calculated and Measured Volume: **126 gallons**
3.00 barrels

Summary: No observed loss of liner integrity. Difference between calculated and measured volume is estimated to be 126 gallons which is within an acceptable margin of measurement error.
(126 gallons / 19,824 gallons per tenth of foot = .006 ft.)

Liner Condition:
Visible portion of liner, approximately the top 3 -4 ft., had no apparent tears, delamination or seam failures.

Comments:
Regarding the Capacity Table, each tenth of a foot measurement equates to 19,824 gallons or 472 barrels.
Williams staff, Alex Yater and Ted VonFedlt, notified about 72-hour hydrostatic testing.
*Staff reported no inflows or outflows during testing period, however, surface inflow was observed over the top of the liner from a nearby seep. Inflow was measured at 1.56 gpm and assumed constant for the duration of the 72-hr test.

Analytical Data

		COTTONWOOD GULCH	COTTONWOOD GULCH	
Client Sample ID:		PIT	PIT	
Lab Sample ID:		T73659-1F	T73659-1	
Date Sampled:		4/15/2011	4/15/2011	
GC/MS Volatiles				
Acetone	ug/l	NA	8600	
Benzene	ug/l	NA	2600	
Bromodichloromethane	ug/l	NA	ND	U
Bromoform	ug/l	NA	12.6	
Chlorobenzene	ug/l	NA	ND	U
Chloroethane	ug/l	NA	ND	U
Chloroform	ug/l	NA	8.3	
Carbon disulfide	ug/l	NA	ND	U
Carbon tetrachloride	ug/l	NA	ND	U
1,1-Dichloroethane	ug/l	NA	ND	U
1,1-Dichloroethylene	ug/l	NA	ND	U
1,2-Dichloroethane	ug/l	NA	ND	U
1,2-Dichloropropane	ug/l	NA	ND	U
Dibromochloromethane	ug/l	NA	3.6	
cis-1,2-Dichloroethylene	ug/l	NA	ND	U
cis-1,3-Dichloropropene	ug/l	NA	ND	U
trans-1,2-Dichloroethylene	ug/l	NA	ND	U
trans-1,3-Dichloropropene	ug/l	NA	ND	U
Ethylbenzene	ug/l	NA	191	
2-Hexanone	ug/l	NA	ND	U
4-Methyl-2-pentanone	ug/l	NA	ND	U
Methyl bromide	ug/l	NA	1.6	J
Methyl chloride	ug/l	NA	4.9	
Methylene chloride	ug/l	NA	6.9	B
Methyl ethyl ketone	ug/l	NA	17.0	
Styrene	ug/l	NA	ND	U
1,1,1-Trichloroethane	ug/l	NA	ND	U
1,1,2,2-Tetrachloroethane	ug/l	NA	ND	U
1,1,2-Trichloroethane	ug/l	NA	ND	U
Tetrachloroethylene	ug/l	NA	ND	U
Toluene	ug/l	NA	4920	
Trichloroethylene	ug/l	NA	ND	U
Vinyl chloride	ug/l	NA	ND	U
Xylene (total)	ug/l	NA	2570	
GC/MS Semi-volatiles				
Benzoic Acid	ug/l	NA	376	
2-Chlorophenol	ug/l	NA	ND	U
4-Chloro-3-methyl phenol	ug/l	NA	ND	U
2,4-Dichlorophenol	ug/l	NA	ND	U
2,4-Dimethylphenol	ug/l	NA	56.0	
2,4-Dinitrophenol	ug/l	NA	ND	U
4,6-Dinitro-o-cresol	ug/l	NA	ND	U
2-Methylphenol	ug/l	NA	28.6	

		COTTONWOOD GULCH	COTTONWOOD GULCH	
Client Sample ID:		PIT	PIT	
Lab Sample ID:		T73659-1F	T73659-1	
Date Sampled:		4/15/2011	4/15/2011	
3&4-Methylphenol	ug/l	NA	26.3	
2-Nitrophenol	ug/l	NA	ND	U
4-Nitrophenol	ug/l	NA	ND	U
Pentachlorophenol	ug/l	NA	ND	U
Phenol	ug/l	NA	16.5	
2,4,5-Trichlorophenol	ug/l	NA	ND	U
2,4,6-Trichlorophenol	ug/l	NA	ND	U
Acenaphthene	ug/l	NA	ND	U
Acenaphthylene	ug/l	NA	ND	U
Aniline	ug/l	NA	ND	U
Anthracene	ug/l	NA	ND	U
Benzidine	ug/l	NA	ND	U
Benzo(a)anthracene	ug/l	NA	ND	U
Benzo(a)pyrene	ug/l	NA	ND	U
Benzo(b)fluoranthene	ug/l	NA	ND	U
Benzo(g,h,i)perylene	ug/l	NA	ND	U
Benzo(k)fluoranthene	ug/l	NA	ND	U
4-Bromophenyl phenyl ether	ug/l	NA	ND	U
Butyl benzyl phthalate	ug/l	NA	ND	U
Benzyl Alcohol	ug/l	NA	296	
2-Chloronaphthalene	ug/l	NA	ND	U
4-Chloroaniline	ug/l	NA	ND	U
Carbazole	ug/l	NA	ND	U
Chrysene	ug/l	NA	ND	U
bis(2-Chloroethoxy)methane	ug/l	NA	ND	U
bis(2-Chloroethyl)ether	ug/l	NA	ND	U
bis(2-Chloroisopropyl)ether	ug/l	NA	ND	U
4-Chlorophenyl phenyl ether	ug/l	NA	ND	U
1,2-Dichlorobenzene	ug/l	NA	ND	U
1,2-Diphenylhydrazine	ug/l	NA	ND	U
1,3-Dichlorobenzene	ug/l	NA	ND	U
1,4-Dichlorobenzene	ug/l	NA	ND	U
2,4-Dinitrotoluene	ug/l	NA	ND	U
2,6-Dinitrotoluene	ug/l	NA	ND	U
3,3'-Dichlorobenzidine	ug/l	NA	ND	U
Dibenzo(a,h)anthracene	ug/l	NA	ND	U
Dibenzofuran	ug/l	NA	ND	U
Di-n-butyl phthalate	ug/l	NA	ND	U
Di-n-octyl phthalate	ug/l	NA	ND	U
Diethyl phthalate	ug/l	NA	ND	U
Dimethyl phthalate	ug/l	NA	ND	U
bis(2-Ethylhexyl)phthalate	ug/l	NA	2.0	J
Fluoranthene	ug/l	NA	ND	U
Fluorene	ug/l	NA	5.0	J
Hexachlorobenzene	ug/l	NA	ND	U
Hexachlorobutadiene	ug/l	NA	ND	U
Hexachlorocyclopentadiene	ug/l	NA	ND	U
Hexachloroethane	ug/l	NA	ND	U
Indeno(1,2,3-cd)pyrene	ug/l	NA	ND	U

		COTTONWOOD GULCH	COTTONWOOD GULCH	
Client Sample ID:		PIT	PIT	
Lab Sample ID:		T73659-1F	T73659-1	
Date Sampled:		4/15/2011	4/15/2011	
Isophorone	ug/l	NA	ND	U
1-Methylnaphthalene	ug/l	NA	38.3	
2-Methylnaphthalene	ug/l	NA	122	
2-Nitroaniline	ug/l	NA	ND	U
3-Nitroaniline	ug/l	NA	ND	U
4-Nitroaniline	ug/l	NA	ND	U
Naphthalene	ug/l	NA	117	
Nitrobenzene	ug/l	NA	ND	U
n-Nitrosodimethylamine	ug/l	NA	ND	U
N-Nitroso-di-n-propylamine	ug/l	NA	ND	U
N-Nitrosodiphenylamine	ug/l	NA	ND	U
Phenanthrene	ug/l	NA	3.1	J
Pyrene	ug/l	NA	ND	U
Pyridine	ug/l	NA	ND	U
1,2,4-Trichlorobenzene	ug/l	NA	ND	U
Metals Analysis				
Calcium	ug/l	225000	NA	
Iron	ug/l	219	NA	
Magnesium	ug/l	26300	NA	
Manganese	ug/l	803	NA	
Potassium	ug/l	101000	NA	
Sodium	ug/l	6950000	NA	
General Chemistry				
Specific Conductivity	umhos/cm	NA	33200	
pH	su	NA	7.24	
Phosphate, Ortho	mg/l	NA	0.010	J
Alkalinity, Total as CaCO3	mg/l	NA	203	
Solids, Total Dissolved	mg/l	NA	20500	
Alkalinity, Bicarbonate	mg/l	NA	167	
Alkalinity, Carbonate	mg/l	NA	0.66	U
Hydroxide Alkalinity	mg/l	NA	0.66	U
Chloride	mg/l	NA	10500	
Nitrogen, Nitrite	mg/l	NA	0.12	U
Bromide	mg/l	NA	52.1	
Nitrogen, Nitrate	mg/l	NA	0.13	J
Sulfate	mg/l	NA	38.1	

Gulf Coast ACCUTEST LABORATORIES

05/31/11

Technical Report for

Williams Production RMT Company

Cottonwood Gulch Pit

Accutest Job Number: T73659

Sampling Date: 04/15/11

Report to:

Williams Production RMT Company

karolina.blaney@williams.com

ATTN: Karolina Blaney

Total number of pages in report: **45**

ACCREDITED IN ACCORDANCE WITH nelac

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 K Canevaro

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)

Sections: 1 2 3 4 5 6 7

Table of Contents

Accutest Laboratories

Sample Summary

Williams Production RMT Company

Job No: T73659

Cottonwood Gulch Pit

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
T73659-1	04/15/11	14:00		04/16/11	AQ	Water	COTTONWOOD GULCH PIT
T73659-1F	04/15/11	14:00		04/16/11	AQ	Water Filtered	COTTONWOOD GULCH PIT

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	COTTONWOOD GULCH PIT		
Lab Sample ID:	T73659-1	**Date Sampled:**	04/15/11
Matrix:	AQ - Water	**Date Received:**	04/16/11
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cottonwood Gulch Pit		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0005909.D	1	04/20/11	JL	n/a	n/a	VE318
Run #2	E0005957.D	25	04/21/11	JL	n/a	n/a	VE320

	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	8600 [a]	1300	120	ug/l	
71-43-2	Benzene	2600 [a]	50	12	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	0.49	ug/l	
75-25-2	Bromoform	12.6	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	8.3	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	3.6	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	191	2.0	0.55	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	1.6	2.0	0.94	ug/l	J
74-87-3	Methyl chloride	4.9	2.0	0.84	ug/l	
75-09-2	Methylene chloride	6.9	5.0	0.41	ug/l	B
78-93-3	Methyl ethyl ketone	17.0	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	4920 [a]	50	11	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

Accutest Laboratories

Report of Analysis

Client Sample ID:	COTTONWOOD GULCH PIT		
Lab Sample ID:	T73659-1	**Date Sampled:**	04/15/11
Matrix:	AQ - Water	**Date Received:**	04/16/11
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cottonwood Gulch Pit		

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)	2570 [a]	150	42	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%	98%	79-122%
17060-07-0	1,2-Dichloroethane-D4	96%	88%	75-121%
2037-26-5	Toluene-D8	119%	104%	87-119%
460-00-4	4-Bromofluorobenzene	103%	99%	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

Accutest Laboratories

Report of Analysis

Client Sample ID:	COTTONWOOD GULCH PIT		
Lab Sample ID:	T73659-1	**Date Sampled:**	04/15/11
Matrix:	AQ - Water	**Date Received:**	04/16/11
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cottonwood Gulch Pit		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J158919.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125
Run #2	J158907.D	10	04/21/11	SC	04/20/11	OP18198	EJ1125

	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2	950 ml	1.0 ml

ABN Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	376 [a]	110	52	ug/l	
95-57-8	2-Chlorophenol	ND	5.3	1.3	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.3	1.2	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.3	2.3	ug/l	
105-67-9	2,4-Dimethylphenol	56.0	5.3	1.3	ug/l	
51-28-5	2,4-Dinitrophenol	ND	26	16	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	11	1.4	ug/l	
95-48-7	2-Methylphenol	28.6	5.3	0.88	ug/l	
	3&4-Methylphenol	26.3	5.3	1.7	ug/l	
88-75-5	2-Nitrophenol	ND	5.3	2.1	ug/l	
100-02-7	4-Nitrophenol	ND	26	7.0	ug/l	
87-86-5	Pentachlorophenol	ND	26	14	ug/l	
108-95-2	Phenol	16.5	5.3	0.79	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.3	1.2	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.3	1.2	ug/l	
83-32-9	Acenaphthene	ND	5.3	1.6	ug/l	
208-96-8	Acenaphthylene	ND	5.3	1.3	ug/l	
62-53-3	Aniline	ND	5.3	4.8	ug/l	
120-12-7	Anthracene	ND	5.3	1.2	ug/l	
92-87-5	Benzidine	ND	26	6.3	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.3	1.1	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.3	1.1	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.3	0.91	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.3	1.7	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.3	1.1	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.3	1.5	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.3	1.7	ug/l	
100-51-6	Benzyl Alcohol	296 [a]	53	14	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.3	1.5	ug/l	
106-47-8	4-Chloroaniline	ND	5.3	4.5	ug/l	
86-74-8	Carbazole	ND	5.3	1.6	ug/l	
218-01-9	Chrysene	ND	5.3	1.0	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

Accutest Laboratories

Report of Analysis

Client Sample ID:	COTTONWOOD GULCH PIT		
Lab Sample ID:	T73659-1	**Date Sampled:**	04/15/11
Matrix:	AQ - Water	**Date Received:**	04/16/11
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cottonwood Gulch Pit		

ABN Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
111-91-1	bis(2-Chloroethoxy)methane	ND	5.3	1.4	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.3	1.4	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.3	2.1	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.3	1.4	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.3	1.3	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.3	1.4	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.3	1.3	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.3	1.4	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.3	1.5	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.3	1.4	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	11	3.4	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.3	1.6	ug/l	
132-64-9	Dibenzofuran	ND	5.3	1.4	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.3	1.1	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.3	1.4	ug/l	
84-66-2	Diethyl phthalate	ND	5.3	1.1	ug/l	
131-11-3	Dimethyl phthalate	ND	5.3	1.1	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	2.0	5.3	1.9	ug/l	J
206-44-0	Fluoranthene	ND	5.3	1.0	ug/l	
86-73-7	Fluorene	5.0	5.3	1.4	ug/l	J
118-74-1	Hexachlorobenzene	ND	5.3	1.4	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.3	1.2	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	5.4	ug/l	
67-72-1	Hexachloroethane	ND	5.3	1.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.3	1.9	ug/l	
78-59-1	Isophorone	ND	5.3	1.3	ug/l	
90-12-0	1-Methylnaphthalene	38.3	5.3	1.1	ug/l	
91-57-6	2-Methylnaphthalene	122	5.3	1.3	ug/l	
88-74-4	2-Nitroaniline	ND	5.3	1.5	ug/l	
99-09-2	3-Nitroaniline	ND	5.3	3.5	ug/l	
100-01-6	4-Nitroaniline	ND	5.3	2.5	ug/l	
91-20-3	Naphthalene	117	5.3	1.2	ug/l	
98-95-3	Nitrobenzene	ND	5.3	1.8	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.3	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.3	1.5	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.3	1.8	ug/l	
85-01-8	Phenanthrene	3.1	5.3	1.0	ug/l	J
129-00-0	Pyrene	ND	5.3	1.7	ug/l	
110-86-1	Pyridine	ND	5.3	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.3	1.3	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

Accutest Laboratories

Report of Analysis

Client Sample ID:	COTTONWOOD GULCH PIT		
Lab Sample ID:	T73659-1	**Date Sampled:**	04/15/11
Matrix:	AQ - Water	**Date Received:**	04/16/11
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cottonwood Gulch Pit		

ABN Full List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	25%	44%	10-66%
4165-62-2	Phenol-d5	42%	27%	10-53%
118-79-6	2,4,6-Tribromophenol	58%	87%	32-128%
4165-60-0	Nitrobenzene-d5	43%	114%	29-115%
321-60-8	2-Fluorobiphenyl	54%	74%	34-113%
1718-51-0	Terphenyl-d14	156% [b]	82%	12-145%

(a) Result is from Run# 2
(b) Outside control limits due to matrix interference.

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	COTTONWOOD GULCH PIT		
Lab Sample ID:	T73659-1	**Date Sampled:**	04/15/11
Matrix:	AQ - Water	**Date Received:**	04/16/11
		Percent Solids:	n/a
Project:	Cottonwood Gulch Pit		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate	167	5.0	0.66	mg/l	1	04/25/11	MC	SM 4500 CO2 D
Alkalinity, Carbonate	0.66 U	5.0	0.66	mg/l	1	04/25/11	MC	SM18 2320B
Alkalinity, Total as CaCO3	203	5.0	1.7	mg/l	1	04/23/11 09:00	MC	SM 2320B
Bromide	52.1	2.5	0.50	mg/l	5	04/25/11 16:05	BF	EPA 300/SW846 9056
Chloride	10500	500	190	mg/l	1000	04/26/11 13:40	BF	EPA 300/SW846 9056
Hydroxide Alkalinity	0.66 U	5.0	0.66	mg/l	1	04/27/11	MC	SM18 4500CO2D
Nitrogen, Nitrate	0.13 J	0.50	0.12	mg/l	1	04/16/11 12:23	BF	EPA 300/SW846 9056
Nitrogen, Nitrite [a]	0.12 U	0.50	0.12	mg/l	1	04/16/11 12:23	BF	EPA 300/SW846 9056
Phosphate, Ortho	0.010 J	0.020		mg/l	1	04/16/11 15:30	KD	EPA 365.2
Solids, Total Dissolved	20500	200	52	mg/l	1	04/19/11	BG	SM 2540C
Specific Conductivity	33200	1.0		umhos/cm	1	04/23/11 13:00	KD	EPA 120.1
Sulfate	38.1	2.5	0.75	mg/l	5	04/26/11 15:41	BF	EPA 300/SW846 9056
pH	7.24			su	1	04/20/11 12:34	KD	SM 4500H+ B/9040

(a) Not NELAC certified for this analysis.

RL = Reporting Limit
MDL = Method Detection Limit

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	COTTONWOOD GULCH PIT		
Lab Sample ID:	T73659-1F	**Date Sampled:**	04/15/11
Matrix:	AQ - Water Filtered	**Date Received:**	04/16/11
		Percent Solids:	n/a
Project:	Cottonwood Gulch Pit		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	225000	5000	25	ug/l	1	04/19/11	04/23/11	TW	SW846 6010B [1]	SW846 3010A [3]
Iron	219	100	23	ug/l	1	04/19/11	04/23/11	TW	SW846 6010B [1]	SW846 3010A [3]
Magnesium	26300	5000	7.9	ug/l	1	04/19/11	04/23/11	TW	SW846 6010B [1]	SW846 3010A [3]
Manganese	803	15	1.9	ug/l	1	04/19/11	04/23/11	TW	SW846 6010B [1]	SW846 3010A [3]
Potassium	101000	5000	45	ug/l	1	04/19/11	04/23/11	TW	SW846 6010B [1]	SW846 3010A [3]
Sodium	6950000	130000	2600	ug/l	25	04/19/11	04/26/11	TW	SW846 6010B [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA5660
(2) Instrument QC Batch: MA5668
(3) Prep QC Batch: MP14495

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

CHAIN OF CUSTODY

PAGE ___ OF ___

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

FED-EX Tracking #: | Bottle Order Control #:
Accutest Quote #: | Accutest Job #: T73659

Client / Reporting Information

Company Name: Williams Production
Street Address: 1058 Cty Rd 215
City: Parachute State: CO Zip: 81635
Project Contact: Karolina.Blaney@Williams.com E-mail:
Phone #: 970 683 2295 / 970 285 9573 Fax #:
Sampler(s) Name(s): Alex Yater Phone #:

Project Information

Project Name: Cottonwood Gulch Pit
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (If different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention: Karolina Blaney

Requested Analyses

See attached

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	Collection: Date	Time	Sampled By	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH	ZnAc+NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	TSP	NaHSO4	ENCORE	OTHER	LAB USE ONLY
	Cottonwood Gulch Pit	4/15/11	2:00p	AY	Lig	9	3												X

Turnaround Time (Business days)

- [X] Standard
- [ ] 5 Day *RUSH*
- [ ] 4 Day *RUSH*
- [ ] 3 Day *RUSH*
- [ ] 2 Day *RUSH*
- [ ] 1 Day *EMERGENCY*

Approved By (Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULT1 (Level 3+4)
- [ ] REDT1 (Level 3+4)
- [ ] Commercial "C"
- [ ] TRRP
- [ ] EDD Format
- [ ] Other _____

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Blaney	4/15/11	1	2 FedEx	4/16-11 1030	2
3	Relinquished by Sampler:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	☐ Intact ☐ Not Intact	Preserved where applicable ☐ On Ice ☒ Cooler Temp. 3.8

T73659: Chain of Custody
Page 1 of 2

SAMPLE INSPECTION FORM

Accutest Job Number: T73659 Client: Williams Production Date/Time Received: 4/16/11 1020

# of Coolers Received: 1 Thermometer #: IR Gun 04 Temperature Adjustment Factor: 0.0

Cooler Temperatures (initial/adjusted): #1: 3.8°C #2: _____ #3: _____ #4: _____ #5: _____

#6: _____ #7: _____ #8: _____ #9: _____ #10 _____ #11 _____ #12 _____

Method of Delivery: FEDEX UPS Accutest Courier Greyhound Delivery Other

COOLER INFORMATION

- [ ] Custody seal missing or not intact
- [ ] Temperature criteria not met
- [ ] Wet ice received in cooler

CHAIN OF CUSTODY

- [ ] Chain of Custody not received
- [ ] Sample D/T unclear or missing
- [ ] Analyses unclear or missing
- [ ] COC not properly executed

SAMPLE INFORMATION

- [ ] Sample containers received broken
- [ ] VOC vials have headspace
- [ ] Sample labels missing or illegible
- [ ] ID on COC does not match label(s)
- [ ] D/T on COC does not match label(s)
- [ ] Sample/Bottles rcvd but no analysis on COC
- [ ] Sample listed on COC, but not received
- [ ] Bottles missing for requested analysis
- [ ] Insufficient volume for analysis
- [ ] Sample received improperly preserved

TRIP BLANK INFORMATION

- [ ] Trip Blank on COC but not received
- [ ] Trip Blank received but not on COC
- [ ] Trip Blank not intact
- [ ] Received Water Trip Blank
- [ ] Received Soil TB

Number of Encores? _____
Number of 5035 kits? _____
Number of lab-filtered metals? _____

Summary of Discrepancies:

TECHNICIAN SIGNATURE/DATE: 4-16-11

INFORMATION AND SAMPLE LABELING VERIFIED BY: _____

CORRECTIVE ACTIONS

Client Representative Notified: _____ Date: _____

By Accutest Representative: _____ Via: Phone Email

Client Instructions:

I:\mwalker\forms\samplemanagement SM023 Revised 8/11/10

T73659: Chain of Custody
Page 2 of 3

SAMPLE RECEIPT LOG

JOB #: T73659 DATE/TIME RECEIVED: 4-16-11 , 1020

CLIENT: Williams Production INITIALS: EC

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV	PH
1	1	Cottonwood Gulch pit	4/15/11 1400	Water	1000	1-3	3F	(1) 2 3 4 5 6 7 8	<2 >12
↓	1	↓	↓ ↓	↓	500	4	1F	(1) 2 3 4 5 6 7 8	<2 >12
↓	1	↓	↓ ↓	↓	1AG	5-6	1F	(1) 2 3 4 5 6 7 8	<2 >12
↓	1	↓	↓ ↓	↓	40	7-9	M	1 (2) 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12
								1 2 3 4 5 6 7 8	<2 >12

EC 4-16-11

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: DI 7: MeOH 8: Other

LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Soils) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

Rev 8/13/01 ewn

T73659: Chain of Custody

Page 3 of 3

Gulf Coast ACCUTEST LABORATORIES

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: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE318-MB	E0005895.D	1	04/20/11	JL	n/a	n/a	VE318

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

T73659-1

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	
100-41-4	Ethylbenzene	ND	2.0	0.55	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 [a]	2.1	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	101%	79-122%
17060-07-0	1,2-Dichloroethane-D4	96%	75-121%

Method Blank Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE318-MB	E0005895.D	1	04/20/11	JL	n/a	n/a	VE318

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

T73659-1

CAS No.	Surrogate Recoveries		Limits
2037-26-5	Toluene-D8	106%	87-119%
460-00-4	4-Bromofluorobenzene	103%	80-133%

(a) Suspected laboratory contaminant.

Method Blank Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE320-MB	E0005954.D	1	04/21/11	JL	n/a	n/a	VE320

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

T73659-1

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	
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	98%	79-122%
17060-07-0	1,2-Dichloroethane-D4	89%	75-121%
2037-26-5	Toluene-D8	104%	87-119%
460-00-4	4-Bromofluorobenzene	99%	80-133%

Blank Spike Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE318-BS	E0005893.D	1	04/20/11	JL	n/a	n/a	VE318

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

T73659-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
75-27-4	Bromodichloromethane	25	21.3	85	68-107
75-25-2	Bromoform	25	17.5	70	64-103
108-90-7	Chlorobenzene	25	23.0	92	74-111
75-00-3	Chloroethane	25	27.5	110	75-135
67-66-3	Chloroform	25	22.8	91	75-117
75-15-0	Carbon disulfide	25	23.6	94	57-126
56-23-5	Carbon tetrachloride	25	19.5	78	75-125
75-34-3	1,1-Dichloroethane	25	23.2	93	76-121
75-35-4	1,1-Dichloroethylene	25	24.5	98	71-128
107-06-2	1,2-Dichloroethane	25	21.1	84	70-111
78-87-5	1,2-Dichloropropane	25	23.1	92	71-113
124-48-1	Dibromochloromethane	25	20.7	83	69-104
156-59-2	cis-1,2-Dichloroethylene	25	24.9	100	68-113
10061-01-5	cis-1,3-Dichloropropene	25	21.2	85	71-111
156-60-5	trans-1,2-Dichloroethylene	25	22.5	90	70-125
10061-02-6	trans-1,3-Dichloropropene	25	21.5	86	75-111
100-41-4	Ethylbenzene	25	22.7	91	75-112
591-78-6	2-Hexanone	125	106	85	60-113
108-10-1	4-Methyl-2-pentanone	125	112	90	63-115
74-83-9	Methyl bromide	25	25.9	104	59-132
74-87-3	Methyl chloride	25	26.9	108	56-150
75-09-2	Methylene chloride	25	23.3	93	70-113
78-93-3	Methyl ethyl ketone	125	119	95	62-117
100-42-5	Styrene	25	23.2	93	66-100
71-55-6	1,1,1-Trichloroethane	25	21.0	84	76-125
79-34-5	1,1,2,2-Tetrachloroethane	25	22.8	91	67-110
79-00-5	1,1,2-Trichloroethane	25	23.1	92	69-107
127-18-4	Tetrachloroethylene	25	23.9	96	77-120
79-01-6	Trichloroethylene	25	24.0	96	74-117
75-01-4	Vinyl chloride	25	25.4	102	64-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	110%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%

Blank Spike Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE318-BS	E0005893.D	1	04/20/11	JL	n/a	n/a	VE318

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

T73659-1

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	113%	87-119%
460-00-4	4-Bromofluorobenzene	108%	80-133%

Blank Spike Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE320-BS	E0005953.D	1	04/21/11	JL	n/a	n/a	VE320

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

T73659-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	125	107	86	62-124
71-43-2	Benzene	25	24.1	96	76-118
108-88-3	Toluene	25	25.1	100	77-114
1330-20-7	Xylene (total)	75	71.7	96	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	79-122%
17060-07-0	1,2-Dichloroethane-D4	88%	75-121%
2037-26-5	Toluene-D8	104%	87-119%
460-00-4	4-Bromofluorobenzene	100%	80-133%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T73680-22MS	E0005898.D	5	04/20/11	JL	n/a	n/a	VE318
T73680-22MSD	E0005899.D	5	04/20/11	JL	n/a	n/a	VE318
T73680-22	E0005897.D	5	04/20/11	JL	n/a	n/a	VE318

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

T73659-1

CAS No.	Compound	T73680-22 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
75-27-4	Bromodichloromethane	ND		125	102	82	90.7	73	12	68-107/12
75-25-2	Bromoform	ND		125	78.1	62*	70.2	56*	11	64-103/14
108-90-7	Chlorobenzene	ND		125	116	93	113	90	3	74-111/11
75-00-3	Chloroethane	ND		125	118	94	110	88	7	75-135/15
67-66-3	Chloroform	ND		125	113	90	110	88	3	75-117/12
75-15-0	Carbon disulfide	ND		125	90.7	73	80.3	64	12	57-126/13
56-23-5	Carbon tetrachloride	ND		125	97.8	78	84.5	68*	15*	75-125/12
75-34-3	1,1-Dichloroethane	ND		125	117	94	113	90	3	76-121/13
75-35-4	1,1-Dichloroethylene	289		125	407	94	381	74	7	71-128/19
107-06-2	1,2-Dichloroethane	ND		125	107	86	104	83	3	70-111/14
78-87-5	1,2-Dichloropropane	ND		125	114	91	111	89	3	71-113/12
124-48-1	Dibromochloromethane	ND		125	97.0	78	86.2	69	12	69-104/12
156-59-2	cis-1,2-Dichloroethylene	ND		125	122	98	118	94	3	68-113/13
10061-01-5	cis-1,3-Dichloropropene	ND		125	99.7	80	92.1	74	8	71-111/12
156-60-5	trans-1,2-Dichloroethylene	ND		125	114	91	108	86	5	70-125/14
10061-02-6	trans-1,3-Dichloropropene	ND		125	103	82	94.3	75	9	75-111/12
100-41-4	Ethylbenzene	ND		125	114	91	111	89	3	75-112/12
591-78-6	2-Hexanone	ND		625	506	81	549	88	8	60-113/18
108-10-1	4-Methyl-2-pentanone	ND		625	537	86	574	92	7	63-115/21
74-83-9	Methyl bromide	ND		125	111	89	107	86	4	59-132/15
74-87-3	Methyl chloride	ND		125	116	93	109	87	6	56-150/17
75-09-2	Methylene chloride	ND		125	118	94	111	89	6	70-113/13
78-93-3	Methyl ethyl ketone	ND		625	562	90	598	96	6	62-117/21
100-42-5	Styrene	ND		125	117	94	111	89	5	66-100/11
71-55-6	1,1,1-Trichloroethane	ND		125	105	84	99.3	79	6	76-125/11
79-34-5	1,1,2,2-Tetrachloroethane	ND		125	111	89	114	91	3	67-110/20
79-00-5	1,1,2-Trichloroethane	ND		125	116	93	115	92	1	69-107/14
127-18-4	Tetrachloroethylene	ND		125	126	101	125	100	1	77-120/13
79-01-6	Trichloroethylene	ND		125	119	95	117	94	2	74-117/12
75-01-4	Vinyl chloride	ND		125	110	88	106	85	4	64-121/19

CAS No.	Surrogate Recoveries	MS	MSD	T73680-22	Limits
1868-53-7	Dibromofluoromethane	102%	101%	101%	79-122%
17060-07-0	1,2-Dichloroethane-D4	94%	94%	95%	75-121%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T73680-22MS	E0005898.D	5	04/20/11	JL	n/a	n/a	VE318
T73680-22MSD	E0005899.D	5	04/20/11	JL	n/a	n/a	VE318
T73680-22	E0005897.D	5	04/20/11	JL	n/a	n/a	VE318

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

T73659-1

CAS No.	Surrogate Recoveries	MS	MSD	T73680-22	Limits
2037-26-5	Toluene-D8	107%	107%	107%	87-119%
460-00-4	4-Bromofluorobenzene	99%	99%	101%	80-133%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T73659-1MS	E0005958.D	25	04/21/11	JL	n/a	n/a	VE320
T73659-1MSD	E0005959.D	25	04/21/11	JL	n/a	n/a	VE320
T73659-1	E0005957.D	25	04/21/11	JL	n/a	n/a	VE320

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

T73659-1

CAS No.	Compound	T73659-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	8600		3130	11400	90	11800	102	3	62-124/21
71-43-2	Benzene	2600		625	3380	125* [a]	3170	91	6	76-118/16
108-88-3	Toluene	4920		625	5820	144* [a]	5530	98	5	77-114/12
1330-20-7	Xylene (total)	2570		1880	4420	99	4220	88	5	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	T73659-1	Limits
1868-53-7	Dibromofluoromethane	101%	98%	98%	79-122%
17060-07-0	1,2-Dichloroethane-D4	89%	88%	88%	75-121%
2037-26-5	Toluene-D8	105%	103%	104%	87-119%
460-00-4	4-Bromofluorobenzene	100%	97%	99%	80-133%

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

Gulf Coast ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18198-MB	J158868.D	1	04/20/11	SC	04/20/11	OP18198	EJ1124

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

T73659-1

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	
62-53-3	Aniline	ND	5.0	4.6	ug/l	
120-12-7	Anthracene	ND	5.0	1.1	ug/l	
92-87-5	Benzidine	ND	25	6.0	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	

Method Blank Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18198-MB	J158868.D	1	04/20/11	SC	04/20/11	OP18198	EJ1124

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

T73659-1

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.3	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	1.4	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.3	ug/l	
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	
90-12-0	1-Methylnaphthalene	ND	5.0	1.1	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	
62-75-9	n-Nitrosodimethylamine	ND	5.0	0.97	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	
110-86-1	Pyridine	ND	5.0	0.99	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.3	ug/l	

Method Blank Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18198-MB	J158868.D	1	04/20/11	SC	04/20/11	OP18198	EJ1124

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

T73659-1

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	40%	10-66%
4165-62-2	Phenol-d5	27%	10-53%
118-79-6	2,4,6-Tribromophenol	72%	32-128%
4165-60-0	Nitrobenzene-d5	62%	29-115%
321-60-8	2-Fluorobiphenyl	73%	34-113%
1718-51-0	Terphenyl-d14	86%	12-145%

Blank Spike Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18198-BS	W4960.D	1	04/20/11	AM	04/20/11	OP18198	EW259

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

T73659-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	50	19.0	38	10-68
95-57-8	2-Chlorophenol	50	34.9	70	39-93
59-50-7	4-Chloro-3-methyl phenol	50	40.2	80	43-109
120-83-2	2,4-Dichlorophenol	50	39.8	80	42-106
105-67-9	2,4-Dimethylphenol	50	25.8	52	27-87
51-28-5	2,4-Dinitrophenol	50	37.8	76	43-107
534-52-1	4,6-Dinitro-o-cresol	50	40.9	82	47-112
95-48-7	2-Methylphenol	50	31.8	64	25-84
	3&4-Methylphenol	100	75.2	75	25-77
88-75-5	2-Nitrophenol	50	38.2	76	38-96
100-02-7	4-Nitrophenol	50	20.2	40	13-70
87-86-5	Pentachlorophenol	50	38.7	77	46-153
108-95-2	Phenol	50	22.6	45	10-53
95-95-4	2,4,5-Trichlorophenol	50	44.6	89	40-101
88-06-2	2,4,6-Trichlorophenol	50	43.4	87	41-102
83-32-9	Acenaphthene	50	38.0	76	41-110
208-96-8	Acenaphthylene	50	39.1	78	49-113
62-53-3	Aniline	50	19.7	39	24-132
120-12-7	Anthracene	50	41.0	82	59-105
56-55-3	Benzo(a)anthracene	50	42.4	85	64-112
50-32-8	Benzo(a)pyrene	50	42.4	85	62-116
205-99-2	Benzo(b)fluoranthene	50	40.5	81	62-114
191-24-2	Benzo(g,h,i)perylene	50	50.5	101	55-124
207-08-9	Benzo(k)fluoranthene	50	51.6	103	62-119
101-55-3	4-Bromophenyl phenyl ether	50	43.9	88	56-99
85-68-7	Butyl benzyl phthalate	50	48.4	97	52-125
100-51-6	Benzyl Alcohol	50	37.1	74	28-83
91-58-7	2-Chloronaphthalene	50	29.0	58	42-97
106-47-8	4-Chloroaniline	50	28.7	57	37-128
86-74-8	Carbazole	50	43.9	88	59-142
218-01-9	Chrysene	50	44.1	88	67-112
111-91-1	bis(2-Chloroethoxy)methane	50	45.1	90	38-96
111-44-4	bis(2-Chloroethyl)ether	50	41.0	82	37-91
108-60-1	bis(2-Chloroisopropyl)ether	50	43.1	86	36-102
7005-72-3	4-Chlorophenyl phenyl ether	50	42.1	84	48-101
95-50-1	1,2-Dichlorobenzene	50	31.1	62	33-86

Blank Spike Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18198-BS	W4960.D	1	04/20/11	AM	04/20/11	OP18198	EW259

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

T73659-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
122-66-7	1,2-Diphenylhydrazine	50	51.7	103	39-118
541-73-1	1,3-Dichlorobenzene	50	28.5	57	21-88
106-46-7	1,4-Dichlorobenzene	50	29.7	59	31-86
121-14-2	2,4-Dinitrotoluene	50	44.5	89	55-112
606-20-2	2,6-Dinitrotoluene	50	44.7	89	57-105
91-94-1	3,3'-Dichlorobenzidine	50	27.8	56	50-142
53-70-3	Dibenzo(a,h)anthracene	50	50.6	101	55-123
132-64-9	Dibenzofuran	50	38.8	78	45-99
84-74-2	Di-n-butyl phthalate	50	51.6	103	64-114
117-84-0	Di-n-octyl phthalate	50	44.7	89	55-118
84-66-2	Diethyl phthalate	50	44.4	89	52-113
131-11-3	Dimethyl phthalate	50	44.5	89	38-112
117-81-7	bis(2-Ethylhexyl)phthalate	50	61.0	122	56-131
206-44-0	Fluoranthene	50	42.5	85	62-116
86-73-7	Fluorene	50	41.1	82	47-99
118-74-1	Hexachlorobenzene	50	40.6	81	62-102
87-68-3	Hexachlorobutadiene	50	28.4	57	37-91
77-47-4	Hexachlorocyclopentadiene	50	11.4	23	23-102
67-72-1	Hexachloroethane	50	29.8	60	33-86
193-39-5	Indeno(1,2,3-cd)pyrene	50	50.6	101	52-126
78-59-1	Isophorone	50	43.1	86	42-105
90-12-0	1-Methylnaphthalene	50	31.3	63	35-89
91-57-6	2-Methylnaphthalene	50	30.0	60	36-91
88-74-4	2-Nitroaniline	50	43.9	88	49-109
99-09-2	3-Nitroaniline	50	34.4	69	46-139
100-01-6	4-Nitroaniline	50	38.0	76	73-174
91-20-3	Naphthalene	50	33.3	67	37-89
98-95-3	Nitrobenzene	50	45.2	90	42-97
62-75-9	n-Nitrosodimethylamine	50	32.3	65* [a]	16-63
621-64-7	N-Nitroso-di-n-propylamine	50	52.8	106* [a]	42-102
86-30-6	N-Nitrosodiphenylamine	50	43.2	86	64-119
85-01-8	Phenanthrene	50	47.5	95	59-103
129-00-0	Pyrene	50	43.7	87	58-110
110-86-1	Pyridine	50	19.8	40	10-63
120-82-1	1,2,4-Trichlorobenzene	50	27.5	55	37-88

Blank Spike Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18198-BS	W4960.D	1	04/20/11	AM	04/20/11	OP18198	EW259

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

T73659-1

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	53%	10-66%
4165-62-2	Phenol-d5	43%	10-53%
118-79-6	2,4,6-Tribromophenol	76%	32-128%
4165-60-0	Nitrobenzene-d5	87%	29-115%
321-60-8	2-Fluorobiphenyl	90%	34-113%
1718-51-0	Terphenyl-d14	81%	12-145%

(a) Not detected in associated samples.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18198-MS	J158902.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125
OP18198-MSD	J158903.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125
T73645-1	J158901.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125

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

T73659-1

CAS No.	Compound	T73645-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	ND		106	40.4	38	44.3	41	9	10-68/27
95-57-8	2-Chlorophenol	ND		106	59.2	56	66.8	61	12	39-93/28
59-50-7	4-Chloro-3-methyl phenol	ND		106	66.9	63	75.5	69	12	43-109/28
120-83-2	2,4-Dichlorophenol	ND		106	66.2	62	74.5	69	12	42-106/25
105-67-9	2,4-Dimethylphenol	ND		106	64.9	61	70.8	65	9	27-87/26
51-28-5	2,4-Dinitrophenol	ND		106	65.2	61	76.4	70	16	43-107/44
534-52-1	4,6-Dinitro-o-cresol	ND		106	72.4	68	81.4	75	12	47-112/24
95-48-7	2-Methylphenol	ND		106	57.4	54	64.3	59	11	25-84/31
	3&4-Methylphenol	ND		213	108	51	122	56	12	25-77/25
88-75-5	2-Nitrophenol	ND		106	64.7	61	72.2	66	11	38-96/26
100-02-7	4-Nitrophenol	ND		106	33.2	31	39.4	36	17	13-70/25
87-86-5	Pentachlorophenol	ND		106	64.8	61	72.7	67	11	46-153/18
108-95-2	Phenol	ND		106	38.7	36	43.5	40	12	10-53/35
95-95-4	2,4,5-Trichlorophenol	ND		106	68.8	65	78.1	72	13	40-101/22
88-06-2	2,4,6-Trichlorophenol	ND		106	69.3	65	77.2	71	11	41-102/22
83-32-9	Acenaphthene	ND		106	68.0	64	75.9	70	11	41-110/21
208-96-8	Acenaphthylene	ND		106	67.4	63	75.5	69	11	49-113/23
62-53-3	Aniline	ND		106	54.5	51	60.8	56	11	24-132/44
120-12-7	Anthracene	ND		106	75.9	71	86.5	80	13	59-105/18
56-55-3	Benzo(a)anthracene	ND		106	77.1	72	87.7	81	13	64-112/20
50-32-8	Benzo(a)pyrene	ND		106	72.9	69	82.9	76	13	62-116/23
205-99-2	Benzo(b)fluoranthene	ND		106	81.9	77	92.7	85	12	62-114/22
191-24-2	Benzo(g,h,i)perylene	ND		106	72.7	68	61.5	57	17	55-124/36
207-08-9	Benzo(k)fluoranthene	ND		106	77.3	73	96.9	89	23	62-119/30
101-55-3	4-Bromophenyl phenyl ether	ND		106	75.6	71	84.0	77	11	56-99/20
85-68-7	Butyl benzyl phthalate	ND		106	78.5	74	89.5	82	13	52-125/25
100-51-6	Benzyl Alcohol	ND		106	60.2	57	67.8	62	12	28-83/32
91-58-7	2-Chloronaphthalene	ND		106	58.9	55	66.3	61	12	42-97/27
106-47-8	4-Chloroaniline	ND		106	60.0	56	67.2	62	11	37-128/29
86-74-8	Carbazole	ND		106	67.9	64	79.4	73	16	59-142/19
218-01-9	Chrysene	ND		106	79.3	75	88.6	82	11	67-112/19
111-91-1	bis(2-Chloroethoxy)methane	ND		106	42.2	40	47.1	43	11	38-96/30
111-44-4	bis(2-Chloroethyl)ether	ND		106	53.9	51	60.3	55	11	37-91/33
108-60-1	bis(2-Chloroisopropyl)ether	ND		106	50.7	48	56.6	52	11	36-102/32
7005-72-3	4-Chlorophenyl phenyl ether	ND		106	70.2	66	79.5	73	12	48-101/21
95-50-1	1,2-Dichlorobenzene	ND		106	55.2	52	62.3	57	12	33-86/29

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18198-MS	J158902.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125
OP18198-MSD	J158903.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125
T73645-1	J158901.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125

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

T73659-1

CAS No.	Compound	T73645-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
122-66-7	1,2-Diphenylhydrazine	ND		106	69.8	66	75.9	70	8	30-122/34
541-73-1	1,3-Dichlorobenzene	ND		106	56.0	53	62.4	57	11	32-88/32
106-46-7	1,4-Dichlorobenzene	ND		106	52.2	49	57.9	53	10	31-86/36
121-14-2	2,4-Dinitrotoluene	ND		106	76.6	72	87.4	80	13	55-112/23
606-20-2	2,6-Dinitrotoluene	ND		106	75.8	71	84.7	78	11	57-105/23
91-94-1	3,3'-Dichlorobenzidine	ND		106	50.0	47*	58.8	54	16	50-142/21
53-70-3	Dibenzo(a,h)anthracene	ND		106	74.3	70	66.7	61	11	55-123/37
132-64-9	Dibenzofuran	ND		106	69.7	66	78.2	72	11	45-99/20
84-74-2	Di-n-butyl phthalate	ND		106	73.7	69	84.9	78	14	64-114/16
117-84-0	Di-n-octyl phthalate	ND		106	62.6	59	76.9	71	21	55-118/25
84-66-2	Diethyl phthalate	ND		106	78.3	74	88.3	81	12	52-113/20
131-11-3	Dimethyl phthalate	ND		106	74.2	70	83.1	76	11	38-112/19
117-81-7	bis(2-Ethylhexyl)phthalate	ND		106	80.7	76	91.6	84	13	56-131/19
206-44-0	Fluoranthene	ND		106	70.8	67	84.6	78	18	62-116/24
86-73-7	Fluorene	ND		106	70.4	66	79.0	73	12	47-99/22
118-74-1	Hexachlorobenzene	ND		106	76.7	72	85.0	78	10	62-102/21
87-68-3	Hexachlorobutadiene	ND		106	60.7	57	67.6	62	11	37-91/28
67-72-1	Hexachloroethane	ND		106	50.8	48	57.1	53	12	33-86/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		106	77.2	73	69.2	64	11	52-126/30
78-59-1	Isophorone	ND		106	58.9	55	66.0	61	11	42-105/28
90-12-0	1-Methylnaphthalene	ND		106	62.8	59	70.4	65	11	35-89/25
91-57-6	2-Methylnaphthalene	ND		106	60.8	57	67.7	62	11	36-91/29
88-74-4	2-Nitroaniline	ND		106	57.4	54	63.6	59	10	49-109/22
99-09-2	3-Nitroaniline	ND		106	65.9	62	74.5	69	12	46-139/23
100-01-6	4-Nitroaniline	ND		106	59.1	56*	71.6	66*	19	73-174/24
91-20-3	Naphthalene	ND		106	59.5	56	66.3	61	11	37-89/24
98-95-3	Nitrobenzene	ND		106	60.4	57	67.4	62	11	42-97/26
62-75-9	n-Nitrosodimethylamine	ND		106	42.1	40	48.6	45	14	16-63/28
621-64-7	N-Nitroso-di-n-propylamine	ND		106	61.5	58	69.0	63	11	42-102/27
86-30-6	N-Nitrosodiphenylamine	ND		106	64.6	61*	70.5	65	9	64-119/27
85-01-8	Phenanthrene	ND		106	76.7	72	84.7	78	10	59-103/19
129-00-0	Pyrene	ND		106	86.8	82	94.5	87	8	58-110/25
110-86-1	Pyridine	ND		106	31.5	30	33.2	31	5	10-63/48
120-82-1	1,2,4-Trichlorobenzene	ND		106	55.6	52	61.6	57	10	37-88/23

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T73659
Account: WPRMTCOP Williams Production RMT Company
Project: Cottonwood Gulch Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18198-MS	J158902.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125
OP18198-MSD	J158903.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125
T73645-1	J158901.D	1	04/21/11	SC	04/20/11	OP18198	EJ1125

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

T73659-1

CAS No.	Surrogate Recoveries	MS	MSD	T73645-1	Limits
367-12-4	2-Fluorophenol	46%	48%	48%	10-66%
4165-62-2	Phenol-d5	38%	40%	39%	10-53%
118-79-6	2,4,6-Tribromophenol	79%	82%	75%	32-128%
4165-60-0	Nitrobenzene-d5	60%	64%	62%	29-115%
321-60-8	2-Fluorobiphenyl	68%	72%	72%	34-113%
1718-51-0	Terphenyl-d14	84%	88%	89%	12-145%

Gulf Coast ACCUTEST LABORATORIES

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: T73659
Account: WPRMTCOP - Williams Production RMT Company
Project: Cottonwood Gulch Pit

QC Batch ID: MP14495
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 04/19/11

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	20.5	<5000
Chromium	10	.23	.27		
Cobalt	50	.15	.22		
Copper	25	1.1	5.9		
Iron	100	1.1	23	3.5	<100
Lead	3.0	1	1.8		
Lithium	300	2	2		
Magnesium	5000	7.7	7.9	2.2	<5000
Manganese	15	.054	1.9	1.3	<15
Molybdenum	10	.39	.2		
Nickel	40	.69	1.4		
Potassium	5000	39	45	8.2	<5000
Selenium	5.0	1.5	.98		
Silver	10	1.2	.24		
Sodium	5000	9.2	100	75.4	<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 MP14495: T73659-1F

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: T73659
Account: WPRMTCOP - Williams Production RMT Company
Project: Cottonwood Gulch Pit

QC Batch ID: MP14495
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 04/19/11 04/19/11

Metal	T73659-1F Original	DUP	RPD	QC Limits	T73659-1F Original	MS	Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Boron									
Cadmium									
Calcium	225000	233000	3.5	0-20	225000	274000	50000	98.0	80-120
Chromium									
Cobalt									
Copper									
Iron	219	220	0.5	0-20	219	47700	50000	95.0	80-120
Lead									
Lithium									
Magnesium	26300	26500	0.8	0-20	26300	69800	50000	87.0	80-120
Manganese	803	826	2.8	0-20	803	1160	400	89.3	80-120
Molybdenum									
Nickel									
Potassium	101000	105000	3.9	0-20	101000	158000	50000	114.0	80-120
Selenium									
Silver									
Sodium	2220000	7030000	1.1	0-20	2220000	7000000	50000	100.0	80-120
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP14495: T73659-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T73659
Account: WPRMTCOP - Williams Production RMT Company
Project: Cottonwood Gulch Pit

QC Batch ID: MP14495 Methods: SW846 6010B
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 04/19/11

Metal	T73659-1F Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	225000	281000	50000	112.0	2.5	20
Chromium						
Cobalt						
Copper						
Iron	219	47800	50000	95.2	0.2	20
Lead						
Lithium						
Magnesium	26300	71100	50000	89.6	1.8	20
Manganese	803	1190	400	96.8	2.6	20
Molybdenum						
Nickel						
Potassium	101000	162000	50000	122.0N(a	2.5	20
Selenium						
Silver						
Sodium	2220000	7070000	50000	240.0(b)	1.0	20
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP14495: T73659-1F

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 recovery indicates possible matrix interference.
(b) 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: T73659
Account: WPRMTCOP - Williams Production RMT Company
Project: Cottonwood Gulch Pit

QC Batch ID: MP14495
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 04/19/11

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	53600	50000	107.2	80-120
Chromium				
Cobalt				
Copper				
Iron	50600	50000	101.2	80-120
Lead				
Lithium				
Magnesium	49100	50000	98.2	80-120
Manganese	419	400	104.8	80-120
Molybdenum				
Nickel				
Potassium	50200	50000	100.4	80-120
Selenium				
Silver				
Sodium	51600	50000	103.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP14495: T73659-1F

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: T73659
Account: WPRMTCOP - Williams Production RMT Company
Project: Cottonwood Gulch Pit

QC Batch ID: MP14495
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 04/19/11

Metal	T73659-1F Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	225000	246000	9.1	0-10
Chromium				
Cobalt				
Copper				
Iron	219	232	6.0	0-10
Lead				
Lithium				
Magnesium	26300	29000	10.4*(a)	0-10
Manganese	803	861	7.1	0-10
Molybdenum				
Nickel				
Potassium	101000	95800	5.5	0-10
Selenium				
Silver				
Sodium	2220000	6780000	2.4	0-10
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP14495: T73659-1F

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

Gulf Coast ACCUTEST LABORATORIES

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: T73659
Account: WPRMTCOP - Williams Production RMT Company
Project: Cottonwood Gulch Pit

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate	GN30607	5.0	2.0	mg/l				
Alkalinity, Carbonate	GN30606	5.0	0.0	mg/l				
Alkalinity, Total as CaCO3	GN30605	5.0	2.0	mg/l	2500	2340	94.0	80-120%
Bromide	GP12691/GN30602	0.50	0.0	mg/l	10	9.09	90.9	90-110%
Chloride	GP12702/GN30641	0.50	0.0	mg/l	10	9.52	95.2	90-110%
Hydroxide Alkalinity	GN30668	5.0	0.0	mg/l				
Nitrogen, Nitrate	GP12568/GN30383	0.50	0.0	mg/l	10	9.40	94.0	90-110%
Nitrogen, Nitrite	GP12568/GN30383	0.50	0.0	mg/l	10	9.54	95.4	90-110%
Phosphate, Ortho	GP12650/GN30515	0.020	<0.020	mg/l	0.2	0.20	99.0	80-120%
Solids, Total Dissolved	GN30430	10	0.0	mg/l	500	492	98.4	80-120%
Specific Conductivity	GN30555	1.0	<1.0	umhos/cm				
Sulfate	GP12708/GN30664	0.50	0.0	mg/l	10	9.87	98.7	90-110%

Associated Samples:
Batch GN30430: T73659-1
Batch GN30555: T73659-1
Batch GN30605: T73659-1
Batch GN30606: T73659-1
Batch GN30607: T73659-1
Batch GN30668: T73659-1
Batch GP12568: T73659-1
Batch GP12650: T73659-1
Batch GP12691: T73659-1
Batch GP12702: T73659-1
Batch GP12708: T73659-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T73659
Account: WPRMTCOP - Williams Production RMT Company
Project: Cottonwood Gulch Pit

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN30605	T73332-4	mg/l	131	130	0.8	0-10%
Bromide	GP12691/GN30602	T73331-6	mg/l	0.10 U	0.0	0.0	0-20%
Chloride	GP12702/GN30641	T73660-1	mg/l	6160	6250	1.5	0-20%
Nitrogen, Nitrate	GP12568/GN30383	T73659-1	mg/l	0.13	0.12	8.0	0-20%
Nitrogen, Nitrite	GP12568/GN30383	T73659-1	mg/l	0.12 U	0.0	0.0	0-20%
Phosphate, Ortho	GP12650/GN30515	T73659-1	mg/l	0.010	<0.020	0.0	0-20%
Solids, Total Dissolved	GN30430	T73363-2	mg/l	669	658	1.7	0-5%
Specific Conductivity	GN30555	T73230-2	umhos/cm	1020	1020	0.0	0-20%
Sulfate	GP12708/GN30664	T73659-1	mg/l	38.1	38.0	0.3	0-20%
pH	GN30454	T73339-1	su	8.09	8.08	0.1	0-6.8%

Associated Samples:
Batch GN30430: T73659-1
Batch GN30454: T73659-1
Batch GN30555: T73659-1
Batch GN30605: T73659-1
Batch GP12568: T73659-1
Batch GP12650: T73659-1
Batch GP12691: T73659-1
Batch GP12702: T73659-1
Batch GP12708: T73659-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T73659
Account: WPRMTCOP - Williams Production RMT Company
Project: Cottonwood Gulch Pit

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN30605	T73332-4	mg/l	131	25	155	96.0	79-122%
Bromide	GP12691/GN30602	T73331-6	mg/l	0.10 U	10	9.0	90.0	80-120%
Chloride	GP12702/GN30641	T73660-1	mg/l	6160	10000	15400	92.4	80-120%
Nitrogen, Nitrate	GP12568/GN30383	T73659-1	mg/l	0.13	10	9.3	91.7	80-120%
Nitrogen, Nitrite	GP12568/GN30383	T73659-1	mg/l	0.12 U	10	3.3	33.0N	80-120%
Phosphate, Ortho	GP12650/GN30515	T73659-1	mg/l	0.010	0.2	0.20	96.5	75-125%
Sulfate	GP12708/GN30664	T73659-1	mg/l	38.1	50	81.4	86.6	80-120%

Associated Samples:
Batch GN30605: T73659-1
Batch GP12568: T73659-1
Batch GP12650: T73659-1
Batch GP12691: T73659-1
Batch GP12702: T73659-1
Batch GP12708: T73659-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits