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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 085 - 10045 County Ritchie District Union
Quad Pullman 7.5' Pad Name Ness Pad Field/Pool Name ---
Farm name Ness, Ashley E., Jr. Well Number Langford Unit 2H
Operator (as registered with the OOG) Antero Resources
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing	4338467m	Easting	508532m
Landing Point of Curve	Northing	4338487.69m	Easting	508225.13m
Bottom Hole	Northing	4341278m	Easting	506987m

Elevation (ft) 1076' GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas ■ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine ■Gas □ NGL ■ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air □ Mud □ Fresh Water □ Brine
Production hole □ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Air- Foam & 4% KCL
Mud- Polymer

Date permit issued 7/23/2013 Date drilling commenced 4/23/2014 Date drilling ceased 9/1/2014
Date completion activities began 9/16/2014 Date completion activities ceased 12/27/2014
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 62' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1620', 1838' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 456' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

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Reviewed by:
AL 5/27/15 ✓
W.S. 6/3/15

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API 47- 085 - 10045 Farm name Ness, Ashley E., Jr. Well number Langford Unit 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	40'	New	51# H-40	N/A	Yes
Surface	17- 1/2"	13- 3/8"	403'	New	48# H-40	N/A	Yes
Coal							
Intermediate 1	12-1/4"	9-5/8"	2513'	New	36# J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	17476'	New	23# P-110	N/A	Yes
Tubing		2-3/8"	6358'		4.7# N-80	N/A	Yes
Packer type and depth set		N/A					

Comment Details

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	71 sx	15.6	1.18	38	0	8 Hrs.
Surface	Class A	475 sx	15.6	1.18	280	0	8 Hrs.
Coal							
Intermediate 1	Class A	938 sx	15.6	1.18	787	0	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	839 sx (Lead) 1763 sx (Tail)	13.5 Lead 15.2 Tail	1.44 Lead 1.8 Tail	3543	~500' Into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17436' MD, 6456' TVD (BHL), 6497' TVD (Deepest Point Drilled) Loggers TD (ft) 17428'

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 5795'

** This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Rufus Unit 1H API#47-085-10046). Please reference the wireline logs submitted with Form WR-35 for the Rufus Unit 1H.

Check all wireline logs run ☐ caliper ☐ density ☐ deviated/directional ☐ induction ☐ neutron ☐ resistivity ☐ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No ☐ Conventional ☐ Sidewall Were cuttings collected ☐ Yes ■ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING

Conductor- 0

Surface- 1 above guide shoe, 1 aboce insert float, 1 every 4th joint to surface

Intermediate- 1 above float joint, 1 above float collar, 1 every 4th joint to surface

Production- 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 085 - 10045 Farm name Ness, Ashley E., Jr. Well number Langford Unit 2H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

*** PLEASE SEE EXHIBIT 1**

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)

*** PLEASE SEE EXHIBIT 2**

Please insert additional pages as applicable.

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API 47- 085 - 10045 Farm name Ness, Ashley E., Jr. Well number Langford Unit 2H

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6432' (TOP)	TVD	7018' (TOP)	MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	1188 mcfpd	2 bpd	--- bpd	57 bpd	☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

*** PLEASE SEE EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Patterson - UTI Drilling Company LLC
Address 207 Carlton Dr. City Eighty Four State PA Zip 15330

Logging Company STRC
Address 1560 Good Hope Pike City Clarksburg State WV Zip 26301

Cementing Company Allied Oil & Gas Services, LLC
Address 1036 East Main St. City Bridgeport State WV Zip 26330

Stimulating Company Nabors Completion & Production Services, Co.
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

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Completed by Kara Quackenbush Telephone 303-357-7233
Signature [signature] Title Permitting Agent Date 3/25/2015

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Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

WV Department of Environmental Protection

API 47-085-10045 Farm Name Ness, Ashley E., Jr Well Number Langford Unit 2H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	16-Sep-14	17,263	17,390	60	Marcellus
2	25-Oct-14	17,113	17,240	60	Marcellus
3	25-Oct-14	16,963	17,090	60	Marcellus
4	26-Oct-14	16,813	16,940	60	Marcellus
5	26-Oct-14	16,663	16,790	60	Marcellus
6	26-Oct-14	16,513	16,640	60	Marcellus
7	27-Oct-14	16,363	16,490	60	Marcellus
8	27-Oct-14	16,213	16,340	60	Marcellus
9	27-Oct-14	16,062	16,190	60	Marcellus
10	28-Oct-14	15,912	16,039	60	Marcellus
11	28-Oct-14	15,762	15,889	60	Marcellus
12	28-Oct-14	15,612	15,739	60	Marcellus
13	29-Oct-14	15,462	15,589	60	Marcellus
14	29-Oct-14	15,312	15,439	60	Marcellus
15	29-Oct-14	15,162	15,289	60	Marcellus
16	29-Oct-14	15,012	15,139	60	Marcellus
17	29-Oct-14	14,862	14,989	60	Marcellus
18	30-Oct-14	14,712	14,839	60	Marcellus
19	30-Oct-14	14,562	14,689	60	Marcellus
20	31-Oct-14	14,412	14,539	60	Marcellus
21	31-Oct-14	14,262	14,389	60	Marcellus
22	31-Oct-14	14,112	14,239	60	Marcellus
23	1-Nov-14	13,962	14,089	60	Marcellus
24	1-Nov-14	13,812	13,939	60	Marcellus
25	1-Nov-14	13,662	13,789	60	Marcellus
26	2-Nov-14	13,512	13,639	60	Marcellus
27	2-Nov-14	13,362	13,489	60	Marcellus
28	2-Nov-14	13,212	13,339	60	Marcellus
29	2-Nov-14	13,062	13,189	60	Marcellus
30	2-Nov-14	12,911	13,039	60	Marcellus
31	3-Nov-14	12,761	12,888	60	Marcellus
32	3-Nov-14	12,611	12,738	60	Marcellus
33	3-Nov-14	12,461	12,588	60	Marcellus
34	4-Nov-15	12,311	12,438	60	Marcellus
35	4-Nov-15	12,161	12,288	60	Marcellus
36	27-Nov-14	12,011	12,138	60	Marcellus
37	27-Nov-14	11,861	11,988	60	Marcellus
38	27-Nov-14	11,711	11,838	60	Marcellus
39	28-Nov-14	11,561	11,688	60	Marcellus
40	28-Nov-14	11,411	11,538	60	Marcellus
41	28-Nov-14	11,261	11,388	60	Marcellus
42	28-Nov-14	11,111	11,238	60	Marcellus
43	29-Nov-14	10,961	11,088	60	Marcellus
44	29-Nov-14	10,811	10,938	60	Marcellus
45	29-Nov-14	10,661	10,788	60	Marcellus
46	29-Nov-14	10,511	10,638	60	Marcellus
47	29-Nov-14	10,361	10,488	60	Marcellus
48	30-Nov-14	10,211	10,338	60	Marcellus
49	30-Nov-14	10,061	10,188	60	Marcellus
50	30-Nov-14	9,911	10,038	60	Marcellus
51	1-Dec-14	9,760	9,887	60	Marcellus
52	1-Dec-14	9,610	9,737	60	Marcellus
53	1-Dec-14	9,460	9,587	60	Marcellus
54	1-Dec-14	9,310	9,437	60	Marcellus
55	2-Dec-14	9,160	9,287	60	Marcellus
56	2-Dec-14	9,010	9,137	60	Marcellus
57	2-Dec-14	8,860	8,987	60	Marcellus
58	2-Dec-14	8,710	8,837	60	Marcellus
59	2-Dec-14	8,560	8,687	60	Marcellus
60	3-Dec-14	8,410	8,537	60	Marcellus
61	3-Dec-14	8,260	8,387	60	Marcellus
62	3-Dec-14	8,110	8,237	60	Marcellus
63	4-Dec-14	7,960	8,087	60	Marcellus
64	4-Dec-14	7,810	7,937	60	Marcellus
65	4-Dec-14	7,660	7,787	60	Marcellus
66	4-Dec-14	7,510	7,637	60	Marcellus
67	4-Dec-14	7,360	7,487	60	Marcellus
68	4-Dec-14	7,210	7,337	60	Marcellus
69	5-Dec-14	7,060	7,187	60	Marcellus

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API 47-085-10045 Farm Name Ness, Ashley E., Jr. Well Number Langford Unit 2H

EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	25-Oct-14	53.4	7,384	5,675	4,674	95,400	7,397	N/A
2	25-Oct-14	62.0	7,533	6,203	4,888	155,500	7,016	N/A
3	26-Oct-14	63.3	7,071	5,666	4,526	211,300	6,346	N/A
4	26-Oct-14	64.2	7,171	5,647	4,566	213,100	6,315	N/A
5	26-Oct-14	64.2	7,157	5,544	4,828	181,800	6,889	N/A
6	26-Oct-14	63.5	7,040	5,814	4,945	163,900	6,877	N/A
7	27-Oct-14	66.9	7,320	6,098	5,379	212,400	6,308	N/A
8	27-Oct-14	55.5	7,809	5,721	4,910	47,600	6,829	N/A
9	27-Oct-14	63.0	7,214	5,668	4,592	38,900	6,209	N/A
10	28-Oct-14	63.9	7,439	5,897	4,487	210,100	6,232	N/A
11	28-Oct-14	66.7	7,488	5,924	4,790	180,400	6,377	N/A
12	29-Oct-14	68.2	7,202	5,679	5,110	210,100	5,955	N/A
13	29-Oct-14	79.4	6,988	5,692	4,987	210,000	5,903	N/A
14	29-Oct-14	66.2	6,568	5,369	4,913	213,000	5,920	N/A
15	29-Oct-14	68.6	7,066	5,429	5,173	209,000	5,845	N/A
16	30-Oct-14	67.7	6,971	5,446	5,084	211,700	5,857	N/A
17	30-Oct-14	64.9	6,677	5,288	4,961	212,000	5,833	N/A
18	30-Oct-14	65.6	6,840	5,450	5,057	210,900	5,796	N/A
19	30-Oct-14	68.0	6,906	5,514	5,123	209,600	5,855	N/A
20	31-Oct-14	65.9	6,941	5,383	5,133	210,700	5,837	N/A
21	31-Oct-14	61.1	7,212	5,374	4,832	148,700	6,246	N/A
22	1-Nov-14	65.8	7,207	5,703	4,660	154,000	6,283	N/A
23	1-Nov-14	65.1	6,929	5,393	5,137	209,700	5,768	N/A
24	1-Nov-14	64.5	6,833	5,447	5,267	177,700	6,192	N/A
25	1-Nov-14	68.5	6,942	5,466	5,208	211,100	5,724	N/A
26	2-Nov-14	65.5	7,056	5,466	5,265	210,100	5,837	N/A
27	2-Nov-14	62.8	7,090	5,776	5,228	209,800	5,751	N/A
28	2-Nov-14	67.2	7,061	5,539	5,521	210,400	5,678	N/A
29	3-Nov-14	68.1	7,114	5,484	5,437	211,700	5,669	N/A
30	3-Nov-14	64.7	7,123	5,630	5,471	210,000	5,654	N/A
31	3-Nov-14	65.0	7,064	5,735	5,477	192,200	5,623	N/A
32	3-Nov-14	68.2	6,996	5,478	5,349	213,800	5,758	N/A
33	4-Nov-14	66.2	7,026	5,338	4,586	154,100	6,127	N/A
34	4-Nov-14	64.5	7,236	5,563	5,590	207,800	5,607	N/A
35	4-Nov-14	65.8	7,327	5,867	5,618	169,100	6,155	N/A
36	27-Nov-14	61.9	7,479	5,753	5,065	167,600	6,133	N/A
37	27-Nov-14	65.9	6,978	5,793	4,630	212,400	5,616	N/A
38	27-Nov-14	66.1	6,772	5,590	4,833	210,000	5,613	N/A
39	28-Nov-14	64.5	6,777	5,774	5,094	204,100	5,470	N/A
40	28-Nov-14	65.4	6,664	5,448	4,932	210,100	5,527	N/A
41	28-Nov-14	67.2	7,083	5,561	5,202	211,300	5,558	N/A
42	28-Nov-14	66.3	7,475	6,107	4,805	210,000	5,817	N/A
43	29-Nov-14	65.9	7,183	5,662	4,959	214,600	5,710	N/A
44	29-Nov-14	64.3	6,627	5,265	5,191	212,800	5,548	N/A
45	29-Nov-14	65.0	6,681	5,183	5,608	210,400	5,404	N/A
46	29-Nov-14	67.9	7,130	5,332	5,295	203,300	5,876	N/A
47	30-Nov-14	65.1	7,257	5,239	4,675	131,500	5,599	N/A
48	30-Nov-14	65.3	6,516	6,118	5,436	216,500	5,579	N/A
49	30-Nov-14	65.9	6,678	5,627	5,003	211,800	5,443	N/A
50	30-Nov-14	69.2	6,924	5,793	4,937	210,600	5,402	N/A
51	1-Dec-14	61.9	6,417	5,493	5,746	137,700	7,241	N/A
52	1-Dec-14	67.5	6,235	5,474	5,747	211,900	5,408	N/A
53	1-Dec-14	65.1	6,453	5,498	5,424	194,800	4,714	N/A
54	1-Dec-14	64.6	6,500	5,369	4,815	210,800	5,460	N/A
55	2-Dec-14	67.3	6,541	5,571	4,889	133,800	4,783	N/A
56	2-Dec-14	65.8	6,096	5,215	5,493	211,700	5,341	N/A
57	2-Dec-14	66.7	6,493	5,449	5,719	211,500	5,316	N/A
58	2-Dec-14	66.7	6,931	5,553	5,811	209,800	5,327	N/A
59	3-Dec-14	66.8	6,497	5,479	5,073	212,800	5,319	N/A
60	3-Dec-14	66.1	6,235	5,566	5,511	210,400	5,282	N/A
61	3-Dec-14	63.5	6,124	5,405	4,947	211,500	5,283	N/A
62	3-Dec-14	66.8	6,325	5,608	3,988	211,400	5,251	N/A
63	4-Dec-14	67.0	6,266	5,369	5,275	212,100	5,251	N/A
64	4-Dec-14	66.2	5,902	5,218	4,853	209,600	5,190	N/A
65	4-Dec-14	66.4	6,269	5,530	5,397	209,300	5,170	N/A
66	4-Dec-14	67.6	6,381	5,588	5,545	209,900	5,263	N/A
67	4-Dec-14	68.1	6,364	5,552	5,414	210,500	5,187	N/A
68	5-Dec-14	68.2	6,360	5,442	5,338	210,600	5,198	N/A
69	5-Dec-14	65.7	6,104	5,515	5,452	220,400	5,310	N/A
	AVG=	65.6	6,865	5,573	5,114	13,385,100	399,257	TOTAL

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API 47-085-10045 Farm Name Ness, Ashley E., Jr. Well Number Langford Unit 2H				
EXHIBIT 3				
LITHOLOGY/ FORMATION	**TOP DEPTH (TVD) From Surface**	**BOTTOM DEPTH (TVD) From Surface**	**TOP DEPTH (MD) From Surface**	**BOTTOM DEPTH (MD) From Surface**
Fresh Water	62	N/A	62	N/A
Siltstone	0	456	0	456
Coal	est. 456	486	est. 456	486
Sand	est. 486	516	est. 486	516
Shale	est. 516	1266	est. 516	1266
Sandstone	est. 1266	1296	est. 1266	1296
Shale	est. 1296	1356	est. 1296	1356
Sandstone	est. 1356	1386	est. 1356	1386
Shale	est. 1386	1506	est. 1386	1506
Sandstone	est. 1506	1906	est. 1506	1906
Limestone	est. 1906	2010	est. 1906	2004
Big Lime	est. 2010	2068	est. 2010	2068
Big Injun	est. 2068	2317	est. 2068	2317
Gantz Sand	est. 2317	2488	est. 2317	2488
Fifty Foot Sandstone	est. 2488	2696	est. 2488	2696
Gordon	est. 2696	2488	est. 2696	2488
Fifth Sandstone	est. 2488	3075	est. 2488	3075
Bayard	est. 3075	3444	est. 3075	3444
Warren	est. 3444	3827	est. 3444	3827
Speechley	est. 3827	4034	est. 3827	4034
Baltown	est. 4034	4537	est. 4034	4537
Bradford	est. 4537	4913	est. 4537	4914
Benson	est. 4913	5150	est. 4914	5150
Alexander	est. 5150	5369	est. 5150	5370
Elk	est. 5369	5753	est. 5370	5755
Rhinestreet	5753	6117	5755	6150
Sycamore	6117	6276	6150	6485
Middlesex	6276	6381	6485	6812
Burkett	6381	6413	6812	6933
Tully	6413	6432	6933	7018
Marcellus	6432	NA	7018	17411

*Please note Antero determines shallow formation tops based on mud and/or wireline logs that are only run on one well on a multi-well pad (Please reference Wireline Logs submitted for the Rufus Unit 1H API# 47-085-10046). The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Antero Resources

Antero Resources
Langford Unit 2H
Ritchie County WV
Northing: 14233074.36
Easting: 1668360.48
As Drilled

WELL DETAILS: Langford Unit 2H
Ground Level: 1075.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14233074.36	1668360.48	39° 11' 43.206 N	80° 54' 4.930 W	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Langford Unit 2H, Grid North
Vertical (TVD) Reference: Patterson 347: GL 1075' + KB 25 @ 1100.0usft
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Patterson 347: GL 1075' + KB 25 @ 1100.0usft
Calculation Method: Minimum Curvature

PROJECT DETAILS: Ritchie County WV

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level

Scientific Drilling

Genie Lightfoot
13:47, September 08 2014

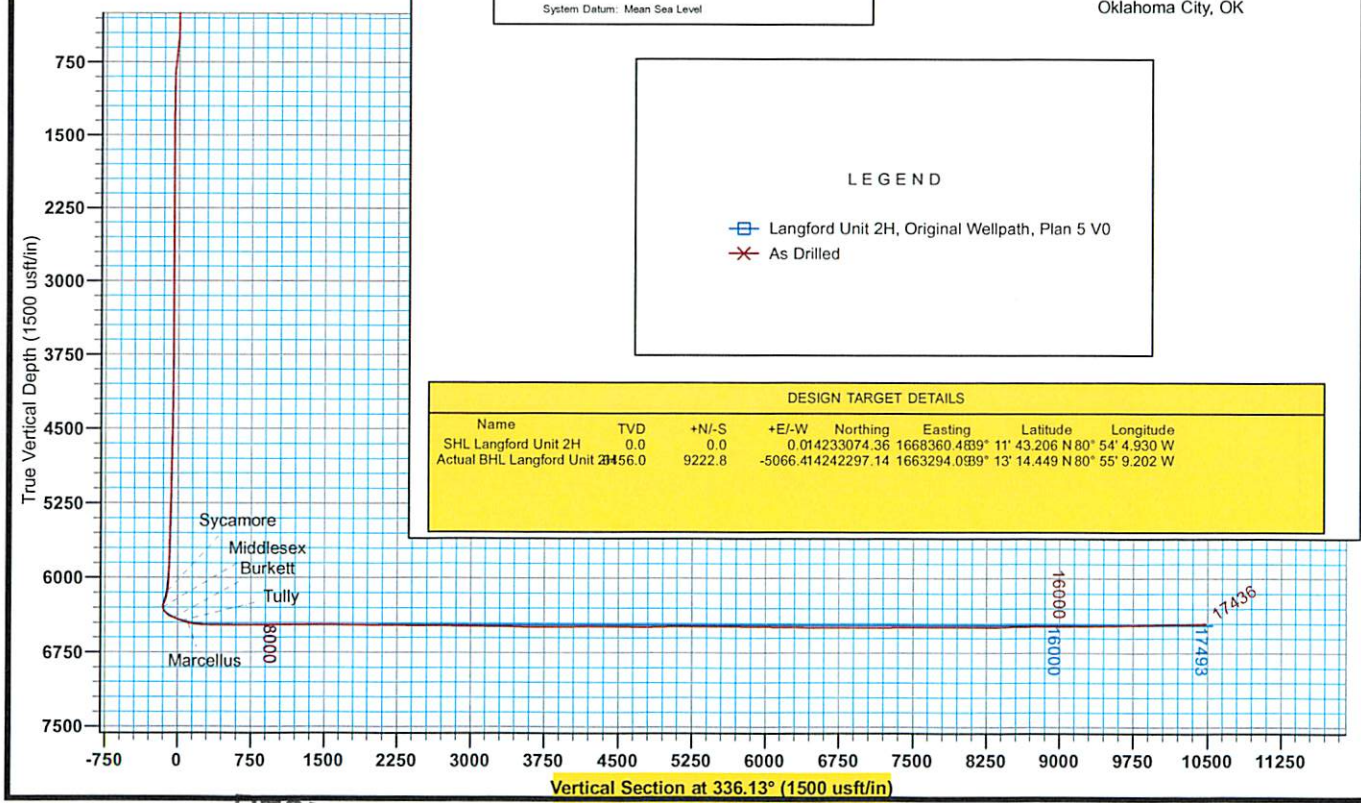
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

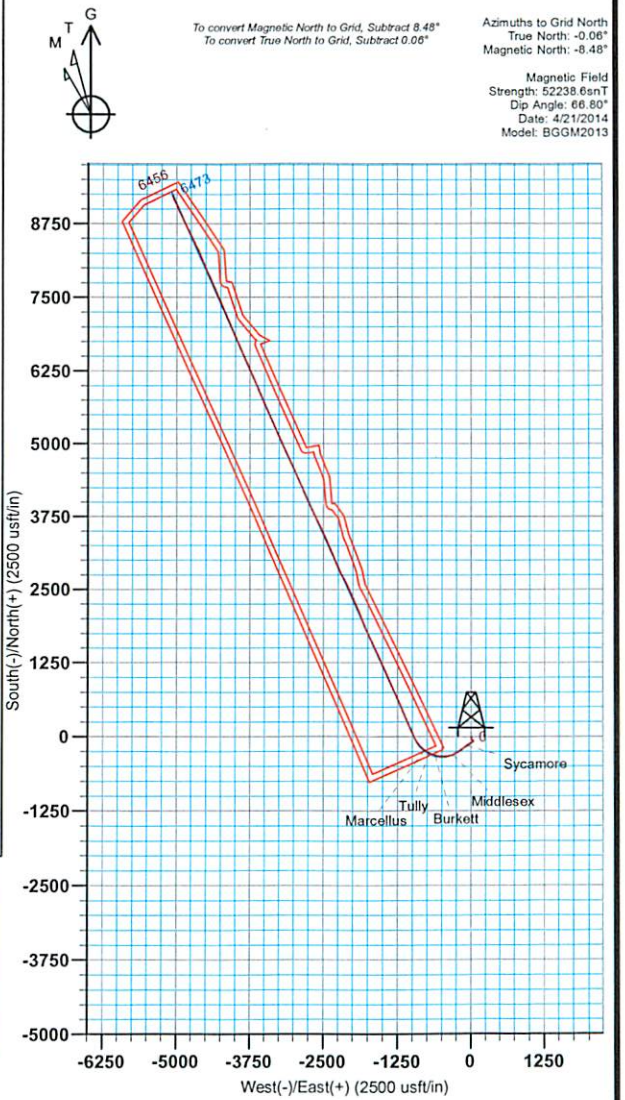
LEGEND

Langford Unit 2H, Original Wellpath, Plan 5 V0
As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Langford Unit 2H	0.0	0.0	0.0	14233074.36	1668360.48	39° 11' 43.206 N	80° 54' 4.930 W
Actual BHL Langford Unit 2H	6456.0	9222.8	-5066.4	14242297.14	1663294.09	39° 13' 14.449 N	80° 55' 9.202 W





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Antero Resources

Ritchie County WV
DeBerry/Rufus/Langford
Langford Unit 2H
Original Wellpath

Design: As Drilled

EOW Completion Report

08 September, 2014

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Scientific Drilling

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Langford Unit 2H
Project:	Ritchie County WV	**TVD Reference:**	Patterson 347: GL 1075' + KB 25 @ 1100.0usft
Site:	DeBerry/Rufus/Langford	**MD Reference:**	Patterson 347: GL 1075' + KB 25 @ 1100.0usft
Well:	Langford Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Project Ritchie County WV, Ritchie County WV, WV North

Map System:	Universal Transverse Mercator (US Survey Fee	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site DeBerry/Rufus/Langford, Site Center: Deberry 1H

Site Position:		**Northing:**	14,233,087.17 usft	**Latitude:**	39° 11' 43.333 N
From:	Map	**Easting:**	1,668,409.26 usft	**Longitude:**	80° 54' 4.310 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.06 °

Well Langford Unit 2H

Well Position	**+N/-S**	0.0 usft	**Northing:**	14,233,074.36 usft	**Latitude:**	39° 11' 43.206 N
	+E/-W	0.0 usft	**Easting:**	1,668,360.48 usft	**Longitude:**	80° 54' 4.930 W
Position Uncertainty		2.0 usft	**Wellhead Elevation:**	1,100.0 usft	**Ground Level:**	1,075.0 usft

Wellbore Original Wellpath

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	4/21/2014	-8.42	66.80	52,239

Design As Drilled

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	336.13

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Survey Program **Date** 9/8/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
114.0	5,717.0	Survey #4 Def Gyro to KOP (Original Well	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
5,717.5	17,436.0	Survey #5 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
114.0	0.38	132.84	114.0	-0.3	0.3	-0.3	0.33
214.0	0.47	133.41	214.0	-0.8	0.8	-1.0	0.09
314.0	0.34	92.32	314.0	-1.1	1.4	-1.5	0.31
414.0	0.57	102.97	414.0	-1.2	2.2	-2.0	0.24
514.0	4.61	170.62	513.9	-5.3	3.3	-6.2	4.42
614.0	6.61	170.73	613.4	-14.9	4.9	-15.6	2.00
714.0	6.78	171.06	712.7	-26.4	6.8	-26.9	0.17
814.0	6.09	169.71	812.1	-37.5	8.6	-37.8	0.71
914.0	1.68	101.21	911.9	-43.0	11.0	-43.8	5.69
1,014.0	1.58	105.70	1,011.8	-43.6	13.8	-45.5	0.16

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Well:	Langford Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,114.0	1.19	107.44	1,111.8	-44.3	16.1	-47.0	0.39
1,214.0	0.90	98.98	1,211.8	-44.8	17.9	-48.2	0.33
1,314.0	0.68	89.22	1,311.8	-44.9	19.2	-48.8	0.26
1,414.0	0.44	72.68	1,411.8	-44.7	20.2	-49.1	0.29
1,514.0	0.49	98.33	1,511.8	-44.7	21.0	-49.4	0.21
1,614.0	0.39	96.53	1,611.8	-44.8	21.7	-49.8	0.10
1,714.0	0.11	98.34	1,711.8	-44.8	22.2	-50.0	0.28
1,814.0	0.07	152.25	1,811.8	-44.9	22.3	-50.1	0.09
1,914.0	0.02	194.20	1,911.7	-45.0	22.3	-50.2	0.06
2,014.0	0.11	217.48	2,011.7	-45.1	22.3	-50.2	0.09
2,114.0	0.14	198.82	2,111.7	-45.3	22.2	-50.4	0.05
2,214.0	0.05	155.94	2,211.7	-45.4	22.1	-50.5	0.11
2,314.0	0.13	224.17	2,311.7	-45.5	22.1	-50.6	0.12
2,414.0	0.13	228.08	2,411.7	-45.7	21.9	-50.7	0.01
2,514.0	0.07	189.40	2,511.7	-45.8	21.8	-50.8	0.09
2,614.0	0.11	264.49	2,611.7	-45.9	21.7	-50.8	0.11
2,714.0	0.15	248.95	2,711.7	-46.0	21.5	-50.7	0.05
2,814.0	0.33	255.98	2,811.7	-46.1	21.1	-50.7	0.18
2,914.0	0.28	252.20	2,911.7	-46.2	20.6	-50.6	0.05
3,014.0	0.24	260.64	3,011.7	-46.3	20.1	-50.5	0.06
3,114.0	0.31	260.84	3,111.7	-46.4	19.7	-50.4	0.07
3,214.0	0.33	247.51	3,211.7	-46.6	19.1	-50.3	0.08
3,314.0	0.37	253.62	3,311.7	-46.8	18.6	-50.3	0.05
3,414.0	0.50	189.55	3,411.7	-47.3	18.2	-50.6	0.47
3,514.0	0.32	253.57	3,511.7	-47.8	17.8	-50.9	0.46
3,614.0	0.30	240.16	3,611.7	-48.0	17.3	-50.9	0.08
3,714.0	0.21	204.67	3,711.7	-48.3	17.0	-51.1	0.18
3,814.0	0.12	157.50	3,811.7	-48.6	17.0	-51.3	0.16
3,914.0	0.17	113.72	3,911.7	-48.7	17.2	-51.5	0.12
4,014.0	0.21	134.36	4,011.7	-48.9	17.4	-51.8	0.08
4,114.0	0.21	116.04	4,111.7	-49.1	17.7	-52.1	0.07
4,214.0	0.36	120.90	4,211.7	-49.4	18.2	-52.5	0.15
4,314.0	0.79	120.50	4,311.7	-49.9	19.0	-53.3	0.43
4,414.0	0.99	124.88	4,411.7	-50.7	20.3	-54.6	0.21
4,514.0	1.03	125.53	4,511.7	-51.7	21.8	-56.1	0.04
4,614.0	1.19	128.00	4,611.7	-52.9	23.3	-57.8	0.17
4,714.0	1.32	128.86	4,711.7	-54.3	25.0	-59.8	0.13
4,814.0	1.40	131.16	4,811.6	-55.8	26.9	-61.9	0.10
4,914.0	1.49	131.94	4,911.6	-57.5	28.8	-64.2	0.09
5,014.0	1.53	133.17	5,011.6	-59.2	30.7	-66.6	0.05
5,114.0	1.68	131.91	5,111.5	-61.1	32.8	-69.2	0.15
5,214.0	1.67	133.84	5,211.5	-63.1	34.9	-71.8	0.06
5,314.0	1.63	134.06	5,311.4	-65.1	37.0	-74.5	0.04
5,414.0	1.71	131.43	5,411.4	-67.1	39.1	-77.2	0.11

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Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,514.0	1.58	132.12	5,511.4	-69.0	41.3	-79.8	0.13
5,614.0	1.51	134.54	5,611.3	-70.9	43.2	-82.3	0.10
5,714.0	1.31	133.20	5,711.3	-72.6	45.0	-84.6	0.20
5,764.0	1.77	196.53	5,761.3	-73.7	45.2	-85.7	3.33
5,795.0	3.93	220.94	5,792.2	-75.0	44.4	-86.5	7.84
5,827.0	6.32	232.36	5,824.1	-76.9	42.2	-87.4	8.08
5,858.0	8.43	233.09	5,854.8	-79.3	39.1	-88.3	6.81
5,889.0	11.16	234.50	5,885.4	-82.4	34.8	-89.4	8.84
5,921.0	13.56	236.68	5,916.6	-86.2	29.2	-90.7	7.64
5,952.0	16.47	239.39	5,946.6	-90.5	22.3	-91.8	9.65
5,984.0	19.45	240.46	5,977.0	-95.4	13.8	-92.8	9.37
6,015.0	22.70	239.61	6,005.9	-101.0	4.1	-94.0	10.53
6,046.0	25.75	238.29	6,034.2	-107.5	-6.8	-95.6	9.99
6,078.0	29.95	237.87	6,062.5	-115.5	-19.4	-97.7	13.14
6,109.0	33.39	237.82	6,088.9	-124.1	-33.2	-100.1	11.10
6,141.0	36.99	237.65	6,115.0	-134.0	-48.8	-102.8	11.25
6,172.0	41.19	235.29	6,139.1	-144.8	-65.1	-106.0	14.37
6,175.0	41.55	235.13	6,141.3	-145.9	-66.7	-106.4	12.38
Sycamore							
6,203.0	44.87	233.69	6,161.7	-157.1	-82.3	-110.3	12.38
6,235.0	48.52	233.78	6,183.7	-170.8	-101.1	-115.3	11.41
6,266.0	52.63	233.76	6,203.4	-185.0	-120.4	-120.4	13.26
6,298.0	56.95	233.67	6,221.8	-200.4	-141.4	-126.1	13.50
6,329.0	61.45	233.94	6,237.7	-216.2	-162.9	-131.7	14.54
6,360.0	66.37	233.79	6,251.3	-232.6	-185.4	-137.7	15.88
6,392.0	70.56	235.64	6,263.1	-249.8	-209.7	-143.5	14.15
6,423.0	71.67	237.77	6,273.1	-265.9	-234.2	-148.3	7.42
6,455.0	71.85	240.97	6,283.1	-281.3	-260.4	-151.9	9.51
6,486.0	72.03	244.83	6,292.7	-294.8	-286.6	-153.6	11.85
6,510.0	71.89	246.67	6,300.2	-304.1	-307.4	-153.7	7.33
Middlesex							
6,518.0	71.85	247.29	6,302.6	-307.1	-314.4	-153.6	7.33
6,549.0	70.89	252.52	6,312.6	-317.2	-342.0	-151.7	16.28
6,580.0	70.65	257.62	6,322.8	-324.7	-370.2	-147.1	15.55
6,611.0	70.31	261.33	6,333.1	-330.1	-399.0	-140.4	11.33
6,643.0	69.79	264.44	6,344.1	-333.8	-428.8	-131.7	9.28
6,674.0	69.98	268.00	6,354.7	-335.7	-457.8	-121.7	10.80
6,706.0	70.44	270.77	6,365.6	-336.0	-488.0	-109.8	8.27
6,737.0	71.49	274.90	6,375.7	-334.6	-517.2	-96.7	13.04
6,768.0	72.35	279.01	6,385.3	-331.0	-546.5	-81.6	12.90
6,800.0	73.79	282.65	6,394.6	-325.3	-576.5	-64.2	11.78
6,831.0	74.39	285.90	6,403.1	-317.9	-605.4	-45.7	10.27
6,837.0	74.51	286.31	6,404.7	-316.3	-611.0	-42.0	6.83
Burkett							
6,863.0	75.02	288.07	6,411.6	-308.9	-634.9	-25.6	6.83

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
6,894.0	74.94	290.76	6,419.6	-299.0	-663.2	-5.0	8.38
6,925.0	74.41	293.98	6,427.8	-287.6	-690.8	16.6	10.16
6,957.0	74.64	296.76	6,436.3	-274.4	-718.7	39.9	8.40
6,958.0	74.70	296.86	6,436.6	-273.9	-719.5	40.7	11.52
Tully							
6,988.0	76.43	299.95	6,444.1	-260.1	-745.1	63.6	11.52
7,020.0	78.12	303.47	6,451.1	-243.7	-771.6	89.4	11.96
7,043.0	79.40	305.54	6,455.6	-230.9	-790.2	108.6	10.45
Marcellus							
7,051.0	79.85	306.26	6,457.0	-226.3	-796.6	115.4	10.45
7,082.0	80.61	308.91	6,462.3	-207.7	-820.8	142.2	8.77
7,114.0	82.33	313.06	6,467.1	-186.9	-844.7	170.9	13.91
7,145.0	84.22	317.00	6,470.7	-165.1	-866.4	199.6	14.02
7,176.0	86.28	320.62	6,473.3	-141.9	-886.8	229.1	13.40
7,208.0	87.89	325.07	6,474.9	-116.4	-906.1	260.2	14.77
7,229.0	88.69	327.04	6,475.5	-99.0	-917.8	280.8	10.12
7,323.0	89.26	333.16	6,477.2	-17.6	-964.6	374.3	6.54
7,417.0	90.44	334.37	6,477.4	66.7	-1,006.2	468.2	1.80
7,511.0	90.00	334.77	6,477.1	151.6	-1,046.5	562.1	0.63
7,605.0	90.40	336.50	6,476.7	237.2	-1,085.3	656.1	1.89
7,699.0	90.07	338.10	6,476.4	324.0	-1,121.6	750.1	1.74
7,793.0	90.64	337.44	6,475.8	411.0	-1,157.1	844.1	0.93
7,887.0	89.46	334.82	6,475.7	496.9	-1,195.2	938.1	3.06
7,982.0	90.00	335.83	6,476.1	583.2	-1,234.8	1,033.0	1.21
8,076.0	90.70	336.25	6,475.6	669.1	-1,273.0	1,127.0	0.87
8,170.0	90.37	338.09	6,474.7	755.8	-1,309.5	1,221.0	1.99
8,264.0	90.27	337.25	6,474.2	842.7	-1,345.2	1,315.0	0.90
8,358.0	90.91	336.62	6,473.2	929.2	-1,382.0	1,409.0	0.96
8,452.0	89.90	336.24	6,472.5	1,015.4	-1,419.6	1,503.0	1.15
8,546.0	89.26	336.35	6,473.2	1,101.4	-1,457.4	1,597.0	0.69
8,641.0	89.63	336.14	6,474.1	1,188.4	-1,495.6	1,692.0	0.45
8,735.0	89.13	335.33	6,475.2	1,274.1	-1,534.3	1,785.9	1.01
8,829.0	89.53	335.83	6,476.3	1,359.6	-1,573.1	1,879.9	0.68
8,923.0	90.17	336.11	6,476.5	1,445.5	-1,611.4	1,973.9	0.74
9,018.0	89.06	336.11	6,477.1	1,532.3	-1,649.9	2,068.9	1.17
9,112.0	89.23	335.27	6,478.5	1,618.0	-1,688.6	2,162.9	0.91
9,206.0	89.90	334.51	6,479.3	1,703.1	-1,728.5	2,256.9	1.08
9,300.0	89.90	336.09	6,479.4	1,788.5	-1,767.7	2,350.9	1.68
9,394.0	88.96	335.24	6,480.4	1,874.2	-1,806.5	2,444.9	1.35
9,488.0	90.27	339.76	6,481.0	1,961.0	-1,842.4	2,538.8	5.01
9,581.0	89.09	339.23	6,481.5	2,048.1	-1,875.0	2,631.6	1.39
9,676.0	89.73	338.48	6,482.5	2,136.7	-1,909.3	2,726.5	1.04
9,770.0	89.33	337.67	6,483.3	2,223.9	-1,944.4	2,820.5	0.96
9,864.0	89.16	336.66	6,484.5	2,310.5	-1,980.9	2,914.4	1.09
9,959.0	89.20	336.90	6,485.9	2,397.8	-2,018.3	3,009.4	0.26

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10,053.0	89.50	333.90	6,486.9	2,483.2	-2,057.4	3,103.4	3.21
10,147.0	89.77	333.53	6,487.5	2,567.5	-2,099.1	3,197.3	0.49
10,241.0	89.97	332.45	6,487.7	2,651.3	-2,141.7	3,291.2	1.17
10,335.0	89.03	333.22	6,488.6	2,734.9	-2,184.7	3,385.0	1.29
10,429.0	88.96	334.99	6,490.2	2,819.4	-2,225.7	3,478.9	1.88
10,524.0	89.33	336.54	6,491.6	2,906.1	-2,264.7	3,573.9	1.68
10,618.0	89.93	337.15	6,492.2	2,992.5	-2,301.6	3,667.9	0.91
10,712.0	90.27	338.58	6,492.1	3,079.6	-2,337.1	3,761.9	1.56
10,864.0	90.13	337.90	6,491.5	3,220.7	-2,393.4	3,913.8	0.46
10,899.0	90.44	337.84	6,491.4	3,253.1	-2,406.6	3,948.7	0.90
10,993.0	89.90	336.94	6,491.1	3,339.9	-2,442.7	4,042.7	1.12
11,087.0	90.47	337.13	6,490.8	3,426.5	-2,479.4	4,136.7	0.64
11,182.0	88.99	333.83	6,491.2	3,512.9	-2,518.8	4,231.7	3.81
11,276.0	89.36	334.11	6,492.6	3,597.3	-2,560.1	4,325.6	0.49
11,370.0	89.56	333.84	6,493.5	3,681.8	-2,601.3	4,419.5	0.36
11,464.0	90.00	334.74	6,493.8	3,766.5	-2,642.1	4,513.5	1.07
11,555.0	90.30	335.98	6,493.6	3,849.2	-2,680.0	4,604.5	1.40
11,645.0	90.54	335.62	6,492.9	3,931.3	-2,716.9	4,694.5	0.48
11,737.0	90.94	336.25	6,491.7	4,015.3	-2,754.4	4,786.5	0.81
11,829.0	90.57	334.08	6,490.5	4,098.8	-2,793.1	4,878.4	2.39
11,922.0	91.11	335.38	6,489.2	4,182.9	-2,832.8	4,971.4	1.51
12,014.0	89.80	336.63	6,488.4	4,266.9	-2,870.2	5,063.4	1.97
12,107.0	90.30	336.44	6,488.4	4,352.2	-2,907.2	5,156.4	0.58
12,199.0	90.90	336.66	6,487.4	4,436.6	-2,943.8	5,248.4	0.69
12,292.0	90.17	336.19	6,486.5	4,521.8	-2,981.0	5,341.4	0.93
12,384.0	89.09	336.20	6,487.1	4,606.0	-3,018.1	5,433.4	1.17
12,476.0	89.50	335.54	6,488.3	4,690.0	-3,055.8	5,525.4	0.84
12,567.0	88.83	335.97	6,489.6	4,772.9	-3,093.1	5,616.4	0.87
12,661.0	89.50	336.28	6,490.9	4,858.9	-3,131.2	5,710.3	0.79
12,755.0	89.77	336.57	6,491.5	4,945.0	-3,168.8	5,804.3	0.42
12,849.0	90.27	336.57	6,491.5	5,031.3	-3,206.1	5,898.3	0.53
12,944.0	89.03	336.59	6,492.1	5,118.4	-3,243.9	5,993.3	1.31
13,038.0	88.86	336.01	6,493.8	5,204.5	-3,281.7	6,087.3	0.64
13,132.0	89.19	336.04	6,495.4	5,290.4	-3,319.9	6,181.3	0.35
13,226.0	89.60	336.04	6,496.4	5,376.3	-3,358.0	6,275.3	0.44
13,320.0	89.78	335.35	6,496.9	5,461.9	-3,396.7	6,369.3	0.76
13,414.0	90.47	334.77	6,496.7	5,547.2	-3,436.4	6,463.3	0.96
13,508.0	89.87	336.47	6,496.4	5,632.8	-3,475.2	6,557.3	1.92
13,602.0	90.30	336.30	6,496.3	5,718.9	-3,512.8	6,651.3	0.49
13,696.0	89.76	337.21	6,496.3	5,805.3	-3,549.9	6,745.3	1.13
13,790.0	90.24	337.19	6,496.3	5,891.9	-3,586.3	6,839.2	0.51
13,884.0	89.60	337.65	6,496.4	5,978.7	-3,622.4	6,933.2	0.84
13,978.0	90.27	336.63	6,496.5	6,065.4	-3,658.9	7,027.2	1.30
14,072.0	89.87	335.77	6,496.4	6,151.4	-3,696.9	7,121.2	1.01

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Langford Unit 2H
Project:	Ritchie County WV	**TVD Reference:**	Patterson 347: GL 1075' + KB 25 @ 1100.0usft
Site:	DeBerry/Rufus/Langford	**MD Reference:**	Patterson 347: GL 1075' + KB 25 @ 1100.0usft
Well:	Langford Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
14,167.0	90.30	336.27	6,496.2	6,238.2	-3,735.5	7,216.2	0.69
14,261.0	90.64	336.44	6,495.5	6,324.3	-3,773.2	7,310.2	0.40
14,355.0	90.91	336.12	6,494.2	6,410.3	-3,811.0	7,404.2	0.45
14,449.0	89.36	336.06	6,494.0	6,496.2	-3,849.1	7,498.2	1.65
14,543.0	89.73	336.35	6,494.7	6,582.3	-3,887.0	7,592.2	0.50
14,637.0	90.44	336.11	6,494.6	6,668.3	-3,924.9	7,686.2	0.80
14,732.0	89.36	335.63	6,494.7	6,755.0	-3,963.7	7,781.2	1.24
14,826.0	90.07	336.47	6,495.2	6,840.9	-4,001.9	7,875.2	1.17
14,920.0	91.07	337.09	6,494.3	6,927.3	-4,039.0	7,969.2	1.25
15,014.0	90.64	337.19	6,492.9	7,013.9	-4,075.5	8,063.1	0.47
15,108.0	90.27	337.37	6,492.1	7,100.6	-4,111.8	8,157.1	0.44
15,203.0	89.70	336.54	6,492.2	7,188.0	-4,149.0	8,252.1	1.06
15,297.0	90.24	337.00	6,492.2	7,274.4	-4,186.0	8,346.1	0.75
15,391.0	91.14	336.88	6,491.1	7,360.8	-4,222.9	8,440.1	0.97
15,487.0	92.21	336.53	6,488.3	7,449.0	-4,260.8	8,536.0	1.17
15,581.0	90.81	336.20	6,485.8	7,535.1	-4,298.5	8,630.0	1.53
15,676.0	91.61	336.32	6,483.8	7,622.0	-4,336.7	8,725.0	0.85
15,770.0	88.69	335.95	6,483.5	7,708.0	-4,374.7	8,819.0	3.13
15,865.0	89.26	335.84	6,485.2	7,794.7	-4,413.5	8,913.9	0.61
15,960.0	90.23	335.78	6,485.7	7,881.3	-4,452.5	9,008.9	1.02
16,054.0	91.41	335.80	6,484.3	7,967.0	-4,491.0	9,102.9	1.26
16,150.0	90.40	337.04	6,482.8	8,055.0	-4,529.4	9,198.9	1.67
16,244.0	91.11	337.50	6,481.6	8,141.7	-4,565.7	9,292.9	0.90
16,339.0	91.58	337.31	6,479.3	8,229.4	-4,602.2	9,387.8	0.53
16,434.0	91.84	335.79	6,476.5	8,316.5	-4,640.0	9,482.8	1.62
16,528.0	91.07	334.27	6,474.1	8,401.7	-4,679.7	9,576.7	1.81
16,623.0	92.08	334.17	6,471.5	8,487.2	-4,721.0	9,671.6	1.07
16,718.0	90.47	333.98	6,469.4	8,572.6	-4,762.5	9,766.6	1.71
16,813.0	91.27	333.19	6,467.9	8,657.7	-4,804.7	9,861.4	1.18
16,907.0	91.14	333.70	6,466.0	8,741.7	-4,846.7	9,955.3	0.56
17,002.0	89.83	334.91	6,465.2	8,827.3	-4,887.9	10,050.3	1.88
17,096.0	90.37	336.00	6,465.0	8,912.8	-4,927.0	10,144.3	1.29
17,191.0	90.84	335.62	6,464.0	8,999.5	-4,965.9	10,239.3	0.64
17,285.0	91.54	335.78	6,462.0	9,085.2	-5,004.6	10,333.2	0.76
17,378.0	92.48	335.91	6,458.8	9,170.0	-5,042.6	10,426.2	1.02
17,417.0	92.86	335.70	6,457.0	9,205.5	-5,058.6	10,465.1	1.11
17,436.0	92.86	335.70	6,456.0	9,222.8	-5,066.4	10,484.1	0.00

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Langford Unit 2H
Project:	Ritchie County WV	**TVD Reference:**	Patterson 347: GL 1075' + KB 25 @ 1100.0usft
Site:	DeBerry/Rufus/Langford	**MD Reference:**	Patterson 347: GL 1075' + KB 25 @ 1100.0usft
Well:	Langford Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,175.0	6,141.3	-145.9	-66.7	Sycamore
6,510.0	6,300.2	-304.1	-307.4	Middlesex
6,837.0	6,404.7	-316.3	-611.0	Burkett
6,958.0	6,436.6	-273.9	-719.5	Tully
7,043.0	6,455.6	-230.9	-790.2	Marcellus

Checked By: _____ Approved By: _____ Date: _____

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/25/2014
Job End Date:	12/5/2014
State:	West Virginia
County:	Ritchie
API Number:	47-085-10045-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Langford Unit 2H
Longitude:	-80.90119700
Latitude:	39.19541400
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,497
Total Base Water Volume (gal):	16,768,794
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Interstate Oil & Gas Compact Commission

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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	ANTERO RESOURCES	Water					
			Water	7732-18-5	100.00000	90.87515	
WV Specific 40/70 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	5.08509	
			Aluminum Oxide	1344-28-1	1.10000	0.05599	
			Titanium Oxide	13463-67-7	0.10000	0.00509	
			Iron Oxide	1309-37-1	0.10000	0.00509	
WV Specific 20/40 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	2.01975	
			Aluminum Oxide	1344-28-1	1.10000	0.02224	
			Titanium Oxide	13463-67-7	0.10000	0.00202	
			Iron Oxide	1309-37-1	0.10000	0.00202	
WV Specific 30/50 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	0.98398	
			Aluminum Oxide	1344-28-1	1.10000	0.01084	

			Iron Oxide	1309-37-1	0.10000	0.00099	
			Titanium Oxide	13463-67-7	0.10000	0.00099	
WV Local 100 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	0.60072	
			Aluminum Oxide	1344-28-1	1.10000	0.00662	
			Titanium Oxide	13463-67-7	0.10000	0.00060	
			Iron Oxide	1309-37-1	0.10000	0.00060	
HCl Acid (12.5-18.0%), 22 Baume	Nabors Completion and Production Services	Bulk Acid					
			Water	7732-18-5	87.50000	0.18920	
			Hydrochloric Acid	7647-01-0	18.00000	0.03892	
WFR-6W	Nabors Completion and Production Services	Friction Reducer					
			Anionic Water-Soluble Polymer Emulsion	Proprietary	100.00000	0.07834	
LSG-100L	Nabors Completion and Production Services	Gelling Agents					
			Petroleum Distillates	64742-47-8	70.00000	0.06801	
Super TSC-LT	Nabors Completion and Production Services	Paraffin & Scale Additives					
			100% Non-Hazardous Mixture	Proprietary	100.00000	0.01700	
AQUCAR DB 20	Nabors Completion and Production Services	Biocides					
			Polyethylene glycol	25322-68-3	54.50000	0.00791	
			2,2-Dibromo-3-nitrilo-propionamide (DBNPA)	10222-01-2	20.00000	0.00290	
			Sodium bromide	7647-15-6	4.00000	0.00058	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00044	
Super GREEN SOLV-M	Nabors Completion and Production Services	Paraffin & Scale Additives					
			Aliphatic Hydrocarbons	Proprietary	95.00000	0.00136	
			Dodecane	Proprietary	14.00000	0.00020	
			tetradecane	Proprietary	11.00000	0.00016	
			Tridecane	Proprietary	9.00000	0.00013	
			Undecane	Proprietary	8.00000	0.00012	
OB-2 LT	Nabors Completion and Production Services	Gel Breakers					
			Ammonium Persulfate	7727-54-0	85.00000	0.00091	
			Crystalline Silica (in the form of quartz)	14808-60-7	10.00000	0.00011	
Acid Inhibitor 2 (AI-2)	Nabors Completion and Production Services	Acid Corrosion Inhibitors					

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			Glycol Ethers	111-46-6	40.00000	0.00016	
			Isopropyl Alcohol	67-63-0	40.00000	0.00016	
			Propargyl Alcohol	107-19-7	40.00000	0.00016	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	10.00000	0.00004	
EB-4L	Nabors Completion and Production Services	Gel Breakers					
			Ethylene Glycol	107-21-1	40.00000	0.00018	
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 Ingredients	Nabors Completion and Production Services	Other Ingredients					
			Copolymer	Proprietary	100.00000	0.07834	
			guar gum	9000-30-0	50.00000	0.04858	
			Water	7732-18-5	40.00000	0.03134	
			Isoparaffinic Solvent	64742-47-8	26.00000	0.02037	
			Water	7732-18-5	60.00000	0.01020	
			Proprietary	Proprietary	50.00000	0.00850	
			Water	7732-18-5	32.00000	0.00464	
			Ethylene Glycol	107-21-1	4.00000	0.00313	
			Ethoxylated alcohols	Proprietary	4.00000	0.00313	
			Proprietary	Proprietary	15.00000	0.00255	
			Proprietary	Proprietary	15.00000	0.00255	
			Proprietary	Proprietary	15.00000	0.00255	
			Surfactant Blend	Proprietary	3.00000	0.00235	
			Crystalline Silica (in the form of quartz)	14808-60-7	2.00000	0.00194	
			Surfactant	68439-51-0	2.00000	0.00194	
			Sugar	57-50-1	100.00000	0.00046	
			Proprietary	Proprietary	100.00000	0.00046	
			Water	7732-18-5	100.00000	0.00023	
			Water	7732-18-5	48.00000	0.00020	
			Alkali Chloride salt	Proprietary	15.00000	0.00016	
			2,2-Dibromomalonamide	73003-80-2	1.00000	0.00015	
			Monobromo-3-nitrilopropionamide	1113-55-9	1.00000	0.00015	
			2-Propenamide as residual	79-06-1	0.10000	0.00008	
			2-Butoxyethanol	111-76-2	13.00000	0.00005	
			Proprietary	Proprietary	10.00000	0.00004	
			Proprietary	Proprietary	1.00000	0.00001	
			Proprietary	Proprietary	1.00000	0.00001	
			Proprietary	Proprietary	1.00000	0.00001	
			Proprietary	Proprietary	1.00000	0.00001	
			Proprietary	Proprietary	0.99000	0.00000	
			Organophylic Clay	68953-58-2			
			Proprietary	Proprietary	0.02000		

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* 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)

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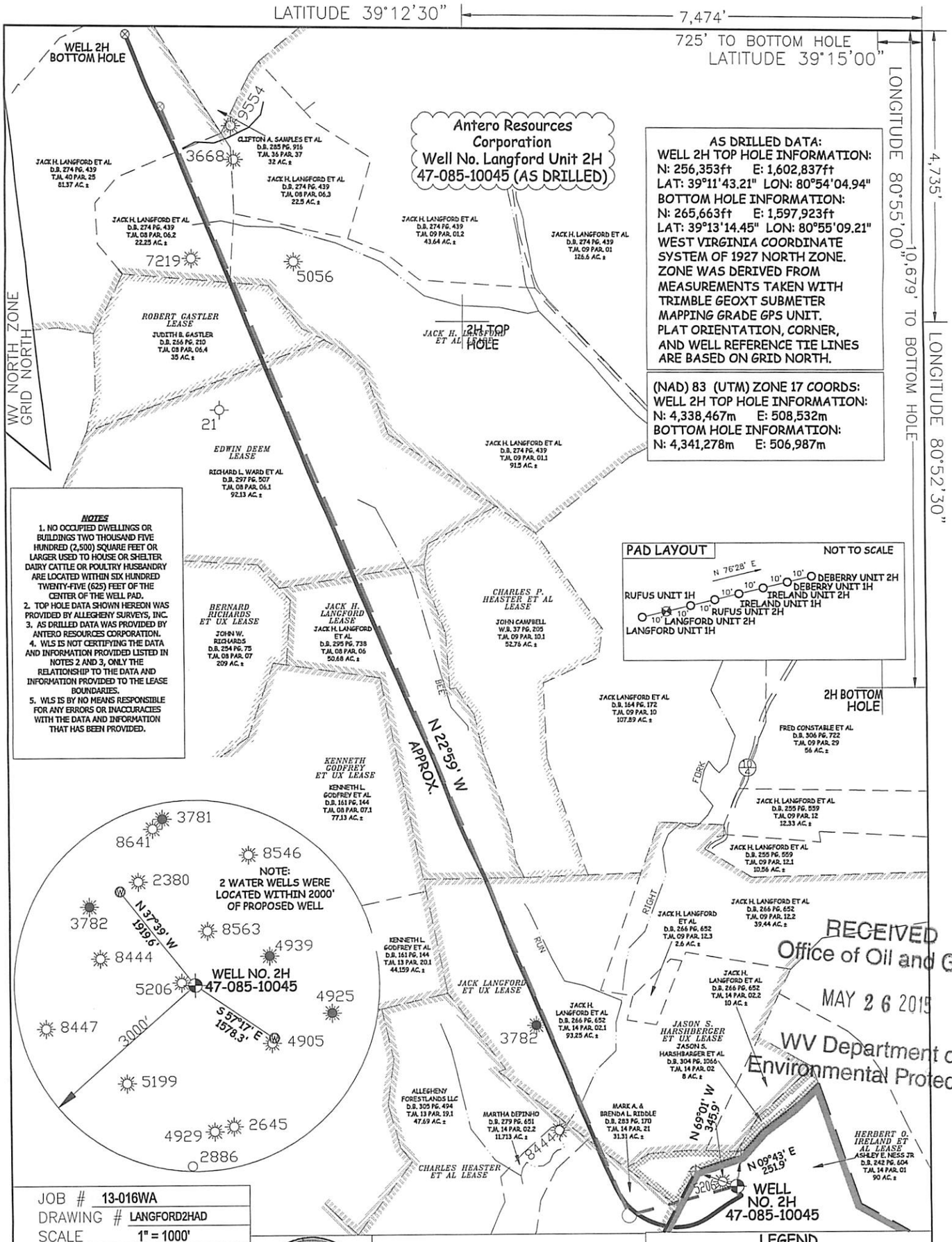

JOB # 13-016WA
DRAWING # LANGFORD2HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO
WEST VIRGINIA 26415

LEGEND
- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Existing Fence
- Found monument, as noted
- Proposed Well Path
- As Drilled Well Path

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
DIVISION OF OIL AND GAS

DATE 03/30/15
OPERATOR'S WELL# LANGFORD UNIT #2H
API WELL # 47 — 085 — 10045
STATE COUNTY PERMIT

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION: ELEVATION 1,080' ORIGINAL - 1,076' AS DRILLED WATERSHED SOUTH FORK HUGHES RIVER
QUADRANGLE PULLMAN 7.5' DISTRICT UNION COUNTY RITCHIE
SURFACE OWNER ASHLEY E. NESS, JR. ACREAGE 90 ACRES +/-
OIL & GAS ROYALTY OWNER HERBERT O. IRELAND ET AL; CHARLES HEASTER ET AL; JACK LANGFORD ET UX; JACK H. LANGFORD; EDWIN DEEM; ROBERT GASTLER; JACK H. LANGFORD ET AL
LEASE ACREAGE 90 ACRES±; 234.49 ACRES±; 145.28 ACRES±; 50.68 ACRES±; 92.13 ACRES±; 31.26 ACRES±; 448.5 ACRES±
PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL
(SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,456' TVD 17,436' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT

FORM WW-6

WR-35
Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 087 - 04748 County ROANE District SMITHFIELD
Quad LOONEYVILLE 7.5' Pad Name CHARLES MCGRAW Field/Pool Name CLOVER
Farm name SNODGRASS, REVA ET AL Well Number 205
Operator (as registered with the OOG) H.G. ENERGY LLC
Address 5260 DuPONT ROAD City PARKERSBURG State WV Zip 26101

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,285,358 M Easting 475,291 M
Landing Point of Curve Northing ____ Easting ____
Bottom Hole Northing 4,285,120 M Easting 475,300 M

Elevation (ft) 1,110' GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type ■ Deviated □ Horizontal □ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework □ Stimulate

Well Type □ Brine Disposal □ CBM □ Gas ■ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other ____

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine □Gas □ NGL ■ Oil □ Other ____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole ■ Air □ Mud □ Fresh Water ■ Brine
Mud Type(s) and Additive(s)
N/A

Date permit issued 11/18/14 Date drilling commenced 1/15/15 Date drilling ceased 1/22/15
Date completion activities began 3/23/15 Date completion activities ceased 4/30/15
Verbal plugging (Y/N) N Date permission granted ____ Granted by ____

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft None Open mine(s) (Y/N) depths None
Salt water depth(s) ft 1820' Void(s) encountered (Y/N) depths None
Coal depth(s) ft None Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) N

Reviewed by:
A.L. 5/21/15 ✓
W.S 06/02/15

WR-35
Rev. 8/23/13

API 47- 087 - 04748 Farm name SNODGRASS, REVA ET AL Well number 205

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	12 1/4"	11 5/8"	30'	Used	LS		Sand In
Surface	8 3/4"	7"	550'	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2540.8'	New	J-55		N
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 25 sks to surface on 7" surface cement job. Did not circulate to surface on 4 1/2" cement job.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Reg Neat	140	15.6	1.18	165.2	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	115/125	13.2/14.2	1.64/1.27	189/186	344'	8
Tubing							

Drillers TD (ft) 2601' Loggers TD (ft) 2592'
Deepest formation penetrated Big Injun Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 550'

Check all wireline logs run ■ caliper ■ density ■ deviated/directional ■ induction ■ neutron ■ resistivity ■ gamma ray ■ temperature □ sonic

Well cored □ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes □ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING
20 Centralizers every 88 from bottom on 4 1/2", Centralizer placed mid string on 7"

WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED

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Rev. 8/23/13

API 47- 087 - 04748 Farm name SNODGRASS, REVA ET AL Well number 205

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	4/28/15	2396'	2406'	40	Big Injun

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	4/30/15	5	1360	3119	365	2,500	153	

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS			
Big Injun	2158'- 2178'	TVD	2386'- 2414'	MD

Please insert additional pages as applicable.

GAS TEST □ Build up □ Drawdown □ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY □ Estimated □ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
Sand/Shale	0	994	0	996	
Sand	994	1098	996	1102	
Shale	1098	1183	1102	1190	
Sand	1183	1374	1190	1386	
Shale	1374	1686	1386	1736	
Sand	1686	1993	1736	2152	
Little Lime	1993	2007	2152	2172	
Pencil Cave	2007	2015	2172	2184	
Big Lime	2015	2132	2184	2350	
Keener	2132	2158	2350	2386	
Big Injun	2158	2178	2386	2414	Drilled directional S 6° E a distance of 728'
Shale	2178	2305	2414	2601	
TD	2305		2601		

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling
Address 11565 State Route 676 City Vincent State OH Zip 45784

Logging Company Weatherford International
Address 777 North River Avenue City Weston State WV Zip 26452

Cementing Company Universal Services
Address Hall Rd City Buckhannon State WV Zip 26201

Stimulating Company Producers Service Corp.
Address 109 South Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Roger Heldman Telephone 304-420-1107
Signature [signature] Title Operations Manager Date 5/1/15

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

HG Energy, LLC

Roane County, West Virginia
C Mcgraw #205
C McGraw #205

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

27 January, 2015

The APPALACHIAN DIRECTIONAL COMPANY

Survey Report - Geographic

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well C McGraw #205
Project:	Roane County, West Virginia	**TVD Reference:**	well @ 1118.0usft (Yost #2)
Site:	C Mcgraw #205	**MD Reference:**	well @ 1118.0usft (Yost #2)
Well:	C McGraw #205	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Project Roane County, West Virginia

Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	NAD83 West Virginia - HARN		
Map Zone:	Zone 17N (84 W to 78 W)		

Site C Mcgraw #205

Site Position:		Northing:	14,059,516.71 usft	Latitude:	38° 42' 59.200 N
From:	Lat/Long	Easting:	1,559,302.20 usft	Longitude:	81° 17' 3.800 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.18 °

Well C McGraw #205

Well Position	+N/-S	0.0 usft	Northing:	14,059,516.71 usft	Latitude:	38° 42' 59.200 N
	+E/-W	0.0 usft	Easting:	1,559,302.20 usft	Longitude:	81° 17' 3.800 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	1,110.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/23/2014	-8.02	66.37	51,991

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	172.50

Survey Program Date 1/27/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
500.0	2,601.0	MWD SURVEY (Wellbore #1)	MWD default	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	14,059,516.71	1,559,302.20	38° 42' 59.200 N	81° 17' 3.800 W
500.0	0.00	0.00	500.0	0.0	0.0	14,059,516.71	1,559,302.20	38° 42' 59.200 N	81° 17' 3.800 W
FIRST SURVEY @ 500' MD / 500 ' TVD									
593.0	0.70	118.10	593.0	-0.3	0.5	14,059,516.44	1,559,302.70	38° 42' 59.197 N	81° 17' 3.794 W
623.0	0.80	112.90	623.0	-0.4	0.9	14,059,516.27	1,559,303.05	38° 42' 59.196 N	81° 17' 3.789 W
653.0	0.90	148.40	653.0	-0.7	1.2	14,059,515.99	1,559,303.37	38° 42' 59.193 N	81° 17' 3.785 W
683.0	1.80	179.80	683.0	-1.4	1.3	14,059,515.32	1,559,303.49	38° 42' 59.186 N	81° 17' 3.784 W
713.0	2.80	186.30	713.0	-2.6	1.2	14,059,514.12	1,559,303.41	38° 42' 59.174 N	81° 17' 3.785 W
743.0	3.70	186.40	742.9	-4.3	1.0	14,059,512.43	1,559,303.23	38° 42' 59.158 N	81° 17' 3.787 W
773.0	4.30	180.50	772.8	-6.4	0.9	14,059,510.34	1,559,303.11	38° 42' 59.137 N	81° 17' 3.788 W
803.0	5.00	180.50	802.7	-8.8	0.9	14,059,507.91	1,559,303.09	38° 42' 59.113 N	81° 17' 3.788 W
833.0	5.40	176.30	832.6	-11.5	1.0	14,059,505.20	1,559,303.17	38° 42' 59.086 N	81° 17' 3.787 W

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Well:	C McGraw #205	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
863.0	6.40	174.80	862.5	-14.6	1.2	14,059,502.12	1,559,303.41	38° 42' 59.056 N	81° 17' 3.784 W
893.0	7.20	173.70	892.2	-18.1	1.6	14,059,498.59	1,559,303.77	38° 42' 59.021 N	81° 17' 3.779 W
923.0	7.70	170.40	922.0	-22.0	2.1	14,059,494.74	1,559,304.31	38° 42' 58.983 N	81° 17' 3.772 W
953.0	8.50	169.70	951.7	-26.1	2.8	14,059,490.57	1,559,305.04	38° 42' 58.942 N	81° 17' 3.763 W
983.0	9.20	169.40	981.3	-30.7	3.7	14,059,486.04	1,559,305.88	38° 42' 58.897 N	81° 17' 3.752 W
1,013.0	9.70	168.30	1,010.9	-35.5	4.6	14,059,481.20	1,559,306.83	38° 42' 58.849 N	81° 17' 3.740 W
1,043.0	10.60	170.80	1,040.5	-40.7	5.6	14,059,476.00	1,559,307.78	38° 42' 58.798 N	81° 17' 3.728 W
1,073.0	11.30	171.50	1,069.9	-46.3	6.5	14,059,470.37	1,559,308.66	38° 42' 58.742 N	81° 17' 3.717 W
1,103.0	11.90	171.10	1,099.3	-52.3	7.4	14,059,464.41	1,559,309.57	38° 42' 58.683 N	81° 17' 3.705 W
1,133.0	12.30	170.10	1,128.6	-58.5	8.4	14,059,458.21	1,559,310.60	38° 42' 58.622 N	81° 17' 3.692 W
1,163.0	13.00	171.50	1,157.9	-65.0	9.5	14,059,451.72	1,559,311.65	38° 42' 58.558 N	81° 17' 3.678 W
1,193.0	13.80	171.60	1,187.1	-71.9	10.5	14,059,444.85	1,559,312.67	38° 42' 58.490 N	81° 17' 3.665 W
1,223.0	14.70	171.60	1,216.2	-79.2	11.6	14,059,437.54	1,559,313.75	38° 42' 58.417 N	81° 17' 3.651 W
1,253.0	15.70	173.10	1,245.1	-87.0	12.6	14,059,429.74	1,559,314.79	38° 42' 58.340 N	81° 17' 3.638 W
1,283.0	16.50	173.10	1,273.9	-95.2	13.6	14,059,421.49	1,559,315.79	38° 42' 58.259 N	81° 17' 3.625 W
1,313.0	17.20	173.80	1,302.6	-103.9	14.6	14,059,412.85	1,559,316.78	38° 42' 58.173 N	81° 17' 3.612 W
1,343.0	17.80	173.40	1,331.3	-112.8	15.6	14,059,403.88	1,559,317.79	38° 42' 58.085 N	81° 17' 3.599 W
1,373.0	18.60	173.80	1,359.8	-122.1	16.6	14,059,394.57	1,559,318.83	38° 42' 57.993 N	81° 17' 3.585 W
1,403.0	19.50	174.20	1,388.1	-131.9	17.7	14,059,384.83	1,559,319.86	38° 42' 57.896 N	81° 17' 3.572 W
1,433.0	20.70	175.00	1,416.3	-142.1	18.6	14,059,374.57	1,559,320.82	38° 42' 57.795 N	81° 17' 3.559 W
1,463.0	21.70	175.00	1,444.3	-152.9	19.6	14,059,363.76	1,559,321.77	38° 42' 57.688 N	81° 17' 3.547 W
1,493.0	22.70	176.00	1,472.0	-164.2	20.5	14,059,352.46	1,559,322.66	38° 42' 57.576 N	81° 17' 3.535 W
1,523.0	23.80	176.10	1,499.6	-176.1	21.3	14,059,340.65	1,559,323.47	38° 42' 57.460 N	81° 17' 3.525 W
1,553.0	25.20	177.10	1,526.9	-188.5	22.0	14,059,328.23	1,559,324.21	38° 42' 57.337 N	81° 17' 3.515 W
1,583.0	26.50	177.40	1,553.9	-201.5	22.6	14,059,315.16	1,559,324.83	38° 42' 57.208 N	81° 17' 3.506 W
1,613.0	27.70	177.20	1,580.6	-215.2	23.3	14,059,301.51	1,559,325.48	38° 42' 57.073 N	81° 17' 3.498 W
1,643.0	28.50	176.40	1,607.1	-229.3	24.1	14,059,287.40	1,559,326.27	38° 42' 56.933 N	81° 17' 3.487 W
1,673.0	29.50	175.90	1,633.3	-243.8	25.1	14,059,272.89	1,559,327.25	38° 42' 56.790 N	81° 17' 3.474 W
1,703.0	30.60	176.30	1,659.3	-258.8	26.1	14,059,257.91	1,559,328.27	38° 42' 56.642 N	81° 17' 3.461 W
1,733.0	31.80	175.70	1,684.9	-274.3	27.2	14,059,242.40	1,559,329.35	38° 42' 56.488 N	81° 17' 3.446 W
1,763.0	33.90	175.50	1,710.1	-290.5	28.4	14,059,226.18	1,559,330.60	38° 42' 56.328 N	81° 17' 3.430 W
1,793.0	36.60	175.50	1,734.6	-307.8	29.8	14,059,208.92	1,559,331.96	38° 42' 56.157 N	81° 17' 3.412 W
1,823.0	39.40	175.90	1,758.3	-326.2	31.1	14,059,190.50	1,559,333.34	38° 42' 55.975 N	81° 17' 3.394 W
1,853.0	41.80	175.50	1,781.0	-345.7	32.6	14,059,171.04	1,559,334.81	38° 42' 55.783 N	81° 17' 3.375 W
1,883.0	43.90	175.30	1,803.0	-366.0	34.2	14,059,150.70	1,559,336.44	38° 42' 55.582 N	81° 17' 3.353 W
1,913.0	43.90	174.50	1,824.7	-386.7	36.1	14,059,129.98	1,559,338.29	38° 42' 55.377 N	81° 17' 3.329 W
1,943.0	44.20	174.10	1,846.2	-407.5	38.2	14,059,109.23	1,559,340.37	38° 42' 55.172 N	81° 17' 3.302 W
1,973.0	45.10	173.80	1,867.6	-428.4	40.4	14,059,088.26	1,559,342.59	38° 42' 54.965 N	81° 17' 3.273 W
2,003.0	45.20	173.50	1,888.7	-449.6	42.7	14,059,067.12	1,559,344.94	38° 42' 54.756 N	81° 17' 3.243 W
2,033.0	45.20	173.40	1,909.9	-470.7	45.2	14,059,045.97	1,559,347.37	38° 42' 54.547 N	81° 17' 3.211 W
2,063.0	45.80	173.50	1,930.9	-492.0	47.6	14,059,024.72	1,559,349.81	38° 42' 54.336 N	81° 17' 3.180 W
2,123.0	46.30	173.50	1,972.5	-534.9	52.5	14,058,981.80	1,559,354.70	38° 42' 53.912 N	81° 17' 3.116 W
2,153.0	44.90	172.40	1,993.5	-556.2	55.1	14,058,960.53	1,559,357.33	38° 42' 53.702 N	81° 17' 3.082 W
2,183.0	44.60	172.00	2,014.8	-577.1	58.0	14,058,939.60	1,559,360.19	38° 42' 53.495 N	81° 17' 3.045 W
2,213.0	44.40	171.50	2,036.2	-597.9	61.0	14,058,918.79	1,559,363.21	38° 42' 53.289 N	81° 17' 3.006 W
2,243.0	44.60	171.20	2,057.6	-618.7	64.2	14,058,898.00	1,559,366.37	38° 42' 53.084 N	81° 17' 2.966 W
2,273.0	44.90	171.90	2,078.9	-639.6	67.3	14,058,877.11	1,559,369.48	38° 42' 52.878 N	81° 17' 2.926 W
2,303.0	45.20	171.50	2,100.1	-660.6	70.3	14,058,856.10	1,559,372.54	38° 42' 52.671 N	81° 17' 2.886 W
2,333.0	45.20	171.30	2,121.3	-681.7	73.5	14,058,835.06	1,559,375.73	38° 42' 52.463 N	81° 17' 2.845 W
2,363.0	45.40	171.80	2,142.4	-702.7	76.7	14,058,813.96	1,559,378.86	38° 42' 52.253 N	81° 17' 2.805 W
2,393.0	45.70	171.60	2,163.4	-723.9	79.8	14,058,792.77	1,559,381.95	38° 42' 52.044 N	81° 17' 2.765 W
2,423.0	46.20	171.10	2,184.2	-745.3	83.0	14,058,771.46	1,559,385.19	38° 42' 51.833 N	81° 17' 2.723 W
2,453.0	46.20	170.80	2,205.0	-766.6	86.4	14,058,750.07	1,559,388.60	38° 42' 51.622 N	81° 17' 2.679 W
2,483.0	46.10	169.80	2,225.8	-788.0	90.0	14,058,728.75	1,559,392.24	38° 42' 51.411 N	81° 17' 2.633 W
2,513.0	48.40	170.50	2,246.1	-809.7	93.8	14,058,707.04	1,559,396.01	38° 42' 51.197 N	81° 17' 2.584 W

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Survey Report - Geographic

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well C McGraw #205
Project:	Roane County, West Virginia	**TVD Reference:**	well @ 1118.0usft (Yost #2)
Site:	C Mcgraw #205	**MD Reference:**	well @ 1118.0usft (Yost #2)
Well:	C McGraw #205	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,601.0	48.40	170.50	2,304.6	-874.6	104.7	14,058,642.14	1,559,406.87	38° 42' 50.555 N	81° 17' 2.445 W
TD @ 2601' MD / 2305' TVD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
500.0	500.0	0.0	0.0	FIRST SURVEY @ 500' MD / 500 ' TVD
2,601.0	2,304.6	-874.6	104.7	TD @ 2601' MD / 2305' TVD

Checked By: _____ Approved By: _____ Date: _____

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MAY 06 2015

WV Department of
Environmental Protection

HG Energy, LLC

Roane County, West Virginia
C Mcgraw #205
C McGraw #205
Wellbore #1

Design: Wellbore #1

HG Energy EOW Report

27 January, 2015

The APPALACHIAN DIRECTIONAL COMPANY

HG Energy EOW Report

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Well:	C McGraw #205	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Project — Roane County, West Virginia

Map System:	Universal Transverse Mercator	**System Datum:**	Mean Sea Level
Geo Datum:	NAD83 West Virginia - HARN		
Map Zone:	Zone 17N (84 W to 78 W)		

Site — C Mcgraw #205

Site Position:		**Northing:**	14,059,516.70 usft	**Latitude:**	38° 42' 59.200 N
From:	Lat/Long	**Easting:**	1,559,302.19 usft	**Longitude:**	81° 17' 3.800 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.18 °

Well — C McGraw #205

Well Position	**+N/-S**	0.0 usft	**Northing:**	14,059,516.70 usft	**Latitude:**	38° 42' 59.200 N
	+E/-W	0.0 usft	**Easting:**	1,559,302.19 usft	**Longitude:**	81° 17' 3.800 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	1,110.0 usft

Wellbore — Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/23/2014	-8.02	66.37	51,991

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	172.50

Survey Program — Date 1/27/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
500.0	2,601.0	MWD SURVEY (Wellbore #1)	MWD default	MWD - Standard

HG Energy EOW Report

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well C McGraw #205
Project:	Roane County, West Virginia	**TVD Reference:**	well @ 1118.0usft (Yost #2)
Site:	C Mcgraw #205	**MD Reference:**	well @ 1118.0usft (Yost #2)
Well:	C McGraw #205	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.0	0.00
FIRST SURVEY @ 500' MD / 500 ' TVD									
593.0	0.70	118.10	593.0	-0.3	0.5	0.3	0.75	0.6	118.10
623.0	0.80	112.90	623.0	-0.4	0.9	0.5	0.40	1.0	116.97
653.0	0.90	148.40	653.0	-0.7	1.2	0.9	1.76	1.4	121.48
683.0	1.80	179.80	683.0	-1.4	1.3	1.5	3.78	1.9	136.97
713.0	2.80	186.30	713.0	-2.6	1.2	2.7	3.44	2.9	154.80
743.0	3.70	186.40	742.9	-4.3	1.0	4.4	3.00	4.4	166.46
773.0	4.30	180.50	772.8	-6.4	0.9	6.4	2.42	6.4	171.84
803.0	5.00	180.50	802.7	-8.8	0.9	8.8	2.33	8.8	174.22
833.0	5.40	176.30	832.6	-11.5	1.0	11.5	1.84	11.6	175.18
863.0	6.40	174.80	862.5	-14.6	1.2	14.6	3.37	14.6	175.24
893.0	7.20	173.70	892.2	-18.1	1.6	18.2	2.70	18.2	175.04
923.0	7.70	170.40	922.0	-22.0	2.1	22.1	2.19	22.1	174.51
953.0	8.50	169.70	951.7	-26.1	2.8	26.3	2.69	26.3	173.79
983.0	9.20	169.40	981.3	-30.7	3.7	30.9	2.34	30.9	173.16
1,013.0	9.70	168.30	1,010.9	-35.5	4.6	35.8	1.77	35.8	172.56
1,043.0	10.60	170.80	1,040.5	-40.7	5.6	41.1	3.34	41.1	172.18
1,073.0	11.30	171.50	1,069.9	-46.3	6.5	46.8	2.38	46.8	172.06
1,103.0	11.90	171.10	1,099.3	-52.3	7.4	52.8	2.02	52.8	171.97
1,133.0	12.30	170.10	1,128.6	-58.5	8.4	59.1	1.51	59.1	171.82
1,163.0	13.00	171.50	1,157.9	-65.0	9.5	65.7	2.55	65.7	171.72
1,193.0	13.80	171.60	1,187.1	-71.9	10.5	72.6	2.67	72.6	171.71
1,223.0	14.70	171.60	1,216.2	-79.2	11.6	80.0	3.00	80.0	171.70
1,253.0	15.70	173.10	1,245.1	-87.0	12.6	87.9	3.58	87.9	171.76
1,283.0	16.50	173.10	1,273.9	-95.2	13.6	96.2	2.67	96.2	171.87

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Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well C McGraw #205
Project:	Roane County, West Virginia	**TVD Reference:**	well @ 1118.0usft (Yost #2)
Site:	C Mcgraw #205	**MD Reference:**	well @ 1118.0usft (Yost #2)
Well:	C McGraw #205	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
1,313.0	17.20	173.80	1,302.6	-103.9	14.6	104.9	2.43	104.9	172.00
1,343.0	17.80	173.40	1,331.3	-112.8	15.6	113.9	2.04	113.9	172.13
1,373.0	18.60	173.80	1,359.8	-122.1	16.6	123.3	2.70	123.3	172.24
1,403.0	19.50	174.20	1,388.1	-131.9	17.7	133.1	3.03	133.1	172.37
1,433.0	20.70	175.00	1,416.3	-142.1	18.6	143.4	4.10	143.4	172.53
1,463.0	21.70	175.00	1,444.3	-152.9	19.6	154.2	3.33	154.2	172.71
1,493.0	22.70	176.00	1,472.0	-164.2	20.5	165.5	3.56	165.5	172.90
1,523.0	23.80	176.10	1,499.6	-176.1	21.3	177.3	3.67	177.3	173.11
1,553.0	25.20	177.10	1,526.9	-188.5	22.0	189.7	4.87	189.8	173.34
1,583.0	26.50	177.40	1,553.9	-201.5	22.6	202.8	4.36	202.8	173.59
1,613.0	27.70	177.20	1,580.6	-215.2	23.3	216.4	4.01	216.5	173.82
1,643.0	28.50	176.40	1,607.1	-229.3	24.1	230.5	2.95	230.6	174.01
1,673.0	29.50	175.90	1,633.3	-243.8	25.1	245.0	3.43	245.1	174.13
1,703.0	30.60	176.30	1,659.3	-258.8	26.1	260.0	3.73	260.1	174.25
1,733.0	31.80	175.70	1,684.9	-274.3	27.2	275.5	4.13	275.6	174.35
1,763.0	33.90	175.50	1,710.1	-290.5	28.4	291.8	7.01	291.9	174.42
1,793.0	36.60	175.50	1,734.6	-307.8	29.8	309.0	9.00	309.2	174.48
1,823.0	39.40	175.90	1,758.3	-326.2	31.1	327.5	9.37	327.7	174.55
1,853.0	41.80	175.50	1,781.0	-345.7	32.6	347.0	8.05	347.2	174.61
1,883.0	43.90	175.30	1,803.0	-366.0	34.2	367.3	7.01	367.6	174.65
1,913.0	43.90	174.50	1,824.7	-386.7	36.1	388.1	1.85	388.4	174.67
1,943.0	44.20	174.10	1,846.2	-407.5	38.2	409.0	1.36	409.3	174.65
1,973.0	45.10	173.80	1,867.6	-428.4	40.4	430.1	3.08	430.3	174.61
2,003.0	45.20	173.50	1,888.7	-449.6	42.7	451.3	0.78	451.6	174.57
2,033.0	45.20	173.40	1,909.9	-470.7	45.2	472.6	0.24	472.9	174.52
2,063.0	45.80	173.50	1,930.9	-492.0	47.6	494.0	2.01	494.3	174.47
2,123.0	46.30	173.50	1,972.5	-534.9	52.5	537.2	0.83	537.5	174.39

Company:	HG Energy, LLC	**Local Co-ordinate Reference:**	Well C McGraw #205
Project:	Roane County, West Virginia	**TVD Reference:**	well @ 1118.0usft (Yost #2)
Site:	C Mcgraw #205	**MD Reference:**	well @ 1118.0usft (Yost #2)
Well:	C McGraw #205	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
2,153.0	44.90	172.40	1,993.5	-556.2	55.1	558.6	5.35	558.9	174.34
2,183.0	44.60	172.00	2,014.8	-577.1	58.0	579.7	1.37	580.0	174.26
2,213.0	44.40	171.50	2,036.2	-597.9	61.0	600.8	1.35	601.0	174.17
2,243.0	44.60	171.20	2,057.6	-618.7	64.2	621.8	0.97	622.0	174.08
2,273.0	44.90	171.90	2,078.9	-639.6	67.3	642.9	1.92	643.1	173.99
2,303.0	45.20	171.50	2,100.1	-660.6	70.3	664.1	1.37	664.3	173.92
2,333.0	45.20	171.30	2,121.3	-681.7	73.5	685.4	0.47	685.6	173.84
2,363.0	45.40	171.80	2,142.4	-702.7	76.7	706.7	1.36	706.9	173.77
2,393.0	45.70	171.60	2,163.4	-723.9	79.8	728.2	1.11	728.3	173.71
2,423.0	46.20	171.10	2,184.2	-745.3	83.0	749.7	2.05	749.9	173.65
2,453.0	46.20	170.80	2,205.0	-766.6	86.4	771.4	0.72	771.5	173.57
2,483.0	46.10	169.80	2,225.8	-788.0	90.0	793.0	2.43	793.1	173.48
2,513.0	48.40	170.50	2,246.1	-809.7	93.8	815.0	7.86	815.1	173.39
2,601.0	48.40	170.50	2,304.6	-874.6	104.7	880.7	0.00	880.8	173.17

TD @ 2601' MD / 2305' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
500.0	500.0	0.0	0.0	FIRST SURVEY @ 500' MD / 500 ' TVD
2,601.0	2,304.6	-874.6	104.7	TD @ 2601' MD / 2305' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: HG Energy, LLC
C McGraw #205
Roane County, West Virginia
Rig: Yost #2
Created By: Jerry Arsenault
Date: 1/27/2015

C McGraw #205
Roane County, West Virginia
Q141410 & AM-150068
Design #1

The APPALACHIAN DIRECTIONAL COMPANY

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Tagret #1 C McGraw #205 - plan hits target center	2170.0	-733.7	96.6	14058783.04	1559398.78	38° 42' 51.948 N	81° 17' 2.552 W

PROJECT DETAILS: Roane County, West Virginia

Geodetic System:	Universal Transverse Mercator
Datum:	NAD83 West Virginia - HARN
Ellipsoid:	GRS 1980
Zone:	Zone 17N (84 W to 78 W)
System Datum:	Mean Sea Level

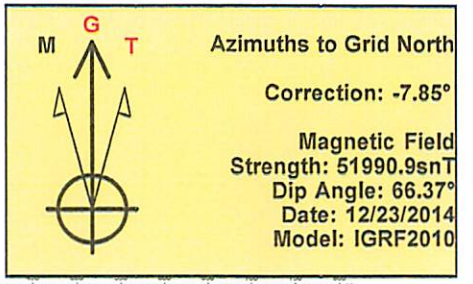
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.0	FIRST SURVEY @ 500' MD / 500 ' TVD
2601.0	48.40	170.50	2304.6	-874.6	104.7	880.7	882.1	TD @ 2601' MD / 2305' TVD

WELL DETAILS: C McGraw #205

Ground Level: 1110.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14059516.70	1559302.19	38° 42' 59.200 N	81° 17' 3.800 W

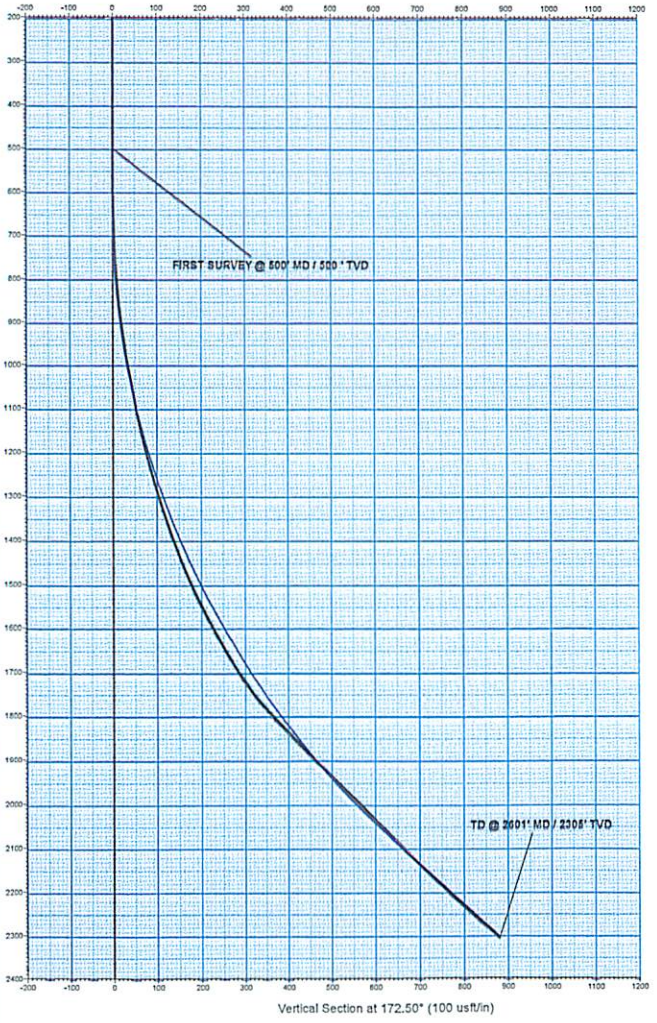


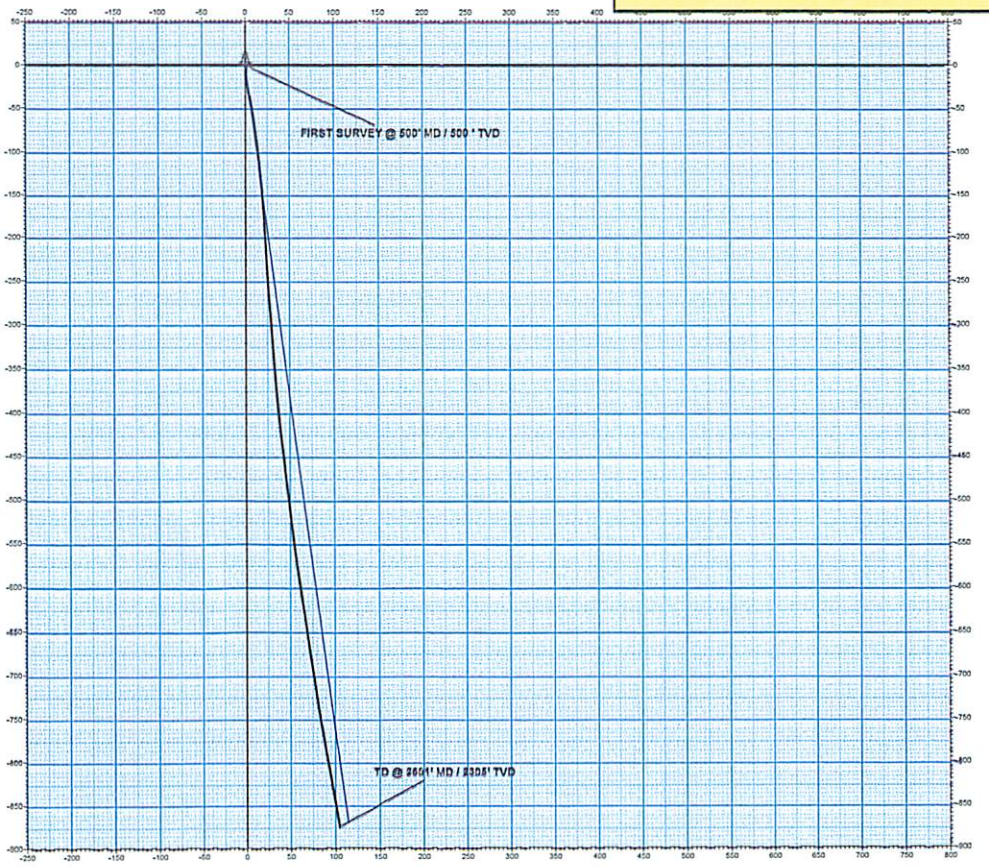
Azimuths to Grid North

Correction: -7.85°

Magnetic Field
Strength: 51990.9snT
Dip Angle: 66.37°
Date: 12/23/2014
Model: IGRF2010

HG Energy





Prepared for:
H G Energy

Dustin Hendershot
304-481-7342

Prepared by:
Producers Service Corp
Daniel L Graham
109 S. Graham St.
Zanesville, OH 43702
740-454-6253

INVOICE #:	18504
WELL NAME:	C.McGRAW 205
COUNTY/STATE:	Roane/WV
TOWNSHIP/FIELD:	Clover Field
DATE of SERVICE:	4/30/2015
CUSTOMER PO#:	

Description	Notes	Amount	Units	Unit Cost	Total Cost
FLUID PUMP CHARGE 0-3000 PSI MIN CHARGE 4 HRS		1	EA		
BLENDER CHARGE 0-10 BPM		1	EA		
MILEAGE CHARGE PER UNIT ONE WAY	2 Units @40Miles	40	MI		
IC ACID 15%		250	GAL		
PRO HIB II		0.5	GAL		
ACID DELIVERY		2	HR		
PRO CLA LOK (KCL SUBSTITUTE)		15	GAL		
PRO NE-21		5	GAL		
PRO GEL 4		150	LB		
BUFFER I		50	LB		
BUFFER II		50	LB		
BIO CLEAR 750		1	LB		
AP BREAKER		15	LB		
BXL-A		10	GAL		
BXL-10C		10	GAL		
SAND 20/40 OTTAWA		25	CWT		
SAND DELIVERY / TON MILES		100	TMILE		
DATA VAN		1	STAGE		
2 INCH FLOW METER		1	EA		

Customer Approval: _____

WR-35
Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 103 - 02795 County Wetzel District Green
Quad Porters Falls Pad Name Howell Field/Pool Name Mary
Farm name Howell, Charles and Ruth Well Number #8H
Operator (as registered with the OOG) Stone Energy Corporation
Address 1300 Fort Pierpont Drive City Morgantown State WV Zip 26508

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,382,920.4 Easting 517,668.7
Landing Point of Curve Northing N/A Easting N/A
Bottom Hole Northing 4,382,918.7 Easting 517,667.3

Elevation (ft) 1,300 GL Type of Well □New ■ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework □ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion □ Single □ Multiple Fluids Produced □ Brine □Gas □ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole □ Air □ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
N/A

Date permit issued 9/26/2012 Date drilling commenced 4/5/2013 Date drilling ceased 4/20/2013
Date completion activities began N/A Date completion activities ceased N/A
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 96 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Reported Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1,060 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by:
A.L. 5/27/15
W.S. 6/3/15

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API 47- 103 - 02795 Farm name Howell, Charles and Ruth Well number #8H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	90'	New	LS		Y - GTS
Surface	17.5"	13.375"	1,307' KB 1,292' GL	New	J55	118' & 194'	Y - CTS
Coal	17.5"	13.375"	1,307' KB 1,292' GL	New	J55	118' & 194'	Y - CTS
Intermediate 1	12.25"	9.625"	2,404'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production							
Tubing							
Packer type and depth set							

Comment Details Circulated 40 bbls cement to surface on 13.375" string and 40 bbls of cement to surface on the 9.625" string.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ^{3}/sks)	Volume (ft ^{3})	Cement Top (MD)	WOC (hrs)
Conductor	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	1,005	15.6	1.19	1,196	Surface	8.0
Coal	Class "A"	1,005	15.6	1.19	1,196	Surface	8.0
Intermediate 1	Lead-Flex Seal Tail-Class "A"	Lead-410 Tail-420	Lead-15.0 Tail-15.5	Lead-1.26 Tail-1.19	Lead-516 Tail-500	Surface	12.0
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) 2,440 MD / 2,440 TVD Loggers TD (ft) N/A

Deepest formation penetrated Weir Sandstone Plug back to (ft) 2,185

Plug back procedure In order to prevent a potential collision with the Howell #3H wellbore it was decided stop drilling @ 2,440' MD/TVD. TOOH and laid down bit and then TBIH with open ended drill pipe. 100 sacks of Class "A" cement was pumped down the DP at a density of 1.17 cf/sx for a solid cement plug from TD to 2,185' MD/TVD. TOC is 219' inside the 9.625".

Kick off depth (ft) N/A

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ☐ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ☐ Yes ■ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Surface/Coal casing had bow spring centralizers placed on joints 2, 5, 8, 11, 14, 17, 20, 23, 26, 29 and 32. Intermediate casing had bow spring centralizers placed on joints 2, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47 and 50.

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 103 - 02795 Farm name Howell, Charles and Ruth Well number #8H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	Not	Stimulated			

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
		Not	Stimulated					

Please insert additional pages as applicable.

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API 47- 103 - 02795 Farm name Howell, Charles and Ruth Well number #8H

PRODUCING FORMATION(S)	DEPTHS	
Not perforated or stimulated	TVD	MD

Please insert additional pages as applicable.

GAS TEST □ Build up □ Drawdown □ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY □ Estimated □ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
Sandstone/Shale	0	1,060	0	1,060	Fresh Water - mist @ 96'
Coal	1,060	1,063	1,060	1,063	
Sandstone/Shale	1,063	2,146	1,063	2,146	Interbeded
Little Lime	2,146	2,220	2,146	2,220	Lime Stone
Big Lime	2,220	2,253	2,220	2,253	Lime Stone
Injun	2,253	2,296	2,253	2,296	Sandstone
Shale	2,296	2,440	2,296	2,440	Shale
TD		2,440		2,440	Total Depth

Please insert additional pages as applicable.

Drilling Contractor Nomac Drilling
Address 171 Locust Ave. City Mount Morris State PA Zip 15349

Logging Company Scientific Drilling
Address 116 Vista Drive City Charleroi State PA Zip 15022

Cementing Company BJ Services / Schlumberger
Address 2228 Philippi Pike / 1178 US Hwy 33 East City Clarksburg / Weston State WV Zip 26301 / 26452

Stimulating Company N/A
Address _____ City _____ State WV Zip _____
Please insert additional pages as applicable.

Completed by W. Lee Hornsby Telephone 304-225-1600
Signature W. L. Hornsby Title Drilling Engineer Date 5/27/2015 (original 2/3/2015)

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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Project: Mary Prospect
Site: Howell Pad
Well: Howell 8H
Wellbore: OH
Design: As Drilled

WELL DETAILS: Howell 8H

Ground Level: 1302.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	401725.01	1635253.62	39° 35' 44.716 N	80° 47' 39.823 W	

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
100.4	100.4	0.94	267.07	0.0	-0.8	-0.5	0.8	First SDI Gyro Survey
2420.5	2420.5	0.26	163.20	-5.6	-4.8	1.3	11.2	Last SDI Gyro Survey

PROJECT DETAILS: Mary Prospect

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: West Virginia North 4701
System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Howell 8H, Grid North
Vertical (TVD) Reference: GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Calculation Method: Minimum Curvature

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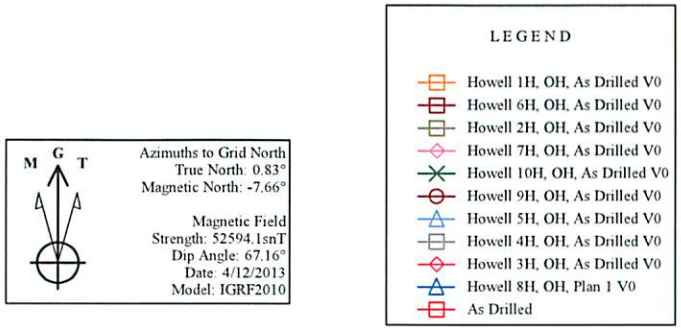

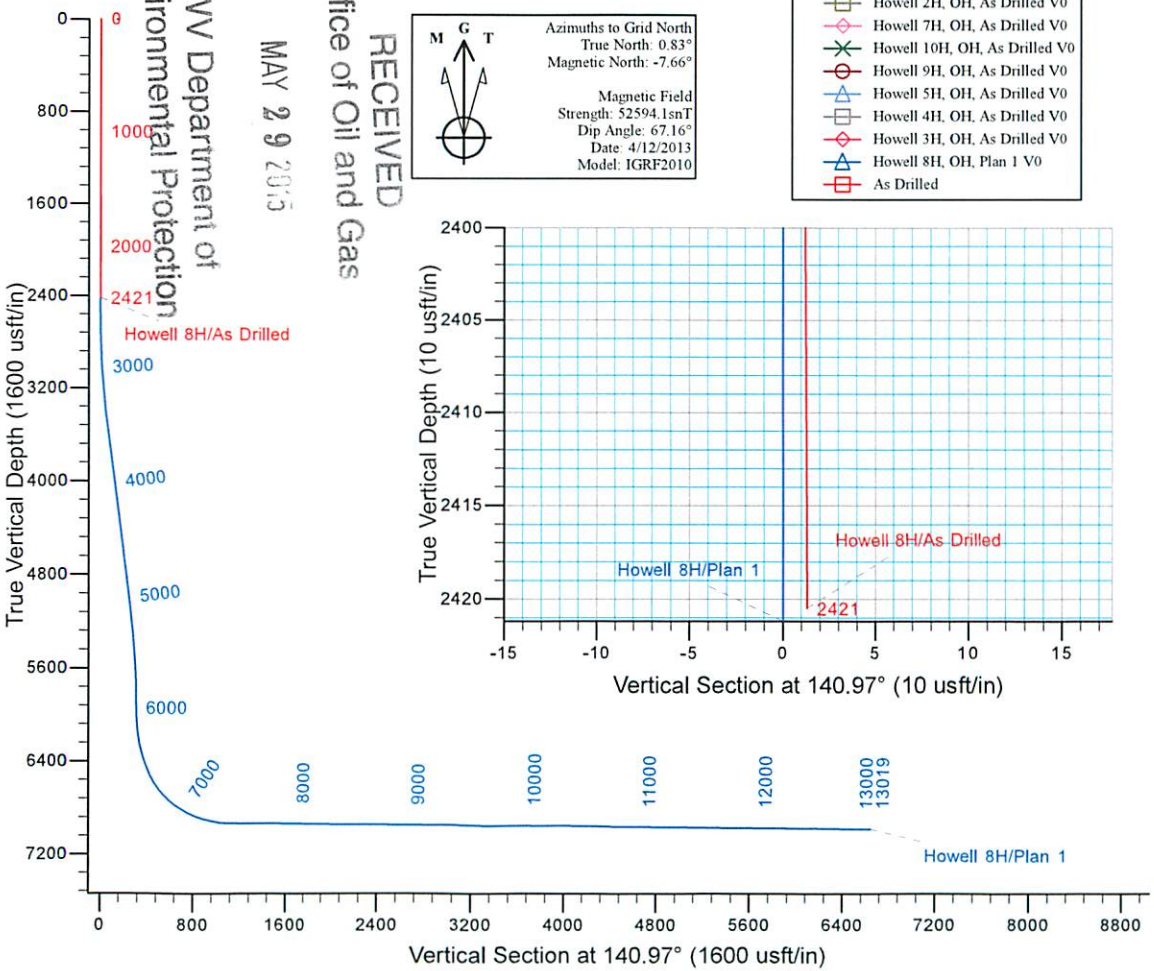

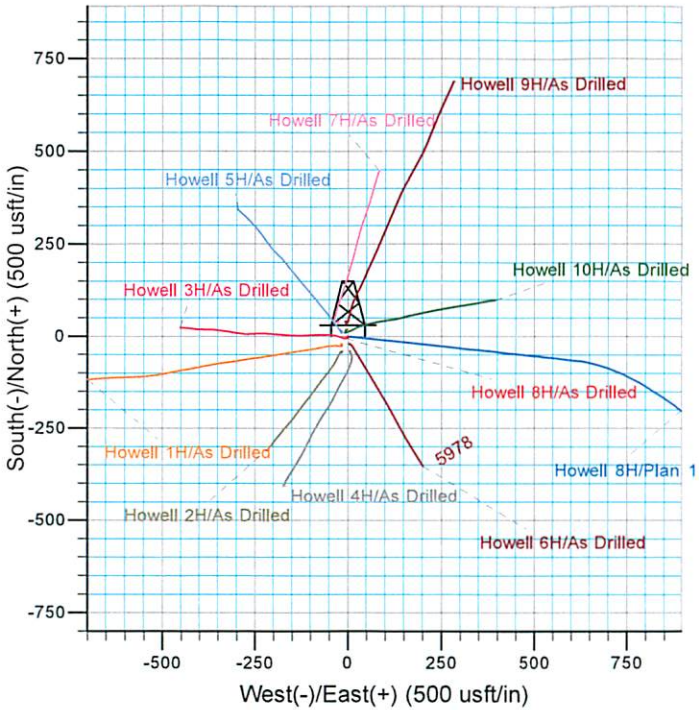

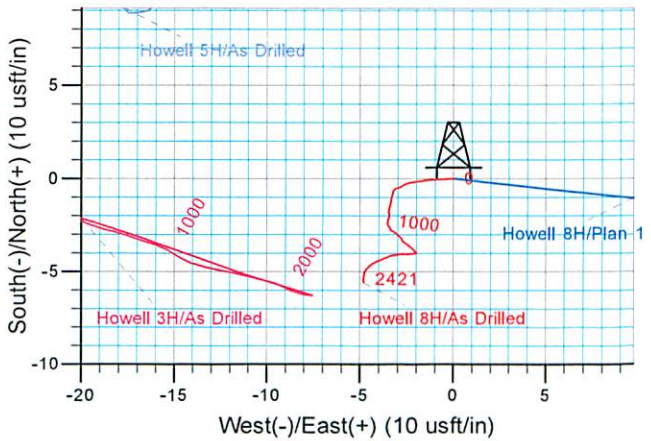

Stone Energy

Mary Prospect
Howell Pad
Howell 8H

OH

Design: As Drilled

Standard Survey Report

24 April, 2013

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Scientific Drilling

Scientific Drilling International

Survey Report

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well Howell 8H
Project:	Mary Prospect	**TVD Reference:**	GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Site:	Howell Pad	**MD Reference:**	GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Well:	Howell 8H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Project Mary Prospect, West Virginia

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site Howell Pad

Site Position:		**Northing:**	401,702.68 usft	**Latitude:**	39° 35' 44.492 N
From:	Map	**Easting:**	1,635,235.83 usft	**Longitude:**	80° 47' 40.046 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.83 °

Well Howell 8H

Well Position	**+N/-S**	0.0 usft	**Northing:**	401,725.01 usft	**Latitude:**	39° 35' 44.716 N
	+E/-W	0.0 usft	**Easting:**	1,635,253.62 usft	**Longitude:**	80° 47' 39.823 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	1,302.0 usft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	4/12/2013	-8.49	67.16	52,594

Design As Drilled

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	140.97

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Survey Program **Date** 4/24/2013

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
100.0	2,420.5	Survey 1 - Gyro (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3

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)**
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.4	0.94	267.07	100.4	0.0	-0.8	-0.5	0.94	0.94	0.00
First SDI Gyro Survey									
126.1	0.74	267.25	126.1	-0.1	-1.2	-0.7	0.78	-0.78	0.70
150.7	0.60	264.10	150.7	-0.1	-1.5	-0.9	0.59	-0.57	-12.80
176.1	0.69	260.34	176.1	-0.1	-1.8	-1.0	0.39	0.35	-14.79
200.1	0.49	268.25	200.1	-0.1	-2.0	-1.2	0.90	-0.83	32.93
226.0	0.51	258.89	226.0	-0.2	-2.2	-1.3	0.32	0.08	-36.11
250.6	0.36	259.83	250.6	-0.2	-2.4	-1.4	0.61	-0.61	3.83
276.0	0.30	245.57	275.9	-0.3	-2.6	-1.4	0.40	-0.24	-56.23
300.9	0.31	235.35	300.9	-0.3	-2.7	-1.4	0.22	0.04	-40.96

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well Howell 8H
Project:	Mary Prospect	**TVD Reference:**	GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Site:	Howell Pad	**MD Reference:**	GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Well:	Howell 8H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

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)
325.7	0.27	232.31	325.7	-0.4	-2.8	-1.4	0.17	-0.16	-12.27
350.2	0.16	242.75	350.2	-0.4	-2.9	-1.5	0.47	-0.45	42.53
375.6	0.33	258.39	375.5	-0.5	-3.0	-1.5	0.72	0.67	61.74
401.0	0.24	243.54	401.0	-0.5	-3.1	-1.5	0.45	-0.35	-58.37
425.6	0.25	230.61	425.5	-0.6	-3.2	-1.6	0.23	0.04	-52.65
450.2	0.23	215.17	450.2	-0.6	-3.2	-1.5	0.27	-0.08	-62.64
475.6	0.11	150.27	475.6	-0.7	-3.2	-1.5	0.82	-0.47	-255.91
500.9	0.13	198.37	500.9	-0.8	-3.2	-1.5	0.39	0.08	189.67
525.6	0.14	197.01	525.6	-0.8	-3.3	-1.4	0.04	0.04	-5.51
550.2	0.18	196.56	550.2	-0.9	-3.3	-1.4	0.16	0.16	-1.83
575.6	0.14	206.04	575.6	-0.9	-3.3	-1.4	0.19	-0.16	37.23
601.0	0.06	167.53	601.0	-1.0	-3.3	-1.3	0.40	-0.32	-151.73
625.6	0.19	196.02	625.6	-1.0	-3.3	-1.3	0.57	0.53	115.86
650.3	0.14	186.07	650.3	-1.1	-3.3	-1.2	0.23	-0.20	-40.30
675.7	0.17	197.44	675.7	-1.2	-3.4	-1.2	0.17	0.12	44.80
701.2	0.19	186.18	701.2	-1.2	-3.4	-1.2	0.16	0.08	-44.17
725.8	0.09	172.94	725.8	-1.3	-3.4	-1.1	0.42	-0.41	-53.80
750.5	0.11	224.26	750.5	-1.3	-3.4	-1.1	0.36	0.08	207.61
776.5	0.09	181.28	776.5	-1.4	-3.4	-1.1	0.29	-0.08	-165.24
800.1	0.13	193.72	800.1	-1.4	-3.4	-1.0	0.20	0.17	52.82
826.1	0.13	182.17	826.1	-1.5	-3.4	-1.0	0.10	0.00	-44.37
850.7	0.10	201.28	850.7	-1.5	-3.4	-1.0	0.20	-0.12	77.53
876.2	0.23	191.78	876.2	-1.6	-3.4	-0.9	0.52	0.51	-37.33
900.4	0.23	194.97	900.4	-1.7	-3.5	-0.9	0.05	0.00	13.19
925.3	0.20	176.12	925.3	-1.8	-3.5	-0.8	0.31	-0.12	-76.73
951.2	0.27	164.69	951.2	-1.9	-3.5	-0.7	0.32	0.27	-44.00
975.5	0.08	205.53	975.4	-2.0	-3.5	-0.7	0.89	-0.78	168.09
1,001.0	0.22	187.07	1,001.0	-2.0	-3.5	-0.6	0.57	0.55	-172.84
1,025.7	0.28	201.53	1,025.7	-2.1	-3.5	-0.5	0.35	0.24	58.52
1,050.1	0.20	185.39	1,050.1	-2.2	-3.5	-0.5	0.43	-0.33	-66.20
1,076.3	0.22	191.78	1,076.3	-2.3	-3.5	-0.4	0.12	0.08	24.38
1,100.1	0.20	177.65	1,100.1	-2.4	-3.5	-0.4	0.23	-0.08	-59.33
1,126.1	0.22	156.80	1,126.1	-2.5	-3.5	-0.3	0.30	0.08	-80.2[illegible]
1,150.7	0.12	130.27	1,150.7	-2.6	-3.5	-0.2	0.51	-0.41	-107.76
1,176.1	0.20	144.69	1,176.1	-2.6	-3.4	-0.1	0.35	0.31	56.75
1,200.2	0.20	164.96	1,200.2	-2.7	-3.4	-0.1	0.29	0.00	83.97
1,225.0	0.18	139.45	1,225.0	-2.8	-3.4	0.0	0.35	-0.08	-102.86
1,250.0	0.19	101.66	1,250.0	-2.8	-3.3	0.1	0.48	0.04	-151.28
1,275.5	0.27	132.86	1,275.5	-2.8	-3.2	0.2	0.57	0.31	122.50
1,301.0	0.23	119.97	1,301.0	-2.9	-3.1	0.3	0.27	-0.16	-50.57
1,325.2	0.28	143.07	1,325.2	-3.0	-3.0	0.4	0.47	0.21	95.42
1,350.8	0.31	130.86	1,350.7	-3.1	-3.0	0.5	0.27	0.12	-47.75
1,375.9	0.21	120.60	1,375.9	-3.1	-2.9	0.6	0.44	-0.40	-40.84

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well Howell 8H
Project:	Mary Prospect	**TVD Reference:**	GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Site:	Howell Pad	**MD Reference:**	GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Well:	Howell 8H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

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)
1,400.9	0.39	156.00	1,400.9	-3.3	-2.8	0.8	1.00	0.72	141.43
1,425.2	0.23	138.75	1,425.2	-3.4	-2.7	0.9	0.76	-0.66	-71.08
1,450.8	0.38	124.26	1,450.8	-3.4	-2.6	1.0	0.65	0.59	-56.56
1,476.4	0.36	125.22	1,476.4	-3.5	-2.5	1.2	0.08	-0.08	3.74
1,501.5	0.32	131.71	1,501.5	-3.6	-2.4	1.3	0.22	-0.16	25.90
1,525.4	0.34	132.26	1,525.4	-3.7	-2.3	1.5	0.08	0.08	2.30
1,551.0	0.33	129.18	1,551.0	-3.8	-2.2	1.6	0.08	-0.04	-12.05
1,575.4	0.15	147.75	1,575.4	-3.9	-2.1	1.7	0.79	-0.74	76.08
1,600.5	0.14	123.67	1,600.5	-3.9	-2.0	1.8	0.24	-0.04	-95.94
1,625.6	0.06	139.30	1,625.6	-4.0	-2.0	1.8	0.33	-0.32	62.25
1,650.7	0.17	241.57	1,650.7	-4.0	-2.0	1.8	0.76	0.44	407.29
1,675.7	0.13	279.66	1,675.7	-4.0	-2.1	1.8	0.42	-0.16	152.18
1,700.9	0.21	261.27	1,700.8	-4.0	-2.2	1.8	0.38	0.32	-73.18
1,726.0	0.14	288.69	1,726.0	-4.0	-2.2	1.7	0.43	-0.28	109.07
1,751.2	0.20	263.35	1,751.1	-4.0	-2.3	1.7	0.38	0.24	-100.76
1,776.2	0.17	243.11	1,776.2	-4.0	-2.4	1.6	0.28	-0.12	-80.73
1,801.7	0.23	268.87	1,801.7	-4.0	-2.5	1.6	0.42	0.24	100.94
1,826.6	0.16	299.18	1,826.6	-4.0	-2.6	1.5	0.49	-0.28	121.82
1,850.4	0.20	252.36	1,850.3	-4.0	-2.6	1.5	0.62	0.17	-197.22
1,875.9	0.18	283.42	1,875.9	-4.0	-2.7	1.4	0.40	-0.08	121.42
1,900.2	0.32	256.10	1,900.1	-4.0	-2.8	1.4	0.74	0.58	-112.85
1,925.2	0.16	279.41	1,925.2	-4.0	-2.9	1.3	0.73	-0.64	92.94
1,950.2	0.21	254.49	1,950.2	-4.1	-3.0	1.3	0.37	0.20	-99.68
1,975.8	0.15	237.39	1,975.8	-4.1	-3.1	1.2	0.31	-0.23	-66.85
2,000.1	0.31	264.60	2,000.0	-4.1	-3.2	1.2	0.78	0.66	112.25
2,025.1	0.24	279.13	2,025.0	-4.1	-3.3	1.1	0.39	-0.28	58.10
2,050.2	0.45	239.10	2,050.2	-4.1	-3.4	1.1	1.22	0.84	-159.29
2,075.1	0.34	263.92	2,075.1	-4.2	-3.6	1.0	0.81	-0.44	99.56
2,100.1	0.44	240.66	2,100.0	-4.3	-3.7	1.0	0.74	0.40	-93.26
2,126.0	0.43	239.92	2,126.0	-4.4	-3.9	0.9	0.04	-0.04	-2.85
2,151.4	0.40	248.96	2,151.4	-4.4	-4.1	0.9	0.28	-0.12	35.59
2,176.0	0.36	241.17	2,176.0	-4.5	-4.2	0.8	0.27	-0.16	-31.68
2,200.1	0.42	242.55	2,200.0	-4.6	-4.4	0.8	0.25	0.25	5.74
2,225.1	0.30	234.22	2,225.1	-4.7	-4.5	0.8	0.52	-0.48	-33.23
2,251.2	0.21	220.92	2,251.1	-4.7	-4.6	0.8	0.41	-0.35	-51.11
2,275.9	0.25	218.17	2,275.8	-4.8	-4.6	0.8	0.17	0.16	-11.13
2,300.5	0.24	213.41	2,300.4	-4.9	-4.7	0.8	0.09	-0.04	-19.35
2,325.1	0.25	201.61	2,325.0	-5.0	-4.7	0.9	0.21	0.04	-47.97
2,350.7	0.47	190.07	2,350.7	-5.1	-4.8	1.0	0.90	0.86	-45.04
2,375.6	0.38	189.07	2,375.6	-5.3	-4.8	1.1	0.36	-0.36	-4.01
2,400.4	0.28	179.17	2,400.4	-5.5	-4.8	1.2	0.46	-0.40	-39.90
2,420.5	0.26	163.20	2,420.5	-5.6	-4.8	1.3	0.39	-0.10	-79.55

Last SDI Gyro Survey

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well Howell 8H
Project:	Mary Prospect	**TVD Reference:**	GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Site:	Howell Pad	**MD Reference:**	GL 1302' & KB 15' @ 1317.0usft (Nomac 237)
Well:	Howell 8H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
100.4	100.4	0.0	-0.8	First SDI Gyro Survey
2,420.5	2,420.5	-5.6	-4.8	Last SDI Gyro Survey

Checked By: _____ Approved By: _____ Date: _____

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1300 Fort Pierpont Drive – Suite 201
Morgantown, WV 26508
Telephone: (304 225-1600

5/28/2015

Mr. James Martin, Chief
WV Office of Oil and Gas
601, 57th Street, SE
Charleston, WV 25304-2345

Dear Mr. Martin;

Attached, please find revised "WR-34 – Discharge Monitoring Report and "WR-35 – Well Operator's Report of Well Work" for the well listed below and operated by Stone Energy Corporation, Operator ID 494490923. The attachments are for:

Well Name	API Number
Howell #8H	47-103-02795

Should you require additional information or have any questions please feel free to contact me at 304-225-1777.

Sincerely,

W. Lee Hornsby
Drilling Engineer, Appalachia
Stone Energy Corporation

Attachments
xc: Well Files

WR-35
Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 103 - 02846 County Wetzel District Magnolia
Quad New Martinsville Pad Name Stone Field/Pool Name Mary
Farm name Stone Energy Corporation Well Number #4H
Operator (as registered with the OOG) Stone Energy Corporation
Address 1300 Fort Pierpont Dr. - Suite 201 City Morgantown State WV Zip 26508

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,389,052 Easting 518,705
Landing Point of Curve Northing 4,388,721 Easting 518,832
Bottom Hole Northing 4,387,481 Easting 519,314

Elevation (ft) 1,215 GL Type of Well □New ■ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen □ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single □ Multiple Fluids Produced ■ Brine ■Gas □ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole ■ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Saturated salt mud which includes Caustic Soda, Barite, Lime, New-Drill, Perma-Lose HT, Xan-Plex D, X-Cide 102, Soda Ash, and Sodium Chloride

Date permit issued 2/5/2013 Date drilling commenced 5/14/2013 Date drilling ceased 2/13/2014
Date completion activities began 4/7/2014 Date completion activities ceased 10/28/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 95 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Reported Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1,106 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
AL 5/26/15 ✓
W.S. 6/02/15

WR-35
Rev. 8/23/13

API 47- 103 - 02846 Farm name Stone Energy Corporation Well number #4H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	60'	New	LS		N - GTS
Surface	17.5"	13.375"	1,229' KB - 1,214' GL	New	J55	100' & 181'	Y - CTS
Coal	17.5"	13.375"	1,229' KB - 1,214' GL	New	J55	100' & 181'	Y - CTS
Intermediate 1	12.25"	9.625"	2,420'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	12,002'	New	P110		Y - TOC @ 564'
Tubing	N/A	2.375"	7,485'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 45 bbls cement to surface on 13.375" casing string. Circulated 30 bbls cement to surface on the 9.625" casing string. Circulated 35 bbls cement to surface on the 5.5" casing string. TOC on 5.5" after running CBL @ 564'.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	930	15.6	1.19	1,079	Surface	8.0
Coal	Class "A"	930	15.6	1.19	1,079	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-510 Tail-285	Lead-15.0 Tail 15.6	Lead-1.26 Tail-1.19	Lead-643 Tail-339	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-FlexSeal Tail-Class "A"	Lead-938 Tail-1,647	Lead- 15.0 Tail-15.6	Lead-1.26 Tail-1.19	Lead-1,182 Tail-1,960	564	7.0
Tubing							

Drillers TD (ft) 12,010 MD / 6,770 TVD Loggers TD (ft) N/A
Deepest formation penetrated Marcellus Shale Plug back to (ft)
Plug back procedure

Kick off depth (ft) 5,728 MD / 5,705' TVD

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Surface casing had bow spring centralizers placed on joints 2, 5, 8, 11, 14, 17, 20, 23, 26 and 29. Intermediate casing had bow spring centralizers placed on joints 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55 and 57. Production casing had rigid spiral centralizers placed on every fourth joint beginning with joint 4 to joint #152. Ran a total of 38 rigid spiral centralizers. Ran bow spring centralizers from joint 160 to joint 272 on every eighth joint. A total of 15 bow spring centralizers were run.

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WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 103 - 02846 Farm name Stone Energy Corporation Well number #4H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	4/14/14	11,723	11,906	72	Marcellus Shale
2	5/6/14	11,470	11,653	72	Marcellus Shale
3	5/7/14	11,220	11,397	72	Marcellus Shale
4	5/8/14	10,970	11,153	72	Marcellus Shale
5	5/9/14	10,720	10,903	72	Marcellus Shale
6	5/10/14	10,469	10,653	72	Marcellus Shale
7	5/11/14	10,220	10,401	72	Marcellus Shale
8	5/12/14	9,962	10,153	72	Marcellus Shale
9	5/13/14	9,704	9,898	72	Marcellus Shale
10	5/14/14	9,460	9,643	72	Marcellus Shale
11	5/15/14	9,209	9,393	72	Marcellus Shale
12	5/16/14	8,959	9,143	72	Marcellus Shale
13	5/17/14	8,710	8,887	72	Marcellus Shale
14	5/18/14	8,460	8,643	72	Marcellus Shale
15	5/19/14	8,210	8,393	72	Marcellus Shale
16	5/31/14	7,959	8,142	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	5/6/14	85.4	7,517	5,712	4,569	361,020	8,157	
2	5/7/14	85.3	7,443	6,790	4,995	422,560	8,325	
3	5/8/14	85.5	7,157	6,196	5,148	425,200	8,387	
4	5/9/14	85.1	7,338	6,938	4,918	426,760	8,417	
5	5/10/14	85.3	7,265	6,738	5,233	418,940	8,274	
6	5/11/14	82.0	7,106	5,119	4,746	422,860	9,718	
7	5/12/14	80.1	6,679	6,066	5,119	416,560	8,243	
8	5/13/14	80.2	6,661	5,848	4,545	426,220	8,213	
9	5/14/14	79.3	6,937	6,859	4,804	406,940	8,255	
10	5/15/14	79.4	6,624	5,749	4,659	417,220	8,365	
11	5/16/14	79.2	6,744	5,796	4,115	420,580	8,346	
12	5/17/14	79.1	6,892	5,799	4,718	418,140	8,324	
13	5/18/14	80.5	6,581	6,015	4,460	416,400	8,269	
14	5/19/14	80.8	6,448	6,858	4,948	426,720	8,624	
15	5/30/14	80.5	6,393	5,962	5,233	422,720	8,226	
16	6/1/14	79.1	6,264	6,182	4,861	421640	8,245	

Please insert additional pages as applicable.

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	6/2/14	7,708	7,893	72	Marcellus Shale
18	6/4/14	7,509	7,640	72	Marcellus Shale
19	6/5/14	7,257	7,443	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
17	6/3/14	79.9	6,593	6,230	5,231	414,480	8,246	
18	6/4/14	78.9	6,638	7,323	4,685	370,100	7,545	
19	6/5/14	80.2	6,353	6,718	4,660	424,620	8,237	

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PRODUCING FORMATION(S)	DEPTHS	
Marcelllus Shale	6,778' to 6,769' TVD	7,257' to 11,906' MD

Please insert additional pages as applicable.

GAS TEST ■ Build up □ Drawdown ■ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface 2,591 psi Bottom Hole 4,352 calculated psi DURATION OF TEST 73 hrs

OPEN FLOW Gas 2,267 mcfpd Oil ____ bpd NGL 204 bpd Water 506.4 bpd GAS MEASURED BY □ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		
See Attached Sheet					

Please insert additional pages as applicable.

Drilling Contractor Nomac (top-hole) & Saxon Drilling (horizontal)
Address 2034 Martins Branch Rd /9303 New Trails Drive City Mount Morris / The Woodlands State PA / TX Zip 25312 / 77381

Logging Company Scientific Drilling and Schlumberger
Address 3475 Washington Ave / 1178 US HWY 33 East City Finleyville / Weston State PA / WV Zip 15332 / 26452

Cementing Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Stimulating Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Please insert additional pages as applicable.

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Completed by W. Lee Hornsby Telephone 304-225-1600
Signature W. Lee Hornsby Title Drilling Engineer Date 4/27/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Stone #4H
API 47-103-02846
Stone Energy Corporation
Horizontal

	Top (ft TVD)	Top (ft MD)		Bottom (ft TVD)	Bottom (ft MD)	
Sandstone & Shale	Surface		*	1,106		FW @ 95
Coal	1,106		*	1,110		
Sandstone & Shale	1,110		*	2,086		No SW Reported
Little Lime	2,086		*	2,116		
Big Lime	2,116		*	2,216		
Big Injun	2,216		*	2,316		
Sandstone & Shale	2,316		*	2,689		
Berea Sandstone	2,689		*	2,719		
Shale	2,719		*	2,894		
Gordon	2,894		*	2,944		
Undiff Devonian Shale	2,944		*	5,697	5,717	
Rhinestreet	5,697	5,717	~	6,414	6,500	
Cashaqua	6,414	6,500	~	6,594	6,772	
Middlesex	6,594	6,772	~	6,610	6,795	
West River	6,610	6,795	~	6,667	6,898	
Geneseo	6,667	6,898	~	6,682	6,929	
Tully Limestone	6,682	6,929	~	6,716	7,006	
Hamilton Shale	6,716	7,006	~	6,764	7,178	
Marcellus	6,764	7,178	~	6,770	12,010	
TD				6,770	12,010	

* From Pilot Hole Log and Driller's Log
~ From MWD Gamma Log

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	6/6/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	47-103-02846
Operator Name:	Stone Energy
Well Name and Number:	Stone 4H
Longitude:	518,705
Latitude:	4,389,052
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	6653463

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
H015, Slickwater, WF115	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, Surfactant , Acid, Breaker, Gelling Agent, Friction Reducer, Iron Control Agent, Clay Control Agent, Accelerator, Fluid Loss Additive , Propping	Water (Including Mix Water Supplied by Client)*	NA		87.41959%	
			Crystalline silica	14808-60-7	98.61326%	12.40595%	
			Hydrochloric acid	7647-01-0	0.79085%	0.09949%	
			Carbohydrate polymer	Proprietary	0.56427%	0.07099%	
			Ammonium sulfate	7783-20-2	0.15972%	0.02009%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.06673%	0.00839%	
			Glutaraldehyde	111-30-8	0.05082%	0.00639%	
			Urea	57-13-6	0.02662%	0.00335%	
			Diammonium peroxidisulphate	7727-54-0	0.02471%	0.00311%	
			Calcium chloride	10043-52-4	0.01444%	0.00182%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00513%	0.00065%	
			Trisodium ortho phosphate	7601-54-9	0.00398%	0.00050%	
			Ethane-1,2-diol	107-21-1	0.00398%	0.00050%	
			Methanol	67-56-1	0.00307%	0.00039%	
			Sodium erythorbate	6381-77-7	0.00301%	0.00038%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00230%	0.00029%	
			Aliphatic acids	Proprietary	0.00230%	0.00029%	
			Prop-2-yn-1-ol	107-19-7	0.00077%	0.00010%	

* 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%

Report ID: RPT-29865 (Generated on 8/25/2014 1:09 PM)

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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Project: Heather Prospect (NAD 27)
Site: Stone
Well: 4H
Wellbore: OH
Design: 4H As Drilled

Scientific Drilling

WELL DETAILS: 4H

Ground Level: 1215.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	421788.00	1638989.00	39° 39' 3.522 N	80° 46' 55.766 W

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well 4H, Grid North
Vertical (TVD) Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Calculation Method: Minimum Curvature

PROJECT DETAILS: Heather Prospect (NAD 27)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: West Virginia North 4701
System Datum: Mean Sea Level

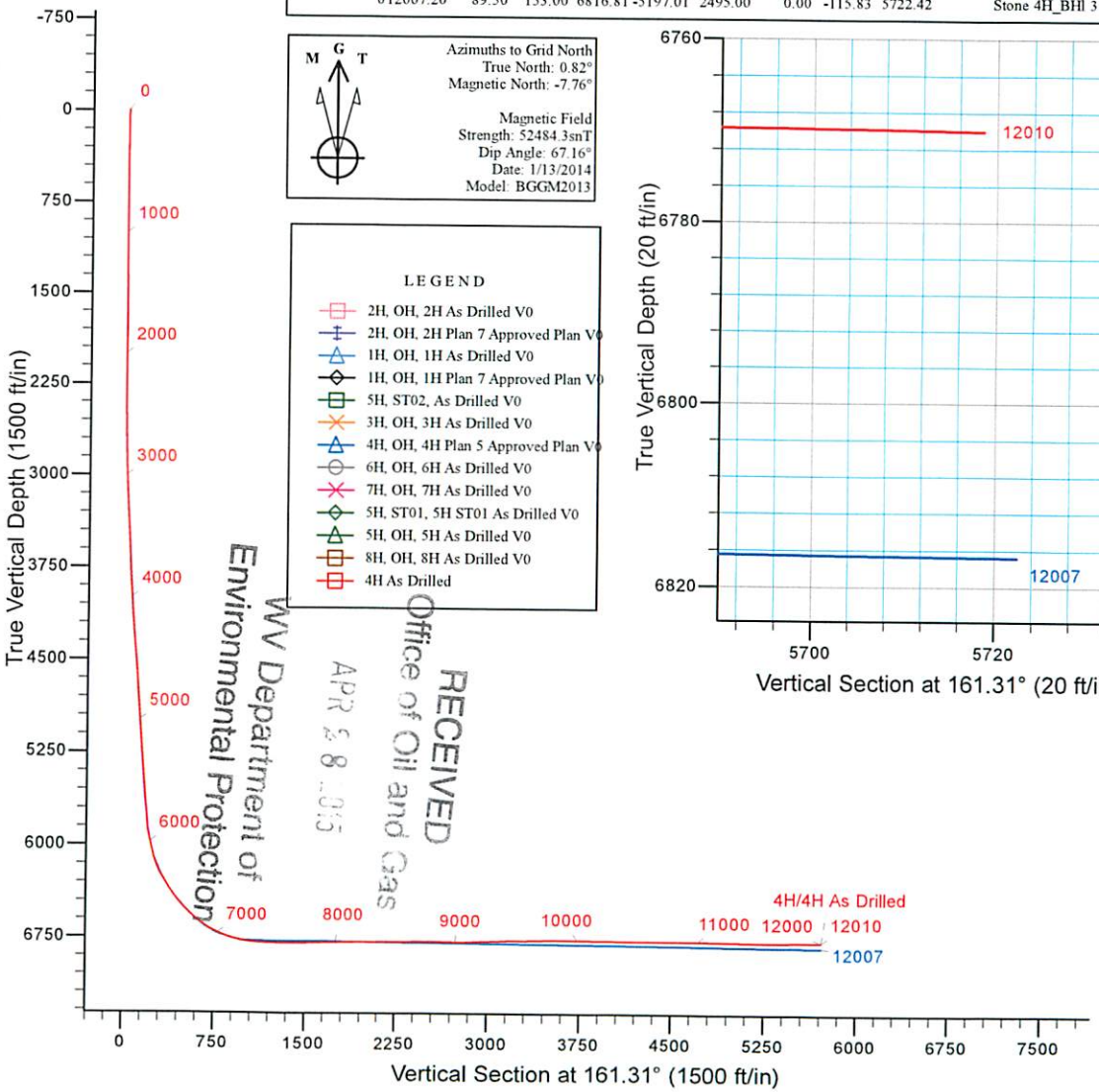
SECTION DETAILS

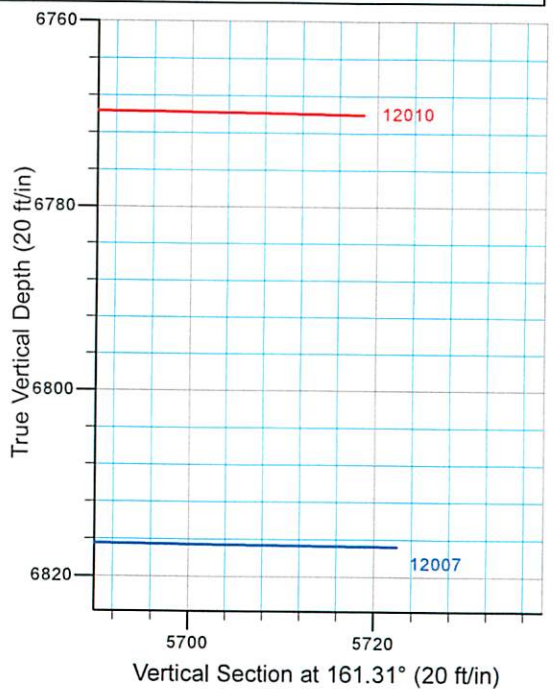
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	5715.00	8.00	209.30	5692.52	-274.38	-223.44	0.00	0.00	188.34	
2	5800.00	7.85	221.61	5776.72	-283.88	-230.19	2.00	101.03	195.17	
3	6635.18	49.41	129.85	6509.38	-546.71	-10.40	6.00	-98.39	514.56	
4	6742.07	49.41	129.85	6578.92	-598.73	51.92	0.00	0.00	583.81	
5	7307.77	89.50	153.00	6775.75	-1010.00	361.50	8.00	33.61	1072.58	Stone 4H_LP4
6	12007.20	89.50	153.00	6816.81	-5197.01	2495.00	0.00	-115.83	5722.42	Stone 4H_BHl 3

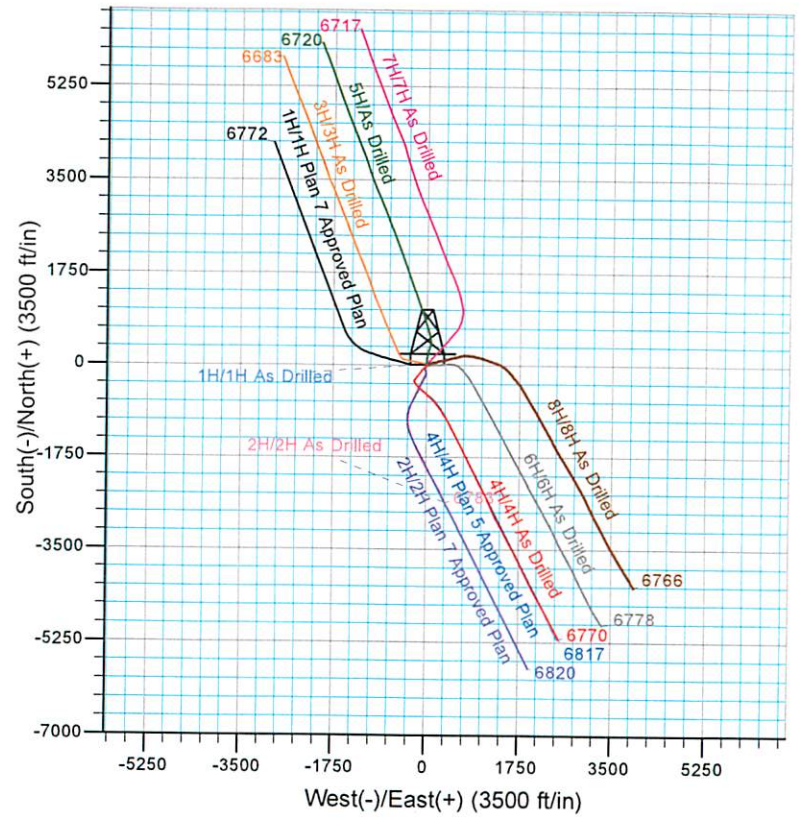
Azimuths to Grid North
True North: 0.82°
Magnetic North: -7.76°

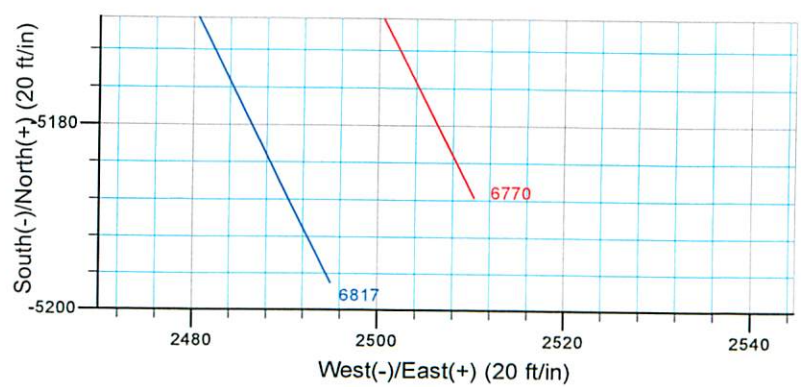
Magnetic Field
Strength: 52484.3snT
Dip Angle: 67.16°
Date: 1/13/2014
Model: BGGM2013

LEGEND
- 2H, OH, 2H As Drilled V0
- 2H, OH, 2H Plan 7 Approved Plan V0
- 1H, OH, 1H As Drilled V0
- 1H, OH, 1H Plan 7 Approved Plan V0
- 5H, ST02, As Drilled V0
- 3H, OH, 3H As Drilled V0
- 4H, OH, 4H Plan 5 Approved Plan V0
- 6H, OH, 6H As Drilled V0
- 7H, OH, 7H As Drilled V0
- 5H, ST01, 5H ST01 As Drilled V0
- 5H, OH, 5H As Drilled V0
- 8H, OH, 8H As Drilled V0
- 4H As Drilled









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Stone Energy

Heather Prospect (NAD 27)
Stone
4H

OH

Design: 4H As Drilled

Standard Survey Report

20 February, 2014

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Scientific Drilling

www.scientificdrilling.com

Scientific Drilling
Survey Report

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 4H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	4H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	4H As Drilled	**Database:**	Northeast District

Project Heather Prospect (NAD 27), Wetzel County, West Virginia

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site Stone

Site Position:		**Northing:**	421,797.00 usft	**Latitude:**	39° 39' 3.606 N
From:	Map	**Easting:**	1,638,950.00 usft	**Longitude:**	80° 46' 56.267 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.82 °

Well 4H

Well Position	**+N/-S**	0.00 ft	**Northing:**	421,788.00 usft	**Latitude:**	39° 39' 3.522 N
	+E/-W	0.00 ft	**Easting:**	1,638,989.00 usft	**Longitude:**	80° 46' 55.766 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	1,215.00 ft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	4/15/2013	-8.51	67.21	52,620
	IGRF2010	5/13/2013	-8.51	67.20	52,611
	BGGM2013	11/26/2013	-8.57	67.17	52,501
	BGGM2013	1/13/2014	-8.58	67.16	52,484

Design 4H As Drilled

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	161.31

Survey Program **Date** 2/20/2014

From (ft)	**To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
15.00	2,479.00	Survey 2 - SDI Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
2,479.00	12,010.00	Survey 5 SDI MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1

Survey

Measured Depth (ft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Vertical Section (ft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00
Ground Level									
101.17	2.12	7.27	101.15	1.58	0.20	-1.43	2.46	2.46	0.00
First SDI Gyro Survey									
125.56	1.83	6.99	125.53	2.42	0.31	-2.19	1.19	-1.19	-1.15
150.43	1.46	10.29	150.39	3.12	0.41	-2.82	1.54	-1.49	13.27

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Scientific Drilling
Survey Report

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 4H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	4H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	4H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
175.19	1.30	7.78	175.14	3.71	0.51	-3.35	0.69	-0.65	-10.14
200.04	0.84	9.77	199.98	4.17	0.57	-3.76	1.86	-1.85	8.01
225.68	0.70	8.31	225.62	4.51	0.63	-4.07	0.55	-0.55	-5.69
250.70	0.64	7.94	250.64	4.80	0.67	-4.33	0.24	-0.24	-1.48
275.08	0.54	6.75	275.02	5.05	0.70	-4.56	0.41	-0.41	-4.88
300.50	0.30	8.40	300.44	5.23	0.73	-4.72	0.95	-0.94	6.49
325.81	0.28	23.25	325.75	5.35	0.76	-4.83	0.31	-0.08	58.67
350.65	0.25	11.88	350.59	5.46	0.80	-4.92	0.24	-0.12	-45.77
375.63	0.13	36.97	375.57	5.54	0.82	-4.98	0.57	-0.48	100.44
400.77	0.06	12.98	400.71	5.57	0.84	-5.01	0.31	-0.28	-95.43
426.05	0.11	54.02	425.99	5.60	0.87	-5.03	0.30	0.20	162.34
450.33	0.06	141.71	450.27	5.61	0.89	-5.02	0.51	-0.21	361.16
476.03	0.22	325.68	475.97	5.64	0.87	-5.06	1.09	0.62	-684.94
501.03	0.16	335.37	500.97	5.71	0.83	-5.14	0.27	-0.24	38.76
525.73	0.13	0.51	525.67	5.77	0.82	-5.20	0.28	-0.12	101.78
550.74	0.24	345.79	550.68	5.85	0.81	-5.28	0.48	0.44	-58.86
575.52	0.31	341.72	575.46	5.96	0.77	-5.40	0.29	0.28	-16.42
600.37	0.16	345.18	600.31	6.06	0.74	-5.50	0.61	-0.60	13.92
626.04	0.16	55.35	625.98	6.11	0.76	-5.55	0.72	0.00	273.35
650.51	0.09	43.12	650.45	6.15	0.80	-5.56	0.30	-0.29	-49.98
676.05	0.14	99.96	675.99	6.15	0.85	-5.56	0.46	0.20	222.55
700.80	0.11	97.83	700.74	6.15	0.90	-5.53	0.12	-0.12	-8.61
725.74	0.24	129.89	725.68	6.11	0.97	-5.48	0.63	0.52	128.55
750.84	0.14	115.48	750.78	6.06	1.03	-5.41	0.44	-0.40	-57.41
775.65	0.14	110.87	775.59	6.04	1.09	-5.37	0.05	0.00	-18.58
800.51	0.03	45.96	800.45	6.03	1.12	-5.36	0.52	-0.44	-261.10
826.04	0.05	28.29	825.98	6.05	1.13	-5.37	0.09	0.08	-69.21
850.16	0.08	17.83	850.10	6.07	1.14	-5.39	0.13	0.12	-43.37
875.07	0.08	54.55	875.01	6.10	1.16	-5.41	0.20	0.00	147.41
900.12	0.13	13.64	900.06	6.14	1.18	-5.43	0.35	0.20	-163.31
925.85	0.15	70.97	925.79	6.18	1.22	-5.46	0.53	0.08	222.81
950.90	0.23	92.27	950.84	6.18	1.30	-5.44	0.42	0.32	85.03
976.00	0.18	93.28	975.94	6.18	1.39	-5.41	0.20	-0.20	4.02
1,000.78	0.17	109.41	1,000.72	6.17	1.47	-5.37	0.20	-0.04	65.09
1,025.28	0.14	107.93	1,025.21	6.14	1.53	-5.33	0.12	-0.12	-6.04
1,051.05	0.19	116.38	1,050.98	6.12	1.60	-5.28	0.22	0.19	32.79
1,075.51	0.20	125.58	1,075.44	6.07	1.67	-5.22	0.13	0.04	37.61
1,100.10	0.06	87.25	1,100.03	6.05	1.72	-5.18	0.64	-0.57	-155.88
1,125.53	0.18	132.92	1,125.46	6.02	1.76	-5.14	0.57	0.47	179.59
1,150.68	0.12	16.73	1,150.61	6.02	1.79	-5.13	[illegible]	-0.24	-461.99
1,175.96	0.07	37.88	1,175.89	6.06	1.81	-5.16	0.24	-0.20	83.66
1,201.09	0.18	100.68	1,201.02	6.06	1.86	-5.15	0.64	0.44	249.90
1,225.24	0.20	118.19	1,225.17	6.04	1.93	-5.10	0.25	0.08	72.51

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 4H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	4H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	4H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,250.22	0.11	129.92	1,250.15	6.00	1.99	-5.05	0.38	-0.36	46.96
1,276.07	0.09	116.50	1,276.00	5.98	2.03	-5.01	0.12	-0.08	-51.91
1,301.09	0.09	153.70	1,301.02	5.95	2.05	-4.98	0.23	0.00	148.68
1,325.47	0.09	71.03	1,325.40	5.94	2.08	-4.96	0.49	0.00	-339.09
1,350.79	0.07	76.17	1,350.72	5.95	2.12	-4.96	0.08	-0.08	20.30
1,375.76	0.08	120.56	1,375.69	5.94	2.14	-4.94	0.23	0.04	177.77
1,400.93	0.20	135.09	1,400.86	5.90	2.19	-4.89	0.49	0.48	57.73
1,425.01	0.09	63.82	1,424.94	5.88	2.24	-4.85	0.79	-0.46	-295.97
1,450.24	0.20	97.67	1,450.17	5.88	2.30	-4.84	0.53	0.44	134.17
1,475.65	0.33	107.24	1,475.58	5.86	2.41	-4.77	0.54	0.51	37.66
1,501.03	0.16	131.22	1,500.96	5.81	2.51	-4.70	0.77	-0.67	94.48
1,525.77	0.21	138.79	1,525.70	5.75	2.57	-4.63	0.22	0.20	30.60
1,550.86	0.06	39.04	1,550.79	5.73	2.60	-4.59	0.91	-0.60	-397.57
1,575.06	0.16	119.38	1,574.99	5.72	2.64	-4.58	0.67	0.41	331.98
1,600.59	0.27	115.10	1,600.52	5.68	2.73	-4.51	0.44	0.43	-16.76
1,625.09	0.21	147.95	1,625.02	5.62	2.80	-4.42	0.60	-0.24	134.08
1,650.12	0.04	320.71	1,650.05	5.59	2.82	-4.39	1.00	-0.68	690.21
1,676.04	0.05	151.44	1,675.97	5.58	2.82	-4.38	0.35	0.04	-653.05
1,701.02	0.09	320.34	1,700.95	5.59	2.81	-4.39	0.56	0.16	676.14
1,725.65	0.04	80.31	1,725.58	5.60	2.81	-4.41	0.47	-0.20	487.09
1,750.77	0.08	263.61	1,750.70	5.60	2.80	-4.41	0.48	0.16	-703.42
1,775.53	0.03	123.33	1,775.46	5.60	2.79	-4.41	0.42	-0.20	-566.56
1,800.56	0.08	81.10	1,800.49	5.60	2.81	-4.40	0.24	0.20	-168.72
1,826.06	0.28	325.84	1,825.99	5.65	2.79	-4.46	1.26	0.78	-452.00
1,850.67	0.08	323.39	1,850.60	5.72	2.75	-4.53	0.81	-0.81	-9.96
1,875.04	0.08	317.28	1,874.97	5.74	2.73	-4.56	0.03	0.00	-25.07
1,900.35	0.03	57.39	1,900.28	5.76	2.72	-4.58	0.36	-0.20	395.54
1,925.55	0.08	34.92	1,925.48	5.78	2.74	-4.59	0.21	0.20	-89.17
1,950.24	0.10	304.40	1,950.17	5.80	2.73	-4.62	0.52	0.08	-366.63
1,975.54	0.20	255.89	1,975.47	5.80	2.67	-4.64	0.61	0.40	-191.74
2,001.09	0.16	275.34	2,001.02	5.80	2.59	-4.66	0.28	-0.16	76.13
2,025.67	0.14	250.38	2,025.60	5.79	2.53	-4.67	0.28	-0.08	-101.55
2,050.48	0.14	282.50	2,050.41	5.79	2.47	-4.69	0.31	0.00	129.46
2,075.68	0.15	241.68	2,075.61	5.78	2.41	-4.70	0.40	0.04	-161.98
2,100.68	0.14	261.90	2,100.61	5.76	2.35	-4.70	0.21	-0.04	80.88
2,125.43	0.28	265.20	2,125.36	5.75	2.26	-4.72	0.57	0.57	13.33
2,150.69	0.17	290.16	2,150.62	5.76	2.17	-4.76	0.57	-0.44	98.81
2,176.04	0.02	304.34	2,175.97	5.77	2.13	-4.79	0.59	-0.59	55.94
2,200.55	0.19	253.63	2,200.48	5.76	2.08	-4.79	0.73	0.69	-206.90
2,225.53	0.16	273.57	2,225.46	5.75	2.01	-4.81	0.27	-0.12	79.82
2,250.97	0.19	203.91	2,250.90	5.72	1.96	-4.79	0.79	0.12	-273.82
2,275.03	0.10	264.72	2,274.96	5.68	1.92	-4.76	0.69	-0.37	252.74
2,300.26	0.20	214.59	2,300.19	5.64	1.87	-4.74	0.62	0.40	-198.69

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 4H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	4H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	4H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,325.71	0.11	168.55	2,325.64	5.58	1.85	-4.69	0.58	-0.35	-180.90
2,350.72	0.02	203.29	2,350.65	5.55	1.86	-4.66	0.38	-0.36	138.90
2,375.83	0.03	220.39	2,375.76	5.54	1.85	-4.66	0.05	0.04	68.10
2,400.72	0.10	224.14	2,400.65	5.52	1.83	-4.65	0.28	0.28	15.07
2,425.51	0.07	120.46	2,425.44	5.50	1.83	-4.62	0.54	-0.12	-418.23
2,451.40	0.14	260.25	2,451.33	5.49	1.81	-4.62	0.77	0.27	539.94
2,479.00	0.05	270.87	2,478.93	5.48	1.77	-4.63	0.33	-0.33	38.48
Last SDI Gyro Survey									
2,569.00	1.08	217.01	2,568.93	4.80	1.22	-4.16	1.17	1.14	-59.84
First SDI MWD Survey									
2,662.00	1.66	219.01	2,661.90	3.06	-0.16	-2.95	0.63	0.62	2.15
2,753.00	1.46	204.33	2,752.87	0.98	-1.47	-1.40	0.49	-0.22	-16.13
2,848.00	2.51	206.31	2,847.81	-1.99	-2.89	0.96	1.11	1.11	2.08
2,941.00	3.78	218.41	2,940.67	-6.22	-5.70	4.07	1.53	1.37	13.01
3,033.00	5.15	221.03	3,032.38	-11.71	-10.29	7.80	1.51	1.49	2.85
3,126.00	5.21	214.86	3,125.01	-18.32	-15.44	12.41	0.60	0.06	-6.63
3,218.00	6.09	222.37	3,216.56	-25.36	-21.12	17.25	1.25	0.96	8.16
3,310.00	7.31	234.07	3,307.93	-32.40	-29.15	21.35	1.98	1.33	12.72
3,401.00	7.67	228.50	3,398.16	-39.82	-38.39	25.42	0.89	0.40	-6.12
3,492.00	7.88	224.06	3,488.32	-48.33	-47.27	30.63	0.70	0.23	-4.88
3,584.00	6.48	228.00	3,579.60	-56.33	-55.52	35.58	1.61	-1.52	4.28
3,676.00	6.05	223.91	3,671.05	-63.30	-62.74	39.86	0.67	-0.47	-4.45
3,766.00	6.26	222.26	3,760.53	-70.35	-69.33	44.43	0.31	0.23	-1.83
3,859.00	6.14	221.87	3,852.99	-77.80	-76.05	49.34	0.14	-0.13	-0.42
3,953.00	6.86	218.81	3,946.38	-85.92	-82.93	54.82	0.85	0.77	-3.26
4,043.00	6.84	215.60	4,035.74	-94.47	-89.42	60.84	0.43	-0.02	-3.57
4,135.00	7.59	219.36	4,127.01	-103.62	-96.46	67.25	0.96	0.82	4.09
4,228.00	7.72	215.39	4,219.18	-113.46	-103.97	74.17	0.59	0.14	-4.27
4,322.00	7.92	209.69	4,312.31	-124.23	-110.84	82.18	0.85	0.21	-6.06
4,415.00	7.88	216.00	4,404.43	-134.96	-117.76	90.12	0.93	-0.04	6.78
4,508.00	7.90	209.23	4,496.55	-145.69	-124.63	98.09	1.00	0.02	-7.28
4,602.00	7.57	214.81	4,589.70	-156.41	-131.31	106.10	0.87	-0.35	5.94
4,693.00	7.70	218.15	4,679.89	-166.13	-138.50	113.00	0.51	0.14	3.67
4,786.00	7.60	219.11	4,772.06	-175.80	-146.23	119.69	0.17	-0.11	1.03
4,878.00	7.55	227.83	4,863.26	-184.58	-154.55	125.34	1.25	-0.05	9.48
4,970.00	7.85	223.52	4,954.43	-193.19	-163.35	130.67	0.71	0.33	-4.68
5,064.00	7.89	216.62	5,047.55	-203.03	-171.62	137.34	1.01	0.04	-7.34
5,156.00	7.82	220.64	5,138.69	-212.84	-179.47	144.13	0.60	-0.08	4.37
5,253.00	8.00	218.06	5,234.77	-223.17	-187.93	151.20	0.41	0.19	-2.66
5,346.00	8.11	214.22	5,326.85	-233.69	-195.60	158.70	0.59	0.12	-4.13
5,437.00	7.27	219.23	5,417.03	-243.45	-202.86	165.63	1.18	-0.92	5.51
5,530.00	7.51	216.80	5,509.26	-252.88	-210.22	172.20	0.42	0.26	-2.61
5,623.00	7.85	211.88	5,601.43	-263.14	-217.21	179.68	0.80	0.37	-5.29
5,671.00	8.13	208.35	5,648.96	-268.91	-220.56	184.07	1.18	0.58	-7.35

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 4H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	4H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	4H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,702.00	8.08	206.91	5,679.65	-272.78	-222.58	187.09	0.67	-0.16	-4.65
5,732.00	7.91	212.49	5,709.36	-276.40	-224.65	189.86	2.65	-0.57	18.60
5,762.00	7.64	222.04	5,739.08	-279.62	-227.09	192.13	4.39	-0.90	31.83
5,793.00	8.21	225.06	5,769.79	-282.72	-230.04	194.12	2.28	1.84	9.74
5,823.00	8.81	217.98	5,799.46	-286.04	-232.97	196.33	4.02	2.00	-23.60
5,853.00	9.49	207.71	5,829.08	-290.04	-235.53	199.30	5.89	2.27	-34.23
5,884.00	10.71	195.90	5,859.60	-295.08	-237.51	203.43	7.73	3.94	-38.10
5,914.00	11.42	185.70	5,889.05	-300.71	-238.57	208.43	6.93	2.37	-34.00
5,945.00	11.41	175.20	5,919.44	-306.82	-238.62	214.20	6.69	-0.03	-33.87
5,975.00	12.22	165.40	5,948.80	-312.85	-237.57	220.25	7.20	2.70	-32.67
6,005.00	13.23	157.87	5,978.07	-319.11	-235.47	226.85	6.47	3.37	-25.10
6,035.00	14.20	151.89	6,007.21	-325.53	-232.45	233.90	5.72	3.23	-19.93
6,065.00	15.34	148.35	6,036.22	-332.16	-228.63	241.40	4.84	3.80	-11.80
6,095.00	17.07	145.92	6,065.03	-339.18	-224.08	249.51	6.19	5.77	-8.10
6,125.00	18.58	144.72	6,093.59	-346.73	-218.85	258.34	5.18	5.03	-4.00
6,156.00	20.48	143.61	6,122.80	-355.13	-212.78	268.24	6.24	6.13	-3.58
6,186.00	22.48	142.18	6,150.72	-363.89	-206.15	278.66	6.89	6.67	-4.77
6,216.00	24.52	140.82	6,178.23	-373.24	-198.70	289.91	7.04	6.80	-4.53
6,246.00	26.40	139.59	6,205.32	-383.15	-190.44	301.94	6.51	6.27	-4.10
6,276.00	28.49	138.60	6,231.94	-393.59	-181.39	314.74	7.13	6.97	-3.30
6,307.00	30.56	137.80	6,258.91	-404.98	-171.20	328.78	6.80	6.68	-2.58
6,337.00	32.83	137.22	6,284.43	-416.60	-160.55	343.20	7.63	7.57	-1.93
6,367.00	34.01	136.69	6,309.47	-428.67	-149.28	358.25	4.05	3.93	-1.77
6,398.00	35.89	135.11	6,334.88	-441.42	-136.91	374.29	6.73	6.06	-5.10
6,428.00	37.88	134.20	6,358.88	-454.07	-124.10	390.38	6.88	6.63	-3.03
6,458.00	39.75	133.28	6,382.25	-467.07	-110.52	407.04	6.52	6.23	-3.07
6,488.00	41.03	131.99	6,405.10	-480.24	-96.21	424.10	5.10	4.27	-4.30
6,518.00	42.41	131.46	6,427.49	-493.52	-81.31	441.46	4.75	4.60	-1.77
6,549.00	43.35	131.22	6,450.21	-507.45	-65.48	459.73	3.08	3.03	-0.77
6,579.00	44.50	131.28	6,471.82	-521.18	-49.83	477.74	3.84	3.83	0.20
6,609.00	46.51	131.36	6,492.84	-535.31	-33.76	496.27	6.70	6.70	0.27
6,640.00	48.81	131.11	6,513.72	-550.41	-16.53	516.10	7.44	7.42	-0.81
6,671.00	50.09	130.73	6,533.87	-565.83	1.27	536.42	4.23	4.13	-1.23
6,703.00	50.36	130.83	6,554.34	-581.90	19.89	557.60	0.88	0.84	0.31
6,735.00	51.33	130.83	6,574.55	-598.12	38.67	578.98	3.03	3.03	0.00
6,767.00	52.95	132.08	6,594.19	-614.85	57.60	600.89	5.93	5.06	3.91
6,798.00	54.61	133.62	6,612.51	-631.86	75.93	622.88	6.69	5.35	4.97
6,830.00	55.95	134.57	6,630.73	-650.16	94.82	646.27	4.85	4.19	2.97
6,862.00	57.44	135.70	6,648.30	-669.12	113.68	670.27	5.51	4.66	3.53
6,894.00	59.71	138.18	6,664.99	-689.07	132.32	695.14	9.70	7.09	7.75
6,926.00	61.80	140.22	6,680.62	-710.21	150.56	721.01	8.58	6.53	6.38
6,958.00	63.84	141.64	6,695.24	-732.31	168.50	747.69	7.50	6.38	4.44
6,988.00	66.00	142.21	6,707.95	-753.70	185.25	773.32	7.40	7.20	1.90

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 4H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	4H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	4H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,019.00	68.41	143.09	6,719.96	-776.41	202.58	800.39	8.20	7.77	2.84
7,051.00	70.41	143.89	6,731.22	-800.49	220.41	828.91	6.67	6.25	2.50
7,082.00	72.08	144.84	6,741.18	-824.35	237.51	856.99	6.12	5.39	3.06
7,114.00	74.03	145.42	6,750.51	-849.46	255.00	886.38	6.34	6.09	1.81
7,146.00	76.42	146.49	6,758.67	-875.10	272.32	916.22	8.14	7.47	3.34
7,178.00	78.32	147.42	6,765.67	-901.27	289.35	946.47	6.58	5.94	2.91
7,210.00	80.20	148.13	6,771.63	-927.87	306.11	977.03	6.27	5.88	2.22
7,242.00	82.04	149.29	6,776.57	-954.88	322.53	1,007.88	6.77	5.75	3.63
7,274.00	84.04	150.46	6,780.45	-982.36	338.47	1,039.02	7.23	6.25	3.66
7,306.00	84.95	150.82	6,783.52	-1,010.12	354.09	1,070.32	3.06	2.84	1.13
7,338.00	85.43	150.99	6,786.20	-1,037.98	369.60	1,101.68	1.59	1.50	0.53
7,401.00	87.82	151.09	6,789.91	-1,093.00	400.04	1,163.56	3.80	3.79	0.16
7,465.00	88.86	151.27	6,791.76	-1,149.05	430.88	1,226.53	1.65	1.63	0.28
7,529.00	89.73	151.75	6,792.55	-1,205.30	461.41	1,289.59	1.55	1.36	0.75
7,592.00	89.26	151.99	6,793.11	-1,260.85	491.11	1,351.73	0.84	-0.75	0.38
7,655.00	89.26	151.72	6,793.92	-1,316.40	520.83	1,413.87	0.43	0.00	-0.43
7,718.00	91.31	153.92	6,793.61	-1,372.43	549.60	1,476.17	4.77	3.25	3.49
7,782.00	90.54	154.02	6,792.57	-1,429.94	577.68	1,539.64	1.21	-1.20	0.16
7,845.00	90.71	153.98	6,791.89	-1,486.56	605.30	1,602.12	0.28	0.27	-0.06
7,908.00	91.88	153.70	6,790.46	-1,543.09	633.06	1,664.57	1.91	1.86	-0.44
7,972.00	91.51	153.35	6,788.57	-1,600.35	661.58	1,727.95	0.80	-0.58	-0.55
8,035.00	91.58	152.91	6,786.87	-1,656.53	690.05	1,790.29	0.71	0.11	-0.70
8,099.00	91.38	152.82	6,785.22	-1,713.46	719.23	1,853.57	0.34	-0.31	-0.14
8,160.00	90.81	153.11	6,784.05	-1,767.79	746.95	1,913.91	1.05	-0.93	0.48
8,223.00	90.67	152.94	6,783.24	-1,823.93	775.52	1,976.25	0.35	-0.22	-0.27
8,287.00	90.67	153.20	6,782.49	-1,880.99	804.51	2,039.58	0.41	0.00	0.41
8,350.00	91.04	154.50	6,781.55	-1,937.53	832.27	2,102.04	2.15	0.59	2.06
8,414.00	90.87	154.45	6,780.48	-1,995.28	859.84	2,165.58	0.28	-0.27	-0.08
8,477.00	89.66	153.84	6,780.19	-2,051.97	887.32	2,228.08	2.15	-1.92	-0.97
8,541.00	89.87	153.83	6,780.45	-2,109.41	915.54	2,291.54	0.33	0.33	-0.02
8,604.00	91.04	154.33	6,779.95	-2,166.07	943.07	2,354.03	2.02	1.86	0.79
8,667.00	90.70	153.94	6,779.00	-2,222.75	970.55	2,416.53	0.82	-0.54	-0.62
8,731.00	89.46	152.31	6,778.91	-2,279.83	999.48	2,479.88	3.20	-1.94	-2.55
8,795.00	89.60	151.45	6,779.43	-2,336.28	1,029.65	2,543.01	1.36	0.22	-1.34
8,858.00	89.63	152.17	6,779.86	-2,391.80	1,059.41	2,605.14	1.14	0.05	1.14
8,921.00	88.62	152.27	6,780.82	-2,447.53	1,088.77	2,667.34	1.61	-1.60	0.16
8,984.00	88.38	151.88	6,782.47	-2,503.18	1,118.26	2,729.50	0.73	-0.38	-0.62
9,048.00	89.93	152.63	6,783.41	-2,559.81	1,148.05	2,792.70	2.69	2.42	1.17
9,111.00	92.46	156.80	6,782.10	-2,616.75	1,174.95	2,855.25	7.74	4.02	6.62
9,175.00	92.42	157.21	6,779.37	-2,675.61	1,199.92	2,919.01	0.64	-0.06	0.64
9,238.00	91.95	156.34	6,776.97	-2,733.46	1,224.75	2,981.76	1.57	-0.75	-1.38
9,302.00	92.32	156.19	6,774.59	-2,792.01	1,250.49	3,045.47	0.62	0.58	-0.23
9,366.00	92.42	155.76	6,771.94	-2,850.41	1,276.53	3,109.14	0.69	0.16	-0.67
9,430.00	92.08	154.45	6,769.43	-2,908.42	1,303.45	3,172.71	2.11	-0.53	-2.05

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 4H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	4H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	4H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,493.00	90.30	154.00	6,768.12	-2,965.14	1,330.83	3,235.21	2.91	-2.83	-0.71
9,557.00	90.77	153.00	6,767.52	-3,022.41	1,359.39	3,298.62	1.73	0.73	-1.56
9,620.00	91.24	151.46	6,766.42	-3,078.14	1,388.74	3,360.81	2.56	0.75	-2.44
9,683.00	91.88	151.68	6,764.70	-3,133.52	1,418.72	3,422.88	1.07	1.02	0.35
9,747.00	90.57	151.37	6,763.33	-3,189.77	1,449.22	3,485.93	2.10	-2.05	-0.48
9,810.00	90.34	150.77	6,762.83	-3,244.90	1,479.70	3,547.93	1.02	-0.37	-0.95
9,874.00	89.03	150.68	6,763.18	-3,300.73	1,510.99	3,610.83	2.05	-2.05	-0.14
9,938.00	90.30	150.99	6,763.56	-3,356.61	1,542.18	3,673.76	2.04	1.98	0.48
10,002.00	89.93	151.71	6,763.43	-3,412.77	1,572.87	3,736.80	1.26	-0.58	1.13
10,065.00	88.89	152.36	6,764.08	-3,468.41	1,602.41	3,798.97	1.95	-1.65	1.03
10,129.00	88.62	152.29	6,765.47	-3,525.08	1,632.13	3,862.17	0.44	-0.42	-0.11
10,193.00	88.39	152.05	6,767.14	-3,581.66	1,661.99	3,925.33	0.52	-0.36	-0.38
10,256.00	89.66	152.05	6,768.21	-3,637.30	1,691.52	3,987.50	2.02	2.02	0.00
10,319.00	89.46	152.80	6,768.70	-3,693.14	1,720.68	4,049.74	1.23	-0.32	1.19
10,383.00	88.18	153.32	6,770.01	-3,750.18	1,749.67	4,113.06	2.16	-2.00	0.81
10,447.00	89.60	153.70	6,771.25	-3,807.45	1,778.21	4,176.46	2.30	2.22	0.59
10,510.00	91.71	155.90	6,770.53	-3,864.44	1,805.03	4,239.04	4.84	3.35	3.49
10,574.00	91.44	155.24	6,768.77	-3,922.69	1,831.49	4,302.69	1.11	-0.42	-1.03
10,638.00	90.37	153.83	6,767.76	-3,980.46	1,859.00	4,366.24	2.77	-1.67	-2.20
10,701.00	89.63	152.70	6,767.76	-4,036.73	1,887.34	4,428.61	2.14	-1.17	-1.79
10,765.00	89.03	151.87	6,768.51	-4,093.38	1,917.10	4,491.82	1.60	-0.94	-1.30
10,827.00	90.37	152.98	6,768.84	-4,148.34	1,945.80	4,553.07	2.81	2.16	1.79
10,890.00	90.74	151.88	6,768.23	-4,204.18	1,974.96	4,615.31	1.84	0.59	-1.75
10,954.00	89.90	151.41	6,767.87	-4,260.50	2,005.35	4,678.40	1.50	-1.31	-0.73
11,017.00	89.97	151.66	6,767.94	-4,315.88	2,035.38	4,740.48	0.41	0.11	0.40
11,081.00	89.70	151.69	6,768.12	-4,372.22	2,065.75	4,803.58	0.42	-0.42	0.05
11,144.00	89.70	151.87	6,768.45	-4,427.73	2,095.54	4,865.71	0.29	0.00	0.29
11,208.00	89.13	151.81	6,769.11	-4,484.15	2,125.74	4,928.83	0.90	-0.89	-0.09
11,271.00	89.46	150.42	6,769.88	-4,539.31	2,156.17	4,990.83	2.27	0.52	-2.21
11,335.00	88.39	150.16	6,771.08	-4,594.88	2,187.88	5,053.64	1.72	-1.67	-0.41
11,399.00	88.08	150.88	6,773.05	-4,650.57	2,219.36	5,116.47	1.22	-0.48	1.13
11,463.00	89.29	150.84	6,774.52	-4,706.45	2,250.52	5,179.39	1.89	1.89	-0.06
11,527.00	90.81	151.03	6,774.47	-4,762.39	2,281.61	5,242.34	2.39	2.38	0.30
11,591.00	90.71	150.66	6,773.62	-4,818.28	2,312.78	5,305.27	0.60	-0.16	-0.58
11,653.00	90.30	150.77	6,773.07	-4,872.35	2,343.11	5,366.21	0.68	-0.66	0.18
11,717.00	91.41	151.41	6,772.12	-4,928.37	2,374.05	5,429.19	2.00	1.73	1.00
11,781.00	91.44	152.02	6,770.53	-4,984.71	2,404.36	5,492.27	0.95	0.05	0.95
11,844.00	90.34	151.95	6,769.55	-5,040.32	2,433.95	5,554.43	1.75	-1.75	-0.11
11,908.00	90.27	152.67	6,769.21	-5,096.99	2,463.69	5,617.64	1.13	-0.11	1.13
11,953.00	89.33	152.85	6,769.36	-5,137.00	2,484.29	5,662.14	2.13	-2.09	0.40
Last SDI MWD Survey									
12,010.00	89.33	152.85	6,770.03	-5,187.72	2,510.30	5,718.51	0.00	0.00	0.00
Projection to Bit									

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 4H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	4H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	4H As Drilled	**Database:**	Northeast District

Survey

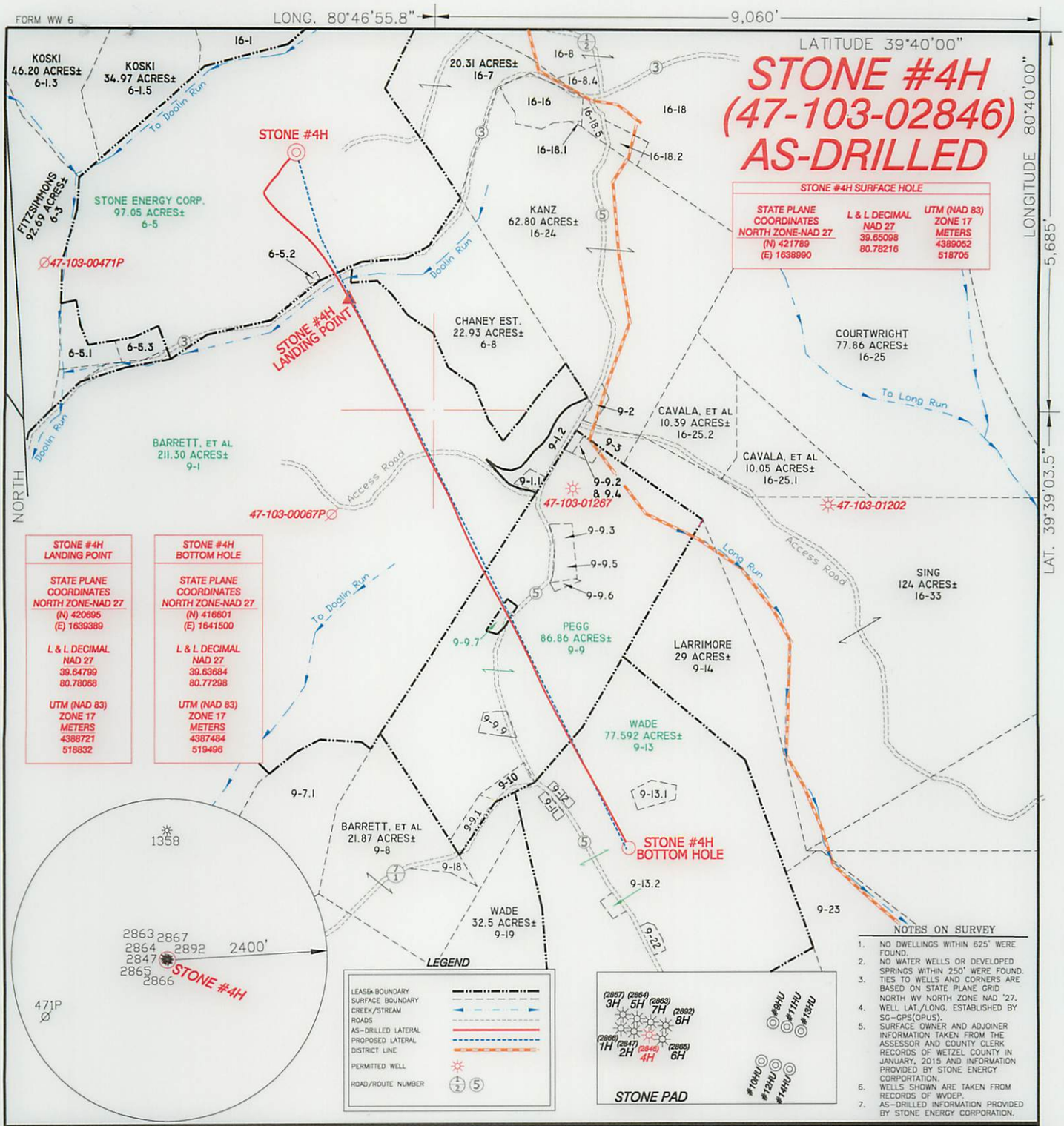
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
15.00	15.00	0.00	0.00	Ground Level
101.17	101.15	1.58	0.20	First SDI Gyro Survey
2,479.00	2,478.93	5.48	1.77	Last SDI Gyro Survey
2,569.00	2,568.93	4.80	1.22	First SDI MWD Survey
11,953.00	6,769.36	-5,137.00	2,484.29	Last SDI MWD Survey
12,010.00	6,770.03	-5,187.72	2,510.30	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

FORM WW 6



STONE #4H SURFACE HOLE		
STATE PLANE COORDINATES NORTH ZONE-NAD 27	L & L DECIMAL NAD 27	UTM (NAD 83) ZONE 17 METERS
(N) 421789	39.65098	4389052
(E) 1638990	80.78216	518705

STONE #4H LANDING POINT	STONE #4H BOTTOM HOLE
STATE PLANE COORDINATES NORTH ZONE-NAD 27	STATE PLANE COORDINATES NORTH ZONE-NAD 27
(N) 420695	(N) 416601
(E) 1639389	(E) 1641500
L & L DECIMAL NAD 27	L & L DECIMAL NAD 27
39.64799	39.63684
80.78068	80.77298
UTM (NAD 83) ZONE 17 METERS	UTM (NAD 83) ZONE 17 METERS
4388721	4387484
518832	519496

NOTES ON SURVEY

1. NO DWELLINGS WITHIN 625' WERE FOUND.
2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27.
4. WELL LAT./LONG. ESTABLISHED BY SG-GPS(OPUS).
5. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN JANUARY, 2015 AND INFORMATION PROVIDED BY STONE ENERGY CORPORATION.
6. WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDEP.
7. AS-DRILLED INFORMATION PROVIDED BY STONE ENERGY CORPORATION.

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 834

HUPP Surveying & Mapping
P.O. Box 647 Grantsville, WV 26147
(304) 354-7035 EMAIL: hupp@frontiernet.net

DOYLE HUPP, JR. LICENSED No. 834 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE APRIL 8, 20 15

OPERATORS WELL NO. STONE #4H

API WELL NO. 47 — 103 — 02846
STATE COUNTY PERMIT

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APR 28 2015
WV Department of Environmental Protection

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2234 (BK 75-28)
SCALE 1" = 1000'
PROVEN SOURCE OF ELEVATION SG-GPS (OPUS)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE : OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION :
ELEVATION 1,215' WATERSHED DOOLIN RUN
DISTRICT MAGNOLIA COUNTY WETZEL QUADRANGLE NEW MARTINSVILLE 7.5'
SURFACE OWNER STONE ENERGY CORPORATION ACREAGE 97.05±
ROYALTY OWNER BARBARA BARRETT, et al LEASE ACREAGE 473.34±
PROPOSED WORK : LEASE NO. ___
DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) ___ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD-6,770' MD- 12,010'

COUNTY NAME

PERMIT

WELL OPERATOR STONE ENERGY CORPORATION DESIGNATED AGENT TIM MCGREGOR
ADDRESS P.O. BOX 52807 LAFAYETTE, LA 70508 ADDRESS 1300 FORT PIERPONT DR., SUITE 201 MORGANTOWN, WV 26508

WR-35
Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 103 - 02847 County Wetzel District Magnolia
Quad New Martinsville Pad Name Stone Field/Pool Name Mary
Farm name Stone Energy Corporation Well Number #2H
Operator (as registered with the OOG) Stone Energy Corporation
Address 1300 Fort Pierpont Dr. - Suite 201 City Morgantown State WV Zip 26508

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing 4,389,053	Easting 518,697
Landing Point of Curve	Northing 4,388,598	Easting 518,641
Bottom Hole	Northing 4,387,332	Easting 519,317

Elevation (ft) 1,215 GL Type of Well □New ■ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen □ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single □ Multiple Fluids Produced ■ Brine ■Gas □ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole ■ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Saturated salt mud which includes Caustic Soda, Barite, Lime, New-Drill, Perma-Lose HT, Xan-Plex D, X-Cide 102, Soda Ash, and Sodium Chloride

Date permit issued 2/5/2013 Date drilling commenced 5/3/2013 Date drilling ceased 2/25/2014
Date completion activities began 4/7/2014 Date completion activities ceased 11/4/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

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Freshwater depth(s) ft 95 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Reported Void(s) encountered (Y/N) depths N
Coal depth(s) ft 837 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
AL 5/26/15 ✓
W.S. 04/02/15

WR-35
Rev. 8/23/13

API 47- 103 - 02847 Farm name Stone Energy Corporation Well number #2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	80'	New	LS		N - GTS
Surface	17.5"	13.375"	1,209' KB - 1,195' GL	New	J55	117' & 200'	Y - CTS
Coal	17.5"	13.375"	1,209' KB - 1,195' GL	New	J55	117' & 220'	Y - CTS
Intermediate 1	12.25"	9.625"	2,482'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	12,460'	New	P110		N - TOC @ 1,860'
Tubing	N/A	2.375"	7,485'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 40 bbls cement to surface on 13.375" casing string. Circulated 45 bbls cement to surface on the 9.625" casing string. TOC on the 5.5" casing is 1,860'

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	932	15.6	1.19	1,109	Surface	8.0
Coal	Class "A"	932	15.6	1.19	1,109	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-510 Tail-370	Lead-15.0 Tail 15.6	Lead-1.26 Tail-1.19	Lead-643 Tail-302	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-FlexSeal Tail-Class "A"	Lead-742 Tail-1,823	Lead- 15.0 Tail-15.6	Lead-1.26 Tail-1.19	Lead-935 Tail-2,169	~1,860	7.0
Tubing							

Drillers TD (ft) 12,460 MD / 6,772TVD Loggers TD (ft) N/A
Deepest formation penetrated Marcellus Shale Plug back to (ft)
Plug back procedure

Kick off depth (ft) 5,763 MD / 5,753' TVD

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ☐ temperature ☐sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Surface casing had bow spring centralizers placed on joints #2, #5, #8, #11, #14, #17, #20, #23, #26 and #29. Intermediate casing had bow spring centralizers placed on joints #2, #5, #8, #11, #14, #17, #20, #23, #26, #29, #32, #35, #38, #41, #44, #47, #50, #53, #56 and #59. Production casing had rigid spiral centralizers placed on every fourth joint beginning with joint #1 to joint #220. Ran a total of 56 rigid spiral centralizers. Ran bow spring centralizers from joint #228 to joint #284 on every eigth joint. A total of 8 bow spring centralizers were run.

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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WR-35
Rev. 8/23/13

API 47- 103 - 02847 Farm name Stone Energy Corporation Well number #2H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	4/14/14	12,205	12,379	72	Marcellus Shale
2	7/9/14	11,955	12,138	72	Marcellus Shale
3	7/10/14	11,701	11,888	72	Marcellus Shale
4	7/11/14	11,447	11,630	72	Marcellus Shale
5	7/12/14	11,190	11,369	72	Marcellus Shale
6	7/13/14	10,940	11,123	72	Marcellus Shale
7	7/14/14	10,698	10,869	72	Marcellus Shale
8	7/15/14	10,445	10,628	72	Marcellus Shale
9	7/16/14	10,190	10,374	72	Marcellus Shale
10	7/17/14	9,939	10,123	72	Marcellus Shale
11	7/18/14	9,689	9,870	72	Marcellus Shale
12	7/19/14	9,440	9,623	72	Marcellus Shale
13	7/20/14	9,186	9,367	72	Marcellus Shale
14	7/21/14	8,943	9,122	72	Marcellus Shale
15	7/22/14	8,690	8,873	72	Marcellus Shale
16	7/27/14	8,440	8,623	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	7/9/14	82.6	7,386	6,060	3,598	359,460	8,378	
2	7/10/14	85.2	7,788	7,356	4,459	422,560	8,902	
3	7/11/14	85.7	7,743	6,188	4,402	420,800	9,110	
4	7/12/14	84.8	7,472	5,685	4,431	422,320	9,008	
5	7/13/14	85.3	7,568	6,995	4,487	420,760	9,018	
6	7/14/14	84.6	7,402	5,956	4,230	422,000	9,036	
7	7/15/14	85.8	7,214	7,711	4,487	422,120	8,932	
8	7/16/14	80.1	6,760	6,186	4,230	425,500	9,022	
9	7/17/14	78.4	7,291	6,577	4,920	420,620	10,303	
10	7/18/14	78.2	6,823	5,109	5,290	418,160	8,962	
11	7/19/14	80.1	6,936	5,827	4,334	415,060	8,901	
12	7/20/14	79.9	6,637	6,324	4,460	424,580	8,846	
13	7/21/14	80.2	6,614	5,947	5,120	417,440	8,855	
14	7/22/14	80.5	6,662	5,650	5,033	419,640	8,830	
15	7/25/14	79.3	6,632	5,319	4,976	420,600	8,001	
16	7/29/14	81.7	6,520	5,371	4,775	417,160	8,001	

Please insert additional pages as applicable.

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API 47- 103 - 02847 Farm name Stone Energy Corporation Well number #2H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	7/29/14	8,188	8,373	72	Marcellus Shale
18	7/30/14	7,939	8,123	72	Marcellus Shale
19	8/2/14	7,690	7,867	72	Marcellus Shale
20	8/6/14	7,506	7,623	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
17	7/30/14	81.2	6,591	6,503	3,892	422,300	8,843	
18	8/2/14	82.4	6,732	6,587	5,033	417,300	8,651	
19	8/6/14	80.3	6,774,	6,389,	5,177	414,681	8,934	
20	8/7/14	62.6	8,672	6,526	5,961	7,960	4,124	

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PRODUCING FORMATION(S)	DEPTHS	
Marcelllus Shale	6,777' to 6,772' TVD	7,506' to 12,379' MD

Please insert additional pages as applicable.

GAS TEST ■ Build up □ Drawdown ■ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface 2,652 psi Bottom Hole 4,413 calculated psi DURATION OF TEST 69.2 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	2,603 mcfpd	bpd	230.4 bpd	556.8 bpd	□ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		
See Attached Sheet					

Please insert additional pages as applicable.

Drilling Contractor Nomac (top-hole) & Saxon Drilling (horizontal)
Address 2034 Martins Branch Rd /9303 New Trails Drive City Mount Morris / The Woodlands State PA / TX Zip 25312 / 77381

Logging Company Scientific Drilling and Schlumberger
Address 3475 Washington Ave / 1178 US HWY 33 East City Finleyville / Weston State PA / WV Zip 15332 / 26452

Cementing Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Stimulating Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Please insert additional pages as applicable.

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Completed by W. Lee Hornsby Telephone 304-225-1600
Signature W. Lee Hornsby Title Drilling Engineer Date 4/27/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Stone #2H
API 47-103-02847
Stone Energy Corporation

	Top (ft TVD)	Horizontal Top (ft MD)		Bottom (ft TVD)	Bottom (ft MD)	
Sandstone & Shale	Surface		*	840		FW @ 93
Coal	840		*	842		
Sandstone & Shale	842		*	1,026		
Sandstone & Shale	1,026		*	2,086		No SW Reported
Little Lime	2,086		*	2,116		
Big Lime	2,116		*	2,216		
Big Injun	2,216		*	2,316		
Sandstone & Shale	2,316		*	2,689		
Berea Sandstone	2,689		*	2,719		
Shale	2,719		*	2,894		
Gordon	2,894		*	2,944		
Undiff Devonian Shale	2,944		*	6,039	6,055	
Rhinestreet	6,039	6,055	~	6,440	6,533	
Cashaqua	6,440	6,533	~	6,583	6,793	
Middlesex	6,583	6,793	~	6,612	6,861	
West River	6,612	6,861	~	6,666	7,027	
Geneseo	6,666	7,027	~	6,679	7,074	
Tully Limestone	6,679	7,074	~	6,715	7,224	
Hamilton Shale	6,715	7,224	~	6,762	7,413	
Marcellus	6,762	7,413	~	6,772	12,460	
TD						

* From Pilot Hole Log and Driller's Log
~ From MWD Gamma Log

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	8/8/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	47-103-02847
Operator Name:	Stone Energy
Well Name and Number:	Stone 2H
Longitude:	518,697
Latitude:	4,389,053
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	7323201

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
H015, Slickwater, WF115	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, Surfactant , Acid, Breaker, Gelling Agent, Friction Reducer, Iron Control Agent, Clay Control Agent, Accelerator, Propping Agent, Fluid Loss	Water (Including Mix Water Supplied by Client)*	NA		88.43603%	
			Crystalline silica	14808-60-7	98.37523%	11.37608%	
			Hydrochloric acid	7647-01-0	0.88043%	0.10181%	
			Carbohydrate polymer	Proprietary	0.72074%	0.08335%	
			Ammonium sulfate	7783-20-2	0.18747%	0.02168%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.06775%	0.00783%	
			Glutaraldehyde	111-30-8	0.05764%	0.00667%	
			Urea	57-13-6	0.03124%	0.00361%	
			Diammonium peroxidisulphate	7727-54-0	0.02976%	0.00344%	
			Calcium chloride	10043-52-4	0.01662%	0.00192%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00521%	0.00060%	
			Trisodium ortho phosphate	7601-54-9	0.00423%	0.00049%	
			Ethane-1,2-diol	107-21-1	0.00423%	0.00049%	
			Methanol	67-56-1	0.00342%	0.00040%	
			Sodium erythorbate	6381-77-7	0.00284%	0.00033%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00256%	0.00030%	
			Aliphatic acids	Proprietary	0.00256%	0.00030%	
			Prop-2-yn-1-ol	107-19-7	0.00085%	0.00010%	

* 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%

Report ID: RPT-29861 (Generated on 8/25/2014 1:07 PM)

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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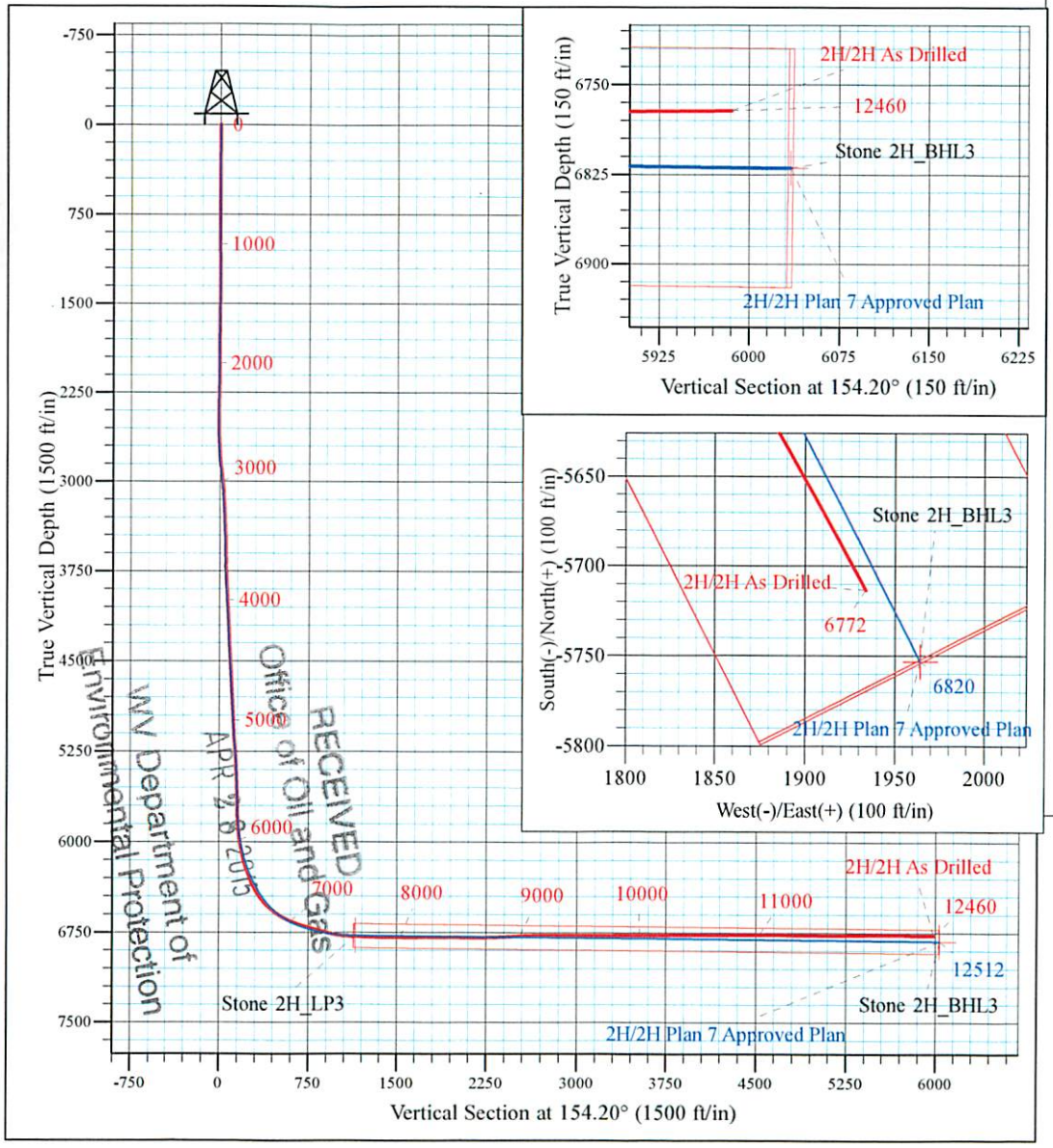
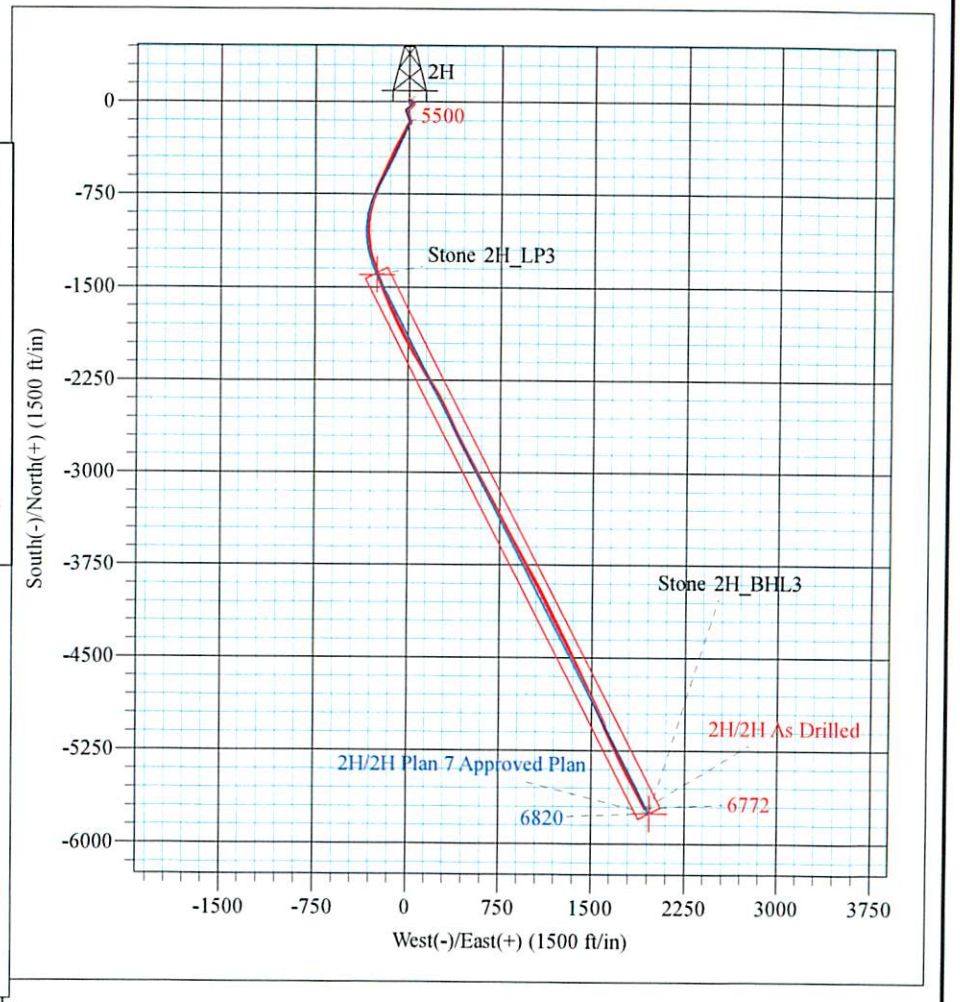
Stone
2H
2H Plan 7 Approved Plan
GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Heather Prospect (NAD 27)

PROJECT DETAILS:
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: West Virginia North 4701
System Datum: Mean Sea Level

Scientific Drilling

WELL DETAILS: 2H					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	421793.00	1638969.00	39° 39' 3.569 N	80° 46' 56.023 W





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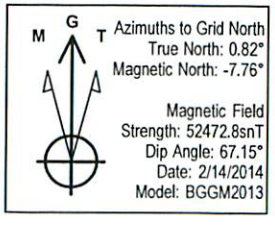

Shane Rhodes
15:29, March 03 2015

Scientific Drilling International
124 Vista Drive
Charleroi, PA 15022

Stone Energy Corporation

Heather Prospect (NAD 27)
Stone
2H

OH

Design: 2H As Drilled

Standard Survey Report

03 March, 2015

Scientific Drilling

www.scientificdrilling.com

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Scientific Drilling International

Survey Report

Company:	Stone Energy Corporation	**Local Co-ordinate Reference:**	Well 2H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	2H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	2H As Drilled	**Database:**	Northeast District

Project Heather Prospect (NAD 27), Wetzel County, West Virginia

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site Stone

Site Position:		**Northing:**	421,797.00 usft	**Latitude:**	39° 39' 3.606 N
From:	Map	**Easting:**	1,638,950.00 usft	**Longitude:**	80° 46' 56.267 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.82 °

Well 2H

Well Position	**+N/-S**	0.00 ft	**Northing:**	421,793.00 usft	**Latitude:**	39° 39' 3.569 N
	+E/-W	0.00 ft	**Easting:**	1,638,969.00 usft	**Longitude:**	80° 46' 56.023 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	1,215.00 ft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	4/15/2013	-8.51	67.21	52,620
	BGGM2013	1/13/2014	-8.58	67.16	52,484
	BGGM2013	2/14/2014	-8.58	67.15	52,473

Design 2H As Drilled

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	161.15

Survey Program **Date** 3/3/2015

From (ft)	**To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
15.00	3,311.02	Survey 4 - SDI Gyro 2 (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
3,430.00	12,460.00	Survey 6 - SDI MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1

Survey

Measured Depth (ft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Vertical Section (ft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00
Ground Level									
100.00	1.70	9.10	99.99	1.25	0.20	-1.11	2.00	2.00	0.00
First SDI Gyro Survey									
200.00	0.73	21.70	199.96	3.30	0.67	-2.91	1.00	-0.97	12.60
300.00	0.27	39.34	299.96	4.08	1.05	-3.52	0.48	-0.46	17.64

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Scientific Drilling International

Survey Report

Company:	Stone Energy Corporation	**Local Co-ordinate Reference:**	Well 2H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	2H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	2H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
400.00	0.12	66.98	399.96	4.30	1.30	-3.65	0.17	-0.15	27.64
500.00	0.15	105.06	499.96	4.31	1.52	-3.58	0.09	0.03	38.08
600.00	0.18	90.99	599.96	4.27	1.81	-3.46	0.05	0.03	-14.07
700.00	0.13	46.69	699.96	4.34	2.05	-3.45	0.13	-0.05	-44.30
800.00	0.13	53.90	799.96	4.49	2.22	-3.53	0.02	0.00	7.21
900.00	0.14	92.55	899.96	4.55	2.43	-3.52	0.09	0.01	38.65
1,000.00	0.25	78.61	999.96	4.59	2.77	-3.45	0.12	0.11	-13.94
1,100.00	0.17	113.70	1,099.96	4.57	3.12	-3.32	0.15	-0.08	35.09
1,200.00	0.12	94.53	1,199.96	4.50	3.36	-3.18	0.07	-0.05	-19.17
1,300.00	0.13	84.32	1,299.96	4.51	3.58	-3.11	0.02	0.01	-10.21
1,400.00	0.14	147.39	1,399.96	4.41	3.76	-2.96	0.14	0.01	63.07
1,500.00	0.28	101.44	1,499.96	4.26	4.06	-2.72	0.21	0.14	-45.95
1,600.00	0.21	37.72	1,599.95	4.36	4.41	-2.70	0.27	-0.07	-63.72
1,700.00	0.42	5.01	1,699.95	4.87	4.56	-3.14	0.27	0.21	-32.71
1,800.00	0.43	358.25	1,799.95	5.61	4.58	-3.83	0.05	0.01	-6.76
1,900.00	0.53	344.74	1,899.95	6.43	4.44	-4.65	0.15	0.10	-13.51
2,000.00	0.89	305.58	1,999.94	7.33	3.69	-5.74	0.58	0.36	-39.16
2,100.00	1.08	307.43	2,099.92	8.35	2.31	-7.16	0.19	0.19	1.85
2,200.00	1.14	307.86	2,199.91	9.54	0.78	-8.77	0.06	0.06	0.43
2,300.00	0.82	311.44	2,299.89	10.62	-0.54	-10.23	0.33	-0.32	3.58
2,400.00	0.81	335.88	2,399.88	11.74	-1.37	-11.55	0.35	-0.01	24.44
2,500.00	0.89	339.37	2,499.87	13.11	-1.93	-13.03	0.10	0.08	3.49
2,600.00	2.63	125.73	2,599.84	12.50	-0.34	-11.94	3.41	1.74	146.36
2,700.00	3.28	121.87	2,699.71	9.65	3.95	-7.86	0.68	0.65	-3.86
2,800.00	5.96	110.49	2,799.38	6.32	11.24	-2.35	2.82	2.68	-11.38
2,900.00	7.71	124.77	2,898.67	0.68	21.62	6.34	2.43	1.75	14.28
3,000.00	6.81	156.48	2,997.90	-8.59	29.50	17.66	4.05	-0.90	31.71
3,100.00	4.67	202.15	3,097.45	-17.80	30.33	26.65	4.87	-2.14	45.67
3,200.00	6.30	223.34	3,196.99	-25.56	25.03	32.28	2.57	1.63	21.19
3,300.00	7.68	230.35	3,296.25	-33.82	16.12	37.21	1.62	1.38	7.01
3,311.02	7.77	230.57	3,307.17	-34.76	14.97	37.73	0.86	0.82	2.00
Last SDI Gyro Survey									
3,430.00	8.05	224.96	3,425.02	-45.76	2.88	44.24	0.69	0.24	-4.72
First SDI MWD Survey									
3,522.00	6.66	228.32	3,516.26	-53.87	-5.66	49.15	1.58	-1.51	3.65
3,614.00	4.66	242.13	3,607.81	-59.17	-12.95	51.81	2.62	-2.17	15.01
3,706.00	4.70	228.01	3,699.51	-63.43	-19.06	53.88	1.25	0.04	-15.35
3,796.00	4.21	197.37	3,789.25	-69.06	-22.78	57.99	2.67	-0.54	[illegible]
3,889.00	3.53	167.74	3,882.05	-75.11	-23.19	63.59	2.24	-0.73	-31.86
3,983.00	2.93	150.35	3,975.90	-80.03	-21.39	68.82	1.22	-0.64	-18.50
4,074.00	3.14	141.69	4,066.77	-84.00	-18.70	73.46	0.55	0.23	-9.52
4,165.00	2.44	135.18	4,157.66	-87.33	-15.79	77.55	0.84	-0.77	-7.15
4,259.00	2.02	147.89	4,251.59	-90.16	-13.49	80.96	0.69	-0.45	13.52
4,353.00	2.95	180.15	4,345.51	-93.98	-12.62	84.86	1.75	0.99	34.32

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Survey Report

Company:	Stone Energy Corporation	**Local Co-ordinate Reference:**	Well 2H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	2H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	2H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,446.00	3.41	180.04	4,438.36	-99.14	-12.63	89.74	0.49	0.49	-0.12
4,541.00	3.31	167.74	4,533.20	-104.64	-12.05	95.14	0.76	-0.11	-12.95
4,632.00	3.34	160.85	4,624.05	-109.71	-10.62	100.40	0.44	0.03	-7.57
4,724.00	2.65	161.53	4,715.92	-114.26	-9.07	105.21	0.75	-0.75	0.74
4,815.00	2.57	151.85	4,806.83	-118.06	-7.44	109.32	0.49	-0.09	-10.64
4,908.00	2.91	159.23	4,899.72	-122.10	-5.62	113.74	0.53	0.37	7.94
4,999.00	3.48	163.71	4,990.58	-126.91	-4.02	118.81	0.68	0.63	4.92
5,092.00	4.08	162.87	5,083.38	-132.79	-2.26	124.94	0.65	0.65	-0.90
5,184.00	4.75	162.50	5,175.10	-139.55	-0.15	132.01	0.73	0.73	-0.40
5,278.00	4.03	159.91	5,268.83	-146.36	2.16	139.21	0.79	-0.77	-2.76
5,372.00	2.55	162.40	5,362.67	-151.46	3.92	144.60	1.58	-1.57	2.65
5,464.00	2.20	153.53	5,454.59	-154.99	5.33	148.40	0.55	-0.38	-9.64
5,559.00	2.82	148.63	5,549.50	-158.61	7.36	152.49	0.69	0.65	-5.16
5,652.00	1.42	157.00	5,642.43	-161.63	9.00	155.87	1.54	-1.51	9.00
5,673.00	1.14	159.89	5,663.43	-162.06	9.17	156.34	1.37	-1.33	13.76
5,705.00	1.24	149.37	5,695.42	-162.66	9.46	156.99	0.75	0.31	-32.88
5,736.00	0.82	148.95	5,726.42	-163.14	9.74	157.54	1.36	-1.35	-1.35
5,768.00	2.02	188.23	5,758.41	-163.89	9.78	158.27	4.62	3.75	122.75
5,800.00	4.24	207.77	5,790.36	-165.50	9.15	159.58	7.60	6.94	61.06
5,831.00	7.03	214.26	5,821.21	-168.08	7.55	161.51	9.22	9.00	20.94
5,863.00	9.18	217.18	5,852.88	-171.73	4.90	164.11	6.84	6.72	9.13
5,895.00	10.82	218.17	5,884.40	-176.13	1.50	167.17	5.15	5.13	3.09
5,927.00	11.83	217.62	5,915.77	-181.09	-2.35	170.62	3.17	3.16	-1.72
5,959.00	13.72	215.57	5,946.98	-186.78	-6.56	174.64	6.07	5.91	-6.41
5,989.00	15.71	211.28	5,976.00	-193.14	-10.74	179.31	7.56	6.63	-14.30
6,021.00	17.57	208.49	6,006.66	-201.09	-15.30	185.36	6.32	5.81	-8.72
6,052.00	18.21	207.33	6,036.16	-209.51	-19.75	191.89	2.36	2.06	-3.74
6,084.00	18.69	207.24	6,066.51	-218.51	-24.40	198.91	1.50	1.50	-0.28
6,116.00	20.59	210.07	6,096.65	-227.93	-29.56	206.16	6.64	5.94	8.84
6,148.00	22.67	210.20	6,126.39	-238.14	-35.48	213.90	6.50	6.50	0.41
6,180.00	24.84	209.10	6,155.68	-249.34	-41.86	222.44	6.92	6.78	-3.44
6,212.00	26.99	207.47	6,184.46	-261.66	-48.48	231.96	7.08	6.72	-5.09
6,244.00	29.89	206.85	6,212.60	-275.22	-55.43	242.55	9.11	9.06	-1.94
6,273.00	31.79	206.58	6,237.50	-288.50	-62.11	252.96	6.57	6.55	-0.93
6,304.00	32.67	207.31	6,263.72	-303.23	-69.60	264.48	3.10	2.84	2.35
6,334.00	32.70	207.59	6,288.97	-317.61	-77.07	275.68	0.51	0.10	0.93
6,364.00	35.08	208.15	6,313.87	-332.39	-84.89	287.14	8.00	7.93	1.87
6,395.00	37.02	208.51	6,338.93	-348.45	-93.55	299.54	6.30	6.26	1.16
6,425.00	39.49	207.27	6,362.49	-364.87	-102.23	312.27	8.62	8.23	-4.13
6,454.00	41.37	205.88	6,384.56	-381.69	-110.64	325.47	6.49	6.48	-4.79
6,484.00	44.14	205.23	6,406.59	-400.06	-119.42	340.02	9.35	9.23	-2.17
6,515.00	46.12	205.28	6,428.46	-419.93	-128.80	355.80	6.39	6.39	0.16
6,546.00	48.82	205.30	6,449.41	-440.58	-138.56	372.19	8.71	8.71	0.06

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Survey Report

Company:	Stone Energy Corporation	**Local Co-ordinate Reference:**	Well 2H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	2H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	2H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,576.00	50.65	204.87	6,468.80	-461.32	-148.26	388.68	6.20	6.10	-1.43
6,607.00	53.70	205.14	6,487.81	-483.51	-158.61	406.33	9.86	9.84	0.87
6,637.00	55.35	203.88	6,505.22	-505.73	-168.74	424.10	6.48	5.50	-4.20
6,667.00	57.59	203.83	6,521.79	-528.60	-178.85	442.47	7.47	7.47	-0.17
6,697.00	58.93	203.82	6,537.57	-551.94	-189.16	461.23	4.47	4.47	-0.03
6,727.00	60.72	204.12	6,552.65	-575.64	-199.70	480.25	6.03	5.97	1.00
6,758.00	61.91	204.22	6,567.53	-600.45	-210.83	500.13	3.85	3.84	0.32
6,789.00	63.69	203.59	6,581.70	-625.66	-222.00	520.38	6.02	5.74	-2.03
6,819.00	64.85	203.44	6,594.72	-650.44	-232.78	540.35	3.89	3.87	-0.50
6,849.00	66.66	203.10	6,607.04	-675.57	-243.59	560.64	6.12	6.03	-1.13
6,879.00	68.93	202.11	6,618.38	-701.21	-254.26	581.45	8.16	7.57	-3.30
6,909.00	70.35	202.06	6,628.82	-727.27	-264.84	602.70	4.74	4.73	-0.17
6,940.00	71.20	201.05	6,639.02	-754.49	-275.59	624.99	4.12	2.74	-3.26
6,970.00	72.03	199.01	6,648.49	-781.24	-285.34	647.15	7.02	2.77	-6.80
7,000.00	72.36	197.12	6,657.66	-808.39	-294.20	669.99	6.10	1.10	-6.30
7,030.00	73.30	195.35	6,666.52	-835.91	-302.21	693.44	6.45	3.13	-5.90
7,061.00	73.84	193.65	6,675.29	-864.69	-309.65	718.28	5.54	1.74	-5.48
7,091.00	74.47	190.76	6,683.48	-892.90	-315.75	743.00	9.50	2.10	-9.63
7,121.00	74.84	188.05	6,691.42	-921.44	-320.48	768.48	8.80	1.23	-9.03
7,151.00	76.18	186.27	6,698.93	-950.25	-324.10	794.59	7.28	4.47	-5.93
7,181.00	76.81	184.25	6,705.93	-979.30	-326.77	821.21	6.88	2.10	-6.73
7,211.00	76.24	182.62	6,712.92	-1,008.42	-328.52	848.20	5.61	-1.90	-5.43
7,242.00	75.81	179.83	6,720.41	-1,038.49	-329.16	876.46	8.84	-1.39	-9.00
7,272.00	75.64	177.34	6,727.81	-1,067.56	-328.45	904.19	8.06	-0.57	-8.30
7,303.00	75.93	175.59	6,735.42	-1,097.55	-326.59	933.17	5.55	0.94	-5.65
7,335.00	75.47	173.98	6,743.33	-1,128.43	-323.77	963.31	5.08	-1.44	-5.03
7,367.00	76.19	172.32	6,751.16	-1,159.23	-320.07	993.65	5.51	2.25	-5.19
7,399.00	76.74	169.46	6,758.65	-1,189.95	-315.15	1,024.31	8.86	1.72	-8.94
7,431.00	78.18	166.44	6,765.60	-1,220.49	-308.62	1,055.33	10.25	4.50	-9.44
7,463.00	80.79	163.65	6,771.44	-1,250.88	-300.50	1,086.71	11.83	8.16	-8.72
7,494.00	83.41	162.43	6,775.70	-1,280.25	-291.55	1,117.40	9.31	8.45	-3.94
7,526.00	86.31	161.18	6,778.57	-1,310.52	-281.60	1,149.26	9.86	9.06	-3.91
7,558.00	87.52	160.74	6,780.29	-1,340.72	-271.17	1,181.21	4.02	3.78	-1.38
7,590.00	87.88	159.90	6,781.57	-1,370.83	-260.40	1,213.18	2.85	1.13	-2.63
7,622.00	88.36	160.28	6,782.62	-1,400.90	-249.51	1,245.16	1.91	1.50	1.19
7,654.00	87.92	158.75	6,783.66	-1,430.86	-238.32	1,277.13	4.97	-1.38	-4.78
7,717.00	87.75	157.35	6,786.04	-1,489.25	-214.79	1,339.99	2.24	-0.27	-2.22
7,781.00	88.22	157.32	6,788.29	-1,548.27	-190.14	1,403.81	0.74	0.73	-0.05
7,845.00	89.13	157.68	6,789.77	-1,607.38	-165.66	1,467.66	1.53	1.42	0.56
7,907.00	88.93	155.92	6,790.82	-1,664.36	-141.24	1,529.47	2.86	-0.32	-2.84
7,971.00	89.30	155.13	6,791.81	-1,722.60	-114.73	1,593.16	1.36	0.58	-1.23
8,035.00	89.63	154.64	6,792.41	-1,780.55	-87.56	1,656.77	0.92	0.52	-0.77
8,098.00	90.57	153.90	6,792.30	-1,837.30	-60.21	1,719.32	1.90	1.49	-1.17
8,162.00	90.30	151.92	6,791.81	-1,894.27	-31.07	1,782.65	3.12	-0.42	-3.09

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Company:	Stone Energy Corporation	**Local Co-ordinate Reference:**	Well 2H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	2H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	2H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,225.00	90.20	150.26	6,791.54	-1,949.42	-0.62	1,844.68	2.64	-0.16	-2.63
8,289.00	91.27	149.36	6,790.72	-2,004.73	31.57	1,907.42	2.18	1.67	-1.41
8,352.00	90.44	148.29	6,789.78	-2,058.63	64.17	1,968.96	2.15	-1.32	-1.70
8,415.00	88.93	148.04	6,790.12	-2,112.15	97.40	2,030.35	2.43	-2.40	-0.40
8,477.00	88.49	149.09	6,791.52	-2,165.04	129.73	2,090.84	1.84	-0.71	1.69
8,541.00	89.53	150.91	6,792.63	-2,220.45	161.72	2,153.62	3.27	1.63	2.84
8,604.00	89.90	150.22	6,792.94	-2,275.32	192.68	2,215.55	1.24	0.59	-1.10
8,667.00	90.60	149.67	6,792.66	-2,329.84	224.23	2,277.34	1.41	1.11	-0.87
8,731.00	90.77	149.42	6,791.90	-2,385.01	256.67	2,340.03	0.47	0.27	-0.39
8,794.00	90.70	152.82	6,791.09	-2,440.16	287.09	2,402.05	5.40	-0.11	5.40
8,858.00	92.61	156.14	6,789.24	-2,497.88	314.65	2,465.58	5.98	2.98	5.19
8,922.00	92.85	154.66	6,786.19	-2,556.01	341.26	2,529.19	2.34	0.38	-2.31
8,985.00	93.28	154.21	6,782.82	-2,612.76	368.41	2,591.66	0.99	0.68	-0.71
9,048.00	93.66	154.52	6,779.01	-2,669.45	395.61	2,654.11	0.78	0.60	0.49
9,111.00	91.61	154.08	6,776.12	-2,726.16	422.90	2,716.59	3.33	-3.25	-0.70
9,175.00	90.57	153.49	6,774.90	-2,783.56	451.17	2,780.05	1.87	-1.63	-0.92
9,239.00	90.17	152.63	6,774.48	-2,840.62	480.16	2,843.41	1.48	-0.63	-1.34
9,303.00	89.70	152.17	6,774.56	-2,897.33	509.81	2,906.66	1.03	-0.73	-0.72
9,366.00	90.27	152.13	6,774.57	-2,953.03	539.24	2,968.89	0.91	0.90	-0.06
9,430.00	91.01	151.60	6,773.86	-3,009.47	569.42	3,032.04	1.42	1.16	-0.83
9,493.00	90.13	152.26	6,773.23	-3,065.05	599.06	3,094.23	1.75	-1.40	1.05
9,557.00	89.40	151.57	6,773.49	-3,121.52	629.19	3,157.40	1.57	-1.14	-1.08
9,620.00	90.10	151.64	6,773.77	-3,176.94	659.15	3,219.52	1.12	1.11	0.11
9,684.00	89.93	152.44	6,773.75	-3,233.47	689.16	3,282.71	1.28	-0.27	1.25
9,748.00	90.03	153.24	6,773.78	-3,290.41	718.37	3,346.04	1.26	0.16	1.25
9,811.00	90.03	153.02	6,773.74	-3,346.61	746.85	3,408.43	0.35	0.00	-0.35
9,874.00	89.63	152.54	6,773.93	-3,402.63	775.66	3,470.75	0.99	-0.63	-0.76
9,937.00	89.90	151.70	6,774.19	-3,458.32	805.12	3,532.97	1.40	0.43	-1.33
10,001.00	90.47	151.21	6,773.98	-3,514.54	835.71	3,596.06	1.17	0.89	-0.77
10,065.00	91.24	151.29	6,773.03	-3,570.64	866.49	3,659.10	1.21	1.20	0.13
10,126.00	91.24	151.43	6,771.71	-3,624.16	895.72	3,719.19	0.23	0.00	0.23
10,190.00	89.87	151.00	6,771.09	-3,680.25	926.53	3,782.23	2.24	-2.14	-0.67
10,253.00	90.20	150.68	6,771.05	-3,735.27	957.23	3,844.21	0.73	0.52	-0.51
10,317.00	90.47	151.57	6,770.67	-3,791.31	988.13	3,907.23	1.45	0.42	1.39
10,380.00	90.91	151.46	6,769.91	-3,846.68	1,018.18	3,969.34	0.72	0.70	-0.17
10,443.00	90.54	151.87	6,769.12	-3,902.12	1,048.08	4,031.47	0.88	-0.59	0.65
10,506.00	90.03	152.45	6,768.80	-3,957.83	1,077.50	4,093.70	1.23	1.08	0.92
10,570.00	89.90	152.55	6,768.84	-4,014.60	1,107.05	4,156.97	0.26	0.20	0.16
10,633.00	90.17	154.08	6,768.80	-4,070.89	1,135.34	4,219.38	2.47	0.43	2.43
10,697.00	90.50	155.08	6,768.43	-4,128.69	1,162.81	4,282.96	1.65	0.52	1.56
10,761.00	90.13	154.46	6,768.08	-4,186.58	1,190.09	4,346.56	1.13	-0.58	-0.97
10,824.00	90.00	153.49	6,768.01	-4,243.19	1,217.73	4,409.06	1.55	-0.21	-1.54
10,887.00	90.34	153.79	6,767.82	-4,299.64	1,245.70	4,471.52	0.72	0.54	0.48

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Scientific Drilling International

Survey Report

Company:	Stone Energy Corporation	**Local Co-ordinate Reference:**	Well 2H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	2H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	2H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,951.00	89.50	153.78	6,767.91	-4,357.06	1,273.98	4,534.99	1.31	-1.31	-0.02
11,015.00	89.43	154.26	6,768.51	-4,414.59	1,302.01	4,598.50	0.76	-0.11	0.75
11,078.00	90.30	153.95	6,768.66	-4,471.26	1,329.52	4,661.02	1.47	1.38	-0.49
11,142.00	90.70	154.45	6,768.10	-4,528.88	1,357.38	4,724.55	1.00	0.63	0.78
11,205.00	90.17	155.50	6,767.62	-4,585.96	1,384.03	4,787.18	1.87	-0.84	1.67
11,268.00	89.97	155.03	6,767.54	-4,643.18	1,410.39	4,849.85	0.81	-0.32	-0.75
11,332.00	89.19	154.82	6,768.01	-4,701.15	1,437.51	4,913.47	1.26	-1.22	-0.33
11,396.00	90.10	154.24	6,768.41	-4,758.93	1,465.03	4,977.04	1.69	1.42	-0.91
11,459.00	88.96	154.44	6,768.92	-4,815.71	1,492.31	5,039.59	1.84	-1.81	0.32
11,523.00	88.19	153.68	6,770.52	-4,873.25	1,520.30	5,103.08	1.69	-1.20	-1.19
11,586.00	88.99	154.05	6,772.07	-4,929.79	1,548.04	5,165.55	1.40	1.27	0.59
11,650.00	91.14	157.15	6,771.99	-4,988.06	1,574.47	5,229.24	5.89	3.36	4.84
11,714.00	91.17	156.71	6,770.70	-5,046.93	1,599.55	5,293.05	0.69	0.05	-0.69
11,777.00	91.01	155.28	6,769.50	-5,104.47	1,625.17	5,355.78	2.28	-0.25	-2.27
11,841.00	90.91	154.88	6,768.43	-5,162.50	1,652.13	5,419.42	0.64	-0.16	-0.63
11,905.00	90.20	154.47	6,767.81	-5,220.35	1,679.51	5,483.01	1.28	-1.11	-0.64
11,968.00	89.63	154.96	6,767.91	-5,277.31	1,706.42	5,545.61	1.19	-0.90	0.78
12,032.00	90.64	155.24	6,767.76	-5,335.36	1,733.36	5,609.25	1.64	1.58	0.44
12,095.00	90.57	153.96	6,767.09	-5,392.27	1,760.38	5,671.83	2.03	-0.11	-2.03
12,159.00	88.42	151.55	6,767.65	-5,449.16	1,789.68	5,735.14	5.05	-3.36	-3.77
12,223.00	87.79	151.58	6,769.77	-5,505.41	1,820.13	5,798.21	0.99	-0.98	0.05
12,286.00	88.69	151.86	6,771.71	-5,560.86	1,849.97	5,860.33	1.50	1.43	0.44
12,350.00	89.90	150.96	6,772.49	-5,617.05	1,880.59	5,923.40	2.36	1.89	-1.41
12,402.00	90.54	151.28	6,772.29	-5,662.58	1,905.71	5,974.60	1.38	1.23	0.62
Last SDI MWD Survey									
12,460.00	90.54	151.28	6,771.75	-5,713.44	1,933.57	6,031.74	0.00	0.00	0.00
Projection to Bit									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
15.00	15.00	0.00	0.00	Ground Level
100.00	99.99	1.25	0.20	First SDI Gyro Survey
3,311.02	3,307.17	-34.76	14.97	Last SDI Gyro Survey
3,430.00	3,425.02	-45.76	2.88	First SDI MWD Survey
12,402.00	6,772.29	-5,662.58	1,905.71	Last SDI MWD Survey
12,460.00	6,771.75	-5,713.44	1,933.57	Projection to Bit

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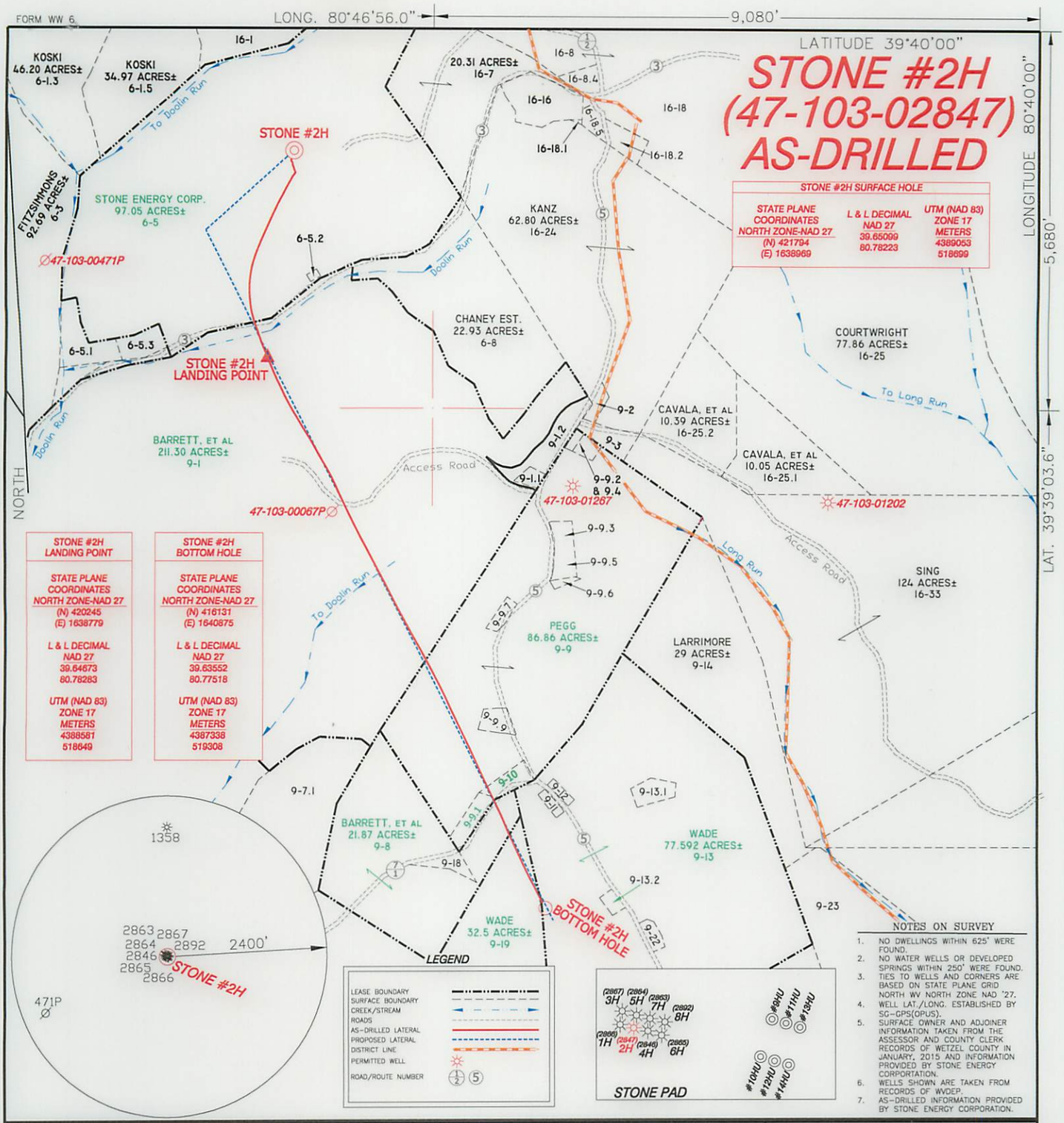
Checked By: _____ Approved By: _____ Date: _____

FORM WW 6



STONE #2H SURFACE HOLE		
STATE PLANE COORDINATES NORTH ZONE-NAD 27	L & L DECIMAL NAD 27	UTM (NAD 83) ZONE 17 METERS
(N) 421794	39.65099	4389053
(E) 1638969	80.78223	518699

STONE #2H LANDING POINT	STONE #2H BOTTOM HOLE
STATE PLANE COORDINATES NORTH ZONE-NAD 27	STATE PLANE COORDINATES NORTH ZONE-NAD 27
(N) 420245	(N) 416131
(E) 1638779	(E) 1640875
L & L DECIMAL NAD 27	L & L DECIMAL NAD 27
39.64673	39.63552
80.78283	80.77518
UTM (NAD 83) ZONE 17 METERS	UTM (NAD 83) ZONE 17 METERS
4388581	4387338
518649	519308

NOTES ON SURVEY

1. NO DWELLINGS WITHIN 625' WERE FOUND.
2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27.
4. WELL LAT./LONG. ESTABLISHED BY SG-GPS(OPUS).
5. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN JANUARY, 2015 AND INFORMATION PROVIDED BY STONE ENERGY CORPORATION.
6. WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDEP.
7. AS-DRILLED INFORMATION PROVIDED BY STONE ENERGY CORPORATION.

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 834

HUPP Surveying & Mapping
P.O. Box 647 Grantsville, WV 26147
(304) 354-7035 EMAIL: hupp@frontiernet.net

DOYLE HUPP JR. LICENSED No. 834 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE APRIL 8, 20 15

OPERATORS WELL NO. STONE #2H

API WELL NO. 47 — 103 — 02847
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2234 (BK 75-28)

SCALE 1" = 1000'

PROVEN SOURCE OF ELEVATION SG-GPS (OPUS)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE : OIL ____ GAS X LIQUID INJECTION ____ WASTE DISPOSAL ____ IF "GAS" PRODUCTION X STORAGE ____ DEEP ____ SHALLOW X

LOCATION :

ELEVATION 1,215' WATERSHED DOOLIN RUN

DISTRICT MAGNOLIA COUNTY WETZEL QUADRANGLE NEW MARTINSVILLE 7.5'

SURFACE OWNER STONE ENERGY CORPORATION ACREAGE 97.05±

ROYALTY OWNER BARBARA BARRETT, et al LEASE ACREAGE 527.17±

PROPOSED WORK : LEASE NO. ____

DRILL ____ CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE ____ PLUG OFF OLD FORMATION ____ PERFORATE NEW FORMATION ____ PLUG AND ABANDON ____ CLEAN OUT AND REPLUG ____ OTHER ____

PHYSICAL CHANGE IN WELL (SPECIFY) ____ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH TVD-6,792' MD- 12,402'

COUNTY NAME

PERMIT

WELL OPERATOR STONE ENERGY CORPORATION DESIGNATED AGENT TIM MCGREGOR

ADDRESS P.O. BOX 52807 LAFAYETTE, LA 70508 ADDRESS 1300 FORT PIERPONT DR., SUITE 201 MORGANTOWN, WV 26508

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Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 103 - 02863 County Wetzel District Magnolia
Quad New Martinsville Pad Name Stone Field/Pool Name Mary
Farm name Stone Energy Corporation Well Number #7H
Operator (as registered with the OOG) Stone Energy Corporation
Address 1300 Fort Pierpont Dr. - Suite 201 City Morgantown State WV Zip 26508

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing 4,389,058	Easting 518,706
Landing Point of Curve	Northing 4,389,492	Easting 518,871
Bottom Hole	Northing 4,390,974	Easting 518,277

Elevation (ft) 1,215 GL Type of Well □New ■ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen □ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single □ Multiple Fluids Produced ■ Brine ■Gas □ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole ■ Air ■ Mud □ Fresh Water □ Brine

Mud Type(s) and Additive(s)
Saturated salt mud which includes Caustic Soda, Barite, Lime, New-Drill, Perma-Lose HT, Xan-Plex D, X-Cide 102, Soda Ash, and Sodium Chloride

Date permit issued 4/1/2013 Date drilling commenced 6/2/2013 Date drilling ceased 1/4/2014
Date completion activities began 4/7/2014 Date completion activities ceased 10/25/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 95 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Reported Void(s) encountered (Y/N) depths N
Coal depth(s) ft 836 & 911 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
AL 5/26/15 ✓
W.S. 04/02/15

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API 47- 103 - 02863 Farm name Stone Energy Corporation Well number #7H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	80'	New	LS		N - GTS
Surface	17.5"	13.375"	1,229' KB - 1,214' GL	New	J55	104' & 222'	Y - CTS
Coal	17.5"	13.375"	1,229' KB - 1,214' GL	New	J55	104' & 222'	Y - CTS
Intermediate 1	12.25"	9.625"	2,461'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	12,943'	New	P110		Y - TOC @ 1,290'
Tubing	N/A	2.375"	7,440'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 18 bbls cement to surface on 13.375" casing string. Circulated 39 bbls cement to surface on the 9.625" casing string. Circulated 16 bbls cement to surface on 5.5" casing string. TOC on 5.5" after running CBL @ 1,290'.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	855	15.6	1.19	1,017	Surface	8.0
Coal	Class "A"	855	15.6	1.19	1,017	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-490 Tail-310	Lead-15.0 Tail 15.6	Lead-1.26 Tail-1.19	Lead-617 Tail-369	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-FlexSeal Tail-Class "A"	Lead-747 Tail-1,934	Lead- 15.0 Tail-15.6	Lead-1.26 Tail-1.19	Lead-941 Tail-2,301	1,290	7.0
Tubing							

Drillers TD (ft) 12,946 MD / 6,717 TVD Loggers TD (ft) N/A
Deepest formation penetrated Marcellus Shale Plug back to (ft)
Plug back procedure

Kick off depth (ft) 5,860 MD / 5,848' TVD

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Surface casing had bow spring centralizers placed on joints 2, 5, 8, 11, 14, 17, 20, 23, 26 and 29. Intermediate casing had bow spring centralizers placed on joints 2, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43, 46, 49, 52 and 55. Production casing had rigid spiral centralizers placed on every fourth joint beginning with joint 2 to joint 166. Ran a total of 42 rigid spiral centralizers. Ran bow spring centralizers from joint 169 to joint 271 on every third joint. A total of 34 bow spring centralizers were run.

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WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 103 - 02863 Farm name Stone Energy Corporation Well number #7H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	4/16/14	12,654	12,657	72	Marcellus Shale
2	5/5/14	12,384	12,572	72	Marcellus Shale
3	5/7/14	12,138	12,309	72	Marcellus Shale
4	5/8/14	11,888	12,065	72	Marcellus Shale
5	5/9/14	11,641	11,818	72	Marcellus Shale
6	5/10/14	11,390	11,573	72	Marcellus Shale
7	5/11/14	11,144	11,323	72	Marcellus Shale
8	5/12/14	10,891	11,072	72	Marcellus Shale
9	6/26/14	10,630	10,818	72	Marcellus Shale
10	7/9/14	10,377	10,563	72	Marcellus Shale
11	7/14/14	10,124	10,305	72	Marcellus Shale
12	7/15/14	9,870	10,051	72	Marcellus Shale
13	7/18/14	9,612	9,794	72	Marcellus Shale
14	7/19/14	9,361	9,548	72	Marcellus Shale
15	7/21/14	9,105	9,288	72	Marcellus Shale
16	7/22/14	8,852	9,037	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	5/5/14	85.2	7,605	6,615	5,005	345,380	8,238	
2	5/7/14	84.4	8,052	7,403	5,349	419,540	8,308	
3	5/8/14	84.7	8,045	6,697	5,262	423,280	8,526	
4	5/9/14	85.4	8,068	6,708	5,550	423,380	8,445	
5	5/10/14	82.4	8,040	7,500	5,807	427,500	8,324	
6	5/11/14	84.0	8,078	7,561	5,664	420,640	8,412	
7	5/12/14	84.1	8,193	7,328	5,463	414,760	8,728	
8	5/13/14	74.8	7,918	6,833	5,606	418,120	8,809	
9	7/8/14	73.2	8,335	7,572	4,793	424,280	10,943	
10	7/14/14	77.0	7,961	7,859	5,280	418,720	9,043	
11	7/15/14	77.9	8,208	8,292	4,201	417,480	11,409	
12	7/18/14	59.8	8,870	8,855	9,063	2,566	6,839	
13	7/19/14	73.4	7,719	6,366	5,730	120,440	7,131	
14	7/21/14	80.3	7,537	6,337	5,205	173,887	6,873	
15	7/22/14	80.3	7,182	7,516	4,805	422,940	8,846	
16	7/31/14	81.8	7,080	7,721	4,315	418,000	8,460	

Please insert additional pages as applicable.

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	7/31/14	8,599	8,781	72	Marcellus Shale
18	8/1/14	8,348	8,533	72	Marcellus Shale
19	8/3/14	8,091	8,278	72	Marcellus Shale
20	8/4/14	7,840	8,023	72	Marcellus Shale
21	8/6/14	7,598	7,773	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
17	8/1/14	82.3	7,346	6,842	4,659	416,760	8,460	
18	8/3/14	82.1	7,098	7,304	4,948	419,740	8,865	
19	8/4/14	80.1	6,822	6,288	4,502	423,800	8,888	
20	8/6/14	80.6	6,789	6,630	4,516	427,454	8,201	
21	8/7/14	77.2	8,656	7,562	5,357	52,360	3,682	

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PRODUCING FORMATION(S)	DEPTHS	
Marcelllus Shale	6,796' to 6,727' TVD	7,598' to 12,657 MD

Please insert additional pages as applicable.

GAS TEST ■ Build up □ Drawdown ■ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface 2,797 psi Bottom Hole 4,563 calculated psi DURATION OF TEST 94 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	1,544 mcfpd	bpd	122.6 bpd	454.3 bpd	□ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		
See Attached Sheet					

Please insert additional pages as applicable.

Drilling Contractor Nomac (top-hole) & Saxon Drilling (horizontal)
Address 2034 Martins Branch Rd /9303 New Trails Drive City Mount Morris / The Woodlands State PA / TX Zip 25312 / 77381

Logging Company Scientific Drilling and Schlumberger
Address 3475 Washington Ave / 1178 US HWY 33 East City Finleyville / Weston State PA / WV Zip 15332 / 26452

Cementing Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Stimulating Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Please insert additional pages as applicable.

Completed by W. Lee Hornsby Telephone 304-225-1600
Signature W. Lee Hornsby Title Drilling Engineer Date 4/27/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Stone #7H
API 47-103-02863
Stone Energy Corporation

	Top (ft TVD)	Horizontal Top (ft MD)		Bottom (ft TVD)	Bottom (ft MD)	
Sandstone & Shale	Surface		*	836		FW @ 95
Coal	836		*	839		
Sandstone & Shale	839		*	911		
Coal	911			915		
Sandstone & Shale	915			2,086		
Little Lime	2,086		*	2,116		
Big Lime	2,116		*	2,216		
Big Injun	2,216		*	2,316		
Sandstone & Shale	2,316		*	2,689		No SW Reported
Berea Sandstone	2,689		*	2,719		
Shale	2,719		*	2,894		
Gordon	2,894		*	2,944		
Undiff Devonian Shale	2,944		*	5,840	5,851	
Rhinestreet	5,840	5,851	~	6,366	6,692	
Cashaqua	6,366	6,692	~	6,421	6,846	
Middlesex	6,421	6,846	~	6,601	7,021	
West River	6,601	7,021	~	6,677	7,148	
Geneseo	6,677	7,148	~	6,693	7,114	
Tully Limestone	6,693	7,114	~	6,731	7,287	
Hamilton Shale	6,731	7,287	~	6,781	7,485	
Marcellus	6,781	7,485	~	6,717	12,946	
TD				6,717	12,946	

* From Pilot Hole Log and Driller's Log
~ From MWD Gamma Log

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	8/7/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	47-103-02863
Operator Name:	Stone Energy
Well Name and Number:	Stone 7H
Longitude:	518,706
Latitude:	4,389,058
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	7347132

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
H015, Slickwater, WF115	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, Surfactant , Acid, Breaker, Gelling Agent, Friction Reducer, Iron Control Agent, Clay Control Agent, Buffer, Propping Agent, Fluid	Water (Including Mix Water Supplied by Client)*	NA		89.27875%	
			Crystalline silica	14808-60-7	98.16495%	10.52451%	
			Ammonium sulfate	7783-20-2	1.99278%	0.21365%	
			Hydrochloric acid	7647-01-0	1.11363%	0.11940%	
			Carbohydrate polymer	Proprietary	0.69089%	0.07407%	
			Urea	57-13-6	0.33213%	0.03561%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.07701%	0.00826%	
			Glutaraldehyde	111-30-8	0.06149%	0.00659%	
			Diammonium peroxidisulphate	7727-54-0	0.02881%	0.00309%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00592%	0.00064%	
			Sodium carbonate	497-19-8	0.00541%	0.00058%	
			Methanol	67-56-1	0.00445%	0.00048%	
			Trisodium ortho phosphate	7601-54-9	0.00441%	0.00047%	
			Ethane-1,2-diol	107-21-1	0.00441%	0.00047%	
			Sodium erythorbate	6381-77-7	0.00384%	0.00041%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00334%	0.00036%	
			Aliphatic acids	Proprietary	0.00334%	0.00036%	
			Calcium chloride	10043-52-4	0.00140%	0.00015%	
			Prop-2-yn-1-ol	107-19-7	0.00111%	0.00012%	

* 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%

Report ID: RPT-29871 (Generated on 8/25/2014 1:12 PM)

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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Project: Heather Prospect (NAD 27)
Site: Stone
Well: 7H
Wellbore: OH
Design: As Drilled

Scientific Drilling

WELL DETAILS: 7H

Ground Level: 1215.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	421807.00	1638993.00	39° 39' 3.711 N	80° 46' 55.719 W

REFERENCE INFORMATION

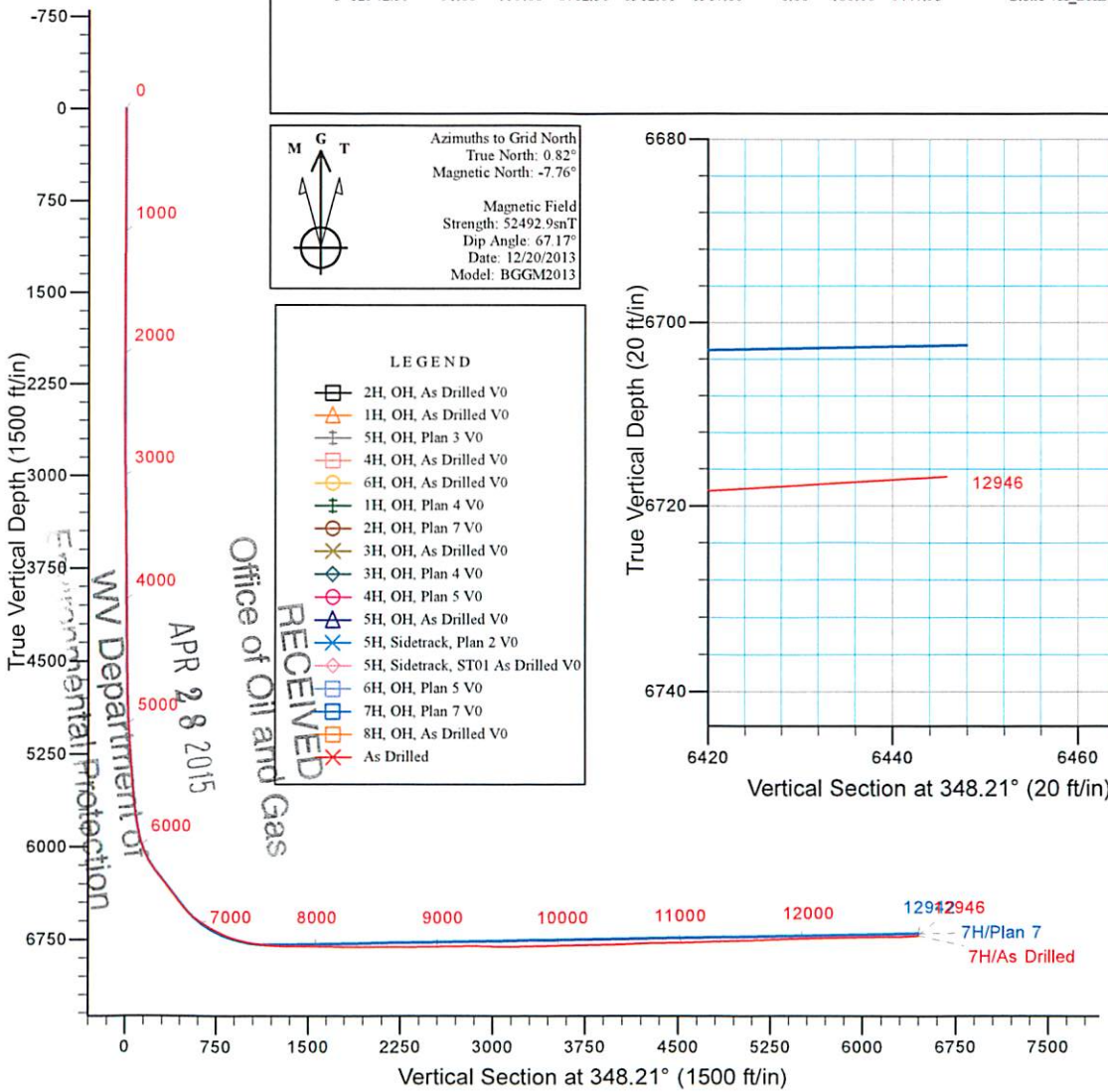
Co-ordinate (N/E) Reference: Well 7H, Grid North
Vertical (TVD) Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Calculation Method: Minimum Curvature

PROJECT DETAILS: Heather Prospect (NAD 27)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: West Virginia North 4701
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	5849.00	16.96	42.39	5837.34	125.06	111.68	0.00	0.00	99.62	
2	6284.09	51.73	39.01	6191.12	310.37	266.77	8.00	-4.65	249.34	
3	6793.33	51.73	39.01	6506.55	621.01	518.43	0.00	0.00	502.03	
4	7637.97	91.00	339.00	6795.00	1360.62	583.55	8.00	-69.53	1212.75	Stone 7H_LP4
5	12942.39	91.00	339.00	6702.50	6312.01	-1317.00	0.00	180.00	6447.95	Stone 7H_BHL4

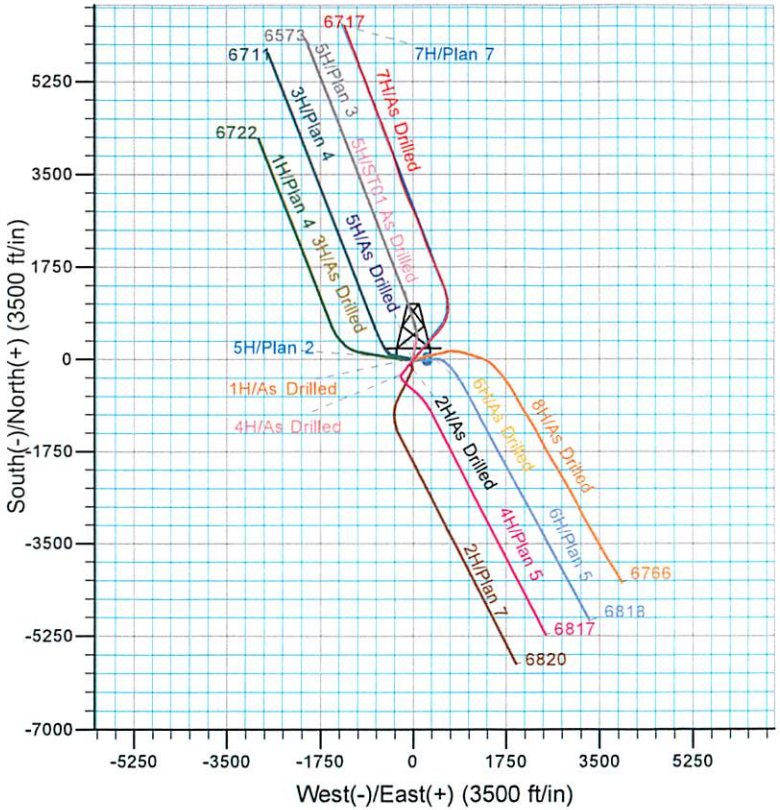


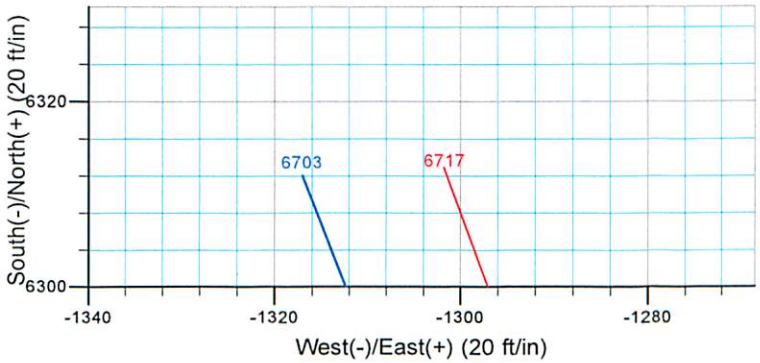
Azimuths to Grid North
True North: 0.82°
Magnetic North: -7.76°

Magnetic Field
Strength: 52492.9snT
Dip Angle: 67.17°
Date: 12/20/2013
Model: BGGM2013

LEGEND

- 2H, OH, As Drilled V0
- 1H, OH, As Drilled V0
- 5H, OH, Plan 3 V0
- 4H, OH, As Drilled V0
- 6H, OH, As Drilled V0
- 1H, OH, Plan 4 V0
- 2H, OH, Plan 7 V0
- 3H, OH, As Drilled V0
- 3H, OH, Plan 4 V0
- 4H, OH, Plan 5 V0
- 5H, OH, As Drilled V0
- 5H, Sidetrack, Plan 2 V0
- 5H, Sidetrack, ST01 As Drilled V0
- 6H, OH, Plan 5 V0
- 7H, OH, Plan 7 V0
- 8H, OH, As Drilled V0
- As Drilled





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Stone Energy

Heather Prospect (NAD 27)
Stone
7H

OH

Design: As Drilled

Standard Survey Report

02 January, 2014

Scientific Drilling

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STONE ENERGY

Survey Report

Scientific Drilling

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 7H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	7H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Project Heather Prospect (NAD 27), Wetzel County, West Virginia

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site Stone

Site Position:		**Northing:**	421,797.00 usft	**Latitude:**	39° 39' 3.606 N
From:	Map	**Easting:**	1,638,950.00 usft	**Longitude:**	80° 46' 56.267 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.82 °

Well 7H

Well Position	**+N/-S**	0.00 ft	**Northing:**	421,807.00 usft	**Latitude:**	39° 39' 3.711 N
	+E/-W	0.00 ft	**Easting:**	1,638,993.00 usft	**Longitude:**	80° 46' 55.719 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	1,215.00 ft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	4/15/2013	-8.51	67.21	52,620
	IGRF2010	5/29/2013	-8.51	67.19	52,606
	BGGM2013	11/26/2013	-8.57	67.17	52,501
	BGGM2013	12/20/2013	-8.58	67.17	52,493

Design As Drilled

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	348.21

Survey Program **Date** 1/2/2014

From (ft)	**To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
15.00	2,400.54	Survey 1 - Gyro (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
2,425.49	12,946.00	Survey 2 - MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1

Survey

Measured Depth (ft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Vertical Section (ft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00
Ground Level									
100.00	0.08	225.93	100.00	-0.04	-0.04	-0.03	0.09	0.09	0.00
First SDI Gyro Survey									
200.00	0.06	267.22	200.00	-0.09	-0.15	-0.06	0.05	-0.02	41.29
300.00	0.07	220.39	300.00	-0.14	-0.24	-0.09	0.05	0.01	-46.83

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 7H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	7H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
400.00	0.16	198.63	400.00	-0.32	-0.32	-0.25	0.10	0.09	-21.76
500.00	0.15	208.79	500.00	-0.57	-0.43	-0.47	0.03	-0.01	10.16
600.00	0.07	260.23	600.00	-0.69	-0.55	-0.57	0.12	-0.08	51.44
700.00	0.24	158.82	700.00	-0.90	-0.54	-0.77	0.26	0.17	-101.41
800.00	0.12	136.38	800.00	-1.17	-0.39	-1.07	0.14	-0.12	-22.44
900.00	0.14	115.48	900.00	-1.30	-0.21	-1.23	0.05	0.02	-20.90
1,000.00	0.13	32.76	1,000.00	-1.25	-0.03	-1.22	0.18	-0.01	-82.72
1,100.00	0.14	180.59	1,100.00	-1.28	0.03	-1.26	0.26	0.01	147.83
1,200.00	0.27	175.85	1,200.00	-1.64	0.04	-1.61	0.13	0.13	-4.74
1,300.00	0.18	152.23	1,300.00	-2.01	0.13	-2.00	0.13	-0.09	-23.62
1,400.00	0.29	179.43	1,400.00	-2.40	0.21	-2.40	0.15	0.11	27.20
1,500.00	0.35	170.89	1,499.99	-2.96	0.26	-2.95	0.08	0.06	-8.54
1,600.00	0.24	173.78	1,599.99	-3.47	0.33	-3.46	0.11	-0.11	2.89
1,700.00	0.36	216.14	1,699.99	-3.93	0.17	-3.88	0.24	0.12	42.36
1,800.00	0.12	233.34	1,799.99	-4.25	-0.10	-4.14	0.25	-0.24	17.20
1,900.00	0.10	247.74	1,899.99	-4.34	-0.27	-4.20	0.03	-0.02	14.40
2,000.00	0.12	224.81	1,999.99	-4.45	-0.42	-4.27	0.05	0.02	-22.93
2,100.00	0.14	200.23	2,099.99	-4.64	-0.54	-4.43	0.06	0.02	-24.58
2,200.00	0.20	274.82	2,199.99	-4.74	-0.75	-4.49	0.21	0.06	74.59
2,300.00	0.06	276.97	2,299.99	-4.72	-0.98	-4.42	0.14	-0.14	2.15
2,400.00	0.21	245.73	2,399.99	-4.79	-1.20	-4.44	0.16	0.15	-31.24
2,400.54	0.22	244.88	2,400.53	-4.79	-1.20	-4.44	1.94	1.85	-157.41
Last SDI Gyro Survey									
2,425.49	0.25	297.46	2,425.48	-4.78	-1.29	-4.42	0.84	0.12	210.74
First SDI MWD Survey									
2,450.13	0.22	304.10	2,450.12	-4.73	-1.38	-4.35	0.16	-0.12	26.95
2,482.40	0.17	288.58	2,482.39	-4.68	-1.48	-4.28	0.22	-0.15	-48.09
2,543.00	0.03	13.73	2,542.99	-4.64	-1.56	-4.22	0.28	-0.23	140.51
2,634.00	0.12	111.12	2,633.99	-4.65	-1.46	-4.25	0.14	0.10	107.02
2,728.00	0.15	339.49	2,727.99	-4.57	-1.41	-4.18	0.26	0.03	-140.03
2,821.00	0.72	8.04	2,820.99	-3.88	-1.38	-3.51	0.64	0.61	30.70
2,913.00	1.32	16.86	2,912.97	-2.29	-0.99	-2.04	0.67	0.65	9.59
3,007.00	1.17	18.56	3,006.95	-0.34	-0.37	-0.26	0.16	-0.16	1.81
3,099.00	1.16	18.57	3,098.93	1.43	0.23	1.35	0.01	-0.01	0.01
3,189.00	1.46	49.90	3,188.91	3.03	1.40	2.68	0.85	0.33	34.81
3,279.00	1.46	60.72	3,278.88	4.33	3.27	3.57	0.31	0.00	12.02
3,370.00	1.27	57.68	3,369.85	5.44	5.14	4.27	0.22	-0.21	-3.34
3,461.00	1.27	61.36	3,460.83	6.46	6.87	4.92	0.09	0.00	4.04
3,555.00	1.21	50.89	3,554.81	7.58	8.56	5.68	0.25	-0.06	-11.14
3,649.00	1.23	57.05	3,648.79	8.76	10.17	6.50	0.14	0.02	6.55
3,742.00	1.11	48.50	3,741.77	9.90	11.69	7.30	0.23	-0.13	-9.19
3,835.00	0.93	52.32	3,834.75	10.96	12.96	8.08	0.21	-0.19	4.11
3,929.00	1.00	56.03	3,928.74	11.88	14.24	8.72	0.10	0.07	3.95

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 7H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	7H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,022.00	0.74	54.77	4,021.73	12.68	15.41	9.27	0.28	-0.28	-1.35
4,114.00	0.53	59.57	4,113.72	13.24	16.26	9.64	0.24	-0.23	5.22
4,209.00	0.43	16.85	4,208.72	13.80	16.74	10.09	0.38	-0.11	-44.97
4,300.00	0.72	8.60	4,299.71	14.70	16.92	10.93	0.33	0.32	-9.07
4,391.00	1.22	15.25	4,390.70	16.20	17.27	12.33	0.56	0.55	7.31
4,486.00	0.96	25.92	4,485.68	17.89	17.88	13.86	0.35	-0.27	11.23
4,578.00	0.87	32.77	4,577.67	19.17	18.59	14.97	0.15	-0.10	7.45
4,673.00	0.62	59.05	4,672.66	20.04	19.43	15.65	0.44	-0.26	27.66
4,764.00	1.15	42.87	4,763.65	20.96	20.47	16.34	0.64	0.58	-17.78
4,858.00	2.24	35.21	4,857.61	23.15	22.17	18.14	1.18	1.16	-8.15
4,951.00	3.25	34.30	4,950.50	26.82	24.70	21.21	1.09	1.09	-0.98
5,043.00	4.54	30.32	5,042.29	32.11	28.01	25.72	1.43	1.40	-4.33
5,136.00	5.61	34.36	5,134.92	39.04	32.43	31.60	1.21	1.15	4.34
5,232.00	6.83	40.18	5,230.36	47.28	38.77	38.36	1.43	1.27	6.06
5,322.00	8.06	43.26	5,319.60	55.96	46.54	45.28	1.44	1.37	3.42
5,412.00	8.20	43.58	5,408.69	65.21	55.29	52.54	0.16	0.16	0.36
5,505.00	8.22	43.17	5,500.74	74.86	64.41	60.13	0.07	0.02	-0.44
5,599.00	8.63	43.52	5,593.72	84.88	73.87	68.00	0.44	0.44	0.37
5,690.00	11.74	44.53	5,683.28	96.43	85.06	77.02	3.42	3.42	1.11
5,784.00	14.61	42.39	5,774.80	112.01	99.77	89.27	3.10	3.05	-2.28
5,849.00	16.96	42.39	5,837.34	125.06	111.68	99.62	3.62	3.62	0.00
5,866.00	17.97	42.86	5,853.56	128.82	115.14	102.58	6.00	5.94	2.76
5,898.00	21.08	42.76	5,883.71	136.66	122.41	108.78	9.72	9.72	-0.31
5,930.00	23.80	42.65	5,913.29	145.64	130.69	115.88	8.50	8.50	-0.34
5,962.00	26.65	41.78	5,942.23	155.74	139.85	123.89	8.98	8.91	-2.72
5,994.00	29.28	41.82	5,970.49	166.93	149.85	132.80	8.22	8.22	0.13
6,025.00	32.27	42.07	5,997.13	178.72	160.45	142.18	9.65	9.65	0.81
6,057.00	34.09	43.08	6,023.91	191.62	172.30	152.38	5.94	5.69	3.16
6,089.00	36.54	42.33	6,050.02	205.21	184.84	163.13	7.78	7.66	-2.34
6,121.00	39.49	40.56	6,075.23	219.99	197.88	174.93	9.83	9.22	-5.53
6,153.00	43.19	39.99	6,099.25	236.11	211.54	187.93	11.62	11.56	-1.78
6,185.00	46.31	40.70	6,121.97	253.28	226.12	201.75	9.87	9.75	2.22
6,217.00	47.98	41.20	6,143.74	270.99	241.50	215.95	5.34	5.22	1.56
6,249.00	50.24	41.12	6,164.68	289.21	257.42	230.53	7.07	7.06	-0.25
6,312.00	51.51	41.27	6,204.43	325.98	289.61	259.96	2.02	2.02	0.24
6,376.00	51.32	41.77	6,244.35	363.44	322.77	289.85	0.68	-0.30	0.78
6,440.00	51.64	41.36	6,284.21	400.90	355.99	319.74	0.71	0.50	-0.64
6,502.00	51.96	41.51	6,322.55	437.43	388.23	348.91	0.55	0.52	0.24
6,566.00	52.28	40.69	6,361.85	475.50	421.44	379.39	1.13	0.50	-1.28
6,629.00	52.58	40.22	6,400.26	513.49	453.84	409.97	0.76	0.48	-0.75
6,693.00	52.49	39.45	6,439.19	552.50	486.38	441.51	0.97	-0.14	-1.20
6,756.00	52.68	38.68	6,477.47	591.35	517.91	473.10	1.02	0.30	-1.22
6,788.00	52.90	38.75	6,496.82	611.24	533.85	489.31	0.71	0.69	0.22
6,820.00	53.47	36.85	6,516.00	631.48	549.55	505.92	5.08	1.78	-5.94

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 7H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	7H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,852.00	56.33	32.37	6,534.40	653.02	564.40	523.98	14.53	8.94	-14.00
6,884.00	58.73	29.06	6,551.58	676.23	578.18	543.88	11.51	7.50	-10.34
6,914.00	60.40	26.05	6,566.78	699.16	590.13	563.89	10.29	5.57	-10.03
6,943.00	60.67	24.35	6,581.05	722.01	600.88	584.06	5.19	0.93	-5.86
6,974.00	60.50	21.79	6,596.27	746.85	611.46	606.21	7.21	-0.55	-8.26
7,004.00	60.83	19.19	6,610.97	771.34	620.62	628.32	7.63	1.10	-8.67
7,035.00	61.52	17.48	6,625.92	797.12	629.16	651.81	5.32	2.23	-5.52
7,065.00	62.49	15.59	6,640.00	822.52	636.70	675.13	6.43	3.23	-6.30
7,096.00	63.20	12.90	6,654.15	849.25	643.48	699.91	8.05	2.29	-8.68
7,126.00	63.43	10.65	6,667.63	875.49	648.95	724.48	6.74	0.77	-7.50
7,156.00	63.89	7.07	6,680.94	902.05	653.09	749.63	10.80	1.53	-11.93
7,186.00	64.76	4.45	6,693.94	928.94	655.80	775.41	8.39	2.90	-8.73
7,217.00	66.62	1.62	6,706.70	957.15	657.29	802.72	10.26	6.00	-9.13
7,247.00	67.77	0.07	6,718.33	984.80	657.69	829.70	6.11	3.83	-5.17
7,276.00	69.66	356.94	6,728.86	1,011.81	656.99	856.29	11.98	6.52	-10.79
7,307.00	71.14	354.54	6,739.26	1,040.93	654.81	885.24	8.72	4.77	-7.74
7,337.00	72.95	352.96	6,748.51	1,069.29	651.70	913.64	7.84	6.03	-5.27
7,367.00	74.54	351.70	6,756.91	1,097.84	647.86	942.37	6.66	5.30	-4.20
7,398.00	75.96	350.10	6,764.80	1,127.43	643.12	972.31	6.77	4.58	-5.16
7,428.00	77.38	348.26	6,771.72	1,156.11	637.64	1,001.49	7.62	4.73	-6.13
7,458.00	79.03	346.96	6,777.85	1,184.79	631.33	1,030.86	6.95	5.50	-4.33
7,489.00	81.36	345.48	6,783.13	1,214.45	624.06	1,061.38	8.87	7.52	-4.77
7,519.00	82.62	344.71	6,787.31	1,243.16	616.42	1,091.05	4.91	4.20	-2.57
7,549.00	83.04	344.69	6,791.05	1,271.87	608.56	1,120.76	1.40	1.40	-0.07
7,580.00	84.58	343.94	6,794.40	1,301.54	600.23	1,151.50	5.52	4.97	-2.42
7,610.00	86.07	343.29	6,796.84	1,330.22	591.80	1,181.30	5.42	4.97	-2.17
7,640.00	86.70	343.13	6,798.73	1,358.89	583.15	1,211.13	2.17	2.10	-0.53
7,670.00	87.41	343.30	6,800.27	1,387.57	574.50	1,240.98	2.43	2.37	0.57
7,701.00	88.39	342.51	6,801.41	1,417.18	565.39	1,271.82	4.06	3.16	-2.55
7,731.00	89.19	341.33	6,802.04	1,445.69	556.08	1,301.63	4.75	2.67	-3.93
7,761.00	89.70	341.31	6,802.33	1,474.11	546.47	1,331.42	1.70	1.70	-0.07
7,792.00	89.93	340.56	6,802.43	1,503.41	536.35	1,362.17	2.53	0.74	-2.42
7,822.00	90.64	339.28	6,802.29	1,531.58	526.05	1,391.85	4.88	2.37	-4.27
7,852.00	90.71	337.60	6,801.93	1,559.48	515.02	1,421.41	5.60	0.23	-5.60
7,882.00	89.33	335.94	6,801.92	1,587.05	503.19	1,450.81	7.20	-4.60	-5.53
7,913.00	87.95	335.18	6,802.66	1,615.26	490.37	1,481.05	5.08	-4.45	-2.45
7,944.00	87.62	334.74	6,803.86	1,643.33	477.26	1,511.20	1.77	-1.06	-1.42
7,975.00	88.08	334.77	6,805.02	1,671.35	464.05	1,541.33	1.49	1.48	0.10
8,039.00	88.39	335.26	6,806.99	1,729.33	437.03	1,603.61	0.91	0.48	0.77
8,102.00	89.06	336.10	6,808.39	1,786.72	411.09	1,665.09	1.71	1.06	1.33
8,166.00	90.20	336.33	6,808.80	1,845.29	385.28	1,727.69	1.82	1.78	0.36
8,229.00	89.83	337.45	6,808.79	1,903.23	360.55	1,789.46	1.87	-0.59	1.78
8,292.00	89.76	338.26	6,809.01	1,961.58	336.80	1,851.44	1.29	-0.11	1.29

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 7H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	7H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,355.00	90.71	338.35	6,808.75	2,020.12	313.52	1,913.49	1.51	1.51	0.14
8,419.00	90.64	338.25	6,808.00	2,079.58	289.85	1,976.53	0.19	-0.11	-0.16
8,483.00	89.63	338.35	6,807.85	2,139.04	266.19	2,039.58	1.59	-1.58	0.16
8,546.00	89.80	339.16	6,808.16	2,197.76	243.36	2,101.72	1.31	0.27	1.29
8,610.00	90.74	339.42	6,807.86	2,257.62	220.73	2,164.94	1.52	1.47	0.41
8,673.00	90.07	339.88	6,807.42	2,316.69	198.82	2,227.24	1.29	-1.06	0.73
8,737.00	90.23	340.77	6,807.25	2,376.95	177.28	2,290.63	1.41	0.25	1.39
8,800.00	90.47	339.91	6,806.86	2,436.28	156.08	2,353.04	1.42	0.38	-1.37
8,864.00	90.77	340.23	6,806.17	2,496.44	134.27	2,416.39	0.69	0.47	0.50
8,928.00	90.97	339.24	6,805.20	2,556.47	112.10	2,479.68	1.58	0.31	-1.55
8,991.00	89.97	337.81	6,804.68	2,615.09	89.04	2,541.78	2.77	-1.59	-2.27
9,054.00	90.54	336.65	6,804.40	2,673.18	64.66	2,603.62	2.05	0.90	-1.84
9,117.00	90.24	336.13	6,803.97	2,730.91	39.43	2,665.28	0.95	-0.48	-0.83
9,181.00	90.71	335.67	6,803.44	2,789.33	13.29	2,727.81	1.03	0.73	-0.72
9,245.00	90.37	335.02	6,802.84	2,847.49	-13.40	2,790.20	1.15	-0.53	-1.02
9,309.00	88.92	334.86	6,803.24	2,905.46	-40.51	2,852.48	2.28	-2.27	-0.25
9,373.00	89.06	335.42	6,804.36	2,963.52	-67.41	2,914.81	0.90	0.22	0.88
9,436.00	89.56	335.91	6,805.12	3,020.92	-93.37	2,976.30	1.11	0.79	0.78
9,500.00	89.56	337.01	6,805.61	3,079.59	-118.93	3,038.96	1.72	0.00	1.72
9,563.00	89.87	337.77	6,805.93	3,137.75	-143.15	3,100.84	1.30	0.49	1.21
9,627.00	90.34	339.15	6,805.81	3,197.28	-166.65	3,163.91	2.28	0.73	2.16
9,691.00	90.91	340.26	6,805.11	3,257.30	-188.84	3,227.20	1.95	0.89	1.73
9,755.00	91.71	340.71	6,803.65	3,317.60	-210.22	3,290.60	1.43	1.25	0.70
9,818.00	91.35	341.83	6,801.97	3,377.25	-230.44	3,353.12	1.87	-0.57	1.78
9,882.00	90.67	342.61	6,800.84	3,438.18	-249.98	3,416.76	1.62	-1.06	1.22
9,945.00	90.67	342.13	6,800.10	3,498.22	-269.06	3,479.42	0.76	0.00	-0.76
10,009.00	91.61	341.87	6,798.83	3,559.07	-288.83	3,543.03	1.52	1.47	-0.41
10,072.00	91.55	342.31	6,797.09	3,618.99	-308.20	3,605.65	0.70	-0.10	0.70
10,136.00	90.91	342.36	6,795.72	3,679.96	-327.61	3,669.30	1.00	-1.00	0.08
10,199.00	91.18	342.28	6,794.57	3,739.98	-346.74	3,731.96	0.45	0.43	-0.13
10,262.00	90.24	341.80	6,793.79	3,799.90	-366.17	3,794.58	1.68	-1.49	-0.76
10,325.00	90.64	342.64	6,793.31	3,859.89	-385.41	3,857.24	1.48	0.63	1.33
10,389.00	93.02	344.68	6,791.26	3,921.27	-403.40	3,920.99	4.90	3.72	3.19
10,453.00	93.33	343.43	6,787.72	3,982.71	-420.96	3,984.73	2.01	0.48	-1.95
10,516.00	92.73	341.49	6,784.39	4,042.69	-439.91	4,047.32	3.22	-0.95	-3.08
10,580.00	92.18	339.65	6,781.64	4,102.99	-461.18	4,110.69	3.00	-0.86	-2.88
10,642.00	92.59	338.49	6,779.06	4,160.85	-483.31	4,171.85	1.98	0.66	-1.87
10,707.00	92.42	337.63	6,776.22	4,221.08	-507.58	4,235.77	1.35	-0.26	-1.32
10,770.00	91.01	336.83	6,774.34	4,279.14	-531.95	4,297.58	2.57	-2.24	-1.27
10,833.00	89.73	337.20	6,773.93	4,337.14	-556.55	4,359.38	2.11	-2.03	0.59
10,896.00	90.94	337.78	6,773.56	4,395.34	-580.67	4,421.28	2.13	1.92	0.92
10,959.00	90.74	338.34	6,772.64	4,453.77	-604.20	4,483.28	0.94	-0.32	0.89
11,022.00	90.37	338.23	6,772.03	4,512.29	-627.51	4,545.34	0.61	-0.59	-0.17

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 7H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	7H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,086.00	91.48	338.62	6,771.00	4,571.80	-651.04	4,608.40	1.84	1.73	0.61
11,149.00	92.79	338.65	6,768.65	4,630.43	-673.98	4,670.47	2.08	2.08	0.05
11,213.00	93.09	338.43	6,765.37	4,689.91	-697.36	4,733.48	0.58	0.47	-0.34
11,276.00	92.05	338.25	6,762.54	4,748.41	-720.59	4,795.48	1.68	-1.65	-0.29
11,337.00	91.91	338.70	6,760.43	4,805.12	-742.96	4,855.57	0.77	-0.23	0.74
11,401.00	92.05	338.44	6,758.22	4,864.66	-766.33	4,918.63	0.46	0.22	-0.41
11,463.00	91.75	338.94	6,756.17	4,922.39	-788.84	4,979.74	0.94	-0.48	0.81
11,526.00	92.65	339.28	6,753.75	4,981.20	-811.29	5,041.90	1.53	1.43	0.54
11,590.00	91.51	339.11	6,751.43	5,040.99	-834.01	5,105.06	1.80	-1.78	-0.27
11,653.00	91.21	339.31	6,749.93	5,099.87	-856.36	5,167.27	0.57	-0.48	0.32
11,716.00	92.35	339.13	6,747.97	5,158.74	-878.70	5,229.46	1.83	1.81	-0.29
11,779.00	91.61	338.71	6,745.80	5,217.49	-901.35	5,291.60	1.35	-1.17	-0.67
11,843.00	90.71	338.15	6,744.50	5,276.99	-924.87	5,354.65	1.66	-1.41	-0.88
11,906.00	91.71	338.60	6,743.17	5,335.55	-948.09	5,416.71	1.74	1.59	0.71
11,968.00	92.32	338.65	6,740.99	5,393.24	-970.67	5,477.81	0.99	0.98	0.08
12,031.00	91.71	339.00	6,738.78	5,451.95	-993.41	5,539.92	1.12	-0.97	0.56
12,095.00	91.78	339.53	6,736.83	5,511.78	-1,016.06	5,603.12	0.83	0.11	0.83
12,159.00	91.48	339.85	6,735.01	5,571.78	-1,038.26	5,666.38	0.69	-0.47	0.50
12,223.00	90.37	340.77	6,733.97	5,632.03	-1,059.82	5,729.76	2.25	-1.73	1.44
12,286.00	90.07	340.54	6,733.73	5,691.47	-1,080.69	5,792.22	0.60	-0.48	-0.37
12,350.00	91.18	340.38	6,733.03	5,751.78	-1,102.10	5,855.63	1.75	1.73	-0.25
12,414.00	91.68	341.08	6,731.44	5,812.17	-1,123.21	5,919.06	1.34	0.78	1.09
12,477.00	90.91	341.45	6,730.01	5,871.82	-1,143.44	5,981.58	1.36	-1.22	0.59
12,540.00	91.04	341.12	6,728.94	5,931.48	-1,163.65	6,044.11	0.56	0.21	-0.52
12,604.00	90.44	340.39	6,728.11	5,991.90	-1,184.75	6,107.56	1.48	-0.94	-1.14
12,668.00	91.58	340.50	6,726.99	6,052.20	-1,206.16	6,170.97	1.79	1.78	0.17
12,731.00	91.61	339.69	6,725.23	6,111.41	-1,227.60	6,233.31	1.29	0.05	-1.29
12,795.00	91.14	339.48	6,723.70	6,171.37	-1,249.92	6,296.57	0.80	-0.73	-0.33
12,859.00	92.52	340.18	6,721.65	6,231.41	-1,271.98	6,359.85	2.42	2.16	1.09
12,890.00	93.30	339.85	6,720.08	6,260.51	-1,282.56	6,390.49	2.73	2.52	-1.06
Last SDI MWD Survey									
12,946.00	93.30	339.85	6,716.85	6,312.99	-1,301.82	6,445.80	0.00	0.00	0.00
Projection to Bit									

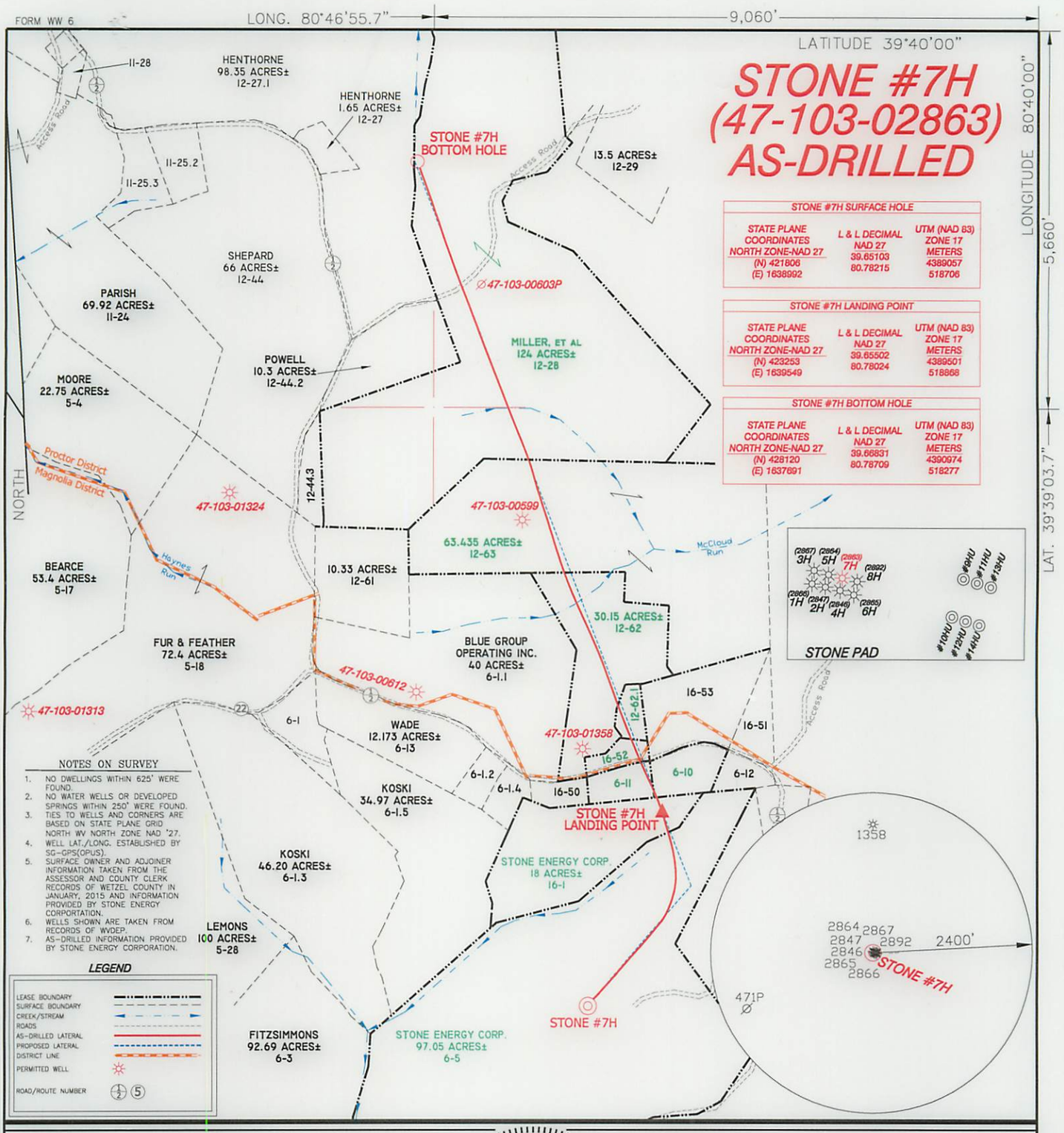
Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 7H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	7H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
15.00	15.00	0.00	0.00	Ground Level
100.00	100.00	-0.04	-0.04	First SDI Gyro Survey
2,400.54	2,400.53	-4.79	-1.20	Last SDI Gyro Survey
2,425.49	2,425.48	-4.78	-1.29	First SDI MWD Survey
12,890.00	6,720.08	6,260.51	-1,282.56	Last SDI MWD Survey
12,946.00	6,716.85	6,312.99	-1,301.82	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

FORM WW 6



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 834

HUPP Surveying & Mapping
P.O. Box 647 Grantsville, WV 26147
(304) 354-7035 EMAIL: hupp@frontiernet.net

DOYLE HUPP, JR. LICENSED No. 834 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE APRIL 6, 20 15

OPERATORS WELL NO. STONE #7H

API WELL NO. 47 — 103 — 02863
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2234 (BK 75-28)
SCALE 1" = 1000'
PROVEN SOURCE OF ELEVATION SG-GPS (OPUS)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE : OIL ___ GAS X INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION :
ELEVATION 1,215' WATERSHED DOOLIN RUN
DISTRICT MAGNOLIA COUNTY WETZEL QUADRANGLE NEW MARTINSVILLE 7.5'
SURFACE OWNER STONE ENERGY CORPORATION ACREAGE 97.05±
ROYALTY OWNER BARBARA BARRETT, et al LEASE ACREAGE 339.09±
PROPOSED WORK : LEASE NO. ___
DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) ___ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD-6,805' MD- 12,946'

COUNTY NAME
PERMIT

WELL OPERATOR STONE ENERGY CORPORATION DESIGNATED AGENT TIM MCGREGOR
ADDRESS P.O. BOX 52807 LAFAYETTE, LA 70508 ADDRESS 1300 FORT PIERPONT DR., SUITE 201 MORGANTOWN, WV 26508

WR-35
Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 103 - 02864 County Wetzel District Magnolia
Quad New Martinsville Pad Name Stone Field/Pool Name Mary
Farm name Stone Energy Corporation Well Number #5H
Operator (as registered with the OOG) Stone Energy Corporation
Address 1300 Fort Pierpont Dr. - Suite 201 City Morgantown State WV Zip 26508

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing 4,389,059	Easting 518,700
Landing Point of Curve	Northing 4,389,424	Easting 518,649
Bottom Hole	Northing 4,390,889	Easting 518,065

Elevation (ft) 1,215 GL Type of Well ☐New ■ Existing Type of Report ☐Interim ■Final

Permit Type ☐ Deviated ☐ Horizontal ■ Horizontal 6A ☐ Vertical Depth Type ☐ Deep ■ Shallow

Type of Operation ☐ Convert ☐ Deepen ☐ Drill ☐ Plug Back ☐ Redrilling ☐ Rework ■ Stimulate

Well Type ☐ Brine Disposal ☐ CBM ■ Gas ☐ Oil ☐ Secondary Recovery ☐ Solution Mining ☐ Storage ☐ Other _____

Type of Completion ■ Single ☐ Multiple Fluids Produced ■ Brine ■Gas ☐ NGL ☐ Oil ☐ Other _____
Drilled with ☐ Cable ■ Rotary

Drilling Media Surface hole ■ Air ☐ Mud ■Fresh Water Intermediate hole ■ Air ☐ Mud ■ Fresh Water ☐ Brine
Production hole ■ Air ■ Mud ☐ Fresh Water ☐ Brine
Mud Type(s) and Additive(s)
Saturated salt mud which includes Caustic Soda, Barite, Lime, New-Drill, Perma-Lose HT, Xan-Plex D, X-Cide 102, Soda Ash, and Sodium Chloride

Date permit issued 3/20/2013 Date drilling commenced 6/11/2013 Date drilling ceased 1/15/2014
Date completion activities began 4/7/2014 Date completion activities ceased 10/28/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

RECEIVED
Office of Oil and Gas
APR 28 2015
WV Department of
Environmental Protection

Freshwater depth(s) ft 168 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,989 Void(s) encountered (Y/N) depths N
Coal depth(s) ft None Reported Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
4L 5/26/15 ✓
W.S. 6/2/15 ✓

WR-35
Rev. 8/23/13

API 47- 103 - 02864 Farm name Stone Energy Corporation Well number #5H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	80'	New	LS		N - GTS
Surface	17.5"	13.375"	1,229' KB - 1,214' GL	New	J55	124' & 208'	Y - CTS
Coal	17.5"	13.375"	1,229' KB - 1,214' GL	New	J55	124' & 208'	Y - CTS
Intermediate 1	12.25"	9.625"	2,450'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	12,431'	New	P110		N - TOC @ 190'
Tubing	N/A	2.375"	7,039'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 40 bbls cement to surface on 13.375" casing string. Circulated 32 bbls cement to surface on the 9.625" casing string. TOC on 5.5" after running CBL @ 190'.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	940	15.6	1.19	1,119	Surface	8.0
Coal	Class "A"	940	15.6	1.19	1,119	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-501 Tail-250	Lead-15.0 Tail 15.6	Lead-1.26 Tail-1.19	Lead-631 Tail-298	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-FlexSeal Tail-Class "A"	Lead-876 Tail-1,677	Lead- 15.0 Tail-15.6	Lead-1.26 Tail-1.19	Lead-1,104 Tail-1,996	190	7.0
Tubing							

Drillers TD (ft) 12,456 MD / 6,720 TVD Loggers TD (ft) N/A
Deepest formation penetrated Marcellus Shale Plug back to (ft)
Plug back procedure

Kick off depth (ft) 6,000 MD / 5,975' TVD

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Surface casing had bow spring centralizers placed on joints 2, 5, 8, 11, 14, 17, 20, 23, 26 and 29. Intermediate casing had bow spring centralizers placed on joints 2, 5, 8, 11, 14, 18, 22, 26, 30, 34, 38, 43, 48 and 53. Production casing had rigid spiral centralizers placed on every fourth joint beginning with joint 1 to joint #148. Ran a total of 38 rigid spiral centralizers. Ran bow spring centralizers from joint 152 to joint 276 on every eighth joint. A total of 25 bow spring centralizers were run.

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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WR-35
Rev. 8/23/13

API 47- 103 - 02864 Farm name Stone Energy Corporation Well number #5H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	4/17/14	12,148	12,331	72	Marcellus Shale
2	5/17/14	11,889	12,072	72	Marcellus Shale
3	5/23/14	11,630	11,811	72	Marcellus Shale
4	5/28/14	11,365	11,546	72	Marcellus Shale
5	5/30/14	11,108	11,298	72	Marcellus Shale
6	5/31/14	10,854	11,043	72	Marcellus Shale
7	6/1/14	10,607	10,793	72	Marcellus Shale
8	6/2/14	10,353	10,538	72	Marcellus Shale
9	6/3/14	10,098	10,283	72	Marcellus Shale
10	6/4/14	9,844	10,025	72	Marcellus Shale
11	6/5/14	9,587	9,770	72	Marcellus Shale
12	6/6/14	9,333	9,515	72	Marcellus Shale
13	6/6/14	9,076	9,263	72	Marcellus Shale
14	6/7/14	8,830	9,008	72	Marcellus Shale
15	6/7/14	8,572	8,764	72	Marcellus Shale
16	7/8/14	8,322	8,508	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	5/17/14	84.4	7,994	8,695	4,861	358,260	8,563	
2	5/23/14	82.3	8,106	7,013	4,889	374,460	7,951	
3	5/27/14	85.3	7,712	7,118	5,204	420,340	8,391	
4	5/29/14	81.9	8,170	7,139	5,750	416,780	8,308	
5	5/30/14	85.1	7,748	7,227	5,655	426,420	8,438	
6	5/31/14	85.3	7,622	7,280	4,463	430,671	8,397	
7	6/1/14	84.0	7,984	7,827	5,950	425,300	10,311	
8	6/2/14	80.4	7,379	6,676	5,810	415,060	8,289	
9	6/3/14	80.8	7,525	7,227	5,233	413,780	10,529	
10	6/4/14	84.7	7,675	7,382	4,861	415,000	8,383	
11	6/6/14	82.4	7,527	7,228	5,837	425,760	8,343	
12	6/6/14	83.6	7,594	7,310	5,205	413,502	8,322	
13	6/7/14	85.2	7,520	6,850	5,350	417,680	8,518	
14	6/7/14	84.8	7,380	6,853	5,033	422,160	8,274	
15	7/7/14	84.0	7,532	6,716	4,516	420,460	10,022	
16	7/29/14	78.8	7,257	7,264	4,860	389,560	8,535	

Please insert additional pages as applicable.

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	7/29/14	8,072	8,253	72	Marcellus Shale
18	8/1/14	7,809	8,000	72	Marcellus Shale
19	8/2/14	7,553	7,735	72	Marcellus Shale
20	8/3/14	7,351	7,483	72	Marcellus Shale
21	8/4/14	7,158	7,283	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
17	8/1/14	81.7	7,575	7,964	4,758	415,620	8,591	
18	8/2/14	75.1	7,815	9,137	5,749	397,113	8,703	
19	8/3/14	80.1	6,936	6,777	4,860	421,420	8,797	
20	8/4/14	80.8	6,840	7,389	4,545	379,460	8,002	
21	8/7/14	79.8	6,889	7,999	4,286	370,700	7,911	

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PRODUCING FORMATION(S)	DEPTHS			
Marcelllus Shale	6,799' to 6,726'	TVD	7,158' to 12,331'	MD

Please insert additional pages as applicable.

GAS TEST ■ Build up □ Drawdown ■ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface 2,497 psi Bottom Hole 4,263 calculated psi DURATION OF TEST 72 hrs

OPEN FLOW Gas 1,698 mcfpd Oil ____ bpd NGL 125.3 bpd Water 504.0 bpd GAS MEASURED BY □ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		
See Attached Sheet					

Please insert additional pages as applicable.

Drilling Contractor Nomac (top-hole) & Saxon Drilling (horizontal)
Address 2034 Martins Branch Rd /9303 New Trails Drive City Mount Morris / The Woodlands State PA / TX Zip 25312 / 77381

Logging Company Scientific Drilling and Schlumberger
Address 3475 Washington Ave / 1178 US HWY 33 East City Finleyville / Weston State PA / WV Zip 15332 / 26452

Cementing Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Stimulating Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Please insert additional pages as applicable.

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Completed by W. Lee Hornsby Telephone 304-225-1600
Signature W. L. Hornsby Title Drilling Engineer Date 4/27/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Stone #5H
API 47-103-02864
Stone Energy Corporation

	Top (ft TVD)	Horizontal Top (ft MD)		Bottom (ft TVD)	Bottom (ft MD)	
Sandstone & Shale	Surface		*	2,086		FW @ 168
Little Lime	2,086		*	2,116		SW @ 1,989
Big Lime	2,116		*	2,216		
Big Injun	2,216		*	2,316		
Sandstone & Shale	2,316		*	2,689		
Berea Sandstone	2,689		*	2,719		
Shale	2,719		*	2,894		
Gordon	2,894		*	2,944		
Undiff Devonian Shale	2,944		*	5,974	5,999	
Rhinestreet	5,974	5,999	~	6,452	6,518	
Cashaqua	6,452	6,518	~	6,608	6,706	
Middlesex	6,608	6,706	~	6,627	6,750	
West River	6,627	6,750	~	6,680	6,840	
Geneseo	6,680	6,840	~	6,697	6,866	
Tully Limestone	6,697	6,866	~	6,734	6,947	
Hamilton Shale	6,734	6,947	~	6,783	7,095	
Marcellus	6,783	7,095	~	6,720	12,456	
TD				6,720	12,456	

* From Pilot Hole Log and Driller's Log
~ From MWD Gamma Log

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	8/7/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	47-103-02864
Operator Name:	Stone Energy
Well Name and Number:	Stone 5H
Longitude:	518,700
Latitude:	4,389,059
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	7617835

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
H015, Slickwater, WF115	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, Surfactant , Acid, Breaker, Gelling Agent, Friction Reducer, Iron Control Agent, Clay Control Agent, Fluid Loss Additive , Propping	Water (Including Mix Water Supplied by Client)*	NA		87.97356%	
			Crystalline silica	14808-60-7	98.41299%	11.83558%	
			Hydrochloric acid	7647-01-0	0.85853%	0.10325%	
			Carbohydrate polymer	Proprietary	0.71483%	0.08597%	
			Ammonium sulfate	7783-20-2	0.17649%	0.02123%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.07184%	0.00864%	
			Glutaraldehyde	111-30-8	0.05672%	0.00682%	
			Urea	57-13-6	0.02942%	0.00354%	
			Diammonium peroxidisulphate	7727-54-0	0.02863%	0.00344%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00553%	0.00066%	
			Trisodium ortho phosphate	7601-54-9	0.00466%	0.00056%	
			Ethane-1,2-diol	107-21-1	0.00466%	0.00056%	
			Methanol	67-56-1	0.00350%	0.00042%	
			Sodium erythorbate	6381-77-7	0.00319%	0.00038%	
			Aliphatic acids	Proprietary	0.00262%	0.00032%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00262%	0.00032%	
			Calcium chloride	10043-52-4	0.00128%	0.00015%	
			Prop-2-yn-1-ol	107-19-7	0.00087%	0.00011%	

* 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%

Report ID: RPT-29867 (Generated on 8/25/2014 1:10 PM)

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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Project: Heather Prospect (NAD 27)
Site: Stone
Well: 5H
Wellbore: ST02
Design: As Drilled

Scientific Drilling

WELL DETAILS: 5H

Ground Level: 1215.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	421812.00	1638974.00	39° 39' 3.757 N	80° 46' 55.962 W

REFERENCE INFORMATION

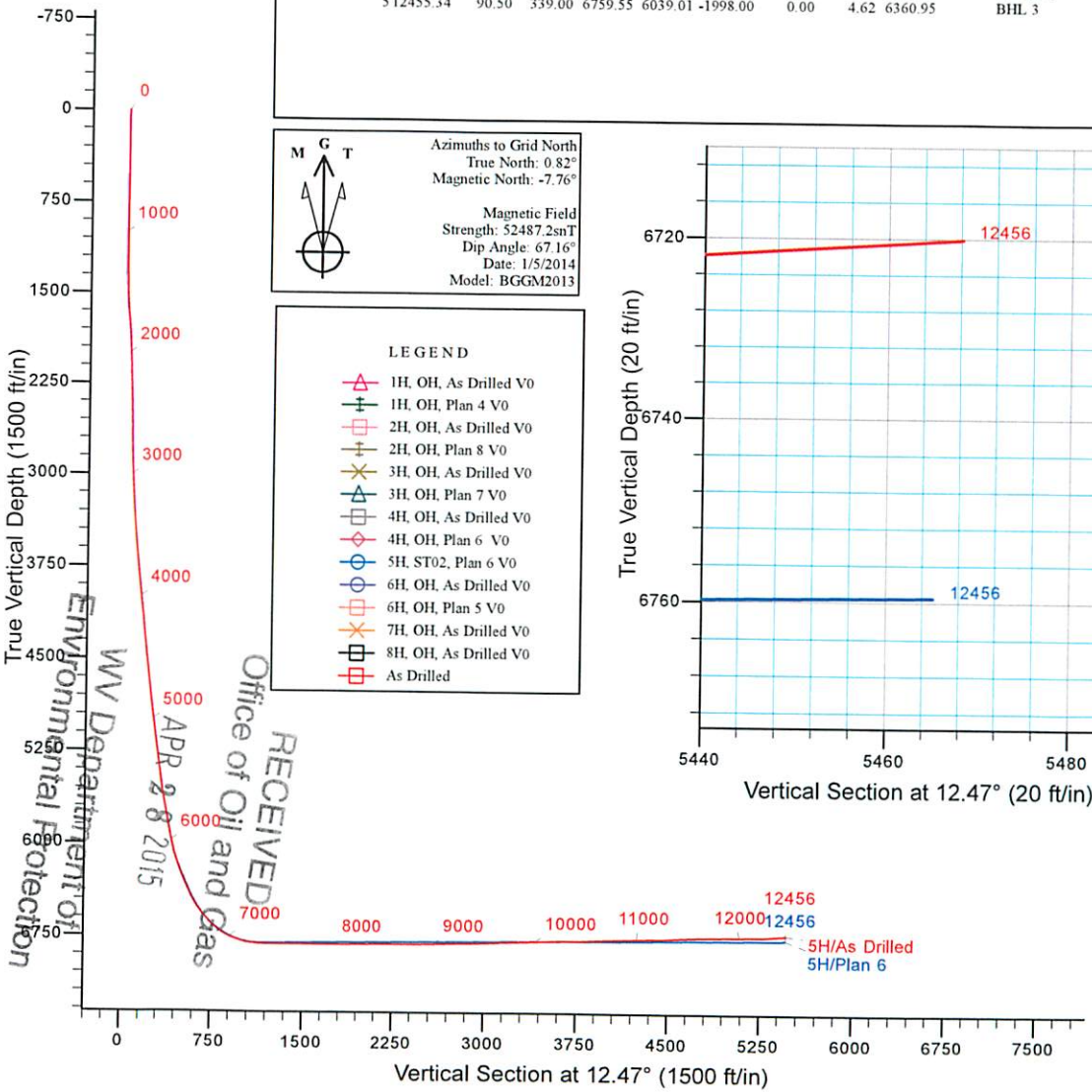
Co-ordinate (N/E) Reference: Well 5H, Grid North
Vertical (TVD) Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Calculation Method: Minimum Curvature

PROJECT DETAILS: Heather Prospect (NAD 27)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: West Virginia North 4701
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	5999.00	11.51	8.70	5973.47	409.72	90.59	0.00	0.00	360.53	
2	6272.37	26.67	347.80	6231.31	497.26	81.69	6.00	-34.55	446.43	
3	6469.81	26.67	347.80	6407.74	583.89	62.97	0.00	0.00	534.56	
4	7271.87	90.50	339.00	6805.00	1200.00	-140.50	8.00	-9.79	1183.40	LP Plan 3
5	12455.34	90.50	339.00	6759.55	6039.01	-1998.00	0.00	4.62	6360.95	BHL 3

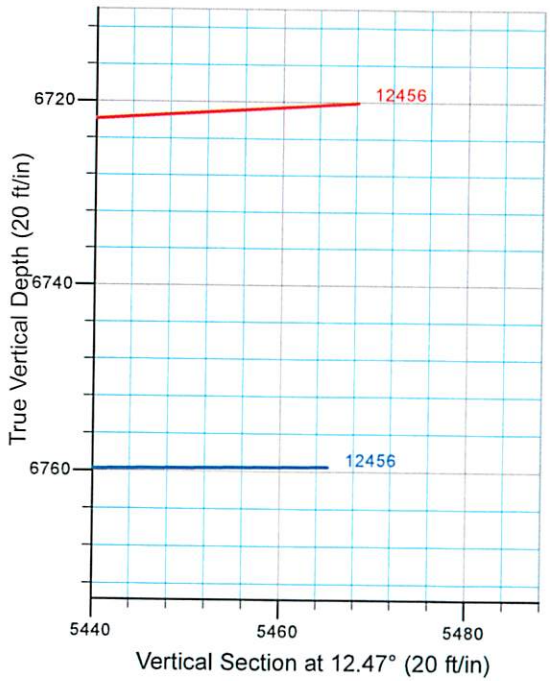


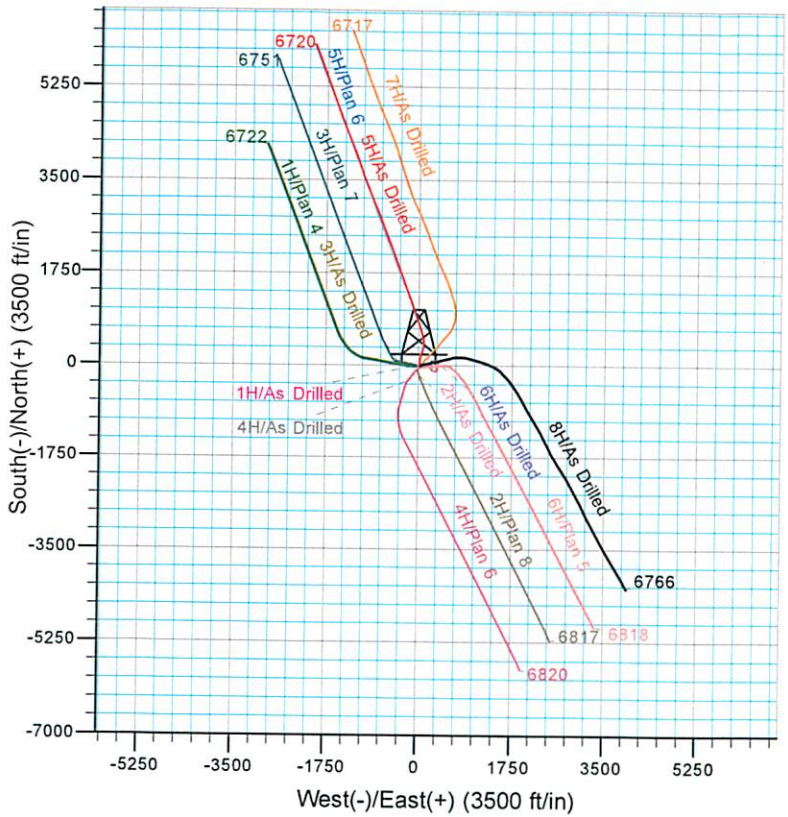
Azimuths to Grid North
True North: 0.82°
Magnetic North: -7.76°

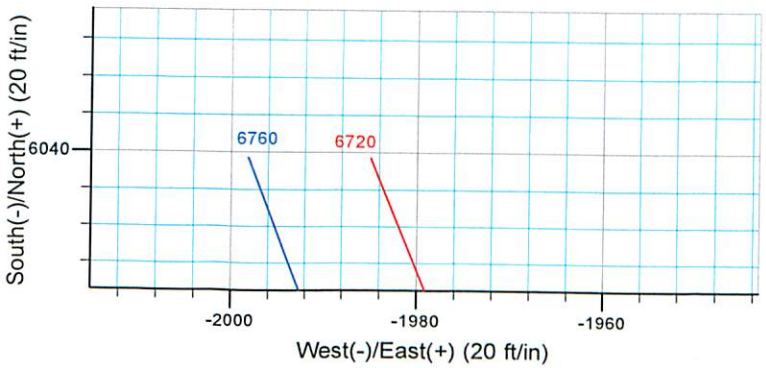
Magnetic Field
Strength: 52487.2snT
Dip Angle: 67.16°
Date: 1/5/2014
Model: BGGM2013

LEGEND

- 1H, OH, As Drilled V0
- 1H, OH, Plan 4 V0
- 2H, OH, As Drilled V0
- 2H, OH, Plan 8 V0
- 3H, OH, As Drilled V0
- 3H, OH, Plan 7 V0
- 4H, OH, As Drilled V0
- 4H, OH, Plan 6 V0
- 5H, ST02, Plan 6 V0
- 6H, OH, As Drilled V0
- 6H, OH, Plan 5 V0
- 7H, OH, As Drilled V0
- 8H, OH, As Drilled V0
- As Drilled







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Stone Energy

Heather Prospect (NAD 27)
Stone
5H

ST02

Design: As Drilled

Standard Survey Report

13 January, 2014

Scientific Drilling

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STONE ENERGY

Survey Report

Scientific Drilling

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 5H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	5H	**North Reference:**	Grid
Wellbore:	ST02	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Project Heather Prospect (NAD 27), Wetzel County, West Virginia

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site Stone

Site Position:		**Northing:**	421,797.00 usft	**Latitude:**	39° 39' 3.606 N
From:	Map	**Easting:**	1,638,950.00 usft	**Longitude:**	80° 46' 56.267 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.82 °

Well 5H

Well Position	**+N/-S**	0.00 ft	**Northing:**	421,812.00 usft	**Latitude:**	39° 39' 3.757 N
	+E/-W	0.00 ft	**Easting:**	1,638,974.00 usft	**Longitude:**	80° 46' 55.962 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	1,215.00 ft

Wellbore ST02

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	BGGM2013	1/5/2014	-8.58	67.16	52,487

Design As Drilled

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	12.47

Survey Program **Date** 1/13/2014

From (ft)	**To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
18.00	2,438.00	Survey 1- SDI Gyro (ST02)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
2,510.00	5,841.00	Survey 2 - SDI MWD (ST02)	MWD SDI	MWD - Standard ver 1.0.1
5,931.00	12,456.00	Survey 3 - SDI MWD (ST02)	MWD SDI	MWD - Standard ver 1.0.1

Survey

Measured Depth (ft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Vertical Section (ft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18.00	0.00	360.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00
Ground level									
103.00	1.13	212.42	102.99	-0.71	-0.45	-0.79	1.33	-1.33	0.00
First SDI Gyro Survey									
203.00	0.77	220.74	202.98	-2.05	-1.42	-2.31	0.38	-0.36	8.32
303.00	0.27	235.00	302.98	-2.69	-2.05	-3.07	0.51	-0.50	14.26
403.00	0.21	206.48	402.98	-2.99	-2.32	-3.42	0.13	-0.06	-28.52

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STONE ENERGY

Survey Report

Scientific Drilling

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 5H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	5H	**North Reference:**	Grid
Wellbore:	ST02	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
503.00	0.28	207.69	502.97	-3.37	-2.52	-3.84	0.07	0.07	1.21
603.00	0.29	203.38	602.97	-3.82	-2.73	-4.32	0.02	0.01	-4.31
703.00	0.29	207.50	702.97	-4.28	-2.95	-4.81	0.02	0.00	4.12
803.00	0.22	228.71	802.97	-4.63	-3.21	-5.21	0.12	-0.07	21.21
903.00	0.20	169.79	902.97	-4.93	-3.32	-5.53	0.21	-0.02	-58.92
1,003.00	0.16	154.72	1,002.97	-5.23	-3.23	-5.80	0.06	-0.04	-15.07
1,103.00	0.08	174.90	1,102.97	-5.42	-3.17	-5.98	0.09	-0.08	20.18
1,203.00	0.12	221.99	1,202.97	-5.57	-3.23	-6.14	0.09	0.04	47.09
1,303.00	0.19	159.21	1,302.97	-5.80	-3.24	-6.37	0.17	0.07	-62.78
1,422.00	1.07	6.38	1,421.96	-4.88	-3.05	-5.43	1.04	0.74	-128.43
1,484.00	2.22	6.65	1,483.94	-3.11	-2.85	-3.66	1.85	1.85	0.44
1,575.00	3.46	8.41	1,574.82	1.35	-2.24	0.84	1.37	1.36	1.93
1,668.00	4.80	13.49	1,667.58	7.91	-0.92	7.53	1.49	1.44	5.46
1,760.00	4.76	17.44	1,759.26	15.30	1.12	15.18	0.36	-0.04	4.29
1,854.00	4.43	26.65	1,852.96	22.26	3.92	22.58	0.86	-0.35	9.80
1,945.00	3.54	48.48	1,943.74	27.27	7.60	28.27	1.92	-0.98	23.99
2,037.00	2.43	65.31	2,035.62	29.97	11.50	31.74	1.52	-1.21	18.29
2,131.00	1.85	45.23	2,129.55	31.87	14.38	34.22	1.00	-0.62	-21.36
2,223.00	2.35	3.76	2,221.50	34.79	15.56	37.33	1.69	0.54	-45.08
2,315.00	2.24	355.50	2,313.42	38.47	15.55	40.92	0.38	-0.12	-8.98
2,438.00	1.66	351.06	2,436.35	42.63	15.08	44.88	0.49	-0.47	-3.61
Last SDI Gyro Survey									
2,510.00	1.76	340.36	2,508.32	44.70	14.55	46.78	0.46	0.14	-14.86
First SDI MWD Survey									
2,602.00	1.73	336.42	2,600.28	47.30	13.52	49.10	0.13	-0.03	-4.28
2,695.00	1.02	333.72	2,693.25	49.33	12.59	50.88	0.77	-0.76	-2.90
2,787.00	1.28	3.72	2,785.23	51.09	12.29	52.54	0.70	0.28	32.61
2,880.00	2.14	5.31	2,878.19	53.85	12.52	55.29	0.93	0.92	1.71
2,972.00	2.72	359.40	2,970.11	57.75	12.66	59.12	0.69	0.63	-6.42
3,062.00	2.90	359.12	3,060.00	62.16	12.60	63.41	0.20	0.20	-0.31
3,154.00	3.10	355.51	3,151.87	66.97	12.37	68.06	0.30	0.22	-3.92
3,246.00	3.83	358.07	3,243.70	72.52	12.07	73.41	0.81	0.79	2.78
3,336.00	4.32	0.59	3,333.48	78.91	12.00	79.64	0.58	0.54	2.80
3,428.00	5.02	6.65	3,425.17	86.37	12.51	87.04	0.93	0.76	6.59
3,520.00	5.85	11.05	3,516.76	94.97	13.87	95.73	1.01	0.90	4.78
3,613.00	6.38	16.07	3,609.23	104.59	16.21	105.62	0.81	0.57	5.40
3,708.00	6.43	15.43	3,703.64	114.79	19.09	116.20	0.09	0.05	-0.67
3,801.00	6.60	13.47	3,796.03	125.01	21.72	126.75	0.30	0.18	-2.11
3,895.00	6.48	13.22	3,889.42	135.42	24.19	137.45	0.13	-0.13	-0.27
3,989.00	6.45	9.84	3,982.83	145.79	26.30	148.03	0.14	-0.03	-3.60
4,080.00	6.20	13.02	4,073.27	155.61	28.28	158.05	0.47	-0.27	3.49
4,173.00	6.16	13.08	4,165.73	165.37	30.54	168.06	0.04	-0.03	0.06
4,269.00	5.96	11.99	4,261.19	175.26	32.74	178.20	0.24	-0.21	-1.14
4,360.00	6.19	13.70	4,351.68	184.65	34.89	187.82	0.32	0.25	1.88

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STONE ENERGY

Survey Report

Scientific Drilling

Company:	Stone Energy	Local Co-ordinate Reference:	Well 5H
Project:	Heather Prospect (NAD 27)	TVD Reference:	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	MD Reference:	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	5H	North Reference:	Grid
Wellbore:	ST02	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,455.00	6.10	12.77	4,446.14	194.55	37.22	197.99	0.14	-0.09	-0.98
4,549.00	6.47	14.85	4,539.57	204.54	39.68	208.28	0.46	0.39	2.21
4,641.00	6.13	14.50	4,631.02	214.30	42.24	218.37	0.37	-0.37	-0.38
4,734.00	6.42	18.10	4,723.46	224.05	45.10	228.50	0.53	0.31	3.87
4,827.00	7.18	16.52	4,815.81	234.57	48.36	239.48	0.84	0.82	-1.70
4,920.00	7.36	15.02	4,908.06	245.89	51.56	251.22	0.28	0.19	-1.61
5,013.00	7.12	15.48	5,000.32	257.20	54.64	262.93	0.27	-0.26	0.49
5,105.00	7.65	15.93	5,091.55	268.58	57.84	274.74	0.58	0.58	0.49
5,196.00	7.80	15.34	5,181.73	280.36	61.14	286.95	0.19	0.16	-0.65
5,290.00	8.07	14.74	5,274.83	292.89	64.51	299.91	0.30	0.29	-0.64
5,381.00	8.27	14.08	5,364.90	305.42	67.72	312.84	0.24	0.22	-0.73
5,474.00	8.51	14.85	5,456.91	318.56	71.11	326.40	0.28	0.26	0.83
5,567.00	8.68	14.41	5,548.86	332.01	74.62	340.29	0.20	0.18	-0.47
5,659.00	9.87	14.01	5,639.66	346.38	78.26	355.11	1.30	1.29	-0.43
5,749.00	10.82	12.63	5,728.20	362.11	81.98	371.27	1.09	1.06	-1.53
5,841.00	11.32	9.02	5,818.48	379.45	85.28	388.92	0.93	0.54	-3.92
5,931.00	11.14	10.47	5,906.76	396.73	88.24	406.42	0.37	-0.20	1.61
5,963.00	11.11	10.84	5,938.16	402.79	89.39	412.59	0.24	-0.09	1.16
5,993.00	11.39	9.12	5,967.58	408.56	90.40	418.44	1.46	0.93	-5.73
6,022.00	12.60	5.44	5,995.95	414.54	91.15	424.44	4.93	4.17	-12.69
6,053.00	14.26	0.99	6,026.10	421.72	91.54	431.54	6.30	5.35	-14.35
6,083.00	15.36	357.65	6,055.11	429.38	91.44	439.00	4.64	3.67	-11.13
6,114.00	16.19	354.34	6,084.94	437.79	90.85	447.07	3.95	2.68	-10.68
6,144.00	18.10	352.00	6,113.60	446.56	89.78	455.42	6.77	6.37	-7.80
6,175.00	20.54	349.16	6,142.86	456.68	88.09	464.92	8.43	7.87	-9.16
6,205.00	23.37	347.16	6,170.68	467.65	85.78	475.14	9.76	9.43	-6.67
6,235.00	25.06	346.78	6,198.04	479.64	83.00	486.24	5.66	5.63	-1.27
6,265.00	25.09	346.03	6,225.21	491.99	80.01	497.66	1.06	0.10	-2.50
6,296.00	23.82	345.23	6,253.43	504.43	76.83	509.11	4.23	-4.10	-2.58
6,326.00	24.11	344.48	6,280.84	516.19	73.65	519.91	1.40	0.97	-2.50
6,356.00	25.25	345.38	6,308.10	528.28	70.39	531.02	4.00	3.80	3.00
6,386.00	26.60	346.76	6,335.08	541.01	67.24	542.77	4.93	4.50	4.60
6,417.00	27.74	347.73	6,362.66	554.82	64.12	555.57	3.95	3.68	3.13
6,447.00	27.38	347.64	6,389.26	568.38	61.16	568.17	1.21	-1.20	-0.30
6,477.00	27.47	347.46	6,415.89	581.87	58.18	580.70	0.41	0.30	-0.60
6,508.00	28.93	346.01	6,443.21	596.13	54.81	593.90	5.20	4.71	-4.68
6,538.00	31.67	345.07	6,469.11	610.78	51.03	607.39	9.27	9.13	-3.13
6,569.00	35.22	344.91	6,494.97	627.28	46.60	622.54	11.46	11.45	-0.52
6,599.00	38.80	344.64	6,518.92	644.70	41.86	638.53	11.95	11.93	-0.90
6,629.00	41.48	344.09	6,541.85	663.32	36.65	655.58	9.01	8.93	-1.83
6,659.00	43.30	343.45	6,564.01	682.74	30.99	673.32	6.23	6.07	-2.13
6,690.00	44.72	342.62	6,586.30	703.34	24.70	692.07	4.94	4.58	-2.68
6,720.00	46.46	341.40	6,607.30	723.72	18.08	710.54	6.49	5.80	-4.07

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STONE ENERGY

Survey Report

Scientific Drilling

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 5H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	5H	**North Reference:**	Grid
Wellbore:	ST02	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,750.00	48.88	340.53	6,627.50	744.68	10.85	729.45	8.35	8.07	-2.90
6,781.00	51.16	340.11	6,647.42	767.05	2.85	749.56	7.43	7.35	-1.35
6,811.00	52.98	339.86	6,665.86	789.28	-5.25	769.51	6.10	6.07	-0.83
6,841.00	55.61	339.60	6,683.36	812.13	-13.69	790.00	8.79	8.77	-0.87
6,872.00	58.59	340.21	6,700.20	836.57	-22.63	811.94	9.75	9.61	1.97
6,902.00	60.31	340.32	6,715.45	860.89	-31.35	833.79	5.74	5.73	0.37
6,932.00	63.14	340.37	6,729.66	885.77	-40.24	856.17	9.43	9.43	0.17
6,962.00	66.47	340.82	6,742.43	911.37	-49.26	879.22	11.18	11.10	1.50
6,993.00	69.13	341.11	6,754.14	938.50	-58.62	903.68	8.62	8.58	0.94
7,024.00	71.20	341.15	6,764.66	966.09	-68.05	928.59	6.68	6.68	0.13
7,056.00	73.64	341.32	6,774.32	994.97	-77.86	954.67	7.64	7.63	0.53
7,088.00	75.61	341.26	6,782.80	1,024.20	-87.76	981.06	6.16	6.16	-0.19
7,120.00	76.47	341.40	6,790.52	1,053.62	-97.70	1,007.64	2.72	2.69	0.44
7,152.00	78.16	341.84	6,797.55	1,083.24	-107.54	1,034.44	5.45	5.28	1.38
7,183.00	81.54	341.42	6,803.01	1,112.20	-117.16	1,060.64	10.98	10.90	-1.35
7,214.00	83.21	341.72	6,807.13	1,141.35	-126.87	1,087.00	5.47	5.39	0.97
7,246.00	85.06	341.60	6,810.40	1,171.56	-136.89	1,114.34	5.79	5.78	-0.38
7,278.00	87.72	341.20	6,812.41	1,201.83	-147.07	1,141.69	8.41	8.31	-1.25
7,310.00	89.83	341.29	6,813.10	1,232.12	-157.36	1,169.04	6.60	6.59	0.28
7,374.00	90.20	341.01	6,813.08	1,292.69	-178.04	1,223.71	0.73	0.58	-0.44
7,437.00	89.77	340.32	6,813.09	1,352.13	-198.89	1,277.25	1.29	-0.68	-1.10
7,501.00	89.46	339.64	6,813.52	1,412.26	-220.80	1,331.23	1.17	-0.48	-1.06
7,564.00	88.52	339.57	6,814.64	1,471.30	-242.75	1,384.14	1.50	-1.49	-0.11
7,629.00	88.86	339.81	6,816.12	1,532.25	-265.31	1,438.77	0.64	0.52	0.37
7,693.00	90.20	340.35	6,816.65	1,592.41	-287.11	1,492.81	2.26	2.09	0.84
7,757.00	90.40	340.82	6,816.31	1,652.77	-308.39	1,547.14	0.80	0.31	0.73
7,820.00	89.56	340.98	6,816.33	1,712.31	-329.00	1,600.82	1.36	-1.33	0.25
7,883.00	89.46	341.09	6,816.87	1,771.88	-349.48	1,654.57	0.24	-0.16	0.17
7,946.00	89.13	339.88	6,817.65	1,831.26	-370.52	1,708.00	1.99	-0.52	-1.92
8,010.00	89.33	339.21	6,818.51	1,891.22	-392.88	1,761.71	1.09	0.31	-1.05
8,073.00	90.54	340.66	6,818.58	1,950.39	-414.50	1,814.82	3.00	1.92	2.30
8,137.00	91.58	340.78	6,817.39	2,010.79	-435.62	1,869.23	1.64	1.63	0.19
8,200.00	91.94	340.15	6,815.46	2,070.14	-456.68	1,922.62	1.15	0.57	-1.00
8,263.00	90.80	339.17	6,813.95	2,129.19	-478.57	1,975.55	2.39	-1.81	-1.56
8,327.00	91.11	338.98	6,812.89	2,188.96	-501.43	2,028.98	0.57	0.48	-0.30
8,391.00	91.24	338.55	6,811.57	2,248.60	-524.60	2,082.20	0.70	0.20	-0.67
8,455.00	89.70	338.16	6,811.05	2,308.08	-548.21	2,135.18	2.48	-2.41	-0.61
8,518.00	89.67	338.29	6,811.40	2,366.59	-571.58	2,187.26	0.21	-0.05	0.21
8,582.00	90.34	338.72	6,811.39	2,426.14	-595.03	2,240.34	1.24	1.05	0.67
8,646.00	90.84	339.48	6,810.73	2,485.92	-617.86	2,293.78	1.42	0.78	1.19
8,709.00	90.27	339.55	6,810.12	2,544.93	-639.90	2,346.64	0.91	-0.90	0.11
8,772.00	89.13	339.20	6,810.45	2,603.90	-662.10	2,399.41	1.89	-1.81	-0.56
8,836.00	90.20	339.53	6,810.83	2,663.79	-684.65	2,453.02	1.75	1.67	0.52
8,900.00	91.11	338.99	6,810.09	2,723.64	-707.31	2,506.56	1.65	1.42	-0.84

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 5H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	5H	**North Reference:**	Grid
Wellbore:	ST02	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,963.00	92.01	338.72	6,808.38	2,782.37	-730.03	2,559.00	1.49	1.43	-0.43
9,026.00	92.15	338.63	6,806.09	2,841.02	-752.92	2,611.32	0.26	0.22	-0.14
9,090.00	91.54	338.26	6,804.03	2,900.51	-776.42	2,664.33	1.11	-0.95	-0.58
9,153.00	90.60	336.85	6,802.85	2,958.73	-800.47	2,715.98	2.69	-1.49	-2.24
9,217.00	90.57	336.73	6,802.20	3,017.54	-825.69	2,767.96	0.19	-0.05	-0.19
9,281.00	91.41	336.58	6,801.10	3,076.30	-851.05	2,819.84	1.33	1.31	-0.23
9,344.00	91.37	335.96	6,799.57	3,133.95	-876.40	2,870.67	0.99	-0.06	-0.98
9,408.00	91.47	335.88	6,797.98	3,192.36	-902.50	2,922.06	0.20	0.16	-0.13
9,472.00	91.54	336.24	6,796.30	3,250.84	-928.46	2,973.55	0.57	0.11	0.56
9,537.00	90.70	336.65	6,795.03	3,310.41	-954.43	3,026.10	1.44	-1.29	0.63
9,601.00	91.21	338.00	6,793.96	3,369.45	-979.10	3,078.42	2.25	0.80	2.11
9,664.00	91.01	339.02	6,792.74	3,428.06	-1,002.18	3,130.66	1.65	-0.32	1.62
9,728.00	90.64	339.57	6,791.82	3,487.92	-1,024.80	3,184.22	1.04	-0.58	0.86
9,792.00	91.21	341.26	6,790.79	3,548.21	-1,046.25	3,238.45	2.79	0.89	2.64
9,855.00	92.79	343.37	6,788.59	3,608.19	-1,065.38	3,292.89	4.18	2.51	3.35
9,919.00	92.68	342.01	6,785.54	3,669.22	-1,084.40	3,348.37	2.13	-0.17	-2.13
9,982.00	91.98	340.05	6,782.97	3,728.75	-1,104.86	3,402.07	3.30	-1.11	-3.11
10,046.00	92.71	340.38	6,780.35	3,788.92	-1,126.50	3,456.14	1.25	1.14	0.52
10,109.00	92.04	339.40	6,777.74	3,848.02	-1,148.15	3,509.18	1.88	-1.06	-1.56
10,173.00	91.41	338.95	6,775.82	3,907.82	-1,170.89	3,562.65	1.21	-0.98	-0.70
10,237.00	91.24	338.40	6,774.34	3,967.42	-1,194.16	3,615.82	0.90	-0.27	-0.86
10,301.00	89.93	338.16	6,773.68	4,026.87	-1,217.84	3,668.75	2.08	-2.05	-0.38
10,364.00	89.73	338.08	6,773.87	4,085.33	-1,241.32	3,720.76	0.34	-0.32	-0.13
10,428.00	90.30	337.46	6,773.85	4,144.57	-1,265.53	3,773.38	1.32	0.89	-0.97
10,492.00	91.54	338.20	6,772.83	4,203.83	-1,289.68	3,826.02	2.26	1.94	1.16
10,555.00	91.71	338.60	6,771.04	4,262.38	-1,312.86	3,878.18	0.69	0.27	0.63
10,617.00	91.74	338.76	6,769.17	4,320.12	-1,335.39	3,929.68	0.26	0.05	0.26
10,680.00	92.82	338.68	6,766.67	4,378.77	-1,358.24	3,982.02	1.72	1.71	-0.13
10,744.00	92.55	338.24	6,763.67	4,438.24	-1,381.71	4,035.01	0.81	-0.42	-0.69
10,807.00	92.14	338.09	6,761.09	4,496.67	-1,405.12	4,087.01	0.69	-0.65	-0.24
10,871.00	92.08	338.17	6,758.74	4,556.02	-1,428.94	4,139.81	0.16	-0.09	0.13
10,934.00	90.84	338.67	6,757.13	4,614.59	-1,452.11	4,191.99	2.12	-1.97	0.79
10,997.00	89.80	338.85	6,756.78	4,673.30	-1,474.93	4,244.39	1.68	-1.65	0.29
11,061.00	90.87	338.89	6,756.40	4,733.00	-1,498.00	4,297.70	1.67	1.67	0.06
11,124.00	91.38	339.19	6,755.17	4,791.82	-1,520.53	4,350.26	0.94	0.81	0.48
11,188.00	90.77	339.85	6,753.97	4,851.76	-1,542.92	4,403.95	1.40	-0.95	1.03
11,251.00	90.90	339.86	6,753.05	4,910.90	-1,564.61	4,457.01	0.21	0.21	0.02
11,316.00	91.68	339.60	6,751.59	4,971.86	-1,587.13	4,511.67	1.26	1.20	-0.40
11,379.00	92.01	340.56	6,749.56	5,031.06	-1,608.58	4,564.84	1.61	0.52	1.52
11,443.00	91.51	340.81	6,747.59	5,091.43	-1,629.74	4,619.21	0.87	-0.78	0.39
11,507.00	91.61	340.25	6,745.85	5,151.75	-1,651.06	4,673.50	0.89	0.16	-0.88
11,570.00	92.02	339.86	6,743.85	5,210.94	-1,672.54	4,726.65	0.90	0.65	-0.62
11,634.00	91.78	339.88	6,741.73	5,271.00	-1,694.56	4,780.54	0.38	-0.38	0.03

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 5H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	5H	**North Reference:**	Grid
Wellbore:	ST02	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

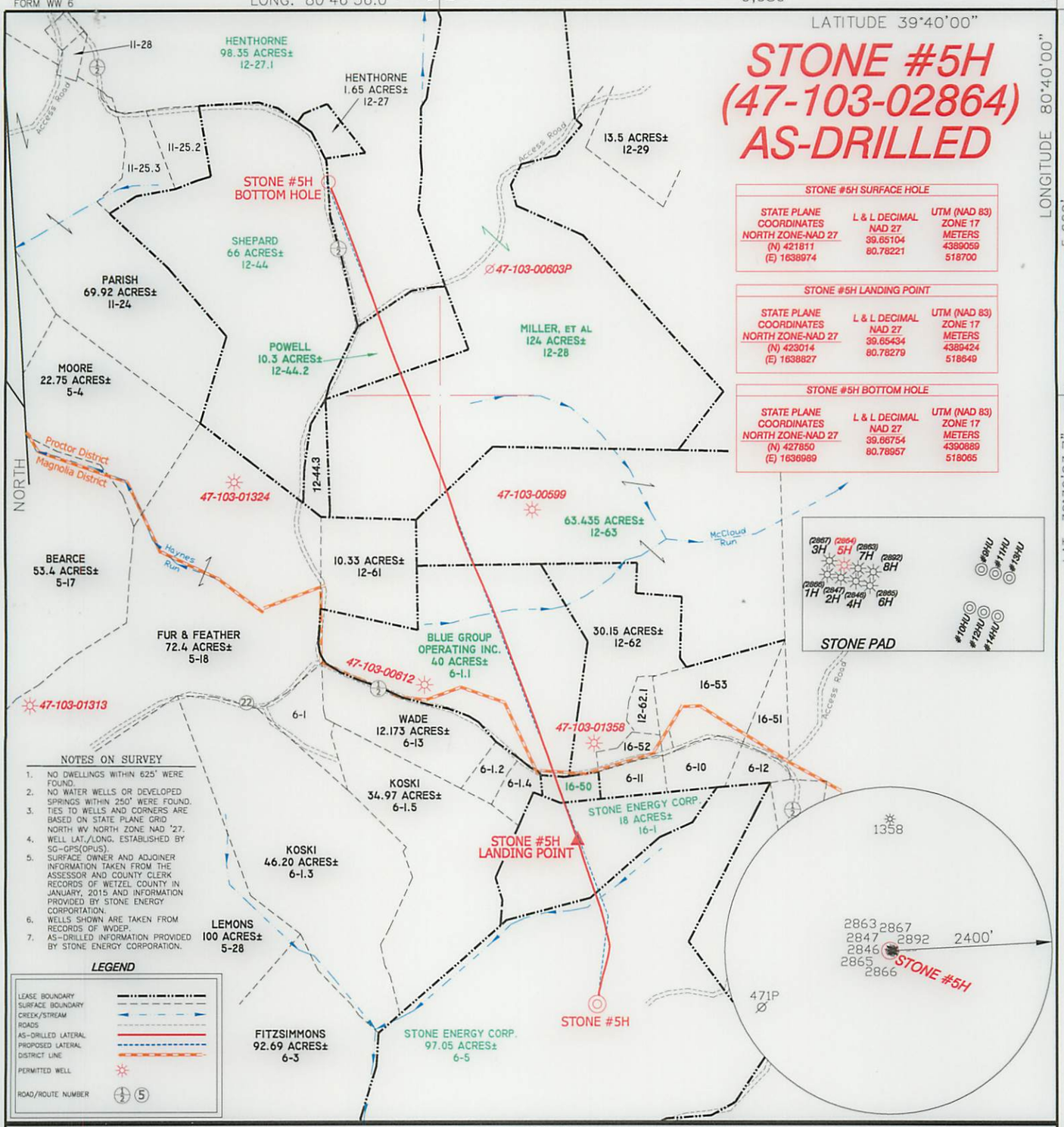
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,698.00	91.58	340.31	6,739.86	5,331.15	-1,716.34	4,834.56	0.74	-0.31	0.67
11,762.00	91.41	341.15	6,738.19	5,391.54	-1,737.45	4,888.97	1.34	-0.27	1.31
11,825.00	89.93	340.31	6,737.45	5,451.00	-1,758.24	4,942.54	2.70	-2.35	-1.33
11,889.00	89.63	339.69	6,737.69	5,511.14	-1,780.13	4,996.53	1.08	-0.47	-0.97
11,953.00	90.40	339.59	6,737.68	5,571.14	-1,802.40	5,050.31	1.21	1.20	-0.16
12,016.00	90.60	339.59	6,737.13	5,630.19	-1,824.36	5,103.21	0.32	0.32	0.00
12,079.00	91.14	340.24	6,736.17	5,689.35	-1,846.00	5,156.30	1.34	0.86	1.03
12,143.00	91.88	338.87	6,734.48	5,749.29	-1,868.34	5,210.00	2.43	1.16	-2.14
12,206.00	92.51	337.99	6,732.07	5,807.84	-1,891.49	5,262.17	1.72	1.00	-1.40
12,270.00	93.15	338.35	6,728.91	5,867.18	-1,915.26	5,314.97	1.15	1.00	0.56
12,334.00	92.01	337.88	6,726.03	5,926.50	-1,939.09	5,367.75	1.93	-1.78	-0.73
12,398.00	93.06	337.88	6,723.20	5,985.73	-1,963.16	5,420.38	1.64	1.64	0.00
Last SDI MWD Survey									
12,456.00	93.06	337.88	6,720.10	6,039.39	-1,984.97	5,468.06	0.00	0.00	0.00
Projection to Bit									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
18.00	18.00	0.00	0.00	Ground level
103.00	102.99	-0.71	-0.45	First SDI Gyro Survey
2,438.00	2,436.35	42.63	15.08	Last SDI Gyro Survey
2,510.00	2,508.32	44.70	14.55	First SDI MWD Survey
12,398.00	6,723.20	5,985.73	-1,963.16	Last SDI MWD Survey
12,456.00	6,720.10	6,039.39	-1,984.97	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

FORM WW 6



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 834

HUPP Surveying & Mapping
P.O. Box 647 Grantsville, WV 26147
(304) 354-7035 EMAIL: hupp@frontiernet.net

DOYLE HUPP, JR. LICENSED No. 834 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE APRIL 6, 20 15

OPERATORS WELL NO. STONE #5H

API WELL NO. 47 — 103 — 02864
STATE COUNTY PERMIT

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MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2234 (BK 75-28)

PROVEN SOURCE OF ELEVATION SG-GPS (OPUS) SCALE 1" = 1000'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WV Department of Environmental Protection

WELL TYPE : OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION :
ELEVATION 1,215' WATERSHED DOOLIN RUN
DISTRICT MAGNOLIA COUNTY WETZEL QUADRANGLE NEW MARTINSVILLE 7.5'
SURFACE OWNER STONE ENERGY CORPORATION ACREAGE 97.05±
ROYALTY OWNER BARBARA BARRETT, et al LEASE ACREAGE 518.93±
PROPOSED WORK : LEASE NO. ___
DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) ___ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD-6,818' MD- 12,456'

COUNTY NAME PERMIT

WELL OPERATOR STONE ENERGY CORPORATION DESIGNATED AGENT TIM MCGREGOR
ADDRESS P.O. BOX 52807 LAFAYETTE, LA 70508 ADDRESS 1300 FORT PIERPONT DR., SUITE 201 MORGANTOWN, WV 26508

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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 103 - 02865 County Wetzel District Magnolia
Quad New Martinsville Pad Name Stone Field/Pool Name Mary
Farm name Stone Energy Corporation Well Number #6H
Operator (as registered with the OOG) Stone Energy Corporation
Address 1300 Fort Pierpont Dr. - Suite 201 City Morgantown State WV Zip 26508

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing	4,389,050	Easting	518,711
Landing Point of Curve	Northing	4,388,896	Easting	518,997
Bottom Hole	Northing	4,387,566	Easting	519,745

Elevation (ft) 1,215 GL Type of Well ☐New ■ Existing Type of Report ☐Interim ■Final

Permit Type ☐ Deviated ☐ Horizontal ■ Horizontal 6A ☐ Vertical Depth Type ☐ Deep ■ Shallow

Type of Operation ☐ Convert ☐ Deepen ☐ Drill ☐ Plug Back ☐ Redrilling ☐ Rework ■ Stimulate

Well Type ☐ Brine Disposal ☐ CBM ■ Gas ☐ Oil ☐ Secondary Recovery ☐ Solution Mining ☐ Storage ☐ Other _____

Type of Completion ■ Single ☐ Multiple Fluids Produced ■ Brine ■Gas ☐ NGL ☐ Oil ☐ Other _____
Drilled with ☐ Cable ■ Rotary

Drilling Media Surface hole ■ Air ☐ Mud ■Fresh Water Intermediate hole ■ Air ☐ Mud ■ Fresh Water ☐ Brine
Production hole ■ Air ■ Mud ☐ Fresh Water ☐ Brine
Mud Type(s) and Additive(s)
Saturated salt mud which includes Caustic Soda, Barite, Lime, New-Drill, Perma-Lose HT, Xan-Plex D, X-Cide 102, Soda Ash, and Sodium Chloride

Date permit issued 3/20/2013 Date drilling commenced 5/24/2013 Date drilling ceased 2/4/2014
Date completion activities began 4/7/2014 Date completion activities ceased 10/25/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 95 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2,362 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 913 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
AL 5/26/15
W.S. 6/02/15

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API 47- 103 - 02865 Farm name Stone Energy Corporation Well number #6H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	80'	New	LS		N - GTS
Surface	17.5"	13.375"	1,207' KB - 1,192' GL	New	J55	118' & 197'	Y - CTS
Coal	17.5"	13.375"	1,207' KB - 1,192' GL	New	J55	118' & 197'	Y - CTS
Intermediate 1	12.25"	9.625"	2,461'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	12,239'	New	P110		N - TOC @ 1,225'
Tubing	N/A	2.375"	7,080'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 30 bbls cement to surface on 13.375" casing string. Circulated 45 bbls cement to surface on the 9.625" casing string. TOC on 5.5" after running CBL @ 1,225'.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	935	15.6	1.19	1,113	Surface	8.0
Coal	Class "A"	935	15.6	1.19	1,113	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-441 Tail-371	Lead-15.0 Tail 15.6	Lead-1.26 Tail-1.19	Lead-556 Tail-442	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-FlexSeal Tail-Class "A"	Lead-846 Tail-1,673	Lead- 15.0 Tail-15.6	Lead-1.26 Tail-1.19	Lead-1,066 Tail-1,991	1,225	7.0
Tubing							

Drillers TD (ft) 12,256 MD / 6,778 TVD Loggers TD (ft) N/A
Deepest formation penetrated Marcellus Shale Plug back to (ft) _____
Plug back procedure _____

Kick off depth (ft) 6,189 MD / 6,156' TVD

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Surface casing had bow spring centralizers placed on joints 3, 6, 9, 13, 17, 21, 25 and 27. Intermediate casing had bow spring centralizers placed on joints 2, 5, 8, 11, 14, 18, 22, 26, 30, 34, 38, 43, 48, 53 and 57. Production casing had rigid spiral centralizers placed on every fourth joint beginning with joint 1 to joint #228. Ran a total of 58 rigid spiral centralizers. Ran bow spring centralizers from joint 232 to joint 280 on every eighth joint. A total of 7 bow spring centralizers were run.

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WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS _____

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED _____

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API 47- 103 - 02865 Farm name Stone Energy Corporation Well number #6H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	4/15/14	11,978	12,122	72	Marcellus Shale
2	5/4/14	11,730	11,908	72	Marcellus Shale
3	5/6/14	11,470	11,663	72	Marcellus Shale
4	5/7/14	11,224	11,403	72	Marcellus Shale
5	5/8/14	10,967	11,153	72	Marcellus Shale
6	5/9/14	10,711	10,898	72	Marcellus Shale
7	5/10/14	10,457	10,640	72	Marcellus Shale
8	5/11/14	10,202	10,385	72	Marcellus Shale
9	5/12/14	9,946	10,136	72	Marcellus Shale
10	5/13/14	9,695	9,883	72	Marcellus Shale
11	5/14/14	9,446	9,633	72	Marcellus Shale
12	5/15/14	9,202	9,383	72	Marcellus Shale
13	5/16/14	8,949	9,133	72	Marcellus Shale
14	5/17/14	8,699	8,883	72	Marcellus Shale
15	5/22/14	8,445	8,638	72	Marcellus Shale
16	5/28/14	8,205	8,383	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	5/4/14	83.4	7,446	6,049	4,775	365,300	8,403	
2	5/6/14	85.3	7,679	6,611	5,376	419,840	8,485	
3	5/7/14	83.3	7,613	6,426	4,947	414,540	8,444	
4	5/8/14	85.2	7,524	6,514	5,090	420,880	8,438	
5	5/9/14	85.6	7,208	6,562	5,119	424,460	8,499	
6	5/10/14	85.4	7,220	5,803	4,717	417,020	8,545	
7	5/11/14	79.7	6,746	5,572	5,048	424,740	8,531	
8	5/12/14	78.7	6,945	5,657	4,642	421,980	8,350	
9	5/13/14	80.1	6,718	5,427	4,860	419,800	8,337	
10	5/14/14	78.9	6,789	6,735	5,262	425,400	8,356	
11	5/15/14	79.2	6,774	5,747	4,833	426,880	8,540	
12	5/16/14	79.2	6,781	5,924	4,570	421,480	8,455	
13	5/17/14	80.5	6,736	6,280	4,604	418,240	8,362	
14	5/22/14	80.1	6,425	5,800	4,333	425,220	8,446	
15	5/27/14	80.1	6,274	6,221	4,373	417,540	8,356	
16	5/29/14	79.3	6,263	5,607	4,861	421,020	8,464	

Please insert additional pages as applicable.

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	5/30/14	7,950	7,953	72	Marcellus Shale
18	6/1/14	7,694	7,883	72	Marcellus Shale
19	6/3/14	7,446	7,628	72	Marcellus Shale
20	6/5/14	7,184	7,375	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
17	5/31/14	80.5	6,271	6,692	4,172	421,020	8,309	
18	6/2/14	80.3	6,327	6,814	5,178	412,860	8,322	
19	6/4/14	80.0	6,205	6,211	5,375	418,300	8,362	
20	6/5/14	80.3	6,486	7,080	4,182	421,920	8,235	

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PRODUCING FORMATION(S)	DEPTHS	
Marcelllus Shale	6,785' to 6,776' TVD	7,184' to 12,122' MD

Please insert additional pages as applicable.

GAS TEST ■ Build up □ Drawdown ■ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface 2,902 psi Bottom Hole 4,665 calculated psi DURATION OF TEST 49 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	2,388 mcfpd	bpd	225.6 bpd	372.0 bpd	□ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		
See Attached Sheet					

Please insert additional pages as applicable.

Drilling Contractor Nomac (top-hole) & Saxon Drilling (horizontal)
Address 2034 Martins Branch Rd /9303 New Trails Drive City Mount Morris / The Woodlands State PA / TX Zip 25312 / 77381

Logging Company Scientific Drilling and Schlumberger
Address 3475 Washington Ave / 1178 US HWY 33 East City Finleyville / Weston State PA / WV Zip 15332 / 26452

Cementing Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Stimulating Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Please insert additional pages as applicable.

Completed by W. Lee Hornsby Telephone 304-225-1600
Signature W. Lee Hornsby Title Drilling Engineer Date 4/27/2015

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Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Stone #6H
API 47-103-02865
Stone Energy Corporation
Horizontal

	Top (ft TVD)	Top (ft MD)		Bottom (ft TVD)	Bottom (ft MD)	
Sandstone & Shale	Surface		*	913		FW @ 95
Coal	913		*	915		
Sandstone & Shale	915		*	2,086		
Little Lime	2,086		*	2,116		
Big Lime	2,116		*	2,216		
Big Injun	2,216		*	2,316		
Sandstone & Shale	2,316		*	2,689		SW @ 2,362
Berea Sandstone	2,689		*	2,719		
Shale	2,719		*	2,894		
Gordon	2,894		*	2,944		
Undiff Devonian Shale	2,944		*	5,891	5,912	
Rhinestreet	5,891	5,912	~	6,482	6,560	
Cashaqua	6,482	6,560	~	6,595	6,721	
Middlesex	6,595	6,721	~	6,618	6,756	
West River	6,618	6,756	~	6,671	6,841	
Geneseo	6,671	6,841	~	6,687	6,870	
Tully Limestone	6,687	6,870	~	6,731	6,939	
Hamilton Shale	6,731	6,939	~	6,760	7,083	
Marcellus	6,760	7,083	~	6,778	12,256	
TD				6,778	12,256	

* From Pilot Hole Log and Driller's Log
~ From MWD Gamma Log

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	6/6/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	47-103-02865
Operator Name:	Stone Energy
Well Name and Number:	Stone 6H
Longitude:	518,711
Latitude:	4,389,050
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	7066101

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
H015, Slickwater, WF115	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, Surfactant , Acid, Breaker, Gelling Agent, Friction Reducer, Iron Control Agent, Clay Control Agent, Accelerator, Fluid Loss Additive , Propping	Water (Including Mix Water Supplied by Client)*	NA		87.43891%	
			Crystalline silica	14808-60-7	98.62526%	12.38841%	
			Hydrochloric acid	7647-01-0	0.78666%	0.09881%	
			Carbohydrate polymer	Proprietary	0.55495%	0.06971%	
			Ammonium sulfate	7783-20-2	0.15066%	0.01892%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.06374%	0.00801%	
			Glutaraldehyde	111-30-8	0.04995%	0.00627%	
			Urea	57-13-6	0.02511%	0.00315%	
			Diammonium peroxidisulphate	7727-54-0	0.02431%	0.00305%	
			Calcium chloride	10043-52-4	0.01494%	0.00188%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00490%	0.00062%	
			Trisodium ortho phosphate	7601-54-9	0.00420%	0.00053%	
			Ethane-1,2-diol	107-21-1	0.00420%	0.00053%	
			Methanol	67-56-1	0.00322%	0.00040%	
			Sodium erythorbate	6381-77-7	0.00302%	0.00038%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00242%	0.00030%	
			Aliphatic acids	Proprietary	0.00242%	0.00030%	
			Prop-2-yn-1-ol	107-19-7	0.00081%	0.00010%	

* 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%

Report ID: RPT-29869 (Generated on 8/25/2014 1:11 PM)

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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APR 28 2015
WV Department of
Environmental Protection

Project: Heather Prospect (NAD 27)
Site: Stone
Well: 6H
Wellbore: OH
Design: 6H As Drilled

Scientific Drilling

WELL DETAILS: 6H

Ground Level: 1215.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	421783.00	1639008.00	39° 39' 3.476 N	80° 46' 55.523 W

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well 6H, Grid North
Vertical (TVD) Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Calculation Method: Minimum Curvature

PROJECT DETAILS: Heather Prospect (NAD 27)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: West Virginia North 4701
System Datum: Mean Sea Level

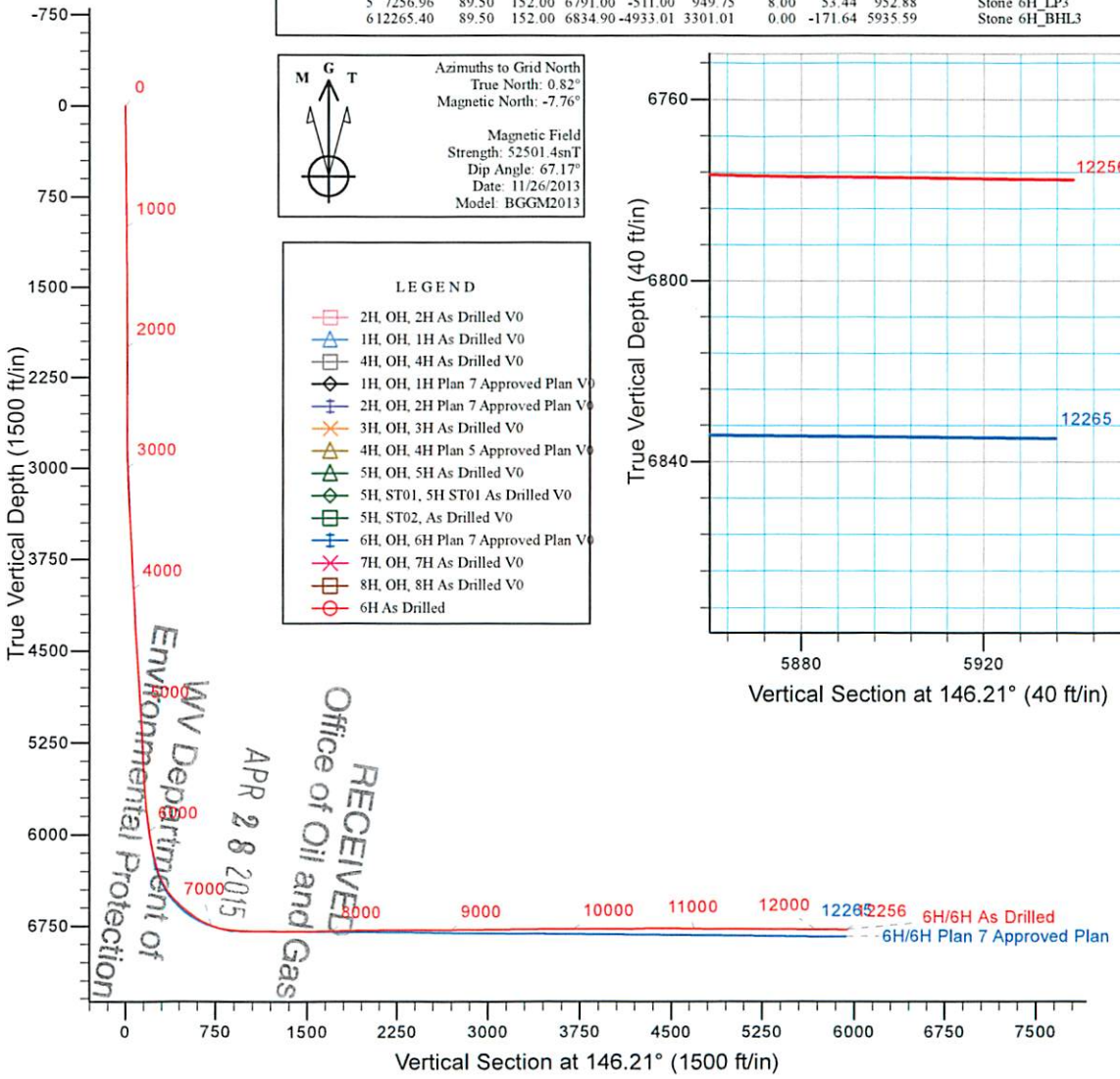
SECTION DETAILS

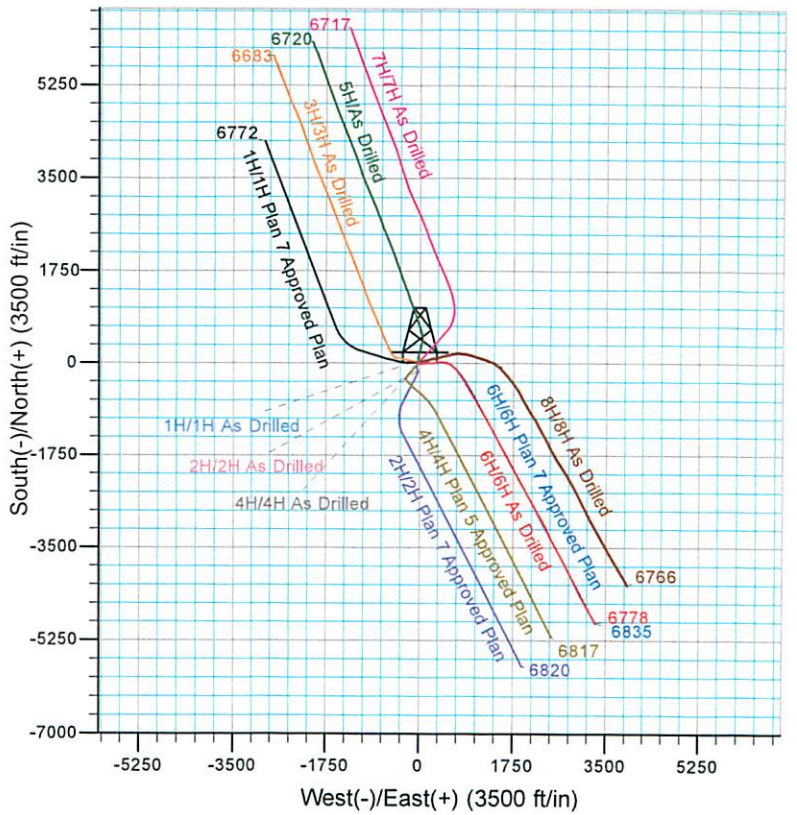
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	5998.00	16.54	88.30	5971.73	24.82	391.34	0.00	0.00	197.01	
2	6113.00	16.54	88.30	6081.97	25.79	424.06	0.00	0.00	214.41	
3	6196.50	16.54	88.30	6162.02	26.49	447.82	0.00	0.00	227.03	
4	6304.68	21.63	100.74	6264.26	23.23	482.85	6.00	44.61	249.22	
5	7256.96	89.50	152.00	6791.00	-511.00	949.75	8.00	53.44	952.88	Stone 6H_LP3
6	12265.40	89.50	152.00	6834.90	-4933.01	3301.01	0.00	-171.64	5935.59	Stone 6H_BHL3

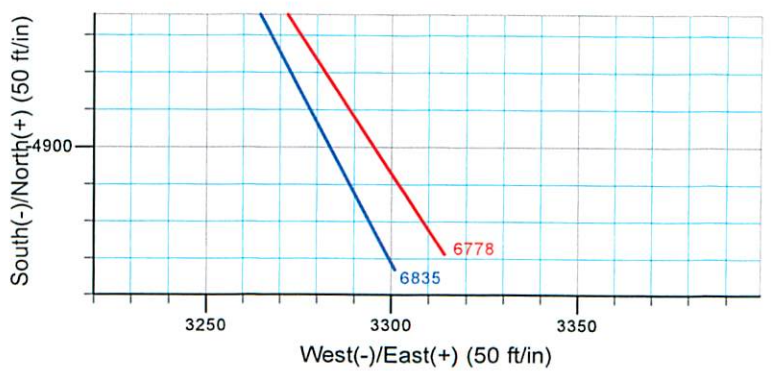
Azimuths to Grid North
True North: 0.82°
Magnetic North: -7.76°

Magnetic Field
Strength: 52501.4snT
Dip Angle: 67.17°
Date: 11/26/2013
Model: BGGM2013

LEGEND
- 2H, OH, 2H As Drilled V0
- 1H, OH, 1H As Drilled V0
- 4H, OH, 4H As Drilled V0
- 1H, OH, 1H Plan 7 Approved Plan V0
- 2H, OH, 2H Plan 7 Approved Plan V0
- 3H, OH, 3H As Drilled V0
- 4H, OH, 4H Plan 5 Approved Plan V0
- 5H, OH, 5H As Drilled V0
- 5H, ST01, 5H ST01 As Drilled V0
- 5H, ST02, As Drilled V0
- 6H, OH, 6H Plan 7 Approved Plan V0
- 7H, OH, 7H As Drilled V0
- 8H, OH, 8H As Drilled V0
- 6H As Drilled







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Stone Energy

Heather Prospect (NAD 27)
Stone
6H

OH

Design: 6H As Drilled

Standard Survey Report

04 February, 2014

Scientific Drilling

www.scientificdrilling.com

STONE ENERGY

Survey Report

Scientific Drilling

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 6H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	6H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	6H As Drilled	**Database:**	Northeast District

Project Heather Prospect (NAD 27), Wetzel County, West Virginia

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site Stone

Site Position:		**Northing:**	421,797.00 usft	**Latitude:**	39° 39' 3.606 N
From:	Map	**Easting:**	1,638,950.00 usft	**Longitude:**	80° 46' 56.267 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.82 °

Well 6H

Well Position	**+N/-S**	0.00 ft	**Northing:**	421,783.00 usft	**Latitude:**	39° 39' 3.476 N
	+E/-W	0.00 ft	**Easting:**	1,639,008.00 usft	**Longitude:**	80° 46' 55.523 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	1,215.00 ft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	4/15/2013	-8.51	67.21	52,620
	IGRF2010	5/22/2013	-8.51	67.20	52,608
	BGGM2013	11/26/2013	-8.57	67.17	52,501

Design 6H As Drilled

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	146.21

Survey Program **Date** 2/4/2014

From (ft)	**To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
103.00	2,455.30	Survey 1 - Gyro (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
2,509.00	5,998.00	Survey 2 - MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1
6,041.00	12,256.00	Survey 4 - SDI MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1

Survey

Measured Depth (ft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Vertical Section (ft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103.00	1.36	189.01	102.99	-1.21	-0.19	0.90	1.32	1.32	0.00
First SDI Gyro Survey									
203.00	0.70	191.45	202.97	-2.98	-0.50	2.20	0.66	-0.66	2.44
303.00	0.56	201.59	302.97	-4.03	-0.80	2.91	0.18	-0.14	10.14
403.00	0.38	183.67	402.96	-4.82	-1.00	3.45	0.23	-0.18	-17.92

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STONE ENERGY

Survey Report

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Well:	6H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	6H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
503.00	0.60	165.61	502.96	-5.65	-0.89	4.20	0.27	0.22	-18.06
603.00	0.27	167.71	602.96	-6.39	-0.71	4.92	0.33	-0.33	2.10
703.00	0.14	129.83	702.96	-6.70	-0.57	5.25	0.18	-0.13	-37.88
803.00	0.37	155.72	802.96	-7.07	-0.34	5.69	0.25	0.23	25.89
903.00	0.32	107.83	902.95	-7.45	0.06	6.23	0.28	-0.05	-47.89
1,003.00	0.43	130.53	1,002.95	-7.78	0.61	6.81	0.18	0.11	22.70
1,103.00	0.38	149.42	1,102.95	-8.31	1.06	7.50	0.14	-0.05	18.89
1,203.00	0.43	113.21	1,202.95	-8.74	1.58	8.14	0.26	0.05	-36.21
1,303.00	0.36	150.31	1,302.95	-9.17	2.08	8.77	0.26	-0.07	37.10
1,403.00	0.40	100.18	1,402.94	-9.50	2.58	9.33	0.32	0.04	-50.13
1,503.00	0.53	131.11	1,502.94	-9.87	3.27	10.02	0.28	0.13	30.93
1,603.00	0.46	140.42	1,602.94	-10.48	3.87	10.86	0.11	-0.07	9.31
1,703.00	0.20	168.26	1,702.93	-10.96	4.16	11.42	0.30	-0.26	27.84
1,803.00	0.19	232.92	1,802.93	-11.23	4.07	11.60	0.21	-0.01	64.66
1,903.00	0.17	356.34	1,902.93	-11.18	3.92	11.48	0.32	-0.02	123.42
2,003.00	0.12	0.32	2,002.93	-10.93	3.92	11.26	0.05	-0.05	3.98
2,103.00	0.03	116.46	2,102.93	-10.84	3.94	11.20	0.14	-0.09	116.14
2,203.00	0.26	314.84	2,202.93	-10.69	3.80	11.00	0.29	0.23	-161.62
2,303.00	0.14	334.00	2,302.93	-10.42	3.59	10.65	0.14	-0.12	19.16
2,403.00	0.23	356.83	2,402.93	-10.11	3.52	10.36	0.11	0.09	22.83
2,455.30	0.10	12.13	2,455.23	-9.96	3.53	10.24	0.26	-0.25	29.25
Last SDI Gyro Survey									
2,509.00	0.29	341.82	2,508.93	-9.78	3.49	10.08	0.39	0.35	-56.44
First SDI MWD Survey									
2,601.00	0.36	312.54	2,600.93	-9.37	3.21	9.57	0.19	0.08	-31.83
2,694.00	0.33	303.78	2,693.93	-9.02	2.77	9.04	0.07	-0.03	-9.42
2,788.00	1.01	93.97	2,787.92	-8.93	3.37	9.30	1.39	0.72	159.78
2,882.00	2.67	88.00	2,881.87	-8.91	6.39	10.96	1.78	1.77	-6.35
2,974.00	3.74	84.52	2,973.73	-8.55	11.52	13.51	1.18	1.16	-3.78
3,065.00	4.36	83.50	3,064.50	-7.87	17.91	16.50	0.69	0.68	-1.12
3,158.00	5.22	83.60	3,157.17	-7.00	25.62	20.07	0.92	0.92	0.11
3,251.00	6.46	84.73	3,249.69	-6.05	35.04	24.51	1.34	1.33	1.22
3,343.00	6.69	80.94	3,341.09	-4.73	45.48	29.23	0.53	0.25	-4.12
3,436.00	6.71	78.65	3,433.45	-2.81	56.16	33.57	0.29	0.02	-2.46
3,527.00	6.09	90.14	3,523.89	-1.77	66.20	38.29	1.56	-0.68	12.63
3,620.00	6.25	87.98	3,616.35	-1.61	76.19	43.71	0.30	0.17	-2.32
3,710.00	6.23	84.26	3,705.81	-0.95	85.95	48.58	0.45	-0.02	-4.13
3,801.00	5.99	82.22	3,796.30	0.19	95.57	52.99	0.36	-0.26	-2.24
3,892.00	6.89	87.88	3,886.72	1.04	105.72	57.94	1.21	0.99	6.22
3,988.00	7.13	85.54	3,982.01	1.71	117.42	63.88	0.39	0.25	-2.44
4,080.00	7.19	81.85	4,073.29	2.97	128.81	69.17	0.50	0.07	-4.01
4,173.00	7.20	81.03	4,165.56	4.71	140.33	74.13	0.11	0.01	-0.88
4,263.00	6.38	91.20	4,254.93	5.48	150.90	79.37	1.61	1.01	11.30
4,356.00	6.15	88.02	4,347.37	5.55	161.04	84.95	0.45	-0.25	-3.42

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Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	6H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,450.00	5.82	86.19	4,440.86	6.04	170.83	89.99	0.41	-0.35	-1.95
4,543.00	6.41	90.13	4,533.33	6.34	180.73	95.24	0.78	0.63	4.24
4,634.00	6.91	89.62	4,623.72	6.36	191.28	101.09	0.55	0.55	-0.56
4,728.00	7.05	92.22	4,717.02	6.18	202.70	107.60	0.37	0.15	2.77
4,819.00	7.18	93.29	4,807.32	5.63	213.96	114.31	0.20	0.14	1.18
4,911.00	7.65	84.65	4,898.55	5.87	225.80	120.69	1.31	0.51	-9.39
5,003.00	7.59	83.48	4,989.74	7.14	237.93	126.39	0.18	-0.07	-1.27
5,098.00	7.64	80.27	5,083.90	8.92	250.39	131.84	0.45	0.05	-3.38
5,194.00	7.52	79.51	5,179.06	11.14	262.85	136.93	0.16	-0.13	-0.79
5,287.00	7.56	80.64	5,271.26	13.24	274.87	141.86	0.17	0.04	1.22
5,381.00	7.84	76.93	5,364.41	15.70	287.22	146.69	0.61	0.30	-3.95
5,473.00	7.38	84.38	5,455.61	17.69	299.21	151.70	1.18	-0.50	8.10
5,565.00	7.51	84.05	5,546.83	18.90	311.07	157.30	0.15	0.14	-0.36
5,656.00	7.55	82.49	5,637.04	20.29	322.91	162.72	0.23	0.04	-1.71
5,750.00	9.53	82.26	5,730.00	22.15	336.75	168.87	2.11	2.11	-0.24
5,845.00	11.64	87.63	5,823.38	23.60	354.12	177.32	2.45	2.22	5.65
5,937.00	14.59	88.30	5,912.97	24.33	374.98	188.32	3.21	3.21	0.73
5,998.00	16.54	88.30	5,971.73	24.82	391.34	197.01	3.20	3.20	0.00
6,041.00	15.32	89.79	6,013.08	25.02	403.14	203.41	2.99	-2.84	3.47
6,102.00	14.98	93.20	6,071.96	24.61	419.07	212.61	1.56	-0.56	5.59
6,132.00	15.01	95.72	6,100.94	24.01	426.81	217.41	2.18	0.10	8.40
6,162.00	15.21	95.76	6,129.90	23.22	434.59	222.39	0.67	0.67	0.13
6,192.00	16.61	97.98	6,158.75	22.23	442.75	227.75	5.09	4.67	7.40
6,223.00	20.19	101.18	6,188.16	20.58	452.39	234.49	12.00	11.55	10.32
6,253.00	22.03	102.35	6,216.15	18.37	462.96	242.20	6.29	6.13	3.90
6,283.00	21.38	102.61	6,244.02	15.98	473.80	250.22	2.19	-2.17	0.87
6,313.00	21.45	103.79	6,271.95	13.47	484.46	258.23	1.45	0.23	3.93
6,344.00	24.48	106.21	6,300.49	10.33	496.14	267.34	10.24	9.77	7.81
6,374.00	27.67	109.07	6,327.43	6.32	508.69	277.65	11.43	10.63	9.53
6,404.00	31.65	110.37	6,353.50	1.30	522.66	289.59	13.44	13.27	4.33
6,435.00	33.39	113.32	6,379.64	-4.91	538.12	303.35	7.59	5.61	9.52
6,465.00	33.37	118.88	6,404.69	-12.16	552.93	317.61	10.19	-0.07	18.53
6,495.00	33.54	123.19	6,429.73	-20.69	567.09	332.57	7.94	0.57	14.37
6,525.00	35.71	127.69	6,454.42	-30.58	580.96	348.51	11.17	7.23	15.00
6,555.00	38.81	131.33	6,478.29	-42.14	594.95	365.90	12.67	10.33	12.13
6,586.00	41.95	133.97	6,501.91	-55.76	609.71	385.42	11.53	10.13	8.52
6,616.00	43.97	135.50	6,523.86	-70.15	624.23	405.46	7.58	6.73	5.10
6,647.00	46.01	135.33	6,545.78	-85.76	639.61	426.98	6.59	6.58	-0.55
6,677.00	47.96	136.23	6,566.25	-101.48	654.90	448.56	6.86	6.50	3.00
6,707.00	49.24	137.99	6,586.09	-117.97	670.22	470.77	6.13	4.27	5.87
6,737.00	49.03	139.80	6,605.72	-135.06	685.13	493.28	4.62	-0.70	6.03
6,767.00	49.96	141.37	6,625.20	-152.68	699.61	515.97	5.04	3.10	5.23
6,799.00	52.37	142.75	6,645.27	-172.34	714.93	540.83	8.25	7.53	4.31

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6,831.00	54.30	144.18	6,664.38	-192.97	730.21	566.47	7.02	6.03	4.47
6,863.00	55.73	145.23	6,682.73	-214.37	745.35	592.68	5.21	4.47	3.28
6,895.00	58.51	146.10	6,700.10	-236.56	760.51	619.55	8.98	8.69	2.72
6,927.00	62.84	147.09	6,715.77	-259.84	775.86	647.44	13.80	13.53	3.09
6,959.00	65.19	147.76	6,729.79	-284.08	791.34	676.19	7.58	7.34	2.09
6,990.00	67.47	148.20	6,742.23	-308.15	806.40	704.57	7.47	7.35	1.42
7,022.00	70.89	148.62	6,753.60	-333.63	822.06	734.46	10.76	10.69	1.31
7,054.00	74.70	148.83	6,763.07	-359.75	837.93	764.99	11.92	11.91	0.66
7,086.00	78.53	149.40	6,770.47	-386.46	853.90	796.07	12.09	11.97	1.78
7,118.00	80.51	150.20	6,776.29	-413.66	869.73	827.48	6.66	6.19	2.50
7,150.00	81.86	150.05	6,781.20	-441.08	885.48	859.02	4.24	4.22	-0.47
7,181.00	84.22	150.17	6,784.95	-467.75	900.81	889.72	7.62	7.61	0.39
7,213.00	86.91	150.90	6,787.43	-495.53	916.50	921.53	8.71	8.41	2.28
7,245.00	87.68	150.87	6,788.94	-523.45	932.06	953.39	2.41	2.41	-0.09
7,277.00	88.39	150.96	6,790.03	-551.40	947.60	985.26	2.24	2.22	0.28
7,340.00	89.87	151.28	6,790.99	-606.56	978.03	1,048.02	2.40	2.35	0.51
7,404.00	90.20	152.56	6,790.95	-663.02	1,008.15	1,111.70	2.07	0.52	2.00
7,467.00	90.17	150.97	6,790.75	-718.53	1,037.95	1,174.41	2.52	-0.05	-2.52
7,531.00	88.99	150.05	6,791.22	-774.23	1,069.46	1,238.22	2.34	-1.84	-1.44
7,595.00	89.43	149.61	6,792.10	-829.56	1,101.62	1,302.09	0.97	0.69	-0.69
7,658.00	89.63	149.41	6,792.62	-883.84	1,133.58	1,364.98	0.45	0.32	-0.32
7,722.00	90.03	149.25	6,792.81	-938.89	1,166.23	1,428.89	0.67	0.63	-0.25
7,786.00	90.64	150.41	6,792.43	-994.22	1,198.39	1,492.76	2.05	0.95	1.81
7,849.00	91.04	150.95	6,791.51	-1,049.14	1,229.24	1,555.56	1.07	0.63	0.86
7,912.00	91.85	150.52	6,789.92	-1,104.08	1,260.03	1,618.34	1.46	1.29	-0.68
7,976.00	90.40	150.88	6,788.66	-1,159.88	1,291.34	1,682.13	2.33	-2.27	0.56
8,040.00	90.17	151.70	6,788.35	-1,216.01	1,322.08	1,745.88	1.33	-0.36	1.28
8,103.00	91.11	151.21	6,787.64	-1,271.35	1,352.19	1,808.61	1.68	1.49	-0.78
8,166.00	91.48	152.17	6,786.22	-1,326.80	1,382.05	1,871.30	1.63	0.59	1.52
8,230.00	90.50	152.69	6,785.11	-1,383.52	1,411.67	1,934.92	1.73	-1.53	0.81
8,294.00	90.54	152.61	6,784.53	-1,440.37	1,441.07	1,998.51	0.14	0.06	-0.13
8,357.00	90.13	152.42	6,784.16	-1,496.26	1,470.15	2,061.13	0.72	-0.65	-0.30
8,421.00	90.57	153.23	6,783.77	-1,553.19	1,499.38	2,124.70	1.44	0.69	1.27
8,484.00	90.47	153.79	6,783.20	-1,609.57	1,527.48	2,187.19	0.90	-0.16	0.89
8,547.00	90.57	153.93	6,782.63	-1,666.13	1,555.23	2,249.62	0.27	0.16	0.22
8,610.00	90.20	152.59	6,782.20	-1,722.39	1,583.58	2,312.14	2.21	-0.59	-2.13
8,674.00	90.47	151.83	6,781.83	-1,779.00	1,613.41	2,375.79	1.26	0.42	-1.19
8,738.00	89.73	151.11	6,781.72	-1,835.23	1,643.98	2,439.52	1.61	-1.16	-1.13
8,802.00	88.52	150.92	6,782.70	-1,891.21	1,674.99	2,503.29	1.91	-1.89	-0.30
8,866.00	89.40	151.34	6,783.86	-1,947.24	1,705.88	2,567.04	1.52	1.38	0.66
8,927.00	90.47	150.72	6,783.93	-2,000.61	1,735.43	2,627.82	2.03	1.75	-1.02
8,991.00	90.40	150.39	6,783.44	-2,056.34	1,766.89	2,691.64	0.53	-0.11	-0.52
9,055.00	90.27	150.59	6,783.07	-2,112.04	1,798.41	2,755.46	0.37	-0.20	0.31
9,119.00	91.85	151.26	6,781.88	-2,167.96	1,829.51	2,819.23	2.68	2.47	1.05

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 6H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	6H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	6H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,182.00	92.25	151.70	6,779.63	-2,223.28	1,859.57	2,881.92	0.94	0.63	0.70
9,246.00	91.00	152.63	6,777.81	-2,279.85	1,889.44	2,945.55	2.43	-1.95	1.45
9,310.00	91.14	152.82	6,776.62	-2,336.72	1,918.76	3,009.13	0.37	0.22	0.30
9,373.00	91.24	152.92	6,775.31	-2,392.78	1,947.49	3,071.69	0.22	0.16	0.16
9,437.00	90.27	151.91	6,774.47	-2,449.50	1,977.12	3,135.31	2.19	-1.52	-1.58
9,501.00	89.70	150.88	6,774.48	-2,505.69	2,007.76	3,199.04	1.84	-0.89	-1.61
9,565.00	89.16	150.27	6,775.12	-2,561.43	2,039.20	3,262.85	1.27	-0.84	-0.95
9,628.00	90.94	150.47	6,775.07	-2,616.19	2,070.35	3,325.68	2.84	2.83	0.32
9,692.00	91.48	150.78	6,773.71	-2,671.95	2,101.73	3,389.48	0.97	0.84	0.48
9,756.00	90.50	151.11	6,772.61	-2,727.88	2,132.81	3,453.25	1.62	-1.53	0.52
9,819.00	90.64	151.16	6,771.98	-2,783.05	2,163.22	3,516.02	0.24	0.22	0.08
9,883.00	89.80	150.46	6,771.74	-2,838.92	2,194.43	3,579.81	1.71	-1.31	-1.09
9,946.00	90.07	150.22	6,771.81	-2,893.67	2,225.61	3,642.64	0.57	0.43	-0.38
10,010.00	89.87	149.93	6,771.84	-2,949.14	2,257.54	3,706.50	0.55	-0.31	-0.45
10,073.00	90.54	150.52	6,771.62	-3,003.82	2,288.82	3,769.34	1.42	1.06	0.94
10,137.00	89.90	151.26	6,771.37	-3,059.73	2,319.96	3,833.13	1.53	-1.00	1.16
10,201.00	90.03	152.86	6,771.41	-3,116.27	2,349.94	3,896.79	2.51	0.20	2.50
10,265.00	89.30	155.08	6,771.78	-3,173.77	2,378.03	3,960.20	3.65	-1.14	3.47
10,328.00	90.40	155.79	6,771.95	-3,231.07	2,404.22	4,022.39	2.08	1.75	1.13
10,392.00	90.94	155.55	6,771.20	-3,289.38	2,430.58	4,085.51	0.92	0.84	-0.38
10,455.00	90.74	153.32	6,770.28	-3,346.21	2,457.76	4,147.85	3.55	-0.32	-3.54
10,519.00	91.07	151.54	6,769.27	-3,402.93	2,487.38	4,211.47	2.83	0.52	-2.78
10,582.00	91.34	151.53	6,767.94	-3,458.30	2,517.40	4,274.18	0.43	0.43	-0.02
10,646.00	89.73	151.47	6,767.34	-3,514.54	2,547.94	4,337.90	2.52	-2.52	-0.09
10,710.00	89.93	151.64	6,767.53	-3,570.81	2,578.42	4,401.62	0.41	0.31	0.27
10,774.00	88.52	151.55	6,768.40	-3,627.10	2,608.86	4,465.33	2.21	-2.20	-0.14
10,835.00	89.63	151.35	6,769.38	-3,680.68	2,638.01	4,526.07	1.85	1.82	-0.33
10,898.00	89.93	151.05	6,769.63	-3,735.88	2,668.36	4,588.83	0.67	0.48	-0.48
10,961.00	89.40	151.91	6,769.99	-3,791.24	2,698.44	4,651.56	1.60	-0.84	1.37
11,025.00	90.13	153.16	6,770.26	-3,848.02	2,727.96	4,715.17	2.26	1.14	1.95
11,088.00	89.40	153.84	6,770.51	-3,904.40	2,756.07	4,777.66	1.58	-1.16	1.08
11,152.00	90.13	153.94	6,770.78	-3,961.87	2,784.23	4,841.09	1.15	1.14	0.16
11,215.00	89.66	153.67	6,770.89	-4,018.40	2,812.04	4,903.53	0.86	-0.75	-0.43
11,278.00	90.03	153.69	6,771.06	-4,074.87	2,839.97	4,966.00	0.59	0.59	0.03
11,340.00	89.40	152.10	6,771.37	-4,130.05	2,868.22	5,027.57	2.76	-1.02	-2.56
11,404.00	89.73	153.09	6,771.86	-4,186.87	2,897.68	5,091.17	1.63	0.52	1.55
11,468.00	88.93	153.33	6,772.61	-4,244.00	2,926.52	5,154.69	1.31	-1.25	0.38
11,531.00	90.07	154.51	6,773.16	-4,300.58	2,954.22	5,217.12	2.60	1.81	1.87
11,594.00	89.97	154.02	6,773.13	-4,357.33	2,981.57	5,279.50	0.79	-0.16	-0.78
11,657.00	89.46	152.70	6,773.45	-4,413.64	3,009.82	5,342.00	2.25	-0.81	-2.10
11,721.00	89.90	152.53	6,773.80	-4,470.46	3,039.26	5,405.60	0.74	0.69	-0.27
11,785.00	89.50	152.93	6,774.14	-4,527.35	3,068.58	5,469.19	0.88	-0.63	0.63
11,848.00	90.54	152.23	6,774.12	-4,583.27	3,097.59	5,531.80	1.99	1.65	-1.11

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 6H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	6H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	6H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,912.00	89.63	149.81	6,774.02	-4,639.25	3,128.60	5,595.57	4.04	-1.42	-3.78
11,976.00	88.79	147.66	6,774.90	-4,693.95	3,161.81	5,659.50	3.61	-1.31	-3.36
12,039.00	89.70	147.25	6,775.74	-4,747.05	3,195.69	5,722.47	1.58	1.44	-0.65
12,103.00	90.10	147.06	6,775.85	-4,800.82	3,230.41	5,786.47	0.69	0.63	-0.30
12,167.00	88.83	146.65	6,776.44	-4,854.40	3,265.40	5,850.46	2.09	-1.98	-0.64
12,199.00	89.26	146.68	6,776.98	-4,881.14	3,282.98	5,882.45	1.35	1.34	0.09
Last SDI MWD Survey									
12,256.00	89.26	146.68	6,777.71	-4,928.76	3,314.29	5,939.45	0.00	0.00	0.00
Projection to Bit									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
103.00	102.99	-1.21	-0.19	First SDI Gyro Survey
2,455.30	2,455.23	-9.96	3.53	Last SDI Gyro Survey
2,509.00	2,508.93	-9.78	3.49	First SDI MWD Survey
12,199.00	6,776.98	-4,881.14	3,282.98	Last SDI MWD Survey
12,256.00	6,777.71	-4,928.76	3,314.29	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

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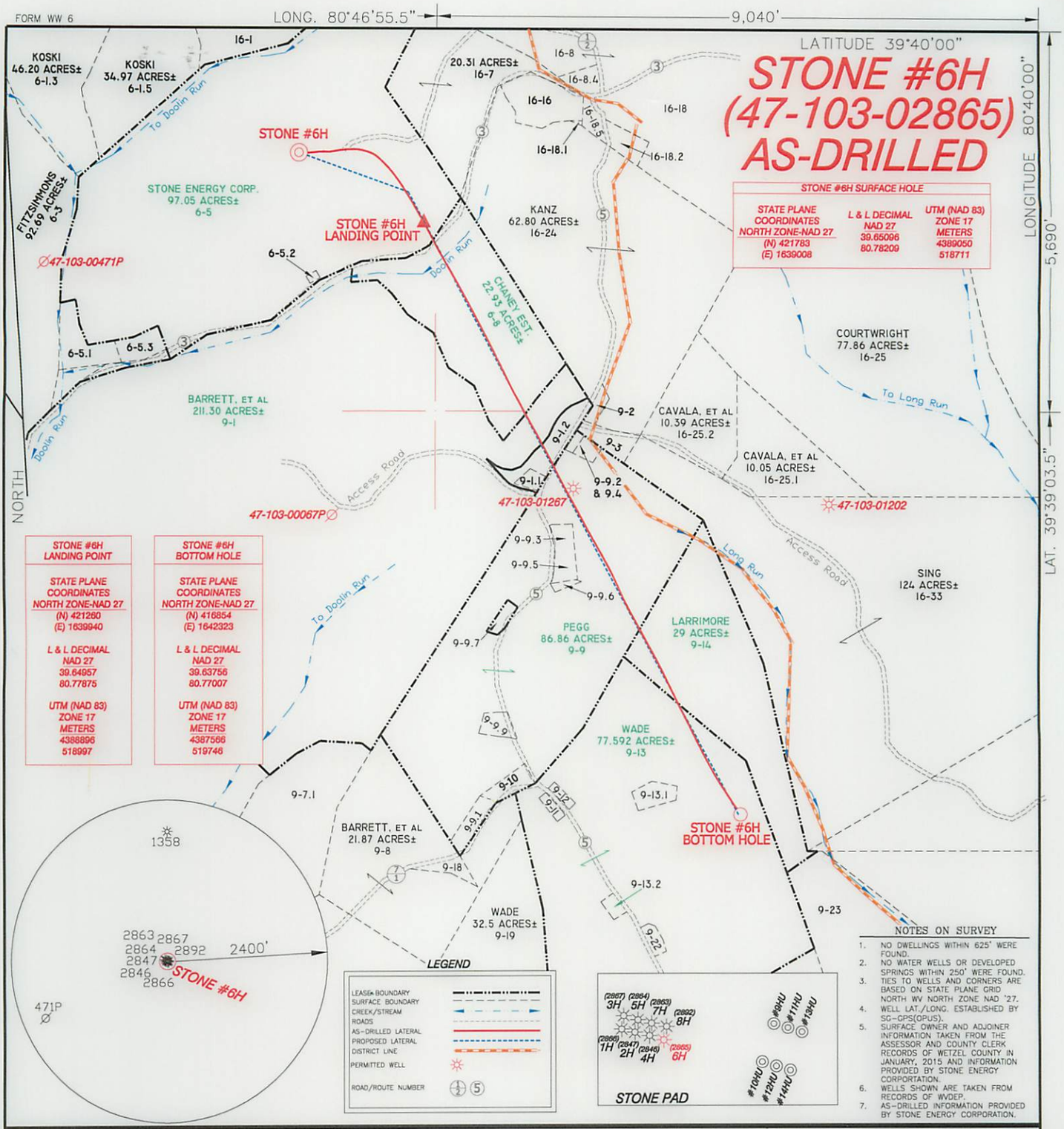
FORM WW 6



NOTES ON SURVEY

1. NO DWELLINGS WITHIN 625' WERE FOUND.
2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27.
4. WELL LAT./LONG. ESTABLISHED BY SG-GPS(OPUS).
5. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN JANUARY, 2015 AND INFORMATION PROVIDED BY STONE ENERGY CORPORATION.
6. WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDEP.
7. AS-DRILLED INFORMATION PROVIDED BY STONE ENERGY CORPORATION.

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 834

HUPP Surveying & Mapping
P.O. Box 647 Grantsville, WV 26147
(304) 354-7035 EMAIL: hupp@frontiernet.net

DOYLE HUPP JR. LICENSED No. 834 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE APRIL 8, 20 15

OPERATORS WELL NO. STONE #6H

API WELL NO. 47 — 103 — 02865
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2234 (BK 75-28)
SCALE 1" = 1000'
PROVEN SOURCE OF ELEVATION SG-GPS (OPUS)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE : OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION :
ELEVATION 1,215' WATERSHED DOOLIN RUN
DISTRICT MAGNOLIA COUNTY WETZEL QUADRANGLE NEW MARTINSVILLE 7.5'
SURFACE OWNER STONE ENERGY CORPORATION ACREAGE 97.05±
ROYALTY OWNER BARBARA BARRETT, et al LEASE ACREAGE 527.23±
PROPOSED WORK : LEASE NO. ___
DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) ___ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD-6,792' MD- 12,256'

COUNTY NAME

PERMIT

WELL OPERATOR STONE ENERGY CORPORATION DESIGNATED AGENT TIM MCGREGOR
ADDRESS P.O. BOX 52807 LAFAYETTE, LA 70508 ADDRESS 1300 FORT PIERPONT DR., SUITE 201 MORGANTOWN, WV 26508

WR-35
Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 103 - 02866 County Wetzel District Magnolia
Quad New Martinsville Pad Name Howell Field/Pool Name Mary
Farm name Stone Energy Corporation Well Number #1H
Operator (as registered with the OOG) Stone Energy Corporation
Address 1300 Fort Pierpont Dr. - Suite 201 City Morgantown State WV Zip 26508

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing 4,389,054	Easting 518,693
Landing Point of Curve	Northing 4,389,260	Easting 518,223
Bottom Hole	Northing 4,390,306	Easting 517,797

Elevation (ft) 1,215 GL Type of Well □New ■ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen □ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single □ Multiple Fluids Produced ■ Brine ■Gas □ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole ■ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Saturated salt mud which includes Caustic Soda, Barite, Lime, New-Drill, Perma-Lose HT, Xan-Plex D, X-Cide 102, Soda Ash, and Sodium Chloride

Date permit issued 3/21/2013 Date drilling commenced 4/25/2013 Date drilling ceased 3/6/2014
Date completion activities began 4/7/2014 Date completion activities ceased 11/4/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 95 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Reported Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1,000 & 1,024 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by:
AL 5/26/15
W.S. 6/02/15

WR-35
Rev. 8/23/13

API 47- 103 - 02866 Farm name Stone Energy Corporation Well number #1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	35'	New	LS		N - GTS
Surface	17.5"	13.375"	1,209' KB - 1,194' GL	New	J55	159' & 240'	Y - CTS
Coal	17.5"	13.375"	1,209' KB - 1,194' GL	New	J55	159' & 240'	Y - CTS
Intermediate 1	12.25"	9.625"	2,556'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	11,667'	New	P110		N - TOC @ 140'
Tubing	N/A	2.375"	7,485'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 40 bbls cement to surface on 13.375" casing string. Circulated 60 bbls cement to surface on the 9.625" casing string. Circulated 25 bbls cement to surface on the 5.5" casing string, TOC @ ~140'.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	929	15.6	1.19	1,106	Surface	8.0
Coal	Class "A"	929	15.6	1.19	1,106	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-520 Tail-254	Lead-15.0 Tail 15.6	Lead-1.26 Tail-1.19	Lead-655 Tail-302	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-FlexSeal Tail-Class "A"	Lead-777 Tail-1,570	15.6	Lead-1.26 Tail-1.19	Lead-979 Tail-1,868	~140	7.0
Tubing							

Drillers TD (ft) 11,675 MD / 6,719 TVD Loggers TD (ft) N/A
Deepest formation penetrated Marcellus Shale Plug back to (ft)
Plug back procedure

Kick off depth (ft) 5,796 MD / 5,786' TVD

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Surface casing had bow spring centralizers placed on joints #3, #6, #9, #12, #15, #18, #25, and #27. Intermediate casing had bow spring centralizers placed on joints #3, #6, #9, #12, #15, #18, #21, #24, #27, #30, #33, #36, #40, #44, #49, #53 and #57. Production casing had rigid spiral centralizers placed on every fourth joint beginning with joint #1 to joint #200. Ran a total of 51 rigid spiral centralizers. Ran bow spring centralizers from joint #208 to joint #264, one on every eight joint. A total of 8 bow spring centralizers were run.

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 103 - 02866 Farm name Stone Energy Corporation Well number #1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	4/13/14	11,390	11,568	72	Marcellus Shale
2	7/10/14	11,132	11,315	72	Marcellus Shale
3	7/11/14	10,882	11,060	72	Marcellus Shale
4	7/13/14	10,628	10,813	72	Marcellus Shale
5	7/15/14	10,372	10,550	72	Marcellus Shale
6	7/16/14	10,120	10,303	72	Marcellus Shale
7	7/19/14	9,865	10,050	72	Marcellus Shale
8	7/21/14	9,620	9,795	72	Marcellus Shale
9	7/22/14	9,380	9,553	72	Marcellus Shale
10	7/29/14	9,137	9,313	72	Marcellus Shale
11	7/30/14	8,882	9,060	72	Marcellus Shale
12	8/3/14	8,627	8,810	72	Marcellus Shale
13	8/4/14	8,372	8,555	72	Marcellus Shale
14	8/5/14	8,124	8,302	72	Marcellus Shale
15	8/6/14	7,875	8,056	72	Marcellus Shale
16	8/7/14	7,615	7,810	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	7/10/14	79.9	7,568	6,672	4,860	359,000	8,439	
2	7/11/14	84.4	8,040	7,315	4,804	422,195	9,310	
3	7/13/14	73.5	8,250	7,548	5,276	418,640	12,528	
4	7/14/14	65.6	8,858	7,285	5,359	5,692	7,923	
5	7/16/14	83.3	7,857	6,419	5,262	418,960	9,168	
6	7/17/14	77.5	7,801	7,653	6,502	163,866	7,711	
7	7/20/14	55.1	8,879	7,836	5,779	1,200	4,299	
8	7/22/14	78.8	7,465	7,331	4,490	420,620	8,958	
9	7/29/14	79.2	7,443	6,888	4,947	421,960	8,963	
10	7/30/14	77.8	7,491	7,515	4,659	419,740	8,587	
11	7/31/14	54.4	8,907	7,849	5,963	5,460	4,041	
12	8/4/14	80.7	6,959	6,867	4,431	424,320	8,941	
13	8/5/14	82.2	7,178	6,540	5,150	399,240	8,716	
14	8/6/14	79.5	6,899	6,705	4,403	419,220	8,971	
15	8/7/14	79.7	6,951	7,742	4,746	422,080	8,884	
16	8/8/14	80.7	6,941	7,223	4,688	416,760	8,894	

Please insert additional pages as applicable.

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WR-35
Rev. 8/23/13

API 47- 103 - 02866 Farm name Stone Energy Corporation Well number #1H

PRODUCING FORMATION(S)	DEPTHS	
Marcelllus Shale	6,797' to 6,730' TVD	7,615' to 11,568' MD

Please insert additional pages as applicable.

GAS TEST ■ Build up □ Drawdown ■ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface 2,123 psi Bottom Hole 3,889 calculated psi DURATION OF TEST 54 hrs

OPEN FLOW Gas 1,686 mcfpd Oil ____ bpd NGL 116.3 bpd Water 428.3 bpd GAS MEASURED BY □ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		
See Attached Sheet					

Please insert additional pages as applicable.

Drilling Contractor Nomac (top-hole) & Saxon Drilling (horizontal)
Address 2034 Martins Branch Rd /9303 New Trails Drive City Mount Morris / The Woodlands State PA / TX Zip 25312 / 77381

Logging Company Scientific Drilling and Schlumberger
Address 3475 Washington Ave / 1178 US HWY 33 East City Finleyville / Weston State PA / WV Zip 15332 / 26452

Cementing Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Stimulating Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Please insert additional pages as applicable.

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Completed by W. Lee Hornsby Telephone 304-225-1600
Signature W. Lee Hornsby Title Drilling Engineer Date 4/27/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Stone #1H
API 47-103-02866
Stone Energy Corporation

	Top (ft TVD)	Horizontal Top (ft MD)		Bottom (ft TVD)	Bottom (ft MD)	
Sandstone & Shale	Surface		*	1,000		FW @ 93
Coal	1,000		*	1,002		
Sandstone & Shale	1,002		*	1,024		
Coal	1,024		*	1,026		
Sandstone & Shale	1,026		*	2,086		No SW Reported
Little Lime	2,086		*	2,116		
Big Lime	2,116		*	2,216		
Big Injun	2,216		*	2,316		
Sandstone & Shale	2,316		*	2,689		
Berea Sandstone	2,689		*	2,719		
Shale	2,719		*	2,894		
Gordon	2,894		*	2,944		
Undiff Devonian Shale	2,944		*	6,087	6,117	
Rhinestreet	6,087	6,117	~	6,449	6,637	
Cashaqua	6,449	6,637	~	6,594	6,928	
Middlesex	6,594	6,928	~	6,616	6,966	
West River	6,616	6,966	~	6,666	7,077	
Geneseo	6,666	7,077	~	6,685	7,117	
Tully Limestone	6,685	7,117	~	6,723	7,221	
Hamilton Shale	6,723	7,221	~	6,771	7,419	
Marcellus	6,771	7,419	~	6,719	11,675	
TD				6,719	11,675	

* From Pilot Hole Log and Driller's Log
~ From MWD Gamma Log

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	8/8/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	47-103-02866
Operator Name:	Stone Energy
Well Name and Number:	Stone 1H
Longitude:	518693
Latitude:	4389054
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	5615580

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
H015, Slickwater, WF115	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, Surfactant , Acid, Breaker, Gelling Agent, Friction Reducer, Iron Control Agent, Clay Control Agent, Propping Agent, Fluid Loss	Water (Including Mix Water Supplied by Client)*	NA		89.72314%	
			Crystalline silica	14808-60-7	97.84821%	10.05572%	
			Hydrochloric acid	7647-01-0	1.41999%	0.14593%	
			Carbohydrate polymer	Proprietary	0.70167%	0.07211%	
			Ammonium sulfate	7783-20-2	0.23429%	0.02408%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.07582%	0.00779%	
			Glutaraldehyde	111-30-8	0.06160%	0.00633%	
			Urea	57-13-6	0.03905%	0.00401%	
			Diammonium peroxidisulphate	7727-54-0	0.03268%	0.00336%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00583%	0.00060%	
			Methanol	67-56-1	0.00555%	0.00057%	
			Sodium erythorbate	6381-77-7	0.00432%	0.00044%	
			Ethane-1,2-diol	107-21-1	0.00429%	0.00044%	
			Trisodium ortho phosphate	7601-54-9	0.00429%	0.00044%	
			Aliphatic acids	Proprietary	0.00416%	0.00043%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00416%	0.00043%	
			Prop-2-yn-1-ol	107-19-7	0.00139%	0.00014%	
			Calcium chloride	10043-52-4	0.00137%	0.00014%	

* 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%

Report ID: RPT-29859 (Generated on 8/25/2014 1:05 PM)

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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Project: Heather Prospect (NAD 27)
Site: Stone
Well: 1H
Wellbore: OH
Design: 1H As Drilled

Scientific Drilling

WELL DETAILS: 1H

Ground Level: 1215.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	421797.00	1638950.00	39° 39' 3.606 N	80° 46' 56.267 W

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well 1H, Grid North
Vertical (TVD) Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Calculation Method: Minimum Curvature

PROJECT DETAILS: Heather Prospect (NAD 27)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: West Virginia North 4701
System Datum: Mean Sea Level

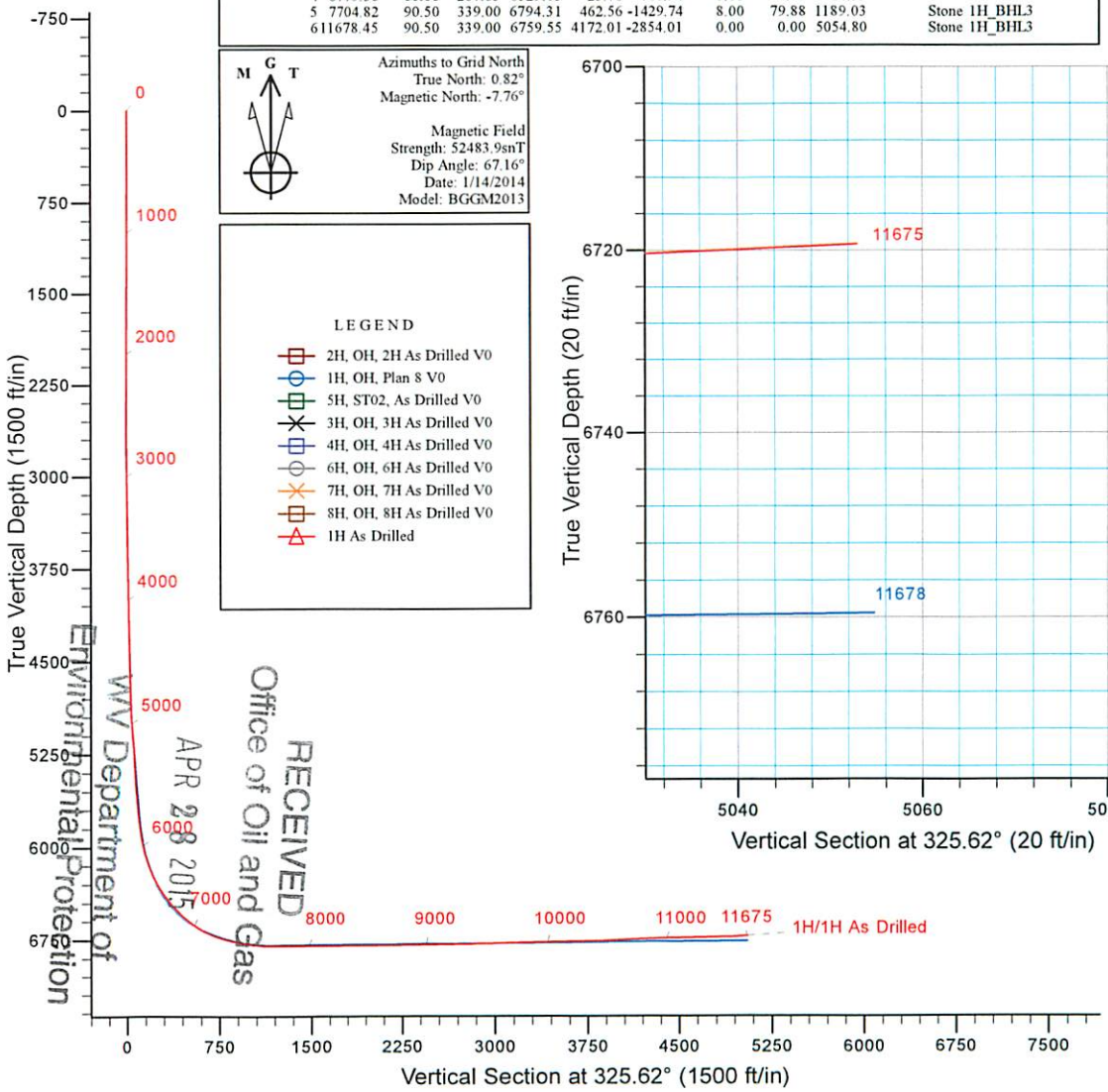
SECTION DETAILS

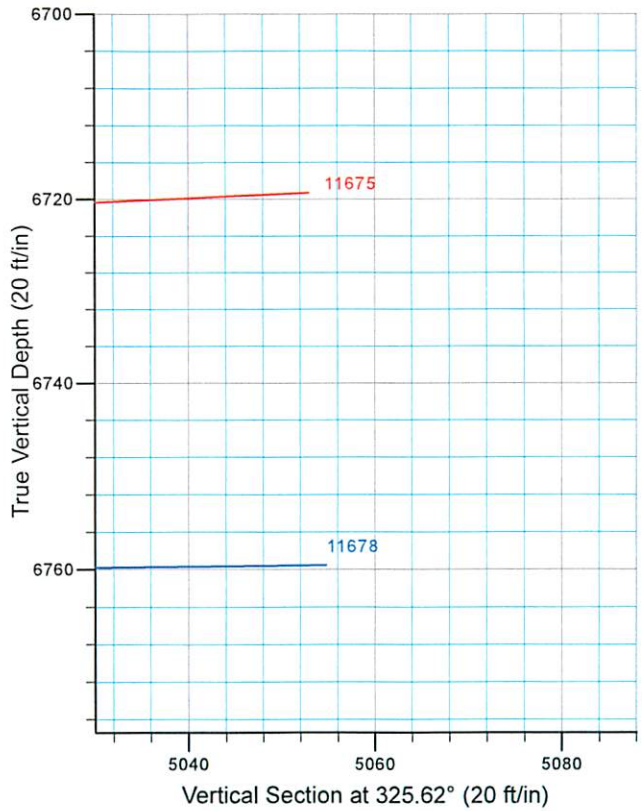
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	5083.00	9.03	267.83	5080.77	2.49	-75.86	0.00	0.00	44.88	
2	5796.00	9.03	267.83	5784.94	-1.75	-187.68	0.00	0.00	104.52	
3	6645.50	60.00	267.83	6462.05	-19.38	-652.98	6.00	0.00	352.68	
4	6779.50	60.00	267.83	6529.05	-23.78	-768.94	0.00	0.00	414.53	
5	7704.82	90.50	339.00	6794.31	462.56	-1429.74	8.00	79.88	1189.03	Stone 1H_BHL3
	611678.45	90.50	339.00	6759.55	4172.01	-2854.01	0.00	0.00	5054.80	Stone 1H_BHL3

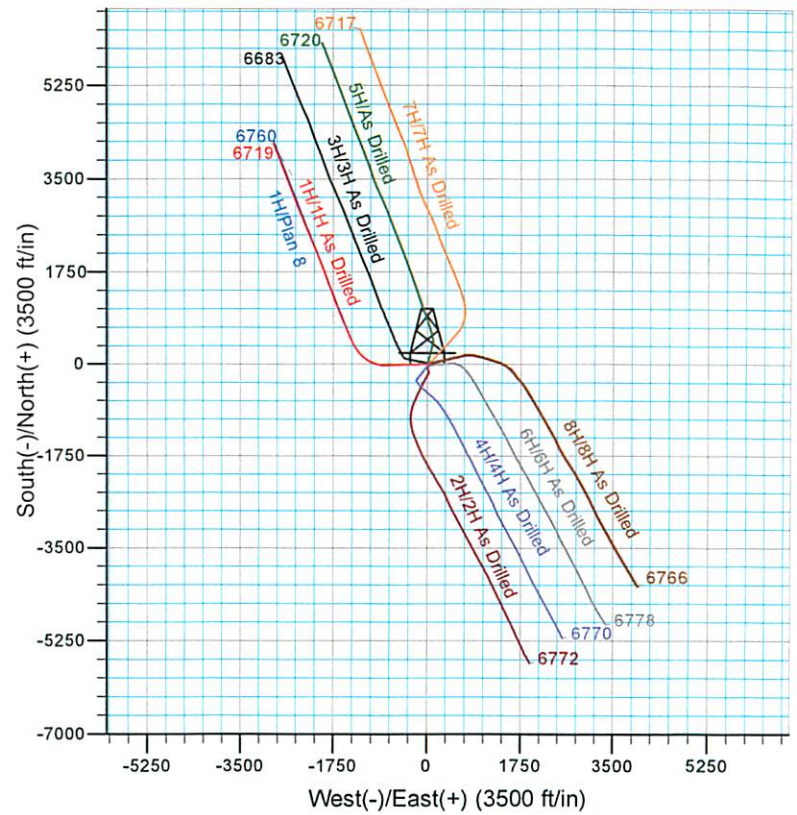
Azimuths to Grid North
True North: 0.82°
Magnetic North: -7.76°

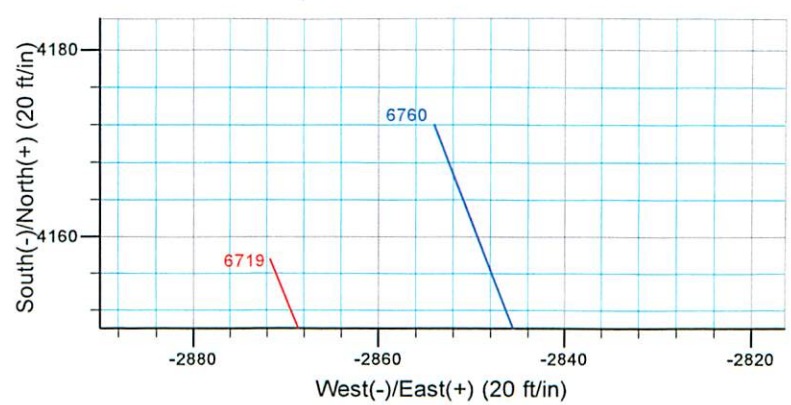
Magnetic Field
Strength: 52483.9snT
Dip Angle: 67.16°
Date: 1/14/2014
Model: BGGM2013

LEGEND
- 2H, OH, 2H As Drilled V0
- 1H, OH, Plan 8 V0
- 5H, ST02, As Drilled V0
- 3H, OH, 3H As Drilled V0
- 4H, OH, 4H As Drilled V0
- 6H, OH, 6H As Drilled V0
- 7H, OH, 7H As Drilled V0
- 8H, OH, 8H As Drilled V0
- 1H As Drilled









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Stone Energy

Heather Prospect (NAD 27)
Stone
1H

OH

Design: 1H As Drilled

Standard Survey Report

05 March, 2014

Scientific Drilling

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Scientific Drilling
Survey Report

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 1H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	1H As Drilled	**Database:**	Northeast District

Project Heather Prospect (NAD 27), Wetzel County, West Virginia

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site Stone

Site Position:		**Northing:**	421,797.00 usft	**Latitude:**	39° 39' 3.606 N
From:	Map	**Easting:**	1,638,950.00 usft	**Longitude:**	80° 46' 56.267 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.82 °

Well 1H

Well Position	**+N/-S**	0.00 ft	**Northing:**	421,797.00 usft	**Latitude:**	39° 39' 3.606 N
	+E/-W	0.00 ft	**Easting:**	1,638,950.00 usft	**Longitude:**	80° 46' 56.267 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	1,215.00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/15/2013	-8.51	67.21	52,620
	BGGM2013	11/26/2013	-8.57	67.17	52,501
	BGGM2013	1/14/2014	-8.58	67.16	52,484

Design 1H As Drilled

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	325.62

Survey Program Date 3/5/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
15.00	2,500.00	Survey 1 - Gyro (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
2,596.00	5,083.00	Survey 2 - MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1
5,083.00	11,675.00	Survey 5 - SDI MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00
Ground Level									
100.00	0.12	87.14	100.00	0.00	0.09	-0.05	0.14	0.14	0.00
First SDI Gyro Survey									
200.00	0.15	74.53	200.00	0.04	0.32	-0.14	0.04	0.03	-12.61
300.00	0.22	107.18	300.00	0.02	0.63	-0.34	0.12	0.07	32.65

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Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	1H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
400.00	0.26	164.95	400.00	-0.25	0.87	-0.70	0.23	0.04	57.77
500.00	0.17	145.96	500.00	-0.60	1.01	-1.06	0.11	-0.09	-18.99
600.00	0.22	99.25	600.00	-0.75	1.29	-1.34	0.16	0.05	-46.71
700.00	0.27	99.99	700.00	-0.82	1.71	-1.64	0.05	0.05	0.74
800.00	0.19	69.72	800.00	-0.80	2.10	-1.85	0.14	-0.08	-30.27
900.00	0.29	120.34	899.99	-0.87	2.47	-2.12	0.22	0.10	50.62
1,000.00	0.25	98.95	999.99	-1.04	2.90	-2.49	0.11	-0.04	-21.39
1,100.00	0.27	56.84	1,099.99	-0.94	3.32	-2.65	0.19	0.02	-42.11
1,200.00	0.37	51.32	1,199.99	-0.61	3.77	-2.63	0.10	0.10	-5.52
1,300.00	0.31	84.84	1,299.99	-0.38	4.29	-2.74	0.20	-0.06	33.52
1,400.00	0.73	115.75	1,399.99	-0.64	5.13	-3.42	0.49	0.42	30.91
1,500.00	0.59	107.15	1,499.98	-1.07	6.20	-4.38	0.17	-0.14	-8.60
1,600.00	0.48	92.80	1,599.97	-1.24	7.11	-5.03	0.17	-0.11	-14.35
1,700.00	0.39	51.65	1,699.97	-1.05	7.79	-5.26	0.32	-0.09	-41.15
1,800.00	0.54	57.62	1,799.97	-0.58	8.46	-5.26	0.16	0.15	5.97
1,900.00	0.49	83.52	1,899.96	-0.28	9.28	-5.47	0.24	-0.05	25.90
2,000.00	0.50	126.11	1,999.96	-0.49	10.06	-6.08	0.36	0.01	42.59
2,100.00	0.32	114.95	2,099.96	-0.87	10.66	-6.74	0.20	-0.18	-11.16
2,200.00	0.20	62.66	2,199.96	-0.90	11.07	-7.00	0.25	-0.12	-52.29
2,300.00	0.12	99.31	2,299.96	-0.84	11.33	-7.09	0.13	-0.08	36.65
2,400.00	0.08	95.97	2,399.96	-0.87	11.50	-7.21	0.04	-0.04	-3.34
2,500.00	0.06	185.94	2,499.96	-0.92	11.57	-7.29	0.10	-0.02	89.97
Last SDI Gyro Survey									
2,596.00	0.24	204.25	2,595.96	-1.16	11.48	-7.44	0.19	0.19	19.07
First SDI MWD Survey									
2,686.00	0.86	258.40	2,685.95	-1.47	10.74	-7.27	0.83	0.69	60.17
2,777.00	1.68	257.60	2,776.93	-1.89	8.77	-6.51	0.90	0.90	-0.88
2,871.00	1.84	261.07	2,870.88	-2.42	5.93	-5.35	0.20	0.17	3.69
2,964.00	1.65	279.35	2,963.84	-2.43	3.13	-3.78	0.63	-0.20	19.66
3,058.00	1.83	282.58	3,057.80	-1.89	0.33	-1.75	0.22	0.19	3.44
3,152.00	1.49	269.13	3,151.76	-1.58	-2.35	0.03	0.55	-0.36	-14.31
3,247.00	1.55	263.93	3,246.73	-1.73	-4.87	1.32	0.16	0.06	-5.47
3,339.00	1.44	263.97	3,338.70	-1.99	-7.25	2.46	0.12	-0.12	0.04
3,430.00	1.30	274.21	3,429.67	-2.03	-9.42	3.64	0.31	-0.15	11.25
3,522.00	1.25	273.58	3,521.65	-1.89	-11.46	4.91	0.06	-0.05	-0.68
3,615.00	1.18	270.64	3,614.63	-1.82	-13.43	6.08	0.10	-0.08	-3.16
3,707.00	1.21	268.59	3,706.61	-1.83	-15.35	7.16	0.06	0.03	-2.23
3,798.00	1.47	271.99	3,797.58	-1.81	-17.48	8.37	0.30	0.29	3.74
3,895.00	2.17	273.04	3,894.53	-1.67	-20.55	10.22	0.72	0.72	1.08
3,988.00	2.25	266.30	3,987.46	-1.70	-24.13	12.23	0.29	0.09	-7.25
4,081.00	2.05	274.10	4,080.40	-1.70	-27.62	14.19	0.38	-0.22	8.39
4,174.00	2.00	273.27	4,173.34	-1.48	-30.89	16.22	0.06	-0.05	-0.89
4,265.00	1.93	269.11	4,264.29	-1.42	-34.01	18.03	0.07	-0.08	-4.57

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 1H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	1H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,358.00	2.19	266.72	4,357.23	-1.54	-37.35	19.81	0.29	0.28	-2.57
4,451.00	2.17	269.30	4,450.16	-1.67	-40.89	21.71	0.11	-0.02	2.77
4,543.00	2.12	281.42	4,542.09	-1.35	-44.30	23.89	0.50	-0.05	13.17
4,636.00	1.78	277.05	4,635.04	-0.83	-47.42	26.08	0.40	-0.37	-4.70
4,727.00	1.77	279.02	4,726.00	-0.44	-50.21	27.98	0.07	-0.01	2.16
4,819.00	2.17	287.89	4,817.94	0.32	-53.27	30.34	0.55	0.43	9.64
4,914.00	3.43	285.55	4,912.83	1.63	-57.72	33.93	1.33	1.33	-2.46
5,083.00	9.03	267.83	5,080.77	2.49	-75.86	44.88	3.46	3.31	-10.49
5,095.00	5.84	273.09	5,092.67	2.48	-77.41	45.75	27.15	-26.58	43.83
5,159.00	5.52	270.76	5,156.36	2.70	-83.74	49.51	0.62	-0.50	-3.64
5,223.00	6.02	270.33	5,220.03	2.76	-90.17	53.19	0.78	0.78	-0.67
5,286.00	6.91	266.25	5,282.63	2.53	-97.26	57.00	1.59	1.41	-6.48
5,350.00	7.13	262.56	5,346.15	1.76	-105.04	60.76	0.78	0.34	-5.77
5,413.00	8.93	262.20	5,408.53	0.59	-113.76	64.72	2.86	2.86	-0.57
5,473.00	9.53	261.61	5,467.76	-0.76	-123.29	68.98	1.01	1.00	-0.98
5,533.00	9.21	262.69	5,526.95	-2.10	-132.96	73.34	0.61	-0.53	1.80
5,594.00	9.42	265.86	5,587.15	-3.08	-142.78	78.08	0.91	0.34	5.20
5,655.00	9.26	265.83	5,647.34	-3.80	-152.66	83.06	0.26	-0.26	-0.05
5,686.00	10.00	266.24	5,677.91	-4.15	-157.83	85.68	2.40	2.39	1.32
5,717.00	9.49	265.39	5,708.46	-4.54	-163.06	88.32	1.71	-1.65	-2.74
5,747.00	9.78	266.71	5,738.03	-4.88	-168.07	90.87	1.22	0.97	4.40
5,778.00	10.57	267.88	5,768.55	-5.14	-173.54	93.74	2.63	2.55	3.77
5,808.00	11.80	268.62	5,797.98	-5.31	-179.36	96.88	4.13	4.10	2.47
5,838.00	13.20	268.55	5,827.26	-5.47	-185.85	100.42	4.67	4.67	-0.23
5,867.00	14.87	267.49	5,855.40	-5.72	-192.88	104.18	5.83	5.76	-3.66
5,897.00	16.19	267.60	5,884.30	-6.06	-200.90	108.43	4.40	4.40	0.37
5,928.00	17.43	267.04	5,913.98	-6.48	-209.86	113.14	4.03	4.00	-1.81
5,958.00	18.66	268.18	5,942.50	-6.87	-219.14	118.06	4.27	4.10	3.80
5,988.00	19.95	268.02	5,970.81	-7.20	-229.05	123.39	4.30	4.30	-0.53
6,018.00	21.80	268.79	5,998.84	-7.49	-239.74	129.18	6.23	6.17	2.57
6,048.00	24.27	268.27	6,026.45	-7.80	-251.47	135.55	8.26	8.23	-1.73
6,079.00	27.28	268.30	6,054.36	-8.20	-264.95	142.82	9.71	9.71	0.10
6,109.00	29.90	268.47	6,080.70	-8.60	-279.29	150.59	8.74	8.73	0.57
6,139.00	32.28	267.06	6,106.39	-9.21	-294.77	158.83	8.30	7.93	-4.70
6,169.00	34.09	267.10	6,131.50	-10.05	-311.17	167.40	6.03	6.03	0.13
6,200.00	36.35	267.32	6,156.82	-10.92	-329.03	176.76	7.30	7.29	0.71
6,230.00	38.21	268.21	6,180.69	-11.63	-347.18	186.43	6.46	6.20	2.97
6,261.00	40.01	269.34	6,204.74	-12.04	-366.73	197.12	6.24	5.81	3.65
6,291.00	40.84	269.23	6,227.58	-12.28	-386.18	207.91	2.78	2.77	-0.37
6,321.00	42.31	269.98	6,250.02	-12.42	-406.09	219.03	5.17	4.90	2.50
6,351.00	43.41	269.68	6,272.01	-12.48	-426.50	230.51	3.73	3.67	-1.00
6,381.00	45.33	269.67	6,293.46	-12.60	-447.47	242.25	6.40	6.40	-0.03
6,412.00	47.37	270.18	6,314.85	-12.63	-469.90	254.89	6.69	6.58	1.65
6,442.00	49.66	269.49	6,334.73	-12.69	-492.37	267.52	7.83	7.63	-2.30

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 1H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	1H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,474.00	50.99	268.70	6,355.15	-13.08	-517.00	281.11	4.57	4.16	-2.47
6,506.00	52.01	268.00	6,375.08	-13.81	-542.03	294.64	3.62	3.19	-2.19
6,537.00	53.84	267.68	6,393.76	-14.74	-566.75	307.83	5.96	5.90	-1.03
6,569.00	56.22	267.85	6,412.10	-15.76	-592.95	321.78	7.45	7.44	0.53
6,601.00	57.59	267.61	6,429.58	-16.82	-619.73	336.03	4.33	4.28	-0.75
6,633.00	58.06	267.57	6,446.62	-17.96	-646.80	350.36	1.47	1.47	-0.13
6,664.00	57.68	267.44	6,463.10	-19.10	-673.02	364.23	1.28	-1.23	-0.42
6,695.00	58.01	267.67	6,479.60	-20.22	-699.24	378.11	1.24	1.06	0.74
6,727.00	59.79	267.14	6,496.13	-21.47	-726.62	392.54	5.74	5.56	-1.66
6,758.00	60.59	267.54	6,511.54	-22.71	-753.48	406.68	2.81	2.58	1.29
6,790.00	60.21	269.90	6,527.35	-23.34	-781.30	421.87	6.52	-1.19	7.38
6,822.00	60.29	271.66	6,543.23	-22.96	-809.08	437.87	4.78	0.25	5.50
6,853.00	59.16	274.79	6,558.86	-21.46	-835.80	454.19	9.45	-3.65	10.10
6,885.00	58.95	278.14	6,575.32	-18.37	-863.07	472.14	9.00	-0.66	10.47
6,917.00	59.22	280.85	6,591.76	-13.84	-890.14	491.16	7.31	0.84	8.47
6,949.00	59.65	283.59	6,608.04	-8.01	-917.06	511.18	7.49	1.34	8.56
6,981.00	60.72	285.62	6,623.95	-1.00	-943.93	532.13	6.44	3.34	6.34
7,013.00	61.60	287.57	6,639.38	7.00	-970.79	553.90	6.00	2.75	6.09
7,044.00	62.79	289.84	6,653.84	15.80	-996.76	575.82	7.53	3.84	7.32
7,075.00	64.26	291.54	6,667.67	25.61	-1,022.71	598.57	6.82	4.74	5.48
7,107.00	66.10	293.97	6,681.10	36.84	-1,049.49	622.96	8.98	5.75	7.59
7,139.00	67.26	296.79	6,693.77	49.44	-1,076.04	648.35	8.87	3.63	8.81
7,171.00	68.67	300.61	6,705.78	63.68	-1,102.05	674.79	11.91	4.41	11.94
7,203.00	69.53	303.55	6,717.20	79.56	-1,127.37	702.19	8.99	2.69	9.19
7,235.00	71.25	306.93	6,727.94	96.95	-1,151.98	730.45	11.31	5.38	10.56
7,266.00	73.11	309.59	6,737.43	115.23	-1,175.15	758.61	10.14	6.00	8.58
7,298.00	75.23	311.99	6,746.16	135.34	-1,198.45	788.37	9.80	6.63	7.50
7,330.00	76.93	314.18	6,753.85	156.56	-1,221.13	818.68	8.51	5.31	6.84
7,361.00	78.04	315.87	6,760.57	177.97	-1,242.52	848.43	6.41	3.58	5.45
7,393.00	79.15	317.83	6,766.90	200.85	-1,263.97	879.43	6.93	3.47	6.13
7,425.00	79.51	319.65	6,772.83	224.49	-1,284.71	910.65	5.70	1.13	5.69
7,457.00	80.23	321.56	6,778.45	248.83	-1,304.70	942.03	6.29	2.25	5.97
7,489.00	80.96	323.87	6,783.68	273.95	-1,323.82	973.55	7.48	2.28	7.22
7,521.00	82.66	326.21	6,788.24	299.90	-1,341.97	1,005.22	8.98	5.31	7.31
7,552.00	84.14	327.64	6,791.81	325.71	-1,358.77	1,036.01	6.62	4.77	4.61
7,584.00	85.16	329.38	6,794.79	352.87	-1,375.42	1,067.82	6.28	3.19	5.44
7,616.00	86.54	331.68	6,797.11	380.66	-1,391.12	1,099.62	8.37	4.31	7.19
7,647.00	87.88	334.08	6,798.62	408.21	-1,405.23	1,130.33	8.86	4.32	7.74
7,711.00	88.99	336.95	6,800.36	466.43	-1,431.74	1,193.35	4.81	1.73	4.48
7,774.00	90.17	337.12	6,800.83	524.43	-1,456.32	1,255.10	1.89	1.87	0.27
7,838.00	90.74	336.89	6,800.32	583.35	-1,481.32	1,317.84	0.96	0.89	-0.36
7,902.00	89.30	337.45	6,800.29	642.33	-1,506.15	1,380.54	2.41	-2.25	0.88
7,966.00	90.77	337.23	6,800.26	701.39	-1,530.81	1,443.21	2.32	2.30	-0.34

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 1H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	1H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,029.00	91.28	337.05	6,799.13	759.43	-1,555.28	1,504.93	0.86	0.81	-0.29
8,092.00	89.80	337.23	6,798.53	817.48	-1,579.75	1,566.66	2.37	-2.35	0.29
8,156.00	89.90	337.08	6,798.70	876.46	-1,604.60	1,629.37	0.28	0.16	-0.23
8,220.00	88.89	338.88	6,799.38	935.78	-1,628.59	1,691.88	3.22	-1.58	2.81
8,283.00	89.76	339.09	6,800.12	994.59	-1,651.18	1,753.17	1.42	1.38	0.33
8,347.00	90.91	339.55	6,799.75	1,054.46	-1,673.78	1,815.35	1.94	1.80	0.72
8,410.00	90.74	339.99	6,798.84	1,113.57	-1,695.56	1,876.43	0.75	-0.27	0.70
8,474.00	90.98	339.78	6,797.88	1,173.66	-1,717.57	1,938.45	0.50	0.38	-0.33
8,538.00	89.66	340.19	6,797.52	1,233.79	-1,739.48	2,000.45	2.16	-2.06	0.64
8,601.00	90.57	340.54	6,797.39	1,293.13	-1,760.65	2,061.37	1.55	1.44	0.56
8,663.00	91.88	340.78	6,796.07	1,351.61	-1,781.17	2,121.24	2.15	2.11	0.39
8,727.00	91.28	340.60	6,794.30	1,411.99	-1,802.33	2,183.01	0.98	-0.94	-0.28
8,791.00	90.47	339.60	6,793.33	1,472.16	-1,824.11	2,244.97	2.01	-1.27	-1.56
8,854.00	91.14	339.16	6,792.44	1,531.12	-1,846.29	2,306.16	1.27	1.06	-0.70
8,916.00	90.71	338.79	6,791.44	1,588.98	-1,868.54	2,366.48	0.91	-0.69	-0.60
8,980.00	91.14	338.62	6,790.41	1,648.61	-1,891.77	2,428.81	0.72	0.67	-0.27
9,044.00	90.24	339.01	6,789.64	1,708.28	-1,914.90	2,491.11	1.53	-1.41	0.61
9,108.00	91.14	339.83	6,788.87	1,768.19	-1,937.40	2,553.26	1.90	1.41	1.28
9,171.00	91.78	339.87	6,787.26	1,827.31	-1,959.09	2,614.31	1.02	1.02	0.06
9,235.00	90.87	339.57	6,785.78	1,887.33	-1,981.27	2,676.36	1.50	-1.42	-0.47
9,298.00	91.51	339.49	6,784.47	1,946.33	-2,003.30	2,737.50	1.02	1.02	-0.13
9,362.00	91.45	338.86	6,782.82	2,006.13	-2,026.04	2,799.70	0.99	-0.09	-0.98
9,425.00	91.91	338.36	6,780.97	2,064.77	-2,049.01	2,861.06	1.08	0.73	-0.79
9,489.00	91.34	337.18	6,779.16	2,123.99	-2,073.21	2,923.61	2.05	-0.89	-1.84
9,552.00	91.65	337.00	6,777.51	2,182.00	-2,097.73	2,985.33	0.57	0.49	-0.29
9,615.00	90.30	337.55	6,776.44	2,240.10	-2,122.06	3,047.02	2.31	-2.14	0.87
9,679.00	90.77	337.23	6,775.84	2,299.17	-2,146.66	3,109.67	0.89	0.73	-0.50
9,743.00	91.41	337.31	6,774.63	2,358.19	-2,171.39	3,172.34	1.01	1.00	0.13
9,806.00	91.11	338.45	6,773.24	2,416.54	-2,195.10	3,233.89	1.87	-0.48	1.81
9,867.00	91.95	338.49	6,771.61	2,473.26	-2,217.48	3,293.34	1.38	1.38	0.07
9,931.00	91.34	338.84	6,769.78	2,532.85	-2,240.76	3,355.67	1.10	-0.95	0.55
9,994.00	91.98	338.43	6,767.95	2,591.50	-2,263.70	3,417.02	1.21	1.02	-0.65
10,058.00	90.60	338.06	6,766.51	2,650.92	-2,287.41	3,479.46	2.23	-2.16	-0.58
10,121.00	91.38	338.47	6,765.42	2,709.44	-2,310.74	3,540.92	1.40	1.24	0.65
10,185.00	90.20	338.53	6,764.54	2,768.98	-2,334.19	3,603.31	1.85	-1.84	0.09
10,249.00	90.67	337.86	6,764.05	2,828.39	-2,357.96	3,665.77	1.28	0.73	-1.05
10,313.00	91.31	337.54	6,762.95	2,887.60	-2,382.25	3,728.34	1.12	1.00	-0.50
10,376.00	92.12	337.66	6,761.06	2,945.82	-2,406.24	3,789.94	1.30	1.29	0.19
10,440.00	91.18	338.49	6,759.22	3,005.16	-2,430.13	3,852.41	1.96	-1.47	1.30
10,504.00	91.88	338.10	6,757.51	3,064.60	-2,453.79	3,914.83	1.25	1.09	-0.61
10,567.00	92.62	337.57	6,755.04	3,122.90	-2,477.54	3,976.36	1.44	1.17	-0.84
10,631.00	92.89	339.03	6,751.96	3,182.30	-2,501.17	4,038.72	2.32	0.42	2.28
10,694.00	92.29	338.64	6,749.11	3,240.99	-2,523.90	4,099.99	1.14	-0.95	-0.62

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 1H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	1H As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,757.00	92.86	338.58	6,746.28	3,299.59	-2,546.85	4,161.32	0.91	0.90	-0.10
10,821.00	91.78	339.43	6,743.69	3,359.29	-2,569.76	4,223.53	2.15	-1.69	1.33
10,884.00	91.58	341.12	6,741.85	3,418.56	-2,591.02	4,284.45	2.70	-0.32	2.68
10,948.00	90.94	341.33	6,740.44	3,479.14	-2,611.61	4,346.08	1.05	-1.00	0.33
11,011.00	91.24	340.62	6,739.24	3,538.69	-2,632.14	4,406.82	1.22	0.48	-1.13
11,075.00	91.18	339.98	6,737.89	3,598.93	-2,653.71	4,468.72	1.00	-0.09	-1.00
11,139.00	91.78	338.69	6,736.24	3,658.79	-2,676.29	4,530.87	2.22	0.94	-2.02
11,203.00	92.25	338.57	6,733.99	3,718.36	-2,699.60	4,593.19	0.76	0.73	-0.19
11,266.00	91.41	339.31	6,731.97	3,777.12	-2,722.22	4,654.47	1.78	-1.33	1.17
11,330.00	90.70	339.82	6,730.79	3,837.08	-2,744.56	4,716.57	1.37	-1.11	0.80
11,391.00	91.21	338.87	6,729.78	3,894.15	-2,766.08	4,775.82	1.77	0.84	-1.56
11,454.00	91.78	338.34	6,728.13	3,952.79	-2,789.05	4,837.19	1.24	0.90	-0.84
11,518.00	92.45	338.14	6,725.77	4,012.19	-2,812.76	4,899.60	1.09	1.05	-0.31
11,582.00	92.05	337.99	6,723.26	4,071.51	-2,836.65	4,962.05	0.67	-0.63	-0.23
11,608.00	92.49	337.79	6,722.23	4,095.58	-2,846.43	4,987.44	1.86	1.69	-0.77
Last SDI MWD Survey									
11,675.00	92.49	337.79	6,719.32	4,157.55	-2,871.73	5,052.87	0.00	0.00	0.00
Projection to Bit									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
15.00	15.00	0.00	0.00	Ground Level
100.00	100.00	0.00	0.09	First SDI Gyro Survey
2,500.00	2,499.96	-0.92	11.57	Last SDI Gyro Survey
2,596.00	2,595.96	-1.16	11.48	First SDI MWD Survey
11,608.00	6,722.23	4,095.58	-2,846.43	Last SDI MWD Survey
11,675.00	6,719.32	4,157.55	-2,871.73	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

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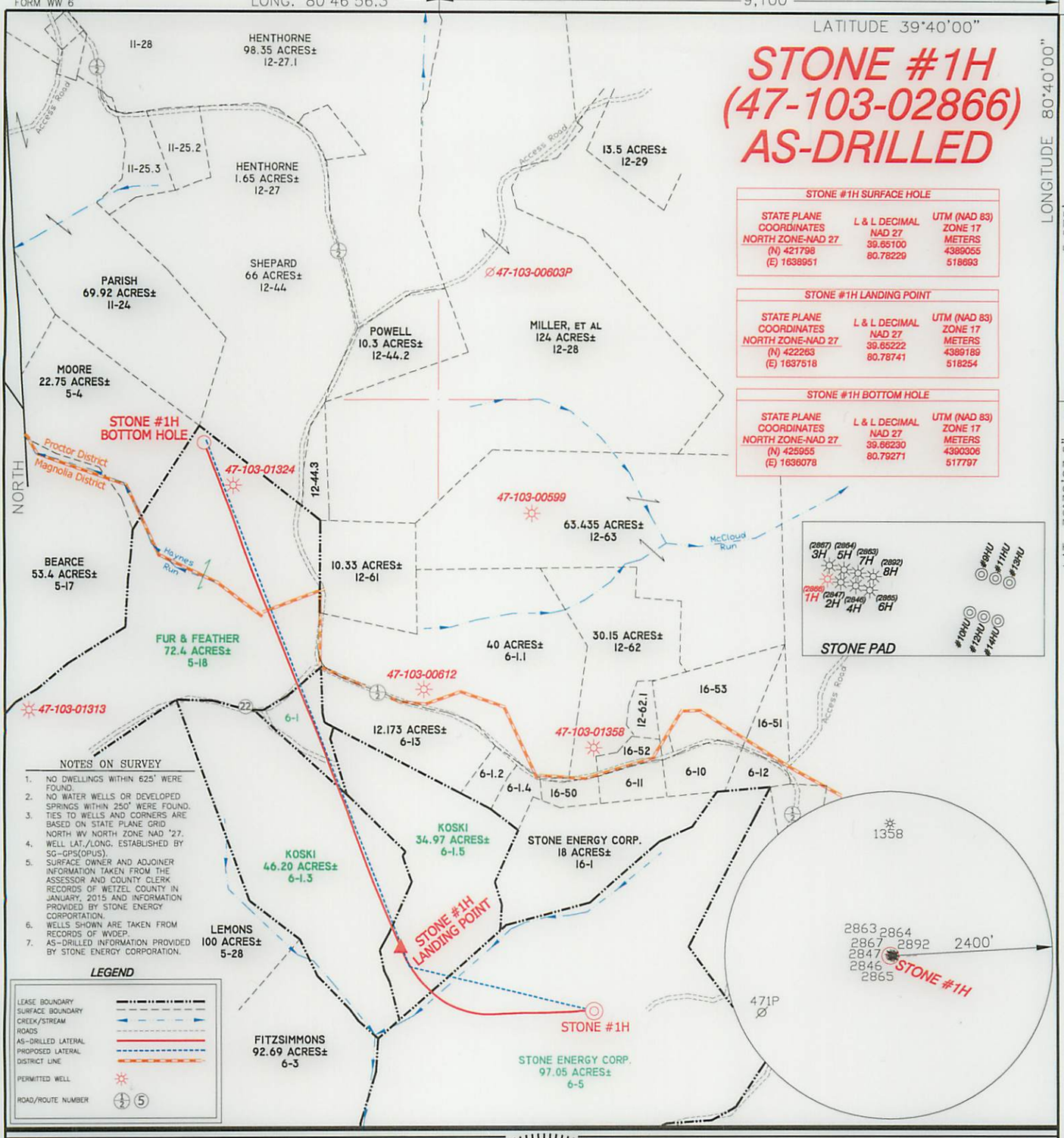
FORM WW 6



NOTES ON SURVEY

1. NO DWELLINGS WITHIN 625' WERE FOUND.
2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27.
4. WELL LAT./LONG. ESTABLISHED BY SG-GPS(OPUS).
5. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN JANUARY, 2015 AND INFORMATION PROVIDED BY STONE ENERGY CORPORATION.
6. WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDEP.
7. AS-DRILLED INFORMATION PROVIDED BY STONE ENERGY CORPORATION.

LEGEND

LEASE BOUNDARY
SURFACE BOUNDARY
CREEK/STREAM
ROADS
AS-DRILLED LATERAL
PROPOSED LATERAL
DISTRICT LINE
PERMITTED WELL
ROAD/ROUTE NUMBER

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 834

HUPP Surveying & Mapping
P.O. Box 647 Grantsville, WV 26147
(304) 354-7035 EMAIL: hupp@frontiernet.net

DOYLE HUPP JR. LICENSED No. 834 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE APRIL 6, 2015

OPERATORS WELL NO. STONE #1H

API WELL NO. 47 — 103 — 02866
STATE COUNTY PERMIT

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MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2234 (BK 75-28)
SCALE 1" = 1000'
PROVEN SOURCE OF ELEVATION SG-GPS (OPUS)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE : OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION :
ELEVATION 1,215' WATERSHED DOOLIN RUN
DISTRICT MAGNOLIA COUNTY WETZEL QUADRANGLE NEW MARTINSVILLE 7.5'
SURFACE OWNER STONE ENERGY CORPORATION ACREAGE 97.05±
ROYALTY OWNER BARBARA BARRETT, et al LEASE ACREAGE 255.14±
PROPOSED WORK : LEASE NO. ___
DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) ___ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD-6,800' MD- 11,675'

COUNTY NAME
PERMIT

WELL OPERATOR STONE ENERGY CORPORATION DESIGNATED AGENT TIM MCGREGOR
ADDRESS P.O. BOX 52807 LAFAYETTE, LA 70508 ADDRESS 1300 FORT PIERPONT DR., SUITE 201 MORGANTOWN, WV 26508

WR-35
Rev. 8/23/13

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 103 - 02867 County Wetzel District Magnolia
Quad New Martinsville Pad Name Stone Field/Pool Name Mary
Farm name Stone Energy Corporation Well Number #3H
Operator (as registered with the OOG) Stone Energy Corporation
Address 1300 Fort Pierpont Dr. - Suite 201 City Morgantown State WV Zip 26508

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing 4,389,060	Easting 518,694
Landing Point of Curve	Northing 4,388,581	Easting 518,649
Bottom Hole	Northing 4,389,807	Easting 517,840

Elevation (ft) 1,215 GL Type of Well □New ■ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen □ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single □ Multiple Fluids Produced ■ Brine ■Gas □ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud ■Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole ■ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Saturated salt mud which includes Caustic Soda, Barite, Lime, New-Drill, Perma-Lose HT, Xan-Plex D, X-Cide 102, Soda Ash, and Sodium Chloride

Date permit issued 3/20/2013 Date drilling commenced 5/27/2013 Date drilling ceased 6/24/2014
Date completion activities began 4/7/2014 Date completion activities ceased 11/3/2014
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 95 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Reported Void(s) encountered (Y/N) depths N
Coal depth(s) ft 909 and 1,100 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by:
AL 5/26/15 ✓
W.S. 6/02/15

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API 47- 103 - 02867 Farm name Stone Energy Corporation Well number #3H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	80'	New	LS		N - GTS
Surface	17.5"	13.375"	1,207' KB - 1,192' GL	New	J55	109' & 191'	Y - CTS
Coal	17.5"	13.375"	1,207' KB - 1,192' GL	New	J55	109' & 191'	Y - CTS
Intermediate 1	12.25"	9.625"	2,447'	New	J55		Y - CTS
Intermediate 2							
Intermediate 3							
Production	8.75"	5.5"	12,649'	New	P110		N - TOC @ 205'
Tubing	N/A	2.375"	7,485'	New	N80		N/A
Packer type and depth set							

Comment Details Circulated 28 bbls cement to surface on 13.375" casing string. Circulated 30 bbls cement to surface on the 9.625" casing string. TOC on the 5.5" casing is 205'

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Type 1	34	15.6	1.18	40	Surface	24.0
Surface	Class "A"	890	15.6	1.19	1,059	Surface	8.0
Coal	Class "A"	890	15.6	1.19	1,059	Surface	8.0
Intermediate 1	Lead-FlexSeal Tail-Class "A"	Lead-492 Tail-309	Lead-15.0 Tail 15.6	Lead-1.26 Tail-1.19	Lead-620 Tail-368	Surface	12.0
Intermediate 2							
Intermediate 3							
Production	Lead-FlexSeal Tail-Class "A"	Lead-829 Tail-1,771	Lead- 15.0 Tail-15.6	Lead-1.26 Tail-1.19	Lead-1,045 Tail-2,107	205	7.0
Tubing							

Drillers TD (ft) 12,666 MD / 6,683 TVD Loggers TD (ft) N/A
Deepest formation penetrated Marcellus Shale Plug back to (ft)
Plug back procedure

Kick off depth (ft) 6,139 MD / 6,111' TVD

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Surface casing had bow spring centralizers placed on joints #2, #6, #10, #14, #18, #22, #26 and #30. Intermediate casing had bow spring centralizers placed on joints #2, #6, #10, #14, #18, #22, #26, #30, #34, #38, #42, #46, #50, #54 and #58. Production casing had rigid spiral centralizers placed on every fourth joint beginning with joint #1 to joint #136. Ran a total of 35 rigid spiral centralizers. Ran bow spring centralizers from joint #144 to joint #269 on every fouth joint. A total of 31 bow spring centralizers were run.

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 103 - 02867 Farm name Stone Energy Corporation Well number #3H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	4/18/14	12,382	12,560	72	Marcellus Shale
2	7/8/14	12,127	12,313	72	Marcellus Shale
3	7/9/14	11,873	12,058	72	Marcellus Shale
4	7/11/14	11,626	11,798	72	Marcellus Shale
5	7/24/14	11,381	11,558	72	Marcellus Shale
6	7/25/14	11,126	11,304	72	Marcellus Shale
7	7/25/14	10,885	11,058	72	Marcellus Shale
8	7/26/14	10,640	10,813	72	Marcellus Shale
9	7/26/14	10,375	10,563	72	Marcellus Shale
10	7/26/14	10,120	10,305	72	Marcellus Shale
11	7/27/14	9,877	10,053	72	Marcellus Shale
12	7/27/14	9,628	9,805	72	Marcellus Shale
13	7/28/14	9,385	9,558	72	Marcellus Shale
14	7/28/14	9,134	9,310	72	Marcellus Shale
15	7/29/14	8,884	9,060	72	Marcellus Shale
16	7/30/14	8,633	8,810	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	7/8/14	79.9	7,873	7,079	4,230	359,760	9,932	
2	7/9/14	81.3	8,070	7,804	4,344	424,080	9,192	
3	7/10/14	68.3	8,397	7,879	5,438	424,540	12,045	
4	7/12/14	62.0	8,879	6,743	6,642	49,980	4,421	
5	7/25/14	79.5	7,768	6,808	5,061	420,790	9,066	
6	7/25/14	82.7	7,680	6,882	7,476	425,780	9,412	
7	7/26/14	83.5	7,530	6,970	4,831	425,400	9,224	
8	7/26/14	77.4	7,339	5,631	4,487	417,940	9,375	
9	7/26/14	78.7	7,525	6,439	4,889	418,440	9,287	
10	7/27/14	79.0	7,436	6,299	5,005	418,180	9,122	
11	7/27/14	78.6	7,445	7,655	4,575	422,760	9,170	
12	7/28/14	78.4	7,650	7,674	5,492	415,140	9,049	
13	7/28/14	80.7	7,467	7,377	4,632	417,740	9,106	
14	7/28/14	55.1	8,865	8,020	7,115	3,500	5,233	
15	7/30/14	80.6	7,270	5,767	4,230	417,880	9,270	
16	7/31/14	81.2	7,027	6,772	4,344	423,840	9,159	

Please insert additional pages as applicable.

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API 47- 103 - 02867 Farm name Stone Energy Corporation Well number #3H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	7/31/14	8,381	8,563	72	Marcellus Shale
18	8/1/14	8,126	8,313	72	Marcellus Shale
19	8/2/14	7,875	8,058	72	Marcellus Shale
20	8/3/14	7,628	7,805	72	Marcellus Shale
21	8/4/14	7,378	7,553	72	Marcellus Shale
22	8/6/14	7,165	7,307	72	Marcellus Shale

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
17	8/1/14	80.7	7,230	7,465	5,320	419,660	9,164	
18	8/2/14	81.9	7,211	7,068	4,718	418,200	9,059	
19	8/3/14	81.3	7,029	7,098	5,150	420,140	9,161	
20	8/4/14	81.7	6,858	6,622	4,962	423,780	9,076	
21	8/5/14	57.7	8,964	9,053	6,096	3,000	4,882	
22	8/7/14	78.5	6,823	6,867	4,515	378,380	7,767	

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Please insert additional pages as applicable.

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API 47- 103 - 02867 Farm name Stone Energy Corporation Well number #3H

PRODUCING FORMATION(S)	DEPTHS	
Marcelllus Shale	6,798' to 6,694' TVD	7,165' to 12,560' MD

Please insert additional pages as applicable.

GAS TEST ■ Build up □ Drawdown ■ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface 2,476 psi Bottom Hole 4,242 calculated psi DURATION OF TEST 90.2 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	1,900 mcfpd	bpd	139.2 bpd	355.2 bpd	□ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		
See Attached Sheet					

Please insert additional pages as applicable.

Drilling Contractor Nomac (top-hole) & Saxon Drilling (horizontal)
Address 2034 Martins Branch Rd /9303 New Trails Drive City Mount Morris / The Woodlands State PA / TX Zip 25312 / 77381

Logging Company Scientific Drilling and Schlumberger
Address 3475 Washington Ave / 1178 US HWY 33 East City Finleyville / Weston State PA / WV Zip 15332 / 26452

Cementing Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Stimulating Company Schlumberger
Address 1178 US HWY 33 East City Weston State WV Zip 26452

Please insert additional pages as applicable.

Completed by W. Lee Hornsby Telephone 304-225-1600
Signature W. Lee Hornsby Title Drilling Engineer Date 4/27/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

Stone #3H
API 47-103-02867
Stone Energy Corporation

	Top (ft TVD)	Horizontal Top (ft MD)		Bottom (ft TVD)	Bottom (ft MD)	
Sandstone & Shale	Surface		*	909		FW @ 95
Coal	909		*	912		
Sandstone & Shale	842		*	1,100		
Coal	1,100		*	1,104		
Sandstone & Shale	1,104		*	2,086		No SW Reported
Little Lime	2,086		*	2,116		
Big Lime	2,116		*	2,216		
Big Injun	2,216		*	2,316		
Sandstone & Shale	2,316		*	2,689		
Berea Sandstone	2,689		*	2,719		
Shale	2,719		*	2,894		
Gordon	2,894		*	2,944		
Undiff Devonian Shale	2,944		*	5,874	5,899	
Rhinestreet	5,874	5,899	~	6,449	6,496	
Cashaqua	6,449	6,496	~	6,602	6,690	
Middlesex	6,602	6,690	~	6,622	6,716	
West River	6,622	6,716	~	6,673	6,808	
Geneseo	6,673	6,808	~	6,689	6,839	
Tully Limestone	6,689	6,839	~	6,725	6,916	
Hamilton Shale	6,725	6,916	~	6,778	7,064	
Marcellus	6,778	7,064	~	6,683	12,666	
TD				6,683	12,666	

* From Pilot Hole Log and Driller's Log
~ From MWD Gamma Log

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	8/7/2014
State:	West Virginia
County/Parish:	Wetzel County
API Number:	47-103-02867
Operator Name:	Stone Energy
Well Name and Number:	Stone 3H
Longitude:	518,694
Latitude:	4,389,060
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	8029200

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
H015, Slickwater, WF115	Schlumberger	Corrosion Inhibitor, Bactericide (Myacide GA25), Scale Inhibitor, Surfactant , Acid, Breaker, Gelling Agent, Friction Reducer, Iron Control Agent, Clay Control Agent, Buffer, Fluid Loss Additive ,	Water (Including Mix Water Supplied by Client)*	NA		89.07730%	
			Crystalline silica	14808-60-7	98.18198%	10.72412%	
			Hydrochloric acid	7647-01-0	1.04249%	0.11387%	
			Carbohydrate polymer	Proprietary	0.75724%	0.08271%	
			Ammonium sulfate	7783-20-2	0.19941%	0.02178%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.07184%	0.00785%	
			Glutaraldehyde	111-30-8	0.05752%	0.00628%	
			Urea	57-13-6	0.03323%	0.00363%	
			Diammonium peroxidisulphate	7727-54-0	0.03151%	0.00344%	
			Sodium carbonate	497-19-8	0.00730%	0.00080%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00553%	0.00060%	
			Trisodium ortho phosphate	7601-54-9	0.00420%	0.00046%	
			Ethane-1,2-diol	107-21-1	0.00420%	0.00046%	
			Methanol	67-56-1	0.00408%	0.00045%	
			Sodium erythorbate	6381-77-7	0.00333%	0.00036%	
			Aliphatic acids	Proprietary	0.00306%	0.00033%	
			Aliphatic alcohols, ethoxylated #2	Proprietary	0.00306%	0.00033%	
			Calcium chloride	10043-52-4	0.00128%	0.00014%	
			Prop-2-yn-1-ol	107-19-7	0.00102%	0.00011%	

* 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%

Report ID: RPT-29863 (Generated on 8/25/2014 1:08 PM)

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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Project: Heather Prospect (NAD 27)
Site: Stone
Well: 3H
Wellbore: OH
Design: As Drilled

Scientific Drilling

WELL DETAILS: 3H

Ground Level: 1215.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	421817.00	1638954.00	39° 39' 3.804 N	80° 46' 56.219 W

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well 3H, Grid North
Vertical (TVD) Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Calculation Method: Minimum Curvature

PROJECT DETAILS: Heather Prospect (NAD 27)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: West Virginia North 4701
System Datum: Mean Sea Level

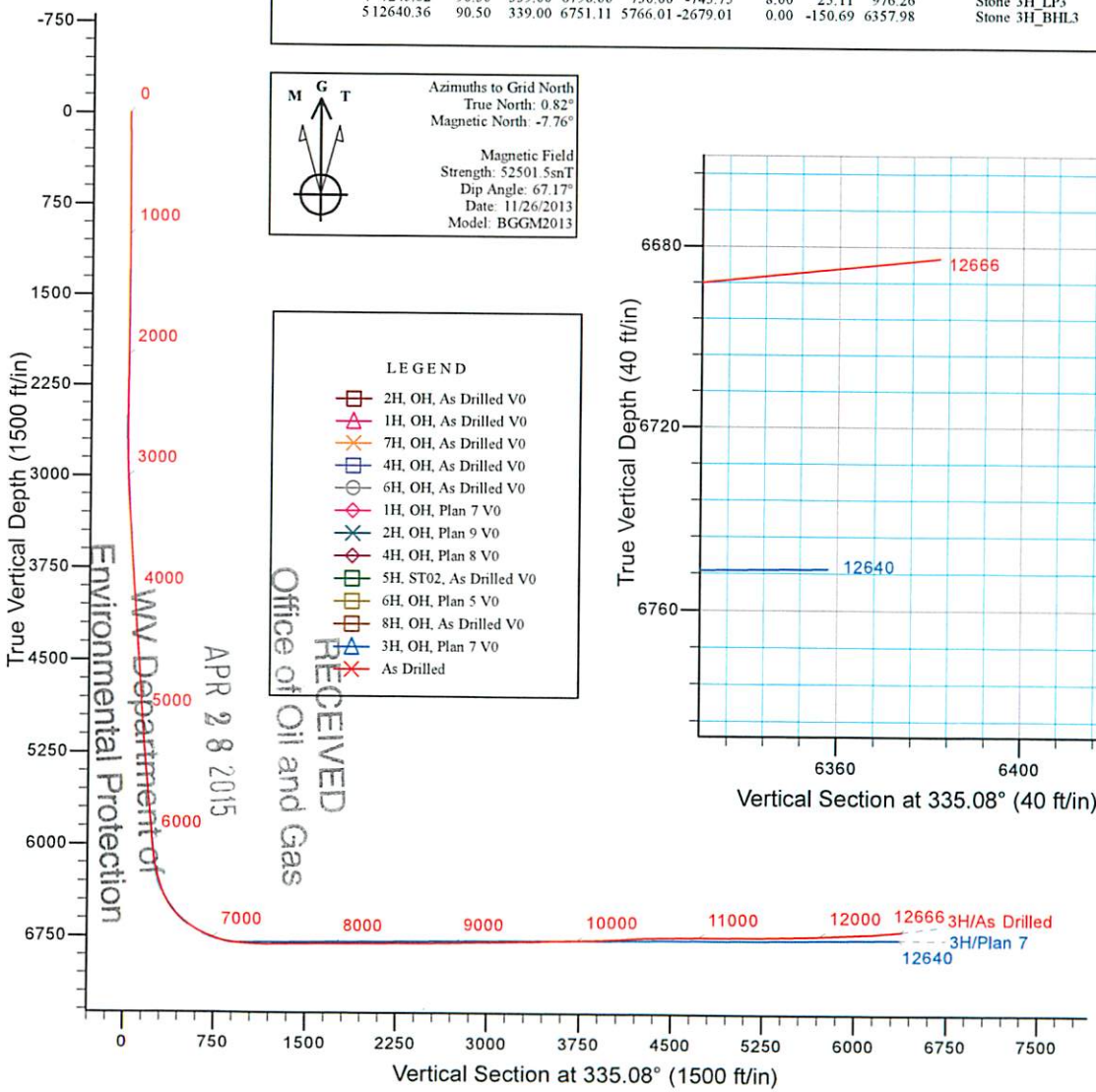
SECTION DETAILS

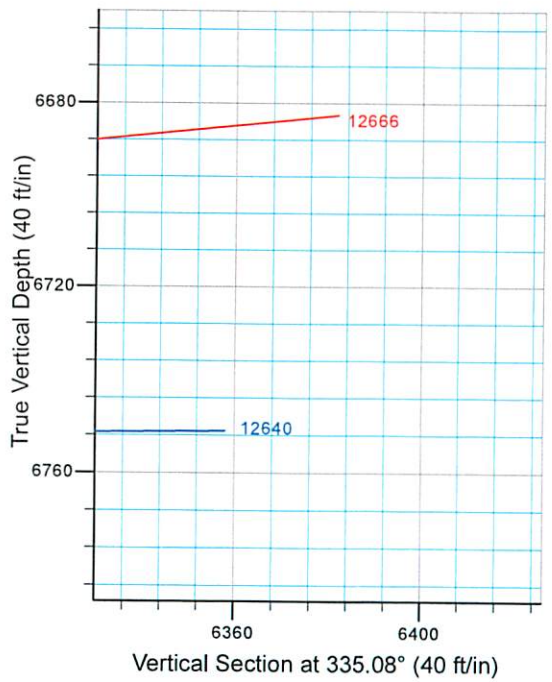
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	5897.00	9.84	278.64	5872.43	74.05	-372.75	0.00	0.00	224.22	
2	6135.00	9.84	278.64	6106.93	80.16	-412.96	0.00	0.00	246.70	
3	6280.04	14.53	314.55	6248.86	94.81	-438.23	6.00	76.68	270.64	
4	7245.82	90.50	339.00	6798.00	730.00	-745.75	8.00	25.11	976.26	Stone 3H_LP3
5	12640.36	90.50	339.00	6751.11	5766.01	-2679.01	0.00	-150.69	6357.98	Stone 3H_BHL3

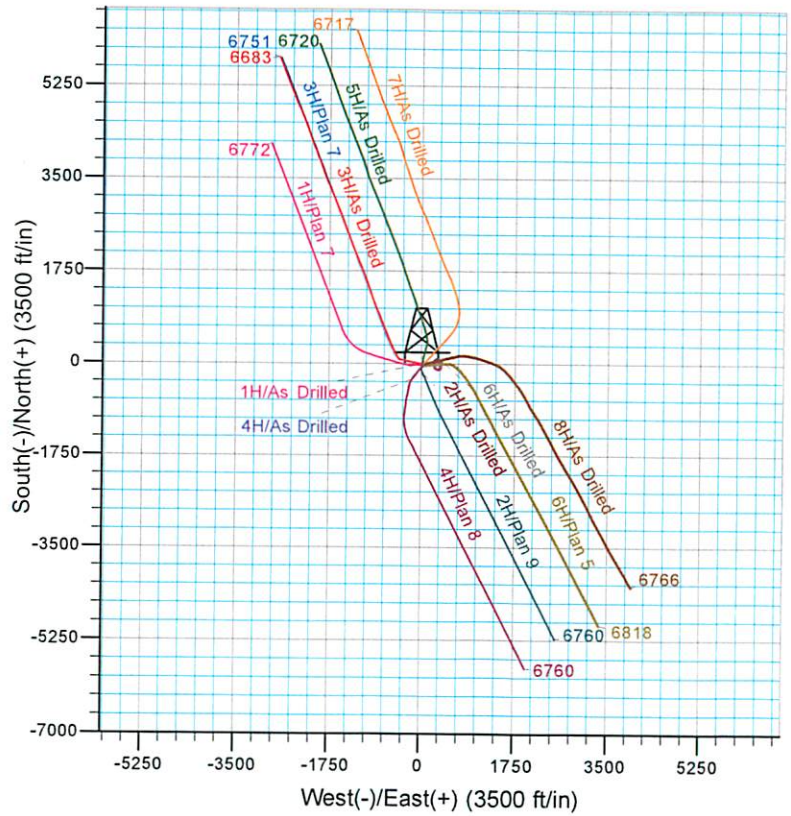
Azimuths to Grid North
True North: 0.82°
Magnetic North: -7.76°

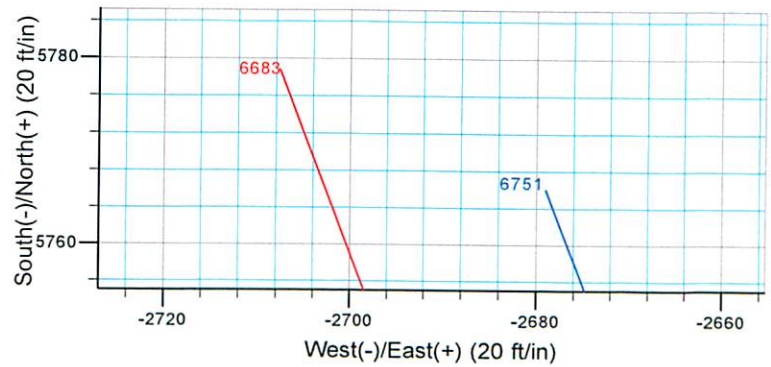
Magnetic Field
Strength: 52501.5snT
Dip Angle: 67.17°
Date: 11/26/2013
Model: BGGM2013

LEGEND
- 2H, OH, As Drilled V0
- 1H, OH, As Drilled V0
- 7H, OH, As Drilled V0
- 4H, OH, As Drilled V0
- 6H, OH, As Drilled V0
- 1H, OH, Plan 7 V0
- 2H, OH, Plan 9 V0
- 4H, OH, Plan 8 V0
- 5H, ST02, As Drilled V0
- 6H, OH, Plan 5 V0
- 8H, OH, As Drilled V0
- 3H, OH, Plan 7 V0
- As Drilled









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Stone Energy

Heather Prospect (NAD 27)
Stone
3H

OH

Design: As Drilled

Standard Survey Report

24 January, 2014

Scientific Drilling

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STONE ENERGY

Survey Report

Scientific Drilling

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 3H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Project Heather Prospect (NAD 27), Wetzel County, West Virginia

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site Stone

Site Position:		**Northing:**	421,797.00 usft	**Latitude:**	39° 39' 3.606 N
From:	Map	**Easting:**	1,638,950.00 usft	**Longitude:**	80° 46' 56.267 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.82 °

Well 3H

Well Position	**+N/-S**	0.00 ft	**Northing:**	421,817.00 usft	**Latitude:**	39° 39' 3.804 N
	+E/-W	0.00 ft	**Easting:**	1,638,954.00 usft	**Longitude:**	80° 46' 56.219 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	1,215.00 ft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	4/15/2013	-8.51	67.21	52,620
	IGRF2010	6/26/2013	-8.52	67.19	52,596
	IGRF2010	7/19/2013	-8.52	67.18	52,589
	BGGM2013	11/26/2013	-8.57	67.17	52,501

Design As Drilled

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	335.08

Survey Program **Date** 1/24/2014

From (ft)	**To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
15.00	2,400.00	Survey 1 - Gyro (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
2,448.98	5,897.00	Survey 2 - MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1
5,923.00	12,666.00	Survey 3 SDI MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1

Survey

Measured Depth (ft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Vertical Section (ft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	0.00	360.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00
Ground Level									
100.00	0.93	329.78	100.00	0.60	-0.35	0.69	1.09	1.09	0.00
First SDI Gyro Survey									
200.00	0.45	317.64	199.99	1.59	-1.02	1.87	0.50	-0.48	-12.14

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STONE ENERGY

Survey Report

Scientific Drilling

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Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
300.00	0.09	183.97	299.99	1.80	-1.29	2.18	0.52	-0.36	-133.67
400.00	0.16	271.93	399.99	1.73	-1.44	2.17	0.18	0.07	87.96
500.00	0.14	242.85	499.99	1.67	-1.68	2.23	0.08	-0.02	-29.08
600.00	0.07	57.13	599.99	1.65	-1.74	2.23	0.21	-0.07	174.28
700.00	0.15	117.69	699.99	1.62	-1.57	2.14	0.13	0.08	60.56
800.00	0.27	147.84	799.99	1.36	-1.33	1.80	0.16	0.12	30.15
900.00	0.17	111.96	899.99	1.11	-1.07	1.46	0.17	-0.10	-35.88
1,000.00	0.17	149.01	999.99	0.93	-0.86	1.20	0.11	0.00	37.05
1,100.00	0.13	77.33	1,099.99	0.82	-0.67	1.03	0.18	-0.04	-71.68
1,200.00	0.25	83.19	1,199.98	0.87	-0.34	0.94	0.12	0.12	5.86
1,300.00	0.21	101.73	1,299.98	0.86	0.06	0.76	0.08	-0.04	18.54
1,400.00	0.22	170.33	1,399.98	0.64	0.27	0.47	0.24	0.01	68.60
1,500.00	0.34	160.96	1,499.98	0.17	0.40	-0.02	0.13	0.12	-9.37
1,600.00	0.10	156.27	1,599.98	-0.19	0.53	-0.40	0.24	-0.24	-4.69
1,700.00	0.21	194.49	1,699.98	-0.45	0.52	-0.63	0.15	0.11	38.22
1,800.00	0.23	149.38	1,799.98	-0.80	0.57	-0.97	0.17	0.02	-45.11
1,900.00	0.27	140.74	1,899.98	-1.16	0.82	-1.40	0.05	0.04	-8.64
2,000.00	0.39	167.25	1,999.98	-1.67	1.05	-1.96	0.19	0.12	26.51
2,100.00	0.28	196.97	2,099.98	-2.24	1.05	-2.47	0.20	-0.11	29.72
2,200.00	0.36	146.37	2,199.97	-2.73	1.16	-2.96	0.28	0.08	-50.60
2,300.00	0.30	180.61	2,299.97	-3.25	1.33	-3.51	0.20	-0.06	34.24
2,400.00	0.19	131.92	2,399.97	-3.63	1.45	-3.90	0.23	-0.11	-48.69
Last SDI Gyro Survey									
2,448.98	0.17	182.06	2,448.95	-3.75	1.50	-4.04	0.31	-0.04	102.37
First SDI MWD Survey									
2,563.00	0.40	107.32	2,562.97	-4.04	1.88	-4.46	0.34	0.20	-65.55
2,655.00	1.42	248.58	2,654.96	-4.55	1.12	-4.60	1.90	1.11	153.54
2,746.00	1.91	273.70	2,745.93	-4.87	-1.44	-3.81	0.95	0.54	27.60
2,838.00	2.57	292.53	2,837.86	-3.98	-4.87	-1.55	1.07	0.72	20.47
2,931.00	3.32	292.24	2,930.73	-2.16	-9.29	1.96	0.81	0.81	-0.31
3,023.00	3.48	284.67	3,022.57	-0.44	-14.46	5.69	0.52	0.17	-8.23
3,115.00	4.19	288.56	3,114.36	1.33	-20.35	9.78	0.82	0.77	4.23
3,207.00	5.56	288.36	3,206.03	3.81	-27.76	15.15	1.49	1.49	-0.22
3,300.00	6.35	285.89	3,298.53	6.63	-36.99	21.60	0.89	0.85	-2.66
3,395.00	7.76	281.71	3,392.81	9.37	-48.32	28.86	1.58	1.48	-4.40
3,486.00	7.80	279.34	3,482.97	11.62	-60.43	36.00	0.36	0.04	-2.60
3,577.00	7.74	276.32	3,573.13	13.30	-72.61	42.66	0.45	-0.07	-3.32
3,669.00	7.01	281.86	3,664.37	15.14	-84.26	49.23	1.11	-0.79	6.02
3,759.00	7.20	281.94	3,753.68	17.43	-95.16	55.90	0.21	0.21	0.09
3,849.00	7.75	283.40	3,842.92	20.00	-106.58	63.05	0.65	0.61	1.62
3,946.00	7.63	281.97	3,939.04	22.86	-119.24	70.97	0.23	-0.12	-1.47
4,041.00	7.21	277.59	4,033.25	24.95	-131.32	77.96	0.74	-0.44	-4.61
4,131.00	7.08	282.86	4,122.55	26.93	-142.33	84.39	0.74	-0.14	5.86

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STONE ENERGY

Survey Report

Scientific Drilling

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 3H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,226.00	6.84	283.20	4,216.85	29.53	-153.54	91.47	0.26	-0.25	0.36
4,318.00	7.15	283.05	4,308.17	32.07	-164.45	98.38	0.34	0.34	-0.16
4,411.00	7.10	281.42	4,400.45	34.52	-175.72	105.34	0.22	-0.05	-1.75
4,502.00	6.77	278.04	4,490.78	36.38	-186.55	111.60	0.58	-0.36	-3.71
4,594.00	6.88	282.13	4,582.13	38.30	-197.30	117.87	0.54	0.12	4.45
4,688.00	6.63	280.91	4,675.48	40.51	-208.14	124.43	0.31	-0.27	-1.30
4,779.00	7.06	279.63	4,765.83	42.44	-218.81	130.68	0.50	0.47	-1.41
4,872.00	7.15	276.10	4,858.12	44.01	-230.20	136.91	0.48	0.10	-3.80
4,968.00	6.84	274.15	4,953.40	45.05	-241.84	142.76	0.41	-0.32	-2.03
5,059.00	6.45	278.60	5,043.79	46.21	-252.30	148.22	0.71	-0.43	4.89
5,153.00	6.71	287.00	5,137.17	48.61	-262.77	154.80	1.06	0.28	8.94
5,247.00	7.38	285.53	5,230.46	51.83	-273.84	162.39	0.74	0.71	-1.56
5,341.00	8.17	287.33	5,323.60	55.43	-286.03	170.80	0.88	0.84	1.91
5,433.00	8.19	283.75	5,414.66	58.94	-298.64	179.29	0.55	0.02	-3.89
5,525.00	8.81	283.27	5,505.65	62.11	-311.86	187.74	0.68	0.67	-0.52
5,618.00	9.31	282.03	5,597.49	65.32	-326.15	196.66	0.58	0.54	-1.33
5,709.00	10.01	282.37	5,687.20	68.55	-341.08	205.88	0.77	0.77	0.37
5,802.00	9.74	279.50	5,778.82	71.58	-356.73	215.22	0.60	-0.29	-3.09
5,832.00	9.84	278.64	5,808.39	72.38	-361.77	218.07	0.59	0.33	-2.87
5,897.00	9.84	278.64	5,872.43	74.05	-372.75	224.22	0.00	0.00	0.00
5,923.00	10.15	279.90	5,898.04	74.78	-377.20	226.75	1.46	1.19	4.85
5,987.00	9.90	279.46	5,961.06	76.65	-388.18	233.08	0.41	-0.39	-0.69
6,051.00	9.81	281.15	6,024.11	78.61	-398.96	239.40	0.47	-0.14	2.64
6,081.00	9.74	281.62	6,053.68	79.61	-403.95	242.41	0.35	-0.23	1.57
6,112.00	9.50	282.04	6,084.24	80.67	-409.02	245.51	0.81	-0.77	1.35
6,142.00	9.66	289.62	6,113.83	82.04	-413.82	248.76	4.24	0.53	25.27
6,172.00	10.76	304.37	6,143.36	84.46	-418.50	252.94	9.42	3.67	49.17
6,203.00	12.31	312.10	6,173.73	88.31	-423.34	258.47	7.05	5.00	24.94
6,233.00	13.73	311.80	6,202.96	92.83	-428.37	264.68	4.74	4.73	-1.00
6,264.00	15.51	312.13	6,232.95	98.06	-434.19	271.88	5.75	5.74	1.06
6,294.00	17.23	314.90	6,261.74	103.89	-440.31	279.75	6.29	5.73	9.23
6,324.00	17.63	319.37	6,290.36	110.47	-446.41	288.29	4.66	1.33	14.90
6,355.00	18.21	322.69	6,319.86	117.89	-452.41	297.54	3.79	1.87	10.71
6,385.00	20.06	324.67	6,348.20	125.82	-458.22	307.18	6.53	6.17	6.60
6,416.00	22.33	327.59	6,377.10	135.13	-464.46	318.25	8.07	7.32	9.42
6,446.00	24.32	329.77	6,404.65	145.28	-470.62	330.05	7.23	6.63	7.27
6,476.00	27.02	331.27	6,431.68	156.59	-477.01	343.01	9.26	9.00	5.00
6,506.00	29.79	332.75	6,458.07	169.20	-483.70	357.25	9.53	9.23	4.93
6,536.00	32.56	332.92	6,483.74	183.01	-490.79	372.77	9.24	9.23	0.57
6,566.00	35.08	333.07	6,508.66	197.89	-498.37	389.46	8.40	8.40	0.50
6,596.00	37.83	333.36	6,532.79	213.80	-506.40	407.27	9.18	9.17	0.97
6,627.00	40.90	333.92	6,556.75	231.42	-515.12	426.92	9.97	9.90	1.81
6,657.00	43.98	334.27	6,578.89	249.63	-523.97	447.16	10.30	10.27	1.17
6,687.00	46.67	334.83	6,599.98	268.89	-533.13	468.49	9.06	8.97	1.87

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Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,717.00	49.37	335.36	6,620.04	289.11	-542.52	490.79	9.10	9.00	1.77
6,747.00	52.57	335.92	6,638.93	310.34	-552.13	514.09	10.76	10.67	1.87
6,777.00	55.78	335.75	6,656.49	332.53	-562.08	538.41	10.71	10.70	-0.57
6,808.00	57.97	336.17	6,673.43	356.24	-572.66	564.37	7.16	7.06	1.35
6,838.00	59.57	336.66	6,688.98	379.75	-582.92	590.01	5.51	5.33	1.63
6,869.00	61.56	337.12	6,704.21	404.58	-593.52	617.00	6.55	6.42	1.48
6,899.00	63.45	337.36	6,718.06	429.12	-603.81	643.59	6.34	6.30	0.80
6,930.00	65.59	337.22	6,731.40	454.93	-614.61	671.55	6.92	6.90	-0.45
6,960.00	67.90	336.89	6,743.24	480.31	-625.36	699.09	7.77	7.70	-1.10
6,990.00	69.54	336.96	6,754.13	506.03	-636.32	727.03	5.47	5.47	0.23
7,021.00	71.52	336.92	6,764.46	532.92	-647.76	756.24	6.39	6.39	-0.13
7,051.00	73.71	337.58	6,773.43	559.32	-658.83	784.85	7.60	7.30	2.20
7,081.00	75.57	337.89	6,781.37	586.09	-669.79	813.75	6.28	6.20	1.03
7,113.00	77.73	338.39	6,788.76	614.99	-681.38	844.84	6.92	6.75	1.56
7,144.00	80.61	338.40	6,794.58	643.29	-692.59	875.23	9.29	9.29	0.03
7,176.00	82.90	338.34	6,799.17	672.73	-704.27	906.84	7.16	7.16	-0.19
7,208.00	85.55	337.86	6,802.39	702.27	-716.14	938.64	8.41	8.28	-1.50
7,272.00	87.01	337.68	6,806.55	761.38	-740.30	1,002.43	2.30	2.28	-0.28
7,336.00	87.98	337.65	6,809.34	820.53	-764.60	1,066.30	1.52	1.52	-0.05
7,399.00	89.16	337.78	6,810.91	878.80	-788.48	1,129.21	1.88	1.87	0.21
7,462.00	90.20	337.10	6,811.27	936.98	-812.65	1,192.16	1.97	1.65	-1.08
7,526.00	90.91	336.18	6,810.65	995.73	-838.03	1,256.13	1.82	1.11	-1.44
7,653.00	89.97	338.40	6,809.67	1,112.87	-887.05	1,383.02	1.90	-0.74	1.75
7,717.00	90.74	339.09	6,809.27	1,172.51	-910.25	1,446.89	1.62	1.20	1.08
7,781.00	89.56	339.05	6,809.11	1,232.29	-933.11	1,510.73	1.84	-1.84	-0.06
7,844.00	88.86	338.92	6,809.98	1,291.09	-955.70	1,573.58	1.13	-1.11	-0.21
7,908.00	90.60	341.78	6,810.28	1,351.36	-977.22	1,637.30	5.23	2.72	4.47
7,971.00	91.75	343.94	6,808.99	1,411.54	-995.78	1,699.70	3.88	1.83	3.43
8,035.00	91.85	341.52	6,806.98	1,472.62	-1,014.77	1,763.10	3.78	0.16	-3.78
8,098.00	90.37	339.68	6,805.75	1,532.03	-1,035.69	1,825.79	3.75	-2.35	-2.92
8,162.00	90.57	339.01	6,805.23	1,591.91	-1,058.27	1,889.61	1.09	0.31	-1.05
8,225.00	90.71	337.64	6,804.53	1,650.45	-1,081.54	1,952.50	2.19	0.22	-2.17
8,289.00	91.14	337.46	6,803.49	1,709.60	-1,105.97	2,016.43	0.73	0.67	-0.28
8,353.00	90.24	337.54	6,802.72	1,768.72	-1,130.46	2,080.37	1.41	-1.41	0.13
8,416.00	90.17	337.68	6,802.50	1,826.97	-1,154.46	2,143.31	0.25	-0.11	0.22
8,480.00	91.11	337.61	6,801.78	1,886.15	-1,178.80	2,207.24	1.47	1.47	-0.11
8,544.00	90.54	337.58	6,800.86	1,945.32	-1,203.19	2,271.17	0.89	-0.89	-0.05
8,607.00	89.90	338.56	6,800.62	2,003.76	-1,226.72	2,334.08	1.86	-1.02	1.56
8,671.00	90.47	338.25	6,800.41	2,063.26	-1,250.27	2,397.98	1.01	0.89	-0.48
8,735.00	90.71	337.79	6,799.75	2,122.61	-1,274.23	2,461.89	0.81	0.38	-0.72
8,799.00	89.73	337.71	6,799.51	2,181.84	-1,298.46	2,525.82	1.54	-1.53	-0.13
8,862.00	89.19	338.43	6,800.10	2,240.28	-1,321.99	2,588.73	1.43	-0.86	1.14
8,924.00	90.71	339.56	6,800.15	2,298.16	-1,344.21	2,650.58	3.05	2.45	1.82

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Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 3H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,987.00	92.79	339.46	6,798.23	2,357.14	-1,366.25	2,713.36	3.31	3.30	-0.16
9,051.00	92.08	338.81	6,795.51	2,416.89	-1,389.02	2,777.14	1.50	-1.11	-1.02
9,115.00	91.71	339.15	6,793.40	2,476.60	-1,411.97	2,840.96	0.78	-0.58	0.53
9,177.00	91.14	339.00	6,791.85	2,534.49	-1,434.10	2,902.79	0.95	-0.92	-0.24
9,241.00	90.51	338.36	6,790.93	2,594.10	-1,457.37	2,966.65	1.40	-0.98	-1.00
9,304.00	90.94	339.11	6,790.13	2,652.81	-1,480.22	3,029.52	1.37	0.68	1.19
9,368.00	91.55	339.40	6,788.74	2,712.65	-1,502.88	3,093.34	1.06	0.95	0.45
9,432.00	92.11	339.53	6,786.70	2,772.55	-1,525.32	3,157.11	0.90	0.88	0.20
9,494.00	92.01	337.95	6,784.47	2,830.29	-1,547.79	3,218.95	2.55	-0.16	-2.55
9,558.00	91.18	337.27	6,782.69	2,889.44	-1,572.15	3,282.86	1.68	-1.30	-1.06
9,621.00	91.54	337.80	6,781.20	2,947.64	-1,596.22	3,345.78	1.02	0.57	0.84
9,685.00	91.41	338.04	6,779.55	3,006.93	-1,620.27	3,409.68	0.43	-0.20	0.38
9,749.00	92.15	337.76	6,777.56	3,066.20	-1,644.34	3,473.57	1.24	1.16	-0.44
9,813.00	90.98	337.95	6,775.81	3,125.45	-1,668.45	3,537.47	1.85	-1.83	0.30
9,876.00	90.77	337.91	6,774.85	3,183.83	-1,692.12	3,600.39	0.34	-0.33	-0.06
9,940.00	90.94	337.60	6,773.89	3,243.06	-1,716.35	3,664.31	0.55	0.27	-0.48
10,004.00	91.21	336.54	6,772.69	3,301.99	-1,741.28	3,728.26	1.71	0.42	-1.66
10,068.00	90.54	335.31	6,771.72	3,360.42	-1,767.38	3,792.24	2.19	-1.05	-1.92
10,131.00	91.34	336.40	6,770.68	3,417.90	-1,793.15	3,855.23	2.15	1.27	1.73
10,195.00	92.08	336.24	6,768.77	3,476.48	-1,818.84	3,919.18	1.18	1.16	-0.25
10,258.00	93.66	338.47	6,765.62	3,534.55	-1,843.06	3,982.05	4.33	2.51	3.54
10,322.00	94.37	340.68	6,761.14	3,594.37	-1,865.34	4,045.69	3.62	1.11	3.45
10,385.00	94.98	341.01	6,756.00	3,653.68	-1,885.95	4,108.16	1.10	0.97	0.52
10,449.00	92.56	340.33	6,751.79	3,713.94	-1,907.08	4,171.72	3.93	-3.78	-1.06
10,513.00	92.49	340.39	6,748.97	3,774.16	-1,928.57	4,235.38	0.14	-0.11	0.09
10,577.00	92.08	339.95	6,746.42	3,834.32	-1,950.27	4,299.08	0.94	-0.64	-0.69
10,640.00	91.45	339.75	6,744.48	3,893.43	-1,971.96	4,361.83	1.05	-1.00	-0.32
10,704.00	90.70	339.73	6,743.28	3,953.46	-1,994.12	4,425.61	1.17	-1.17	-0.03
10,767.00	89.56	339.00	6,743.14	4,012.42	-2,016.32	4,488.43	2.15	-1.81	-1.16
10,830.00	90.07	338.88	6,743.34	4,071.21	-2,038.96	4,551.29	0.83	0.81	-0.19
10,893.00	90.91	339.33	6,742.80	4,130.06	-2,061.43	4,614.13	1.51	1.33	0.71
10,956.00	91.58	339.63	6,741.43	4,189.05	-2,083.50	4,676.93	1.17	1.06	0.48
11,020.00	90.91	339.76	6,740.04	4,249.06	-2,105.71	4,740.71	1.07	-1.05	0.20
11,083.00	90.34	340.08	6,739.36	4,308.23	-2,127.34	4,803.48	1.04	-0.90	0.51
11,146.00	90.57	339.57	6,738.86	4,367.36	-2,149.06	4,866.26	0.89	0.37	-0.81
11,210.00	90.70	339.00	6,738.15	4,427.22	-2,171.70	4,930.08	0.91	0.20	-0.89
11,273.00	91.31	339.42	6,737.04	4,486.11	-2,194.06	4,992.91	1.18	0.97	0.67
11,337.00	89.66	339.37	6,736.50	4,546.01	-2,216.58	5,056.72	2.58	-2.58	-0.08
11,401.00	89.77	339.34	6,736.82	4,605.90	-2,239.14	5,120.54	0.18	0.17	-0.05
11,465.00	90.23	338.03	6,736.82	4,665.52	-2,262.41	5,184.41	2.17	0.72	-2.05
11,528.00	90.30	336.12	6,736.53	4,723.54	-2,286.95	5,247.37	3.03	0.11	-3.03
11,592.00	91.08	335.87	6,735.76	4,782.00	-2,312.98	5,311.36	1.22	1.22	-0.39
11,655.00	91.75	334.92	6,734.20	4,839.26	-2,339.20	5,374.34	1.84	1.06	-1.51

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STONE ENERGY

Survey Report

Scientific Drilling

Company:	Stone Energy	**Local Co-ordinate Reference:**	Well 3H
Project:	Heather Prospect (NAD 27)	**TVD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Site:	Stone	**MD Reference:**	GL 1215' & KB 18' @ 1233.00ft (Saxon 141)
Well:	3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Northeast District

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,718.00	91.68	335.33	6,732.32	4,896.39	-2,365.69	5,437.31	0.66	-0.11	0.65
11,782.00	91.91	338.61	6,730.31	4,955.25	-2,390.71	5,501.24	5.14	0.36	5.13
11,845.00	91.91	338.81	6,728.21	5,013.92	-2,413.57	5,564.07	0.32	0.00	0.32
11,908.00	92.62	338.02	6,725.72	5,072.45	-2,436.73	5,626.92	1.69	1.13	-1.25
11,972.00	92.05	337.69	6,723.11	5,131.68	-2,460.84	5,690.79	1.03	-0.89	-0.52
12,035.00	91.78	339.03	6,721.01	5,190.21	-2,484.06	5,753.65	2.17	-0.43	2.13
12,099.00	92.28	339.90	6,718.74	5,250.10	-2,506.49	5,817.42	1.57	0.78	1.36
12,163.00	92.79	339.37	6,715.91	5,310.04	-2,528.74	5,881.16	1.15	0.80	-0.83
12,226.00	92.22	339.10	6,713.16	5,368.90	-2,551.06	5,943.93	1.00	-0.90	-0.43
12,290.00	92.25	339.50	6,710.66	5,428.72	-2,573.66	6,007.71	0.63	0.05	0.63
12,354.00	92.72	339.35	6,707.89	5,488.58	-2,596.13	6,071.46	0.77	0.73	-0.23
12,417.00	93.83	339.13	6,704.29	5,547.39	-2,618.42	6,134.19	1.80	1.76	-0.35
12,481.00	94.30	339.04	6,699.75	5,607.02	-2,641.21	6,197.88	0.75	0.73	-0.14
12,545.00	95.01	338.67	6,694.56	5,666.52	-2,664.22	6,261.53	1.25	1.11	-0.58
12,608.00	95.89	338.91	6,688.57	5,724.98	-2,686.91	6,324.11	1.45	1.40	0.38
Last SDI MWD Survey									
12,666.00	95.89	338.91	6,682.62	5,778.81	-2,707.67	6,381.67	0.00	0.00	0.00
Projection to Bit									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
15.00	15.00	0.00	0.00	Ground Level
100.00	100.00	0.60	-0.35	First SDI Gyro Survey
2,400.00	2,399.97	-3.63	1.45	Last SDI Gyro Survey
2,448.98	2,448.95	-3.75	1.50	First SDI MWD Survey
12,608.00	6,688.57	5,724.98	-2,686.91	Last SDI MWD Survey
12,666.00	6,682.62	5,778.81	-2,707.67	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

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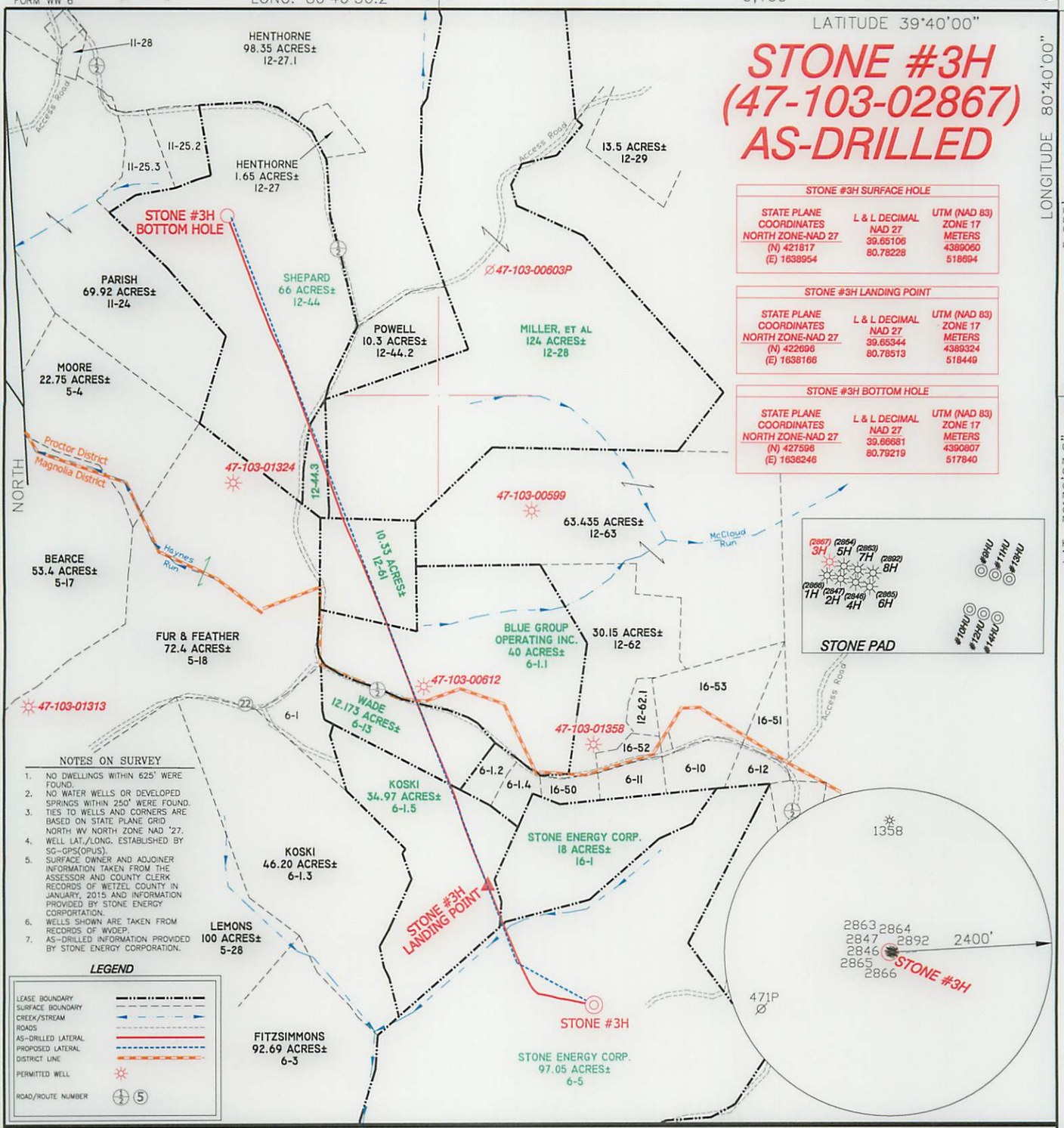
FORM WW 6

LONG. 80°46'56.2" — 9,100'

LATITUDE 39°40'00"

STONE #3H (47-103-02867) AS-DRILLED

LONGITUDE 80°40'00" — 5,655' — LAT. 39°39'03.8"



STONE #3H SURFACE HOLE		
STATE PLANE COORDINATES NORTH ZONE-NAD 27	L & L DECIMAL NAD 27	UTM (NAD 83) ZONE 17 METERS
(N) 421817	39.65106	4389060
(E) 1638954	80.78228	518694

STONE #3H LANDING POINT		
STATE PLANE COORDINATES NORTH ZONE-NAD 27	L & L DECIMAL NAD 27	UTM (NAD 83) ZONE 17 METERS
(N) 422696	39.65344	4389324
(E) 1638166	80.78513	518449

STONE #3H BOTTOM HOLE		
STATE PLANE COORDINATES NORTH ZONE-NAD 27	L & L DECIMAL NAD 27	UTM (NAD 83) ZONE 17 METERS
(N) 427596	39.66681	4390807
(E) 1636246	80.79219	517840

NOTES ON SURVEY

1. NO DWELLINGS WITHIN 625' WERE FOUND.
2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27.
4. WELL LAT./LONG. ESTABLISHED BY SG-GPS(OPUS).
5. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN JANUARY, 2015 AND INFORMATION PROVIDED BY STONE ENERGY CORPORATION.
6. WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDEP.
7. AS-DRILLED INFORMATION PROVIDED BY STONE ENERGY CORPORATION.

LEGEND

LEASE BOUNDARY
SURFACE BOUNDARY
CREEK/STREAM
ROADS
AS-DRILLED LATERAL
PROPOSED LATERAL
DISTRICT LINE
PERMITTED WELL
ROAD/ROUTE NUMBER

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 834

HUPP Surveying & Mapping
P.O. Box 647 Grantsville, WV 26147
(304) 354-7035 EMAIL: hupp@frontiernet.net

DOYLE HUPP, JR. LICENSED No. 834 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE APRIL 6, 20 15

OPERATORS WELL NO. STONE #3H

API WELL NO. 47 — 103 — 02867
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2234 (BK 75-28)
SCALE 1" = 1000'
PROVEN SOURCE OF ELEVATION SG-GPS (OPUS)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE : OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION :
ELEVATION 1,215' WATERSHED DOOLIN RUN
DISTRICT MAGNOLIA COUNTY WETZEL QUADRANGLE NEW MARTINSVILLE 7.5'
SURFACE OWNER STONE ENERGY CORPORATION ACREAGE 97.05±
ROYALTY OWNER BARBARA BARRETT, et al LEASE ACREAGE 470.92±
PROPOSED WORK : LEASE NO. ___
DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) ___ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD-6,810' MD- 12,666'

COUNTY NAME

PERMIT

WELL OPERATOR STONE ENERGY CORPORATION DESIGNATED AGENT TIM MCGREGOR
ADDRESS P.O. BOX 52807 LAFAYETTE, LA 70508 ADDRESS 1300 FORT PIERPONT DR., SUITE 201 MORGANTOWN, WV 26508