

Data Validation Package

June 2013
Natural Gas and Produced Water
Sampling at the Gasbuggy,
New Mexico, Site

December 2013

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Attachment 1—Data Presentation

Produced Water Data

Natural Gas Data

Attachment 2—Sampling and Analysis Work Order

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Sampling Event Summary

Site: Gasbuggy Site, Rio Arriba County, New Mexico

Sampling Period: June 18–20, 2013

Annual natural gas and produced water monitoring was conducted for gas wells adjacent to Section 36, where the Gasbuggy test was conducted. Sampling and analyses were conducted as specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. (LMS/PRO/S04351, continually updated). Natural gas samples were collected for tritium and carbon-14 analyses. Produced water samples were collected and analyzed for tritium, gamma-emitting radionuclides (by high-resolution gamma spectrometry), gross alpha, and gross beta. A duplicate produced water sample was collected from well 30-039-21743. Produced water samples were not collected at locations 30-039-21744, 30-039-29988, and 30-039-30161 because of insufficient water.

Refer to Table 1 for produced water sample analytical results. Low levels of gamma-emitting nuclides, gross alpha, and/or gross beta activity were detected in two of the samples of produced water from the natural gas production wells. The low levels detected are representative of natural background radioactivity and do not indicate the presence of detonation-related radionuclides.

Table 1. Gasbuggy Natural Gas Production Well – Produced Water Sample Analysis Results

Sample Location (API #)	Collection Date	Tritium (pCi/L)	Gamma Spectrometry, Total (pCi/L)	Gross Alpha (pCi/L)	Gross Beta (pCi/L)
Indian A No. 002 (30-039-07525)	06/07/2011	ND	ND	ND	20.1 ^a
Schalk 29-4 No. 007 (30-039-21620)	06/08/2011	ND	530	23.2 ^a	664
Schalk 29-4 No. 017 (30-039-21743)	06/08/2011	ND	ND	ND	ND
Valencia Canyon Unit No. 037 (30-039-21647)	06/08/2011	ND	ND	ND	23.9 ^a

^a Estimated value.

pCi/L = picocuries per liter.

ND = Not detected, below the decision level concentration.

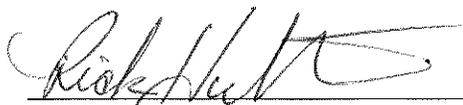
Refer to Table 2 for natural gas sample analytical results. Carbon-14 and tritium were not detected in any of the natural gas samples collected.

Table 2. Gasbuggy Natural Gas Production Well – Gas Sample Analysis Results

Sample Location (API #)	Collection Date	Tritium (pCi/L)	Carbon-14 (pCi/L)
Indian A No. 002 (30-039-07525)	06/07/2011	ND	ND
Many Canyons 29-04-25 No. 123 (30-039-30161)	06/08/2011	ND	ND
Schalk 29-4 No. 007 (30-039-21620)	06/08/2011	ND	ND
Schalk 29-4 No. 014 (30-039-21744)	06/08/2011	ND	ND
Schalk 29-4 No. 017 (30-039-21743)	06/08/2011	ND	ND
Valencia Canyon Unit No. 037 (30-039-21647)	06/08/2011	ND	ND

pCi/L = picocuries per liter of methane.

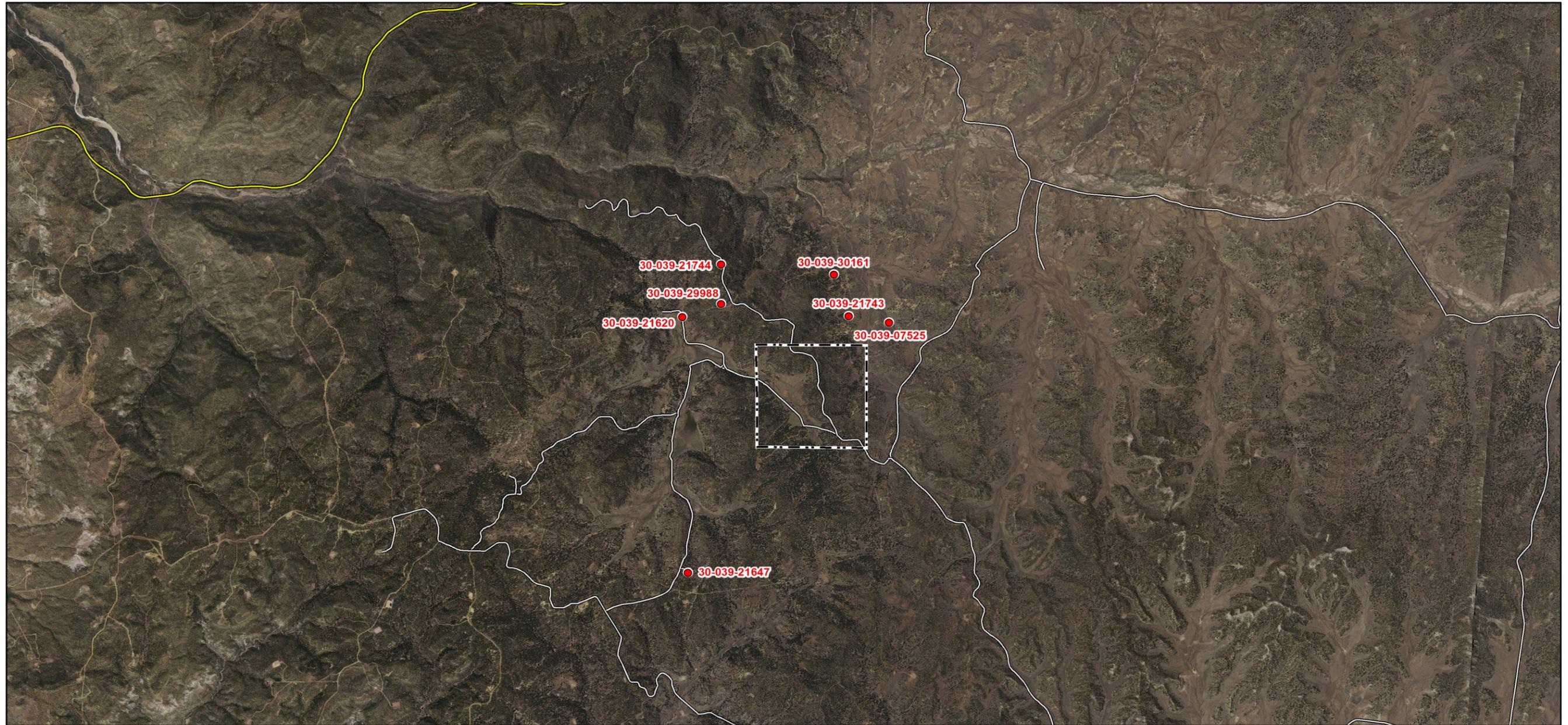
ND = Not detected, below the decision level concentration.



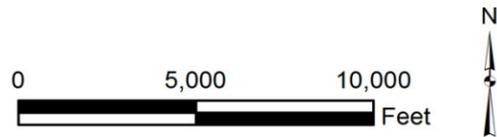
Mark Plessinger
Site Lead, S.M. Stoller Corporation

12-2-13

Date



- LEGEND**
- WELL TO BE SAMPLED
 - SITE BOUNDARY
 - DIRT
 - PAVED



U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AM01-07LM00080
Planned Sampling Map Gasbuggy, NM, Site June 2013	
DATE PREPARED: May 17, 2013	FILENAME: S1024100

M:\LTS\11110001\16\000\S10241\S1024100-11x17.mxd smithw 05/17/2013 10:13:16 AM

Gas Sampling Locations at the Gasbuggy, New Mexico, Site

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Gasbuggy, New Mexico, Site	Date(s) of Water Sampling	June 18–20, 2013
Date(s) of Verification	October 16, 2013	Name of Verifier	Stephen Donovan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List any Program Directives or other documents, SOPs, instructions.	Yes	Work Order letter dated May 20, 2013.
2. Were the sampling locations specified in the planning documents sampled?	No	Produced water samples were not collected at locations 30-039-21744, 30-039-29988, and 30-039-30161 because of insufficient water.
3. Were calibrations conducted as specified in the above-named documents?	NA	No field measurements were required.
4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria?	NA NA	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	NA	
6. Were wells categorized correctly?	Yes	All wells were Category V.
7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling?	NA	
Did the water level stabilize prior to sampling?	NA	
Did pH, specific conductance, and turbidity measurements meet criteria prior to sampling?	NA	
Was the flow rate less than 500 mL/min?	NA	

Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well: Was the flow rate less than 500 mL/min?	NA	
Was one pump/tubing volume removed prior to sampling?	NA	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	A duplicate produced-water sample was collected from well 30-039-21743.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	NA	
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were the true identities of the QC samples documented?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Was all pertinent information documented on the field data sheets?	Yes	
18. Was the presence or absence of ice in the cooler documented at every sample location?	NA	Sample chilling was not required.
19. Were water levels measured at the locations specified in the planning documents?	NA	

Laboratory Performance Assessment

General Information

Requisition (RIN): 13065400
Sample Event: June 19, 2013
Site(s): Gasbuggy, New Mexico
Laboratory: Isotech Laboratories
Work Order No.: 22109
Analysis: Radiochemistry
Validator: Stephen Donovan
Review Date: October 16, 2013

This validation was performed according to the *Environmental Procedures Catalog*, (LMS/POL/S04325, continually updated) “Standard Practice for Validation of Environmental Data.” The procedure was applied at Level 1, Data Deliverables Examination. The data were examined to assess the completeness of the deliverables, identify any reporting errors, and assess the usability of the data based on the results of the field duplicate and the laboratory’s evaluation of their data, as described in the narrative provided. The data are acceptable as received. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 3.

Table 3. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Natural Gas Analysis	LMG-01	NA	Gas Chromatography
Carbon-14 and Tritium	LMG-03	Combustion	Liquid Scintillation Counting

Data Qualifier Summary

None of the analytical results required qualification.

Sample Shipping/Receiving

Isotech Laboratories received seven natural gas samples on June 28, 2013, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The COC form was complete with no errors or omissions.

Summary

Six natural gas samples were received at Isotech Laboratories and analyzed by gas chromatography to determine the natural gas composition. The samples were then combusted with the resulting water collected for analysis. Carbon-14 and tritium were measured in the water collected by liquid scintillation counting. There were no analytical difficulties noted by the laboratory.

Completeness

The results of the gas chromatography analysis were reported in volume percent showing the average sample composition of 87 percent methane.

The carbon-14 results were reported in percent modern carbon. The tritium results were reported in tritium units. Carbon-14 and tritium were not detected in any of the samples.

General Information

Requisition No. (RIN): 13065401
Sample Event: June 18–19, 2013
Site(s): Gasbuggy, New Mexico
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 1306385
Analysis: Radiochemistry
Validator: Stephen Donivan
Review Date: September 25, 2013

This validation was performed according to the *Environmental Procedures Catalog* (LMS/POL/S04325), “Standard Practice for Validation of Environmental Data.” The procedure was applied at Level 2, Data Deliverables Verification. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 4.

Table 4. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Gross Alpha/Beta	GPC-A-001	PA SOP702R19	PA SOP724R10
Gamma Spectrometry	GAM-A-001	PA SOP739R9	PA SOP713R10
Tritium	LCS-A-001	PA SOP700R10	PA SOP704R9

Data Qualifier Summary

Analytical results were qualified as listed in Table 5. Refer to the sections below for an explanation of the data qualifiers applied.

Table 5. Data Qualifier Summary

Sample Number	Location	Analyte	Flag	Reason
1306385-3	30-039-21620	Gross Alpha	J	Less than 3 times the MDC
1306385-4	30-039-21647	Actinium-228	U	Nuclide identification criteria not met
1306385-4	30-039-21647	Gross Alpha	J	Less than 3 times the MDC
1306385-4	30-039-21647	Gross Beta	J	Matrix spike result

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received five water samples on June 26, 2013, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The COC form was complete with no errors or omissions. Copies of the air waybills were included with the receiving documentation.

Preservation and Holding Times

The sample shipment was received intact at ambient temperature which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses with the following exception. Several of the samples had pH values greater than two when received. The samples were acidified to a pH less than two and allowed to equilibrate prior to proceeding with analysis. Sample analysis was completed within the applicable holding times.

Detection and Quantitation Limits

Radiochemical analytes (those measured by radiometric counting) are evaluated using the minimum detectable concentration (MDC), Decision Level Concentration (DLC), and Determination Limit (DL). The MDC is a measure of radiochemical method performance and was calculated and reported as specified in *Quality Systems for Analytical Services*. The DLC is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, and is estimated as 3 times the one-sigma total propagated uncertainty. Results that are greater than the MDC, but less than the DLC are qualified with a “U” flag (not detected). The DL for radiochemical results is the lowest concentration that can be reliably measured, and is defined as 3 times the MDC. Results not previously “U” qualified that are less than the DL are qualified with a “J” flag as estimated values.

The reported MDCs for radiochemical analytes demonstrate compliance with contractual requirements with the following exceptions. The required MDCs were not met for gross alpha and gross beta because of the elevated levels of dissolved solids in the samples.

Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear curve. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument calibrations were performed correctly in accordance with the cited methods.

Gamma Spectrometry

Activity concentrations above the MDC were reported in some instances where minimum nuclide identification criteria were not met. Such tentative identifications result when the software attempts to calculate net activity concentrations for analytes where either one or both of the following criteria are not satisfied: the ‘diagnostic’ peak for a nuclide must be identified above the critical level, or the minimum library peak abundance must be attained. Sample results for gamma-emitting radionuclides that do not meet the identification criteria are qualified with a “U” flag as not detected.

Method Blank

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. All method blank results were below the applicable DLC.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. All control sample results were acceptable.

Laboratory Replicate Analysis

Laboratory replicate sample results demonstrate acceptable laboratory precision. The relative percent difference value for the chloride matrix spike replicate was not provided and could not be calculated from raw data. The radiochemical relative error ratio (calculated using the one-sigma total propagated uncertainty) for the sample replicates was less than three for all duplicates.

Matrix Spike Analysis

Matrix spike samples are used to measure method performance in the sample matrix. The spike data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spike recoveries met the recovery and precision criteria for all analytes evaluated with the following exception. The gross alpha result for the matrix spike prepared from sample 30-039-21647 did not meet the acceptance criteria. The associated sample gross alpha result is qualified with a “J” flag as an estimated value.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers.

Electronic Data Deliverable (EDD) File

The EDD file arrived on July 10, 2013. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD was manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 13065401 Lab Code: PAR Validator: Stephen Donovan Validation Date: 10/16/2013
Project: Gasbuggy Site Analysis Type: Metals General Chem Rad Organics
of Samples: 5 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

Holding Times

All analyses were completed within the applicable holding times.

Detection Limits

There are 11 detection limit failures.

Field/Trip Blanks

Field Duplicates

There was 1 duplicate evaluated.

SAMPLE MANAGEMENT SYSTEM
Radiochemistry Data Validation Worksheet

RIN: 13065401 **Lab Code:** PAR **Date Due:** 07/24/2013
Matrix: Water **Site Code:** GSB01 **Date Completed:** 07/12/2013

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
30-039-21620	Actinium-228	07/08/2013						0.29
30-039-21620	Americium-241	07/08/2013						1.21
Blank_Spike	Americium-241	07/08/2013				97.10		
30-039-21620	Antimony-125	07/08/2013						0.24
30-039-21620	Cerium-144	07/08/2013						1.14
30-039-21620	Cesium-134	07/08/2013						0.45
30-039-21620	Cesium-137	07/08/2013						0.67
Blank_Spike	Cesium-137	07/08/2013				102.00		
30-039-21620	Cobalt-60	07/08/2013						1.10
Blank_Spike	Cobalt-60	07/08/2013				98.20		
30-039-21620	Europium-152	07/08/2013						1.01
30-039-21620	Europium-154	07/08/2013						0.67
30-039-21620	Europium-155	07/08/2013						1.13
30-039-21743	GROSS ALPHA	07/05/2013						0.39
Blank_Spike	GROSS ALPHA	07/05/2013				112.00		
30-039-21647	GROSS ALPHA	07/05/2013					158.0	
Blank	GROSS ALPHA	07/05/2013	0.0620	U				
30-039-21743	GROSS BETA	07/05/2013						0.40
Blank	GROSS BETA	07/05/2013	-0.0500	U				
30-039-21647	GROSS BETA	07/05/2013					108.0	
Blank_Spike	GROSS BETA	07/05/2013				104.00		
30-039-21743	H-3	07/09/2013						0.29
30-039-21647	H-3	07/09/2013					96.1	
Blank_Spike	H-3	07/10/2013				97.80		
Blank	H-3	07/10/2013	19.0000	U				
30-039-21620	Lead-212	07/08/2013						0.17
30-039-21620	Potassium-40	07/08/2013						0.13
30-039-21620	Promethium-144	07/08/2013						1.43
30-039-21620	Promethium-146	07/08/2013						0.04
30-039-21620	Ruthenium-106	07/08/2013						1.08
30-039-21620	Thorium-234	07/08/2013						0.32
30-039-21620	Uranium-235	07/08/2013						1.17

SAMPLE MANAGEMENT SYSTEM
Radiochemistry Data Validation Worksheet

RIN: 13065401 **Lab Code:** PAR **Date Due:** 07/24/2013
Matrix: Water **Site Code:** GSB01 **Date Completed:** 07/12/2013

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
30-039-21620	Yttrium-88	07/08/2013						0.39

Sampling Quality Control Assessment

The following information summarizes and assesses quality control for this sampling event.

Equipment Blank Assessment

An equipment blank was not required.

Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates which measure only laboratory performance. A duplicate sample was collected from location 30-039-21743. The radiochemical duplicate results had relative error ratios less than three demonstrating acceptable precision.

SAMPLE MANAGEMENT SYSTEM
Validation Report: Field Duplicates

RIN: 13065401 Lab Code: PAR Project: Gasbuggy Site Validation Date: 10/16/2013

Duplicate: 2790

Sample: 30-039-21743

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
Actinium-228	14.6	U	14.5	1	12.3	U	10.5	1		0.3	pCi/L
Americium-241	-1.19	U	13.9	1	-5.66	U	22.8	1		0.3	pCi/L
Antimony-125	5	U	5.1	1	9.58	U	5.82	1		1.2	pCi/L
Cerium-144	7.77	U	10.5	1	3.38	U	12.7	1		0.5	pCi/L
Cesium-134	-1.38	U	2.57	1	-3.69	U	2.67	1		1.2	pCi/L
Cesium-137	0.607	U	2.38	1	-3.04	U	2.7	1		2.0	pCi/L
Cobalt-60	-2.67	U	2.84	1	-0.435	U	2.9	1		1.1	pCi/L
Europium-152	-11.8	U	13.9	1	6.9	U	14.8	1		1.8	pCi/L
Europium-154	-3.52	U	13.7	1	-4.04	U	14.5	1		0.1	pCi/L
Europium-155	4.59	U	6.05	1	2.2	U	7.35	1		0.5	pCi/L
GROSS ALPHA	7.38	U	12.1	1	2.75	U	11.3	1		0.5	pCi/L
GROSS BETA	15.4	U	13.8	1	14.7	U	13.3	1		0.1	pCi/L
H-3	-63	U	200	1	36.5	U	201	1		0.7	pCi/L
Lead-212	0.823	U	6.73	1	1.96	U	7.05	1		0.2	pCi/L
Potassium-40	26.8	U	68.8	1	24.9	U	74.4	1		0	pCi/L
Promethium-144	3.07	U	2.66	1	0.553	U	2.88	1		1.3	pCi/L
Promethium-146	-0.114	U	2.41	1	-1.09	U	2.84	1		0.5	pCi/L
Ruthenium-106	-4.25	U	22.8	1	26.3	U	24.1	1		1.8	pCi/L
Thorium-234	-42.8	U	75.8	1	-0.932	U	85.5	1		0.7	pCi/L
Uranium-235	1.36	U	20.7	1	2.63	U	12.1	1		0.1	pCi/L
Yttrium-88	0.654	U	2.74	1	2.91	U	3.16	1		1.1	pCi/L

Certification

All laboratory analytical quality control criteria were met except as qualified in this report. The data qualifiers listed on the database reports are defined on the last page of each report. All data in this package are considered validated and available for use.

Laboratory Coordinator: Stephen Donovan 12-2-2013
Stephen Donovan Date

Data Validation Lead: Stephen Donovan 12-2-2013
Stephen Donovan Date

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Attachment 1

Data Presentation

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Produced Water Data

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General Water Quality Data by Location (USEE105) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-07525 WELL Indian A No. 002; N-30-29N-3W; Producing Well

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Actinium-228	pCi/L	06/19/2013	N001	11.2	U		#	17	10.7
Americium-241	pCi/L	06/19/2013	N001	15.4	U		#	26	16.3
Antimony-125	pCi/L	06/19/2013	N001	3.61	U		#	13	7.3
Cerium-144	pCi/L	06/19/2013	N001	2.8	U		#	21	12.8
Cesium-134	pCi/L	06/19/2013	N001	-3.94	U		#	6	3.46
Cesium-137	pCi/L	06/19/2013	N001	-.619	U		#	5.6	3.24
Cobalt-60	pCi/L	06/19/2013	N001	-.554	U		#	6.3	3.62
Europium-152	pCi/L	06/19/2013	N001	-19.5	U		#	34	19.1
Europium-154	pCi/L	06/19/2013	N001	5.13	U		#	31	18.2
Europium-155	pCi/L	06/19/2013	N001	1.55	U		#	12	7.13
Gross Alpha	pCi/L	06/19/2013	N001	13.6	U		#	16	10.6
Gross Beta	pCi/L	06/19/2013	N001	10.7	U		#	21	12.6
Lead-212	pCi/L	06/19/2013	N001	0.818	U		#	13	7.76
Potassium-40	pCi/L	06/19/2013	N001	-20.4	U		#	160	93.3
Promethium-144	pCi/L	06/19/2013	N001	-.127	U		#	6.1	3.62
Promethium-146	pCi/L	06/19/2013	N001	-.197	U		#	6.3	3.71
Ruthenium-106	pCi/L	06/19/2013	N001	-18.7	U		#	51	29.5
Thorium-234	pCi/L	06/19/2013	N001	31.3	U		#	130	81.2

General Water Quality Data by Location (USEE105) FOR SITE GSB01, Gasbuggy Site
REPORT DATE: 11/18/2013
Location: 30-039-07525 WELL Indian A No. 002; N-30-29N-3W; Producing Well

Parameter	Units	Sample		Result	Qualifiers		Detection Limit	Uncertainty
		Date	ID		Lab	Data QA		
Tritium	pCi/L	06/19/2013	N001	-109	U	#	340	199
Uranium-235	pCi/L	06/19/2013	N001	11.5	U	#	21	12.7
Yttrium-88	pCi/L	06/19/2013	N001	0.815	U	#	6.8	3.99

General Water Quality Data by Location (USEE105) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-21620 WELL SCHALK 29-4 No. 007; K-26-29N-4W; Producing Well

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Actinium-228	pCi/L	06/19/2013	N001	7.67	U		#	21	10
Americium-241	pCi/L	06/19/2013	N001	48.4	U		#	130	80.3
Antimony-125	pCi/L	06/19/2013	N001	5.46	U		#	5.6	3.41
Cerium-144	pCi/L	06/19/2013	N001	4.66	U		#	24	14.4
Cesium-134	pCi/L	06/19/2013	N001	-435	U		#	3.7	2.19
Cesium-137	pCi/L	06/19/2013	N001	0.0924	U		#	4	2.35
Cobalt-60	pCi/L	06/19/2013	N001	1.13	U		#	4.1	2.46
Europium-152	pCi/L	06/19/2013	N001	1.91	U		#	19	11.1
Europium-154	pCi/L	06/19/2013	N001	-1.25	U		#	20	11.7
Europium-155	pCi/L	06/19/2013	N001	8.98	U		#	16	9.87
Gross Alpha	pCi/L	06/19/2013	N001	23.2		J	#	21	14
Gross Beta	pCi/L	06/19/2013	N001	664			#	22	108
Lead-212	pCi/L	06/19/2013	N001	0.854	U		#	13	7.72
Potassium-40	pCi/L	06/19/2013	N001	530			#	120	102
Promethium-144	pCi/L	06/19/2013	N001	1.8	U		#	4	1.94
Promethium-146	pCi/L	06/19/2013	N001	0.735	U		#	4.6	2.77
Ruthenium-106	pCi/L	06/19/2013	N001	7.49	U		#	36	21.3
Thorium-234	pCi/L	06/19/2013	N001	1.27	U		#	240	148

General Water Quality Data by Location (USEE105) FOR SITE GSB01, Gasbuggy Site
REPORT DATE: 11/18/2013
Location: 30-039-21620 WELL SCHALK 29-4 No. 007; K-26-29N-4W; Producing Well

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Tritium	pCi/L	06/19/2013	N001	58.9	U		#	340	205
Uranium-235	pCi/L	06/19/2013	N001	-8.36	U		#	22	13.2
Yttrium-88	pCi/L	06/19/2013	N001	0.549	U		#	9.8	5.87

General Water Quality Data by Location (USEE105) FOR SITE GSB01, Gasbuggy Site
REPORT DATE: 11/18/2013
Location: 30-039-21647 WELL VALENCIA CANYON UNIT No. 037; M-14-28N-4W; Producing Well

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Actinium-228	pCi/L	06/18/2013	N001	17.2	TI	U	#	16	9.27
Americium-241	pCi/L	06/18/2013	N001	8.26	U		#	25	15.1
Antimony-125	pCi/L	06/18/2013	N001	1.87	U		#	11	6.11
Cerium-144	pCi/L	06/18/2013	N001	-4.4	U		#	21	12.7
Cesium-134	pCi/L	06/18/2013	N001	-0.16	U		#	4.5	2.68
Cesium-137	pCi/L	06/18/2013	N001	-0.93	U		#	4.4	2.58
Cobalt-60	pCi/L	06/18/2013	N001	1.36	U		#	4.4	2.64
Europium-152	pCi/L	06/18/2013	N001	4.2	U		#	26	15.1
Europium-154	pCi/L	06/18/2013	N001	-12	U		#	34	19.6
Europium-155	pCi/L	06/18/2013	N001	-1.16	U		#	11	6.3
Gross Alpha	pCi/L	06/18/2013	N001	14.1	U	J	#	16	10.5
Gross Beta	pCi/L	06/18/2013	N001	23.9		J	#	21	13.7
Lead-212	pCi/L	06/18/2013	N001	1.2	U		#	12	7.08
Potassium-40	pCi/L	06/18/2013	N001	23.4	U		#	120	72.9
Promethium-144	pCi/L	06/18/2013	N001	2.68	U		#	4.4	2.72
Promethium-146	pCi/L	06/18/2013	N001	-2.3	U		#	5	2.88
Ruthenium-106	pCi/L	06/18/2013	N001	-13.3	U		#	40	23.5
Thorium-234	pCi/L	06/18/2013	N001	-64.9	U		#	150	91.3

General Water Quality Data by Location (USEE105) FOR SITE GSB01, Gasbuggy Site
REPORT DATE: 11/18/2013
Location: 30-039-21647 WELL VALENCIA CANYON UNIT No. 037; M-14-28N-4W; Producing Well

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Tritium	pCi/L	06/18/2013	N001	-56.1	U		#	340	199
Uranium-235	pCi/L	06/18/2013	N001	-1.35	U		#	46	27.5
Yttrium-88	pCi/L	06/18/2013	N001	2.13	U		#	12	7.39

General Water Quality Data by Location (USEE105) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-21743 WELL SCHALK 29-4 No. 017; I-25-29N-4W; Producing Well

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Actinium-228	pCi/L	06/19/2013	N001	14.6	U		#	33	14.5
Actinium-228	pCi/L	06/19/2013	N002	12.3	U		#	17	10.5
Americium-241	pCi/L	06/19/2013	N001	-1.19	U		#	24	13.9
Americium-241	pCi/L	06/19/2013	N002	-5.66	U		#	38	22.8
Antimony-125	pCi/L	06/19/2013	N001	5	U		#	8.7	5.1
Antimony-125	pCi/L	06/19/2013	N002	9.58	U		#	10	5.82
Cerium-144	pCi/L	06/19/2013	N001	7.77	U		#	17	10.5
Cerium-144	pCi/L	06/19/2013	N002	3.38	U		#	21	12.7
Cesium-134	pCi/L	06/19/2013	N001	-1.38	U		#	4.4	2.57
Cesium-134	pCi/L	06/19/2013	N002	-3.69	U		#	4.7	2.67
Cesium-137	pCi/L	06/19/2013	N001	0.607	U		#	4	2.38
Cesium-137	pCi/L	06/19/2013	N002	-3.04	U		#	4.8	2.7
Cobalt-60	pCi/L	06/19/2013	N001	-2.67	U		#	5.1	2.84
Cobalt-60	pCi/L	06/19/2013	N002	-.435	U		#	5	2.9
Europium-152	pCi/L	06/19/2013	N001	-11.8	U		#	25	13.9
Europium-152	pCi/L	06/19/2013	N002	6.9	U		#	25	14.8
Europium-154	pCi/L	06/19/2013	N001	-3.52	U		#	24	13.7
Europium-154	pCi/L	06/19/2013	N002	-4.04	U		#	25	14.5

General Water Quality Data by Location (USEE105) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-21743 WELL SCHALK 29-4 No. 017; I-25-29N-4W; Producing Well

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Europium-155	pCi/L	06/19/2013	N001	4.59	U		#	9.9	6.05
Europium-155	pCi/L	06/19/2013	N002	2.2	U		#	12	7.35
Gross Alpha	pCi/L	06/19/2013	N001	7.38	U		#	20	12.1
Gross Alpha	pCi/L	06/19/2013	N002	2.75	U		#	19	11.3
Gross Beta	pCi/L	06/19/2013	N001	15.4	U		#	22	13.8
Gross Beta	pCi/L	06/19/2013	N002	14.7	U		#	21	13.3
Lead-212	pCi/L	06/19/2013	N001	0.823	U		#	11	6.73
Lead-212	pCi/L	06/19/2013	N002	1.96	U		#	12	7.05
Potassium-40	pCi/L	06/19/2013	N001	26.8	U		#	110	68.8
Potassium-40	pCi/L	06/19/2013	N002	24.9	U		#	120	74.4
Promethium-144	pCi/L	06/19/2013	N001	3.07	U		#	4.3	2.66
Promethium-144	pCi/L	06/19/2013	N002	0.553	U		#	4.8	2.88
Promethium-146	pCi/L	06/19/2013	N001	-.114	U		#	4.1	2.41
Promethium-146	pCi/L	06/19/2013	N002	-1.09	U		#	4.9	2.84
Ruthenium-106	pCi/L	06/19/2013	N001	-4.25	U		#	39	22.8
Ruthenium-106	pCi/L	06/19/2013	N002	26.3	U		#	39	24.1
Thorium-234	pCi/L	06/19/2013	N001	-42.8	U		#	130	75.8
Thorium-234	pCi/L	06/19/2013	N002	-.932	U		#	140	85.5

General Water Quality Data by Location (USEE105) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-21743 WELL SCHALK 29-4 No. 017; I-25-29N-4W; Producing Well

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Tritium	pCi/L	06/19/2013	N001	-63	U		#	340	200
Tritium	pCi/L	06/19/2013	N002	36.5	U		#	340	201
Uranium-235	pCi/L	06/19/2013	N001	1.36	U		#	34	20.7
Uranium-235	pCi/L	06/19/2013	N002	2.63	U		#	20	12.1
Yttrium-88	pCi/L	06/19/2013	N001	0.654	U		#	4.6	2.74
Yttrium-88	pCi/L	06/19/2013	N002	2.91	U		#	5.1	3.16

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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Natural Gas Data

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Gas Matrix Chemistry Data by Location (USEE510) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-07525 WELL, Natural Gas Well - Vertical, Indian A No. 002; N-30-29N-3W; Producing Well

Parameter	Units	Sample Date	Sample ID	Ticket Number	Matrix Subtype	Result	Qualifiers Lab	Qualifiers Data	QA	Detection Limit
Carbon-14	pMC	06/19/2013	0001	LHW 703	NATURAL GAS - DRY	0.2	U		#	0.2
Tritium	pCi/L	06/19/2013	0001	LHW 703	NATURAL GAS - DRY	0.514	U		#	0.514

Gas Matrix Chemistry Data by Location (USEE510) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-21620 WELL, Natural Gas Well - Vertical, SCHALK 29-4 No. 007; K-26-29N-4W; Producing Well

Parameter	Units	Sample Date	Sample ID	Ticket Number	Matrix Subtype	Result	Lab	Qualifiers Data	QA	Detection Limit
Carbon-14	pMC	06/19/2013	0001	LHW 705	NATURAL GAS - DRY	0.2	U		#	0.2
Tritium	pCi/L	06/19/2013	0001	LHW 705	NATURAL GAS - DRY	0.514	U		#	0.514

Gas Matrix Chemistry Data by Location (USEE510) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-21647 WELL, Natural Gas Well - Vertical, VALENCIA CANYON UNIT No. 037; M-14-28N-4W; Producing Well

Parameter	Units	Sample Date	Sample ID	Ticket Number	Matrix Subtype	Result	Qualifiers Lab	Qualifiers Data	QA	Detection Limit
Carbon-14	pMC	06/18/2013	0001	LHW 706	NATURAL GAS - DRY	0.2	U		#	0.2
Tritium	pCi/L	06/18/2013	0001	LHW 706	NATURAL GAS - DRY	0.514	U		#	0.514

Gas Matrix Chemistry Data by Location (USEE510) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-21743 WELL, Natural Gas Well - Vertical, SCHALK 29-4 No. 017; I-25-29N-4W; Producing Well

Parameter	Units	Sample Date	Sample ID	Ticket Number	Matrix Subtype	Result	Lab	Qualifiers Data	QA	Detection Limit
Carbon-14	pMC	06/19/2013	0001	LHW 708	NATURAL GAS - DRY	0.2	U		#	0.2
Tritium	pCi/L	06/19/2013	0001	LHW 708	NATURAL GAS - DRY	0.514	U		#	0.514

Gas Matrix Chemistry Data by Location (USEE510) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-21744 WELL, Natural Gas Well - Vertical, SCHALK 29-4 No. 014; B-26-29N-4W; Producing Well

Parameter	Units	Sample Date	Sample ID	Ticket Number	Matrix Subtype	Result	Lab	Qualifiers Data	QA	Detection Limit
Carbon-14	pMC	06/19/2013	0001	LHW 704	NATURAL GAS - DRY	0.2	U		#	0.2
Tritium	pCi/L	06/19/2013	0001	LHW 704	NATURAL GAS - DRY	0.514	U		#	0.514

Gas Matrix Chemistry Data by Location (USEE510) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-29988 WELL, Natural Gas Well - Angle, MANY CANYONS 29 04 26 No. 133; J-26-29N-4W; Producing Well, New Well 9/07

Parameter	Units	Sample Date	Sample ID	Ticket Number	Matrix Subtype	Result	Qualifiers		Detection Limit
							Lab	Data QA	
Carbon-14	pMC	06/19/2013	0001	LHW 709	NATURAL GAS - DRY	0.2	U	#	0.2
Tritium	pCi/L	06/19/2013	0001	LHW 709	NATURAL GAS - DRY	0.514	U	#	0.514

Gas Matrix Chemistry Data by Location (USEE510) FOR SITE GSB01, Gasbuggy Site

REPORT DATE: 11/18/2013

Location: 30-039-30161 WELL, Natural Gas Well - Angle, MANY CANYONS 29 4 25 No. 123; G-25-29N-4W; Producing Well, New Well 06/07

Parameter	Units	Sample Date	Sample ID	Ticket Number	Matrix Subtype	Result	Qualifiers		Detection Limit
							Lab	Data QA	
Carbon-14	pMC	06/19/2013	0001	LHW 707	NATURAL GAS - DRY	0.2	U	#	0.2
Tritium	pCi/L	06/19/2013	0001	LHW 707	NATURAL GAS - DRY	0.514	U	#	0.514

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

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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Attachment 2
Sampling and Analysis Work Order

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established 1959

Task Order LM00-502
Control Number 13-0585

May 20, 2013

U.S. Department of Energy
Office of Legacy Management
ATTN: Jalena Dayvault
Site Manager
2597 Legacy Way
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)
Task Order LM00-502 – Other Defense Activities – Other Sites
June 2013 Environmental Sampling at Gasbuggy, New Mexico

REFERENCE: Task Order LM00-502-07-616, Gasbuggy, New Mexico

Dear Ms. Dayvault:

The purpose of this letter is to inform you of the upcoming sampling event at Gasbuggy, New Mexico. Enclosed are the map and tables specifying sample locations and analytes for routine monitoring at the Gasbuggy site. Natural gas and produced water will be collected from gas wells at this site as part of the environmental sampling currently scheduled to begin the week of June 17, 2013.

The following list shows the locations scheduled to be sampled during this event.

30-039-07525	30-039-21620	30-039-21647	30-039-21743
30-039-21744	30-039-29988	30-039-30161	

All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Access arrangements with the cognizant Federal agencies, the Jicarilla Apache Tribe, and the affected natural gas producers are being coordinated and will be complete by the beginning of fieldwork.

Please contact me at (970) 248-6378 if you have any questions or concerns.

Sincerely,

Mark Plessinger
Site Lead

Jalena Dayvault
Control Number 13-0585
Page 2

MP/lcg/dc
Enclosures (3)

cc: (electronic)
Karl Stoeckle, DOE
Chris Pennal, DOE
Steve Donovan, Stoller
EDD Delivery
Bev Gallagher, Stoller
Lauren Goodknight, Stoller
Rick Hutton, Stoller
Mark Plessinger, Stoller
rc-grand.junction
File: GSB 410.02(A)

Attachment 3

Trip Report

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Memorandum

DATE: July 23, 2013
TO: Mark Plessinger
FROM: Dan Sellers
SUBJECT: Trip Report

Site: Gasbuggy, New Mexico, Site

Dates of Sampling Event: June 18 – 20, 2013

Team Members: Dan Sellers and David Atkinson

Number of Locations Sampled: Natural gas samples were collected at 7 natural gas wells. Produced water samples were collected from 4 natural gas wells, and 1 duplicate water sample was collected.

Locations Not Sampled/Reason: Produced water samples were not collected from the following locations because no water was available to sample: 30-039-21744, 30-039-29988, and 30-039-30161

Location Specific Information: None.

Quality Control Sample Cross Reference: The following are the false identifications assigned to the quality control samples for produced water.

False ID	True ID	Ticket Number	Sample Type	Associated Matrix
2790	30-039-21743	LHW 713	Duplicate	Produced Water

Report Identification Number (RIN) Assigned: Natural gas samples were assigned to RIN 13065400. Produced water samples were assigned to RIN 13065401. Field data sheets can be found at <\\CROW\RAApps\GJO\SMS\13065401> in the Field Data folder.

Sample Shipment: Produced water samples were shipped from Grand Junction to ALS Laboratory Group in Fort Collins, CO, on June 25, 2013. Natural Gas samples were shipped from Grand Junction to Isotech Laboratories, Inc. in Champaign Illinois on June 25, 2013, according to DOT regulations by certified shipper, Steve Donivan.

Water Level Measurements: N/A

Field Variance: None.

Equipment: Natural gas samples were collected according to the procedures and safety requirements outlined in the document “High Pressure Natural Gas Sampling Using a Propane Tank” as referenced in Gasbuggy Site Program Directive GSB-2013-01. Field measurements were not recorded for produced water samples because no parameter stabilization is required prior to sample collection. All equipment functioned properly.

Trip Summary

The 2013 Gasbuggy sampling event was conducted June 18 and 19, 2013. Dan Sellers, David Atkinson, and Mark Plessinger with the LMS contractor staff participated in the sampling event.

On Tuesday, June 18, the sampling team traveled from Grand Junction to the Gasbuggy Site (ground zero parking area). Brant Hottell, the representative from Conoco Phillips and Mark Plessinger accompanied the sample team to sample gas well 30–039–21647 located on the Carson National Forest.

On Wednesday, June 19, Matt Basye, Production Supervisor and a member of his staff from WPX Energy, Bryce Hammond from the Jicarilla tribe, and Mark Plessinger met the sampling team at the junction of J10 and Highway 64. The sampling team was accompanied by the above individuals and traveled to well 30-039-07525. Upon completing this sample collection, the sampling team continued to the Gasbuggy Site to meet appropriate individuals from the various well operator companies.

The team next met the Black Hills Gas Resources representative, Drew Glinn, at the Gasbuggy parking lot. At this time the team was joined by representatives of the BLM and US Forest Service (USFS), who accompanied the sampling team to the remaining gas well sampling locations for the day.

After completing sampling of the two Black Hills wells the team met Steve Atencio, the John E. Schalk representative, and proceeded to acquire the samples from the three Schalk wells.

The following personnel from the USFS and the BLM were present:

J.J. Miller, USFS, Jicarilla Ranger District, Carson National Forest

Michael Davis, USFS Energy Pilot Liason for the BLM

Tamara Faust, BLM, Farmington Field Office

Maxum Tambiekou, BLM Petroleum Engineer, Farmington Field Office

Bill Diers, BLM Petroleum Engineer, Farmington Field Office

Tamara Faust was there to gather information and photographs for a BLM internal newsletter story about the Gasbuggy site.

The following table is a list of natural gas wells sampled and the location from where the valve was opened to extract the gas from each well head (i.e. well head tubing, well head separator, or well meter).

Gas Well ID (API #)	Valve Location	Alternate Gas Well ID	Gas Well Operator
30-039-21744	Well head separator	B-26-29N-4W Schalk 29-4 No. 014	John E. Schalk
30-039-21620	Well head separator	K-26-29N-4W Schalk 29-4 No. 007	John E. Schalk
30-039-21743	Well head separator	I-25-29N-4W Schalk 29-4 No. 17	John E. Schalk
30-039-30161	Well meter	G-25-29N-4W Many Canyons 29 4 25 No. 123	Black Hills Gas Resources, Inc.
30-039-29988	Well meter	Many Canyons 29-04-26 No. 133	Black Hills Gas Resources, Inc.
30-039-07525	Well head separator	N-30-29N-3W Indian A No. 002	WPX Energy
30-039-21647	Well head tubing	M-14-28N-4W Valencia Canyon Unit No. 037	ConocoPhillips

The following table is a list of natural gas wells where produced water was sampled and the location from where the valve was opened to extract the water (i.e. well holding tank or well head separator).

Gas Well ID (API #)	Valve Location	Alternate Gas Well ID	Gas Well Operator
30-039-21620	Well holding tank	K-26-29N-4W Schalk 29-4 No. 007	John E. Schalk
30-039-21743	Well holding tank	I-25-29N-4W Schalk 29-4 No. 17	John E. Schalk
30-039-07525	Well head separator	N-30-29N-3W Indian A No. 002	WPX Energy
30-039-21647	Well holding tank	M-14-28N-4W Valencia Canyon Unit No. 037	ConocoPhillips

All gas samples will be analyzed for tritium and carbon-14. All produced water samples will be analyzed for tritium, gross alpha, gross beta, and gamma emitters by high resolution gamma spectrometry.

Stakeholder/Regulatory: Nothing to note.

Institutional Controls:

Fences, Gates, and Locks: All gates were in good condition.

Signs: N/A

Trespassing/Site Disturbances: None observed.

Site Issues: None

Disposal Cell/Drainage Structure Integrity: N/A

Vegetation/Noxious Weed Concerns: None observed.

Maintenance Requirements: None.

Safety Issues: None.

Access Issues: None

Corrective Action Required/Taken: N/A

A 5-year deficiency-based inspection of all real property assets in compliance with DOE Order 430.1B was conducted concurrently with the annual sampling trip. No maintenance or deferred maintenance needs of real property assets were identified.

Site Marker – DOE owns a permanent site marker on the property. It consists of a concrete monument embedded with a brass plaque. No maintenance or deferred maintenance needs were identified for this real property asset.

(DLS/lcg)

cc: (electronic)
Jalena Dayvault, DOE
Steve Donivan, Stoller
Dennis Dupont, Stoller
Mark Plessinger, Stoller
EDD Delivery