

Rio Blanco Monitoring Results

Federal RG 13–1–398

Well: Gas production well, Federal RG 13–1–398, API # 05–103–10605.

Operator: Williams Production RMT, Incorporated

Sampler: U.S. Department of Energy, Office of Legacy Management, Grand Junction, CO.

Date of Sampling Event: 7 January 2009

Samples of natural gas and produced water were collected from production well Federal RG 13–1–398.

Location data for the surface collection point and the sample location are given in Table 1. A description of each sample collected is listed in Table 2.

Table 1. Well Federal RG 13–1–398, API # 05–103–10605

Sample Point Location	Location	Sample Location						
		Sea Level elevation (feet)	Distance (feet) from		Surface		Distance from GZ (miles)	Heading from GZ (deg)
			N-S Section line	E-W Section line	Latitude (NAD 27)	Longitude (NAD 27)		
Surface	NWSW S1 T3S R98W	6,430.8	2218' FSL	1313' FWL	39.817009	-108.347293	1.93	N33.9°E
Subsurface	NWSW S1 T3S R98W	-2,735.7	2218' FSL	1313' FWL	39.817009	-108.347293	1.93	N33.9°E

Location data updated 12 February 2009.

NA: not available

The subsurface elevation is at the bottom of the well.

Link to Colorado Oil and Gas Conservation Commission information about well RG 13–1–398:

<http://oil-gas.state.co.us/cogis/FacilityDetail.asp?facid=10310605&type=WELL>

Table 2. Sample Description

Sample Ticket No.	Location			Field Sample Matrix	Analytes	Samp Vol. (L)	Comments
	Name	Type	Sub-type				
HCV 697	RG 13-1-398	WL	NGAS	Dewatered gas	3H, 14C	17.8	Sample collected between the separator tank and the accumulator tank. Wellhead pressure is 450 psi; sample pressure is about 30 psi.
HCV 693	RG 13-1-398	TS	TINT	Water	Gamma Spec	2	Collected using a temporary valve installed at the output of the separator.
HCV 693	RG 13-1-398	TS	TINT	Water	36Cl, 3H, Cl ⁻	1	Collected using a temporary valve installed at the output of the separator.
HCV 693	RG 13-1-398	TS	TINT	Water	Gross α/β	0.5	Collected using a temporary valve installed at the output of the separator.

WL: well NGAS: natural gas TINT: treatment system internal location psi: pounds per square inch
 3H: tritium 14C: carbon 14 36Cl: chlorine 36 Cl⁻: chloride
 Gross α/β : gross alpha and gross beta analyses Gamma Spec: high-resolution gamma spectroscopy

The water sample was submitted to GEL Laboratories, Charleston, South Carolina, for the analysis by gross alpha, gross beta, high resolution gamma spectroscopy, and analyses of chloride, chlorine 36, and tritium. The results are listed in Table 3.

The natural gas sample was submitted to Isotech Laboratories in Champaign, Illinois, for natural gas analysis and the determination of tritium and carbon-14. The gas analysis results are listed in Table 4.

Table 3. Water Sample HCV 693 Results, Gel Laboratory

RESULTS REPORT

RIN: 09012046

Site: Rio Blanco Site

Location: Federal RG 13-1-398

Ticket Number: HCV 693

Report Date: 3/3/2009

Parameter	Units	Sample		Result	Qualifiers			Standard ¹
		Date	ID		Lab	Data	QA	
H-3	pCi/L	01/07/2009	N001	90.4	U			20,000
Actinium-228	pCi/L	01/07/2009	N001	0.00	UI			
Americium-241	pCi/L	01/07/2009	N001	-2.09	U			
Antimony-125	pCi/L	01/07/2009	N001	-0.193	U			
Cerium-144	pCi/L	01/07/2009	N001	0.234	U			
Cesium-134	pCi/L	01/07/2009	N001	0.706	U			
Cesium-137	pCi/L	01/07/2009	N001	-1.74	U			
Cobalt-60	pCi/L	01/07/2009	N001	0.479	U			
Europium-152	pCi/L	01/07/2009	N001	1.01	U			
Europium-154	pCi/L	01/07/2009	N001	2.02	U			
Europium-155	pCi/L	01/07/2009	N001	0.835	U			
Lead-212	pCi/L	01/07/2009	N001	2.99	U			
Potassium-40	pCi/L	01/07/2009	N001	199				
Promethium-144	pCi/L	01/07/2009	N001	-0.228	U			
Promethium-146	pCi/L	01/07/2009	N001	0.0141	U			
Ruthenium-106	pCi/L	01/07/2009	N001	6.23	U			
Thorium-234	pCi/L	01/07/2009	N001	41.5	U			
Uranium-235	pCi/L	01/07/2009	N001	5.80	U			
Yttrium-88	pCi/L	01/07/2009	N001	41.5	U			
GROSS ALPHA	pCi/L	01/07/2009	N001	41.6		J		
GROSS BETA	pCi/L	01/07/2009	N001	81.0		J		
Chloride-36	pCi/L	01/07/2009	N001	154	U	J		
CHLORIDE	mg/L	01/07/2009	N001	7810				

Table 4. Natural Gas Sample HCV 697 Results, Isotech Laboratories

RESULTS REPORT

RIN: 09012048

Site: Rio Blanco Site

Location: Federal RG 13-1-398

Ticket Number: HCV 697

Report Date: 3/3/2009

Parameter	Units	Sample		Result	Qualifiers			Standard ²
		Date	ID		Lab	Data	QA	
Helium	percent	01/07/2009	N001	0.0027				
Hydrogen	percent	01/07/2009	N001	0.0036				
Argon	percent	01/07/2009	N001	nd ¹				
Oxygen	percent	01/07/2009	N001	nd ¹				
Nitrogen	percent	01/07/2009	N001	0.036				
Carbon Dioxide	percent	01/07/2009	N001	4.67				
Methane	percent	01/07/2009	N001	84.98				
Ethane	percent	01/07/2009	N001	6.97				
Propane	percent	01/07/2009	N001	1.97				
Isobutane	percent	01/07/2009	N001	0.464				
Butane	percent	01/07/2009	N001	0.403				
Isopentane	percent	01/07/2009	N001	0.184				
Pentane	percent	01/07/2009	N001	0.116				
Hexanes	percent	01/07/2009	N001	0.199				
Carbon-14	Percent modern carbon	01/07/2009	N001	0.5		U		
Tritium	pCi/L methane	01/07/2009	N001	0.0601		U		

¹ Not detected.

² There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

U Analytical result below detection limit.

DATA QUALIFIERS:

F Low flow sampling method used.

G Possible grout contamination, pH > 9.

J Estimated value.

L Less than 3 bore volumes purged prior to sampling.

Q Qualitative result due to sampling technique.

R Unusable result.

U Parameter analyzed for but was not detected.

X Location is undefined.

QA QUALIFIER:

Validated at Level 1 according to quality assurance guidelines.