

Statoil

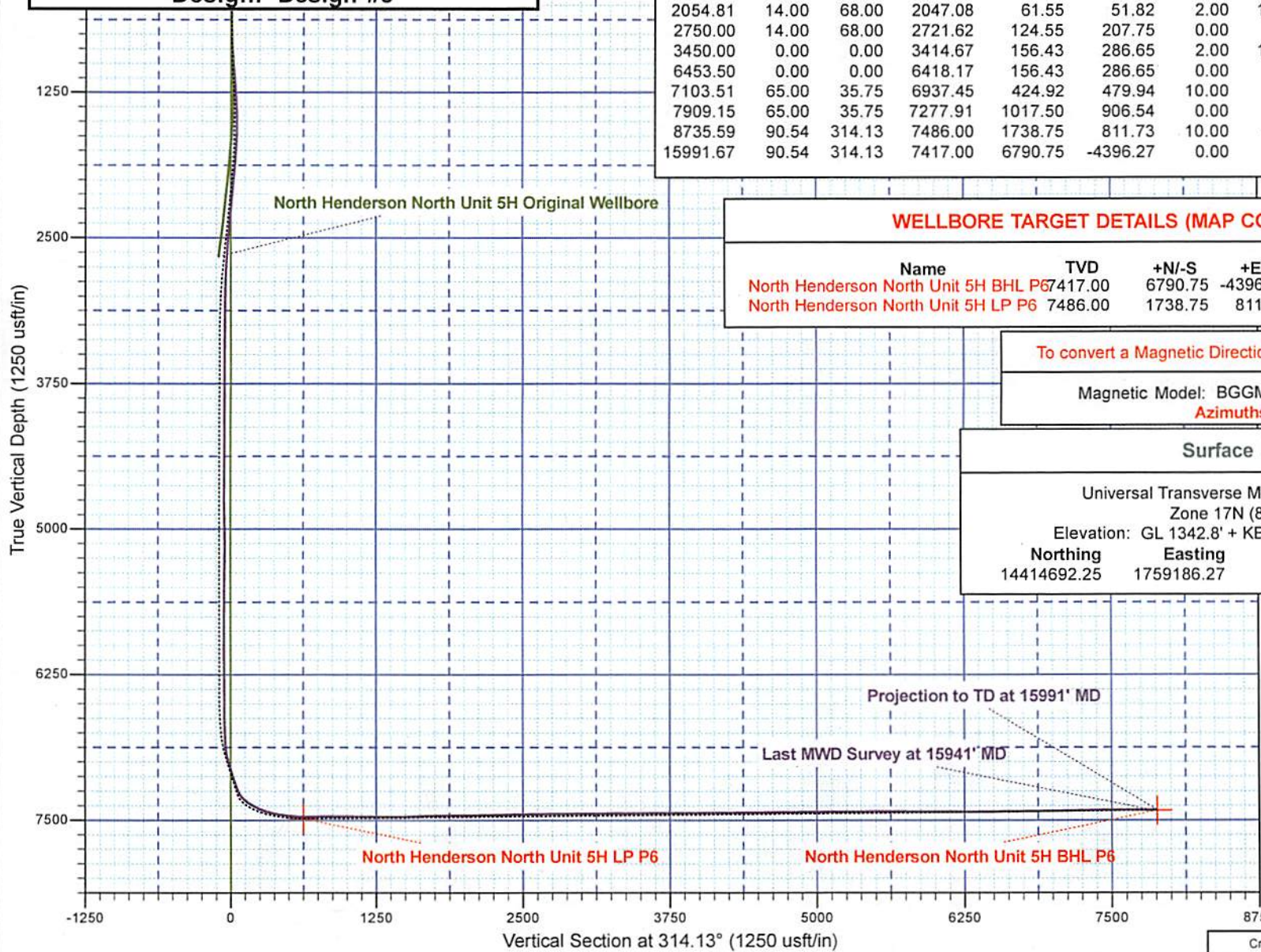
HALLIBURTON

Sperry Drilling Services

Wetzel County WV
 Site: North Henderson North Unit Pad
 Well: North Henderson North Unit 5H
 Wellbore: Sidetrack
 Design: Design #8

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1000.00	2.30	324.88	999.79	14.68	-8.39	0.00	0.00	16.24	Start ST
1100.00	3.53	280.00	1099.67	16.85	-12.58	2.50	-85.30	20.76	End Build
1200.00	3.53	280.00	1199.48	17.92	-18.64	0.00	0.00	25.86	Start Build/Turn
2054.81	14.00	68.00	2047.08	61.55	51.82	2.00	154.15	5.67	End Build/Turn
2750.00	14.00	68.00	2721.62	124.55	207.75	0.00	0.00	-62.39	Start Drop
3450.00	0.00	0.00	3414.67	156.43	286.65	2.00	180.00	-96.83	End Drop
6453.50	0.00	0.00	6418.17	156.43	286.65	0.00	0.00	-96.83	Start Build
7103.51	65.00	35.75	6937.45	424.92	479.94	10.00	35.75	-48.61	End Build
7909.15	65.00	35.75	7277.91	1017.50	906.54	0.00	0.00	57.79	Start Build/Turn
8735.59	90.54	314.13	7486.00	1738.75	811.73	10.00	-85.94	628.05	End Build/Turn
15991.67	90.54	314.13	7417.00	6790.75	-4396.27	0.00	0.00	7883.80	TD



WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
North Henderson North Unit 5H BHL P6	7417.00	6790.75	-4396.27	14421483.00	1754790.00
North Henderson North Unit 5H LP P6	7486.00	1738.75	811.73	14416431.00	1759998.00

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

Magnetic Model: BGGM2015 Date: 22-Jun-15
 Azimuths to Grid North

Surface Location:

Universal Transverse Mercator (US Survey Feet)
 Zone 17N (84 W to 78 W)
 Elevation: GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)

Northing	Easting	Latitude	Longitude
14414692.25	1759186.27	39.693424	-80.577794

Statoil

HALLIBURTON

Sperry Drilling Services

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	Start Build
1300.00	10.00	39.50	1297.46	33.58	27.68	2.00	39.50	3.59	End Build
2750.00	10.00	39.50	2725.44	227.87	187.84	0.00	0.00	24.35	Start Drop
3250.00	0.00	0.00	3222.90	261.45	215.53	2.00	180.00	27.94	End Drop
6765.00	0.00	0.00	6737.90	261.45	215.53	0.00	0.00	27.94	Start Build
7341.23	57.62	39.36	7221.78	467.25	384.30	10.00	39.36	50.56	Start Build/Turn
8204.26	90.79	314.23	7502.00	1192.68	287.14	10.00	-86.72	626.20	End Build/Turn
15451.32	90.79	314.23	7402.00	6247.68	-4904.86	0.00	0.00	7872.57	TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
North Henderson North Unit 4H BHL P4	7402.00	6247.68	-4904.86	14420947.00	1754280.00
North Henderson North Unit 4H LP P4	7502.00	1192.68	287.14	14415892.00	1759472.00

To convert a Magnetic Direction to a Grid Direction, Subtract 8.96°

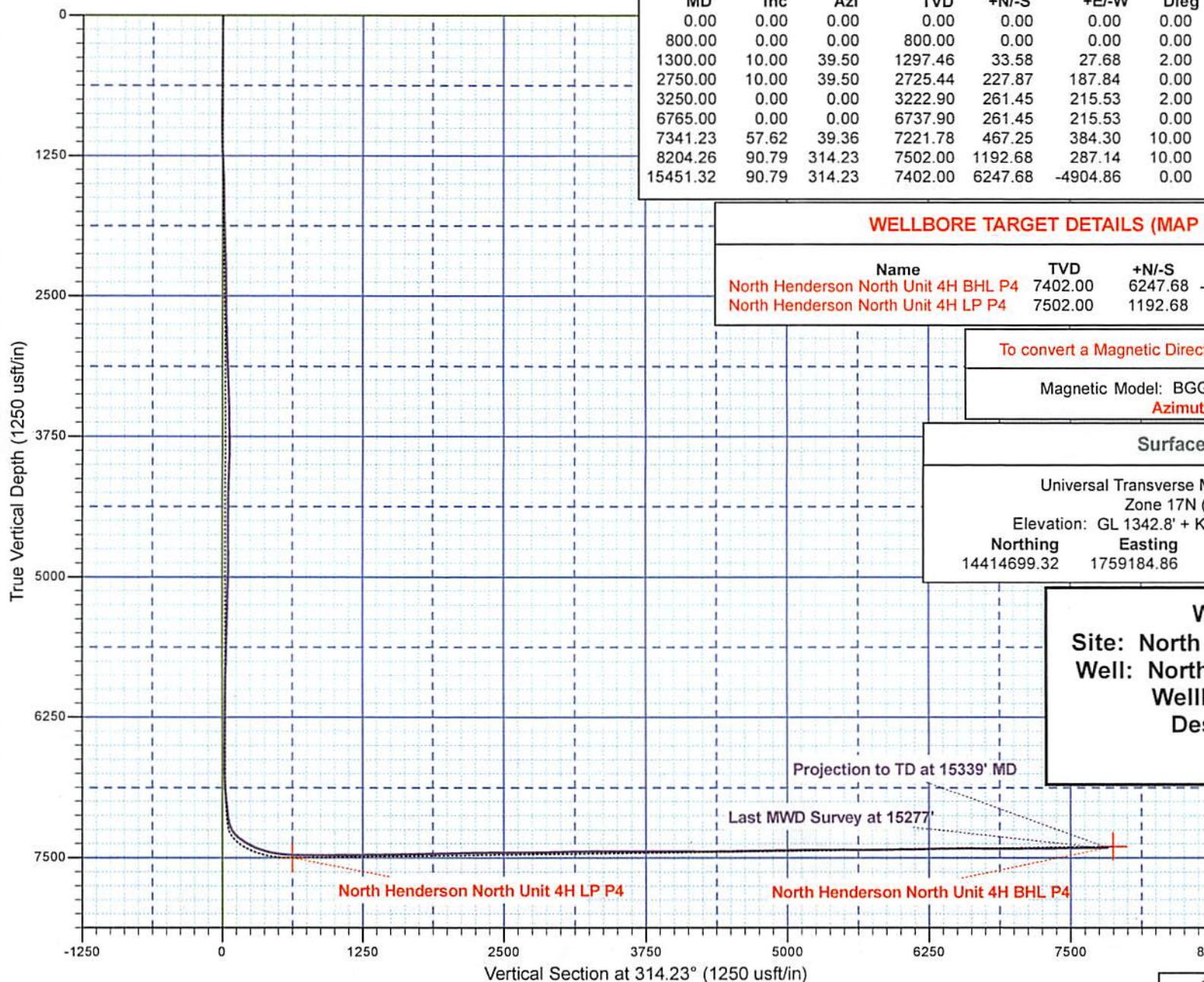
Magnetic Model: BGGM2014 Date: 17-Apr-15
Azimuths to Grid North

Surface Location:

Universal Transverse Mercator (US Survey Feet)
Zone 17N (84 W to 78 W)
Elevation: GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)

Northing	Easting	Latitude	Longitude
14414699.32	1759184.86	39.693444	-80.577799

Wetzel County WV
Site: North Henderson North Unit Pad
Well: North Henderson North Unit 4H
Wellbore: Wellbore #1
Design: Design #4
Orion Polaris



RECEIVED
Office of Oil and Gas
JUL 27 2018
WV Department of Environmental Protection

Statoil

HALLIBURTON
Sperry Drilling Services

Wetzel County WV
Site: North Henderson North Unit Pad
Well: North Henderson North Unit 4H
Wellbore: Wellbore #1
Design: Design #4
Orion Polaris

Surface Location:

Universal Transverse Mercator (US Survey Feet)
Zone 17N (84 W to 78 W)

Elevation: GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)

Northing	Easting	Latitude	Longitude
14414699.32	1759184.86	39.693444	-80.577799

To convert a Magnetic Direction to a Grid Direction, Subtract 8.96°

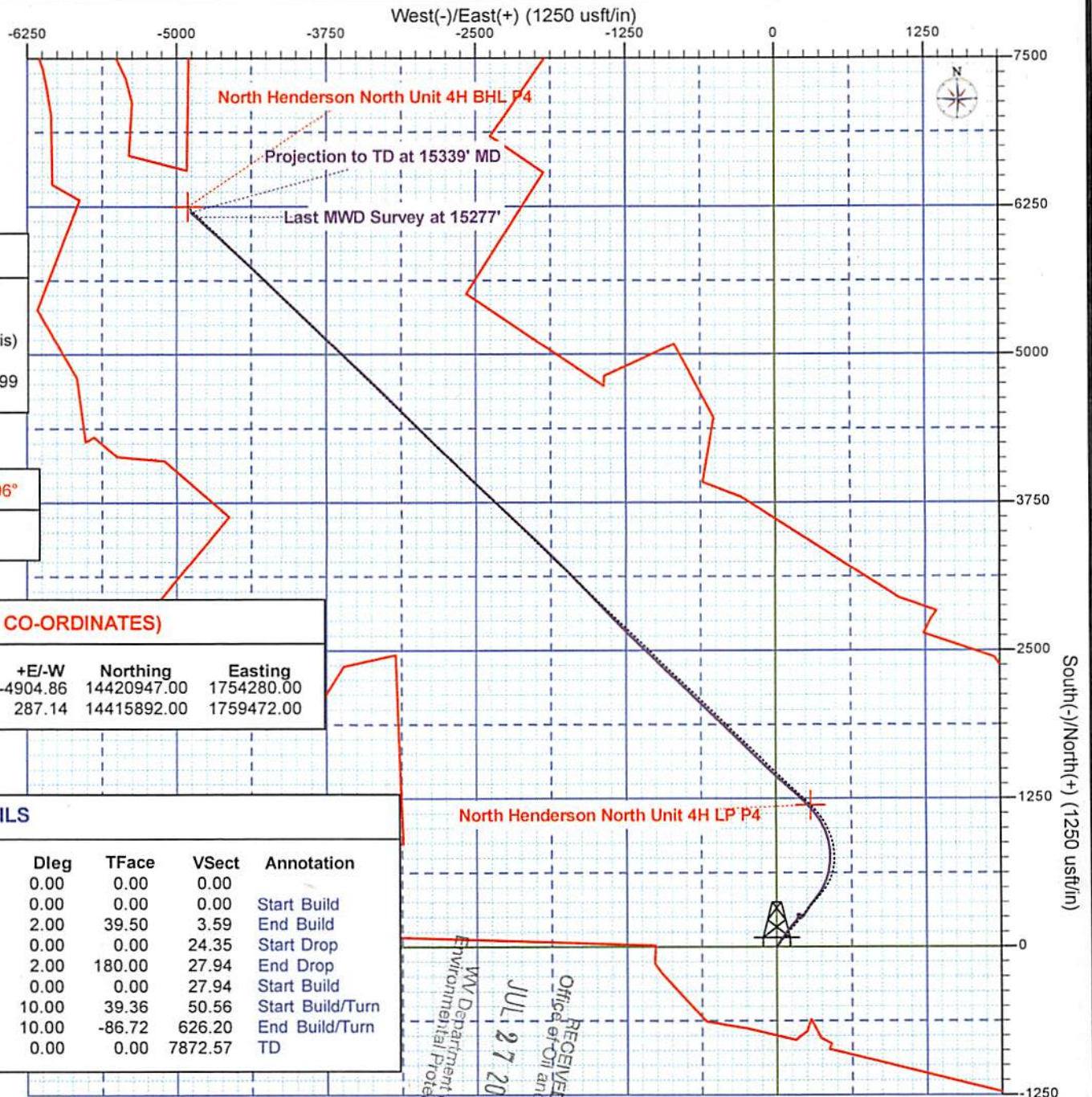
Magnetic Model: BGGM2014 Date: 17-Apr-15
Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
North Henderson North Unit 4H BHL P4	7402.00	6247.68	-4904.86	14420947.00	1754280.00
North Henderson North Unit 4H LP P4	7502.00	1192.68	287.14	14415892.00	1759472.00

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	Start Build
1300.00	10.00	39.50	1297.46	33.58	27.68	2.00	39.50	3.59	End Build
2750.00	10.00	39.50	2725.44	227.87	187.84	0.00	0.00	24.35	Start Drop
3250.00	0.00	0.00	3222.90	261.45	215.53	2.00	180.00	27.94	End Drop
6765.00	0.00	0.00	6737.90	261.45	215.53	0.00	0.00	27.94	Start Build
7341.23	57.62	39.36	7221.78	467.25	384.30	10.00	39.36	50.56	Start Build/Turn
8204.26	90.79	314.23	7502.00	1192.68	287.14	10.00	-86.72	626.20	End Build/Turn
15451.32	90.79	314.23	7402.00	6247.68	-4904.86	0.00	0.00	7872.57	TD



RECEIVED
 Office of Oil and Gas
 JUL 27 2018
 WV Department of Environmental Protection

HALLIBURTON

Sperry Drilling

Statoil

Wetzel County WV (NAD 27 UTM 17N us ft)

North Henderson North Unit Pad

North Henderson North Unit 4H - Slot North Henderson 4H

Wellbore #1

Design: Surveys

Standard Survey Report

20 May, 2015

RECEIVED
Office of Oil and Gas

JUL 27 2018

WV Department of
Environmental Protection

Company:	Statoil	Local Co-ordinate Reference:	Well North Henderson North Unit 4H - Slot North Henderson 4H
Project:	Wetzel County WW (NAD 27 UTM 17N us ft)	TVD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Site:	North Henderson North Unit Pad	MD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Well:	North Henderson North Unit 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Project	Wetzel County WW (NAD 27 UTM 17N us ft)		
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	North Henderson North Unit Pad				
Site Position:	Northing:	14,414,677.53 usft	Latitude:	39.693384	
From: Map	Easting:	1,759,189.60 usft	Longitude:	-80.577782	
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.27 °

Well	North Henderson North Unit 4H - Slot North Henderson 4H					
Well Position	+N/-S	0.00 usft	Northing:	14,414,699.32 usft	Latitude:	39.693444
	+E/-W	0.00 usft	Easting:	1,759,184.86 usft	Longitude:	-80.577799
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	1,342.80 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	4/17/2015	-8.69	67.08	52,326

Design	Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00		

RECEIVED
314.23 Office of Oil and Gas

Survey Program	Date	5/20/2015				JUL 27 2018
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	WV Department of Environmental Protection	
88.00	642.00	MS Gyro (Wellbore #1)	NSG-CT_csg+cent	Continuous gyro in casing + centrollers		
708.00	15,339.00	Sperry MWD (Wellbore #1)	MWD+SC	Fixed:v2:standard dec & axial correction		

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88.00	0.39	150.29	88.00	-0.26	0.15	-0.29	0.44	0.44	0.00	
181.00	0.24	142.19	181.00	-0.69	0.42	-0.78	0.17	-0.16	-8.71	
273.00	0.23	147.57	273.00	-1.00	0.64	-1.16	0.03	-0.01	5.85	
365.00	0.28	146.30	365.00	-1.34	0.87	-1.55	0.05	0.05	-1.38	
457.00	0.41	171.62	456.99	-1.85	1.04	-2.04	0.21	0.14	27.52	
549.00	0.47	184.75	548.99	-2.55	1.06	-2.54	0.13	0.07	14.27	

Company:	Statoil	Local Co-ordinate Reference:	Well North Henderson North Unit 4H - Slot North Henderson 4H
Project:	Wetzel County WV (NAD 27 UTM 17N us ft)	TVD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Site:	North Henderson North Unit Pad	MD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Well:	North Henderson North Unit 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
642.00	0.44	180.80	641.99	-3.29	1.02	-3.03	0.05	-0.03	-4.25	
708.00	0.28	166.31	707.99	-3.70	1.05	-3.34	0.28	-0.24	-21.95	
738.00	0.27	131.65	737.99	-3.82	1.12	-3.47	0.55	-0.03	-115.53	
769.00	0.48	115.33	768.99	-3.92	1.30	-3.67	0.75	0.68	-52.65	
861.00	0.79	67.65	860.98	-3.85	2.23	-4.28	0.64	0.34	-51.83	
892.00	0.99	60.56	891.98	-3.63	2.66	-4.44	0.74	0.65	-22.87	
923.00	1.38	57.89	922.97	-3.30	3.21	-4.61	1.27	1.26	-8.61	
954.00	1.76	50.92	953.96	-2.81	3.90	-4.75	1.37	1.23	-22.48	
984.00	2.18	45.66	983.94	-2.12	4.66	-4.82	1.52	1.40	-17.53	
1,015.00	2.81	39.71	1,014.91	-1.12	5.57	-4.77	2.19	2.03	-19.19	
1,046.00	3.54	35.35	1,045.86	0.25	6.61	-4.56	2.48	2.35	-14.06	
1,076.00	4.36	31.47	1,075.79	1.97	7.74	-4.17	2.87	2.73	-12.93	
1,107.00	5.21	29.92	1,106.68	4.20	9.06	-3.56	2.77	2.74	-5.00	
1,138.00	6.13	28.20	1,137.53	6.88	10.54	-2.76	3.02	2.97	-5.55	
1,169.00	6.97	27.26	1,168.33	10.01	12.18	-1.75	2.73	2.71	-3.03	
1,199.00	7.62	26.55	1,198.09	13.40	13.91	-0.61	2.19	2.17	-2.37	
1,230.00	8.12	26.15	1,228.79	17.21	15.79	0.69	1.62	1.61	-1.29	
1,322.00	9.58	28.15	1,319.70	29.79	22.27	4.83	1.62	1.59	2.17	
1,418.00	9.17	28.08	1,414.41	43.58	29.64	9.17	0.43	-0.43	-0.07	
1,512.00	8.39	31.91	1,507.31	56.01	36.79	12.71	1.04	-0.83	4.07	
1,608.00	8.53	39.88	1,602.27	67.42	45.05	14.75	1.23	0.15	8.30	
1,703.00	9.49	38.85	1,696.10	78.93	54.48	16.02	1.02	1.01	-1.08	
1,798.00	9.14	37.34	1,789.85	91.03	63.97	17.66	0.45	-0.37	-1.59	
1,894.00	10.66	35.56	1,884.41	104.31	73.76	19.91	1.61	1.58	-1.85	
1,990.00	10.15	32.22	1,978.84	118.69	83.44	23.01	0.82	-0.53	-3.48	RECEIVED
2,086.00	9.69	31.31	2,073.40	132.75	92.15	26.57	0.51	-0.48	-0.95	Office of Oil and Gas
2,181.00	10.23	34.34	2,166.97	146.55	101.06	29.81	0.79	0.57	3.19	JUL 27 2018
2,276.00	9.89	38.57	2,260.51	159.89	110.90	32.06	0.86	-0.36	4.45	WV Department of Environmental Protection
2,371.00	10.31	40.63	2,354.04	172.72	121.53	33.40	0.58	0.44	2.17	
2,467.00	11.03	41.82	2,448.38	186.09	133.24	34.33	0.78	0.75	1.24	
2,561.00	11.33	42.22	2,540.59	199.63	145.45	35.03	0.33	0.32	0.43	
2,656.00	10.01	41.53	2,633.95	212.72	157.19	35.75	1.40	-1.39	-0.73	
2,752.00	6.69	35.49	2,728.92	223.52	165.97	36.99	3.57	-3.46	-6.29	
2,817.00	5.42	29.23	2,793.56	229.28	169.67	38.36	2.20	-1.95	-9.63	
2,887.00	5.23	24.83	2,863.25	235.06	172.62	40.28	0.64	-0.27	-6.29	
2,949.00	4.84	21.16	2,925.02	240.07	174.75	42.24	0.82	-0.63	-5.92	
3,044.00	3.84	11.37	3,019.74	246.93	176.83	45.54	1.31	-1.05	-10.31	
3,139.00	3.07	2.29	3,114.57	252.59	177.56	48.96	0.99	-0.81	-9.56	
3,234.00	2.23	348.45	3,209.47	256.94	177.29	52.19	1.11	-0.88	-14.57	
3,329.00	1.95	341.55	3,304.41	260.28	176.41	55.15	0.40	-0.29	-7.26	
3,423.00	1.90	338.41	3,398.35	263.25	175.33	58.00	0.12	-0.05	-3.34	
3,518.00	1.80	350.00	3,493.30	266.18	174.49	60.64	0.41	-0.11	12.20	

Company:	Statoil	Local Co-ordinate Reference:	Well North Henderson North Unit 4H - Slot North Henderson 4H
Project:	Wetzel County WW (NAD 27 UTM 17N us ft)	TVD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Site:	North Henderson North Unit Pad	MD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Well:	North Henderson North Unit 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,614.00	2.40	41.33	3,589.25	269.18	175.55	61.97	1.98	0.62	53.47
3,709.00	2.21	39.35	3,684.17	272.09	178.03	62.23	0.22	-0.20	-2.08
3,804.00	1.55	29.74	3,779.12	274.62	179.83	62.70	0.77	-0.69	-10.12
3,899.00	1.44	39.86	3,874.09	276.65	181.23	63.12	0.30	-0.12	10.65
3,994.00	1.69	110.45	3,969.06	277.08	183.31	61.92	1.92	0.26	74.31
4,089.00	1.55	108.23	4,064.02	276.19	185.84	59.49	0.16	-0.15	-2.34
4,184.00	1.46	111.29	4,158.99	275.35	188.19	57.22	0.13	-0.09	3.22
4,279.00	1.11	106.87	4,253.96	274.64	190.20	55.29	0.38	-0.37	-4.65
4,375.00	0.75	100.52	4,349.95	274.25	191.70	53.94	0.39	-0.37	-6.61
4,470.00	0.44	101.57	4,444.95	274.07	192.67	53.11	0.33	-0.33	1.11
4,565.00	0.17	159.35	4,539.94	273.86	193.08	52.68	0.40	-0.28	60.82
4,660.00	0.43	244.63	4,634.94	273.58	192.81	52.68	0.47	0.27	89.77
4,755.00	0.77	251.92	4,729.94	273.23	191.88	53.10	0.37	0.36	7.67
4,851.00	1.15	265.61	4,825.92	272.95	190.31	54.03	0.46	0.40	14.26
4,945.00	0.84	251.43	4,919.91	272.66	188.71	54.97	0.42	-0.33	-15.09
5,040.00	2.26	129.34	5,014.89	271.25	189.50	53.42	2.95	1.49	-128.52
5,135.00	2.00	125.78	5,109.82	269.10	192.29	49.92	0.31	-0.27	-3.75
5,231.00	1.85	130.88	5,205.77	267.10	194.82	46.71	0.24	-0.16	5.31
5,326.00	1.52	142.19	5,300.73	265.10	196.76	43.93	0.49	-0.35	11.91
5,421.00	1.59	147.23	5,395.69	263.00	198.24	41.40	0.16	0.07	5.31
5,517.00	1.54	151.19	5,491.66	260.75	199.58	38.87	0.12	-0.05	4.12
5,613.00	1.60	166.53	5,587.62	258.31	200.52	36.50	0.44	0.06	15.98
5,708.00	1.91	174.26	5,682.58	255.45	200.99	34.17	0.41	0.33	8.14
5,803.00	2.26	181.23	5,777.51	252.00	201.10	31.68	0.45	0.37	7.34
5,898.00	2.78	194.82	5,872.42	247.90	200.47	29.27	0.83	0.55	14.31
5,993.00	3.14	202.46	5,967.29	243.27	198.89	27.18	0.56	0.38	8.04
6,089.00	1.41	218.13	6,063.22	239.91	197.16	26.08	1.90	-1.80	16.32
6,182.00	0.52	213.25	6,156.20	238.66	196.22	25.87	0.96	-0.96	-5.25
6,278.00	2.13	57.75	6,252.18	239.25	197.49	25.37	2.72	1.68	-161.98
6,372.00	2.77	63.19	6,346.10	241.20	200.99	24.23	0.72	0.68	5.79
6,468.00	3.49	57.73	6,441.95	243.81	205.54	22.79	0.81	0.75	-5.69
6,562.00	4.52	49.53	6,535.72	247.74	210.77	21.78	1.25	1.10	-8.72
6,664.00	5.25	53.24	6,637.35	253.14	217.57	20.68	0.78	0.72	3.64
6,758.00	7.64	30.01	6,730.77	261.13	224.14	21.54	3.71	2.54	-24.71
6,854.00	12.50	33.92	6,825.26	275.29	233.14	24.97	5.11	5.06	4.07
6,949.00	17.97	32.67	6,916.89	296.17	246.79	29.75	5.77	5.76	-1.32
7,044.00	27.73	32.77	7,004.33	327.16	266.72	37.10	10.27	10.27	0.11
7,139.00	38.39	35.23	7,083.84	369.97	295.78	46.13	11.31	11.22	2.59
7,235.00	48.93	37.24	7,153.19	423.28	334.99	55.22	11.07	10.98	2.09
7,330.00	54.35	30.76	7,212.17	485.04	376.46	68.59	7.82	5.71	-6.82
7,424.00	58.61	21.65	7,264.14	555.29	410.86	92.94	9.26	4.53	-9.69

RECEIVED
Office of Oil and Gas

JUL 27 2018

Survey Report

Company:	Statoil	Local Co-ordinate Reference:	Well North Henderson North Unit 4H - Slot North Henderson 4H
Project:	Wetzel County WV (NAD 27 UTM 17N us ft)	TVD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Site:	North Henderson North Unit Pad	MD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Well:	North Henderson North Unit 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,519.00	64.77	11.74	7,309.26	635.28	434.63	131.70	11.23	6.48	-10.43
7,614.00	66.68	4.28	7,348.36	720.95	446.64	182.85	7.43	2.01	-7.85
7,709.00	67.79	355.79	7,385.17	808.45	446.67	243.87	8.32	1.17	-8.94
7,805.00	72.19	346.56	7,418.08	897.43	432.75	315.91	10.13	4.58	-9.61
7,900.00	75.20	337.56	7,444.80	984.04	404.65	396.46	9.63	3.17	-9.47
7,995.00	81.95	327.35	7,463.65	1,066.40	361.59	484.76	12.70	7.11	-10.75
8,091.00	86.57	321.58	7,473.26	1,144.06	306.10	578.70	7.67	4.81	-6.01
8,186.00	88.66	314.77	7,477.22	1,214.74	242.84	673.33	7.49	2.20	-7.17
8,282.00	90.40	313.64	7,478.01	1,281.67	174.03	769.32	2.16	1.81	-1.18
8,376.00	90.17	312.64	7,477.54	1,345.94	105.44	863.30	1.09	-0.24	-1.06
8,471.00	90.24	311.50	7,477.20	1,409.60	34.92	958.23	1.20	0.07	-1.20
8,566.00	90.87	314.02	7,476.28	1,474.09	-34.82	1,053.19	2.73	0.66	2.65
8,661.00	90.54	313.42	7,475.11	1,539.74	-103.48	1,148.17	0.72	-0.35	-0.63
8,753.00	90.60	315.40	7,474.19	1,604.11	-169.19	1,240.16	2.15	0.07	2.15
8,845.00	90.47	314.92	7,473.33	1,669.34	-234.06	1,332.15	0.54	-0.14	-0.52
8,937.00	90.07	314.97	7,472.90	1,734.33	-299.17	1,424.14	0.44	-0.43	0.05
9,029.00	89.90	314.60	7,472.92	1,799.14	-364.47	1,516.14	0.44	-0.18	-0.40
9,122.00	91.58	312.97	7,471.72	1,863.49	-431.60	1,609.12	2.52	1.81	-1.75
9,214.00	91.11	313.30	7,469.56	1,926.37	-498.72	1,701.08	0.62	-0.51	0.36
9,306.00	91.58	315.24	7,467.40	1,990.57	-564.58	1,793.05	2.17	0.51	2.11
9,398.00	91.61	314.39	7,464.84	2,055.39	-629.81	1,885.00	0.92	0.03	-0.92
9,490.00	91.34	314.41	7,462.48	2,119.73	-695.52	1,976.97	0.29	-0.29	0.02
9,583.00	91.17	314.47	7,460.44	2,184.83	-761.91	2,069.95	0.19	-0.18	0.06
9,675.00	90.97	314.33	7,458.72	2,249.19	-827.63	2,161.93	0.27	-0.22	-0.15
9,767.00	90.94	313.47	7,457.19	2,312.97	-893.91	2,253.92	0.94	-0.03	-0.93
9,859.00	91.04	314.76	7,455.60	2,377.01	-959.95	2,345.90	1.41	0.11	1.40
9,951.00	90.47	314.08	7,454.39	2,441.39	-1,025.65	2,437.89	0.96	-0.62	-0.74
10,045.00	89.97	313.58	7,454.02	2,506.49	-1,093.46	2,531.89	0.75	-0.53	-0.53
10,139.00	89.80	313.79	7,454.21	2,571.41	-1,161.44	2,625.89	0.29	-0.18	0.22
10,234.00	90.54	315.76	7,453.93	2,638.32	-1,228.87	2,720.88	2.22	0.78	2.07
10,330.00	90.84	315.88	7,452.77	2,707.16	-1,295.77	2,816.83	0.34	0.31	0.12
10,424.00	91.14	316.26	7,451.15	2,774.85	-1,360.97	2,910.77	0.52	0.32	0.40
10,519.00	91.17	316.05	7,449.24	2,843.35	-1,426.77	3,005.70	0.22	0.03	-0.22
10,615.00	91.08	316.42	7,447.35	2,912.67	-1,493.16	3,101.62	0.40	-0.09	0.39
10,710.00	90.67	316.08	7,445.90	2,981.28	-1,558.85	3,196.55	0.56	-0.43	-0.36
10,806.00	90.87	316.51	7,444.61	3,050.67	-1,625.17	3,292.48	0.49	0.21	0.45
10,901.00	90.60	316.77	7,443.39	3,119.74	-1,690.39	3,387.38	0.39	-0.28	0.27
10,997.00	89.50	315.30	7,443.31	3,188.83	-1,757.03	3,483.33	1.91	-1.15	-1.53
11,092.00	89.46	314.85	7,444.17	3,256.09	-1,824.12	3,578.32	0.48	-0.04	-0.47
11,187.00	90.84	314.56	7,443.92	3,322.92	-1,891.63	3,673.31	1.48	1.45	-0.31
11,283.00	90.57	315.34	7,442.74	3,390.74	-1,959.57	3,769.30	0.86	-0.28	0.81
11,378.00	89.46	313.22	7,442.72	3,457.06	-2,027.58	3,864.29	2.52	-1.17	-2.23

RECEIVED
Office of Oil and Gas
JUL 27 2018
WV Department of Environmental Protection

Company:	Statoil	Local Co-ordinate Reference:	Well North Henderson North Unit 4H - Slot North Henderson 4H
Project:	Wetzel County WV (NAD 27 UTM 17N us ft)	TVD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Site:	North Henderson North Unit Pad	MD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Well:	North Henderson North Unit 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
11,473.00	89.46	313.45	7,443.61	3,522.25	-2,096.67	3,959.27	0.24	0.00	0.24	
11,569.00	89.66	313.54	7,444.35	3,588.32	-2,166.31	4,055.26	0.23	0.21	0.09	
11,664.00	89.60	313.83	7,444.96	3,653.94	-2,235.01	4,150.26	0.31	-0.06	0.31	
11,758.00	89.46	313.14	7,445.73	3,718.62	-2,303.21	4,244.24	0.75	-0.15	-0.73	
11,852.00	90.84	313.19	7,445.49	3,782.93	-2,371.77	4,338.23	1.47	1.47	0.05	
11,946.00	90.84	314.11	7,444.11	3,847.80	-2,439.78	4,432.21	0.98	0.00	0.98	
12,041.00	91.08	314.40	7,442.52	3,914.09	-2,507.81	4,527.20	0.40	0.25	0.31	
12,136.00	90.81	314.27	7,440.95	3,980.47	-2,575.75	4,622.18	0.32	-0.28	-0.14	
12,232.00	90.94	314.12	7,439.48	4,047.39	-2,644.57	4,718.17	0.21	0.14	-0.16	
12,327.00	91.14	313.58	7,437.76	4,113.19	-2,713.07	4,813.15	0.61	0.21	-0.57	
12,422.00	91.11	314.64	7,435.89	4,179.30	-2,781.27	4,908.13	1.12	-0.03	1.12	
12,518.00	91.01	314.54	7,434.12	4,246.68	-2,849.62	5,004.12	0.15	-0.10	-0.10	
12,613.00	90.64	314.91	7,432.75	4,313.53	-2,917.11	5,099.10	0.55	-0.39	0.39	
12,709.00	90.54	314.70	7,431.76	4,381.17	-2,985.22	5,195.09	0.24	-0.10	-0.22	
12,804.00	91.11	315.55	7,430.39	4,448.49	-3,052.24	5,290.07	1.08	0.60	0.89	
12,899.00	91.17	315.40	7,428.50	4,516.20	-3,118.85	5,385.03	0.17	0.06	-0.16	
12,995.00	88.59	314.01	7,428.70	4,583.73	-3,187.07	5,481.01	3.05	-2.69	-1.45	
13,089.00	88.66	314.96	7,430.96	4,649.58	-3,254.11	5,574.99	1.01	0.07	1.01	
13,185.00	90.70	313.95	7,431.50	4,716.80	-3,322.63	5,670.98	2.37	2.12	-1.05	
13,282.00	90.67	314.08	7,430.34	4,784.20	-3,392.38	5,767.97	0.14	-0.03	0.13	
13,378.00	90.87	313.66	7,429.05	4,850.72	-3,461.59	5,863.96	0.48	0.21	-0.44	
13,474.00	90.30	313.52	7,428.07	4,916.91	-3,531.11	5,959.95	0.61	-0.59	-0.15	
13,569.00	90.97	314.02	7,427.01	4,982.62	-3,599.71	6,054.94	0.88	0.71	0.53	
13,664.00	91.24	314.00	7,425.18	5,048.62	-3,668.02	6,149.92	0.28	0.28	-0.02	
13,759.00	91.28	314.40	7,423.09	5,114.83	-3,736.11	6,244.90	0.42	0.04	0.42	
13,854.00	91.08	314.82	7,421.14	5,181.53	-3,803.73	6,339.87	0.49	-0.21	-0.44	
13,949.00	91.57	314.73	7,418.94	5,248.42	-3,871.15	6,434.84	0.52	0.52	-0.99	
14,045.00	89.93	314.05	7,417.68	5,315.57	-3,939.74	6,530.83	1.85	-1.71	-0.71	
14,141.00	89.53	314.53	7,418.14	5,382.61	-4,008.46	6,626.83	0.65	-0.42	0.50	
14,235.00	89.30	313.95	7,419.10	5,448.18	-4,075.80	6,720.82	0.66	-0.24	-0.62	
14,329.00	88.96	313.90	7,420.52	5,513.39	-4,143.49	6,814.81	0.37	-0.36	-0.05	
14,422.00	90.40	313.65	7,421.04	5,577.72	-4,210.64	6,907.80	1.57	1.55	-0.27	
14,517.00	90.47	313.63	7,420.32	5,643.28	-4,279.39	7,002.80	0.08	0.07	-0.02	
14,612.00	90.74	313.71	7,419.32	5,708.88	-4,348.10	7,097.79	0.30	0.28	0.08	
14,707.00	90.60	312.71	7,418.21	5,773.92	-4,417.34	7,192.76	1.06	-0.15	-1.05	
14,802.00	90.23	312.61	7,417.52	5,838.29	-4,487.20	7,287.73	0.40	-0.39	-0.11	
14,898.00	90.24	312.23	7,417.12	5,903.05	-4,558.07	7,383.68	0.40	0.01	-0.40	
14,993.00	90.47	313.27	7,416.54	5,967.53	-4,627.83	7,478.64	1.12	0.24	1.09	
15,087.00	90.74	313.32	7,415.54	6,031.99	-4,696.24	7,572.62	0.29	0.29	0.05	
15,182.00	90.77	312.85	7,414.29	6,096.88	-4,765.61	7,667.60	0.50	0.03	-0.49	
15,277.00	90.74	312.71	7,413.04	6,161.39	-4,835.34	7,762.56	0.15	-0.03	-0.15	

Last MWD Survey at 15277'

RECEIVED
Office of Oil and Gas
JUL 27 2018
Environmental Protection
Department of

Survey Report

Company:	Statoil	Local Co-ordinate Reference:	Well North Henderson North Unit 4H - Slot North Henderson 4H
Project:	Wetzel County WV (NAD 27 UTM 17N us ft)	TVD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Site:	North Henderson North Unit Pad	MD Reference:	GL 1342.8' + KB 22' @ 1364.80usft (Orion Polaris)
Well:	North Henderson North Unit 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,339.00	90.64	312.43	7,412.29	6,203.33	-4,880.99	7,824.53	0.48	-0.16	-0.45
Projection to TD at 15339' MD									

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
450.00		13 3/8"	13.375	17.500
673.00	672.99	9 5/8"	9.625	12.250

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
15,277.00	7,413.04	6,161.39	-4,835.34	Last MWD Survey at 15277'
15,339.00	7,412.29	6,203.33	-4,880.99	Projection to TD at 15339' MD

Checked By: _____ Approved By: _____ Date: _____

RECEIVED
Office of Oil and Gas
JUL 27 2018
WV Department of
Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/16/2018
Job End Date:	4/30/2018
State:	West Virginia
County:	Wetzel
API Number:	47-103-03068-00-00
Operator Name:	EQT Production
Well Name and Number:	516126
Latitude:	39.69344400
Longitude:	-80.57779900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,274
Total Base Water Volume (gal):	12,280,716
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, U.S. Well Services	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	85.93905	None
WFRA-405	U.S. Well Services	Friction Reducer					

RECEIVED
 INTERSTATE
 OIL AND GAS
 COMMISSION
 JUL 27 2018
 Environmental Protection
 Department of