

Well Operator's Report of Well Work



Well Number: 516124

API: 47 - 103 - 03066

Submission: Initial Amended

Notes: Amended With Flowback. Following is the WR-35 (as amended to include Flowback data) for N. Henderson Well #516124. Included is a copy of the following, each of which was sent as part of the initial Report: The FracFocus Disclosure, the Perforations and the Stimulated Stages attachments, Survey materials, a "Depths" attachment and the well's "As-Drilled" plat. Please note that Statoil Onshore Properties, Inc. (A Subsidiary Of EQT Corp.) performed the drilling operations for this well; EQT performed the Stim. ops

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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 47-103-03066 County Wetzel District Center
Quad Littleton Pad Name North Henderson Field/Pool Name Marcellus
Farm name Howard Henderson Well Number North Henderson North Unit 2H
Operator (as registered with the OOG) Statoil USA Onshore Properties, INC (A Subsidiary of EQT Corp.)
Address 625 Liberty Ave, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,393,821.08 Easting 536,217.69
Landing Point of Curve Northing 4,393,871.59 Easting 535,998.54
Bottom Hole Northing 4,395,428.97 Easting 534,390.55

Elevation (ft) 1342 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)
Production - 12.9 ppg synthetic based - Cyberdrill

Date permit issued 4/28/15 Date drilling commenced 5/3/2015 Date drilling ceased 6/17/2015
Date completion activities began 1/30/2018 Date completion activities ceased 2/14/2018
Verbal plugging (Y/N) N 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 622 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2077 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 822, 1102, 1222 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by:

DMH

Reviewed by

API 47-103 - 03066 Farm name Howard Henderson Well number North Henderson North 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	120	NEW	A-500	N/A	Y
Surface	17 1/2	13 3/8	676	NEW	J-55	N/A	Y
Coal							
Intermediate 1	12 1/4	9 5/8	2746	NEW	J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2	5 1/2	15210	NEW	P-110EC	N/A	Y
Tubing							
Packer type and depth set							

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	100	15.6	1.18	118	0	72+
Surface	CLASS A	290	15.8	2.1	609	0	8
Coal							
Intermediate 1	CLASS A	500	15.8	2.3	1150	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H	2960	14.8	1.16	3433	1357	72+
Tubing							

Drillers TD (ft) 15236 Loggers TD (ft) N/A

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

Plug back procedure N/A

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Kick off depth (ft) 6805

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

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Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

SURFACE = 1 centralizer w/ stop collar 10 ft above float shoe. One Single Bow every joint to 100ft below surface.

INTERMEDIATE = 1 centek centralizer w/ stop collar 10 ft above float shoe. 1 centek centralizer w/ stop collar 10 ft above float collar. 1 centralizer every joint for the first 15 joints. One centralizer every 3 jts to 100ft below surface.

PRODUCTION = 1 centek centralizer w/ stop collar 10ft above shoe. 1 centek centralizer 10ft above float collar. 1 centek centralizer every joint (floating) until KOP. 1 centek centralizer every 3 joints (floating) until 200ft inside intermediate shoe. 1 centek centralizer 50ft below mandrel hanger.

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 _____

API 47- 103 - 03066 Farm name Howard Henderson Well number North Henderson North Unit 2H

PERFORATION RECORD

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

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 Attached								

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Please insert additional pages as applicable.

API 47- 103 - 03066 Farm name Howard Henderson Well number 516124

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>MARCELLUS</u>	<u>7,273.60</u>	<u>TVD</u>	<u>7,453.00</u> MD
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3,788 psi Bottom Hole N/A psi DURATION OF TEST 37.5 hrs

OPEN FLOW Gas 10,360 mcfpd Oil N/A bpd NGL 0 bpd Water 1,227 bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
	<u>0</u>		<u>0</u>		

Please insert additional pages as applicable.

Drilling Contractor ORION DRILLING
Address 601 Aviation Way City Reynoldsville State PA Zip 15851

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Logging Company HALLIBURTON ENERGY SERVICES
Address 121 Champion Way City Canonsburg State PA Zip 15317

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Cementing Company HALLIBURTON ENERGY SERVICES
Address 121 Champion Way City Canonsburg State PA Zip 15317

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Stimulating Company FTS INTERNATIONAL
Address 1432 Route 519 City Eighty-Four State PA Zip 15330

Please insert additional pages as applicable.

Completed by Brad Maddox Telephone (412) 395-7053
Signature  Title Completions Director Date 08/22/2018

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT NAME 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, H2S, ETC)
FRESH WATER ZONE	1	622	1	622	FRESH WATER
SAND/SHALE	1	884.9	1	885	
WAYNESBURG COAL	881.9	884.9	882	885	
SAND/SHALE	884.9	1,099.80	885	1,100.00	
SEWICKLEY COAL	1,099.80	1,104.80	1,100.00	1,105.00	
SAND/SHALE	1,104.80	1,218.50	1,105.00	1,219.00	
PITTSBURGH COAL	1,218.50	1,224.50	1,219.00	1,225.00	
SAND/SHALE	1,224.50	2,387.70	1,225.00	2,408.00	BRINE
BIG LIME	2,387.70	2,425.80	2,408.00	2,447.00	
SAND/SHALE	2,425.80	2,456.10	2,447.00	2,478.00	
BIG INJUN	2,456.10	2,663.80	2,478.00	2,690.00	
SAND/SHALE	2,663.80	2,776.50	2,690.00	2,804.00	
WEIR	2,776.50	2,796.40	2,804.00	2,824.00	
SAND/SHALE	2,796.40	2,990.40	2,824.00	3,019.00	
GANTZ	2,990.40	3,020.40	3,019.00	3,049.00	
SAND/SHALE	3,020.40	3,134.10	3,049.00	3,163.00	
50F	3,134.10	3,151.10	3,163.00	3,180.00	
SAND/SHALE	3,151.10	3,171.10	3,180.00	3,200.00	
30F	3,171.10	3,183.10	3,200.00	3,212.00	
SAND/SHALE	3,183.10	3,231.00	3,212.00	3,260.00	
GORDON	3,231.00	3,261.00	3,260.00	3,290.00	
SAND/SHALE	3,261.00	3,300.00	3,290.00	3,329.00	
BAYARD	3,300.00	3,310.00	3,329.00	3,339.00	
SAND/SHALE	3,310.00	3,886.90	3,339.00	3,916.00	
WARREN	3,886.90	3,921.90	3,916.00	3,951.00	
SAND/SHALE	3,921.90	3,977.90	3,951.00	4,007.00	
SPEECHLEY	3,977.90	4,170.90	4,007.00	4,200.00	
SAND/SHALE	4,170.90	4,850.80	4,200.00	4,880.00	
RILEY	4,850.80	4,900.80	4,880.00	4,930.00	
SAND/SHALE	4,900.80	5,391.10	4,930.00	5,421.00	
BENSON	5,391.10	5,551.00	5,421.00	5,581.00	
SAND/SHALE	5,551.00	5,846.90	5,581.00	5,877.00	
ALEXANDER	5,846.90	5,864.90	5,877.00	5,895.00	
SAND/SHALE	5,864.90	6,169.60	5,895.00	6,200.00	
ELK	6,169.60	6,992.40	6,200.00	7,033.00	
SONYEA	6,992.40	7,130.30	7,033.00	7,206.00	
MIDDLESEX	7,130.30	7,155.40	7,206.00	7,244.00	
GENESSEE	7,155.40	7,199.30	7,244.00	7,317.00	
GENESSEO	7,199.30	7,211.50	7,317.00	7,339.00	
TULLY	7,211.50	7,223.50	7,339.00	7,361.00	
HAMILTON	7,223.50	7,273.60	7,361.00	7,453.00	
MARCELLUS	7,273.60	7,273.60	7,453.00	7,453.00	

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516124 47-103-03066-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	12/12/2017	15,004	15,210	10	MARCELLUS
1	12/12/2017	14,823	14,997	0	MARCELLUS
2	1/30/2018	14,609	14,783	40	MARCELLUS
3	1/31/2018	14,394	14,568	40	MARCELLUS
4	1/31/2018	14,179	14,353	40	MARCELLUS
5	1/31/2018	13,964	14,138	40	MARCELLUS
6	2/1/2018	13,749	13,923	40	MARCELLUS
7	2/1/2018	13,534	13,708	40	MARCELLUS
8	2/2/2018	13,319	13,493	40	MARCELLUS
9	2/2/2018	13,104	13,278	40	MARCELLUS
10	2/3/2018	12,889	13,063	40	MARCELLUS
11	2/3/2018	12,674	12,848	40	MARCELLUS
12	2/3/2018	12,459	12,633	40	MARCELLUS
13	2/4/2018	12,244	12,418	40	MARCELLUS
14	2/4/2018	12,029	12,203	40	MARCELLUS
15	2/5/2018	11,814	11,988	40	MARCELLUS
16	2/6/2018	11,599	11,773	40	MARCELLUS
17	2/6/2018	11,384	11,558	40	MARCELLUS
18	2/7/2018	11,083	11,343	40	MARCELLUS
19	2/7/2018	10,868	11,042	40	MARCELLUS
20	2/8/2018	10,653	10,827	40	MARCELLUS
21	2/8/2018	10,438	10,612	40	MARCELLUS
22	2/9/2018	10,223	10,397	40	MARCELLUS
23	2/9/2018	10,008	10,182	40	MARCELLUS
24	2/9/2018	9,793	9,967	40	MARCELLUS
25	2/10/2018	9,578	9,752	40	MARCELLUS
26	2/10/2018	9,363	9,537	40	MARCELLUS
27	2/10/2018	9,148	9,322	40	MARCELLUS
28	2/11/2018	8,933	9,109	40	MARCELLUS
29	2/11/2018	8,718	8,892	40	MARCELLUS
30	2/12/2018	8,374	8,677	40	MARCELLUS
31	2/12/2018	8,159	8,333	40	MARCELLUS
32	2/13/2018	7,944	8,118	40	MARCELLUS
33	2/13/2018	7,729	7,903	40	MARCELLUS

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516124 47-103-03066-0000 - Stimulated Stages

Stage Number	Stimulation 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	12/12/2017	81	8960	9283	5333	500935	12,944	0
2	1/30/2018	90	9176	9344	4506	500872	8,663	0
3	1/31/2018	93	9123	9355	5639	505871	8,687	0
4	1/31/2018	90	9090	9282	4980	500306	8,563	0
5	1/31/2018	88	9016	9535	4552	500861	8,953	0
6	2/1/2018	93	9022	9336	5477	500117	9,559	0
7	2/1/2018	92	9192	9470	4910	500935	8,463	0
8	2/2/2018	93	9106	9400	5213	500700	9,520	0
9	2/2/2018	97	9313	9439	5254	499401	8,454	0
10	2/3/2018	94	8810	9459	5253	499561	8,518	0
11	2/3/2018	97	9121	9300	4899	501134	8,440	0
12	2/3/2018	93	9013	9393	5063	501071	9,096	0
13	2/4/2018	97	8913	9348	5313	499602	9,227	0
14	2/4/2018	99	8791	9353	4833	499266	8,564	0
15	2/5/2018	99	8460	8792	4773	499538	8,452	0
16	2/6/2018	100	8404	8771	5566	501239	8,615	0
17	2/6/2018	99	8542	9124	5243	497627	8,384	0
18	2/7/2018	97	8349	9213	5325	499791	8,250	0
19	2/7/2018	100	8020	9193	5477	501680	8,247	0
20	2/8/2018	98	8340	9271	5052	499812	8,083	0
21	2/8/2018	100	8149	9307	5106	500610	8,179	0
22	2/9/2018	99	8413	9255	5419	499517	8,134	0
23	2/9/2018	100	8608	9133	6250	500180	9,319	0
24	2/9/2018	99	8382	9052	5396	500704	8,061	0
25	2/10/2018	100	8200	9118	5508	501555	7,977	0
26	2/10/2018	100	8342	9242	6284	500830	7,986	0
27	2/10/2018	100	8334	9170	6113	500127	8,370	0
28	2/11/2018	99	8430	9217	5572	500798	8,065	0
29	2/11/2018	100	8110	9115	5720	500075	7,891	0
30	2/12/2018	98	8748	9078	5306	496495	8,056	0
31	2/12/2018	99	8388	9092	5296	499308	7,869	0
32	2/13/2018	98	8962	9457	6306	501029	7,965	0
33	2/13/2018	99	8613	9435	4824	500893	8,907	0

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DIRECTIONAL SURVEY REPORT

Statoil
 North Henderson North Unit 2H
 Marcellous
 Wetzel, County West Virginia
 USA
 CR-XX-0902367767

<i>Measured Depth (feet)</i>	<i>Inclination (degrees)</i>	<i>Direction (degrees)</i>	<i>Vertical Depth (feet)</i>	<i>Latitude (feet)</i>	<i>Departure (feet)</i>	<i>Vertical Section (feet)</i>	<i>Dogleg (deg/100ft)</i>
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN
53.74	0.11	266.17	53.74	0.00 S	0.05 W	0.03	0.20
115.00	0.05	254.49	115.00	0.01 S	0.14 W	0.09	0.10
207.00	0.13	188.91	207.00	0.13 S	0.19 W	0.05	0.13
300.00	0.21	165.88	300.00	0.40 S	0.17 W	-0.16	0.11
392.00	0.45	146.55	392.00	0.86 S	0.07 E	-0.65	0.28
484.00	0.73	138.60	483.99	1.60 S	0.66 E	-1.59	0.32
576.00	0.77	139.51	575.98	2.51 S	1.45 E	-2.79	0.05
668.00	0.76	141.00	667.98	3.46 S	2.24 E	-4.01	0.02
707.00	1.26	138.93	706.97	3.98 S	2.68 E	-4.70	1.29
737.00	1.72	146.46	736.96	4.61 S	3.15 E	-5.47	1.64
768.00	2.23	143.69	767.94	5.48 S	3.76 E	-6.51	1.68
799.00	2.65	145.06	798.91	6.55 S	4.53 E	-7.81	1.37
830.00	3.00	157.42	829.88	7.89 S	5.25 E	-9.26	2.27
860.00	3.28	168.83	859.83	9.46 S	5.72 E	-10.69	2.27
891.00	3.71	177.62	890.77	11.33 S	5.93 E	-12.15	2.23
922.00	4.38	184.07	921.70	13.51 S	5.89 E	-13.64	2.58
953.00	5.01	189.96	952.59	16.03 S	5.57 E	-15.16	2.58
983.00	5.81	193.85	982.46	18.79 S	4.98 E	-16.66	2.92
1014.00	6.45	197.93	1013.28	21.97 S	4.07 E	-18.22	2.50
1045.00	6.74	199.94	1044.08	25.34 S	2.91 E	-19.74	1.19
1137.00	6.93	205.18	1135.42	35.44 S	1.29 W	-23.76	0.71
1229.00	6.71	208.01	1226.77	45.21 S	6.18 W	-27.06	0.44
1321.00	6.60	205.81	1318.15	54.72 S	11.01 W	-30.22	0.30
1417.00	5.96	217.29	1413.58	63.66 S	16.43 W	-32.55	1.47
1512.00	5.66	215.15	1508.09	71.41 S	22.11 W	-33.87	0.39
1607.00	5.31	211.76	1602.66	78.98 S	27.13 W	-35.55	0.50
1702.00	5.24	208.28	1697.25	86.53 S	31.49 W	-37.68	0.35
1798.00	5.14	202.89	1792.86	94.35 S	35.24 W	-40.43	0.52
1893.00	5.19	205.01	1887.48	102.17 S	38.72 W	-43.39	0.21
1988.00	5.13	213.00	1982.09	109.63 S	42.85 W	-45.62	0.76
2083.00	5.24	217.84	2076.70	116.61 S	47.82 W	-46.91	0.47
2179.00	6.06	224.75	2172.24	123.67 S	54.07 W	-47.34	1.11
2273.00	5.49	221.80	2265.76	130.55 S	60.56 W	-47.48	0.69
2368.00	5.71	226.58	2360.31	137.18 S	67.02 W	-47.46	0.54
2463.00	7.57	239.44	2454.67	143.61 S	75.84 W	-45.61	2.50
2557.00	7.77	237.44	2547.83	150.17 S	86.53 W	-42.52	0.36
2652.00	7.81	234.72	2641.95	157.36 S	97.21 W	-39.86	0.39
2684.00	7.51	233.99	2673.67	159.84 S	100.68 W	-39.10	0.97
2782.00	6.61	230.98	2770.92	167.17 S	110.24 W	-37.33	0.99
2844.00	6.25	229.68	2832.53	171.60 S	115.59 W	-36.59	0.63
2940.00	5.62	228.26	2928.02	178.11 S	123.08 W	-35.75	0.67
3035.00	4.85	228.23	3022.62	183.88 S	129.55 W	-35.13	0.81
3131.00	4.11	226.39	3118.33	188.96 S	135.07 W	-34.70	0.78
3227.00	3.53	226.56	3214.11	193.37 S	139.71 W	-34.44	0.61
3322.00	3.22	224.78	3308.95	197.27 S	143.71 W	-34.29	0.34
3418.00	2.95	225.92	3404.81	200.91 S	147.39 W	-34.19	0.29
3513.00	2.69	227.61	3499.69	204.11 S	150.79 W	-33.98	0.29
3608.00	1.02	322.94	3594.66	204.94 S	152.95 W	-33.00	3.12
3703.00	1.25	323.95	3689.64	203.43 S	154.07 W	-31.14	0.24
3799.00	1.36	319.91	3785.61	201.71 S	155.42 W	-28.98	0.14
3894.00	1.32	313.14	3880.59	200.10 S	156.95 W	-26.77	0.17
3989.00	1.44	307.05	3975.56	198.63 S	158.70 W	-24.49	0.19
4085.00	1.21	307.72	4071.53	197.29 S	160.46 W	-22.29	0.24
4178.00	1.25	306.13	4164.51	196.09 S	162.05 W	-20.31	0.06
4272.00	1.45	308.09	4258.49	194.75 S	163.82 W	-18.11	0.21

4368.00	1.48	308.29	4354.45	193.23 S	165.75 W	-15.67	0.03
4462.00	0.05	148.11	4448.44	192.52 S	166.68 W	-14.50	1.62
4557.00	0.28	245.07	4543.44	192.65 S	166.87 W	-14.46	0.31
4653.00	0.62	229.89	4639.44	193.09 S	167.48 W	-14.32	0.37
4746.00	1.16	224.99	4732.43	194.08 S	168.54 W	-14.26	0.58
4842.00	1.42	225.84	4828.40	195.59 S	170.08 W	-14.21	0.27
4938.00	0.89	327.37	4924.39	195.79 S	171.33 W	-13.45	1.89
5033.00	1.01	313.19	5019.38	194.60 S	172.33 W	-11.90	0.28
5128.00	1.07	300.71	5114.36	193.58 S	173.70 W	-10.20	0.25
5222.00	1.51	288.42	5208.34	192.74 S	175.63 W	-8.23	0.56
5317.00	1.68	275.94	5303.30	192.20 S	178.21 W	-6.01	0.40
5413.00	0.55	225.41	5399.29	192.38 S	179.93 W	-4.89	1.45
5508.00	0.57	230.72	5494.28	193.00 S	180.63 W	-4.83	0.06
5603.00	1.13	277.50	5589.27	193.18 S	181.92 W	-4.02	0.89
5699.00	1.54	280.85	5685.24	192.81 S	184.13 W	-2.18	0.44
5794.00	1.48	349.18	5780.22	191.36 S	185.61 W	-0.11	1.79
5889.00	1.99	344.50	5875.17	188.57 S	186.29 W	2.32	0.55
5984.00	2.21	339.66	5970.11	185.26 S	187.36 W	5.40	0.30
6079.00	0.41	57.21	6065.09	183.36 S	187.71 W	6.97	2.27
6175.00	2.37	99.26	6161.05	183.49 S	185.46 W	5.27	2.17
6269.00	3.24	100.41	6254.94	184.28 S	180.93 W	1.46	0.93
6363.00	3.54	97.90	6348.78	185.16 S	175.44 W	-3.09	0.35
6459.00	4.49	93.38	6444.54	185.79 S	168.75 W	-8.33	1.05
6554.00	5.15	95.61	6539.20	186.43 S	160.80 W	-14.48	0.71
6650.00	3.23	137.32	6634.96	188.84 S	154.68 W	-20.55	3.62
6710.00	2.91	162.29	6694.88	191.53 S	153.07 W	-23.58	2.27
6758.00	3.34	162.99	6742.81	194.03 S	152.29 W	-25.88	0.90
6854.00	4.92	298.30	6838.69	194.75 S	155.10 W	-24.37	7.98
6949.00	9.57	303.69	6932.91	188.44 S	165.26 W	-12.68	4.95
7044.00	18.13	302.61	7025.06	176.07 S	184.32 W	9.61	9.02
7139.00	22.49	301.59	7114.13	158.58 S	212.27 W	41.85	4.60
7235.00	27.79	301.25	7201.01	137.33 S	247.06 W	81.61	5.52
7330.00	39.84	304.11	7279.80	108.68 S	291.35 W	133.35	12.79
7424.00	53.51	301.91	7344.15	71.64 S	348.64 W	200.25	14.64
7519.00	63.75	301.33	7393.54	29.19 S	417.62 W	279.32	10.79
7614.00	73.39	299.18	7428.22	15.26 N	493.94 W	365.04	10.36
7709.00	82.83	299.22	7447.77	60.56 N	574.99 W	454.75	9.93
7805.00	81.44	307.91	7460.94	113.08 N	654.16 W	548.14	9.08
7900.00	89.53	310.54	7468.41	172.92 N	727.45 W	642.41	8.95
7995.00	89.66	310.43	7469.08	234.60 N	799.70 W	737.21	0.18
8091.00	89.97	312.71	7469.39	298.29 N	871.52 W	833.10	2.40
8186.00	89.66	312.87	7469.70	362.82 N	941.24 W	928.08	0.36
8278.00	90.74	314.21	7469.38	426.19 N	1007.93 W	1020.07	1.87
8370.00	91.71	314.58	7467.41	490.54 N	1073.65 W	1112.04	1.13
8462.00	91.71	314.59	7464.66	555.09 N	1139.14 W	1204.00	0.01
8555.00	92.08	314.17	7461.58	620.10 N	1205.57 W	1296.95	0.60
8647.00	92.18	313.76	7458.16	683.93 N	1271.74 W	1388.88	0.45
8739.00	89.53	313.93	7456.78	747.65 N	1338.08 W	1480.86	2.89
8831.00	89.26	313.31	7457.75	811.11 N	1404.68 W	1572.85	0.73
8923.00	91.38	313.48	7457.24	874.31 N	1471.52 W	1664.84	2.31
9016.00	91.61	313.05	7454.82	938.03 N	1539.22 W	1757.80	0.52
9108.00	91.88	313.49	7452.02	1001.07 N	1606.17 W	1849.74	0.56
9200.00	89.83	313.81	7450.64	1064.56 N	1672.73 W	1941.72	2.25
9292.00	89.87	312.90	7450.88	1127.72 N	1739.62 W	2033.71	0.99
9384.00	89.83	315.12	7451.12	1191.64 N	1805.78 W	2125.71	2.41
9477.00	90.07	314.49	7451.20	1257.18 N	1871.77 W	2218.70	0.72
9573.00	89.76	314.40	7451.34	1324.40 N	1940.30 W	2314.70	0.33
9667.00	91.01	314.58	7450.70	1390.27 N	2007.36 W	2408.69	1.34
9762.00	90.81	314.66	7449.20	1456.99 N	2074.97 W	2503.68	0.23
9857.00	91.11	314.09	7447.61	1523.42 N	2142.86 W	2598.66	0.67
9951.00	91.11	314.96	7445.80	1589.32 N	2209.86 W	2692.64	0.92
10046.00	89.70	315.67	7445.13	1656.87 N	2276.66 W	2787.62	1.66
10140.00	89.73	315.46	7445.60	1723.99 N	2342.47 W	2881.59	0.23
10234.00	89.46	316.45	7446.27	1791.55 N	2407.82 W	2975.54	1.09
10330.00	89.40	316.68	7447.22	1861.25 N	2473.82 W	3071.45	0.25
10425.00	90.00	314.33	7447.72	1929.01 N	2540.40 W	3166.41	2.55
10520.00	89.97	315.04	7447.75	1995.81 N	2607.94 W	3261.41	0.74
10615.00	90.00	314.46	7447.78	2062.69 N	2675.41 W	3356.40	0.61
10710.00	89.90	314.00	7447.86	2128.95 N	2743.49 W	3451.40	0.50
10806.00	89.87	314.77	7448.06	2196.10 N	2812.10 W	3547.40	0.81
10901.00	89.76	312.92	7448.36	2261.91 N	2880.61 W	3642.40	1.95
10997.00	89.90	312.72	7448.65	2327.16 N	2951.02 W	3738.37	0.25
11092.00	90.27	312.14	7448.51	2391.25 N	3021.14 W	3833.33	0.73
11187.00	90.91	312.10	7447.53	2454.96 N	3091.61 W	3928.26	0.67

11283.00	90.07	313.30	7446.72	2520.06 N	3162.15 W	4024.22	1.52
11379.00	90.60	314.21	7446.16	2586.44 N	3231.50 W	4120.22	1.10
11474.00	90.81	313.84	7444.99	2652.45 N	3299.81 W	4215.21	0.45
11569.00	91.24	313.95	7443.29	2718.31 N	3368.25 W	4310.19	0.47
11664.00	89.19	313.56	7442.92	2784.00 N	3436.87 W	4405.19	2.20
11758.00	89.63	314.01	7443.89	2849.04 N	3504.73 W	4499.18	0.68
11853.00	89.90	313.79	7444.28	2914.92 N	3573.18 W	4594.18	0.36
11947.00	89.76	314.13	7444.56	2980.16 N	3640.85 W	4688.18	0.38
12041.00	90.70	315.58	7444.17	3046.46 N	3707.48 W	4782.16	1.84
12136.00	92.52	315.57	7441.50	3114.28 N	3773.94 W	4877.09	1.91
12232.00	92.82	315.75	7437.03	3182.86 N	3840.97 W	4972.96	0.36
12327.00	92.96	315.78	7432.25	3250.84 N	3907.16 W	5067.80	0.15
12423.00	92.38	316.51	7427.78	3320.00 N	3973.59 W	5163.63	0.97
12518.00	89.83	314.50	7425.94	3387.74 N	4040.15 W	5258.58	3.42
12613.00	90.07	315.37	7426.02	3454.84 N	4107.40 W	5353.57	0.95
12709.00	89.66	314.76	7426.24	3522.80 N	4175.20 W	5449.55	0.76
12804.00	89.93	314.67	7426.58	3589.64 N	4242.71 W	5544.55	0.30
12899.00	90.10	314.82	7426.55	3656.52 N	4310.18 W	5639.54	0.24
12995.00	89.06	314.32	7427.25	3723.88 N	4378.57 W	5735.54	1.20
13090.00	89.03	312.96	7428.84	3789.43 N	4447.31 W	5830.52	1.43
13185.00	89.29	313.23	7430.23	3854.33 N	4516.68 W	5925.49	0.41
13282.00	89.66	312.80	7431.11	3920.50 N	4587.60 W	6022.47	0.59
13378.00	89.43	312.75	7431.88	3985.69 N	4658.07 W	6118.44	0.25
13474.00	91.58	312.99	7431.04	4050.99 N	4728.42 W	6214.40	2.25
13569.00	91.68	312.36	7428.34	4115.36 N	4798.24 W	6309.33	0.67
13663.00	92.28	312.96	7425.09	4179.02 N	4867.32 W	6403.24	0.90
13749.00	91.17	312.74	7422.49	4237.48 N	4930.34 W	6489.18	1.31
13845.00	90.27	313.82	7421.29	4303.28 N	5000.22 W	6585.16	1.47
13939.00	90.60	312.12	7420.57	4367.35 N	5069.00 W	6679.13	1.84
14035.00	89.97	313.77	7420.10	4432.75 N	5139.27 W	6775.11	1.84
14131.00	90.67	314.30	7419.56	4499.48 N	5208.28 W	6871.11	0.92
14226.00	90.70	313.34	7418.42	4565.25 N	5276.82 W	6966.10	1.02
14320.00	90.67	314.27	7417.30	4630.31 N	5344.66 W	7060.09	0.99
14413.00	90.70	314.59	7416.18	4695.41 N	5411.07 W	7153.08	0.35
14508.00	90.64	314.43	7415.07	4762.00 N	5478.82 W	7248.07	0.19
14603.00	89.40	314.36	7415.04	4828.45 N	5546.70 W	7343.07	1.31
14698.00	89.23	314.85	7416.18	4895.16 N	5614.33 W	7438.06	0.55
14793.00	88.96	313.50	7417.69	4961.34 N	5682.46 W	7533.04	1.45
14888.00	89.16	314.95	7419.25	5027.59 N	5750.53 W	7628.03	1.54
14984.00	90.91	315.23	7419.19	5095.57 N	5818.31 W	7724.01	1.84
15078.00	91.91	315.74	7416.88	5162.58 N	5884.19 W	7817.96	1.20
15173.00	92.69	315.54	7413.06	5230.44 N	5950.56 W	7912.85	0.85
15236.00	93.20	315.40	7409.83	5275.30 N	5994.68 W	7975.75	0.84

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 314.15 DEGREES (GRID)
A TOTAL CORRECTION OF -8.99 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 15236.00 FEET
IS 7985.29 FEET ALONG 311.35 DEGREES (GRID)

WELL ASSUMED VERTICAL AT WELLHEAD
SURVEYS FROM 53' MD TO 668' MD PROVIDED BY MS SURVEY
SURVEYS FROM 707' MD TO 15173' MD PROVIDED BY SPERRY DRILLING MWD
SURVEY AT 15173' MD HAS BEEN PROJECTED TO TD AT 15236' MD
SPERRY PERSONNEL: C. DECK, D. DIAS

Statoil

HALLIBURTON

Sperry Drilling Services

Wetzel County WV
 Site: North Henderson North Unit Pad
 Well: North Henderson North Unit 2H
 Wellbore: Wellbore #1
 Design: Design #7

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
668.00	0.76	141.00	667.98	-3.44	2.24	0.00	0.00	-4.00	
900.00	0.76	141.00	899.96	-5.83	4.17	0.00	0.00	-7.05	Start Build
1195.11	6.00	220.00	1194.50	-19.18	-4.52	2.00	86.24	-10.12	End Build
3193.38	6.00	220.00	3181.83	-179.18	-138.78	0.00	0.00	-25.23	Start Drop
3493.38	0.00	0.00	3481.28	-191.21	-148.87	2.00	180.00	-26.37	End Drop
6896.00	0.00	0.00	6883.90	-191.21	-148.87	0.00	0.00	-26.37	Start Build
7722.49	82.63	298.03	7452.23	43.57	-589.86	10.00	298.03	453.58	Start Build/Turn
7901.49	90.51	314.15	7463.00	148.47	-733.60	10.00	64.58	629.79	End Build/Turn
10781.49	90.51	314.15	7437.52	2154.26	-2800.14	0.00	0.00	3509.67	500' before closest
11281.49	90.51	314.15	7433.10	2502.48	-3158.91	0.00	0.00	4009.66	25' from Unit Boundary
11581.49	90.51	314.15	7430.44	2711.42	-3374.18	0.00	0.00	4309.64	300' past closest
15248.73	90.51	314.15	7398.00	5265.47	-6005.60	0.00	0.00	7976.74	TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
North Henderson North Unit 2H BHL P7	7398.00	5265.47	-6005.60	14419943.00	1753184.00
North Henderson North Unit 2H LP P7	7463.00	148.47	-733.60	14414826.00	1758456.00

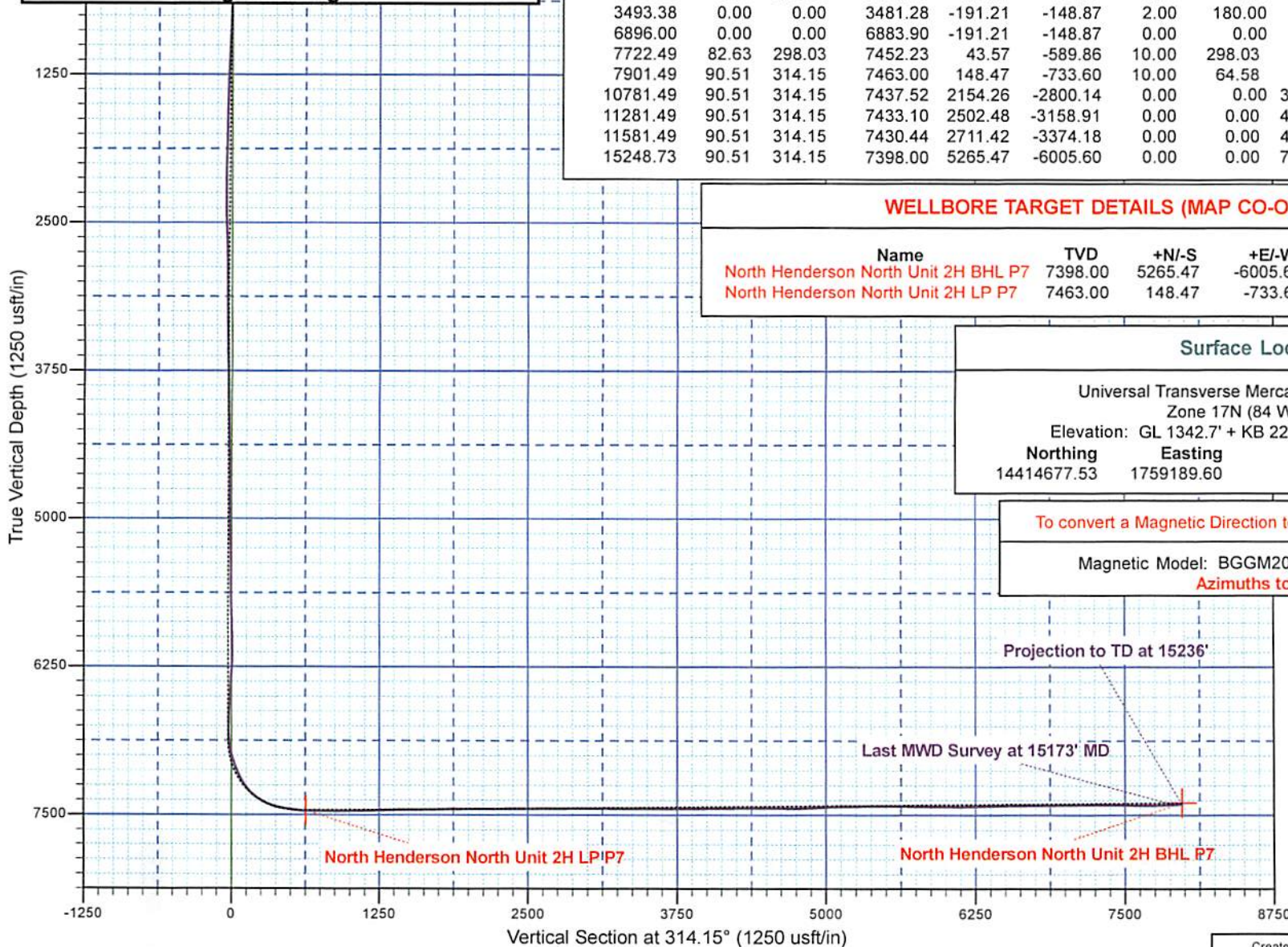
Surface Location:

Universal Transverse Mercator (US Survey Feet)
 Zone 17N (84 W to 78 W)
 Elevation: GL 1342.7' + KB 22 @ 1364.70usft (Orion Polaris)

Northing	Easting	Latitude	Longitude
14414677.53	1759189.60	39.693384	-80.577782

To convert a Magnetic Direction to a Grid Direction, Subtract 8.99°

Magnetic Model: BGGM2015 Date: 17-Apr-15
 Azimuths to Grid North



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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/30/2018
Job End Date:	2/14/2018
State:	West Virginia
County:	Wetzel
API Number:	47-103-03066-00-00
Operator Name:	EQT Production
Well Name and Number:	516124
Latitude:	39.69346300
Longitude:	-80.57759800
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,274
Total Base Water Volume (gal):	11,602,416
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	FTS International	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	85.55468	None
Other Chemical (s)	Listed Above	See Trade Name (s) List					
				Listed Below			

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HVG-1	FTS International	Water Gelling Agent					
				Listed Below			
MC MX 8-4543	Multi-Chem Group, LLC	Biotechnology					
				Listed Below			
FRW-600	FTS International	Friction Reducer					
				Listed Below			
Hydrochloric Acid (15%)	FTS International	Acidizing					
				Listed Below			
APB-1	FTS International	Gel Breaker					
				Listed Below			
Sand (Proppant)	FTS International	Proppant					
				Listed Below			
CS-500-SI	FTS International	Scale Inhibitor					
				Listed Below			
CI-150	FTS International	Acid Corrosion Inhibitor					
				Listed Below			
MC MX 5-3886	Multi-Chem Group, LLC	Specialty Brine					

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				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Silica Substrate	14808-60-7	100.00000	14.16957	None
			calcium nitrate.4H2O	13477-34-4	100.00000	0.03781	
			calcium nitrate.4H2O	13477-34-4	100.00000	0.03781	None
			Hydrochloric Acid	7647-01-0	15.00000	0.02155	None
			Hydrotreated light distillate	64742-47-8	30.00000	0.02025	None
			Hydrotreated light distillate	64742-47-8	30.00000	0.02025	
			Ammonium acetate	631-61-8	6.00000	0.00405	
			Ammonium acetate	631-61-8	6.00000	0.00405	None
			Proprietary	Proprietary	100.00000	0.00249	
			Proprietary	Proprietary	100.00000	0.00249	None
			Ethylene glycol	107-21-1	10.00000	0.00240	None
			Ethylene glycol	107-21-1	30.00000	0.00007	None
			Organic amine resin salt	Proprietary	30.00000	0.00007	None
			Isopropanol	67-63-0	30.00000	0.00007	None
			Dimethylformamide	68-12-2	10.00000	0.00002	None
			Quaternary ammonium compound	Proprietary	10.00000	0.00002	None
			Aromatic aldehyde	Proprietary	10.00000	0.00002	None
			Petroleum Distillate	64742-47-8	55.00000	0.00002	None
			Petroleum Distillate	64742-47-8	55.00000	0.00002	
			Guar Gum	9000-30-0	50.00000	0.00002	None
			Guar Gum	9000-30-0	50.00000	0.00002	
			Ammonium Persulfate	7727-54-0	95.00000	0.00001	
			Ammonium Persulfate	7727-54-0	95.00000	0.00001	None
			Surfactant	68439-51-0	2.00000	0.00000	
			Clay	14808-60-7	2.00000	0.00000	None
			Clay	14808-60-7	2.00000	0.00000	
			Surfactant	68439-51-0	2.00000	0.00000	None

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* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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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Statoil

HALLIBURTON

Sperry Drilling Services

Wetzel County WV
 Site: North Henderson North Unit Pad
 Well: North Henderson North Unit 2H
 Wellbore: Wellbore #1
 Design: Design #7

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
668.00	0.76	141.00	667.98	-3.44	2.24	0.00	0.00	-4.00	
900.00	0.76	141.00	899.96	-5.83	4.17	0.00	0.00	-7.05	Start Build
1195.11	6.00	220.00	1194.50	-19.18	-4.52	2.00	86.24	-10.12	End Build
3193.38	6.00	220.00	3181.83	-179.18	-138.78	0.00	0.00	-25.23	Start Drop
3493.38	0.00	0.00	3481.28	-191.21	-148.87	2.00	180.00	-26.37	End Drop
6896.00	0.00	0.00	6883.90	-191.21	-148.87	0.00	0.00	-26.37	Start Build
7722.49	82.63	298.03	7452.23	43.57	-589.86	10.00	298.03	453.58	Start Build/Turn
7901.49	90.51	314.15	7463.00	148.47	-733.60	10.00	64.58	629.79	End Build/Turn
10781.49	90.51	314.15	7437.52	2154.26	-2800.14	0.00	0.00	3509.67	500' before closest
11281.49	90.51	314.15	7433.10	2502.48	-3158.91	0.00	0.00	4009.66	25' from Unit Boundary
11581.49	90.51	314.15	7430.44	2711.42	-3374.18	0.00	0.00	4309.64	300' past closest
15248.73	90.51	314.15	7398.00	5265.47	-6005.60	0.00	0.00	7976.74	TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
North Henderson North Unit 2H BHL P7	7398.00	5265.47	-6005.60	14419943.00	1753184.00
North Henderson North Unit 2H LP P7	7463.00	148.47	-733.60	14414826.00	1758456.00

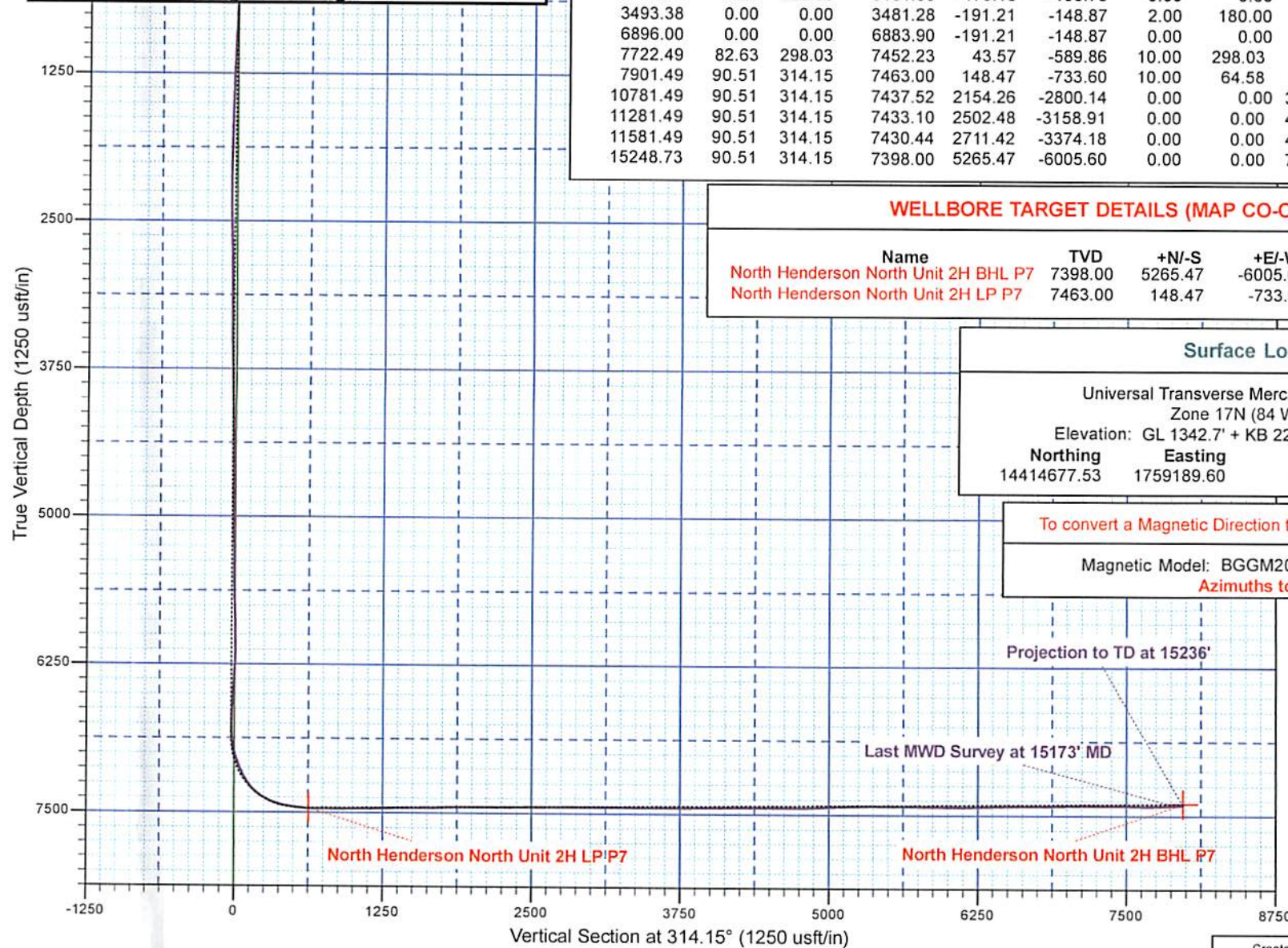
Surface Location:

Universal Transverse Mercator (US Survey Feet)
 Zone 17N (84 W to 78 W)
 Elevation: GL 1342.7' + KB 22 @ 1364.70usft (Orion Polaris)

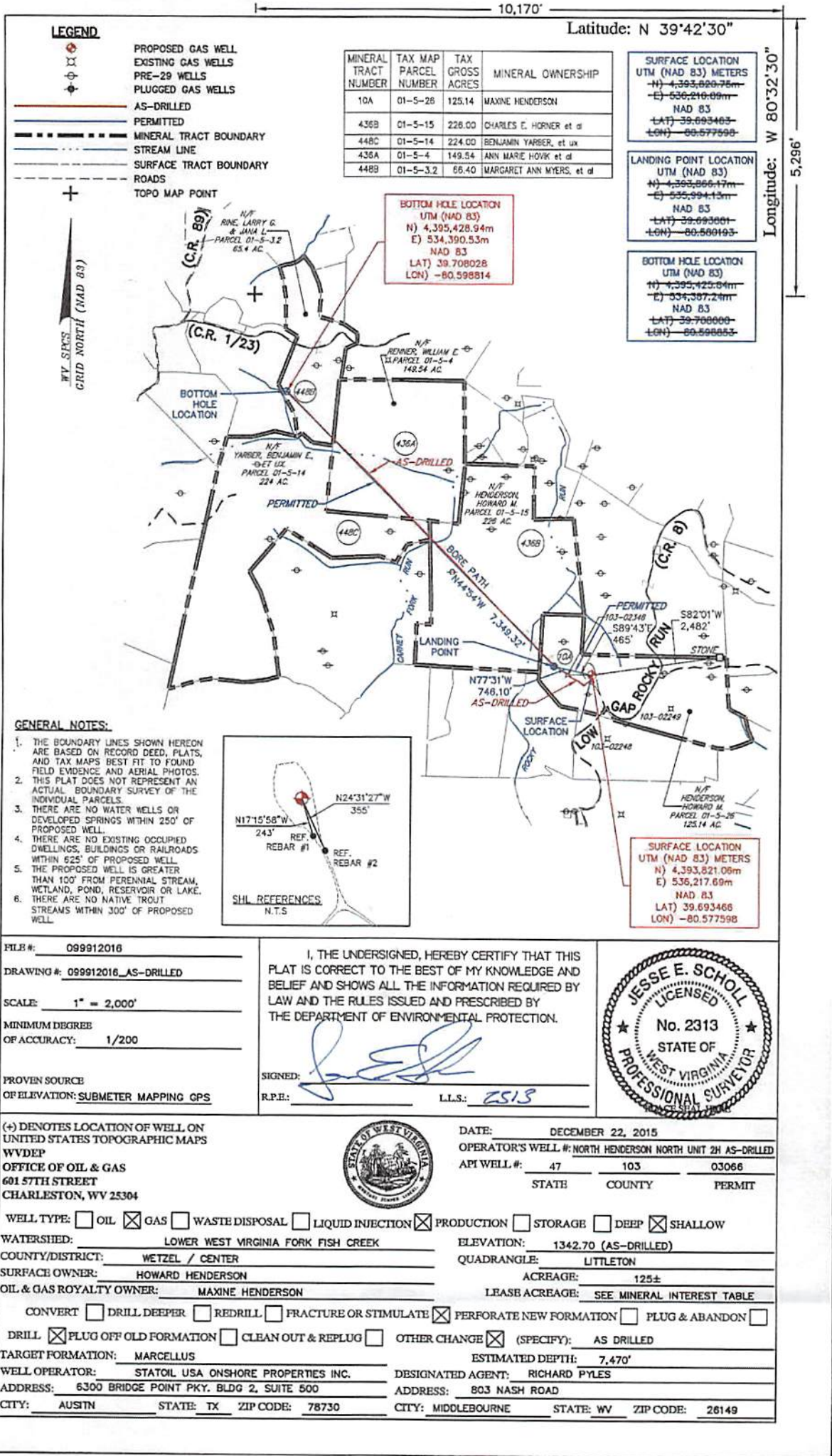
Northing	Easting	Latitude	Longitude
14414677.53	1759189.60	39.693384	-80.577782

To convert a Magnetic Direction to a Grid Direction, Subtract 8.99°

Magnetic Model: BGGM2015 Date: 17-Apr-15
 Azimuths to Grid North



RECEIVED
 Office of Oil and Gas
 AUG 23 2018
 WV Department of
 Environmental Protection



LEGEND

- PROPOSED GAS WELL
- EXISTING GAS WELLS
- PRE-29 WELLS
- PLUGGED GAS WELLS
- AS-DRILLED
- PERMITTED
- MINERAL TRACT BOUNDARY
- STREAM LINE
- SURFACE TRACT BOUNDARY
- ROADS
- TOPO MAP POINT

MINERAL TRACT NUMBER	TAX MAP PARCEL NUMBER	TAX GROSS ACRES	MINERAL OWNERSHIP
10A	01-5-26	125.14	MAXINE HENDERSON
436B	01-5-15	226.00	CHARLES E. HORNER et al
448C	01-5-14	224.00	BENJAMIN YARBER, et ux
436A	01-5-4	149.54	ANN MARIE HOVK et al
448B	01-5-3.2	66.40	MARGARET ANN MYERS, et al

SURFACE LOCATION UTM (NAD 83) METERS	
N)	4,393,821.06m
E)	536,217.69m
NAD 83	
LAT)	39.693463
LONG)	-80.577598

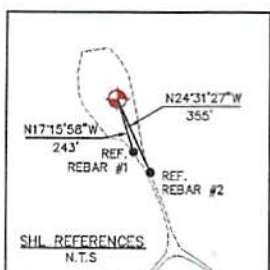
LANDING POINT LOCATION UTM (NAD 83)	
N)	4,393,866.17m
E)	535,994.13m
NAD 83	
LAT)	39.693601
LONG)	-80.580193

BOTTOM HOLE LOCATION UTM (NAD 83)	
N)	4,395,428.94m
E)	534,390.53m
NAD 83	
LAT)	39.708028
LONG)	-80.598814

WV SPKS
GRID NORTH (NAD 83)

GENERAL NOTES:

1. THE BOUNDARY LINES SHOWN HEREON ARE BASED ON RECORD DEED, FLATS, AND TAX MAPS BEST FIT TO FOUND FIELD EVIDENCE AND AERIAL PHOTOS. THIS PLAT DOES NOT REPRESENT AN ACTUAL BOUNDARY SURVEY OF THE INDIVIDUAL PARCELS.
2. THERE ARE NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF PROPOSED WELL.
3. THERE ARE NO EXISTING OCCUPIED DWELLINGS, BUILDINGS OR RAILROADS WITHIN 625' OF PROPOSED WELL.
4. THE PROPOSED WELL IS GREATER THAN 100' FROM PERENNIAL STREAM, WETLAND, POND, RESERVOIR OR LAKE.
5. THERE ARE NO NATIVE TROUT STREAMS WITHIN 300' OF PROPOSED WELL.



FILE #: 099912016
 DRAWING #: 099912016_AS-DRILLED
 SCALE: 1" = 2,000'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GPS

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.

SIGNED: *[Signature]*
 R.P.E.: _____ L.L.S.: *[Signature]*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 WVDEP
 OFFICE OF OIL & GAS
 601.57TH STREET
 CHARLESTON, WV 25304



DATE: DECEMBER 22, 2015
 OPERATOR'S WELL #: NORTH HENDERSON NORTH UNIT 2H AS-DRILLED
 AP# WELL #: 47 103 03066
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS WASTE DISPOSAL LIQUID INJECTION PRODUCTION STORAGE DEEP SHALLOW

WATERSHED: LOWER WEST VIRGINIA FORK FISH CREEK ELEVATION: 1342.70 (AS-DRILLED)

COUNTY/DISTRICT: WETZEL / CENTER QUADRANGLE: LITTLETON

SURFACE OWNER: HOWARD HENDERSON ACREAGE: 125±

OIL & GAS ROYALTY OWNER: MAXINE HENDERSON LEASE ACREAGE: SEE MINERAL INTEREST TABLE

CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PERFORATE NEW FORMATION PLUG & ABANDON

DRILL PLUG OFF OLD FORMATION CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): AS DRILLED ESTIMATED DEPTH: 7,470'

TARGET FORMATION: MARCELLUS DESIGNATED AGENT: RICHARD PYLES

WELL OPERATOR: STATOIL USA ONSHORE PROPERTIES INC. ADDRESS: 6300 BRIDGE POINT PKY. BLDG 2, SUITE 500 CITY: AUSTIN STATE: TX ZIP CODE: 78730

ADDRESS: 803 NASH ROAD CITY: MIDDLEBOURNE STATE: WV ZIP CODE: 26149