

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1263874 OIL & GAS CONSERVATION DIVISION

Form ACO-1
November 2016
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

Gas DH EOR

OG GSW

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 EOR Conv. to SWD

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or
Recompletion Date

Date Reached TD

Completion Date or
Recompletion Date

API No.: _____

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 Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

1263874



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			
Geologist Report / Mud Logs	<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)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____							
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>			PRODUCTION INTERVAL: Top _____ Bottom _____	

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:
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Form	ACO1 - Well Completion
Operator	SandRidge Exploration and Production LLC
Well Name	Cather Trust 3408 2-9H
Doc ID	1263874

Tops

Name	Top	Datum
Base Heebner	3444	-2105
Lansing	3782	-2443
Cottage Grove	4062	-2723
Oswego	4380	-3041
Pawnee	4430	-3091
Cherokee	4488	-3149
Verdigris	4505	-3166
Mississippian	4635	-3296

Form	ACO1 - Well Completion
Operator	SandRidge Exploration and Production LLC
Well Name	Cather Trust 3408 2-9H
Doc ID	1263874

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Conductor	24	20	75	90	Grout	10	none
Surface	12.25	9.625	36	823	Allied Multi-Density Class A	460	See Report
Intermediate	8.75	7	26	5171	50:50 POZ	295	See Report
Production	6.125	4.5	11.6	9145	na	0	na

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	7/19/2015
Job End Date:	7/20/2015
State:	Kansas
County:	Harper
API Number:	15-077-22142-01-00
Operator Name:	SandRidge Energy
Well Name and Number:	Cather Trust 3408 2-9H
Longitude:	-98.19371272
Latitude:	37.09452002
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	4,687
Total Base Water Volume (gal):	1,856,674
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	Archer	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	96.68448	None
Sand (Proppant)	Archer	Proppant					
			Silica Substrate	NA	100.00000	2.69799	None
Hydrochloric Acid (15%)	Archer	Acidizing					
			Hydrochloric Acid	7647-01-0	15.00000	0.08441	None
AFR101	Archer	Friction Reducer					
			Water	7732-18-5	60.00000	0.02338	None
			Aliphatic Hydrocarbon	64742-47-8	30.00000	0.01169	None
			Anionic Polymer	NA	30.00000	0.01169	None
			Polyol Ester	NA	5.00000	0.00195	None
			Oxyalkylated Alcohol	68002-97-1	5.00000	0.00195	None
			Polyglycol Ester	NA	1.00000	0.00039	None
			Tetrasodium Ethylenediaminetetraacetate	64-02-8	0.10000	0.00004	None
SCI-1	Archer	Liquid Scale Inhibitor					
			Water	7732-18-5	90.00000	0.01018	None
			Acrylic Polymer	28205-96-1	15.00000	0.00170	None
			Sodium Salt of Phosphate Ester	68131-72-6	15.00000	0.00170	None

AIC	Archer	Liquid Acid Iron Control					
			Acetic Acid	64-19-7	50.00000	0.00155	None
			Water	7732-18-5	35.00000	0.00109	None
			Citric Acid	77-92-9	30.00000	0.00093	None
AHIB 160	Archer	Corrosion Inhibitor					
			Methyl Alcohol	67-56-1	80.00000	0.00070	None
			thiourea-formaldehyde copolymer	68527-49-1	15.00000	0.00013	None
			Alcohol Ethoxylate Surfactants	NA	15.00000	0.00013	None
			n-olefins	NA	8.00000	0.00007	None
			Propargyl Alcohol	107-19-7	6.00000	0.00005	None
Lodyne	Archer	Non-Emulsifying Surfactant					
			WATER	7732-18-5	60.00000	0.00031	None
			TRADE SECRET	NA	40.00000	0.00021	None
			NONYL PHENOL, 4 MOL	104-40-5	10.00000	0.00005	None
			METHANOL	67-56-1	10.00000	0.00005	None
			ISOPROPANOL	67-63-0	10.00000	0.00005	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)

Cather Trust 3408 2-9H Perforations & Shot Density

Stage Nbr.	Date	Type	Top Depth	Top Depth (TVD)	Bottom Depth	Bottom Depth (TVD)	Zone	Shot Density	Wellbore	String Perforated
20	20-Jul-15	Frac Sleeve	5,336	4,677	5,338	4,677	Miss Lime - Upper	1	Original Hole	Production Liner
19	20-Jul-15	Frac Sleeve	5,563	4,675	5,565	4,675	Miss Lime - Upper	1	Original Hole	Production Liner
18	19-Jul-15	Frac Sleeve	5,800	4,676	5,802	4,676	Miss Lime - Upper	1	Original Hole	Production Liner
17	19-Jul-15	Frac Sleeve	5,989	4,678	6,001	4,678	Miss Lime - Upper	1	Original Hole	Production Liner
16	19-Jul-15	Frac Sleeve	6,179	4,678	6,181	4,678	Miss Lime - Upper	1	Original Hole	Production Liner
15	19-Jul-15	Frac Sleeve	6,372	4,677	6,374	4,677	Miss Lime - Upper	1	Original Hole	Production Liner
14	19-Jul-15	Frac Sleeve	6,565	4,674	6,567	4,674	Miss Lime - Upper	1	Original Hole	Production Liner
13	19-Jul-15	Frac Sleeve	6,757	4,671	6,759	4,671	Miss Lime - Upper	1	Original Hole	Production Liner
12	19-Jul-15	Frac Sleeve	6,943	4,674	6,945	4,674	Miss Lime - Upper	1	Original Hole	Production Liner
11	19-Jul-15	Frac Sleeve	7,127	4,684	7,129	4,684	Miss Lime - Upper	1	Original Hole	Production Liner
10	19-Jul-15	Frac Sleeve	7,313	4,694	7,315	4,694	Miss Lime - Upper	1	Original Hole	Production Liner
9	19-Jul-15	Frac Sleeve	7,506	4,701	7,508	4,701	Miss Lime - Upper	1	Original Hole	Production Liner
8	19-Jul-15	Frac Sleeve	7,695	4,700	7,697	4,700	Miss Lime - Upper	1	Original Hole	Production Liner
7	19-Jul-15	Frac Sleeve	7,889	4,699	7,891	4,699	Miss Lime - Upper	1	Original Hole	Production Liner
6	19-Jul-15	Frac Sleeve	8,080	4,697	8,082	4,697	Miss Lime - Upper	1	Original Hole	Production Liner
5	19-Jul-15	Frac Sleeve	8,269	4,689	8,271	4,689	Miss Lime - Upper	1	Original Hole	Production Liner
4	19-Jul-15	Frac Sleeve	8,460	4,689	8,462	4,689	Miss Lime - Upper	1	Original Hole	Production Liner
3	19-Jul-15	Frac Sleeve	8,653	4,690	8,655	4,690	Miss Lime - Upper	1	Original Hole	Production Liner
2	19-Jul-15	Frac Sleeve	8,839		8,841		Miss Lime - Upper	1	Original Hole	Production Liner
1	19-Jul-15	P-Sleeve	9,032		9,034		Miss Lime - Upper	1	Original Hole	Production Liner



SandRidge Energy
Cather Trust 3408 2-9H
Harper County, KS

1.0 Executive Summary

Allied Oil & Gas Services would like to thank you, for the award of the provision of cementing products and services on the well Cather Trust 3408 2-9H Surface Casing.

A pre-job meeting was held to discuss job details, review the safety hazards, potential environmental impact and established emergency procedures.

Allied started the job testing lines to 3500 psi. After a successful test we began the job by pumping 10 bbls of preflush spacer. We then mixed and pumped the following cements:

90.61 bbl	275 Sacks of 13.2 ppg
Class A Slurry -	1.85 Yield
2% Calcium Chloride	
2% Gypsum	
2% NAMS	
.25 lb/sk Flocele	

39.54 bbl	185 Sacks of 15.6 ppg
Class A Slurry -	1.2 Yield
2% Calcium Chloride	
.25 lb/sk Flocele	

The top plug was then released and displaced with 60.5 Bbls of fresh water. The plug bumped and pressured up to 1200 psi. Pressure was released and floats held with .5 bbl back. 52 Bbl circulated to the pit.

All real time data is shown on the graph in the attachment section.

Allied Oil & Gas Services remains committed to provide operational excellence and superior product performance. All comments and suggestions are greatly appreciated and help us to continue to provide this level of service.

Again we want to thank you for the opportunity to perform these and your future cementing & acidizing service needs.



SandRidge Energy
 Cather Trust 3408 2-9H
 Harper County, KS

1.0 Executive Summary

Allied Oil & Gas Services would like to thank you for the award of the provision of cementing products and services on the well Cather Trust 3408 2-9H intermediate casing.

A pre-job meeting was held to discuss job details, review the safety hazards, potential environmental impact and established emergency procedures.

Allied started the job testing lines to 3500 psi. After a successful test we began the job by pumping 30 bbls of spacer. We then mixed and pumped the following cements:

48.62 bbl	195 Sacks of 13.6 ppg
50/50 Poz:A Slurry -	1.4 Yield
2.0% Gel	
0.4% FL-160	
0.1% SA-51	

21.02 bbl	100 Sacks of 15.6 ppg
Class A Slurry -	1.18 Yield
0.8% FL-160	
0.2% CD-31	

The top plug was then released and displaced with 196.4 Bbls of fresh water. The plug did not bump and final lift pressure was 550 psi. Pressure was released and floats held with .25 bbl back to the truck. Well maintained circulation throughout the job.

All real time data can be review in the chart section of the report.

Allied Oil & Gas Services remains committed to provide operational excellence and superior product performance. All comments and suggestions are greatly appreciated and help us to continue to provide this level of service.

Again we want to thank you for the opportunity to perform these and your future cementing & acidizing service needs.

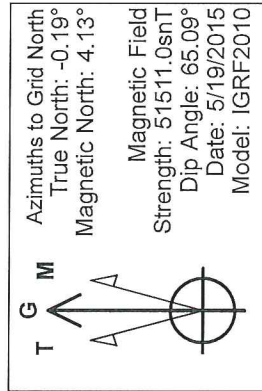
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
6787.0	89.90	1.30	4671.4	2317.7	315.1	0.00	0.00	2332.9	Start DLS 2.00 TFO -119.30
7073.4	87.10	356.30	4678.9	2603.8	309.1	2.00	-119.30	2618.1	Start 100.0 hold at 7073.4 MD
7173.4	87.10	356.30	4684.0	2703.5	302.6	0.00	0.00	2717.1	Start DLS 2.00 TFO 51.01
7411.7	90.10	0.00	4689.8	2941.5	295.0	2.00	51.05	2954.2	Start DLS 0.00 TFO 153.24
9157.2	90.10	360.00	4686.8	4687.0	295.0	0.00	-119.22	4696.3	TD at 9157.2

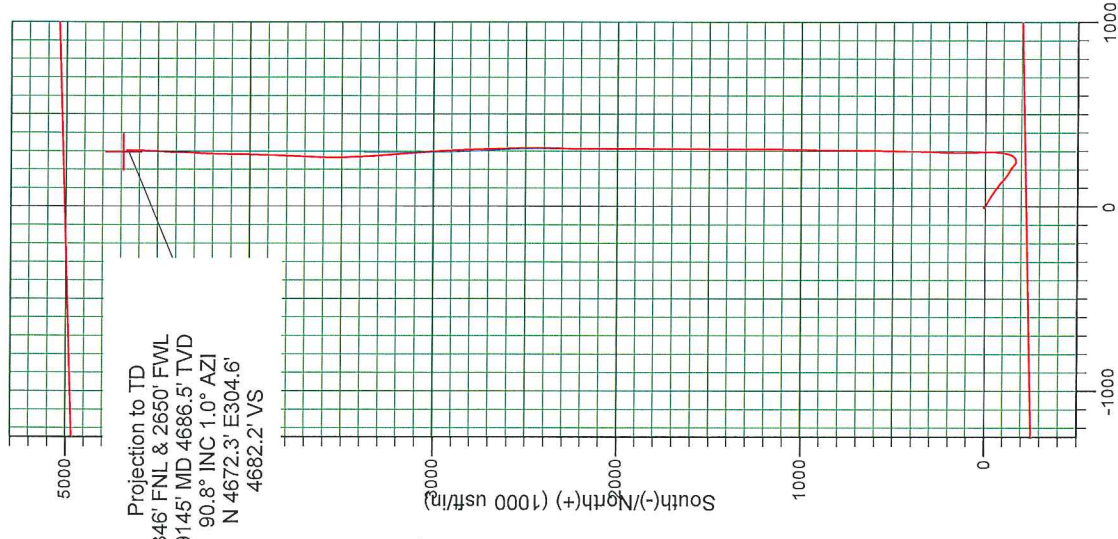
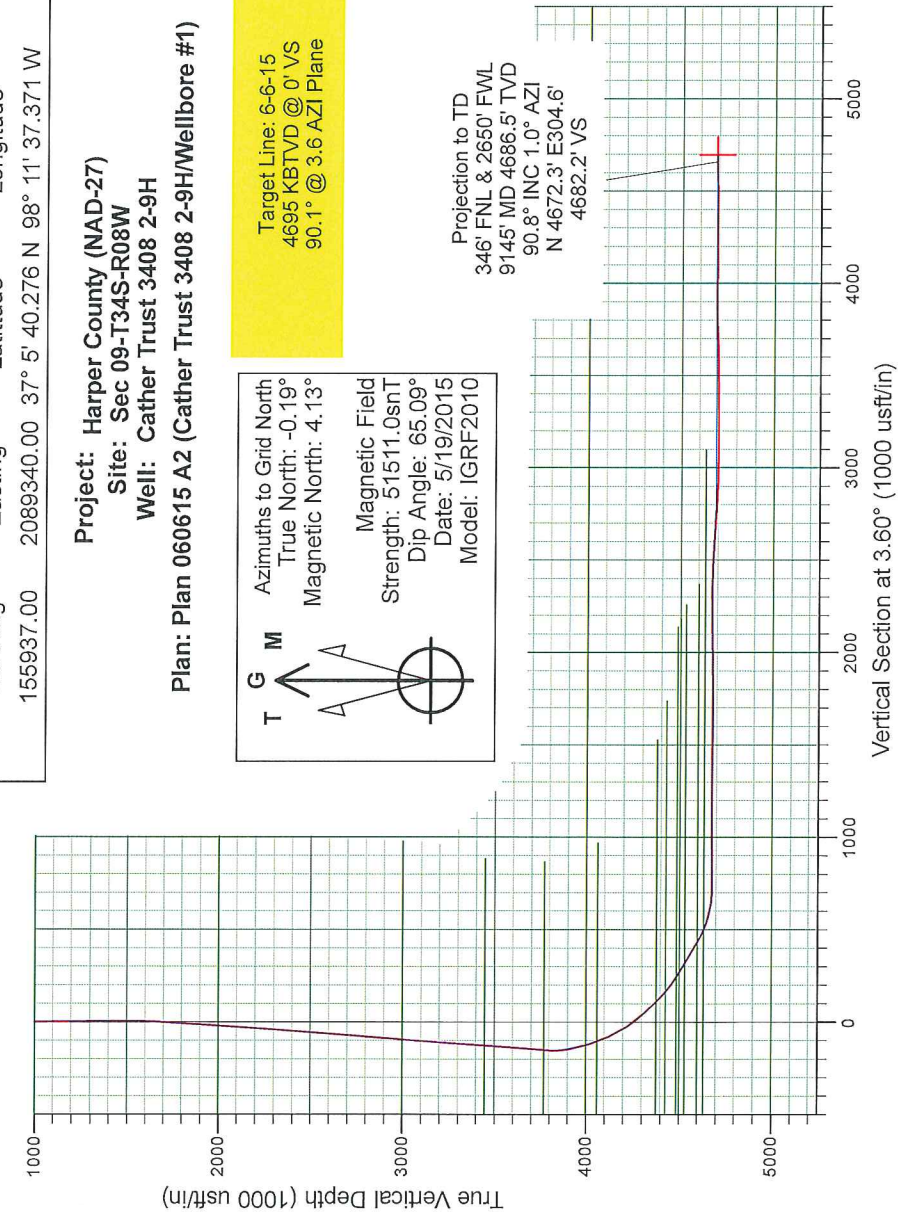
WELL DETAILS: Cather Trust 3408 2-9H

Ground Level:	1320.0
Northing	155937.00
Easting	2089340.00
Latitude	37° 5' 40.276 N
Longitude	98° 11' 37.371 W

Project: Harper County (NAD-27)
Site: Sec 09-T34S-R08W
Well: Cather Trust 3408 2-9H
Plan: Plan 060615 A2 (Cather Trust 3408 2-9H/Wellbore #1)



Target Line: 6-6-15
 4695 KBTVD @ 0° VS
 90.1° @ 3.6 AZI Plane



Survey Report

Company:	Sandridge Energy	Local Co-ordinate Reference:	Well Cather Trust 3408 2-9H
Project:	Harper County (NAD-27)	TVD Reference:	KB @ 1339.0usft
Site:	Sec 09-T34S-R08W	MD Reference:	KB @ 1339.0usft
Well:	Cather Trust 3408 2-9H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project Harper County (NAD-27)			
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 09-T34S-R08W			
Site Position:		Northing:	155,655.00 usft
From:	Map	Easting:	2,087,032.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	37° 5' 37.562 N
		Longitude:	98° 12' 5.867 W
		Grid Convergence:	0.18 °

Well Cather Trust 3408 2-9H			
Well Position	+N/-S	0.0 usft	Northing: 155,937.00 usft
	+E/-W	0.0 usft	Easting: 2,089,340.00 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	37° 5' 40.276 N
		Longitude:	98° 11' 37.371 W
		Ground Level:	1,320.0 usft

Wellbore Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/19/2015	4.31	65.09	51,511

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		3.60

Survey Program Date 6/15/2015					
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
895.0	9,145.0	DRT 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	
895.0	0.50	298.90	895.0	1.9	-3.4	1.7	0.06	0.06	0.00	
First DRT MWD Survey										
1,370.0	0.70	349.70	1,370.0	5.7	-5.8	5.4	0.11	0.04	10.69	
1,461.0	0.60	316.80	1,461.0	6.6	-6.2	6.2	0.42	-0.11	-36.15	
1,553.0	2.10	134.80	1,552.9	5.8	-5.3	5.5	2.93	1.63	193.48	
1,646.0	4.40	128.10	1,645.8	2.4	-1.3	2.3	2.50	2.47	-7.20	
1,738.0	6.80	124.60	1,737.3	-2.9	6.0	-2.5	2.63	2.61	-3.80	
1,830.0	8.90	120.50	1,828.5	-9.6	16.6	-8.5	2.36	2.28	-4.46	
1,921.0	8.40	120.00	1,918.4	-16.5	28.4	-14.7	0.56	-0.55	-0.55	
2,014.0	7.60	119.30	2,010.5	-22.9	39.7	-20.3	0.87	-0.86	-0.75	

Survey Report

Company:	Sandridge Energy	Local Co-ordinate Reference:	Well Cather Trust 3408 2-9H
Project:	Harper County (NAD-27)	TVD Reference:	KB @ 1339.0usft
Site:	Sec 09-T34S-R08W	MD Reference:	KB @ 1339.0usft
Well:	Cather Trust 3408 2-9H	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)	
2,106.0	9.00	122.90	2,101.6	-29.8	51.0	-26.5	1.62	1.52	3.91	
2,198.0	8.40	122.70	2,192.5	-37.3	62.7	-33.3	0.65	-0.65	-0.22	
2,290.0	7.60	119.00	2,283.6	-43.9	73.7	-39.2	1.03	-0.87	-4.02	
2,384.0	8.30	129.60	2,376.7	-51.2	84.3	-45.8	1.72	0.74	11.28	
2,479.0	7.10	128.00	2,470.9	-59.2	94.2	-53.2	1.28	-1.26	-1.68	
2,573.0	6.80	126.10	2,564.2	-66.1	103.3	-59.4	0.40	-0.32	-2.02	
2,668.0	7.50	125.00	2,658.4	-72.9	112.9	-65.7	0.75	0.74	-1.16	
2,761.0	8.40	131.80	2,750.5	-80.9	123.0	-73.1	1.40	0.97	7.31	
2,856.0	8.00	131.30	2,844.6	-89.9	133.1	-81.4	0.43	-0.42	-0.53	
2,951.0	7.30	131.40	2,938.7	-98.3	142.6	-89.1	0.74	-0.74	0.11	
3,045.0	8.50	127.50	3,031.8	-106.5	152.6	-96.7	1.40	1.28	-4.15	
3,140.0	8.30	127.30	3,125.8	-114.9	163.6	-104.4	0.21	-0.21	-0.21	
3,235.0	8.10	124.00	3,219.8	-122.8	174.6	-111.6	0.54	-0.21	-3.47	
3,330.0	7.70	119.40	3,313.9	-129.7	185.7	-117.7	0.79	-0.42	-4.84	
3,425.0	7.40	117.00	3,408.1	-135.6	196.7	-122.9	0.46	-0.32	-2.53	
3,519.0	8.40	128.70	3,501.2	-142.6	207.5	-129.3	2.01	1.06	12.45	
3,614.0	7.80	128.90	3,595.3	-151.0	217.9	-137.0	0.63	-0.63	0.21	
3,645.0	7.40	128.90	3,626.0	-153.6	221.1	-139.4	1.29	-1.29	0.00	
3,677.0	6.90	129.20	3,657.8	-156.1	224.2	-141.7	1.57	-1.56	0.94	
3,709.0	7.30	144.00	3,689.5	-158.9	226.9	-144.4	5.83	1.25	46.25	
3,772.0	9.80	120.30	3,751.8	-164.9	233.9	-149.9	6.78	3.97	-37.62	
3,803.0	11.10	110.50	3,782.3	-167.3	238.9	-151.9	7.09	4.19	-31.61	
3,835.0	11.60	95.70	3,813.7	-168.7	245.0	-152.9	9.21	1.56	-46.25	
3,866.0	11.90	80.50	3,844.1	-168.4	251.3	-152.3	10.00	0.97	-49.03	
3,898.0	13.20	63.80	3,875.3	-166.3	257.8	-149.8	12.00	4.06	-52.19	
3,929.0	14.60	52.40	3,905.4	-162.3	264.1	-145.4	9.90	4.52	-36.77	
3,961.0	14.80	42.10	3,936.4	-156.8	270.0	-139.6	8.18	0.63	-32.19	
3,992.0	15.60	32.30	3,966.3	-150.4	274.9	-132.8	8.67	2.58	-31.61	
4,024.0	17.20	23.00	3,997.0	-142.4	279.1	-124.6	9.59	5.00	-29.06	
4,055.0	18.80	16.80	4,026.5	-133.4	282.3	-115.4	8.05	5.16	-20.00	
4,086.0	20.70	13.80	4,055.6	-123.3	285.0	-105.1	6.95	6.13	-9.68	
4,118.0	22.70	12.10	4,085.4	-111.7	287.7	-93.5	6.55	6.25	-5.31	
4,150.0	24.10	10.40	4,114.7	-99.3	290.2	-80.9	4.86	4.38	-5.31	
4,181.0	25.60	8.20	4,142.9	-86.4	292.3	-67.9	5.68	4.84	-7.10	
4,213.0	28.70	5.70	4,171.3	-71.9	294.0	-53.3	10.32	9.69	-7.81	
4,245.0	32.00	3.70	4,198.9	-55.8	295.3	-37.2	10.78	10.31	-6.25	
4,276.0	34.70	1.20	4,224.8	-38.8	296.0	-20.1	9.77	8.71	-8.06	
4,308.0	37.40	359.90	4,250.7	-20.0	296.2	-1.3	8.77	8.44	-4.06	
4,340.0	39.70	359.00	4,275.7	0.0	296.0	18.6	7.40	7.19	-2.81	
4,371.0	41.50	358.40	4,299.3	20.1	295.6	38.7	5.94	5.81	-1.94	
4,402.0	43.40	358.00	4,322.1	41.0	294.9	59.5	6.19	6.13	-1.29	
4,434.0	43.40	357.60	4,345.4	63.0	294.0	81.4	0.86	0.00	-1.25	
4,466.0	44.30	358.00	4,368.5	85.2	293.2	103.4	2.94	2.81	1.25	

Survey Report

Company:	Sandridge Energy	Local Co-ordinate Reference:	Well Cather Trust 3408 2-9H
Project:	Harper County (NAD-27)	TVD Reference:	KB @ 1339.0usft
Site:	Sec 09-T34S-R08W	MD Reference:	KB @ 1339.0usft
Well:	Cather Trust 3408 2-9H	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)	
4,498.0	45.90	358.60	4,391.1	107.8	292.5	126.0	5.17	5.00	1.88	
4,529.0	48.50	359.20	4,412.1	130.6	292.1	148.7	8.51	8.39	1.94	
4,560.0	51.00	359.80	4,432.1	154.2	291.9	172.3	8.20	8.06	1.94	
4,592.0	54.20	0.70	4,451.6	179.6	292.0	197.6	10.25	10.00	2.81	
4,623.0	55.60	2.00	4,469.4	205.0	292.6	223.0	5.67	4.52	4.19	
4,655.0	58.20	2.40	4,486.9	231.8	293.6	249.8	8.19	8.13	1.25	
4,750.0	59.00	1.60	4,536.4	312.8	296.5	330.8	1.11	0.84	-0.84	
4,845.0	58.10	1.00	4,585.9	393.8	298.3	411.8	1.09	-0.95	-0.63	
4,876.0	58.90	1.70	4,602.1	420.3	298.9	438.2	3.22	2.58	2.26	
4,908.0	62.60	1.50	4,617.8	448.2	299.7	466.1	11.58	11.56	-0.63	
4,939.0	66.40	2.00	4,631.1	476.1	300.6	494.1	12.34	12.26	1.61	
4,971.0	70.50	1.60	4,642.9	505.9	301.5	523.8	12.87	12.81	-1.25	
5,002.0	74.50	0.70	4,652.2	535.4	302.1	553.3	13.20	12.90	-2.90	
5,034.0	76.60	0.40	4,660.2	566.4	302.4	584.3	6.62	6.56	-0.94	
5,065.0	79.20	359.60	4,666.7	596.7	302.4	614.5	8.76	8.39	-2.58	
5,097.0	80.80	359.90	4,672.2	628.2	302.2	646.0	5.08	5.00	0.94	
5,128.0	84.60	0.50	4,676.2	659.0	302.4	676.7	12.41	12.26	1.94	
5,144.0	86.50	1.20	4,677.4	674.9	302.6	692.6	12.65	11.88	4.38	
5,222.0	91.40	0.70	4,678.8	752.9	303.9	770.5	6.31	6.28	-0.64	
5,285.0	90.70	1.00	4,677.7	815.9	304.8	833.4	1.21	-1.11	0.48	
5,378.0	90.20	0.30	4,677.0	908.8	305.9	926.3	0.92	-0.54	-0.75	
5,472.0	90.80	1.10	4,676.1	1,002.8	307.0	1,020.1	1.06	0.64	0.85	
5,566.0	89.90	0.90	4,675.6	1,096.8	308.7	1,114.0	0.98	-0.96	-0.21	
5,659.0	89.90	359.90	4,675.7	1,189.8	309.3	1,206.9	1.08	0.00	-1.08	
5,753.0	89.80	359.80	4,676.0	1,283.8	309.1	1,300.7	0.15	-0.11	-0.11	
5,847.0	90.50	1.00	4,675.7	1,377.8	309.7	1,394.5	1.48	0.74	1.28	
5,940.0	88.40	359.80	4,676.6	1,470.8	310.4	1,487.4	2.60	-2.26	-1.29	
6,034.0	89.30	0.10	4,678.5	1,564.8	310.3	1,581.2	1.01	0.96	0.32	
6,127.0	90.50	1.00	4,678.7	1,657.8	311.2	1,674.0	1.61	1.29	0.97	
6,221.0	90.30	0.30	4,678.0	1,751.8	312.2	1,767.9	0.77	-0.21	-0.74	
6,314.0	89.70	359.30	4,678.0	1,844.8	311.9	1,860.7	1.25	-0.65	-1.08	
6,408.0	91.80	0.20	4,676.8	1,938.7	311.5	1,954.5	2.43	2.23	0.96	
6,503.0	91.00	0.40	4,674.5	2,033.7	312.0	2,049.3	0.87	-0.84	0.21	
6,597.0	90.00	359.70	4,673.6	2,127.7	312.1	2,143.1	1.30	-1.06	-0.74	
6,692.0	91.40	1.30	4,672.5	2,222.7	312.9	2,238.0	2.24	1.47	1.68	
6,787.0	89.90	1.30	4,671.4	2,317.7	315.1	2,332.9	1.58	-1.58	0.00	
6,882.0	88.70	0.50	4,672.6	2,412.6	316.6	2,427.8	1.52	-1.26	-0.84	
6,977.0	87.30	359.30	4,675.9	2,507.6	316.4	2,522.5	1.94	-1.47	-1.26	
7,072.0	86.40	358.30	4,681.1	2,602.4	314.4	2,617.0	1.41	-0.95	-1.05	
7,166.0	86.90	358.50	4,686.6	2,696.2	311.8	2,710.5	0.57	0.53	0.21	
7,261.0	87.10	358.10	4,691.6	2,791.0	309.0	2,804.9	0.47	0.21	-0.42	
7,356.0	86.70	357.90	4,696.7	2,885.8	305.7	2,899.3	0.47	-0.42	-0.21	
7,451.0	88.30	355.70	4,700.8	2,980.6	300.4	2,993.6	2.86	1.68	-2.32	

Survey Report

Company:	Sandridge Energy	Local Co-ordinate Reference:	Well Cather Trust 3408 2-9H
Project:	Harper County (NAD-27)	TVD Reference:	KB @ 1339.0usft
Site:	Sec 09-T34S-R08W	MD Reference:	KB @ 1339.0usft
Well:	Cather Trust 3408 2-9H	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)
7,546.0	90.60	355.50	4,701.7	3,075.3	293.1	3,087.6	2.43	2.42	-0.21
7,641.0	90.40	355.90	4,700.9	3,170.0	286.0	3,181.7	0.47	-0.21	0.42
7,736.0	90.10	354.90	4,700.5	3,264.7	278.3	3,275.8	1.10	-0.32	-1.05
7,831.0	90.60	356.30	4,699.9	3,359.4	271.1	3,369.8	1.56	0.53	1.47
7,925.0	90.30	358.80	4,699.2	3,453.3	267.0	3,463.3	2.68	-0.32	2.66
8,020.0	90.60	359.30	4,698.4	3,548.3	265.5	3,558.0	0.61	0.32	0.53
8,115.0	92.10	2.70	4,696.2	3,643.3	267.1	3,652.9	3.91	1.58	3.58
8,210.0	93.20	2.70	4,691.8	3,738.1	271.6	3,747.7	1.16	1.16	0.00
8,305.0	90.40	2.30	4,688.8	3,832.9	275.7	3,842.7	2.98	-2.95	-0.42
8,399.0	89.50	1.30	4,688.9	3,926.9	278.7	3,936.6	1.43	-0.96	-1.06
8,494.0	89.80	1.50	4,689.5	4,021.8	281.0	4,031.5	0.38	0.32	0.21
8,589.0	89.20	0.90	4,690.3	4,116.8	283.0	4,126.5	0.89	-0.63	-0.63
8,684.0	91.20	2.70	4,690.0	4,211.8	286.0	4,221.4	2.83	2.11	1.89
8,779.0	89.90	2.90	4,689.1	4,306.6	290.6	4,316.4	1.38	-1.37	0.21
8,873.0	88.50	1.40	4,690.4	4,400.6	294.1	4,410.3	2.18	-1.49	-1.60
8,968.0	92.20	3.60	4,689.8	4,495.4	298.3	4,505.3	4.53	3.89	2.32
9,063.0	90.50	2.00	4,687.6	4,590.3	302.9	4,600.3	2.46	-1.79	-1.68
9,092.0	90.80	1.00	4,687.2	4,619.3	303.7	4,629.2	3.60	1.03	-3.45
Last DRT MWD Survey									
9,145.0	90.80	1.00	4,686.5	4,672.3	304.6	4,682.2	0.00	0.00	0.00
Projection to TD - PBHL Cather Trust 2-9H									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
895.0	895.0	1.9	-3.4	First DRT MWD Survey
9,092.0	4,687.2	4,619.3	303.7	Last DRT MWD Survey
9,145.0	4,686.5	4,672.3	304.6	Projection to TD

Checked By: _____ Approved By: _____ Date: _____