

NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#21 WELLS RANCH STATE AA32-745 (300°FNL & 2275°FWL, SEC.05)
Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: WELLS RANCH STATE AA32-745
Facility: SEC.05-T05N-R63W Wellbore: WELLS RANCH STATE AA32-745 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#21 WELLS RANCH STATE AA32-745 (300°FNL & 2275°FWL, SEC.05)	403.22	1645.92	3288927.276	1402958.115	40°26'5.5680"N	104°27'43.3440"W
RIG (30') (RKB) to Ground level (At Slot: SLOT#21 WELLS RANCH STATE AA32-745 (300°FNL & 2275°FWL, SEC.05))					4715ft	
Mean Sea Level to Ground level (At Slot: SLOT#21 WELLS RANCH STATE AA32-745 (300°FNL & 2275°FWL, SEC.05))					0ft	
RIG (30') (RKB) to Mean Sea Level					4715ft	

Plot reference wellpath is WELLS RANCH STATE AA32-745 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: 4715 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: SLOT#21 WELLS RANCH STATE AA32-745 (300°FNL & 2275°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 2019-12-08; Database: WA_NOBLE

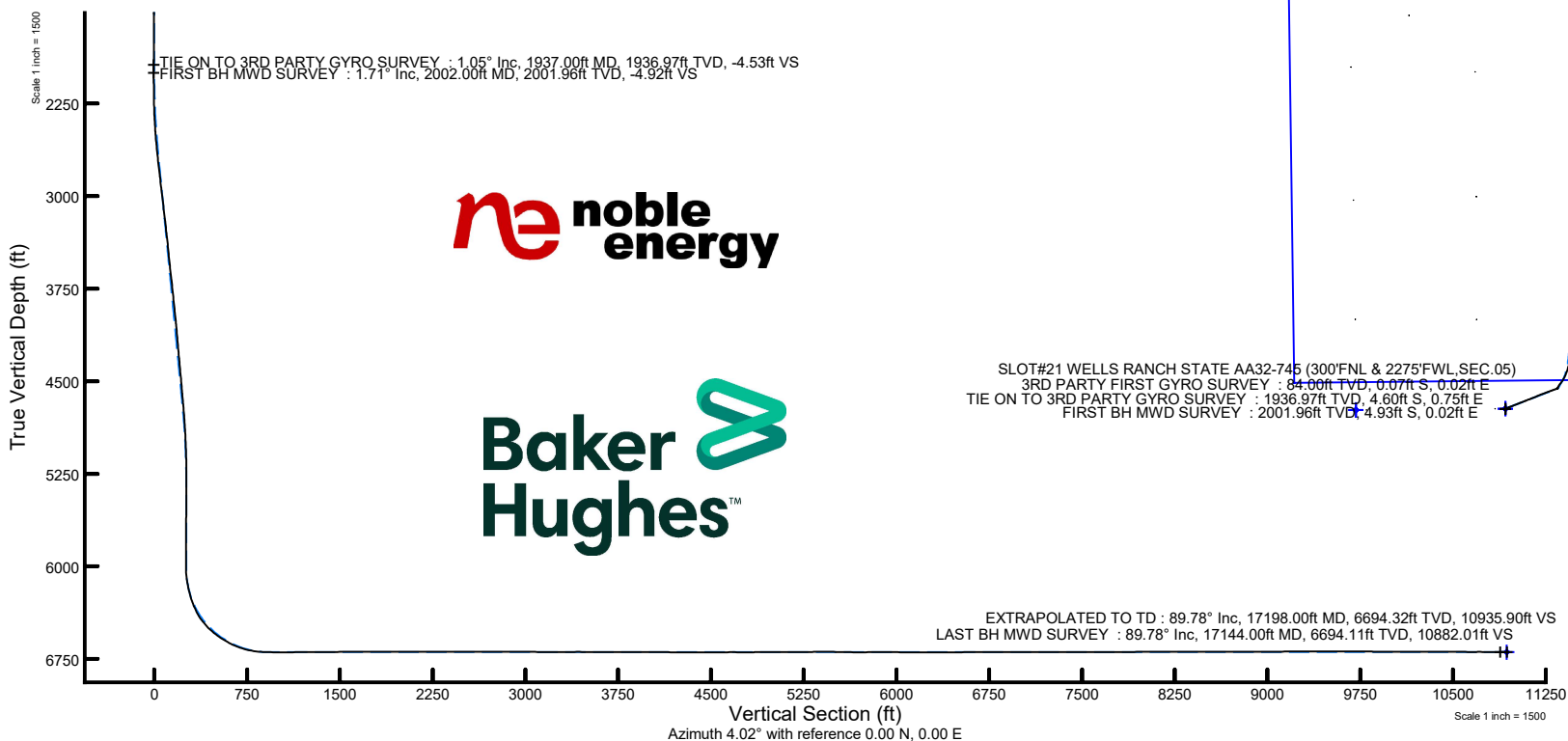
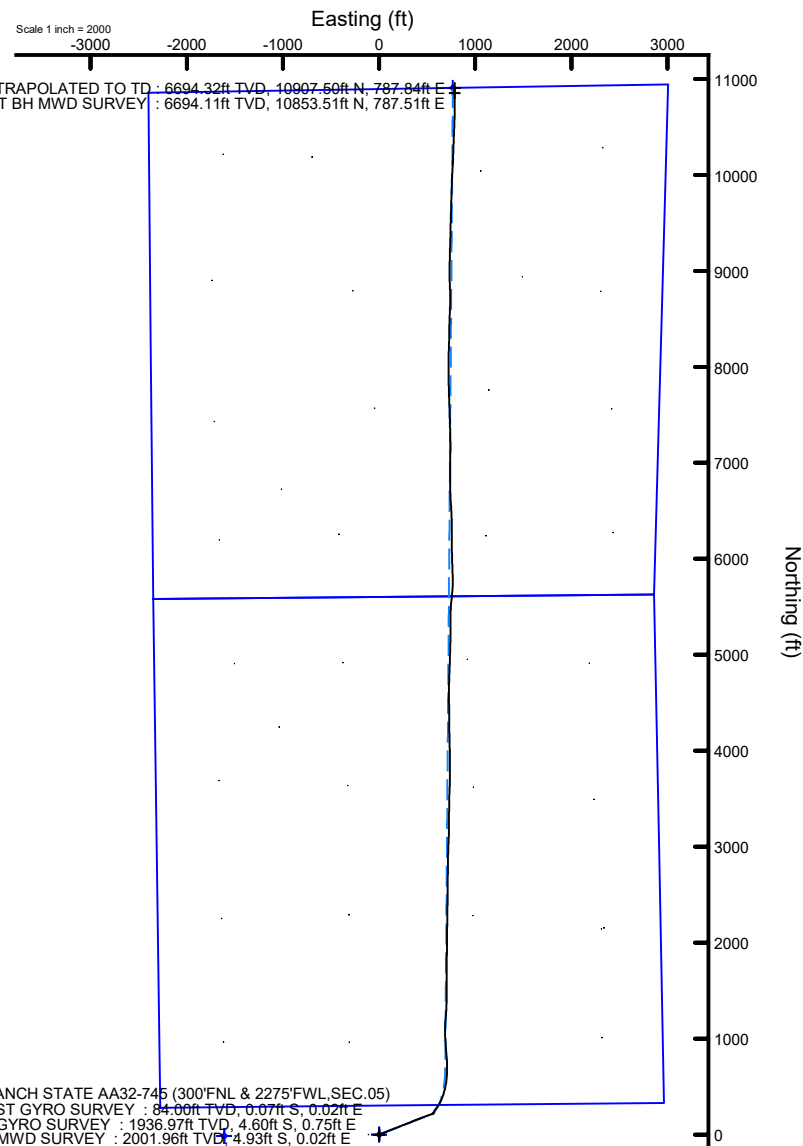
Scale 1 inch = 1500
TIE ON TO 3RD PARTY GYRO SURVEY : 1.05° Inc, 1937.00ft MD, 1936.97ft TVD, -4.53ft VS
FIRST BH MWD SURVEY : 1.71° Inc, 2002.00ft MD, 2001.96ft TVD, -4.92ft VS

ne noble energy

Baker Hughes

SLOT#21 WELLS RANCH STATE AA32-745 (300°FNL & 2275°FWL, SEC.05)
3RD PARTY FIRST GYRO SURVEY : 84.60ft TVD, 0.07ft S, 0.02ft E
TIE ON TO 3RD PARTY GYRO SURVEY : 1936.97ft TVD, 4.60ft S, 0.75ft E
FIRST BH MWD SURVEY : 2001.96ft TVD, 4.93ft S, 0.02ft E

EXTRAPOLATED TO TD : 89.78° Inc, 17198.00ft MD, 6694.32ft TVD, 10935.90ft VS
LAST BH MWD SURVEY : 89.78° Inc, 17144.00ft MD, 6694.11ft TVD, 10882.01ft VS



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-745 AWB
Slot	SLOT#21 WELLS RANCH STATE AA32-745 (300'FNL & 2275'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	12/8/2019 at 11:09:14 AM
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	403.22	1645.92	3288927.28	1402958.12	40°26'5.5680"N	104°27'43.3440"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	4715.00ft
Horizontal Reference Pt	Slot	RIG (30') (RKB) to Mean Sea Level	4715.00ft
Vertical Reference Pt	RIG (30') (RKB)	RIG (30') (RKB) to Ground Level at Slot (SLOT#21 WELLS RANCH STATE AA32-745 (300'FNL & 2275'FWL,SEC.05))	4715.00ft
MD Reference Pt	RIG (30') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	4.02°

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	WELLS RANCH STATE AA32-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.05-T05N-R63W		Wellbore	WELLS RANCH STATE AA32-745 AWB
Slot	SLOT#21 WELLS RANCH STATE AA32-745 (300'FNL & 2275'FWL, SEC.05)			

WELLPATH DATA (180 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
0.00	0.000	165.150	0.00	-4715.00	0.00	0.00	0.00	40°26'5.5680"N	104°27'43.3440"W	0.00	0.00	0.00	0.00	
84.00	0.100	165.150	84.00	-4631.00	-0.07	-0.07	0.02	40°26'5.5673"N	104°27'43.3438"W	0.12	91.98	0.12	0.00	3RD PARTY FIRST GYRO SURVEY
178.00	0.160	218.470	178.00	-4537.00	-0.26	-0.25	-0.04	40°26'5.5655"N	104°27'43.3446"W	0.14	-148.71	0.06	56.72	
269.00	0.140	213.350	269.00	-4446.00	-0.46	-0.45	-0.18	40°26'5.5636"N	104°27'43.3464"W	0.03	90.53	-0.02	-5.63	
332.00	0.170	248.440	332.00	-4383.00	-0.56	-0.54	-0.31	40°26'5.5627"N	104°27'43.3481"W	0.16	-132.49	0.05	55.70	
427.00	0.130	221.300	427.00	-4288.00	-0.71	-0.68	-0.51	40°26'5.5614"N	104°27'43.3507"W	0.08	-169.87	-0.04	-28.57	
522.00	0.140	60.840	522.00	-4193.00	-0.73	-0.70	-0.48	40°26'5.5611"N	104°27'43.3504"W	0.28	-90.33	0.01	-168.91	
617.00	0.140	60.180	617.00	-4098.00	-0.61	-0.59	-0.28	40°26'5.5622"N	104°27'43.3477"W	0.00	-160.47	0.00	-0.69	
712.00	0.070	301.680	712.00	-4003.00	-0.51	-0.50	-0.23	40°26'5.5631"N	104°27'43.3470"W	0.19	-83.16	-0.07	-124.74	
806.00	0.540	225.920	806.00	-3909.00	-0.82	-0.78	-0.60	40°26'5.5604"N	104°27'43.3518"W	0.56	-127.05	0.50	-80.60	
901.00	0.550	150.460	900.99	-3814.01	-1.53	-1.48	-0.69	40°26'5.5534"N	104°27'43.3532"W	0.70	139.92	0.01	-79.43	
996.00	0.360	210.740	995.99	-3719.01	-2.18	-2.14	-0.62	40°26'5.5469"N	104°27'43.3524"W	0.51	-140.22	-0.20	63.45	
1090.00	0.280	125.860	1089.99	-3625.01	-2.56	-2.53	-0.59	40°26'5.5431"N	104°27'43.3520"W	0.46	-154.46	-0.09	-90.30	
1185.00	0.170	106.150	1184.99	-3530.01	-2.71	-2.70	-0.26	40°26'5.5413"N	104°27'43.3478"W	0.14	153.10	-0.12	-20.75	
1280.00	0.230	239.710	1279.99	-3435.01	-2.85	-2.84	-0.29	40°26'5.5400"N	104°27'43.3482"W	0.39	-106.41	0.06	140.59	
1374.00	0.350	172.380	1373.99	-3341.01	-3.24	-3.22	-0.42	40°26'5.5363"N	104°27'43.3499"W	0.36	152.81	0.13	-71.63	
1469.00	0.160	236.630	1468.99	-3246.01	-3.60	-3.58	-0.49	40°26'5.5327"N	104°27'43.3509"W	0.33	155.64	-0.20	67.63	
1563.00	0.440	23.650	1562.99	-3152.01	-3.34	-3.32	-0.45	40°26'5.5353"N	104°27'43.3504"W	0.62	-173.40	0.30	156.40	
1658.00	0.070	343.960	1657.99	-3057.01	-2.94	-2.93	-0.32	40°26'5.5391"N	104°27'43.3486"W	0.41	178.32	-0.39	-41.78	
1753.00	0.180	161.620	1752.99	-2962.01	-3.03	-3.01	-0.29	40°26'5.5382"N	104°27'43.3482"W	0.26	-37.97	0.12	187.01	
1848.00	0.610	134.110	1847.98	-2867.02	-3.49	-3.51	0.12	40°26'5.5333"N	104°27'43.3430"W	0.48	51.89	0.45	-28.96	
1937.00	1.050	158.800	1936.97	-2778.03	-4.53	-4.60	0.75	40°26'5.5225"N	104°27'43.3350"W	0.63	145.07	0.49	27.74	TIE ON TO 3RD PARTY GYRO SURVEY
2002.00	1.710	283.290	2001.96	-2713.04	-4.92	-4.93	0.02	40°26'5.5193"N	104°27'43.3444"W	3.79	160.32	1.02	191.52	FIRST BH MWD SURVEY
2097.00	0.630	17.570	2096.95	-2618.05	-4.18	-4.11	-1.20	40°26'5.5276"N	104°27'43.3601"W	1.96	74.41	-1.14	99.24	
2192.00	1.640	70.270	2191.93	-2523.07	-3.13	-3.15	0.24	40°26'5.5368"N	104°27'43.3414"W	1.43	-23.24	1.06	55.47	
2286.00	2.880	60.010	2285.86	-2429.14	-1.26	-1.52	3.55	40°26'5.5526"N	104°27'43.2983"W	1.38	7.64	1.32	-10.91	
2381.00	5.670	63.780	2380.58	-2334.42	2.44	1.75	9.83	40°26'5.5842"N	104°27'43.2166"W	2.95	9.84	2.94	3.97	
2476.00	9.250	67.620	2474.76	-2240.24	8.20	6.73	21.10	40°26'5.6321"N	104°27'43.0701"W	3.80	4.05	3.77	4.04	
2571.00	11.790	68.500	2568.16	-2146.84	15.78	13.20	37.20	40°26'5.6941"N	104°27'42.8610"W	2.68	0.70	2.67	0.93	
2665.00	13.950	68.610	2659.79	-2055.21	24.78	20.85	56.68	40°26'5.7675"N	104°27'42.6079"W	2.30	-50.11	2.30	0.12	
2760.00	14.360	66.670	2751.91	-1963.09	35.11	29.69	78.16	40°26'5.8524"N	104°27'42.3288"W	0.66	48.43	0.43	-2.04	
2854.00	14.820	68.660	2842.88	-1872.12	45.61	38.69	100.07	40°26'5.9387"N	104°27'42.0442"W	0.72	46.96	0.49	2.12	
2949.00	15.210	70.230	2934.63	-1780.37	55.84	47.32	123.11	40°26'6.0213"N	104°27'41.7449"W	0.59	-91.90	0.41	1.65	
3044.00	15.210	66.290	3026.31	-1688.69	66.67	56.55	146.25	40°26'6.1098"N	104°27'41.4443"W	1.09	79.61	0.00	-4.15	
3139.00	15.400	69.670	3117.94	-1597.06	77.67	65.94	169.49	40°26'6.2000"N	104°27'41.1424"W	0.96	-133.22	0.20	3.56	
3234.00	15.030	68.130	3209.61	-1505.39	88.25	74.91	192.75	40°26'6.2859"N	104°27'40.8402"W	0.58	177.12	-0.39	-1.62	
3328.00	14.200	68.300	3300.57	-1414.43	98.58	83.72	214.77	40°26'6.3703"N	104°27'40.5541"W	0.88	161.31	-0.88	0.18	
3518.00	13.350	69.550	3485.10	-1229.90	117.78	100.00	256.98	40°26'6.5263"N	104°27'40.0058"W	0.47	-40.66	-0.45	0.66	
3707.00	14.120	66.890	3668.70	-1046.30	137.34	116.67	298.63	40°26'6.6862"N	104°27'39.4647"W	0.53	160.18	0.41	-1.41	
3802.00	13.170	68.400	3761.02	-953.98	147.30	125.20	319.35	40°26'6.7682"N	104°27'39.1955"W	1.07	-135.86	-1.00	1.59	
3991.00	12.730	66.430	3945.21	-769.79	166.26	141.46	358.45	40°26'6.9242"N	104°27'38.6874"W	0.33	165.09	-0.23	-1.04	
4086.00	12.260	67.020	4037.96	-677.04	175.69	149.58	377.33	40°26'7.0023"N	104°27'38.4420"W	0.51	97.50	-0.49	0.62	
4181.00	12.180	70.860	4130.81	-584.19	184.21	156.80	396.09	40°26'7.0715"N	104°27'38.1984"W	0.86	-111.00	-0.08	4.04	
4275.00	12.060	69.310	4222.71	-492.29	192.22	163.52	414.64	40°26'7.1358"N	104°27'37.9574"W	0.37	-57.65	-0.13	-1.65	
4370.00	12.100	69.010	4315.61	-399.39	200.58	170.60	433.22	40°26'7.2035"N	104°27'37.7161"W	0.08	33.34	0.04	-0.32	

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	WELLS RANCH STATE AA32-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.05-T05N-R63W		Wellbore	WELLS RANCH STATE AA32-745 AWB
Slot	SLOT#21 WELLS RANCH STATE AA32-745 (300'FNL & 2275'FWL, SEC.05)			

WELLPATH DATA (180 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
4465.00	12.190	69.290	4408.48	-306.52	208.98	177.71	451.90	40°26'7.2716"N	104°27'37.4735"W	0.11	111.87	0.09	0.29	
4559.00	12.110	70.260	4500.38	-214.62	217.11	184.55	470.46	40°26'7.3371"N	104°27'37.2324"W	0.23	-6.02	-0.09	1.03	
4654.00	12.170	70.230	4593.25	-121.75	225.17	191.30	489.27	40°26'7.4016"N	104°27'36.9882"W	0.06	-122.45	0.06	-0.03	
4749.00	12.070	69.470	4686.14	-28.86	233.33	198.17	507.99	40°26'7.4673"N	104°27'36.7450"W	0.20	177.46	-0.11	-0.80	
4844.00	10.470	69.860	4779.30	64.30	240.99	204.63	525.40	40°26'7.5291"N	104°27'36.5190"W	1.69	-174.15	-1.68	0.41	
4938.00	7.820	67.860	4872.10	157.10	247.31	209.98	539.34	40°26'7.5804"N	104°27'36.3378"W	2.84	173.07	-2.82	-2.13	
5033.00	6.240	69.630	4966.38	251.38	252.29	214.21	550.17	40°26'7.6209"N	104°27'36.1972"W	1.68	-179.69	-1.66	1.86	
5127.00	4.620	69.520	5059.96	344.96	255.97	217.32	558.51	40°26'7.6506"N	104°27'36.0889"W	1.72	-164.49	-1.72	-0.12	
5222.00	1.860	43.410	5154.80	439.80	258.75	219.78	563.15	40°26'7.6744"N	104°27'36.0285"W	3.22	-172.41	-2.91	-27.48	
5317.00	0.800	248.880	5249.79	534.79	259.66	220.66	563.59	40°26'7.6830"N	104°27'36.0226"W	2.74	-149.30	-1.12	-162.66	
5412.00	0.650	240.650	5344.78	629.78	259.09	220.15	562.50	40°26'7.6782"N	104°27'36.0368"W	0.19	-155.80	-0.16	-8.66	
5506.00	0.630	239.830	5438.77	723.77	258.50	219.63	561.59	40°26'7.6731"N	104°27'36.0487"W	0.02	-173.79	-0.02	-0.87	
5601.00	0.090	115.290	5533.77	818.77	258.18	219.34	561.21	40°26'7.6703"N	104°27'36.0537"W	0.72	77.60	-0.57	-131.09	
5696.00	0.800	186.580	5628.77	913.77	257.49	218.65	561.20	40°26'7.6635"N	104°27'36.0539"W	0.82	177.96	0.75	75.04	
5790.00	0.090	202.990	5722.76	1007.76	256.77	217.93	561.10	40°26'7.6564"N	104°27'36.0553"W	0.76	-65.53	-0.76	17.46	
5885.00	0.920	142.570	5817.76	1102.76	256.12	217.25	561.53	40°26'7.6496"N	104°27'36.0498"W	0.93	179.61	0.87	-63.60	
5980.00	0.090	146.210	5912.76	1197.76	255.49	216.59	562.03	40°26'7.6430"N	104°27'36.0434"W	0.87	-131.87	-0.87	3.83	
6075.00	0.370	24.780	6007.76	1292.76	255.72	216.80	562.20	40°26'7.6451"N	104°27'36.0412"W	0.45	-4.16	0.29	-127.82	
6169.00	8.580	20.800	6101.39	1386.39	262.73	223.64	564.83	40°26'7.7124"N	104°27'36.0062"W	8.74	12.77	8.73	-4.23	
6264.00	13.680	25.640	6194.57	1479.57	279.97	240.41	572.21	40°26'7.8772"N	104°27'35.9082"W	5.45	27.23	5.37	5.09	
6359.00	22.750	37.160	6284.75	1569.75	305.86	265.23	588.20	40°26'8.1206"N	104°27'35.6976"W	10.23	-1.75	9.55	12.13	
6454.00	31.040	36.670	6369.40	1654.40	341.93	299.58	613.97	40°26'8.4570"N	104°27'35.3592"W	8.73	-43.65	8.73	-0.52	
6548.00	39.590	24.830	6446.12	1731.12	390.48	346.34	641.10	40°26'8.9159"N	104°27'35.0012"W	11.62	-28.11	9.10	-12.60	
6643.00	48.530	18.610	6514.35	1799.35	453.38	407.70	665.24	40°26'9.5194"N	104°27'34.6799"W	10.45	-29.70	9.41	-6.55	
6738.00	55.740	13.720	6572.64	1857.64	526.64	479.69	685.94	40°26'10.2283"N	104°27'34.4012"W	8.61	-42.75	7.59	-5.15	
6832.00	62.770	6.640	6620.71	1905.71	606.86	559.11	700.02	40°26'11.0115"N	104°27'34.2071"W	9.88	-27.56	7.48	-7.53	
6927.00	70.320	2.500	6658.51	1943.51	693.92	645.91	706.86	40°26'11.8683"N	104°27'34.1054"W	8.89	-25.78	7.95	-4.36	
7022.00	79.850	357.870	6682.95	1967.95	785.37	737.57	707.08	40°26'12.7740"N	104°27'34.0888"W	11.08	-20.17	10.03	-4.87	
7116.00	87.470	355.080	6693.32	1978.32	877.91	830.74	701.32	40°26'13.6952"N	104°27'34.1491"W	8.63	14.73	8.11	-2.97	
7211.00	89.600	355.640	6695.75	1980.75	971.79	925.39	693.64	40°26'14.6314"N	104°27'34.2340"W	2.32	67.36	2.24	0.59	
7306.00	90.280	357.270	6695.85	1980.85	1065.96	1020.21	687.77	40°26'15.5689"N	104°27'34.2956"W	1.86	91.38	0.72	1.72	
7401.00	90.180	1.400	6695.47	1980.47	1160.62	1115.18	686.66	40°26'16.5074"N	104°27'34.2954"W	4.35	86.62	-0.11	4.35	
7496.00	90.430	5.650	6694.96	1979.96	1255.59	1209.98	692.50	40°26'17.4434"N	104°27'34.2055"W	4.48	-89.02	0.26	4.47	
7685.00	90.520	0.250	6693.40	1978.40	1444.48	1398.65	702.23	40°26'19.3066"N	104°27'34.0512"W	2.86	-129.29	0.05	-2.86	
7780.00	90.430	0.140	6692.61	1977.61	1539.26	1493.64	702.55	40°26'20.2452"N	104°27'34.0326"W	0.15	90.00	-0.09	-0.12	
7875.00	90.430	0.500	6691.90	1976.90	1634.06	1588.64	703.08	40°26'21.1838"N	104°27'34.0113"W	0.38	-123.87	0.00	0.38	
7969.00	89.940	359.770	6691.59	1976.59	1727.85	1682.64	703.30	40°26'22.1125"N	104°27'33.9942"W	0.94	97.94	-0.52	-0.78	
8064.00	89.820	0.630	6691.79	1976.79	1822.63	1777.64	703.63	40°26'23.0512"N	104°27'33.9755"W	0.91	73.95	-0.13	0.91	
8159.00	90.030	1.360	6691.92	1976.92	1917.50	1872.62	705.28	40°26'23.9895"N	104°27'33.9397"W	0.80	-93.73	0.22	0.77	
8253.00	89.970	0.440	6691.92	1976.92	2011.36	1966.61	706.76	40°26'24.9180"N	104°27'33.9064"W	0.98	-45.00	-0.06	-0.98	
8348.00	90.180	0.230	6691.79	1976.79	2106.16	2061.61	707.31	40°26'25.8566"N	104°27'33.8848"W	0.31	97.77	0.22	-0.22	
8443.00	90.120	0.670	6691.54	1976.54	2200.98	2156.60	708.06	40°26'26.7952"N	104°27'33.8607"W	0.47	81.87	-0.06	0.46	
8538.00	90.180	1.090	6691.29	1976.29	2295.83	2251.59	709.52	40°26'27.7336"N	104°27'33.8274"W	0.45	-156.80	0.06	0.44	
8632.00	89.480	0.790	6691.57	1976.57	2389.70	2345.58	711.06	40°26'28.6621"N	104°27'33.7932"W	0.81	-75.07	-0.74	-0.32	
8727.00	89.600	0.340	6692.34	1977.34	2484.52	2440.57	712.00	40°26'29.6006"N	104°27'33.7667"W	0.49	59.22	0.13	-0.47	

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-745 AWP
Slot	SLOT#21 WELLS RANCH STATE AA32-745 (300'FNL & 2275'FWL, SEC.05)		

WELLPATH DATA (180 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	89.880	0.810	6692.77	1977.77	2579.35	2535.56	712.95	40°26'30.5391"N	104°27'33.7399"W	0.58	-22.07	0.29	0.49	
8917.00	90.250	0.660	6692.66	1977.66	2674.19	2630.56	714.17	40°26'31.4775"N	104°27'33.7097"W	0.42	-120.70	0.39	-0.16	
9011.00	90.060	0.340	6692.40	1977.40	2768.01	2724.55	714.99	40°26'32.4062"N	104°27'33.6849"W	0.40	108.04	-0.20	-0.34	
9106.00	89.780	1.200	6692.54	1977.54	2862.86	2819.54	716.27	40°26'33.3446"N	104°27'33.6539"W	0.95	-69.68	-0.29	0.91	
9201.00	89.880	0.930	6692.82	1977.82	2957.73	2914.53	718.03	40°26'34.2829"N	104°27'33.6167"W	0.30	89.02	0.11	-0.28	
9295.00	89.910	2.680	6692.99	1977.99	3051.65	3008.48	720.99	40°26'35.2109"N	104°27'33.5641"W	1.86	-98.97	0.03	1.86	
9390.00	89.820	2.110	6693.22	1978.22	3146.62	3103.39	724.96	40°26'36.1483"N	104°27'33.4984"W	0.61	-84.98	-0.09	-0.60	
9485.00	90.030	359.720	6693.34	1978.34	3241.47	3198.37	726.48	40°26'37.0866"N	104°27'33.4644"W	2.53	81.14	0.22	-2.52	
9579.00	90.150	0.490	6693.19	1978.19	3335.25	3292.37	726.65	40°26'38.0154"N	104°27'33.4479"W	0.83	94.34	0.13	0.82	
9674.00	90.030	2.070	6693.04	1978.04	3430.14	3387.34	728.77	40°26'38.9536"N	104°27'33.4060"W	1.67	-121.44	-0.13	1.66	
9769.00	88.710	359.910	6694.09	1979.09	3524.99	3482.32	730.42	40°26'39.8918"N	104°27'33.3704"W	2.66	58.64	-1.39	-2.27	
9863.00	90.710	3.190	6694.56	1979.56	3618.88	3576.26	732.96	40°26'40.8198"N	104°27'33.3232"W	4.09	-112.66	2.13	3.49	
9958.00	90.000	1.490	6693.97	1978.97	3713.84	3671.18	736.84	40°26'41.7572"N	104°27'33.2586"W	1.94	-105.31	-0.75	-1.79	
10052.00	89.450	359.480	6694.43	1979.43	3807.65	3765.17	737.63	40°26'42.6858"N	104°27'33.2341"W	2.22	25.15	-0.59	-2.14	
10147.00	89.940	359.710	6694.93	1979.93	3902.37	3860.16	736.96	40°26'43.6245"N	104°27'33.2284"W	0.57	-119.86	0.52	0.24	
10242.00	89.630	359.170	6695.29	1980.29	3997.06	3955.16	736.03	40°26'44.5632"N	104°27'33.2259"W	0.66	-23.84	-0.33	-0.57	
10337.00	90.060	358.980	6695.55	1980.55	4091.71	4050.15	734.50	40°26'45.5020"N	104°27'33.2314"W	0.49	-119.58	0.45	-0.20	
10431.00	89.850	358.610	6695.62	1980.62	4185.31	4144.13	732.52	40°26'46.4308"N	104°27'33.2427"W	0.45	90.00	-0.22	-0.39	
10526.00	89.850	358.980	6695.87	1980.87	4279.92	4239.10	730.52	40°26'47.3695"N	104°27'33.2541"W	0.39	108.81	0.00	0.39	
10620.00	89.380	0.360	6696.50	1981.50	4373.64	4333.10	729.98	40°26'48.2983"N	104°27'33.2468"W	1.55	-66.26	-0.50	1.47	
10715.00	90.150	358.610	6696.89	1981.89	4468.34	4428.09	729.13	40°26'49.2370"N	104°27'33.2434"W	2.01	58.67	0.81	-1.84	
10810.00	90.710	359.530	6696.18	1981.18	4562.98	4523.07	727.59	40°26'50.1757"N	104°27'33.2490"W	1.13	140.81	0.59	0.97	
10904.00	90.060	0.060	6695.54	1980.54	4656.72	4617.07	727.25	40°26'51.1045"N	104°27'33.2390"W	0.89	100.93	-0.69	0.56	
10999.00	89.780	1.510	6695.68	1980.68	4751.57	4712.06	728.55	40°26'52.0429"N	104°27'33.2078"W	1.55	56.62	-0.29	1.53	
11094.00	90.340	2.360	6695.58	1980.58	4846.50	4807.00	731.76	40°26'52.9807"N	104°27'33.1519"W	1.07	-114.84	0.59	0.89	
11188.00	90.090	1.820	6695.22	1980.22	4940.45	4900.94	735.19	40°26'53.9084"N	104°27'33.0933"W	0.63	-71.57	-0.27	-0.57	
11283.00	90.150	1.640	6695.03	1980.03	5035.37	4995.89	738.06	40°26'54.8464"N	104°27'33.0418"W	0.20	-27.47	0.06	-0.19	
11378.00	90.400	1.510	6694.57	1979.57	5130.28	5090.86	740.67	40°26'55.7844"N	104°27'32.9936"W	0.30	-131.19	0.26	-0.14	
11472.00	90.120	1.190	6694.14	1979.14	5224.18	5184.83	742.88	40°26'56.7126"N	104°27'32.9507"W	0.45	-32.83	-0.30	-0.34	
11567.00	91.050	0.590	6693.17	1978.17	5319.03	5279.81	744.36	40°26'57.6510"N	104°27'32.9172"W	1.16	-124.69	0.98	-0.63	
11662.00	89.880	358.900	6692.40	1977.40	5413.76	5374.80	743.93	40°26'58.5896"N	104°27'32.9082"W	2.16	101.72	-1.23	-1.78	
11757.00	89.200	2.180	6693.17	1978.17	5508.57	5469.78	744.83	40°26'59.5280"N	104°27'32.8822"W	3.53	95.66	-0.72	3.45	
11852.00	88.770	6.550	6694.85	1979.85	5603.53	5564.47	752.06	40°27'0.4627"N	104°27'32.7744"W	4.62	-34.81	-0.45	4.60	
11946.00	90.180	5.570	6695.71	1980.71	5697.46	5657.94	761.98	40°27'1.3851"N	104°27'32.6318"W	1.83	-91.20	1.50	-1.04	
12041.00	90.060	359.860	6695.51	1980.51	5792.39	5752.79	766.48	40°27'2.3218"N	104°27'32.5593"W	6.01	-93.67	-0.13	-6.01	
12136.00	89.940	357.990	6695.51	1980.51	5887.01	5847.77	764.70	40°27'3.2605"N	104°27'32.5679"W	1.97	74.75	-0.13	-1.97	
12230.00	90.030	358.320	6695.54	1980.54	5980.52	5941.72	761.67	40°27'4.1892"N	104°27'32.5928"W	0.36	-177.71	0.10	0.35	
12325.00	89.780	358.310	6695.69	1980.69	6075.05	6036.68	758.88	40°27'5.1278"N	104°27'32.6145"W	0.26	43.41	-0.26	-0.01	
12420.00	90.150	358.660	6695.75	1980.75	6169.61	6131.64	756.36	40°27'6.0664"N	104°27'32.6325"W	0.54	105.30	0.39	0.37	
12515.00	89.450	1.220	6696.08	1981.08	6264.36	6226.64	756.26	40°27'7.0050"N	104°27'32.6194"W	2.79	-75.22	-0.74	2.69	
12609.00	89.970	359.250	6696.56	1981.56	6358.14	6320.63	756.65	40°27'7.9337"N	104°27'32.6001"W	2.17	-61.61	0.55	-2.10	
12704.00	90.370	358.510	6696.28	1981.28	6452.76	6415.61	754.79	40°27'8.8724"N	104°27'32.6097"W	0.89	-86.45	0.42	-0.78	
12799.00	90.490	356.570	6695.56	1980.56	6547.15	6510.51	750.72	40°27'9.8106"N	104°27'32.6481"W	2.05	-148.89	0.13	-2.04	
12894.00	89.910	356.220	6695.23	1980.23	6641.30	6605.33	744.74	40°27'10.7482"N	104°27'32.7109"W	0.71	80.70	-0.61	-0.37	
12988.00	90.370	359.030	6695.00	1980.00	6734.71	6699.23	740.85	40°27'11.6765"N	104°27'32.7471"W	3.03	108.28	0.49	2.99	

REFERENCE WELLPATH IDENTIFICATION				
Operator	NOBLE ENERGY, INC		Well	WELLS RANCH STATE AA32-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)		API/Legal	
Facility	SEC.05-T05N-R63W		Wellbore	WELLS RANCH STATE AA32-745 AWP
Slot	SLOT#21 WELLS RANCH STATE AA32-745 (300'FNL & 2275'FWL, SEC.05)			

WELLPATH DATA (180 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	90.000	0.150	6694.70	1979.70	6829.42	6794.23	740.17	40°27'12.6152"N	104°27'32.7414"W	1.24	83.16	-0.39	1.18	
13178.00	90.060	0.650	6694.65	1979.65	6924.23	6889.23	740.83	40°27'13.5538"N	104°27'32.7184"W	0.53	-96.84	0.06	0.53	
13272.00	89.940	359.650	6694.65	1979.65	7018.02	6983.23	741.08	40°27'14.4826"N	104°27'32.7010"W	1.07	86.60	-0.13	-1.06	
13367.00	90.000	0.660	6694.70	1979.70	7112.80	7078.22	741.33	40°27'15.4212"N	104°27'32.6832"W	1.07	-91.95	0.06	1.06	
13462.00	89.970	359.780	6694.72	1979.72	7207.59	7173.22	741.70	40°27'16.3598"N	104°27'32.6641"W	0.93	-86.50	-0.03	-0.93	
13557.00	90.000	359.290	6694.75	1979.75	7302.30	7268.22	740.93	40°27'17.2985"N	104°27'32.6596"W	0.52	-91.86	0.03	-0.52	
13652.00	89.940	357.440	6694.80	1979.80	7396.83	7363.18	738.22	40°27'18.2371"N	104°27'32.6803"W	1.95	79.54	-0.06	-1.95	
13746.00	90.180	358.740	6694.70	1979.70	7490.32	7457.12	735.08	40°27'19.1657"N	104°27'32.7065"W	1.41	-90.00	0.26	1.38	
13841.00	90.180	358.210	6694.40	1979.40	7584.88	7552.09	732.56	40°27'20.1044"N	104°27'32.7248"W	0.56	-85.03	0.00	-0.56	
13935.00	90.220	357.750	6694.07	1979.07	7678.35	7646.03	729.24	40°27'21.0330"N	104°27'32.7534"W	0.49	90.00	0.04	-0.49	
14030.00	90.220	358.490	6693.71	1978.71	7772.85	7740.98	726.13	40°27'21.9715"N	104°27'32.7793"W	0.78	90.00	0.00	0.78	
14125.00	90.220	358.960	6693.34	1978.34	7867.44	7835.95	724.01	40°27'22.9102"N	104°27'32.7922"W	0.49	-90.00	0.00	0.49	
14219.00	90.220	358.860	6692.98	1977.98	7961.07	7929.93	722.22	40°27'23.8390"N	104°27'32.8011"W	0.11	95.37	0.00	-0.11	
14314.00	90.000	1.200	6692.80	1977.80	8055.83	8024.93	722.27	40°27'24.7776"N	104°27'32.7860"W	2.47	-40.82	-0.23	2.46	
14408.00	90.220	1.010	6692.62	1977.62	8149.71	8118.91	724.09	40°27'25.7060"N	104°27'32.7483"W	0.31	72.77	0.23	-0.20	
14503.00	90.620	2.300	6691.92	1976.92	8244.62	8213.86	726.83	40°27'26.6440"N	104°27'32.6984"W	1.42	-117.39	0.42	1.36	
14598.00	89.910	0.930	6691.48	1976.48	8339.53	8308.82	729.51	40°27'27.5819"N	104°27'32.6493"W	1.62	-16.26	-0.75	-1.44	
14693.00	90.150	0.860	6691.43	1976.43	8434.39	8403.81	730.99	40°27'28.5203"N	104°27'32.6157"W	0.26	115.96	0.25	-0.07	
14787.00	89.780	1.620	6691.49	1976.49	8528.28	8497.79	733.03	40°27'29.4487"N	104°27'32.5751"W	0.90	73.96	-0.39	0.81	
14882.00	90.220	3.150	6691.49	1976.49	8623.24	8592.70	736.98	40°27'30.3860"N	104°27'32.5096"W	1.68	-93.11	0.46	1.61	
14977.00	90.090	0.760	6691.23	1976.23	8718.17	8687.64	740.22	40°27'31.3237"N	104°27'32.4532"W	2.52	-87.60	-0.14	-2.52	
15060.00	90.220	357.660	6691.01	1976.01	8800.86	8770.62	739.08	40°27'32.1438"N	104°27'32.4554"W	3.74	-153.44	0.16	-3.73	
15155.00	90.000	357.550	6690.82	1975.82	8895.27	8865.54	735.11	40°27'33.0821"N	104°27'32.4924"W	0.26	91.45	-0.23	-0.12	
15249.00	89.940	359.930	6690.87	1975.87	8988.86	8959.51	733.04	40°27'34.0108"N	104°27'32.5048"W	2.53	78.11	-0.06	2.53	
15344.00	90.220	1.260	6690.74	1975.74	9083.69	9054.50	734.02	40°27'34.9493"N	104°27'32.4777"W	1.43	-77.47	0.29	1.40	
15439.00	90.280	0.990	6690.33	1975.33	9178.57	9149.48	735.89	40°27'35.8876"N	104°27'32.4391"W	0.29	102.34	0.06	-0.28	
15534.00	90.000	2.270	6690.09	1975.09	9273.48	9244.44	738.59	40°27'36.8256"N	104°27'32.3897"W	1.38	-90.00	-0.29	1.35	
15628.00	90.000	0.990	6690.09	1975.09	9367.40	9338.40	741.27	40°27'37.7537"N	104°27'32.3409"W	1.36	78.44	0.00	-1.36	
15723.00	90.090	1.430	6690.02	1975.02	9462.28	9433.38	743.27	40°27'38.6919"N	104°27'32.3005"W	0.47	161.57	0.09	0.46	
15818.00	90.000	1.460	6689.95	1974.95	9557.19	9528.35	745.67	40°27'39.6300"N	104°27'32.2551"W	0.10	112.93	-0.09	0.03	
15912.00	89.780	1.980	6690.13	1975.13	9651.11	9622.31	748.49	40°27'40.5580"N	104°27'32.2043"W	0.60	-61.62	-0.23	0.55	
16007.00	90.250	1.110	6690.10	1975.10	9746.02	9717.27	751.05	40°27'41.4961"N	104°27'32.1567"W	1.04	152.43	0.49	-0.92	
16102.00	89.350	1.580	6690.43	1975.43	9840.91	9812.24	753.28	40°27'42.4342"N	104°27'32.1135"W	1.07	39.40	-0.95	0.49	
16197.00	89.630	1.810	6691.28	1976.28	9935.83	9907.20	756.09	40°27'43.3721"N	104°27'32.0627"W	0.38	55.55	0.29	0.24	
16291.00	90.460	3.020	6691.20	1976.20	10029.79	10001.11	760.05	40°27'44.2996"N	104°27'31.9972"W	1.56	122.99	0.88	1.29	
16386.00	89.720	4.160	6691.06	1976.06	10124.79	10095.92	766.00	40°27'45.2357"N	104°27'31.9059"W	1.43	-79.09	-0.78	1.20	
16481.00	90.250	1.410	6691.08	1976.08	10219.76	10190.80	770.61	40°27'46.1727"N	104°27'31.8317"W	2.95	123.25	0.56	-2.89	
16576.00	89.660	2.310	6691.15	1976.15	10314.69	10285.75	773.70	40°27'47.1105"N	104°27'31.7774"W	1.13	-178.76	-0.62	0.95	
16670.00	89.200	2.300	6692.09	1977.09	10408.64	10379.67	777.48	40°27'48.0381"N	104°27'31.7143"W	0.49	-25.67	-0.49	-0.01	
16765.00	89.970	1.930	6692.78	1977.78	10503.58	10474.60	780.98	40°27'48.9757"N	104°27'31.6545"W	0.90	133.88	0.81	-0.39	
16860.00	89.720	2.190	6693.03	1978.03	10598.53	10569.54	784.40	40°27'49.9133"N	104°27'31.5959"W	0.38	-76.17	-0.26	0.27	
16954.00	90.220	0.160	6693.08	1978.08	10692.41	10663.51	786.33	40°27'50.8416"N	104°27'31.5567"W	2.22	160.35	0.53	-2.16	
17049.00	89.380	0.460	6693.42	1978.42	10787.20	10758.51	786.84	40°27'51.7802"N	104°27'31.5356"W	0.94	-15.38	-0.88	0.32	
17144.00	89.780	0.350	6694.11	1979.11	10882.01	10853.51	787.51	40°27'52.7188"N	104°27'31.5125"W	0.44	0.00	0.42	-0.12	LAST BH MWD SURVEY
17198.00†	89.780	0.350	6694.32	1979.32	10935.90	10907.50	787.84	40°27'53.2523"N	104°27'31.5000"W	0.00		0.00	0.00	EXTRAPOLATED TO TD

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-745 AWB
Slot	SLOT#21 WELLS RANCH STATE AA32-745 (300'FNL & 2275'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	13.00	-15.17	-1611.74	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	13.00	-15.17	-1611.74	3287315.60	1402942.95	40°26'5.6040"N	104°28'4.1880"W	polygon
	2D Polygon: dimensions not calculated							
WELLS RANCH STATE AA32-745 TPZ REV-1	6673.31	708.01	688.37	3289615.62	1403666.10	40°26'12.4841"N	104°27'34.3352"W	point
WELLS RANCH STATE AA32-745 BHL REV-1 (0'FNL & 2240'FEL,SEC.29)	6695.00	10907.81	767.36	3289694.60	1413865.49	40°27'53.2577"N	104°27'31.7650"W	point
WELLS RANCH STATE AA32-745 LP TPZ REV-1 (400'FSL & 2266'FEL,SEC.32)	6695.00	1185.02	692.00	3289619.25	1404143.09	40°26'17.1969"N	104°27'34.2158"W	point
WELLS RANCH STATE AA32-745 WSU 460ft Setback	7000.00	0.00	0.00	3288927.28	1402958.12	40°26'5.5680"N	104°27'43.3440"W	polygon
	2D Polygon: dimensions not calculated							
WELLS RANCH STATE AA32-745 WSU Boundary	7000.00	0.00	0.00	3288927.28	1402958.12	40°26'5.5680"N	104°27'43.3440"W	polygon
	2D Polygon: dimensions not calculated							

WELLPATH COMPOSITION - Ref Wellbore: WELLS RANCH STATE AA32-745 AWB Ref Wellpath: WELLS RANCH STATE AA32-745 AWP						
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment		Wellbore	Survey Date
0.00	1937.00	Gyrodata 2015 - GC+DROP+COND	13.5" Surface Hole Section (GYRODATA-GC+DROP+COND) <0"- 1937">		WELLS RANCH STATE AA32-745 AWB	12/3/2019
1937.00	17198.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	8.5" ATC Monobore (OWSG MWD REV.2+IFR1+MSA) <2002' - 17144">		WELLS RANCH STATE AA32-745 AWB	12/3/2019

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Well	WELLS RANCH STATE AA32-745
Field	WELD COUNTY (NOBLE NAD 83 GRID)	API/Legal	
Facility	SEC.05-T05N-R63W	Wellbore	WELLS RANCH STATE AA32-745 AWB
Slot	SLOT#21 WELLS RANCH STATE AA32-745 (300'FNL & 2275'FWL,SEC.05)		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
84.00	0.100	165.150	84.00	3RD PARTY FIRST GYRO SURVEY
1937.00	1.050	158.800	1936.97	TIE ON TO 3RD PARTY GYRO SURVEY
2002.00	1.710	283.290	2001.96	FIRST BH MWD SURVEY
17144.00	89.780	0.350	6694.11	LAST BH MWD SURVEY
17198.00	89.780	0.350	6694.32	EXTRAPOLATED TO TD