



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1191170  
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: \_\_\_\_\_

1191170

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	Bleumer 2630 3-13H
Doc ID	1191170

#### Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
		Acid Treatment: 71 bbls gel, 36 bbls NEFE HCl, flush 54 bbls Linear Gel -20#	6903-6918
		Acid Treatment: 71 bbls Linear Gel, 36 bbls NEFE HCl 15%, 54 bbls Linear Gel - 20#	6873-6888
		Acid Treatment: 71 bbls Linear gel, 36 bbls NEFE 15% Acid gel, 54 bbls Linear Gel - 20#	6843-6858
		Acid Treatment: 71 bbls Linear gel, NEFE HCl 15% Acid Gel, 67 bbls Linear gel - 20#	6252-6267
		Acid Treatment: 91 bbls Linear Gel, 36 bbls, NEFE HCl 15% Acid, 41 bbls Linear gel -20#	6222-6237
		Acid Treatment: 71 bbls Linear Gel, 12 bbls NEFE 15% Acid, 71 bbls Linear Gel - 20#	5991-6006

Form	ACO1 - Well Completion
Operator	SandRidge Exploration and Production LLC
Well Name	Bleumer 2630 3-13H
Doc ID	1191170

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
		Acid Treatment: 71 bbls Linear Gel, 12 bbls NEFE HCl 15% Acid Gel, 71 bbls Linear Gel - 20#	5976-5991



# ALLIED OIL & GAS SERVICES, LLC 059994

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 93999  
SOUTHLAKE, TEXAS 76092

SERVICE POINT:

DATE <u>11-10-2013</u>	SEC <u>24</u>	TWP <u>26S</u>	RANGE <u>30W</u>	11-9 CALLED OUT <u>10:00pm</u>	11-90 ON LOCATION <u>4:00am</u>	Medicine Lodge, KS 11-10 JOB START <u>7:00am</u>	11-10 JOB FINISH <u>8:30am</u>
LEASE <u>Bleumer 2630</u>	WELL # <u>3-13H</u>	LOCATION <u>Ingsills, KS South on Rd</u>	COUNTY <u>Gray</u>	STATE <u>KS</u>			
OLD OR (NEW) (Circle one)			<u>11 to Rd P, 4.1W, S/1100</u>		<u>1.01</u>		

CONTRACTOR Domgc #52

TYPE OF JOB Surface

HOLE SIZE 12 1/4 T.D. 1571'

CASING SIZE 9 5/8 36# DEPTH 1577'

TUBING SIZE \_\_\_\_\_ DEPTH \_\_\_\_\_

DRILL PIPE \_\_\_\_\_ DEPTH \_\_\_\_\_

TOOL \_\_\_\_\_ DEPTH \_\_\_\_\_

PRES. MAX 2,000psi MINIMUM \_\_\_\_\_

MEAS. LINE \_\_\_\_\_ SHOE JOINT 43'

CEMENT LEFT IN CSG. \_\_\_\_\_

PERFS. \_\_\_\_\_

DISPLACEMENT 118 bbls of Fresh Water

EQUIPMENT

PUMP TRUCK CEMENTER Dann F. 1

# 546/545 HELPER Jorge H. 1

BULK TRUCK

# 421-290 DRIVER Jesse C. 3

BULK TRUCK

# 381-252 DRIVER Cory R. 3

REMARKS:

Pipe on bottom & break circulation

Pressure test to 2,000psi, pump 10bbls

water, mix 525sx 1sgd cement, 215sx

to 11 cement, shut down, Reletse plug

5+9+ displacement, slow rate to 3hrs

9+ 110 bbls dump plug 9+ 118 bbls

600-1100 psi, Plug & die hold, cement

die circulate 50 bbls to p.4

AFE Number: DC 13327

CHARACTER Name: Bleumer 2630 3-13H

Code: 830360

STREET Amount: 23143.46

CITY Co. Man: LARRY NIVEN'S

Co. Man Sig: [Signature]

Notes: \_\_\_\_\_

To: Allied Oil & Gas Services, LLC.

You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME LARRY NIVEN'S

SIGNATURE [Signature]

Thank You!!!

OWNER SquadRidge Energy

CEMENT

AMOUNT ORDERED 525sx 65:38:6%

Gel + 2%acc + 1/4 # Flosses 1, 215sx

C195s A + 2%acc + 1/4 # Flosses 1

COMMON <u>C195s B 215sx</u>	@ <u>17.90</u>	<u>3,848.50</u>
POZMIX _____	@ _____	_____
GEL _____	@ _____	_____
CHLORIDE <u>18sx</u>	@ <u>64.80</u>	<u>1,152.00</u>
ASC _____	@ _____	_____
<u>BLU Type 1 525sx</u>	@ <u>16.50</u>	<u>8,662.50</u>
<u>Flosses 1 186 lbs</u>	@ <u>2.97</u>	<u>552.42</u>
<u>Sugsn 80lbs</u>	@ <u>1.00</u>	<u>80.00</u>
_____	@ _____	_____
_____	@ _____	_____
_____	@ _____	_____
_____	@ _____	_____
HANDLING <u>824.10 wbl</u>	@ <u>2.48</u>	<u>2043.77</u>
MILEAGE <u>1402.56 ton mile</u>	@ <u>2.60</u>	<u>3646.66</u>
TOTAL		<u>19,985.85</u>

1402.56

SERVICE

DEPTH OF JOB 1577'

PUMP TRUCK CHARGE \_\_\_\_\_ 2213.75

EXTRA FOOTAGE \_\_\_\_\_ @ \_\_\_\_\_

MILEAGE 40 @ 7.70 308.00

MANIFOLD Accessories 1 @ \_\_\_\_\_ 275.00

Light Vehicle 40 @ 4.40 176.00

\_\_\_\_\_ @ \_\_\_\_\_

TOTAL 2,972.75

PLUG & FLOAT EQUIPMENT

956

1-Rubber Plug @ \_\_\_\_\_ 184.86

\_\_\_\_\_ @ \_\_\_\_\_

\_\_\_\_\_ @ \_\_\_\_\_

\_\_\_\_\_ @ \_\_\_\_\_

\_\_\_\_\_ @ \_\_\_\_\_

TOTAL 184.86

SALES TAX (If Any) 1057.06

TOTAL CHARGES \$23,143.46

DISCOUNT 30% IF PAID IN 30 DAYS

6943.04

\$16,200.42



# ALLIED OIL & GAS SERVICES, LLC 059999

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 93999  
SOUTHLAKE, TEXAS 76092

SERVICE POINT:  
*Medicine Lake, KS*

DATE <i>11-18-2013</i>	SEC <i>24</i>	TWP <i>26s</i>	RANGE <i>30W</i>	CALLED OUT <i>2:00 AM</i>	ON LOCATION <i>6:30 AM</i>	JOB START <i>2:00 PM</i>	JOB FINISH <i>3:30 PM</i>
LEASE <i>Bleumer 2630</i>	WELL # <i>3-13H</i>	LOCATION <i>Ingell, KS South on Rd 13, to Rd P, then 4.1 west, skinn</i>		COUNTY <i>Gray</i>	STATE <i>KS</i>		

CONTRACTOR *Domgo #52* OWNER *Sand Rise Energy*

TYPE OF JOB <i>Intermed. w/s</i>	CEMENT
HOLE SIZE <i>8 3/4"</i>	AMOUNT ORDERED <i>265sq 50:50 (10) P02</i>
CASING SIZE <i>7"</i>	<i>2% Gel + .4% FL16 + .1% C-51, 100S, 199S A + .8% FL16 + .2% CD-31</i>
TUBING SIZE	
DRILL PIPE	
TOOL	

PRES. MAX <i>3,000 psi</i>	MINIMUM	COMMON <i>Class A 100s @ 17.90</i>	<i>1,790.00</i>
MEAS. LINE	SHOE JOINT <i>89'</i>	POZMIX	@
CEMENT LEFT IN CSG. <i>89'</i>		GEL	@
PERFS.		CHLORIDE	@
DISPLACEMENT <i>216 bbls of brach water</i>		ASC	@

PUMP TRUCK # <i>558 (555)</i>	CEMENTER <i>Derin F</i>	1
BULK TRUCK # <i>561.558</i>	HELPER <i>Scott P.</i>	1
BULK TRUCK #	DRIVER <i>Carl R.</i>	3
BULK TRUCK #	DRIVER	

Super Flush <i>30 bbls</i>	@ <i>58.70</i>	<i>1,761.00</i>
FL16 <i>157 lbs</i>	@ <i>18.90</i>	<i>2,967.30</i>
SB-51 <i>21 lbs</i>	@ <i>17.55</i>	<i>368.55</i>
CD-31 <i>19 lbs</i>	@ <i>16.30</i>	<i>311.70</i>
Additional <i>3 hrs</i>	@ <i>440.00</i>	<i>1320.00</i>
HANDLING <i>368.84 w/br</i>	@ <i>2.48</i>	<i>914.52</i>
MILEAGE <i>646.22</i>	@ <i>2.60</i>	<i>1680.17</i>
		TOTAL <i>14,833.28</i>

**REMARKS:**

*Pipe on bottom & break circulation. Pressure test to 3,000 psi, pump 30 bbl ASF, mix 265sq 100s cement, 100s 199s cement. Shut down. Release plus, start displacement. 4.1 pressure at 150 bbls. Shut 15.10 to 3.00 at 206 bbls dump plus at 216 bbls 100-1400 psi. Post dia hold*

**SERVICE**

DEPTH OF JOB		
PUMP TRUCK CHARGE		<i>3099.25</i>
EXTRA FOOTAGE	@	
MILEAGE <i>40</i>	@ <i>2.70</i>	<i>308.00</i>
MANIFOLD <i>flares etc</i>	@	<i>275.00</i>
Light Vehicle <i>40</i>	@ <i>4.40</i>	<i>176.00</i>
		TOTAL <i>3,858.25</i>

AFE Number: *DC13327*  
CHARGE TO Well Name: *BLEUMER 2630 3-13H*  
STREET Code: *13-153-69*  
CITY Co. Man: *STANBAC*  
Co. Man Sig: *[Signature]*  
Notes:

**PLUG & FLOAT EQUIPMENT**

<i>7"</i>		
<i>1-Rubber Plug</i>	@	<i>99.45</i>
	@	
	@	
	@	
	@	
		TOTAL <i>99.45</i>

To: Allied Oil & Gas Services, LLC.  
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME \_\_\_\_\_

SIGNATURE \_\_\_\_\_

SALES TAX (If Any) *899.21*  
TOTAL CHARGES *18796.89*  
DISCOUNT *5637.29* IF PAID IN 30 DAYS  
*\$13,153.69*

**5D Survey Report**

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**Sandridge Energy**

**Field Name:** Sandridge Energy - Gray Co., KS S NAD 27 US FT  
**Site Name:** Bleumer 2630 3-13H  
**Well Name:** Bleumer 2630 3-13H  
**Survey:** Definitive Survey (Geographic)

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26 November 2013



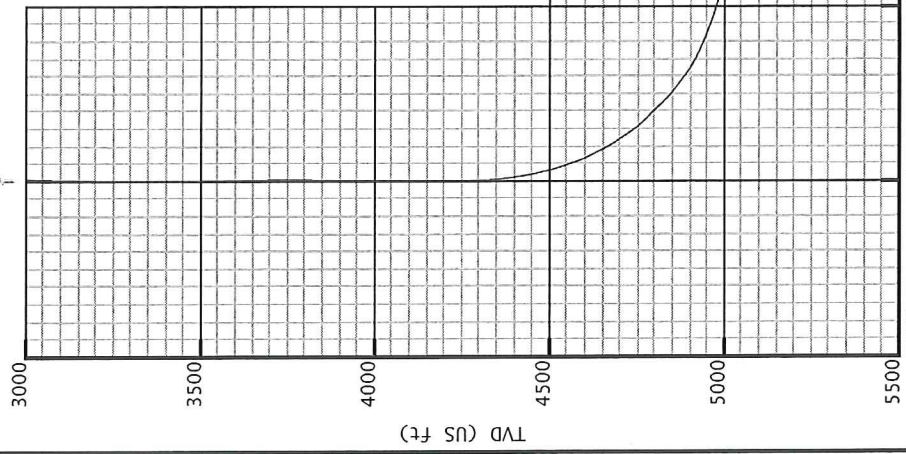
**Weatherford<sup>®</sup>**





**Bleumer 2630 3-13H**  
 Nomac 52  
 Gray County, KS  
 X= 1409186.45'  
 Y= 411855.92'  
 Plan 3 vs Actual

KB: 2778'  
 GL: 2759'



Vertical Section View  
 VS (US ft) (Bearing: 323.54° Scale: 500USft/in)

**Plan Data for Bleumer 2630 3-13H**

Plan Point Information:

Dogleg Severity (USft)	MD Inc (°)	Az (°)	TVD (USft)	+N/-S (USft)	+E/-W (USft)	Position offsets from Slot centre (USft)	VSec (USft)	DLS Toolface (°)
6406.00	90.00	327.83	5013.12	1354.61	-1020.36	1695.84	1.44	8.1
6519.56	87.00	324.42	5016.09	1448.83	-1083.62	1809.21	4.00	228.6
6556.69	87.00	324.42	5018.04	1478.99	-1105.19	1846.28	0.00	0.0
6631.68	90.00	324.42	5020.00	1539.96	-1148.81	1921.24	4.00	0.0
7208.50	90.00	324.42	5020.00	2009.07	-1484.44	2497.99	0.00	0.0

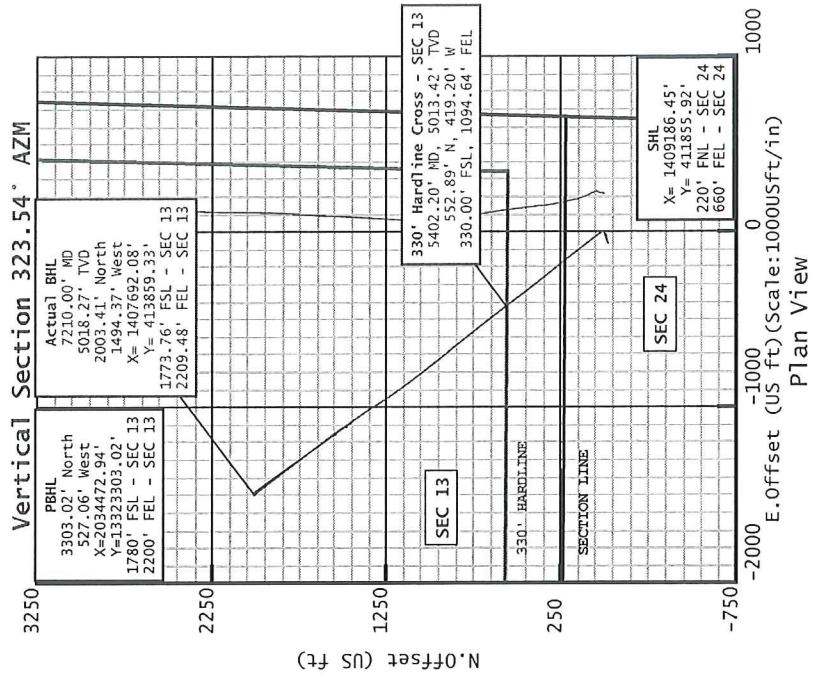
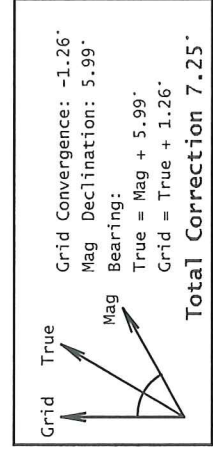
Target Set Information:

Name	TVD (USft)	Northing (USft)	Easting (USft)	Lat (°/')	Long (°/')
PBHL	5020.00	413865.00	1407702.00	37°47'7.5"	-100°32'58.9"

**Plan Data for Bleumer 2630 3-13H**

Field: Sandridge Energy - Gray Co., KS S NAD 27 US FT  
 Map Unit: USFT  
 Vertical Reference Datum (VRD): Mean Sea Level  
 Projected Coordinate System: NAD27 / Kansas South

Well: Bleumer 2630 3-13H  
 Type: Main-Well  
 File Number:  
 Plan Folder: P3  
 Plan: P3:V1  
 Vertical Section: Position offset of origin from Slot centre:  
 LAT +N/-S: 37.779996'  
 LONG +E/-W: -100.544417'  
 Magnetic Parameters:  
 Model: Field Strength: 5.99'  
 ICRF 51909(NT) Dip: 65.45' Date: 2013-10-31



Plan View  
 E. Offset (US ft) (Scale: 1000USft/in)

Created By: Gary Rhodes Date: 11/01/2013  
 Weatherford Drilling Services  
 6325 N. Meridian St., #201  
 Oklahoma City, OK 73116  
 +1.405.773.1100 Main  
 +1.405.773.1887 Fax



Bleumer 2630 3-13H  
 Bleumer 2630 2-13H  
 Bleumer 2630 3-13H Actual

# Bleumer 2630 3-13H

Company Name : Sandridge Energy

Map Units : US ft

Vertical Reference Datum (VRD) : Mean Sea Level

Projected Coordinate System : NAD27 / Kansas South

**Field Name**  
Sandridge Energy - Gray  
Co., KS S NAD 27 US FT

Comment :

Units : US ft      North Reference : Grid

    Northing : 411855.92    US ft

    Easting : 1409186.45    US ft

Position

Elevation above Mean Sea Level: 2759.00 US ft

Comment :

Convergence Angle : -1.26

Latitude : 37° 46' 47.99"

Longitude : -100° 32' 39.90"

**Site Name**

Bleumer 2630 3-13H

**Slot Name**

Bleumer 2630 3-13H

Position (Offsets relative to Site Centre)

    Northing : 411855.92    US ft

    Easting : 1409186.45    US ft

Latitude : 37° 46' 47.99"

Longitude : -100° 32' 39.90"

Slot TVD Reference : Ground Elevation

Elevation above Mean Sea Level : 2759.00 US ft

Comment :

Type : Main well

Rig Height Drill Floor : 19.00 US ft

Relative to Mean Sea Level: 2778.00 US ft

Closure Distance : 2499.36 US ft

Vertical Section (Position of Origin Relative to Slot )

    +N / -S : 0.00 US ft

    +E / -W : 0.00 US ft

    Az : 323.54°

UWI :

Comment :

Closure Azimuth : 323.28°



**Target Set**

Name : Bleumer 2630 3-13H - T3      Number of Targets : 1

**Comment :**

**TargetNames:**

PBHL

**Shapes:**

Cuboid

**Position (Relative to Slot centre)**

Latitude : 37°47'7.52"  
Longitude : -100°32'58.94"

Northing : 413865.00 US ft  
Easting : 1407702.00 US ft

TVD (Drill Floor) : 5020.00 US ft

SS : -2242.00 US ft

Orientation      Azimuth : 0.00°  
Dimensions      Length : 0.00 US ft

Inclination : 0.00°  
Breadth : 0.00 US ft

Height : 0.00 US ft

**Survey Name : Definitive Survey**

Date : 31/Oct/2013      Survey Tool :      Company :

**Magnetic Model**

Model Name: IGRF      Date: 31/Oct/2013      Field Strength: 51909.2 nT      Declination: 5.99°      Dip: 65.45°

**Survey Tool Ranges**

Name	Start MD (us ft)	End MD (us ft)	Source Survey
Inc Only 3deg_WFTR	0.00	1572.00	Rig Surveys
MWD	1572.00	7210.00	WFT MWD Surveys

**Well path created using minimum curvature**

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (#/100 US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
238.00	0.80	252.63	237.99	-0.50	-1.59	0.54	0.34	First Rig Survey
494.00	1.90	252.63	493.92	-2.30	-7.34	2.52	0.43	
740.00	1.70	252.63	739.80	-4.60	-14.72	5.04	0.08	
985.00	0.70	252.63	984.74	-6.14	-19.61	6.72	0.41	
1323.00	4.30	252.63	1322.36	-10.54	-33.68	11.54	1.07	
1340.69	4.43	252.63	1340.00	-10.94	-34.97	11.98	0.75	Cedar Hills :
1443.00	5.20	252.63	1441.95	-13.50	-43.17	14.79	0.75	
1511.32	4.99	252.63	1510.00	-15.31	-48.96	16.78	0.31	Cedar Hills Base :
1572.00	4.80	252.63	1570.46	-16.86	-53.90	18.47	0.31	Last Rig Survey
1639.00	4.14	252.63	1637.25	-18.42	-58.88	20.18	0.99	First WFT MWD Survey
1701.00	3.57	247.30	1699.11	-19.83	-62.80	21.37	1.08	

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	V/S (US ft)	DLS (%/100 US ft)			Comment
1763.00	2.70	244.06	1761.02	-21.21	-65.89	22.09	1.43			
1826.00	1.82	226.98	1823.97	-22.55	-67.96	22.25	1.74			
1888.00	0.58	197.86	1885.96	-23.52	-68.77	21.95	2.17			
1950.00	1.36	98.71	1947.95	-23.93	-68.14	21.25	2.52			
2013.00	1.49	91.47	2010.93	-24.06	-66.58	20.22	0.35			
2076.00	1.40	82.05	2073.91	-23.98	-65.00	19.35	0.40			
2139.00	1.32	78.97	2136.89	-23.73	-63.53	18.67	0.17			
2201.00	1.15	75.47	2198.88	-23.44	-62.22	18.13	0.30			
2263.00	1.80	60.23	2260.86	-22.80	-60.78	17.78	1.22			
2326.00	2.47	52.01	2323.81	-21.47	-58.85	17.70	1.17			
2388.00	2.43	49.69	2385.76	-19.80	-56.79	17.83	0.17			
2451.00	2.89	67.63	2448.69	-18.33	-54.31	17.53	1.50			
2513.00	3.32	82.13	2510.60	-17.49	-51.08	16.29	1.44			
2576.00	2.87	80.24	2573.51	-16.97	-47.72	14.71	0.73			
2612.54	2.82	80.61	2610.00	-16.67	-45.93	13.89	0.15			
2639.00	2.78	80.89	2636.43	-16.46	-44.66	13.30	0.15			
2702.00	2.59	74.22	2699.36	-15.83	-41.78	12.09	0.58			
2764.00	2.47	77.66	2761.30	-15.17	-39.13	11.05	0.31			Chase :
2826.00	2.68	78.60	2823.24	-14.60	-36.40	9.89	0.35			
2889.00	2.46	85.06	2886.18	-14.19	-33.61	8.56	0.58			
2952.00	2.32	83.12	2949.12	-13.92	-31.00	7.23	0.26			
3014.00	2.29	80.16	3011.07	-13.56	-28.53	6.05	0.20			
3076.00	2.49	86.54	3073.02	-13.26	-25.97	4.76	0.54			
3138.00	2.67	84.88	3134.95	-13.05	-23.18	3.28	0.31			
3200.00	2.38	87.76	3196.89	-12.87	-20.46	1.80	0.51			
3262.00	1.54	98.97	3258.86	-12.95	-18.35	0.49	1.48			
3324.00	0.78	106.50	3320.84	-13.20	-17.12	-0.44	1.25			
3385.00	0.95	31.93	3381.84	-12.89	-16.46	-0.59	1.73			
3447.00	1.82	20.96	3443.82	-11.54	-15.83	0.13	1.46			
3509.00	1.84	10.21	3505.79	-9.64	-15.30	1.34	0.55			
3572.00	1.51	6.75	3568.76	-7.82	-15.03	2.64	0.55			
3635.00	2.26	31.30	3631.73	-5.93	-14.28	3.72	1.72			
3697.00	2.60	38.13	3693.67	-3.78	-12.78	4.55	0.72			
3759.00	2.55	55.42	3755.61	-1.89	-10.78	4.88	1.25			
3821.00	2.52	71.78	3817.55	-0.68	-8.35	4.41	1.16			
3885.00	2.48	70.16	3881.49	0.23	-5.71	3.57	0.13			
3948.00	2.59	60.91	3944.43	1.38	-3.18	3.00	0.67			
4010.00	1.88	64.90	4006.38	2.49	-1.04	2.62	1.17			
4072.00	1.22	71.40	4068.36	3.14	0.51	2.22	1.10			
4123.65	0.80	65.87	4120.00	3.46	1.36	1.97	0.83			Heebner :
4134.00	0.72	64.00	4130.35	3.52	1.49	1.94	0.83			

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)									
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (%/100 US ft)	Comment	
4183.65	0.35	95.57	4180.00	3.64	1.92	1.79	0.93	Lansing :	
4196.00	0.30	113.78	4192.35	3.62	1.98	1.73	0.93		
4224.00	0.47	67.64	4220.35	3.64	2.16	1.64	1.21		
4256.00	0.70	335.62	4252.34	3.86	2.20	1.80	2.68		
4288.00	1.89	323.81	4284.34	4.47	1.81	2.52	3.79		
4319.00	3.32	319.49	4315.30	5.56	0.92	3.93	4.65		
4350.00	5.00	321.69	4346.22	7.31	-0.50	6.17	5.44		
4381.00	6.96	325.21	4377.05	9.91	-2.41	9.40	6.43		
4413.00	8.92	324.78	4408.74	13.53	-4.95	13.82	6.13		
4444.00	10.59	328.58	4439.29	17.92	-7.82	19.06	5.77		
4475.00	12.70	328.48	4469.65	23.26	-11.08	25.29	6.81		
4507.00	15.17	329.29	4500.71	29.86	-15.06	32.96	7.74		
4539.00	17.49	327.88	4531.42	37.53	-19.76	41.93	7.35		
4570.00	19.77	324.60	4560.79	45.75	-25.27	51.81	8.09		
4601.00	22.60	323.69	4589.69	54.83	-31.84	63.02	9.19		
4632.00	25.63	322.38	4617.98	64.94	-39.46	75.68	9.92		
4664.00	28.10	322.14	4646.53	76.37	-48.31	90.13	7.73		
4673.64	28.98	322.02	4655.00	80.01	-51.14	94.74	9.15	Marmaton :	
4695.00	30.93	321.78	4673.50	88.40	-57.72	105.40	9.15		
4726.00	33.69	322.09	4699.70	101.44	-67.94	121.96	8.92		
4757.00	36.86	322.29	4725.01	115.59	-78.91	139.86	10.23		
4789.00	39.13	322.31	4750.22	131.17	-90.95	159.55	7.09		
4821.00	42.01	322.00	4774.53	147.60	-103.72	180.35	9.02		
4828.40	42.53	321.89	4780.00	151.52	-106.79	185.33	7.16	Cherokee :	
4853.00	44.28	321.55	4797.87	164.79	-117.26	202.22	7.16		
4884.00	46.02	321.45	4819.74	181.99	-130.94	224.19	5.62		
4915.00	48.18	321.68	4840.84	199.78	-145.06	246.88	6.99		
4945.00	50.90	321.77	4860.30	217.70	-159.20	269.69	9.07		
4977.00	54.36	322.29	4879.72	237.74	-174.84	295.11	10.89		
5007.00	57.94	322.18	4896.43	257.44	-190.10	320.02	11.94		
5038.00	61.32	321.98	4912.10	278.53	-206.53	346.75	10.92		
5068.00	63.70	321.82	4925.95	299.47	-222.95	373.35	7.95		
5088.91	64.98	321.82	4935.00	314.29	-234.60	392.18	6.12	Mississippi :	
5100.00	65.66	321.82	4939.63	322.21	-240.83	402.26	6.13		
5132.00	67.72	321.87	4952.29	345.32	-258.98	431.63	6.44		
5164.00	69.71	321.66	4963.91	368.74	-277.44	461.44	6.25		
5195.00	72.74	321.69	4973.89	391.76	-295.64	490.77	9.77		
5227.00	75.50	321.56	4982.64	415.89	-314.74	521.53	8.63		
5258.00	77.42	321.78	4989.90	439.53	-333.43	551.65	6.23		
5289.00	78.68	322.03	4996.32	463.40	-352.14	581.96	4.14		
5320.00	79.61	322.84	5002.16	487.53	-370.70	612.40	3.95		



5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)									
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	Comment	
5351.00	81.07	323.73	5007.36	512.03	-388.97	642.96	5.49		
5369.78	82.75	323.61	5010.00	527.01	-399.99	661.55	8.99		St. Louis :
5382.00	83.85	323.54	5011.42	536.77	-407.19	673.69	8.99		
5402.20	84.80	323.11	5013.42	552.89	-419.20	693.79	5.16		330' Hardline Cross
5413.00	85.31	322.88	5014.35	561.48	-425.68	704.55	5.16		
5445.00	85.16	322.63	5017.01	586.87	-444.98	736.43	0.91		
5475.00	86.36	322.62	5019.30	611.44	-463.74	767.35	3.87		
5507.00	87.83	322.43	5020.87	636.01	-482.58	798.30	4.78		
5538.00	87.48	322.19	5022.14	660.52	-501.51	829.27	1.37		
5569.00	87.06	322.05	5023.62	684.96	-520.53	860.22	1.43		
5601.00	86.92	321.71	5025.30	710.10	-540.25	892.16	1.15		
5632.00	87.21	321.69	5026.89	734.39	-559.44	923.11	0.94		
5663.00	86.91	321.59	5028.48	758.67	-578.66	954.05	1.02		
5694.00	86.64	321.40	5030.22	782.89	-597.92	984.98	1.06		
5725.00	87.49	321.75	5031.81	807.15	-617.17	1015.92	2.96		
5752.00	89.09	322.04	5032.61	828.38	-633.82	1042.90	6.02		
5832.00	90.77	320.84	5032.71	890.93	-683.68	1122.84	2.58		
5895.00	91.12	321.50	5031.66	940.78	-723.81	1186.78	1.17		
5959.00	93.08	322.02	5029.35	990.23	-762.77	1249.70	3.22		
6023.00	93.08	322.07	5025.91	1040.62	-802.08	1313.59	0.08		
6087.00	93.08	322.69	5022.47	1091.24	-841.09	1377.48	0.97		
6151.00	93.16	324.32	5018.99	1142.61	-879.10	1441.38	2.55		
6215.00	93.64	324.58	5015.19	1194.59	-916.24	1505.26	0.85		
6278.00	90.98	326.92	5012.65	1246.62	-951.66	1568.15	5.62		
6342.00	89.09	327.70	5012.61	1300.48	-986.23	1632.01	3.19		
6406.00	90.00	327.83	5013.12	1354.61	-1020.36	1695.84	1.44		
6470.00	89.51	326.36	5013.39	1408.34	-1055.13	1759.71	2.42		
6534.00	87.76	326.16	5014.92	1461.54	-1090.66	1823.62	2.75		
6598.00	87.69	325.70	5017.46	1514.52	-1126.49	1887.51	0.73		
6661.00	87.56	324.04	5020.07	1565.99	-1162.71	1950.44	2.64		
6725.00	89.72	322.64	5021.59	1617.31	-1200.91	2014.41	4.02		
6789.00	90.14	322.93	5021.67	1668.28	-1239.61	2078.41	0.80		
6853.00	90.98	322.46	5021.04	1719.19	-1278.40	2142.40	1.50		
6917.00	91.19	322.64	5019.83	1769.99	-1317.31	2206.38	0.43		
6980.00	90.84	322.67	5018.71	1820.06	-1355.52	2269.36	0.56		
7044.00	90.00	322.64	5018.24	1870.94	-1394.34	2333.35	1.31		
7108.00	89.72	322.99	5018.40	1921.93	-1433.02	2397.34	0.70		
7140.00	90.14	323.03	5018.44	1947.49	-1452.28	2429.34	1.32		Last WFT MWD Survey
7210.00	90.14	323.03	5018.27	2003.41	-1494.37	2499.34	0.00		Proj. to TD