



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1223912  
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: \_\_\_\_\_

1223912

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> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/12/2014
Job End Date:	8/12/2014
State:	Kansas
County:	Harper
API Number:	15-077-22050-01-00
Operator Name:	SandRidge Energy
Well Name and Number:	Ruth 3406 #1-22H
Longitude:	-97.96341663
Latitude:	37.06501760
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	5,246
Total Base Water Volume (gal):	2,741,886
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	95.63820	None
40/70 Premium Preferred Sand	Cimarron Acid	Proppant, Scouring, Fill	Crystalline Silica (quartz)	14808-60-7	100.00000	2.20255	None
40/70 Resin Coated Sand	Cimarron Acid	Proppant, Scouring, Fill	Crystalline Silica (quartz)	14808-60-7	97.00000	1.09655	None
15% Unihibited HCl Acid	Cimarron Acid	Etching, Dissolving, Cleaning	Water	7732-18-5	85.00000	0.76493	None
			Hydrochloric Acid	7647-01-0	15.00000	0.13499	None
			Water	7732-18-5	24.00000	0.00018	None
			Methanol	67-56-1	9.00000	0.00007	None
			Triethyl Phosphate	78-40-0	8.40000	0.00006	None
			2-Butoxyethanol	111-76-2	8.40000	0.00006	None
			Ethylene Glycol	107-21-1	8.40000	0.00006	None
			N-Dimethylformamide	68-12-2	8.40000	0.00006	None
			Cinnamaldehyde	104-55-2	8.40000	0.00006	None
			Ethoxylated Nonylphenol	68412-54-4	8.40000	0.00006	None

			Tar Bases-quinoline derivs-benzyl chloride/quaternized	72480-70-7	8.40000	0.00006	None
			Isopropyl Alcohol	67-63-0	8.40000	0.00006	None
Iron Control, Sodium Erythorbate	Cimarron Acid	Iron Control					
			Water	7732-18-5	55.50000	0.02361	None
			Methanol	67-56-1	12.70000	0.00542	None
			Dinanylphenyl Polyoxyethylene	201602-88-2	9.10000	0.00387	None
			Poly(ethylene Oxide)	25322-68-3	9.10000	0.00387	None
			Nonylphenal Polyethylene Glycol Ether	127087-87-0	9.10000	0.00387	None
			Isopropanol	67-63-0	4.60000	0.00194	None
			Sodium Erythorbate	6381-77-7	100.00000	0.00030	None
			Water	7732-18-5	54.50000	0.00022	None
			Polyglycol Ethers	52624-57-4	13.60000	0.00005	None
			Isopropanol	67-63-0	13.60000	0.00005	None
			Methanol	67-56-1	9.00000	0.00004	None
			Glycol Ether EB	111-76-2	9.00000	0.00004	None
FR-986, Cationic Friction Reducer	Cimarron Acid	Friction Reducer					
			Water	7732-18-5	50.00000	0.00494	None
			Petroleum Hydrotreated Light Distillate	64742-47-8	2.50000	0.00187	None
			Phosphoric Acid	7664-38-2	16.80000	0.00166	None
			Hydrochloric Acid	7647-01-0	16.80000	0.00166	None
			Ethylene Glycol	107-21-1	12.70000	0.00126	None
			Methanol	67-56-1	3.60000	0.00036	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)

# Ruth 3406 1-22H

Perforations 5 shots/foot

Date	Top (ftKB)	Blm (ftKB)	Zone
8/14/2014	5,876.0	5,878.0	Miss Lime, Original Hole
8/14/2014	6,001.0	6,003.0	Miss Lime, Original Hole
8/14/2014	6,090.0	6,092.0	Miss Lime, Original Hole
8/14/2014	6,211.0	6,213.0	Miss Lime, Original Hole
8/14/2014	6,340.0	6,342.0	Miss Lime, Original Hole
8/14/2014	6,472.0	6,474.0	Miss Lime, Original Hole
8/14/2014	6,598.0	6,600.0	Miss Lime, Original Hole
8/14/2014	6,723.0	6,725.0	Miss Lime, Original Hole
8/14/2014	6,852.0	6,854.0	Miss Lime, Original Hole
8/14/2014	6,981.0	6,983.0	Miss Lime, Original Hole
8/14/2014	7,104.0	7,106.0	Miss Lime, Original Hole
8/14/2014	7,235.0	7,237.0	Miss Lime, Original Hole
8/14/2014	7,321.0	7,323.0	Miss Lime, Original Hole
8/14/2014	7,453.0	7,455.0	Miss Lime, Original Hole
8/14/2014	7,581.0	7,583.0	Miss Lime, Original Hole
8/14/2014	7,712.0	7,714.0	Miss Lime, Original Hole
8/14/2014	7,841.0	7,843.0	Miss Lime, Original Hole
8/14/2014	7,973.0	7,975.0	Miss Lime, Original Hole
8/14/2014	8,102.0	8,104.0	Miss Lime, Original Hole
8/14/2014	8,232.0	8,234.0	Miss Lime, Original Hole
8/14/2014	8,361.0	8,363.0	Miss Lime, Original Hole
8/14/2014	8,492.0	8,494.0	Miss Lime, Original Hole
8/13/2014	8,624.0	8,626.0	Miss Lime, Original Hole
8/13/2014	8,750.0	8,752.0	Miss Lime, Original Hole
8/13/2014	8,881.0	8,883.0	Miss Lime, Original Hole
8/13/2014	9,004.0	9,006.0	Miss Lime, Original Hole
8/13/2014	9,129.0	9,131.0	Miss Lime, Original Hole
8/13/2014	9,255.0	9,257.0	Miss Lime, Original Hole
8/13/2014	9,387.0	9,389.0	Miss Lime, Original Hole
8/13/2014	9,516.0	9,518.0	Miss Lime, Original Hole

<b>JOB SUMMARY</b>			PROJECT NUMBER <b>SOK 3877</b>	TICKET DATE <b>06/25/14</b>
COUNTRY <b>Harper</b>	State <b>Kansas</b>	COMPANY <b>Bridge Exploration &amp; Produc</b>	CUSTOMER REP <b>Mark Turner</b>	
LEASE NAME <b>Ruth</b>	Well No. <b>1406 1-22</b>	JOB TYPE <b>Surface</b>	EMPLOYEE NAME <b>marcos quintana</b>	

EMP NAME					
Marcos Quintana	0				
Wallace Berry					
Vontray Watkins					
David Thomas					

Form. Name \_\_\_\_\_ Type: \_\_\_\_\_  
 Packer Type \_\_\_\_\_ Set At **0**  
 Bottom Hole Temp. **80** Pressure \_\_\_\_\_  
 Retainer Depth \_\_\_\_\_ Total Depth **0**

Date	Called Out <b>6/25/2014</b>	On Location <b>6/25/2014</b>	Job Started <b>6/25/2014</b>	Job Completed <b>6/25/2014</b>
Time	<b>1000</b>	<b>1130</b>	<b>1740</b>	<b>1840</b>

Tools and Accessories		
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	Max. Allow
Casing		36#	9 1/2"		Surface	0	1,500
Liner							
Liner							
Tubing			0				
Drill Pipe							
Open Hole			12 1/4"		Surface	0	Shots/Ft.
Perforations							
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	
Perfpac Balls	Qty.		
Other			
Other			
Other			
Other			
Other			

Hours On Location		Operating Hours		Description of Job
Date	Hours	Date	Hours	
6/25	6.0	6/25	1.0	Surface
Total	6.0	Total	1.0	

Pressures			
MAX	1,500 PSI	AVG.	100
Average Rates in BPM			
MAX	6 BPM	AVG	4.5
Cement Left in Pipe			
Feet	45	Reason	SHOE JOINT

Cement Data						
Stage	Sacks	Cement	Additives	W/Rq.	Yield	Lbs/Gal
1	200	EX Lite Premium Plus 65	(6% Gel) 2% Calcium Chloride - 1/2pps Cello-Flake - .4% C-41P	11.11	2.01	12.40
2	200	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		Type:		Preflush:	BBI	<b>10.00</b>	Type:	Fresh Water
Breakdown		MAXIMUM	<b>1,500 PSI</b>	Load & Bkdn:	Gal - BBI	<b>N/A</b>	Pad:Bbl -Gal	<b>N/A</b>
		Lost Returns-N	<b>NO/FULL</b>	Excess /Return	BBI	<b>50</b>	Calc.Disp Bbl	<b>49</b>
		Actual TOC	<b>SURFACE</b>	Calc. TOC:		<b>SURFACE</b>	Actual Disp.	<b>49.50</b>
Average		Bump Plug PSI:	<b>650</b>	Final Circ.	PSI:	<b>150</b>	Disp:Bbl	
ISIP	5 Min.	10 Min.	<b>15 Min</b>	Cement Slurry:	BBI	<b>118.0</b>		
				Total Volume	BBI	<b>177.50</b>		

CUSTOMER REPRESENTATIVE \_\_\_\_\_ SIGNATURE \_\_\_\_\_

<b>JOB SUMMARY</b>			PROJECT NUMBER <b>SOK 3896</b>	TICKET DATE <b>07/06/14</b>
COUNTY <b>Harper</b>	State <b>Kansas</b>	COMPANY <b>Sandridge Exploration &amp; Production</b>	CUSTOMER REP <b>JT Hunter</b>	
LEASE NAME <b>Ruth 3406</b>	Well No. <b>1-22H</b>	JOB TYPE <b>Intermediate</b>	EMPLOYEE NAME <b>Bryan Douglas</b>	

EMP NAME					
Bryan Douglas		0			
Paul Thomas					
Flo Helkena					
0.00					

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

Packer Type \_\_\_\_\_ Set At **4,019**

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

Retainer Depth \_\_\_\_\_ Total Depth **5,790'**

Date	Called Out	On Location	Job Started	Job Completed
	<b>7/6/2014</b>	<b>7/6/2014</b>	<b>7/6/2014</b>	<b>7/6/2014</b>
Time	<b>0500</b>	<b>0800</b>	<b>0900</b>	<b>1200</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

	New/Used	Weight	Size	Grade	From	To	Max. Allow
Casing		26#	7"		Surface		5,000
Liner							
Liner							
Tubing			0				
Drill Pipe							
Open Hole			8 3/4"		Surface	5,810'	Shots/Ft.
Perforations							
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	Gel	BBL.	<b>30</b> <b>8.33</b>
Spacer type	BBL.		
Acid Type	Gal.		%
Acid Type	Gal.		%
Surfactant	Gal.		ln
NE Agent	Gal.		ln
Fluid Loss	Gal/Lb		ln
Gelling Agent	Gal/Lb		ln
Fric. Red.	Gal/Lb		ln
MISC.	Gal/Lb		ln
Perfpac Balls	Qty.		
Other			
Other			
Other			
Other			

Hours On Location		Operating Hours		Description of Job
Date	Hours	Date	Hours	
7/6	4.0	7/6	3.0	Intermediate
				1 BBL BACK
Total	4.0	Total	3.0	

Pressures			
MAX	5,000 PSI	AVG.	300
Average Rates in BPM			
MAX	8 BPM	AVG	5
Cement Left in Pipe			
Feet	48	Reason	SHOE JOINT

Cement Data				W/Rq.	Yield	Lbs/Gal
Stage	Sacks	Cement	Additives			
1	220	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	190	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		0.00	0.00	0.00

Summary			
Preflush	<b>30</b>	Type: <b>Gel</b>	Preflush: BBI <b>30.00</b>
Breakdown		MAXIMUM <b>5,000 PSI</b>	Load & Bkdn: Gal - BBI <b>N/A</b>
		Lost Returns-N <b>NO/FULL</b>	Excess /Return BBI <b>N/A</b>
		Actual TOC <b>3,300</b>	Calc. TOC: <b>3,300</b>
Average		Bump Plug PSI: <b>1,300</b>	Final Circ. PSI: <b>600</b>
5 Min		10 Min	15 Min
		Cement Slurry: BBI <b>96.3</b>	Total Volume BBI <b>346.30</b>

CUSTOMER REPRESENTATIVE *J. T. Hunter* SIGNATURE *J. T. Hunter*





Ruth 3406 1-22H  
 Latshaw 36  
 Harper County, KS  
 X= 2156576.00'  
 Y= 145499.00'  
 Plan 3 vs Actual

KB: 1265'  
 GL: 1245'



**Plan Data for Ruth 3406 1-22H**

Plan Point Information:

DogLeg Severity Unit: °/100.00ft      Position offsets from Site centre

MD	Inc	Az	TVD	+N/-S	+E/-W	VSec	DLS	Toolface
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(DLSU)	(°)
5868.00	90.14	356.28	4671.66	1528.02	945.37	1509.41	0.80	278.5
5926.00	90.14	356.28	4671.52	1585.89	941.61	1567.35	0.00	0.0
6044.00	92.50	356.28	4668.80	1703.60	933.95	1685.19	2.00	0.0
6418.20	92.50	356.28	4652.48	2076.66	909.70	2058.65	0.00	0.0
6523.57	90.40	356.46	4649.81	2181.78	903.03	2163.88	2.00	175.2
9647.84	90.40	356.46	4628.00	5300.00	710.00	5285.25	0.00	0.0

Target Set Information:

Name: Ruth 3406 1-22H T3

Name	TVD	Northing	Easting	Lat	Long
(USft)	(USft)	(USft)	(USft)	(°/'/'")	(°/'/'")
PBHL	4628.00	150799.00	2157286.00	37°4'46.4"	-97°57'39.2"

**Plan Data for Ruth 3406 1-22H**

**Field:** SandRidge Energy - Harper County, KS S NAD 27 US FT  
 Map Unit: USFT      Vertical Reference Datum (VRD): Mean Sea Level  
 Projected Coordinate System: NAD27 / Kansas South

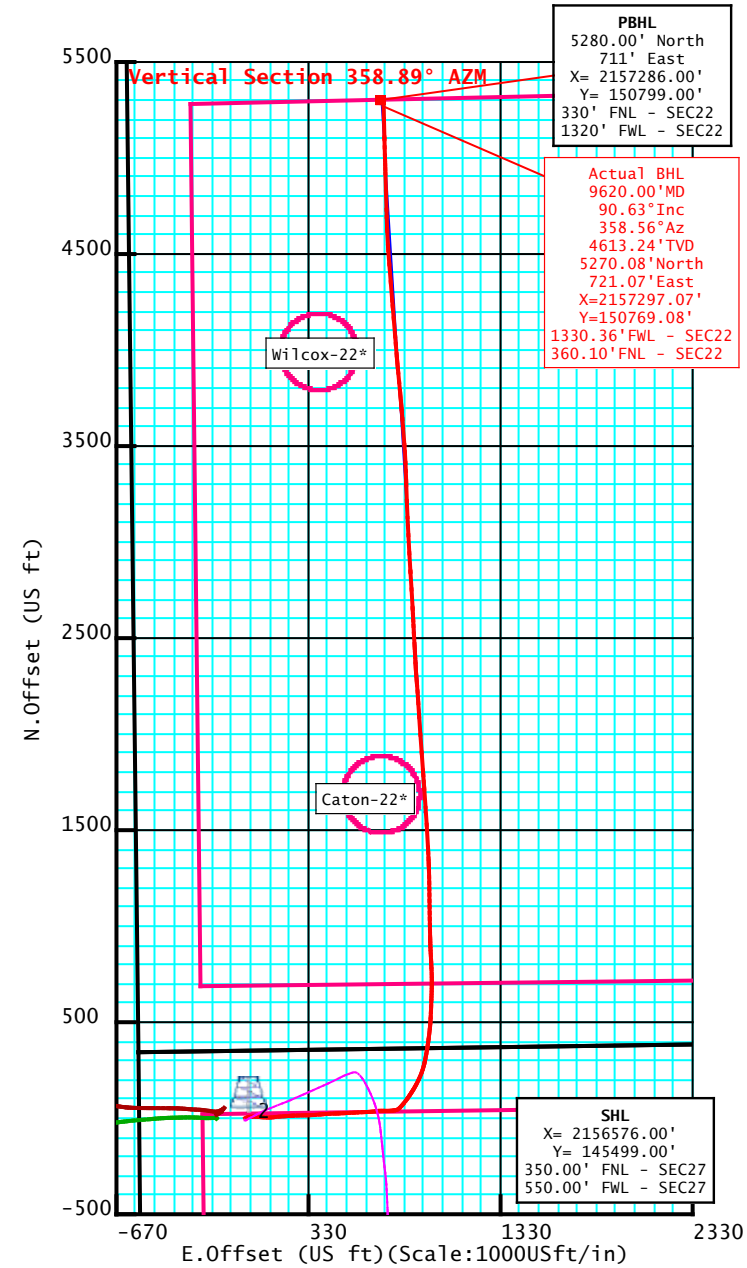
**Well:** Ruth 3406 1-22H  
 Type: Main-Well  
 File Number:  
 Plan Folder: P3      Plan: P3:V1  
 Vertical Section: Position offset of origin from Site centre:  
 +N/-S: 0.00USft      Azimuth: 358.89°  
 +E/-W: 0.00USft  
 Magnetic Parameters:  
 Model: Field Strength: Declination: Dip: Date:  
 BGGM 51599(nT)      4.47°      65.21°      2014-06-09

Ruth 3406 1-22H	—
Mohr 3406 1-21H*	—
Young 3406 1-28H*	—
Joyce 3406 1-27H	—
Caton-22*	—
Wilcox-22*	—
Ruth 3406 1-22H	— Actual —

**Planned By: Lando Hiler Date: 07/07/2014**

Weatherford Drilling Services  
 6525 N. Meridian Ste. #201  
 Oklahoma City, OK 73116  
 +1.405.773.1100 Main  
 +1.405.773.1887 Fax

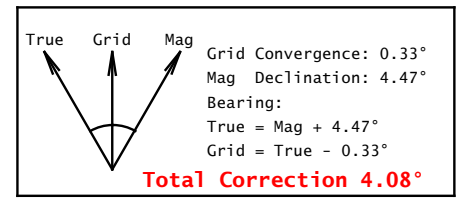
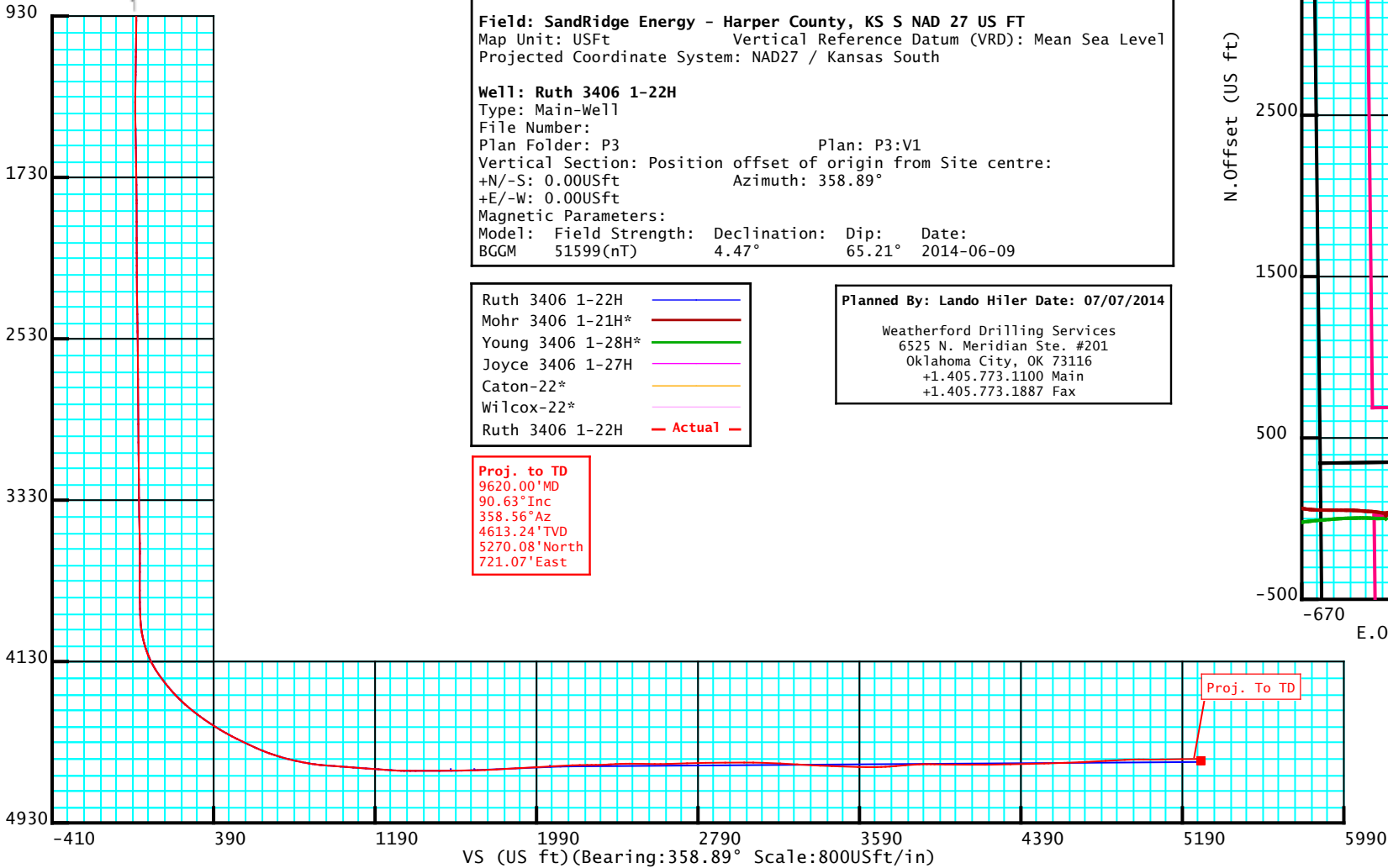
**Proj. to TD**  
 9620.00'MD  
 90.63°Inc  
 358.56°Az  
 4613.24'TVD  
 5270.08'North  
 721.07'East



**PBHL**  
 5280.00' North  
 711' East  
 X= 2157286.00'  
 Y= 150799.00'  
 330' FNL - SEC22  
 1320' FWL - SEC22

**Actual BHL**  
 9620.00'MD  
 90.63°Inc  
 358.56°Az  
 4613.24'TVD  
 5270.08'North  
 721.07'East  
 X=2157297.07'  
 Y=150769.08'  
 1330.36'FWL - SEC22  
 360.10'FNL - SEC22

**SHL**  
 X= 2156576.00'  
 Y= 145499.00'  
 350.00' FNL - SEC27  
 550.00' FWL - SEC27



**5D Survey Report****SandRidge Energy**

**Field Name:** *SandRidge Energy - Harper County, KS S NAD 27 US FT*  
**Site Name:** *Ruth 3406 1-22H*  
**Well Name:** *Ruth 3406 1-22H*  
**Survey:** *Definitive Survey*

22 September 2014



## Ruth 3406 1-22H

<b>Field Name</b> SandRidge Energy - Harper County, KS S NAD 27 US FT	<b>Map Units :</b> US ft <b>Vertical Reference Datum (VRD) :</b> Mean Sea Level <b>Projected Coordinate System :</b> NAD27 / Kansas South <b>Comment :</b>	<b>Company Name :</b> SandRidge Energy
<b>Site Name</b> Ruth 3406 1-22H	<b>Units :</b> US ft <b>North Reference :</b> Grid <b>Position</b> <b>Northing :</b> 145499.00 US ft <b>Easting :</b> 2156576.00 US ft <b>Site TVD Reference :</b> Ground Level <b>Elevation above Mean Sea Level:</b> 1320.00 US ft <b>Comment :</b>	<b>Convergence Angle :</b> 0.33 <b>Latitude :</b> 37° 3' 54.07" <b>Longitude :</b> -97° 57' 48.30"
<b>Slot Name</b> Ruth 3406 1-22H	<b>Position (Offsets relative to Site Centre)</b> <b>+N / -S :</b> 0.00 US ft <b>+E / -W :</b> 0.00 US ft <b>Slot TVD Reference :</b> Ground Elevation <b>Elevation above Mean Sea Level :</b> 1320.00 US ft <b>Comment :</b>	<b>Northing :</b> 145499.00 US ft <b>Easting :</b> 2156576.00 US ft <b>Latitude :</b> 37°3'54.07" <b>Longitude :</b> -97°57'48.30"
<b>Well Name</b> Ruth 3406 1-22H	<b>Type :</b> Main well <b>Rig Height Drill Floor :</b> 20.00 US ft <b>Relative to Mean Sea Level:</b> 1340.00 US ft <b>Closure Distance :</b> 5319.18 US ft <b>Vertical Section (Position of Origin Relative to Site )</b> <b>+N / -S :</b> 0.00 US ft	<b>UWI :</b> <b>Comment :</b> <b>Closure Azimuth :</b> 7.79104° <b>+E / -W :</b> 0.00 US ft <b>Az :</b> 358.89°

5D Survey Report

**Target Set**

**Name :** Ruth 3406 1-22H T3

**Number of Targets :** 1

**Comment :**

<b>TargetName:</b>	<b>Position (Relative to Site centre)</b>		
PBHL	<b>+N / -S :</b> 5300.00US ft	<b>Northing :</b> 150799.00 US ft	<b>Latitude :</b> 37°4'46.43"
<b>Shape:</b>	<b>+E / -W :</b> 710.00 US ft	<b>Easting :</b> 2157286.00US ft	<b>Longitude :</b> -97°57'39.17"
Cuboid	<b>TVD (Drill Floor) :</b> 4628.00 US ft		
	<b>SS :</b> -3288.00 US ft		
	<b>Orientation</b>	<b>Azimuth :</b> 0.00°	<b>Inclination :</b> 0.00°
	<b>Dimensions</b>	<b>Length :</b> 20.00 US ft	<b>Breadth :</b> 20.00 US ft
			<b>Height :</b> 20.00 US ft

**Survey Name :Definitive Survey**

**Date :** 09/Jun/2014

**Survey Tool :**

**Comment :**

**Company :**

**Magnetic Model**

**Model Name:** BGGM

**Date:** 09/Jun/2014

**Field Strength:** 51599.0 nT

**Declination:** 4.47°

**Dip:** 65.21°

**Survey Tool Ranges**

Name	Start MD (US ft)	End MD (US ft)	Source Survey
NSG Static GMS	0.00	670.00	Gyro Data Svys
MWD	670.00	9620.00	WFT/MWD Svy

**Well path created using minimum curvature**

**Survey Points (Relative to Site 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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2
50.00	0.40	64.47	50.00	0.08	0.16	0.07	0.80	
100.00	0.49	67.38	100.00	0.23	0.51	0.22	0.19	
150.00	0.71	70.24	150.00	0.42	1.00	0.40	0.44	
200.00	0.89	63.14	199.99	0.70	1.64	0.67	0.41	
250.00	0.92	65.53	249.98	1.04	2.35	1.00	0.10	
300.00	1.07	68.67	299.98	1.38	3.15	1.32	0.32	
350.00	1.11	63.83	349.97	1.76	4.02	1.68	0.20	
400.00	1.36	68.19	399.96	2.20	5.01	2.10	0.53	
450.00	1.59	68.15	449.94	2.67	6.20	2.55	0.46	
500.00	1.64	65.20	499.92	3.23	7.49	3.09	0.19	
550.00	2.06	67.59	549.89	3.87	8.97	3.70	0.85	

## 5D Survey Report

Survey Points (Relative to Site 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	
600.00	2.48	68.97	599.85	4.61	10.82	4.40	0.85		
639.00	2.70	68.85	638.81	5.24	12.46	5.00	0.56		
670.00	3.00	71.23	669.78	5.76	13.91	5.49	1.04		
746.00	5.89	83.38	745.54	6.85	19.67	6.47	3.98	First MWD Survey	
774.00	6.66	85.79	773.37	7.14	22.71	6.70	2.91		
804.00	7.47	85.52	803.14	7.42	26.39	6.91	2.70		
835.00	7.83	88.51	833.87	7.63	30.51	7.04	1.73		
865.00	8.06	88.98	863.58	7.72	34.66	7.05	0.80		
955.00	8.39	90.14	952.66	7.82	47.53	6.90	0.41		
1046.00	8.38	94.43	1042.68	7.29	60.78	6.11	0.69		
1137.00	9.79	93.65	1132.54	6.28	75.12	4.83	1.56		
1228.00	11.00	93.73	1222.04	5.23	91.50	3.45	1.33		
1320.00	12.22	92.28	1312.16	4.27	109.99	2.14	1.36		
1412.00	13.95	88.00	1401.77	4.27	130.80	1.73	2.15		
1506.00	15.70	83.45	1492.64	6.12	154.76	3.12	2.23		
1601.00	14.95	85.88	1584.26	8.46	179.76	4.98	1.04		
1695.00	14.51	86.38	1675.17	10.08	203.60	6.13	0.49		
1790.00	14.00	84.77	1767.25	11.88	226.92	7.48	0.68		
1884.00	14.92	87.83	1858.27	13.37	250.34	8.52	1.27		
1979.00	14.89	88.56	1950.07	14.14	274.76	8.81	0.20		
2073.00	13.76	88.26	2041.15	14.78	298.01	9.01	1.20		
2168.00	15.22	87.82	2133.13	15.60	321.77	9.36	1.54		
2262.00	12.58	88.55	2224.37	16.33	344.33	9.66	2.81		
2356.00	13.50	85.57	2315.94	17.44	365.51	10.35	1.21		
2451.00	13.96	84.20	2408.23	19.45	387.96	11.93	0.59		
2545.00	16.08	86.14	2499.01	21.47	412.23	13.48	2.32		
2639.00	16.73	87.46	2589.18	22.95	438.74	14.44	0.80		
2734.00	16.28	87.61	2680.27	24.11	465.70	15.08	0.48		
2828.00	14.49	88.17	2770.90	25.03	490.62	15.53	1.91		
2923.00	15.45	86.30	2862.67	26.23	515.13	16.25	1.13		
3017.00	16.16	87.73	2953.12	27.56	540.70	17.08	0.86		
3111.00	15.47	87.13	3043.56	28.70	566.29	17.73	0.75		
3206.00	13.99	85.63	3135.44	30.21	590.39	18.77	1.61		
3301.00	13.83	87.84	3227.65	31.52	613.19	19.63	0.58		
3395.00	13.19	87.09	3319.05	32.48	635.13	20.17	0.71		
3490.00	13.58	84.37	3411.47	34.13	657.05	21.39	0.78		
3584.00	13.82	82.48	3502.80	36.68	679.17	23.52	0.54		
3679.00	15.30	89.14	3594.75	38.35	702.95	24.73	2.35		
3773.00	13.46	90.50	3685.80	38.44	726.29	24.37	1.99		
3868.00	14.29	88.81	3778.03	38.59	749.07	24.07	0.97		
3962.00	14.44	82.51	3869.09	40.36	772.29	25.39	1.67		

## 5D Survey Report

Survey Points (Relative to Site 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
3993.00	13.80	80.72	3899.16	41.46	779.77	26.35	2.50	
4024.00	13.37	73.64	3929.29	43.07	786.86	27.81	5.54	
4056.00	14.29	61.37	3960.37	46.00	793.88	30.61	9.59	
4087.00	16.14	50.89	3990.29	50.55	800.58	35.03	10.67	
4119.00	18.43	44.17	4020.84	56.99	807.56	41.33	9.48	
4150.00	21.86	41.85	4049.94	64.80	814.83	49.01	11.36	
4182.00	25.48	39.76	4079.25	74.54	823.21	58.58	11.61	
4213.00	29.05	38.19	4106.80	85.58	832.13	69.45	11.75	
4245.00	32.49	36.25	4134.29	98.62	842.02	82.29	11.19	
4277.00	35.69	34.26	4160.79	113.27	852.36	96.74	10.59	
4308.00	39.25	33.43	4185.39	128.94	862.85	112.20	11.60	
4340.00	41.28	31.75	4209.81	146.36	873.99	129.41	7.19	
4371.00	42.04	29.55	4232.97	164.09	884.49	146.92	5.32	
4403.00	43.50	26.84	4256.46	183.24	894.75	165.87	7.34	
4434.00	44.29	25.04	4278.80	202.57	904.14	185.01	4.76	
4466.00	46.57	22.63	4301.26	223.42	913.35	205.68	8.92	
4497.00	48.14	19.22	4322.26	244.71	921.48	226.82	9.54	
4529.00	49.53	15.25	4343.33	267.72	928.61	249.68	10.30	
4560.00	51.18	12.66	4363.11	290.88	934.35	272.72	8.35	
4591.00	52.66	11.18	4382.23	314.75	939.39	296.50	6.08	
4623.00	54.13	10.06	4401.31	340.00	944.12	321.65	5.38	
4654.00	55.41	9.19	4419.19	364.97	948.36	346.53	4.72	
4686.00	56.96	8.23	4437.00	391.25	952.38	372.72	5.45	
4717.00	58.28	7.05	4453.60	417.19	955.86	398.60	5.34	
4748.00	59.51	6.86	4469.62	443.54	959.07	424.88	4.00	
4780.00	60.97	5.55	4485.50	471.15	962.07	452.43	5.78	
4811.00	62.29	4.07	4500.23	498.33	964.36	479.56	5.98	
4842.00	63.64	3.05	4514.32	525.89	966.07	507.08	5.25	
4874.00	64.58	2.42	4528.29	554.65	967.44	535.80	3.43	
4905.00	64.73	2.04	4541.56	582.64	968.53	563.77	1.21	
4936.00	65.19	1.83	4554.68	610.71	969.48	591.82	1.61	
4967.00	67.34	2.24	4567.16	639.07	970.49	620.15	7.04	
4999.00	69.27	1.41	4578.99	668.79	971.43	649.84	6.49	
5030.00	71.00	0.47	4589.52	697.94	971.91	678.98	6.27	
5061.00	72.70	359.42	4599.18	727.39	971.88	708.43	6.36	
5093.00	74.65	357.77	4608.18	758.09	971.13	739.14	7.85	
5124.00	76.23	357.13	4615.97	788.06	969.79	769.13	5.47	
5156.00	77.89	357.45	4623.13	819.22	968.32	800.30	5.28	
5187.00	78.74	356.84	4629.41	849.54	966.80	830.65	3.35	
5219.00	80.59	357.17	4635.15	880.97	965.16	862.11	5.87	
5250.00	82.22	358.27	4639.79	911.60	963.94	892.75	6.32	

## 5D Survey Report

Survey Points (Relative to Site 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
5281.00	84.89	358.82	4643.27	942.39	963.16	923.55	8.79	
5313.00	85.73	358.88	4645.88	974.28	962.52	955.45	2.63	
5345.00	85.87	358.91	4648.23	1006.18	961.90	987.36	0.45	
5377.00	85.66	359.04	4650.59	1038.09	961.33	1019.27	0.77	
5408.00	85.59	359.17	4652.95	1069.00	960.85	1050.18	0.48	
5440.00	85.59	359.01	4655.41	1100.90	960.34	1082.09	0.50	
5471.00	85.80	359.32	4657.74	1131.81	959.89	1113.00	1.21	
5503.00	85.87	359.19	4660.07	1163.72	959.48	1144.91	0.46	
5534.00	86.08	359.22	4662.24	1194.64	959.05	1175.84	0.68	
5565.00	86.09	359.12	4664.36	1225.56	958.60	1206.76	0.32	
5597.00	85.53	358.64	4666.70	1257.47	957.98	1238.68	2.30	
5628.00	86.16	358.34	4668.94	1288.38	957.16	1269.60	2.25	
5660.00	87.48	357.94	4670.72	1320.31	956.13	1301.54	4.31	
5692.00	89.30	357.31	4671.62	1352.27	954.80	1333.52	6.02	
5723.00	90.00	357.33	4671.81	1383.24	953.35	1364.51	2.26	
5749.00	90.00	357.22	4671.81	1409.21	952.11	1390.50	0.42	
5868.00	90.14	356.28	4671.66	1528.02	945.37	1509.41	0.80	
5962.00	91.19	356.06	4670.57	1621.80	939.09	1603.30	1.14	
6057.00	90.98	356.09	4668.77	1716.56	932.59	1698.17	0.22	
6151.00	93.63	355.88	4664.99	1810.24	926.01	1791.96	2.83	
6245.00	93.07	355.81	4659.50	1903.84	919.21	1885.67	0.60	
6339.00	92.94	355.91	4654.57	1997.46	912.44	1979.41	0.17	
6434.00	93.50	356.33	4649.23	2092.09	906.02	2074.15	0.74	
6528.00	92.16	356.35	4644.59	2185.78	900.03	2167.94	1.43	
6623.00	89.86	355.13	4642.92	2280.50	892.97	2262.77	2.74	
6718.00	93.78	357.32	4639.90	2375.22	886.72	2357.60	4.73	
6812.00	90.07	356.53	4636.74	2469.02	881.68	2451.47	4.04	
6907.00	88.53	357.38	4637.90	2563.87	876.63	2546.41	1.85	
7001.00	91.75	356.96	4637.68	2657.74	871.99	2640.35	3.45	
7097.00	91.89	356.37	4634.63	2753.53	866.41	2736.23	0.63	
7192.00	90.84	356.42	4632.36	2848.32	860.44	2831.11	1.11	
7286.00	90.28	356.81	4631.44	2942.15	854.89	2925.03	0.73	
7380.00	90.28	357.21	4630.99	3036.02	849.99	3018.98	0.43	
7474.00	88.18	357.24	4632.25	3129.89	845.44	3112.93	2.23	
7663.00	86.29	358.44	4641.37	3318.53	838.32	3301.66	1.18	
7757.00	87.76	357.33	4646.24	3412.33	834.85	3395.52	1.96	
7850.00	87.81	355.71	4649.84	3505.09	829.21	3488.37	1.74	
7945.00	88.60	355.67	4652.81	3599.77	822.08	3583.17	0.83	
8039.00	90.84	355.13	4653.27	3693.46	814.54	3676.99	2.45	
8134.00	95.32	354.70	4648.17	3787.93	806.13	3771.60	4.74	
8230.00	93.22	354.48	4641.02	3883.23	797.11	3867.06	2.20	

## 5D Survey Report

Survey Points (Relative to Site 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
8325.00	88.32	355.36	4639.75	3977.82	788.70	3961.79	5.24	
8419.00	90.07	355.47	4641.07	4071.50	781.19	4055.61	1.87	
8513.00	89.44	355.13	4641.47	4165.19	773.49	4149.42	0.76	
8607.00	90.91	355.34	4641.18	4258.86	765.68	4243.23	1.58	
8702.00	90.98	355.56	4639.62	4353.55	758.14	4338.04	0.24	
8796.00	91.54	355.24	4637.55	4447.22	750.61	4431.84	0.69	
8891.00	91.68	356.52	4634.88	4541.94	743.78	4526.67	1.35	
8985.00	91.88	357.69	4631.96	4635.77	739.04	4620.58	1.26	
9080.00	93.28	358.57	4627.68	4730.62	735.94	4715.47	1.74	
9174.00	92.93	357.93	4622.59	4824.44	733.07	4809.33	0.78	
9269.00	93.08	358.75	4617.61	4919.26	730.33	4904.19	0.88	
9363.00	89.09	358.17	4615.83	5013.19	727.80	4998.15	4.29	
9457.00	91.26	358.59	4615.54	5107.15	725.14	5092.14	2.35	
9551.00	90.63	358.56	4613.99	5201.11	722.81	5186.13	0.67	Last MWD Survey
9620.00	90.63	358.56	4613.24	5270.08	721.07	5255.12	0.00	Proj to TD