



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1201778
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: _____

1201778

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/21/2014
Job End Date:	3/22/2014
State:	Kansas
County:	Harper
API Number:	15-077-21998-01-00
Operator Name:	SandRidge Energy
Well Name and Number:	West 3508 2-5H
Longitude:	-98.20793000
Latitude:	37.02196000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	5,250
Total Base Water Volume (gal):	2,097,774
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	Operator	Carrier					
			Water	7732-18-5	100.00000	95.44007	
Sand, White, 40/70	Baker Hughes	Proppant					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	3.22800	
HCl, 10.1 - 15%	Baker Hughes	Acidizing					
			Water	7732-18-5	85.00000	0.67258	SmartCare Product
			Hydrochloric Acid	7647-01-0	15.00000	0.11869	SmartCare Product
Preferred Garnet RC 40/70	Baker Hughes	Proppant					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	0.38382	
			Castor Oil	8001-79-4	5.00000	0.01919	
FRW-15A, tote	Baker Hughes	Friction Reducer					
			Contains non-hazardous ingredients that are shown in the non-MSDS section of this report.	NA	100.00000	0.02183	SmartCare Product
NE-900, tote	Baker Hughes	Non-emulsifier					
			Methanol	67-56-1	30.00000	0.01345	SmartCare Product
			Nonyl phenyl polyethylene glycol ether	9016-45-9	10.00000	0.00448	SmartCare Product
FRW-15DX	Baker Hughes	Friction Reducer					
			Anionic Water-Soluble Polymer	Trade Secret	100.00000	0.01143	

Scaletrol 7208, 330 gal tote	Baker Hughes	Scale Inhibitor					
			Ethylene Glycol	107-21-1	30.00000	0.00755	
Ferotrol 300L (Totes)	Baker Hughes	Iron Control					
			Citric Acid	77-92-9	60.00000	0.00275	SmartCare Product
CI-27 (260 gal tote)	Baker Hughes	Corrosion Inhibitor					
			Methanol	67-56-1	60.00000	0.00049	
			Fatty Acids	Trade Secret	30.00000	0.00024	
			Thiourea Polymer	68527-49-1	30.00000	0.00024	
			Polyoxyalkylenes	Trade Secret	30.00000	0.00024	
			Propargyl Alcohol	107-19-7	10.00000	0.00008	
			Olefin	Trade Secret	5.00000	0.00004	
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.							
		Other Chemicals					
			Water	7732-18-5		0.03816	
			Copolymer	Trade Secret		0.01793	
			Copolymer of Acrylamide and Sodium Acrylate	25987-30-8		0.00873	
			Hydrotreated Light Distillate	64742-47-8		0.00655	
			Diethylene Glycol	111-46-6		0.00126	
			Nonyl Phenol Ethoxylate	127087-87-0		0.00109	
			Sorbitan Monooleate	1338-43-8		0.00109	
			Sodium Chloride	7647-14-5		0.00000	
			Formaldehyde	50-00-0		0.00000	
			Calcium Chloride	10043-52-4			
			2-Propenoic, Polymer with Sodium Phosphinate, Sodium Salt	71050-62-9			
			Potassium Chloride	7447-40-7			
			Polyacrylate	Trade Secret			

* 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)

JOB SUMMARY			PROJECT NUMBER SOK 3397	TICKET DATE 02/09/14
COUNTY Harper	STATE Kansas	COMPANY Bridge Exploration & Produc	CUSTOMER REP Larry Strong	
LEASE NAME West 3508	Well No. 2-5H	JOB TYPE Surface	EMPLOYEE NAME Louis Arney	

EMP NAME	Barry Barkley	0					
	Vontray Watkins						
	Louis Arney						
	0.00						

Form. Name _____ Type: _____
 Packer Type _____ Set At _____ 0
 Bottom Hole Temp. _____ 80 Pressure _____
 Retainer Depth _____ Total Depth _____ 783

Date	Called Out 2/8/2014	On Location 2/8/2014	Job Started 2/9/2014	Job Completed 2/9/2014
Time	12:30	19:00	0:38	3:00

Type and Size	Qty	Make
Auto Fill Tube	0	IR
Insert Float Va	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			From	To	Max. Allow	
New/Used	Weight	Size	Grade			
Casing	new	36#	9 5/8"	Surface	783	1,500
Liner						
Liner						
Tubing			0			
Drill Pipe						
Open Hole			12 1/4"	Surface	778	Shots/Ft.
Perforations						
Perforations						
Perforations						

Materials			
Mud Type	WBM	Density	9 Lb/Gal
Disp. Fluid	Fresh Water	Density	8.33 Lb/Gal
Spacer type	Fresh Water	BBL.	10
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	
Perfpac Balls	Qty.		
Other			
Other			
Other			
Other			

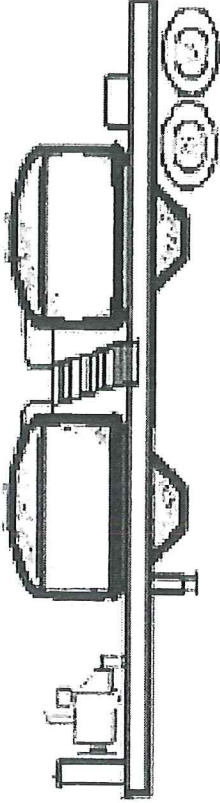
Hours On Location		Operating Hours		Description of Job
Date	Hours	Date	Hours	
2/8	5.0	2/9	2.5	Surface
2/9	3.0			
Total 8.0		Total 2.5		

Pressures			
MAX	1,500 PSI	AVG	250
Average Rates in BPM			
MAX	6 BPM	AVG	4.5
Cement Left in Pipe			
Feet	45	Reason	SHOE JOINT

Stage	Sacks	Cement	Additives	W/Rq.	Yield	Lbs/Gal
1	250	TEX Lite Premium Plus 65	(6% Gel) 2% Calcium Chloride - 1/4pps Cello-Flake - .4% C-41P	11.11	2.01	12.40
2	130	Premium Plus (Class C)	2% Calcium Chloride - 1/4pps 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	Type: _____	MAXIMUM _____	1,500 PSI	Preflush: BBI _____	10.00
	Lost Returns-I _____	NO/FULL _____		Load & Bkdn: Gal - BBI _____	N/A
	Actual TOC _____	SURFACE _____		Excess/Return BBI _____	40
Average	Bump Plug PSI: _____	850		Calc. TOC: _____	SURFACE
ICIP 5 Min.	10 Min _____	15 Min _____		Final Circ. PSI: _____	300
				Cement Slurry BBI _____	120.0
				Total Volume BBI _____	187.00

CUSTOMER REPRESENTATIVE _____ SIGNATURE _____



Trailer Number: 42204/62651

Driver Name _____

Front Pot
LEAD

Cement 65/35 CLASS C/POZ

250 sks

CEMENT ADDITIVES

6% GEL	
2% CALCIUM	2% CALCIUM
1/4 PPS FLAKE	1/4 PPS FLAKE
.5% C-41P	

Rear Pot
TAIL

Cement CLASS C

130 sks

COMPANY: Sandridge DATE: 2/6/2014

LEASE: West 3503 2-5H TICKET: SOK 3397

JOB SUMMARY			PROJECT NUMBER SOK 3423	TICKET DATE 02/16/14
COUNTY Harper	State Kansas	COMPANY Sandridge Exploration & Production	CUSTOMER REP Jackie Kennedy	
LEASE NAME West 3508	Well No. 2-5H	JOB TYPE Intermediate	EMPLOYEE NAME Arthur Setzer	

EMP NAME	Arthur Setzer	0					
Jared Green							
David Settlemier							
Berry Barkley							

Form. Name _____ Type: _____

Packer Type _____ Set At 0

Bottom Hole Temp. 155 Pressure _____

Retainer Depth _____ Total Depth 5,454"

Date	Called Out 2/15/2014	On Location 2/16/2014	Job Started 2/16/2014	Job Completed 2/16/2014
Time	2200	0700	1100	1300

Type and Size	Qty	Make
Auto Fill Tube	0	IR
Insert Float Va	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		26#	7"		Surface	
Liner						
Liner						
Tubing			0			
Drill Pipe						
Open Hole			8 3/4"		Surface	5,454'
Perforations						Shots/Ft.
Perforations						
Perforations						

Materials			
Mud Type	WBM	Density	Lb/Gal
Disp. Fluid	Fresh Water	8.33	8.33
Spacer type	Fresh Water BBL.	20	8.33
Spacer type	Caustic BBL.	10	8.40
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	
2/16	6.0	2/16	2.0	Intermediate
Total	6.0	Total	2.0	

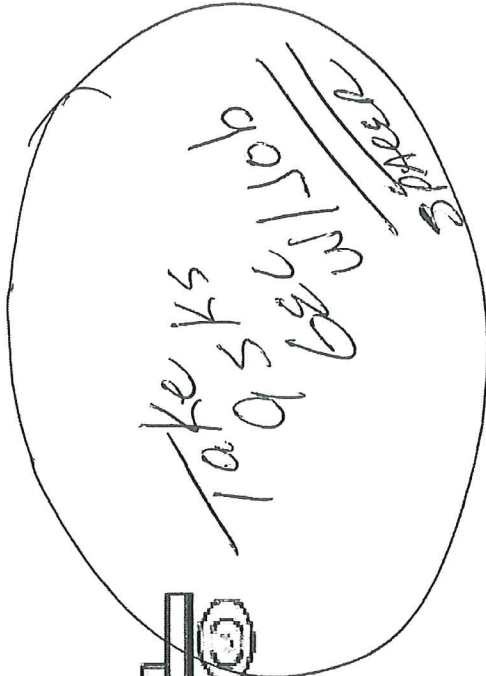
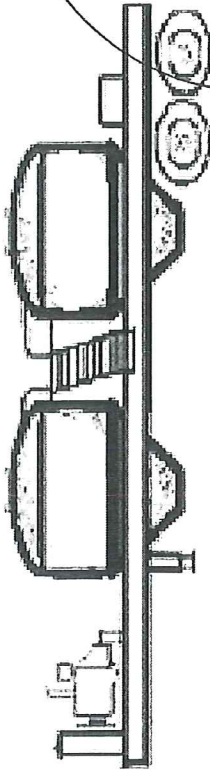
MAX 5,000 PSI		AVG. 1500	
MAX 8 BPM		AVG 7	
Cement Left in Pipe			
Feet	91	Reason	SHOE JOINT

Cement Data						
Stage	Sacks	Cement	Additives	W/Rq.	Yield	Lbs/Gal
1	210	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	100	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 Breakdown	10	Type: gel	Preflush: BBI	30.00	Type: Gel Spacer		
		MAXIMUM 5,000 PSI	Load & Bkdn: Gal - BBI	N/A	Pad:Bbl -Gal	N/A	
		Lost Returns: NO/FULL	Excess /Return BBI	N/A	Calc. Disp Bbl	204	
		Actual TOC	Calc. TOC:	2,785	Actual Disp.	204.00	
Average		Bump Plug PSI: 1,550	Final Circ. PSI:	800	Disp:Bbl	204.00	
*SIP	5 Min.	10 Min.	Cement Slurry BBI	74.0			
		15 Min.	Total Volume BBI	308.00			

CUSTOMER REPRESENTATIVE *Jackie Kennedy* SIGNATURE

www copy



Trailer Number: 77195/95430

Driver Name _____

Front Pot
LEAD

Cement 50/50 Class H/POZ
210 sks

Rear Pot
TAIL

Cement CLASS H
100 sks

CEMENT ADDITIVES

4% GEL	
.2% FL-17	.2% FL-17
.2% C-20	.1% C-20
.1% C-37	
.1% C-51	.1% C-51
.4% C-41P	.4% C-41P

COMPANY: Sandridge DATE: 2/15/2014

LEASE: West 3508 2-5H TICKET: SOK 3423



INVOICE

DATE	INVOICE #
12-11-2013	4861

BILL TO

SANDRINE ENERGY INC
 11515 PLUMHURST WAY
 STE 100
 WESTWOOD, OK 74088

RENT TO

EDGE SERVICES, INC.
 11515 PLUMHURST WAY
 WESTWOOD, OK 74088

COUNTY	STARTING D.	WORK ORDER #	RIG NUMBER	LEASE NAME	Terms
HASKELL, KS	12/01/2013	340	LARIAT #	WEST 3508 2-5H	Day 100.00

Description

DRILLING OF 10" HOLE FOR 10' C
 DRILLING OF 2" HOLE
 FURNISH AND SET 1/2" X 1/2" TUBING COLLAR
 FURNISHING OF 20' CONCRETE TIE
 FURNISHING OF WATER AND TRUCKING
 FURNISHING WELDER AND MATERIALS
 FURNISHING HARDWARE TO GRAB A LUMP
 DRILL BIT AND HOPE
 FURNISHING OF 10' TUBING FOR 10' HOLE FOR 10' C

TOTAL: \$19,144.00

AFE Number _____
 Well Name: West 3508 2-5H
 Code: 850-010
 Amount: 19,144.00
 Co. Man: John Fortman
 Co. Man Sig: [Signature]
 Notes: _____

Sales Tax (5.15%)	\$984.00
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TOTAL	\$19,144.00
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Archer

Survey Report

Company:	Sandridge Energy, INC.(mid-con.)	Local Co-ordinate Reference:	Well West 3508 2-5H/04660-431-22/Lariat 40
Project:	Harper Co. (KS27S)	TVD Reference:	WELL @ 1255.0usft (Original Well Elev)
Site:	Sec 32-T34S-R08W	MD Reference:	WELL @ 1255.0usft (Original Well Elev)
Well:	West 3508 2-5H/04660-431-22/Lariat 40	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Harper Co. (KS27S)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Kansas South 1502		

Site	Sec 32-T34S-R08W		
Site Position:		Northing:	134,593.00 usft
From:	Map	Easting:	2,082,142.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	37° 2' 9.471 N
		Longitude:	98° 13' 7.003 W
		Grid Convergence:	0.17 °

Well	West 3508 2-5H/04660-431-22/Lariat 40		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	37° 2' 12.062 N
		Longitude:	98° 12' 23.213 W
		Ground Level:	1,237.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2014/01/30	4.49	65.10	51,624

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	182.41	

Survey Program	Date 2014/03/04				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
286.0	8,762.0	Archer MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

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	
286.0	0.50	100.60	286.0	-0.2	1.2	0.2	0.17	0.17	0.00	
First Single Shot Survey										
534.0	0.12	100.60	534.0	-0.5	2.5	0.4	0.15	-0.15	0.00	
769.0	0.72	100.60	769.0	-0.8	4.2	0.6	0.26	0.26	0.00	
Last Single Shot Survey										
870.0	0.30	100.60	870.0	-1.0	5.1	0.7	0.42	-0.42	0.00	
First Archer MWD Survey										
961.0	0.40	132.20	961.0	-1.2	5.6	1.0	0.23	0.11	34.73	
1,417.0	0.60	142.90	1,417.0	-4.2	8.2	3.8	0.05	0.04	2.35	



Archer

Survey Report

Company: Sandridge Energy, INC.(mid-con.)
Project: Harper Co. (KS27S)
Site: Sec 32-T34S-R08W
Well: West 3508 2-5H/04660-431-22/Lariat 40
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well West 3508 2-5H/04660-431-22/Lariat 40
TVD Reference: WELL @ 1255.0usft (Original Well Elev)
MD Reference: WELL @ 1255.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: 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)
1,891.0	0.90	355.30	1,890.9	-2.5	9.4	2.1	0.30	0.06	-31.14
2,364.0	1.00	338.40	2,363.9	5.1	7.6	-5.4	0.06	0.02	-3.57
2,839.0	0.70	301.50	2,838.8	10.5	3.6	-10.6	0.13	-0.06	-7.77
3,313.0	1.00	303.90	3,312.8	14.3	-2.3	-14.2	0.06	0.06	0.51
3,789.0	0.30	342.90	3,788.7	17.8	-6.1	-17.5	0.17	-0.15	8.19
3,884.0	0.70	231.20	3,883.7	17.7	-6.7	-17.4	0.90	0.42	-117.58
3,915.0	0.80	226.70	3,914.7	17.4	-7.0	-17.1	0.37	0.32	-14.52
3,947.0	1.50	207.00	3,946.7	16.9	-7.3	-16.5	2.48	2.19	-61.56
3,979.0	3.40	213.00	3,978.7	15.7	-8.0	-15.3	5.98	5.94	18.75
4,010.0	5.40	212.70	4,009.6	13.7	-9.3	-13.3	6.45	6.45	-0.97
4,043.0	7.40	209.00	4,042.4	10.5	-11.2	-10.0	6.19	6.06	-11.21
4,074.0	9.10	207.20	4,073.1	6.6	-13.3	-6.0	5.55	5.48	-5.81
4,106.0	11.00	209.40	4,104.6	1.7	-15.9	-1.0	6.06	5.94	6.88
4,137.0	11.90	212.30	4,135.0	-3.6	-19.1	4.4	3.45	2.90	9.35
4,169.0	13.50	214.70	4,166.2	-9.4	-23.0	10.4	5.26	5.00	7.50
4,200.0	15.80	215.70	4,196.2	-15.9	-27.5	17.0	7.46	7.42	3.23
4,232.0	18.40	214.40	4,226.8	-23.6	-32.9	24.9	8.21	8.13	-4.06
4,264.0	21.00	215.00	4,256.9	-32.4	-39.0	34.0	8.15	8.13	1.88
4,295.0	22.80	216.00	4,285.6	-41.8	-45.8	43.7	5.93	5.81	3.23
4,327.0	24.60	215.80	4,314.9	-52.3	-53.3	54.4	5.63	5.63	-0.63
4,359.0	27.00	214.20	4,343.8	-63.7	-61.3	66.2	7.81	7.50	-5.00
4,390.0	29.20	211.90	4,371.1	-75.9	-69.2	78.8	7.91	7.10	-7.42
4,422.0	31.70	208.70	4,398.7	-89.9	-77.4	93.1	9.31	7.81	-10.00
4,453.0	33.50	205.20	4,424.8	-104.8	-85.0	108.3	8.41	5.81	-11.29
4,485.0	35.90	203.30	4,451.1	-121.4	-92.4	125.2	8.23	7.50	-5.94
4,516.0	38.70	201.50	4,475.8	-138.8	-99.6	142.8	9.69	9.03	-5.81
4,548.0	41.80	199.90	4,500.2	-158.1	-106.9	162.5	10.21	9.69	-5.00
4,580.0	45.00	197.80	4,523.4	-178.9	-114.0	183.6	10.97	10.00	-6.56
4,611.0	48.00	196.80	4,544.8	-200.4	-120.6	205.3	9.96	9.68	-3.23
4,643.0	49.90	196.70	4,565.8	-223.5	-127.6	228.7	5.94	5.94	-0.31
4,674.0	52.90	197.10	4,585.1	-246.7	-134.6	252.1	9.73	9.68	1.29
4,705.0	56.00	196.30	4,603.2	-270.8	-141.9	276.6	10.22	10.00	-2.58
4,737.0	59.10	195.50	4,620.3	-296.8	-149.3	302.8	9.91	9.69	-2.50
4,769.0	59.60	197.00	4,636.6	-323.2	-157.0	329.5	4.32	1.56	4.69
4,801.0	62.30	196.90	4,652.2	-350.0	-165.1	356.6	8.44	8.44	-0.31
4,832.0	65.50	195.90	4,665.8	-376.7	-173.0	383.6	10.72	10.32	-3.23
4,864.0	69.20	195.10	4,678.1	-405.1	-180.9	412.4	11.79	11.56	-2.50
4,895.0	73.10	194.10	4,688.1	-433.5	-188.3	441.1	12.95	12.58	-3.23
4,928.0	76.40	193.30	4,696.8	-464.5	-195.8	472.3	10.27	10.00	-2.42
4,959.0	78.70	192.30	4,703.5	-494.0	-202.5	502.1	8.06	7.42	-3.23
4,991.0	80.60	190.90	4,709.3	-524.8	-208.8	533.1	7.33	5.94	-4.38
5,023.0	82.50	188.80	4,714.0	-556.0	-214.3	564.5	8.80	5.94	-6.56
5,054.0	83.90	186.20	4,717.6	-586.5	-218.3	595.2	9.47	4.52	-8.39



Archer

Survey Report

Company:	Sandridge Energy, INC.(mid-con.)	Local Co-ordinate Reference:	Well West 3508 2-5H/04660-431-22/Lariat 40
Project:	Harper Co. (KS27S)	TVD Reference:	WELL @ 1255.0usft (Original Well Elev)
Site:	Sec 32-T34S-R08W	MD Reference:	WELL @ 1255.0usft (Original Well Elev)
Well:	West 3508 2-5H/04660-431-22/Lariat 40	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
5,086.0	85.10	183.40	4,720.7	-618.2	-220.9	627.0	9.48	3.75	-8.75
5,118.0	85.60	181.60	4,723.3	-650.1	-222.3	658.9	5.82	1.56	-5.63
5,149.0	86.10	181.10	4,725.5	-681.0	-223.1	689.8	2.28	1.61	-1.61
5,181.0	86.60	181.00	4,727.6	-712.9	-223.6	721.7	1.59	1.56	-0.31
5,213.0	87.00	181.30	4,729.4	-744.9	-224.3	753.7	1.56	1.25	0.94
5,246.0	87.40	181.30	4,731.0	-777.8	-225.0	786.6	1.21	1.21	0.00
5,275.0	87.60	181.30	4,732.2	-806.8	-225.7	815.6	0.69	0.69	0.00
5,307.0	88.00	181.30	4,733.5	-838.8	-226.4	847.6	1.25	1.25	0.00
5,352.0	88.10	181.40	4,735.0	-883.7	-227.5	892.5	0.31	0.22	0.22
5,401.0	88.40	181.10	4,736.5	-932.7	-228.5	941.5	0.87	0.61	-0.61
5,415.0	88.40	181.30	4,736.9	-946.7	-228.8	955.5	1.43	0.00	1.43
5,486.0	88.90	180.70	4,738.6	-1,017.7	-230.1	1,026.4	1.10	0.70	-0.85
5,548.0	89.20	181.00	4,739.6	-1,079.6	-231.0	1,088.4	0.68	0.48	0.48
5,639.0	88.70	179.10	4,741.2	-1,170.6	-231.1	1,179.3	2.16	-0.55	-2.09
5,731.0	88.40	178.90	4,743.6	-1,262.6	-229.5	1,271.1	0.39	-0.33	-0.22
5,823.0	87.70	178.20	4,746.7	-1,354.5	-227.1	1,362.9	1.08	-0.76	-0.76
5,915.0	88.30	180.40	4,749.9	-1,446.4	-226.0	1,454.7	2.48	0.65	2.39
6,007.0	87.50	179.50	4,753.3	-1,538.4	-225.9	1,546.5	1.31	-0.87	-0.98
6,098.0	88.30	180.10	4,756.6	-1,629.3	-225.6	1,637.3	1.10	0.88	0.66
6,191.0	90.70	181.30	4,757.4	-1,722.3	-226.8	1,730.3	2.89	2.58	1.29
6,282.0	90.50	181.80	4,756.5	-1,813.2	-229.2	1,821.3	0.59	-0.22	0.55
6,374.0	91.30	182.60	4,755.0	-1,905.2	-232.7	1,913.3	1.23	0.87	0.87
6,465.0	91.30	182.30	4,753.0	-1,996.1	-236.6	2,004.2	0.33	0.00	-0.33
6,556.0	89.60	178.80	4,752.3	-2,087.0	-237.5	2,095.2	4.28	-1.87	-3.85
6,647.0	89.20	177.50	4,753.2	-2,178.0	-234.6	2,185.9	1.49	-0.44	-1.43
6,738.0	91.80	179.30	4,752.4	-2,268.9	-232.0	2,276.7	3.47	2.86	1.98
6,830.0	92.60	179.40	4,748.9	-2,360.9	-231.0	2,368.5	0.88	0.87	0.11
6,924.0	90.50	180.00	4,746.3	-2,454.8	-230.5	2,462.3	2.32	-2.23	0.64
7,020.0	89.80	179.70	4,746.1	-2,550.8	-230.2	2,558.2	0.79	-0.73	-0.31
7,114.0	89.70	178.90	4,746.5	-2,644.8	-229.1	2,652.1	0.86	-0.11	-0.85
7,210.0	90.10	178.40	4,746.7	-2,740.8	-226.8	2,747.9	0.67	0.42	-0.52
7,304.0	89.10	178.50	4,747.3	-2,834.7	-224.3	2,841.7	1.07	-1.06	0.11
7,398.0	89.50	179.60	4,748.5	-2,928.7	-222.7	2,935.5	1.25	0.43	1.17
7,492.0	90.70	180.80	4,748.3	-3,022.7	-223.1	3,029.4	1.81	1.28	1.28
7,587.0	90.50	180.70	4,747.3	-3,117.7	-224.3	3,124.4	0.24	-0.21	-0.11
7,682.0	90.90	180.40	4,746.2	-3,212.7	-225.2	3,219.3	0.53	0.42	-0.32
7,777.0	89.00	181.60	4,746.2	-3,307.7	-226.9	3,314.3	2.37	-2.00	1.26
7,871.0	89.00	181.70	4,747.9	-3,401.6	-229.6	3,408.3	0.11	0.00	0.11
7,966.0	89.30	181.20	4,749.3	-3,496.6	-232.0	3,503.2	0.61	0.32	-0.53
8,061.0	89.30	181.10	4,750.4	-3,591.5	-233.9	3,598.2	0.11	0.00	-0.11
8,156.0	89.40	180.90	4,751.5	-3,686.5	-235.5	3,693.2	0.24	0.11	-0.21
8,250.0	88.20	179.10	4,753.5	-3,780.5	-235.6	3,787.1	2.30	-1.28	-1.91
8,346.0	88.20	178.60	4,756.5	-3,876.4	-233.6	3,882.8	0.52	0.00	-0.52
8,441.0	89.70	178.20	4,758.2	-3,971.4	-231.0	3,977.6	1.63	1.58	-0.42



Archer

Survey Report

Company: Sandridge Energy, INC.(mid-con.)	Local Co-ordinate Reference: Well West 3508 2-5H/04660-431-22/Lariat 40
Project: Harper Co. (KS27S)	TVD Reference: WELL @ 1255.0usft (Original Well Elev)
Site: Sec 32-T34S-R08W	MD Reference: WELL @ 1255.0usft (Original Well Elev)
Well: West 3508 2-5H/04660-431-22/Lariat 40	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: 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)
8,535.0	90.70	177.90	4,757.9	-4,065.3	-227.8	4,071.3	1.11	1.06	-0.32
8,630.0	89.90	179.10	4,757.4	-4,160.3	-225.3	4,166.1	1.52	-0.84	1.26
8,711.0	90.10	179.30	4,757.4	-4,241.3	-224.2	4,246.9	0.35	0.25	0.25
Last Archer MWD Survey									
8,762.0	90.10	179.30	4,757.3	-4,292.3	-223.5	4,297.9	0.00	0.00	0.00
Projection to TD - PBHL West 2-5H									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
286.0	286.0	-0.2	1.2	First Single Shot Survey
769.0	769.0	-0.8	4.2	Last Single Shot Survey
870.0	870.0	-1.0	5.1	First Archer MWD Survey
8,711.0	4,757.4	-4,241.3	-224.2	Last Archer MWD Survey
8,762.0	4,757.3	-4,292.3	-223.5	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

Sandridge Energy, INC.(mid-con.)



Project: Harper Co. (KS27S) SHL 240' FSL & 1,740' FEL
 Site: Sec 32-T34S-R08W
 Well: West 3508 2-5H/04660-431-22/Lariat 40
 Plan: Plan 021814 A1 (West 3508 2-5H/04660-431-22/Lariat 40/Wellbore #1)

WELL DETAILS: West 3508 2-5H/04660-431-22/Lariat 40	
Ground Level:	1237.0
Northing	134866.00
Easting	2085692.00
Latitude	37° 2' 12.062 N
Longitude	98° 12' 23.213 W

SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect		
6465.0	91.30	182.30	4752.5	-1996.0	-236.8	0.00	0.00	2004.2		
6554.8	89.80	180.90	4751.6	-2085.8	-239.3	2.28	-136.97	2094.0		
6678.3	91.90	179.60	4749.8	-2209.2	-239.8	2.00	-31.75	2217.3		
6778.3	91.90	179.60	4746.5	-2309.2	-239.1	0.00	0.00	2317.2		
6890.8	89.65	179.60	4745.0	-2421.6	-238.4	2.00	180.00	2429.5		
9673.3	89.66	179.60	4761.8	-5204.0	-219.0	0.00	22.93	5208.6		

T G M

Azimuths to Grid North
 True North: -0.18°
 Magnetic North: 4.31°

Magnetic Field
 Strength: 51624.1snT
 Dip Angle: 65.10°
 Date: 2014/01/30
 Model: IGRF2010

Harper County, Kansas
 SHL 240' FSL & 1740' FEL
 Sec 32-T34S-R08W
 Y: 134866 X: 2085692
 BHL 330' FSL & 1980' FEL
 Sec 05-T34S-R08W
 Y: 129662 X: 2085473

Projection to TD
 8,762' MD & 4,757.3' TVD
 4,292.3' S & 223.5' W
 1,243' FSL & 1,981' FEL

