

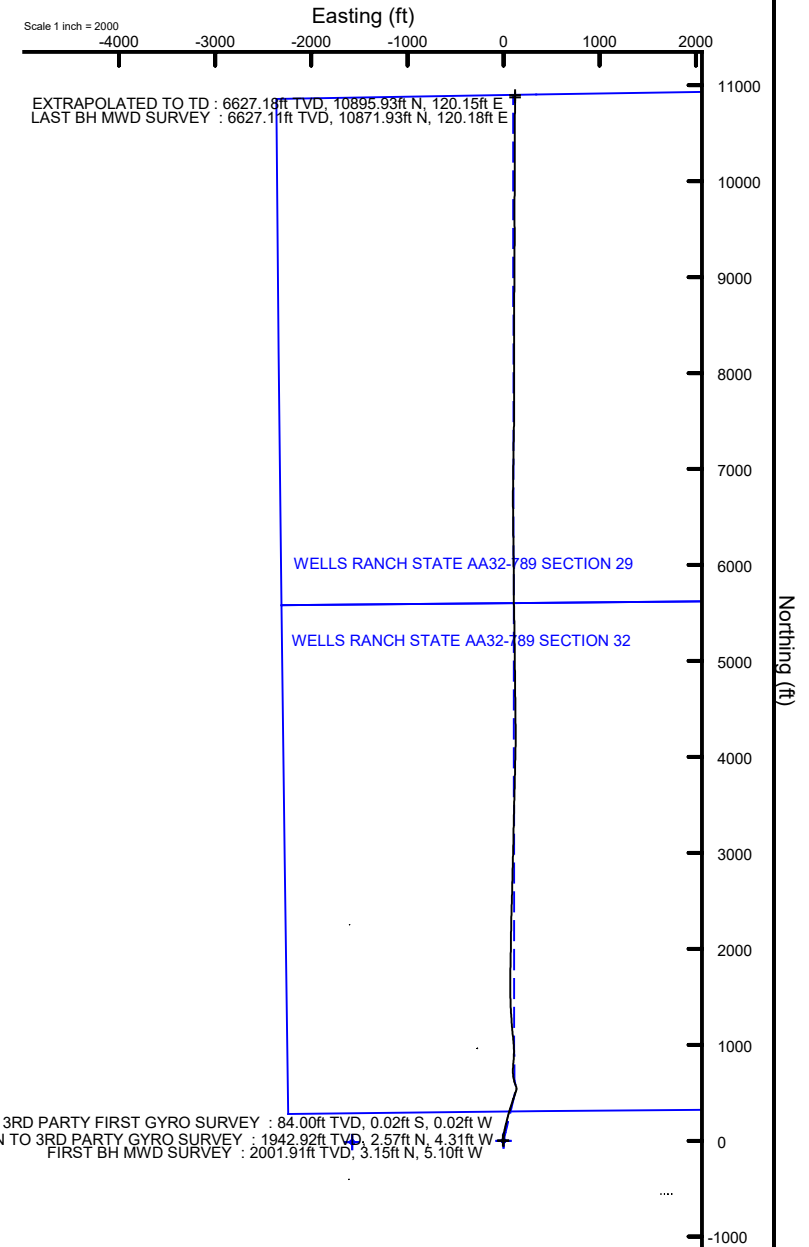
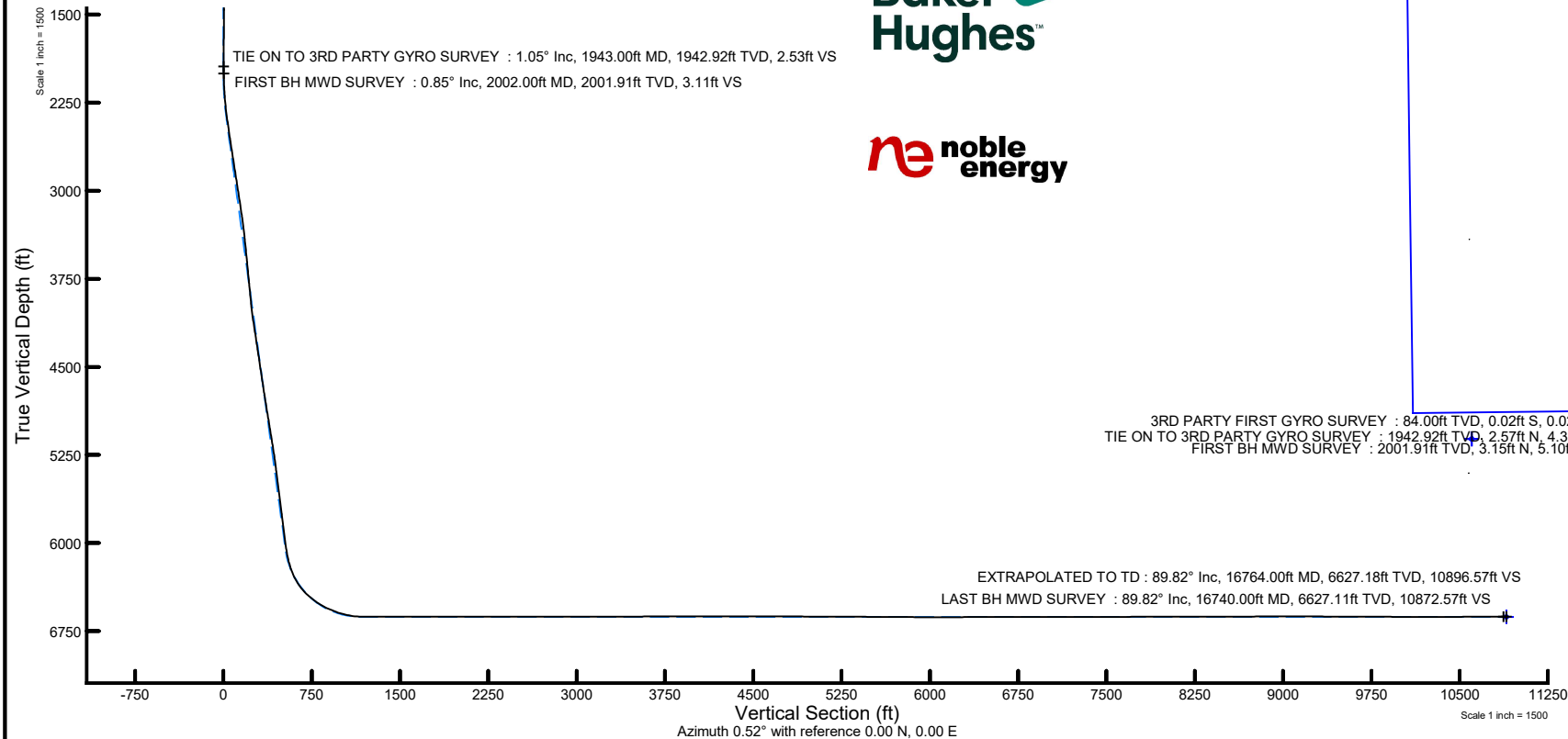
NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL,SEC.05)
Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: WELLS RANCH STATE AA32-751
Facility: SEC.05-T05N-R63W Wellbore: WELLS RANCH STATE AA32-751 AWB

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.05-T05N-R63W			3287281.420	1402554.910	40°26'1.7736"N	104°28'4.6884"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL,SEC.05)	402.80	1609.74	3288891.091	1402957.692	40°26'5.5680"N	104°27'43.8120"W
RIG (30') (RKB) to Ground level (At Slot: SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL,SEC.05))					4714ft	
Mean Sea Level to Ground level (At Slot: SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL,SEC.05))					0ft	
RIG (30') (RKB) to Mean Sea Level					4714ft	

Plot reference wellpath is WELLS RANCH STATE AA32-751 AWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to RIG (30') (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to RIG (30') (RKB)	Scale: True distance
RIG (30') (RKB) to Mean Sea Level: 4714 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL,SEC.05)): 0 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: manojh on 2019-12-07; Database: WA_NOBLE



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-751
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-751 AWB
Slot	SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL,SEC.05)		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Manajohj
Scale	0.999962	Report Generated	12/7/2019 at 10:30:59 PM
Convergence at slot	0.67° East	Database	WA_NOBLE

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	402.80	1609.74	3288891.09	1402957.69	40°26'5.5680"N	104°27'43.8120"W
Facility Reference Pt			3287281.42	1402554.91	40°26'1.7736"N	104°28'4.6884"W
Field Reference Pt			3000000.00	4454105.15	48°46'34.3150"N	105°30'0.0000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	RIG (30') (RKB) to Facility Vertical Datum	4714.00ft
Horizontal Reference Pt	Slot	RIG (30') (RKB) to Mean Sea Level	4714.00ft
Vertical Reference Pt	RIG (30') (RKB)	RIG (30') (RKB) to Ground Level at Slot (SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL,SEC.05))	4714.00ft
MD Reference Pt	RIG (30') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	0.52°

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	WELLS RANCH STATE AA32-751
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.05-T05N-R63W		Wellbore	WELLS RANCH STATE AA32-751 AWB
Slot	SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL, SEC.05)			

WELLPATH DATA (176 stations)														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Tooface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
0.00	0.000	216.860	0.00	-4714.00	0.00	0.00	0.00	40°26'5.5680"N	104°27'43.8120"W	0.00	0.00	0.00	0.00	
84.00	0.040	216.860	84.00	-4630.00	-0.02	-0.02	-0.02	40°26'5.5678"N	104°27'43.8122"W	0.05	-61.55	0.05	0.00	3RD PARTY FIRST GYRO SURVEY
178.00	0.250	163.400	178.00	-4536.00	-0.25	-0.25	0.02	40°26'5.5656"N	104°27'43.8118"W	0.24	10.63	0.22	-56.87	
269.00	0.280	164.550	269.00	-4445.00	-0.65	-0.65	0.14	40°26'5.5616"N	104°27'43.8103"W	0.03	-148.60	0.03	1.26	
332.00	0.150	92.510	332.00	-4382.00	-0.80	-0.80	0.26	40°26'5.5600"N	104°27'43.8088"W	0.43	168.61	-0.21	-114.35	
427.00	0.030	180.090	427.00	-4287.00	-0.83	-0.83	0.38	40°26'5.5597"N	104°27'43.8071"W	0.16	-12.64	-0.13	92.19	
522.00	0.450	168.290	522.00	-4192.00	-1.22	-1.22	0.46	40°26'5.5559"N	104°27'43.8062"W	0.44	145.19	0.44	-12.42	
617.00	0.270	241.410	617.00	-4097.00	-1.69	-1.70	0.34	40°26'5.5512"N	104°27'43.8079"W	0.48	157.12	-0.19	76.97	
712.00	0.280	16.510	712.00	-4002.00	-1.58	-1.58	0.21	40°26'5.5524"N	104°27'43.8095"W	0.54	-90.75	0.01	142.21	
806.00	1.120	300.230	805.99	-3908.01	-0.90	-0.90	-0.52	40°26'5.5592"N	104°27'43.8189"W	1.16	111.92	0.89	-81.15	
901.00	1.060	333.570	900.97	-3813.03	0.34	0.36	-1.71	40°26'5.5717"N	104°27'43.8341"W	0.66	176.39	-0.06	35.09	
996.00	0.490	337.790	995.96	-3718.04	1.50	1.52	-2.26	40°26'5.5833"N	104°27'43.8410"W	0.60	-94.54	-0.60	4.44	
1090.00	0.530	310.410	1089.96	-3624.04	2.15	2.17	-2.74	40°26'5.5898"N	104°27'43.8471"W	0.26	131.75	0.04	-29.13	
1185.00	0.410	336.830	1184.96	-3529.04	2.74	2.77	-3.21	40°26'5.5958"N	104°27'43.8531"W	0.26	-142.63	-0.13	27.81	
1280.00	0.320	245.250	1279.96	-3434.04	2.94	2.97	-3.58	40°26'5.5978"N	104°27'43.8579"W	0.55	88.06	-0.09	-96.40	
1374.00	0.530	296.190	1373.95	-3340.05	3.02	3.05	-4.21	40°26'5.5987"N	104°27'43.8660"W	0.44	98.96	0.22	54.19	
1469.00	0.720	348.510	1468.95	-3245.05	3.79	3.83	-4.72	40°26'5.6064"N	104°27'43.8725"W	0.61	178.43	0.20	55.07	
1563.00	0.020	68.630	1562.95	-3151.05	4.37	4.42	-4.83	40°26'5.6122"N	104°27'43.8738"W	0.76	76.46	-0.74	85.23	
1658.00	0.890	143.840	1657.94	-3056.06	3.79	3.83	-4.38	40°26'5.6063"N	104°27'43.8680"W	0.93	126.92	0.92	79.17	
1753.00	0.790	155.010	1752.93	-2961.07	2.61	2.64	-3.66	40°26'5.5945"N	104°27'43.8590"W	0.20	171.47	-0.11	11.76	
1848.00	0.140	269.680	1847.93	-2866.07	2.01	2.04	-3.50	40°26'5.5886"N	104°27'43.8570"W	0.90	42.89	-0.68	120.71	
1943.00	1.050	307.360	1942.92	-2771.08	2.53	2.57	-4.31	40°26'5.5939"N	104°27'43.8674"W	0.99	-170.89	0.96	39.66	TIE ON TO 3RD PARTY GYRO SURVEY
2002.00	0.850	305.190	2001.91	-2712.09	3.11	3.15	-5.10	40°26'5.5997"N	104°27'43.8775"W	0.34	57.16	-0.34	-3.68	FIRST BH MWD SURVEY
2192.00	4.210	352.600	2191.71	-2522.29	10.82	10.88	-7.15	40°26'5.6764"N	104°27'43.9028"W	1.94	22.51	1.77	24.95	
2286.00	5.750	358.840	2285.36	-2428.64	18.94	19.01	-7.69	40°26'5.7568"N	104°27'43.9086"W	1.73	40.12	1.64	6.64	
2381.00	8.200	12.140	2379.65	-2334.35	30.34	30.40	-6.36	40°26'5.8691"N	104°27'43.8897"W	3.07	60.49	2.58	14.00	
2476.00	8.250	12.750	2473.67	-2240.33	43.64	43.67	-3.43	40°26'5.9999"N	104°27'43.8498"W	0.11	-6.34	0.05	0.64	
2571.00	8.950	12.250	2567.61	-2146.39	57.53	57.54	-0.36	40°26'6.1366"N	104°27'43.8079"W	0.74	96.51	0.74	-0.53	
2665.00	8.940	12.840	2660.46	-2053.54	71.83	71.80	2.81	40°26'6.2772"N	104°27'43.7647"W	0.10	-93.13	-0.01	0.63	
2760.00	8.930	11.280	2754.31	-1959.69	86.28	86.23	5.90	40°26'6.4194"N	104°27'43.7227"W	0.26	32.45	-0.01	-1.64	
2854.00	9.110	12.000	2847.15	-1866.85	100.74	100.67	8.87	40°26'6.5616"N	104°27'43.6820"W	0.23	-169.61	0.19	0.77	
2949.00	8.850	11.690	2940.98	-1773.02	115.28	115.18	11.92	40°26'6.7047"N	104°27'43.6405"W	0.28	-29.52	-0.27	-0.33	
3044.00	8.880	11.580	3034.85	-1679.15	129.65	129.52	14.87	40°26'6.8460"N	104°27'43.6001"W	0.04	100.38	0.03	-0.12	
3139.00	8.810	14.470	3128.72	-1585.28	143.90	143.75	18.16	40°26'6.9862"N	104°27'43.5554"W	0.47	-143.80	-0.07	3.04	
3233.00	8.380	12.280	3221.66	-1492.34	157.60	157.41	21.41	40°26'7.1209"N	104°27'43.5113"W	0.57	163.34	-0.46	-2.33	
3328.00	6.710	16.610	3315.84	-1398.16	169.71	169.49	24.47	40°26'7.2399"N	104°27'43.4699"W	1.86	-36.99	-1.76	4.56	
3423.00	7.010	14.780	3410.16	-1303.84	180.66	180.42	27.54	40°26'7.3475"N	104°27'43.4286"W	0.39	-175.69	0.32	-1.93	
3518.00	5.630	13.720	3504.58	-1209.42	190.81	190.55	30.12	40°26'7.4473"N	104°27'43.3936"W	1.46	-123.12	-1.45	-1.12	
3612.00	5.570	12.760	3598.13	-1115.87	199.76	199.48	32.22	40°26'7.5353"N	104°27'43.3651"W	0.12	-16.52	-0.06	-1.02	
3802.00	5.670	12.460	3787.22	-926.78	217.96	217.64	36.29	40°26'7.7142"N	104°27'43.3098"W	0.05	130.54	0.05	-0.16	
3896.00	5.570	13.680	3880.76	-833.24	226.94	226.60	38.37	40°26'7.8026"N	104°27'43.2816"W	0.17	91.02	-0.11	1.30	
3991.00	5.570	15.720	3975.32	-738.68	235.88	235.52	40.71	40°26'7.8904"N	104°27'43.2500"W	0.21	-4.55	0.00	2.15	
4086.00	9.020	13.970	4069.53	-644.47	247.57	247.19	43.75	40°26'8.0054"N	104°27'43.2088"W	3.64	146.92	3.63	-1.84	
4180.00	8.830	14.780	4162.40	-551.60	261.73	261.31	47.37	40°26'8.1445"N	104°27'43.1599"W	0.24	9.57	-0.20	0.86	
4275.00	8.950	14.910	4256.25	-457.75	275.96	275.51	51.13	40°26'8.2843"N	104°27'43.1091"W	0.13	-126.38	0.13	0.14	

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	WELLS RANCH STATE AA32-751
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.05-T05N-R63W		Wellbore	WELLS RANCH STATE AA32-751 AWP
Slot	SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL, SEC.05)			

WELLPATH DATA (176 stations)														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Toolface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
4370.00	8.880	14.290	4350.11	-363.89	290.24	289.75	54.85	40°26'8.4247"N	104°27'43.0589"W	0.13	103.54	-0.07	-0.65	
4465.00	8.760	18.080	4443.98	-270.02	304.26	303.73	58.90	40°26'8.5624"N	104°27'43.0044"W	0.62	-15.30	-0.13	3.99	
4559.00	8.890	17.850	4536.87	-177.13	318.01	317.45	63.35	40°26'8.6974"N	104°27'42.9448"W	0.14	0.59	0.14	-0.24	
4749.00	9.200	17.870	4724.51	10.51	346.53	345.88	72.51	40°26'8.9772"N	104°27'42.8220"W	0.16	11.77	0.16	0.01	
4843.00	9.420	18.150	4817.27	103.27	361.03	360.34	77.21	40°26'9.1196"N	104°27'42.7590"W	0.24	-1.28	0.23	0.30	
4938.00	9.800	18.100	4910.94	196.94	376.15	375.42	82.15	40°26'9.2680"N	104°27'42.6929"W	0.40	-165.30	0.40	-0.05	
5033.00	9.710	17.960	5004.56	290.56	391.50	390.72	87.13	40°26'9.4186"N	104°27'42.6262"W	0.10	126.29	-0.09	-0.15	
5127.00	9.620	18.700	5097.23	383.23	406.52	405.70	92.09	40°26'9.5661"N	104°27'42.5597"W	0.16	-85.46	-0.10	0.79	
5222.00	9.630	18.000	5190.89	476.89	421.64	420.78	97.09	40°26'9.7144"N	104°27'42.4928"W	0.12	176.72	0.01	-0.74	
5316.00	7.300	19.050	5283.86	569.86	434.81	433.90	101.47	40°26'9.8436"N	104°27'42.4342"W	2.48	-7.57	-2.48	1.12	
5412.00	7.790	18.570	5379.03	665.03	446.77	445.84	105.53	40°26'9.9611"N	104°27'42.3798"W	0.51	-145.42	0.51	-0.50	
5506.00	7.720	18.210	5472.17	758.17	458.85	457.87	109.53	40°26'10.0795"N	104°27'42.3263"W	0.09	-144.26	-0.07	-0.38	
5601.00	7.670	17.940	5566.31	852.31	470.97	469.97	113.48	40°26'10.1986"N	104°27'42.2734"W	0.06	37.09	-0.05	-0.28	
5696.00	7.850	18.930	5660.44	946.44	483.18	482.13	117.54	40°26'10.3183"N	104°27'42.2191"W	0.24	-128.56	0.19	1.04	
5790.00	7.750	17.990	5753.57	1039.57	495.32	494.23	121.58	40°26'10.4374"N	104°27'42.1650"W	0.17	122.02	-0.11	-1.00	
5885.00	7.710	18.470	5847.71	1133.71	507.49	506.37	125.58	40°26'10.5569"N	104°27'42.1115"W	0.08	53.70	-0.04	0.51	
5980.00	7.770	19.070	5941.85	1227.85	519.64	518.48	129.69	40°26'10.6761"N	104°27'42.0564"W	0.11	176.53	0.06	0.63	
6075.00	7.660	19.120	6035.99	1321.99	531.73	530.54	133.86	40°26'10.7947"N	104°27'42.0006"W	0.12	-58.38	-0.12	0.05	
6169.00	12.290	352.600	6128.59	1414.59	547.59	546.39	134.63	40°26'10.9513"N	104°27'41.9884"W	6.82	-30.91	4.93	-28.21	
6264.00	20.450	339.430	6219.69	1505.69	573.14	572.01	127.48	40°26'11.2052"N	104°27'42.0769"W	9.38	8.25	8.59	-13.86	
6359.00	28.540	341.870	6306.07	1592.07	610.19	609.18	114.57	40°26'11.5740"N	104°27'42.2383"W	8.58	25.68	8.52	2.57	
6453.00	39.510	349.900	6383.89	1669.89	661.04	660.14	102.29	40°26'12.0789"N	104°27'42.3893"W	12.59	44.88	11.67	8.54	
6548.00	48.120	0.660	6452.48	1738.48	726.32	725.47	97.38	40°26'12.7250"N	104°27'42.4429"W	11.96	24.53	9.06	11.33	
6643.00	56.920	5.380	6510.25	1796.25	801.52	800.63	101.53	40°26'13.4672"N	104°27'42.3779"W	10.06	-15.48	9.26	4.97	
6738.00	64.950	2.940	6556.36	1842.36	884.31	883.38	107.48	40°26'14.2841"N	104°27'42.2884"W	8.74	-39.76	8.45	-2.57	
6832.00	71.260	357.490	6591.42	1877.42	971.45	970.51	107.72	40°26'15.1450"N	104°27'42.2722"W	8.60	-27.55	6.71	-5.80	
6927.00	78.980	353.420	6615.81	1901.81	1062.81	1061.94	100.39	40°26'16.0493"N	104°27'42.3531"W	9.12	11.27	8.13	-4.28	
7022.00	88.250	355.260	6626.36	1912.36	1156.56	1155.78	91.10	40°26'16.9776"N	104°27'42.4589"W	9.95	12.36	9.76	1.94	
7116.00	90.030	355.650	6627.77	1913.77	1250.18	1249.47	83.66	40°26'17.9042"N	104°27'42.5411"W	1.94	85.91	1.89	0.41	
7211.00	90.090	356.490	6627.68	1913.68	1344.89	1344.25	77.14	40°26'18.8415"N	104°27'42.6109"W	0.89	81.20	0.06	0.88	
7306.00	90.370	358.300	6627.29	1913.29	1439.75	1439.15	72.83	40°26'19.7796"N	104°27'42.6524"W	1.93	157.62	0.29	1.91	
7401.00	90.030	358.440	6626.96	1912.96	1534.68	1534.11	70.12	40°26'20.7182"N	104°27'42.6730"W	0.39	90.00	-0.36	0.15	
7496.00	90.030	359.600	6626.91	1912.91	1629.65	1629.09	68.50	40°26'21.6570"N	104°27'42.6796"W	1.22	91.71	0.00	1.22	
7590.00	89.970	1.610	6626.91	1912.91	1723.64	1723.08	69.49	40°26'22.5856"N	104°27'42.6525"W	2.14	-101.56	-0.06	2.14	
7685.00	89.880	1.170	6627.04	1913.04	1818.63	1818.05	71.80	40°26'23.5237"N	104°27'42.6083"W	0.47	26.57	-0.09	-0.46	
7780.00	90.060	1.260	6627.09	1913.09	1913.62	1913.03	73.81	40°26'24.4619"N	104°27'42.5679"W	0.21	53.84	0.19	0.09	
7875.00	90.250	1.520	6626.83	1912.83	2008.61	2008.00	76.12	40°26'25.4001"N	104°27'42.5237"W	0.34	-106.34	0.20	0.27	
7969.00	89.910	0.360	6626.70	1912.70	2102.61	2101.99	77.66	40°26'26.3286"N	104°27'42.4895"W	1.29	117.30	-0.36	-1.23	
8064.00	89.750	0.670	6626.98	1912.98	2197.61	2196.99	78.51	40°26'27.2671"N	104°27'42.4641"W	0.37	79.18	-0.17	0.33	
8159.00	89.880	1.350	6627.29	1913.29	2292.60	2291.97	80.19	40°26'28.2054"N	104°27'42.4281"W	0.73	27.41	0.14	0.72	
8253.00	90.150	1.490	6627.26	1913.26	2386.59	2385.94	82.52	40°26'29.1337"N	104°27'42.3837"W	0.32	92.26	0.29	0.15	
8443.00	90.120	2.250	6626.81	1912.81	2576.54	2575.84	88.72	40°26'31.0093"N	104°27'42.2748"W	0.40	-102.85	-0.02	0.40	
8538.00	89.780	0.760	6626.90	1912.90	2671.52	2670.80	91.21	40°26'31.9474"N	104°27'42.2281"W	1.61	63.74	-0.36	-1.57	
8632.00	90.150	1.510	6626.95	1912.95	2765.51	2764.78	93.07	40°26'32.8757"N	104°27'42.1898"W	0.89	146.31	0.39	0.80	
8727.00	90.120	1.530	6626.73	1912.73	2860.50	2859.75	95.59	40°26'33.8138"N	104°27'42.1429"W	0.04	180.00	-0.03	0.02	

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	WELLS RANCH STATE AA32-751
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.05-T05N-R63W		Wellbore	WELLS RANCH STATE AA32-751 AWB
Slot	SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL, SEC.05)			

WELLPATH DATA (176 stations)														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Toolface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
8822.00	89.940	1.530	6626.68	1912.68	2955.48	2954.71	98.13	40°26'34.7519"N	104°27'42.0957"W	0.19	-29.06	-0.19	0.00	
8917.00	90.030	1.480	6626.71	1912.71	3050.47	3049.68	100.62	40°26'35.6899"N	104°27'42.0490"W	0.11	-90.00	0.09	-0.05	
9011.00	90.030	1.360	6626.66	1912.66	3144.46	3143.65	102.95	40°26'36.6182"N	104°27'42.0047"W	0.13	-90.00	0.00	-0.13	
9106.00	90.030	0.740	6626.61	1912.61	3239.45	3238.64	104.69	40°26'37.5565"N	104°27'41.9678"W	0.65	82.88	0.00	-0.65	
9201.00	90.120	1.460	6626.48	1912.48	3334.45	3333.62	106.52	40°26'38.4948"N	104°27'41.9298"W	0.76	-47.12	0.09	0.76	
9295.00	90.250	1.320	6626.18	1912.18	3428.44	3427.59	108.80	40°26'39.4231"N	104°27'41.8861"W	0.20	131.63	0.14	-0.15	
9390.00	90.090	1.500	6625.90	1911.90	3523.42	3522.56	111.14	40°26'40.3612"N	104°27'41.8415"W	0.25	4.40	-0.17	0.19	
9485.00	90.220	1.510	6625.64	1911.64	3618.41	3617.53	113.63	40°26'41.2992"N	104°27'41.7948"W	0.14	-81.47	0.14	0.01	
9579.00	90.250	1.310	6625.25	1911.25	3712.40	3711.50	115.94	40°26'42.2275"N	104°27'41.7507"W	0.22	81.03	0.03	-0.21	
9674.00	90.280	1.500	6624.82	1910.82	3807.38	3806.47	118.27	40°26'43.1656"N	104°27'41.7062"W	0.20	-123.69	0.03	0.20	
9769.00	90.060	1.170	6624.53	1910.53	3902.37	3901.44	120.49	40°26'44.1038"N	104°27'41.6631"W	0.42	33.69	-0.23	-0.35	
9863.00	90.180	1.250	6624.34	1910.34	3996.37	3995.42	122.47	40°26'45.0321"N	104°27'41.6232"W	0.15	110.56	0.13	0.09	
9958.00	90.120	1.410	6624.09	1910.09	4091.36	4090.40	124.68	40°26'45.9703"N	104°27'41.5803"W	0.18	-88.33	-0.06	0.17	
10052.00	90.150	0.380	6623.87	1909.87	4185.35	4184.38	126.14	40°26'46.8988"N	104°27'41.5471"W	1.10	-92.93	0.03	-1.10	
10147.00	90.090	359.210	6623.67	1909.67	4280.34	4279.38	125.80	40°26'47.8375"N	104°27'41.5371"W	1.23	154.80	-0.06	-1.23	
10242.00	89.750	359.370	6623.80	1909.80	4375.32	4374.37	124.63	40°26'48.7763"N	104°27'41.5380"W	0.40	-34.99	-0.36	0.17	
10336.00	89.850	359.300	6624.13	1910.13	4469.30	4468.37	123.54	40°26'49.7051"N	104°27'41.5378"W	0.13	6.34	0.11	-0.07	
10431.00	89.940	359.310	6624.30	1910.30	4564.28	4563.36	122.38	40°26'50.6439"N	104°27'41.5383"W	0.10	166.50	0.09	0.01	
10525.00	89.690	359.370	6624.61	1910.61	4658.26	4657.35	121.30	40°26'51.5727"N	104°27'41.5381"W	0.27	-79.38	-0.27	0.06	
10620.00	89.720	359.210	6625.10	1911.10	4753.24	4752.34	120.12	40°26'52.5115"N	104°27'41.5389"W	0.17	61.39	0.03	-0.17	
10715.00	89.780	359.320	6625.51	1911.51	4848.21	4847.33	118.91	40°26'53.4502"N	104°27'41.5403"W	0.13	-161.57	0.06	0.12	
10810.00	89.660	359.280	6625.97	1911.97	4943.19	4942.33	117.75	40°26'54.3889"N	104°27'41.5409"W	0.13	135.00	-0.13	-0.04	
10904.00	89.630	359.310	6626.56	1912.56	5037.17	5036.32	116.59	40°26'55.3178"N	104°27'41.5417"W	0.05	17.65	-0.03	0.03	
10999.00	89.850	359.380	6626.99	1912.99	5132.15	5131.31	115.50	40°26'56.2565"N	104°27'41.5413"W	0.24	-113.20	0.23	0.07	
11094.00	89.730	359.100	6627.34	1913.34	5227.12	5226.30	114.24	40°26'57.1953"N	104°27'41.5432"W	0.32	93.99	-0.13	-0.29	
11188.00	89.700	359.530	6627.80	1913.80	5321.10	5320.29	113.12	40°26'58.1241"N	104°27'41.5435"W	0.46	-74.06	-0.03	0.46	
11283.00	89.880	358.900	6628.15	1914.15	5416.07	5415.28	111.82	40°26'59.0628"N	104°27'41.5460"W	0.69	-134.17	0.19	-0.66	
11378.00	89.540	358.550	6628.63	1914.63	5511.03	5510.26	109.70	40°27'0.0015"N	104°27'41.5589"W	0.51	82.67	-0.36	-0.37	
11472.00	89.670	359.560	6629.28	1915.28	5604.99	5604.24	108.15	40°27'0.9303"N	104°27'41.5647"W	1.08	-105.26	0.14	1.07	
11567.00	89.640	359.450	6629.85	1915.85	5699.97	5699.24	107.33	40°27'1.8691"N	104°27'41.5610"W	0.12	90.00	-0.03	-0.12	
11662.00	89.640	359.620	6630.45	1916.45	5794.96	5794.23	106.56	40°27'2.8078"N	104°27'41.5565"W	0.18	-90.00	0.00	0.18	
11757.00	89.640	359.520	6631.05	1917.05	5889.94	5889.23	105.85	40°27'3.7465"N	104°27'41.5514"W	0.11	-37.12	0.00	-0.11	
11852.00	90.010	359.240	6631.34	1917.34	5984.92	5984.22	104.82	40°27'4.6852"N	104°27'41.5503"W	0.49	64.36	0.39	-0.29	
11946.00	90.130	359.490	6631.22	1917.22	6078.90	6078.21	103.78	40°27'5.6141"N	104°27'41.5495"W	0.30	96.58	0.13	0.27	
12041.00	90.100	359.750	6631.03	1917.03	6173.89	6173.21	103.15	40°27'6.5528"N	104°27'41.5433"W	0.28	-87.23	-0.03	0.27	
12136.00	90.130	359.130	6630.84	1916.84	6268.88	6268.21	102.22	40°27'7.4916"N	104°27'41.5409"W	0.65	43.96	0.03	-0.65	
12230.00	90.410	359.400	6630.40	1916.40	6362.85	6362.20	101.01	40°27'8.4204"N	104°27'41.5423"W	0.41	144.25	0.30	0.29	
12325.00	90.160	359.580	6629.92	1915.92	6457.84	6457.19	100.17	40°27'9.3592"N	104°27'41.5388"W	0.32	-90.00	-0.26	0.19	
12420.00	90.160	359.100	6629.66	1915.66	6552.81	6552.19	99.07	40°27'10.2979"N	104°27'41.5386"W	0.51	135.00	0.00	-0.51	
12515.00	90.070	359.190	6629.47	1915.47	6647.79	6647.17	97.66	40°27'11.2366"N	104°27'41.5425"W	0.13	84.61	-0.09	0.09	
12609.00	90.220	0.780	6629.23	1915.23	6741.78	6741.17	97.63	40°27'12.1654"N	104°27'41.5286"W	1.70	-130.60	0.16	1.69	
12704.00	90.160	0.710	6628.92	1914.92	6836.78	6836.16	98.87	40°27'13.1039"N	104°27'41.4982"W	0.10	-162.47	-0.06	-0.07	
12799.00	89.970	0.650	6628.81	1914.81	6931.78	6931.16	100.00	40°27'14.0423"N	104°27'41.4693"W	0.21	49.19	-0.20	-0.06	
12894.00	90.160	0.870	6628.70	1914.70	7026.78	7026.15	101.26	40°27'14.9808"N	104°27'41.4386"W	0.31	-162.26	0.20	0.23	
12988.00	89.910	0.790	6628.64	1914.64	7120.78	7120.14	102.62	40°27'15.9093"N	104°27'41.4067"W	0.28	28.61	-0.27	-0.09	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-751
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-751 AWB
Slot	SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL, SEC.05)		

WELLPATH DATA (176 stations) † = interpolated, ‡ = extrapolated station														
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Toolface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
13083.00	90.130	0.910	6628.61	1914.61	7215.77	7215.13	104.03	40°27'16.8478"N	104°27'41.3741"W	0.26	-145.49	0.23	0.13	
13178.00	89.970	0.800	6628.53	1914.53	7310.77	7310.12	105.44	40°27'17.7862"N	104°27'41.3414"W	0.20	141.45	-0.17	-0.12	
13272.00	89.330	1.310	6629.10	1915.10	7404.77	7404.10	107.17	40°27'18.7146"N	104°27'41.3047"W	0.87	13.19	-0.68	0.54	
13367.00	89.970	1.460	6629.68	1915.68	7499.75	7499.07	109.47	40°27'19.6527"N	104°27'41.2607"W	0.69	-77.74	0.67	0.16	
13462.00	90.220	0.310	6629.52	1915.52	7594.75	7594.05	110.94	40°27'20.5911"N	104°27'41.2273"W	1.24	-56.91	0.26	-1.21	
13557.00	91.080	358.990	6628.45	1914.45	7689.73	7689.04	110.36	40°27'21.5297"N	104°27'41.2204"W	1.66	135.23	0.91	-1.39	
13651.00	89.850	0.210	6627.68	1913.68	7783.71	7783.03	109.70	40°27'22.4585"N	104°27'41.2146"W	1.84	-17.88	-1.31	1.30	
13746.00	90.160	0.110	6627.67	1913.67	7878.71	7878.03	109.97	40°27'23.3972"N	104°27'41.1968"W	0.34	72.47	0.33	-0.11	
13841.00	90.220	0.300	6627.36	1913.36	7973.71	7973.03	110.31	40°27'24.3358"N	104°27'41.1780"W	0.21	140.19	0.06	0.20	
13935.00	90.100	0.400	6627.10	1913.10	8067.70	8067.03	110.88	40°27'25.2645"N	104°27'41.1564"W	0.17	-90.00	-0.13	0.11	
14030.00	90.100	359.930	6626.93	1912.93	8162.70	8162.03	111.15	40°27'26.2031"N	104°27'41.1384"W	0.49	-90.00	0.00	-0.49	
14125.00	90.100	359.830	6626.77	1912.77	8257.70	8257.03	110.96	40°27'27.1418"N	104°27'41.1266"W	0.11	109.80	0.00	-0.11	
14219.00	90.010	0.080	6626.68	1912.68	8351.69	8351.03	110.88	40°27'28.0706"N	104°27'41.1133"W	0.28	-170.04	-0.10	0.27	
14314.00	89.270	359.950	6627.27	1913.27	8446.69	8446.03	110.91	40°27'29.0093"N	104°27'41.0986"W	0.79	16.32	-0.78	-0.14	
14408.00	90.500	0.310	6627.46	1913.46	8540.68	8540.02	111.12	40°27'29.9380"N	104°27'41.0816"W	1.36	-148.60	1.31	0.38	
14503.00	89.730	359.840	6627.27	1913.27	8635.68	8635.02	111.24	40°27'30.8767"N	104°27'41.0656"W	0.95	-4.92	-0.81	-0.49	
14598.00	91.240	359.710	6626.47	1912.47	8730.66	8730.02	110.87	40°27'31.8154"N	104°27'41.0560"W	1.60	123.34	1.59	-0.14	
14693.00	90.470	0.880	6625.05	1911.05	8825.65	8825.00	111.36	40°27'32.7538"N	104°27'41.0353"W	1.47	-119.60	-0.81	1.23	
14787.00	90.220	0.440	6624.48	1910.48	8919.65	8919.99	112.44	40°27'33.6824"N	104°27'41.0071"W	0.54	-154.23	-0.27	-0.47	
14882.00	89.640	0.160	6624.60	1910.60	9014.65	9013.99	112.94	40°27'34.6210"N	104°27'40.9862"W	0.68	-26.57	-0.61	-0.29	
14977.00	89.760	0.100	6625.10	1911.10	9109.64	9108.99	113.16	40°27'35.5597"N	104°27'40.9691"W	0.14	69.83	0.13	-0.06	
15071.00	89.940	0.590	6625.34	1911.34	9203.64	9202.99	113.72	40°27'36.4884"N	104°27'40.9475"W	0.56	164.48	0.19	0.52	
15166.00	89.760	0.640	6625.59	1911.59	9298.64	9297.98	114.74	40°27'37.4269"N	104°27'40.9199"W	0.20	-119.98	-0.19	0.05	
15261.00	89.610	0.380	6626.11	1912.11	9393.64	9392.98	115.59	40°27'38.3654"N	104°27'40.8946"W	0.32	-79.65	-0.16	-0.27	
15355.00	89.820	359.230	6626.58	1912.58	9487.63	9486.97	115.27	40°27'39.2942"N	104°27'40.8845"W	1.24	90.00	0.22	-1.22	
15450.00	89.820	359.660	6626.88	1912.88	9582.61	9581.97	114.35	40°27'40.2330"N	104°27'40.8820"W	0.45	107.53	0.00	0.45	
15545.00	89.760	359.850	6627.23	1913.23	9677.60	9676.97	113.94	40°27'41.1717"N	104°27'40.8728"W	0.21	92.29	-0.06	0.20	
15639.00	89.730	0.600	6627.65	1913.65	9771.60	9770.96	114.31	40°27'42.1004"N	104°27'40.8538"W	0.80	-79.99	-0.03	0.80	
15734.00	89.760	0.430	6628.07	1914.07	9866.60	9865.96	115.16	40°27'43.0389"N	104°27'40.8284"W	0.18	-139.90	0.03	-0.18	
15829.00	89.570	0.270	6628.62	1914.62	9961.60	9960.96	115.74	40°27'43.9775"N	104°27'40.8065"W	0.26	-55.91	-0.20	-0.17	
15923.00	90.010	359.620	6628.97	1914.97	10055.59	10054.96	115.65	40°27'44.9063"N	104°27'40.7934"W	0.84	83.60	0.47	-0.69	
16018.00	90.130	0.690	6628.85	1914.85	10150.59	10149.95	115.91	40°27'45.8449"N	104°27'40.7757"W	1.13	-92.86	0.13	1.13	
16113.00	90.100	0.090	6628.66	1914.66	10245.59	10244.95	116.56	40°27'46.7835"N	104°27'40.7529"W	0.63	-95.36	-0.03	-0.63	
16208.00	90.070	359.770	6628.52	1914.52	10340.58	10339.95	116.44	40°27'47.7222"N	104°27'40.7400"W	0.34	95.62	-0.03	-0.34	
16302.00	90.010	0.380	6628.46	1914.46	10434.58	10433.95	116.56	40°27'48.6510"N	104°27'40.7242"W	0.65	-18.43	-0.06	0.65	
16397.00	90.160	0.330	6628.31	1914.31	10529.58	10528.95	117.15	40°27'49.5896"N	104°27'40.7022"W	0.17	90.00	0.16	-0.05	
16492.00	90.160	0.460	6628.05	1914.05	10624.58	10623.94	117.81	40°27'50.5282"N	104°27'40.6793"W	0.14	-114.23	0.00	0.14	
16587.00	90.070	0.260	6627.86	1913.86	10719.58	10718.94	118.41	40°27'51.4667"N	104°27'40.6572"W	0.23	60.79	-0.09	-0.21	
16681.00	90.590	1.190	6627.32	1913.32	10813.57	10812.93	119.59	40°27'52.3953"N	104°27'40.6276"W	1.13	-121.63	0.55	0.99	
16740.00	89.820	359.940	6627.11	1913.11	10872.57	10871.93	120.18	40°27'52.9782"N	104°27'40.6111"W	2.49	0.00	-1.31	-2.12	LAST BH MWD SURVEY
16764.00	89.820	359.940	6627.18	1913.18	10896.57	10895.93	120.15	40°27'53.2153"N	104°27'40.6078"W	0.00		0.00	0.00	EXTRAPOLATED TO TD

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-751
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-751 AWB
Slot	SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL,SEC.05)		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
WELLS RANCH STATE AA32-789 SECTION 29	12.00	-14.75	-1575.56	3287315.60	1402942.95	40°26'5.6040"N	104°28'4.1880"W	polygon
	2D Polygon: dimensions not calculated							
WELLS RANCH STATE AA32-789 SECTION 32	12.00	-14.75	-1575.56	3287315.60	1402942.95	40°26'5.6040"N	104°28'4.1880"W	polygon
	2D Polygon: dimensions not calculated							
WELLS RANCH STATE AA32-751 BHL REV-1 (0'FNL & 2463'FWL,SEC.29)	6629.00	10896.21	98.79	3288989.87	1413853.47	40°27'53.2206"N	104°27'40.8841"W	point
WELLS RANCH STATE AA32-751 LP TPZ REV-1 (400'FSL & 2356'FWL,SEC.32)	6629.00	1166.74	111.29	3289002.38	1404124.39	40°26'17.0836"N	104°27'42.1962"W	point
WELLS RANCH STATE AA32-751 WSU 460ft Setback	7000.00	0.00	0.00	3288891.09	1402957.69	40°26'5.5680"N	104°27'43.8120"W	polygon
	2D Polygon: dimensions not calculated							
WELLS RANCH STATE AA32-751 WSU Boundary	7000.00	0.00	0.00	3288891.09	1402957.69	40°26'5.5680"N	104°27'43.8120"W	polygon
	2D Polygon: dimensions not calculated							

WELLPATH COMPOSITION - Ref Wellbore: WELLS RANCH STATE AA32-751 AWB						Ref Wellpath: WELLS RANCH STATE AA32-751 AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment		Wellbore		Survey Date
0.00	1943.00	Gyrodatta 2015 - GC+DROP+COND	13.5" Surface Hole Section (GYRODATA-GC+DROP+COND) <0"- 1943">		WELLS RANCH STATE AA32-751 AWB		12/6/2019
1943.00	16764.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	8.5" ATC Monobore (OWSG MWD REV.2+IFR1+MSA) <2002' - 16740">		WELLS RANCH STATE AA32-751 AWB		12/6/2019

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-751
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-751 AWB
Slot	SLOT#20 WELLS RANCH STATE AA32-751 (300'FNL & 2237'FWL,SEC.05)		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
84.00	0.040	216.860	84.00	3RD PARTY FIRST GYRO SURVEY
1943.00	1.050	307.360	1942.92	TIE ON TO 3RD PARTY GYRO SURVEY
2002.00	0.850	305.190	2001.91	FIRST BH MWD SURVEY
16740.00	89.820	359.940	6627.11	LAST BH MWD SURVEY
16764.00	89.820	359.940	6627.18	EXTRAPOLATED TO TD