



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1220744  
OIL & GAS CONSERVATION DIVISION

Form ACO-1  
August 2013

Form must be Typed  
Form must be Signed  
All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

- New Well       Re-Entry       Workover
- Oil       WSW       SWD       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic       Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- Deepening       Re-perf.       Conv. to ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27       NAD83       WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

*(Data must be collected from the Reserve Pit)*

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite: \_\_\_\_\_

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1220744

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Electric Log Run	<input type="checkbox"/> Yes <input type="checkbox"/> No			
List All E. Logs Run:				

CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate				
<input type="checkbox"/> Protect Casing				
<input type="checkbox"/> Plug Back TD				
<input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:      Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR. \_\_\_\_\_ Producing Method:  
 Flowing    Pumping    Gas Lift    Other *(Explain)* \_\_\_\_\_

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	SandRidge Exploration and Production LLC
Well Name	Barbara 3404 1-4H
Doc ID	1220744

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
5	4848-4850	Kiel Slickwater Frac - See Report	4848-8732
5	4948-4950		
5	5048-5050		
5	8398-8400		
5	8472-8474		
5	8550-8550		
5	8606-8608		
5	8672-8674		
5	8051-8053		
5	8112-8114		
5	8223-8225		
5	8290-8292		
5	8338-8340		
5	7727-7729		
5	7826-7828		
5	7906-7908		
5	7970-7972		
5	7398-7400		
5	7398-7400		
5	7448-7450		
5	7538-7540		
5	7633-7635		
5	7071-7073		

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Operator	SandRidge Exploration and Production LLC
Well Name	Barbara 3404 1-4H
Doc ID	1220744

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
5	7143-7145		
5	7218-7222		
5	7288-7290		
5	6338-6340		
5	6453-6455		
5	6558-6560		
5	6583-6585		
5	6653-6655		
5	6713-6715		
5	6773-6775		
5	6866-6868		
5	6946-6948		
5	6992-6994		
5	5993-5995		
5	6073-6075		
5	6178-6180		
5	6258-6260		
5	5708-5710		
5	5773-5775		
5	5833-5835		
5	5886-5888		
5	5423-5425		
5	5491-5493		
5	5548-5550		

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Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
5	5626-5628		





# Archer

## Survey Report

<b>Company:</b>	Sandridge Energy, INC.(mid-con.)	<b>Local Co-ordinate Reference:</b>	Well Barbara 3404 1-4H/Job # 04780-431-22/HWD 8
<b>Project:</b>	Sumner County (KS27S)	<b>TVD Reference:</b>	WELL @ 1235.0usft (Original Well Elev)
<b>Site:</b>	Sec 04-T34S-R04W	<b>MD Reference:</b>	WELL @ 1235.0usft (Original Well Elev)
<b>Well:</b>	Barbara 3404 1-4H/Job # 04780-431-22/HWD 8	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	Sumner County (KS27S)		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Kansas South 1502		

<b>Site</b>	Sec 04-T34S-R04W				
<b>Site Position:</b>		<b>Northing:</b>	162,651.00 usft	<b>Latitude:</b>	37° 6' 39.753 N
<b>From:</b>	Map	<b>Easting:</b>	2,214,373.00 usft	<b>Longitude:</b>	97° 45' 53.613 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.45 °

<b>Well</b>	Barbara 3404 1-4H/Job # 04780-431-22/HWD 8					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	163,005.00 usft	<b>Latitude:</b>	37° 6' 43.132 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,215,915.00 usft	<b>Longitude:</b>	97° 45' 34.544 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	1,217.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2014/04/24	4.18	65.20	51,666

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	347.32	

<b>Survey Program</b>	Date 2014/05/27				
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
529.0	8,732.0	Archer MWD Survey (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
529.0	0.50	100.50	529.0	-0.4	2.3	-0.9	0.09	0.09	0.00	
<b>First Archer MWD Survey</b>										
619.0	0.20	36.50	619.0	-0.4	2.7	-1.0	0.50	-0.33	-71.11	
708.0	0.10	40.40	708.0	-0.2	2.9	-0.8	0.11	-0.11	4.38	
843.0	0.30	123.80	843.0	-0.3	3.3	-1.0	0.23	0.15	61.78	
977.0	0.20	46.90	977.0	-0.3	3.7	-1.1	0.24	-0.07	-57.39	
1,107.0	0.20	234.00	1,107.0	-0.3	3.7	-1.1	0.31	0.00	-133.00	
1,242.0	0.30	122.60	1,242.0	-0.6	3.8	-1.5	0.31	0.07	-82.52	
1,375.0	0.30	56.50	1,375.0	-0.6	4.4	-1.6	0.25	0.00	-49.70	



# Archer

## Survey Report

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<b>Project:</b>	Sumner County (KS27S)	<b>TVD Reference:</b>	WELL @ 1235.0usft (Original Well Elev)
<b>Site:</b>	Sec 04-T34S-R04W	<b>MD Reference:</b>	WELL @ 1235.0usft (Original Well Elev)
<b>Well:</b>	Barbara 3404 1-4H/Job # 04780-431-22/HWD 8	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,420.0	0.40	268.30	1,420.0	-0.6	4.3	-1.5	1.50	0.22	-329.33
1,465.0	1.90	238.80	1,465.0	-1.0	3.5	-1.7	3.48	3.33	-65.56
1,510.0	4.00	259.20	1,509.9	-1.6	1.4	-1.9	5.15	4.67	45.33
1,543.0	4.40	263.00	1,542.8	-2.0	-1.0	-1.7	1.48	1.21	11.52
1,574.0	4.90	263.30	1,573.7	-2.3	-3.5	-1.5	1.61	1.61	0.97
1,604.0	4.90	258.90	1,603.6	-2.7	-6.0	-1.3	1.25	0.00	-14.67
1,635.0	4.70	266.60	1,634.5	-3.0	-8.6	-1.1	2.17	-0.65	24.84
1,665.0	5.70	264.10	1,664.4	-3.3	-11.3	-0.7	3.42	3.33	-8.33
1,697.0	6.50	264.40	1,696.2	-3.6	-14.7	-0.3	2.50	2.50	0.94
1,728.0	7.20	263.80	1,727.0	-4.0	-18.4	0.2	2.27	2.26	-1.94
1,759.0	8.10	261.90	1,757.7	-4.5	-22.5	0.5	3.02	2.90	-6.13
1,790.0	8.80	260.50	1,788.4	-5.2	-27.0	0.9	2.35	2.26	-4.52
1,821.0	9.00	260.30	1,819.0	-6.0	-31.7	1.1	0.65	0.65	-0.65
1,851.0	8.90	261.00	1,848.6	-6.8	-36.3	1.4	0.49	-0.33	2.33
1,882.0	8.80	258.80	1,879.3	-7.6	-41.0	1.6	1.14	-0.32	-7.10
1,914.0	8.80	251.90	1,910.9	-8.8	-45.7	1.4	3.30	0.00	-21.56
1,945.0	8.70	248.40	1,941.5	-10.4	-50.2	0.8	1.75	-0.32	-11.29
1,975.0	8.40	248.00	1,971.2	-12.1	-54.3	0.1	1.02	-1.00	-1.33
2,006.0	7.90	244.70	2,001.9	-13.8	-58.3	-0.7	2.21	-1.61	-10.65
2,037.0	7.70	244.50	2,032.6	-15.6	-62.1	-1.6	0.65	-0.65	-0.65
2,068.0	7.50	243.90	2,063.3	-17.4	-65.8	-2.6	0.69	-0.65	-1.94
2,099.0	8.00	248.60	2,094.0	-19.1	-69.7	-3.3	2.60	1.61	15.16
2,130.0	8.70	248.20	2,124.7	-20.8	-73.8	-4.0	2.27	2.26	-1.29
2,162.0	9.40	251.00	2,156.3	-22.5	-78.6	-4.7	2.58	2.19	8.75
2,192.0	10.20	251.30	2,185.9	-24.2	-83.4	-5.3	2.67	2.67	1.00
2,222.0	11.20	248.60	2,215.3	-26.1	-88.6	-6.0	3.73	3.33	-9.00
2,252.0	12.30	250.20	2,244.7	-28.2	-94.3	-6.8	3.82	3.67	5.33
2,282.0	13.00	251.00	2,274.0	-30.4	-100.5	-7.6	2.41	2.33	2.67
2,314.0	13.30	251.90	2,305.2	-32.7	-107.4	-8.3	1.14	0.94	2.81
2,345.0	13.60	253.30	2,335.3	-34.9	-114.3	-8.9	1.43	0.97	4.52
2,375.0	13.10	256.80	2,364.5	-36.7	-121.0	-9.2	3.17	-1.67	11.67
2,406.0	13.60	260.40	2,394.7	-38.1	-128.0	-9.0	3.13	1.61	11.61
2,437.0	14.80	261.10	2,424.7	-39.3	-135.5	-8.6	3.91	3.87	2.26
2,468.0	15.70	262.10	2,454.6	-40.5	-143.6	-8.0	3.02	2.90	3.23
2,499.0	16.60	263.50	2,484.4	-41.6	-152.1	-7.1	3.16	2.90	4.52
2,546.0	17.30	262.70	2,529.3	-43.2	-165.7	-5.8	1.57	1.49	-1.70
2,588.0	18.50	263.10	2,569.3	-44.8	-178.6	-4.5	2.87	2.86	0.95
2,633.0	19.50	263.80	2,611.9	-46.5	-193.1	-2.9	2.28	2.22	1.56
2,676.0	20.60	263.50	2,652.3	-48.1	-207.8	-1.3	2.57	2.56	-0.70
2,721.0	21.00	257.70	2,694.3	-50.7	-223.5	-0.4	4.66	0.89	-12.89
2,765.0	21.30	256.40	2,735.4	-54.3	-239.0	-0.5	1.27	0.68	-2.95
2,810.0	20.50	254.40	2,777.4	-58.3	-254.5	-1.0	2.38	-1.78	-4.44





# Archer

## Survey Report

<b>Company:</b>	Sandridge Energy, INC.(mid-con.)	<b>Local Co-ordinate Reference:</b>	Well Barbara 3404 1-4H/Job # 04780-431-22/HWD 8
<b>Project:</b>	Sumner County (KS27S)	<b>TVD Reference:</b>	WELL @ 1235.0usft (Original Well Elev)
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<b>Well:</b>	Barbara 3404 1-4H/Job # 04780-431-22/HWD 8	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,856.0	19.70	251.60	2,820.6	-62.9	-269.6	-2.2	2.72	-1.74	-6.09
2,900.0	19.70	250.20	2,862.0	-67.8	-283.6	-3.9	1.07	0.00	-3.18
2,944.0	20.00	249.00	2,903.4	-73.0	-297.6	-5.9	1.15	0.68	-2.73
2,989.0	21.80	249.10	2,945.5	-78.7	-312.6	-8.2	4.00	4.00	0.22
3,033.0	23.30	248.80	2,986.1	-84.8	-328.4	-10.6	3.42	3.41	-0.68
3,078.0	23.10	248.20	3,027.4	-91.3	-344.9	-13.3	0.69	-0.44	-1.33
3,123.0	23.90	248.60	3,068.7	-97.9	-361.6	-16.1	1.81	1.78	0.89
3,161.0	24.20	251.10	3,103.4	-103.2	-376.1	-18.1	2.79	0.79	6.58
3,206.0	23.50	253.40	3,144.6	-108.8	-393.4	-19.8	2.59	-1.56	5.11
3,250.0	21.40	252.40	3,185.2	-113.7	-409.5	-21.0	4.85	-4.77	-2.27
3,292.0	20.10	252.40	3,224.5	-118.2	-423.7	-22.3	3.10	-3.10	0.00
3,337.0	21.10	252.60	3,266.6	-123.0	-438.8	-23.6	2.23	2.22	0.44
3,381.0	22.20	252.80	3,307.5	-127.8	-454.3	-25.0	2.51	2.50	0.45
3,425.0	23.70	253.40	3,348.0	-132.8	-470.7	-26.2	3.45	3.41	1.36
3,470.0	25.70	255.50	3,388.9	-137.8	-488.8	-27.1	4.85	4.44	4.67
3,515.0	26.60	256.40	3,429.3	-142.6	-508.0	-27.6	2.19	2.00	2.00
3,557.0	25.60	256.80	3,467.0	-146.9	-526.0	-27.8	2.42	-2.38	0.95
3,602.0	22.90	255.50	3,508.1	-151.3	-544.0	-28.2	6.12	-6.00	-2.89
3,646.0	21.10	254.10	3,548.9	-155.6	-559.9	-28.9	4.26	-4.09	-3.18
3,691.0	20.70	253.40	3,590.9	-160.1	-575.3	-29.9	1.05	-0.89	-1.56
3,736.0	20.60	252.50	3,633.0	-164.8	-590.4	-31.1	0.74	-0.22	-2.00
3,780.0	21.50	253.50	3,674.1	-169.4	-605.6	-32.3	2.20	2.05	2.27
3,825.0	24.00	257.50	3,715.6	-173.7	-622.4	-32.8	6.53	5.56	8.89
3,870.0	26.50	263.00	3,756.3	-176.9	-641.3	-31.8	7.61	5.56	12.22
3,915.0	27.90	271.30	3,796.3	-177.9	-661.8	-28.3	8.98	3.11	18.44
3,957.0	28.90	277.60	3,833.3	-176.3	-681.7	-22.4	7.52	2.38	15.00
4,002.0	30.20	281.90	3,872.4	-172.6	-703.6	-13.9	5.53	2.89	9.56
4,046.0	28.60	289.00	3,910.8	-166.9	-724.3	-3.8	8.71	-3.64	16.14
4,091.0	27.60	296.00	3,950.5	-158.8	-743.9	8.4	7.65	-2.22	15.56
4,136.0	28.30	303.30	3,990.2	-148.4	-762.2	22.6	7.76	1.56	16.22
4,179.0	29.70	309.90	4,027.8	-135.9	-778.9	38.4	8.12	3.26	15.35
4,224.0	30.40	317.80	4,066.8	-120.3	-795.1	57.2	8.92	1.56	17.56
4,268.0	31.10	326.50	4,104.6	-102.6	-808.9	77.5	10.23	1.59	19.77
4,313.0	32.90	334.20	4,142.8	-81.9	-820.6	100.3	9.90	4.00	17.11
4,358.0	35.10	339.70	4,180.1	-58.7	-830.4	125.0	8.40	4.89	12.22
4,403.0	37.30	340.30	4,216.4	-33.8	-839.5	151.4	4.95	4.89	1.33
4,447.0	40.50	341.20	4,250.7	-7.7	-848.6	178.8	7.39	7.27	2.05
4,492.0	44.40	341.30	4,283.9	21.1	-858.4	209.0	8.67	8.67	0.22
4,537.0	48.50	342.20	4,314.9	52.0	-868.6	241.5	9.23	9.11	2.00
4,581.0	53.40	342.60	4,342.6	84.6	-878.9	275.5	11.16	11.14	0.91
4,626.0	59.10	343.80	4,367.6	120.4	-889.7	312.8	12.86	12.67	2.67
4,671.0	64.20	345.70	4,388.9	158.6	-900.1	352.3	11.93	11.33	4.22
4,713.0	67.90	347.00	4,406.0	195.9	-909.1	390.7	9.25	8.81	3.10



# Archer

## Survey Report

<b>Company:</b>	Sandridge Energy, INC.(mid-con.)	<b>Local Co-ordinate Reference:</b>	Well Barbara 3404 1-4H/Job # 04780-431-22/HWD 8
<b>Project:</b>	Sumner County (KS27S)	<b>TVD Reference:</b>	WELL @ 1235.0usft (Original Well Elev)
<b>Site:</b>	Sec 04-T34S-R04W	<b>MD Reference:</b>	WELL @ 1235.0usft (Original Well Elev)
<b>Well:</b>	Barbara 3404 1-4H/Job # 04780-431-22/HWD 8	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,758.0	71.00	348.00	4,421.8	237.0	-918.2	432.8	7.20	6.89	2.22
4,801.0	73.00	348.20	4,435.1	277.0	-926.7	473.7	4.67	4.65	0.47
4,845.0	75.90	349.10	4,446.9	318.6	-935.0	516.1	6.88	6.59	2.05
4,890.0	79.50	351.60	4,456.5	361.9	-942.4	560.0	9.67	8.00	5.56
4,934.0	81.60	353.40	4,463.7	405.0	-948.0	603.2	6.25	4.77	4.09
4,978.0	84.80	354.10	4,468.9	448.4	-952.8	646.6	7.44	7.27	1.59
5,023.0	88.00	354.70	4,471.7	493.1	-957.2	691.2	7.23	7.11	1.33
5,067.0	88.80	356.30	4,472.9	536.9	-960.6	734.7	4.06	1.82	3.64
5,111.0	89.40	356.70	4,473.6	580.8	-963.3	778.2	1.64	1.36	0.91
5,153.0	89.90	357.00	4,473.9	622.8	-965.6	819.6	1.39	1.19	0.71
5,198.0	90.70	357.10	4,473.7	667.7	-967.9	863.9	1.79	1.78	0.22
5,243.0	91.30	357.40	4,472.9	712.7	-970.1	908.2	1.49	1.33	0.67
5,288.0	91.60	357.50	4,471.7	757.6	-972.1	952.5	0.70	0.67	0.22
5,424.0	93.60	357.00	4,465.6	893.3	-978.6	1,086.3	1.52	1.47	-0.37
5,454.0	93.50	357.00	4,463.7	923.2	-980.2	1,115.9	0.33	-0.33	0.00
5,484.0	93.10	357.30	4,462.0	953.1	-981.7	1,145.4	1.67	-1.33	1.00
5,515.0	93.70	357.70	4,460.1	984.0	-983.0	1,175.8	2.32	1.94	1.29
5,545.0	92.90	358.50	4,458.4	1,014.0	-984.0	1,205.3	3.77	-2.67	2.67
5,576.0	92.10	359.70	4,457.1	1,044.9	-984.5	1,235.6	4.65	-2.58	3.87
5,606.0	92.00	359.20	4,456.0	1,074.9	-984.8	1,264.9	1.70	-0.33	-1.67
5,637.0	92.20	359.30	4,454.8	1,105.9	-985.2	1,295.2	0.72	0.65	0.32
5,667.0	91.70	359.20	4,453.8	1,135.9	-985.6	1,324.5	1.70	-1.67	-0.33
5,695.0	90.90	359.90	4,453.2	1,163.8	-985.8	1,351.9	3.80	-2.86	2.50
5,725.0	90.50	1.30	4,452.8	1,193.8	-985.5	1,381.1	4.85	-1.33	4.67
5,756.0	89.60	2.80	4,452.8	1,224.8	-984.4	1,411.1	5.64	-2.90	4.84
5,786.0	88.20	3.70	4,453.4	1,254.8	-982.7	1,439.9	5.55	-4.67	3.00
5,816.0	88.00	3.90	4,454.4	1,284.7	-980.7	1,468.6	0.94	-0.67	0.67
5,847.0	88.10	3.40	4,455.4	1,315.6	-978.7	1,498.4	1.64	0.32	-1.61
5,877.0	87.90	3.10	4,456.5	1,345.5	-977.0	1,527.2	1.20	-0.67	-1.00
5,908.0	88.50	4.20	4,457.4	1,376.5	-975.0	1,556.9	4.04	1.94	3.55
5,938.0	90.20	4.70	4,457.8	1,406.4	-972.7	1,585.6	5.91	5.67	1.67
5,969.0	90.50	5.00	4,457.6	1,437.3	-970.1	1,615.2	1.37	0.97	0.97
5,999.0	90.10	4.20	4,457.4	1,467.2	-967.7	1,643.8	2.98	-1.33	-2.67
6,030.0	92.10	3.90	4,456.8	1,498.1	-965.5	1,673.5	6.52	6.45	-0.97
6,061.0	93.50	4.00	4,455.3	1,529.0	-963.4	1,703.2	4.53	4.52	0.32
6,091.0	93.40	2.70	4,453.5	1,558.9	-961.6	1,731.9	4.34	-0.33	-4.33
6,122.0	91.80	2.20	4,452.1	1,589.8	-960.3	1,761.8	5.41	-5.16	-1.61
6,153.0	91.70	2.00	4,451.2	1,620.8	-959.2	1,791.8	0.72	-0.32	-0.65
6,183.0	90.20	1.40	4,450.7	1,650.7	-958.3	1,820.8	5.39	-5.00	-2.00
6,213.0	90.70	1.30	4,450.4	1,680.7	-957.6	1,850.0	1.70	1.67	-0.33
6,243.0	92.00	2.20	4,449.7	1,710.7	-956.7	1,879.0	5.27	4.33	3.00
6,273.0	92.50	2.70	4,448.6	1,740.7	-955.4	1,907.9	2.36	1.67	1.67



# Archer

## Survey Report

<b>Company:</b>	Sandridge Energy, INC.(mid-con.)	<b>Local Co-ordinate Reference:</b>	Well Barbara 3404 1-4H/Job # 04780-431-22/HWD 8
<b>Project:</b>	Sumner County (KS27S)	<b>TVD Reference:</b>	WELL @ 1235.0usft (Original Well Elev)
<b>Site:</b>	Sec 04-T34S-R04W	<b>MD Reference:</b>	WELL @ 1235.0usft (Original Well Elev)
<b>Well:</b>	Barbara 3404 1-4H/Job # 04780-431-22/HWD 8	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,332.0	91.60	1.90	4,446.4	1,799.6	-953.0	1,964.9	2.04	-1.53	-1.36
6,423.0	93.20	2.00	4,442.6	1,890.4	-949.9	2,052.9	1.76	1.76	0.11
6,514.0	91.70	2.10	4,438.7	1,981.3	-946.7	2,140.8	1.65	-1.65	0.11
6,574.0	91.30	2.10	4,437.2	2,041.2	-944.5	2,198.8	0.67	-0.67	0.00
6,638.0	92.80	2.50	4,434.9	2,105.1	-941.9	2,260.6	2.43	2.34	0.63
6,733.0	95.90	2.50	4,427.7	2,199.8	-937.8	2,352.0	3.26	3.26	0.00
6,827.0	97.80	358.90	4,416.5	2,293.1	-936.6	2,442.7	4.31	2.02	-3.83
6,920.0	96.50	358.30	4,404.9	2,385.3	-938.9	2,533.2	1.54	-1.40	-0.65
7,015.0	93.30	356.60	4,396.8	2,479.9	-943.1	2,626.4	3.81	-3.37	-1.79
7,076.0	92.60	356.90	4,393.6	2,540.7	-946.5	2,686.5	1.25	-1.15	0.49
7,171.0	90.60	356.20	4,391.0	2,635.5	-952.3	2,780.2	2.23	-2.11	-0.74
7,182.7	90.70	356.16	4,390.8	2,647.2	-953.0	2,791.8	0.90	0.84	-0.32
<b>Sonnenberg 1:Offset</b>									
7,266.0	91.40	355.90	4,389.3	2,730.2	-958.8	2,874.1	0.90	0.84	-0.32
7,359.0	91.70	356.90	4,386.8	2,823.0	-964.6	2,965.9	1.12	0.32	1.08
7,454.0	91.60	355.90	4,384.1	2,917.8	-970.6	3,059.7	1.06	-0.11	-1.05
7,549.0	91.80	355.60	4,381.3	3,012.5	-977.6	3,153.6	0.38	0.21	-0.32
7,643.0	92.30	355.50	4,377.9	3,106.1	-984.9	3,246.6	0.54	0.53	-0.11
7,738.0	90.20	357.70	4,375.8	3,200.9	-990.6	3,340.3	3.20	-2.21	2.32
7,833.0	90.40	357.20	4,375.3	3,295.8	-994.8	3,433.8	0.57	0.21	-0.53
7,927.0	90.40	357.70	4,374.7	3,389.7	-999.0	3,526.3	0.53	0.00	0.53
8,022.0	90.30	359.90	4,374.1	3,484.7	-1,001.0	3,619.4	2.32	-0.11	2.32
8,116.0	91.60	0.10	4,372.5	3,578.7	-1,001.0	3,711.1	1.40	1.38	0.21
8,211.0	92.60	359.70	4,369.0	3,673.6	-1,001.1	3,803.8	1.13	1.05	-0.42
8,307.0	92.40	359.80	4,364.9	3,769.5	-1,001.5	3,897.4	0.23	-0.21	0.10
8,402.0	91.40	0.60	4,361.7	3,864.5	-1,001.2	3,990.0	1.35	-1.05	0.84
8,496.0	91.90	0.50	4,359.0	3,958.4	-1,000.3	4,081.5	0.54	0.53	-0.11
8,591.0	91.80	0.50	4,355.9	4,053.4	-999.5	4,173.9	0.11	-0.11	0.00
8,685.0	91.00	0.50	4,353.6	4,147.3	-998.7	4,265.4	0.85	-0.85	0.00
<b>Last Archer MWD Survey</b>									
8,732.0	91.00	0.50	4,352.8	4,194.3	-998.2	4,311.2	0.00	0.00	0.00
<b>Projection to TD - PBHL Barbara 1-4H</b>									

### Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
529.0	529.0	-0.4	2.3	First Archer MWD Survey
8,685.0	4,353.6	4,147.3	-998.7	Last Archer MWD Survey
8,732.0	4,352.8	4,194.3	-998.2	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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# Sandridge Energy, INC.(mid-con.)

**Archer**  
The well company



Project: Sumner County (KS27S)  
 Site: Sec 04-T34S-R04W  
 Well: Barbara 3404 1-4H/Job # 04780-431-22/HWD 8  
 Plan: Plan 051814 A1 (Barbara 3404 1-4H/Job # 04780-431-22/HWD 8/Wellbore #1)

WELL DETAILS: Barbara 3404 1-4H/Job # 04780-431-22/HWD 8			
Ground Level:		1217.0	
Northing	Easting	Latitude	Longitude
163005.00	2215915.00	37° 6' 43.132 N	97° 45' 34.544 W

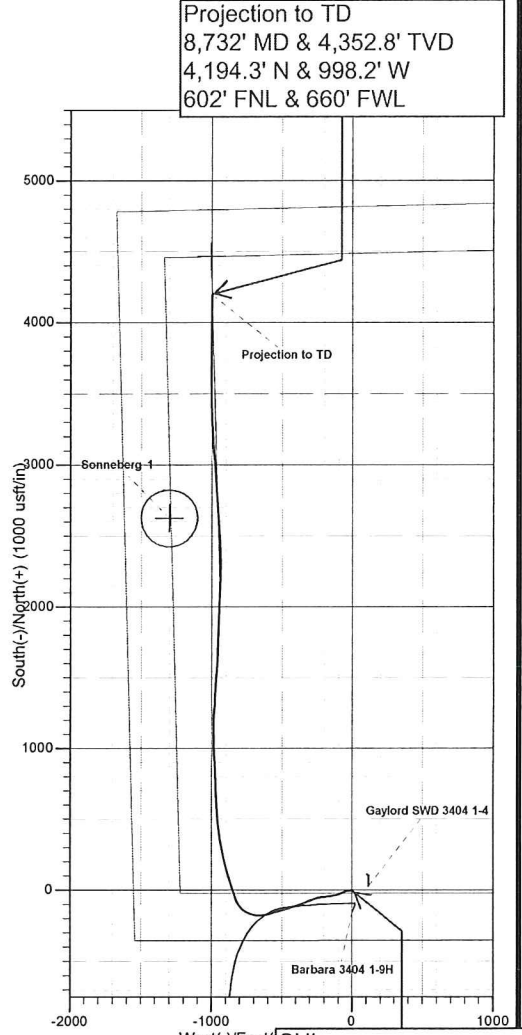
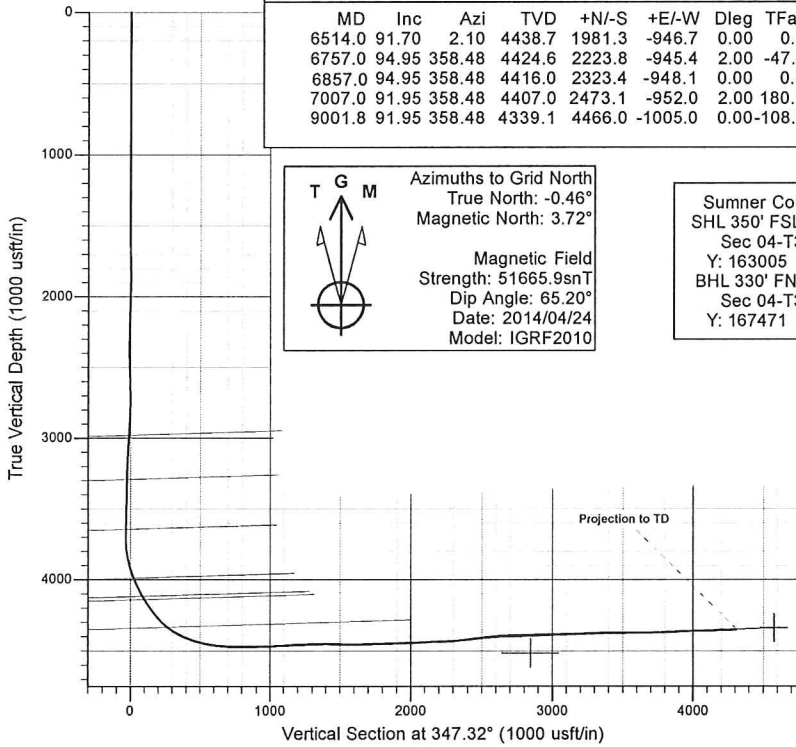
SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
6514.0	91.70	2.10	4438.7	1981.3	-946.7	0.00	0.00	2140.8
6757.0	94.95	358.48	4424.6	2223.8	-945.4	2.00	-47.94	2377.1
6857.0	94.95	358.48	4416.0	2323.4	-948.1	0.00	0.00	2474.9
7007.0	91.95	358.48	4407.0	2473.1	-952.0	2.00	180.00	2621.7
9001.8	91.95	358.48	4339.1	4466.0	-1005.0	0.00	-108.14	4577.7

**T G M**

Azimuths to Grid North  
 True North: -0.46°  
 Magnetic North: 3.72°

Magnetic Field  
 Strength: 51665.9snT  
 Dip Angle: 65.20°  
 Date: 2014/04/24  
 Model: IGRF2010

Sumner County, Kansas  
 SHL 350' FSL & 1550' FWL  
 Sec 04-T34S-R04W  
 Y: 163005 X: 2215915  
 BHL 330' FNL & 660' FWL  
 Sec 04-T34S-R04W  
 Y: 167471 X: 2214910



Projection to TD  
 8,732' MD & 4,352.8' TVD  
 4,194.3' N & 998.2' W  
 602' FNL & 660' FWL

SHL  
 350' FSL & 1,550' FWL

<b>JOB SUMMARY</b>			PROJECT NUMBER <b>SOK 3675</b>	TICKET DATE <b>05/02/14</b>
COUNTY <b>Sumner</b>	State <b>Kansas</b>	COMPANY <b>Bridge Exploration &amp; Produc</b>	CUSTOMER REP <b>Luiz</b>	
LEASE NAME <b>Barbara 3404</b>	Well No. <b>1-4H</b>	JOB TYPE <b>Surface</b>	EMPLOYEE NAME <b>Bryan Douglas</b>	

EMP NAME					
Bryan Douglas					
Rocky Anthis					
Flo Helkena					
Paul Thomas					

Form. Name \_\_\_\_\_ Type: \_\_\_\_\_

Packer Type \_\_\_\_\_ Set At 0  
 Bottom Hole Temp. 80 Pressure \_\_\_\_\_  
 Retainer Depth \_\_\_\_\_ Total Depth 500'

	Called Out	On Location	Job Started	Job Completed
Date	<b>5/2/2014</b>	<b>5/2/2014</b>	<b>5/2/2014</b>	<b>5/2/2014</b>
Time	<b>0000</b>	<b>0200</b>	<b>1200</b>	<b>1400</b>

Type and Size	Qty	Make
Auto Fill Tube	0	IR
Insert Float Val	0	IR
Centralizers	0	IR
Top Plug	0	IR
HEAD	0	IR
Limit clamp	0	IR
Weld-A	0	IR
Texas Pattern Guide Shoe	0	IR
Cement Basket	0	IR

Well Data					
New/Used	Weight	Size	Grade	From	To
Casing	36#	9 5/8"		Surface	500'
Liner					
Liner					
Tubing		0			
Drill Pipe					
Open Hole		12 1/4"		Surface	500'
Perforations					Shots/Ft.
Perforations					
Perforations					

Materials			
Mud Type	WBM	Density	<b>9</b> Lb/Gal
Disp. Fluid	Fresh Water	Density	<b>8.33</b> Lb/Gal
Spacer type	resh Wate BBL.		<b>10</b> 8.33
Spacer type	BBL.		
Acid Type	Gal.	%	
Acid Type	Gal.	%	
Surfactant	Gal.	In	
NE Agent	Gal.	In	
Fluid Loss	Gal/Lb	In	
Gelling Agent	Gal/Lb	In	
Fric. Red.	Gal/Lb	In	
MISC.	Gal/Lb	In	

Hours On Location		Operating Hours		Description of Job
Date	Hours	Date	Hours	
5/2	12.0	5/2	2.0	Surface
				1/2 BBL BACK
				34 BBLs CEMENT BACK
Total	12.0	Total	2.0	

Perfpac Balls \_\_\_\_\_ Qty. \_\_\_\_\_  
 Other \_\_\_\_\_  
 Other \_\_\_\_\_  
 Other \_\_\_\_\_  
 Other \_\_\_\_\_

Pressures	
MAX	1,500 PSI
AVG	200
Average Rates in BPM	
MAX	6 BPM
AVG	4
Cement Left in Pipe	
Feet	46
Reason	SHOE JOINT

Cement Data						
Stage	Sacks	Cement	Additives	W/Rq.	Yield	Lbs/Gal
1	100	Tex Lite 65/35 Poz: Class	6% Total Gel - 2% Calcium Chloride - 0.4% C-41P - 1/4pps Cello-Flake	11.11	2.01	12.40
2	160	Premium Plus (Class C)	2% Calcium Chloride - 1/2pps Cello-Flake	6.32	1.32	14.80
3	*100	Premium Plus (Class C)	*2% Calcium Chloride on side to use if necessary	*6.32	*1.32	*14.8

Summary					
Preflush Breakdown	<b>10</b>	Type: _____	Fresh Water	Preflush: BBI	<b>10.00</b>
		MAXIMUM	1,500 PSI	Load & Bkdn: Gal - BBI	N/A
		Lost Returns-n	NO/FULL	Excess /Return BBI	34
		Actual TOC	SURFACE	Calc. TOC:	SURFACE
Average		Bump Plug PSI:	900	Final Circ. PSI:	400
ISIP	5 Min.	10 Min.	15 Min.	Cement Slurry: BBI	<b>73.4</b>
				Total Volume BBI	<b>117.12</b>

CUSTOMER REPRESENTATIVE Luiz Abadio SIGNATURE Tim Abadio

<b>JOB SUMMARY</b>			PROJECT NUMBER <b>SOK 3716</b>	TICKET DATE <b>05/13/14</b>
COUNTY <b>Sumner</b>	State <b>Kansas</b>	COMPANY <b>Sandridge Exploration &amp; Production</b>	CUSTOMER REP <b>Jase</b>	
LEASE NAME <b>Barbara 3404</b>	Well No. <b>1-4H</b>	JOB TYPE <b>Intermediate</b>	EMPLOYEE NAME <b>Bryan Douglas</b>	

EMP NAME	Bryan Douglas	0					
	Rocky Anthis						
	Flo Helkena						
	Danny Tewell						

Form. Name \_\_\_\_\_ Type: \_\_\_\_\_

Packer Type \_\_\_\_\_ Set At \_\_\_\_\_ 0

Bottom Hole Temp. \_\_\_\_\_ 155 Pressure \_\_\_\_\_

Retainer Depth \_\_\_\_\_ Total Depth \_\_\_\_\_ 5,345'

	Called Out	On Location	Job Started	Job Completed
Date	5/12/2014	5/12/2014	5/12/2014	5/12/2014
Time	1700	1900	0200	0500

Type and Size	Qty	Make
Auto Fill Tube	0	IR
Insert Float Val	0	IR
Centralizers	0	IR
Top Plug	0	IR
HEAD	0	IR
Limit clamp	0	IR
Weld-A	0	IR
Texas Pattern Guide Shoe	0	IR
Cement Basket	0	IR

	New/Used	Weight	Size	Grade	From	To	Max. Allow
Casing		26#	7"		Surface		5,000
Liner							
Liner							
Tubing			0				
Drill Pipe							
Open Hole			8 1/4"		Surface	5,353'	Shots/Ft.
Perforations							
Perforations							
Perforations							

Materials			
Mud Type	WBM	Density	9 Lb/Gal
Disp. Fluid	Fresh Water	Density	8.33 Lb/Gal
Spacer type	Gel	BBL.	30
Spacer type	BBL.		
Acid Type	Gal.	%	
Acid Type	Gal.	%	
Surfactant	Gal.	In	
NE Agent	Gal.	In	
Fluid Loss	Gal/Lb	In	
Gelling Agent	Gal/Lb	In	
Fric. Red.	Gal/Lb	In	
MISC.	Gal/Lb	In	

Hours On Location		Operating Hours		Description of Job
Date	Hours	Date	Hours	
5/12	10.0	5/12	3.0	Intermediate
				1 BBL BACK
Total	10.0	Total	3.0	

Perfpac Balls \_\_\_\_\_ Qty. \_\_\_\_\_

Other \_\_\_\_\_

Other \_\_\_\_\_

Other \_\_\_\_\_

Other \_\_\_\_\_

Pressures			
MAX	5,000 PSI	AVG.	200
Average Rates in BPM			
MAX	8 BPM	AVG	4
Cement Left in Pipe			
Feet	44	Reason	SHOE JOINT

Cement Data									
Stage	Sacks	Cement	Additives				W/Rq.	Yield	Lbs/Gal
1	265	50/50 POZ PREMIUM	4% Gel - 0.2% FL-17 - 0.1% C-51 - 0.2% C-20 - 0.1% C-37 - 0.4% C-41P				6.93	1.43	13.60
2	115	Premium	0.2% FL-17 - 0.1% C-51 - 0.1% C-20 - 0.4% C-41P				5.19	1.19	15.60
3	0	0					0	0.00	0.00

Summary					
Preflush	30	Type:	Gel	Preflush:	BBI 30.00
Breakdown		MAXIMUM	5,000 PSI	Load & Bkdn:	Gal - BBI N/A
		Lost Returns-n	NO/FULL	Excess /Return	BBI N/A
		Actual TOC	1.985	Calc. TOC:	1.985
Average		Bump Plug PSI:	1,300	Final Circ.	PSI: 800
ISIP	5 Min.	10 Min	15 Min	Cement Slurry:	BBI 91.9
				Total Volume	BBI 324.90

CUSTOMER REPRESENTATIVE Jase Bradley SIGNATURE

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/8/2014
Job End Date:	6/8/2014
State:	Kansas
County:	Sumner
API Number:	15-191-22732-01-00
Operator Name:	SandRidge Energy
Well Name and Number:	Barbara 3404 #1-4H
Longitude:	-97.78595955
Latitude:	37.11198004
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	4,353
Total Base Water Volume (gal):	2,445,366
Total Base Non Water Volume:	0



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Well Operator	Carrier/Base Fluid	Water	7732-18-5	100.00000	95.59658	None
40/70 Premium Preferred Sand	Cimarron Acid	Proppant, Scouring, Fill	Crystalline Silica (quartz)	14808-60-7	100.00000	3.15283	None
15% Uninhibited HCl Acid	Cimarron Acid	Etching, Dissolving, Cleaning	Water	7732-18-5	85.00000	0.64298	None
			Hydrochloric Acid	7647-01-0	15.00000	0.11347	None
			Water	7732-18-5	24.00000	0.00015	None
			Methanol	67-56-1	9.00000	0.00006	None
			2-Butoxyethanol	111-76-2	8.40000	0.00005	None
			Isopropyl Alcohol	67-63-0	8.40000	0.00005	None
			Cinnamaldehyde	104-55-2	8.40000	0.00005	None
			Tar Bases-quinoline derivs-benzyl chloride/quaternized	72480-70-7	8.40000	0.00005	None
			Triethyl Phosphate	78-40-0	8.40000	0.00005	None
			N-Dimethylformamide	68-12-2	8.40000	0.00005	None
			Ethylene Glycol	107-21-1	8.40000	0.00005	None
			Ethoxylated Nonylphenol	68412-54-4	8.40000	0.00005	None

40/70 Resin Coated Sand	Cimarron Acid	Proppant, Scouring, Fill					
			Crystalline Silica (quartz)	14808-60-7	97.00000	0.34099	None
Iron Control, Sodium Erythorbate	Cimarron Acid	Iron Control					
			Water	7732-18-5	55.50000	0.02764	None
			Methanol	67-56-1	12.70000	0.00634	None
			Nonylphenal Polyethylene Glycol Ether	127087-87-0	9.10000	0.00453	None
			Dinanylphenyl Polyoxyethylene	201602-88-2	9.10000	0.00453	None
			Poly(ethylene Oxide)	25322-68-3	9.10000	0.00453	None
			Isopropanol	67-63-0	4.60000	0.00227	None
			Sodium Erythorbate	6381-77-7	100.00000	0.00025	None
			Water	7732-18-5	54.50000	0.00018	None
			Isopropanol	67-63-0	13.60000	0.00005	None
			Polyglycol Ethers	52624-57-4	13.60000	0.00005	None
			Methanol	67-56-1	9.00000	0.00003	None
			Glycol Ether EB	111-76-2	9.00000	0.00003	None
FR-986, Cationic Friction Reducer	Cimarron Acid	Friction Reducer					
			Water	7732-18-5	50.00000	0.00527	None
			Petroleum Hydrotreated Light Distillate	64742-47-8	2.50000	0.00203	None
			Hydrochloric Acid	7647-01-0	16.80000	0.00177	None
			Phosphoric Acid	7664-38-2	16.80000	0.00177	None
			Ethylene Glycol	107-21-1	12.70000	0.00134	None
			Methanol	67-56-1	3.60000	0.00038	None

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)