

# Burlington Resources

Location: COLORADO Slot: SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21)  
Field: ARAPAHOE COUNTY (NAD83/TN) Well: GRANDE #4-65 20-19 3AH ST01  
Facility: SEC.21-T04S-R65W Wellbore: GRANDE #4-65 20-19 3AH ST01 AWB

Plot reference wellpath is GRANDE #4-65 20-19 3AH ST01 (REV-A.0) PWP	Grid System: NAD83 / Lambert Colorado SP, Central Zone (502), US feet
True vertical depths are referenced to RIG (24KB) (RKB)	North Reference: True north
Measured depths are referenced to RIG (24KB) (RKB)	Scale: True distance
RIG (24KB) (RKB) to Mean Sea Level: 5641.8 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21)): 0 feet	Created by: adamkat on 2017-09-18
Coordinates are in feet referenced to Slot	Database: Denver

## Location Information

Facility Name				Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.21-T04S-R65W				3231645.602	1675919.172	39°41'10.740"N	104°40'36.870"W
Slot	Local N (ft)	Local E (ft)		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21)	0.00	0.00		3231645.602	1675919.172	39°41'10.740"N	104°40'36.870"W
RIG (24KB) (RKB) to Mud line (At Slot: SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21))				5641.8ft			
Mean Sea Level to Mud line (At Slot: SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21))				0ft			
RIG (24KB) (RKB) to Mean Sea Level				5641.8ft			

## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	10516.00	90.490	269.630	7899.09	929.36	-2941.74	0.20	3027.98
End of Drop	10614.00	87.550	269.630	7900.76	928.73	-3039.71	3.00	3125.25
End of 3D Arc	15785.91	87.550	270.492	8121.85	934.25	-8206.84	0.02	8259.85

## Wellpath Comments

MD (ft)	X (ft)	Y (ft)	TVD (ft)	Inclination (°)	Azimuth (°)	VS (ft)	Comment
1724.03	6.94	-5.79	1724.00	0.163	107.973	-7.55	Fox Hills
1966.03	7.39	-5.95	1966.00	0.133	114.347	-8.02	Pierre
2166.03	7.80	-6.15	2166.00	0.112	109.096	-8.45	SURFACE CASING
2178.05	7.82	-6.16	2178.02	0.110	107.130	-8.47	TIE INTO GYRO SURVEYS
2540.03	7.71	-6.88	2540.00	0.772	157.349	-8.44	Pierre Mkr 900
7340.31	-191.96	738.93	7227.00	18.140	344.077	274.31	Pierre Mkr 300
7644.62	-247.91	830.51	7510.00	30.413	304.622	340.26	Pierre Mkr 125
7881.34	-371.67	905.60	7696.00	47.033	294.306	471.71	Sharon Spr GR Mkr
8037.28	-489.78	942.62	7790.00	57.992	279.514	593.25	Niobrara (KOP)
8090.23	-535.04	947.42	7817.00	60.747	272.691	638.77	Nio A Marl
8266.01	-696.52	941.60	7885.00	73.770	266.725	798.55	Nio B Marl Lower
8318.56	-747.35	938.82	7898.00	77.863	267.040	848.74	Nio C Chalk
8373.69	-801.66	936.24	7907.01	83.324	267.517	902.41	LP Target
15692.47	-8113.49	933.46	8117.86	87.550	270.477	8167.01	BHL Target

## Hole and Casing Sections

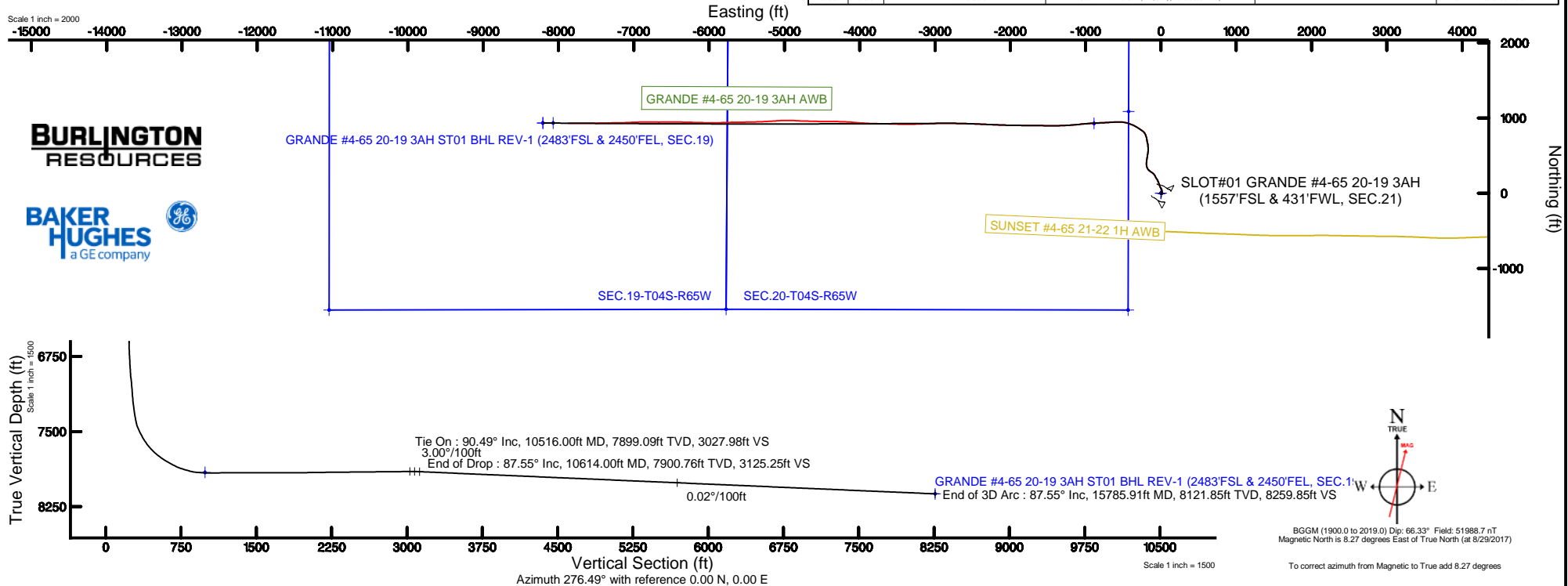
Name	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start Local N (ft)	Start Local E (ft)	End Local N (ft)	End Local E (ft)	Wellbore
9.625in Casing Surface	24.00	2195.00	2171.00	24.00	2194.97	0.00	0.00	-6.16	7.85	GRANDE #4-65 20-19 3AH AWB
8.5in Open Hole	2195.00	10516.00	8321.00	2194.97	7899.09	-6.16	7.85	929.36	-2941.74	GRANDE #4-65 20-19 3AH AWB
8.75in Open Hole	10516.00	15785.91	5269.91	7899.09	N/A	929.36	-2941.74	N/A	N/A	GRANDE #4-65 20-19 3AH ST01 AWB
5.5in Casing Production	10516.00	15785.91	5269.91	7899.09	N/A	929.36	-2941.74	N/A	N/A	GRANDE #4-65 20-19 3AH ST01 AWB

## Bottom Hole Location

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
15785.91	87.550	270.492	8121.85	934.25	-8206.84	3223430.75	1676779.01	39°41'19.960"N	104°42'21.850"W

## Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
24.00	2178.05	Gyrodata relative depth - Drop gyro or Multi-shot	Gyrodata relative depth - Drop gyro or Multi-shot	GYRODATA SURFACE SURVEYS -24 - 2178.05-	GRANDE #4-65 20-19 3AH AWB
2178.05	10516.00	BH AutoTrack Curve	Custom BH AutoTrack Curve (FR1, Short) (Rockies 0.0302 model)	BHSE AUTOTRACK CURVE (FR1, SHORT) -2258 - 15334-	GRANDE #4-65 20-19 3AH AWB
10516.00	15785.91	BH AutoTrack Curve	Custom BH AutoTrack Curve (FR1, Short) (Rockies 0.0302 model)		GRANDE #4-65 20-19 3AH ST01 AWB



REFERENCE WELLPATH IDENTIFICATION			
Operator	Burlington Resources	Slot	SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21)
Area	COLORADO	Well	GRANDE #4-65 20-19 3AH ST01
Field	ARAPAHOE COUNTY (NAD83/TN)	Wellbore	GRANDE #4-65 20-19 3AH ST01 AWB
Facility	SEC.21-T04S-R65W	Sidetrack from	GRANDE #4-65 20-19 3AH AWP at 10516.00 MD

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Central Zone (502), US feet	Software System	WellArchitect® 5.1
North Reference	True	User	Adamkat
Scale	0.999988	Report Generated	9/22/2017 at 12:47:28 PM
Convergence at slot	0.52° East	Database/Source file	Denver/GRANDE_#4-65_20-19_3AH_ST01_REV-A.0_PWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	3231645.60	1675919.17	39°41'10.740"N	104°40'36.870"W
Facility Reference Pt			3231645.60	1675919.17	39°41'10.740"N	104°40'36.870"W
Field Reference Pt			3256721.09	1679994.75	39°41'48.650"N	104°35'15.610"W

WELLPATH DATUM			
Calculation method	Minimum curvature	RIG (24'KB) (RKB) to Facility Vertical Datum	5641.80ft
Horizontal Reference Pt	Slot	RIG (24'KB) (RKB) to Mean Sea Level	5641.80ft
Vertical Reference Pt	RIG (24'KB) (RKB)	RIG (24'KB) (RKB) to Mud Line at Slot (SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21))	5641.80ft
MD Reference Pt	RIG (24'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	276.49°

REFERENCE WELLPATH IDENTIFICATION			
Operator	Burlington Resources	Slot	SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21)
Area	COLORADO	Well	GRANDE #4-65 20-19 3AH ST01
Field	ARAPAHOE COUNTY (NAD83/TN)	Wellbore	GRANDE #4-65 20-19 3AH ST01 AWB
Facility	SEC.21-T04S-R65W	Sidetrack from	GRANDE #4-65 20-19 3AH AWP at 10516.00 MD

WELLPATH DATA (168 stations) † = interpolated/extrapolated station								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	
0.00†	0.000	86.020	0.00	0.00	0.00	0.00	0.00	0.00
24.00	0.000	86.020	24.00	0.00	0.00	0.00	0.00	0.00
221.54	0.270	86.020	221.54	-0.46	0.03	0.46	0.14	0.14
314.02	0.390	130.320	314.02	-0.93	-0.16	0.92	0.29	0.29
407.79	0.380	132.910	407.79	-1.45	-0.57	1.39	0.02	0.02
498.76	0.450	133.480	498.75	-1.98	-1.03	1.87	0.08	0.08
590.63	0.450	133.620	590.62	-2.55	-1.52	2.40	0.00	0.00
682.98	0.440	136.080	682.97	-3.12	-2.03	2.90	0.02	0.02
773.28	0.450	138.210	773.27	-3.65	-2.54	3.38	0.02	0.02
864.76	0.450	135.950	864.74	-4.19	-3.07	3.87	0.02	0.02
955.91	0.300	129.750	955.89	-4.67	-3.48	4.30	0.17	0.17
1047.10	0.300	148.670	1047.08	-5.01	-3.83	4.61	0.11	0.11
1138.29	0.240	130.090	1138.27	-5.32	-4.16	4.88	0.12	0.12
1229.52	0.200	128.390	1229.50	-5.61	-4.38	5.15	0.04	0.04
1320.77	0.250	130.050	1320.75	-5.92	-4.61	5.43	0.06	0.06
1412.31	0.390	132.410	1412.29	-6.33	-4.95	5.81	0.15	0.15
1503.24	0.300	133.960	1503.21	-6.77	-5.32	6.21	0.10	0.10
1594.80	0.240	126.300	1594.77	-7.13	-5.60	6.54	0.08	0.08
1686.06	0.180	107.690	1686.03	-7.44	-5.76	6.83	0.10	0.10
1776.80	0.140	108.480	1776.77	-7.69	-5.84	7.07	0.04	0.04
1808.28	0.060	97.770	1808.25	-7.74	-5.85	7.12	0.26	0.26
1902.79	0.120	110.530	1902.76	-7.88	-5.89	7.26	0.07	0.07
1997.42	0.140	115.970	1997.39	-8.09	-5.98	7.46	0.02	0.02
2091.87	0.130	119.410	2091.84	-8.30	-6.08	7.66	0.01	0.01
2178.05	0.110	107.130	2178.02	-8.47	-6.16	7.82	0.04	0.04
2258.00	0.040	41.020	2257.97	-8.56	-6.16	7.91	0.13	0.13
2352.00	0.030	48.020	2351.97	-8.59	-6.12	7.95	0.01	0.01
2446.00	0.330	248.230	2445.97	-8.37	-6.20	7.72	0.38	0.38
2541.00	0.780	157.100	2540.97	-8.45	-6.90	7.72	0.90	0.90
2635.00	0.320	16.460	2634.96	-8.81	-7.23	8.04	1.11	1.11
2730.00	1.110	211.240	2729.96	-8.47	-7.77	7.64	1.50	1.50
2824.00	2.400	139.750	2823.92	-9.52	-10.05	8.44	2.45	2.45
2919.00	2.180	58.490	2918.87	-12.39	-10.62	11.27	3.14	3.14
3013.00	0.370	186.290	3012.85	-13.80	-9.99	12.76	2.58	2.58
3108.00	0.370	50.530	3107.85	-14.02	-10.10	12.96	0.72	0.72
3202.00	0.540	26.500	3201.84	-14.38	-9.51	13.39	0.27	0.27
3297.00	1.160	187.950	3296.84	-14.51	-10.06	13.46	1.77	1.77
3391.00	0.480	152.280	3390.83	-14.71	-11.35	13.51	0.87	0.87
3485.00	0.520	113.790	3484.82	-15.34	-11.87	14.08	0.35	0.35
3580.00	0.030	106.600	3579.82	-15.77	-12.05	14.50	0.52	0.52
3674.00	0.180	60.140	3673.82	-15.92	-11.99	14.65	0.17	0.17
3768.00	0.240	263.620	3767.82	-15.84	-11.94	14.59	0.44	0.44
3863.00	0.310	113.380	3862.82	-15.89	-12.06	14.62	0.56	0.56
3957.00	0.380	120.190	3956.82	-16.42	-12.32	15.13	0.09	0.09
4052.00	2.740	4.610	4051.79	-16.64	-10.21	15.58	3.08	3.08

**REFERENCE WELLPATH IDENTIFICATION**

Operator	Burlington Resources	Slot	SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21)
Area	COLORADO	Well	GRANDE #4-65 20-19 3AH ST01
Field	ARAPAHOE COUNTY (NAD83/TN)	Wellbore	GRANDE #4-65 20-19 3AH ST01 AWP
Facility	SEC.21-T04S-R65W	Sidetrack from	GRANDE #4-65 20-19 3AH AWP at 10516.00 MD

**WELLPATH DATA (168 stations)**

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
4147.00	4.370	13.060	4146.60	-16.98	-4.42	16.58	1.80
4241.00	5.070	350.360	4240.29	-16.23	3.16	16.70	2.10
4335.00	6.050	350.420	4333.85	-13.71	12.14	15.18	1.04
4430.00	7.880	353.640	4428.14	-10.87	23.55	13.62	1.97
4524.00	8.860	354.310	4521.14	-7.91	37.16	12.19	1.05
4619.00	10.180	334.780	4614.85	-1.95	52.04	7.89	3.65
4713.00	10.410	327.340	4707.34	7.78	66.70	-0.24	1.43
4808.00	11.490	332.100	4800.61	18.54	82.29	-9.30	1.48
4902.00	12.740	338.720	4892.52	28.66	100.23	-17.44	1.99
4996.00	14.080	341.620	4983.96	38.30	120.74	-24.81	1.59
5091.00	17.200	342.440	5075.43	48.89	145.10	-32.69	3.29
5185.00	17.970	328.550	5165.08	63.48	170.73	-44.45	4.53
5280.00	16.660	327.680	5255.77	81.03	194.74	-59.38	1.41
5374.00	17.570	334.840	5345.62	96.92	218.98	-72.62	2.44
5469.00	17.950	325.770	5436.11	114.00	244.06	-86.95	2.94
5564.00	18.050	309.080	5526.52	135.97	265.46	-106.63	5.41
5658.00	17.840	300.580	5615.96	161.39	281.97	-130.33	2.79
5753.00	17.840	312.240	5706.42	186.49	299.16	-153.64	3.75
5847.00	17.560	325.570	5796.01	207.48	320.54	-172.33	4.31
5942.00	15.630	340.280	5887.09	222.52	344.42	-184.75	4.85
6037.00	15.140	352.890	5978.71	231.10	368.79	-190.61	3.55
6131.00	16.260	1.820	6069.21	235.06	394.13	-191.71	2.83
6225.00	17.800	6.110	6159.09	236.23	421.57	-189.76	2.11
6320.00	17.900	7.880	6249.52	235.97	450.47	-186.22	0.58
6414.00	17.830	8.380	6338.99	235.15	479.01	-182.14	0.18
6509.00	17.850	9.520	6429.42	233.90	507.76	-177.61	0.37
6604.00	17.200	7.460	6520.01	232.90	536.05	-173.38	0.95
6698.00	15.110	9.390	6610.30	232.04	561.92	-169.57	2.30
6793.00	16.070	355.200	6701.83	233.99	587.25	-168.65	4.13
6888.00	15.860	355.140	6793.17	239.12	613.29	-170.85	0.22
6982.00	15.820	357.190	6883.60	243.73	638.88	-172.57	0.60
7076.00	15.850	342.310	6974.07	251.06	663.92	-177.10	4.31
7171.00	15.780	349.430	7065.48	260.17	688.98	-183.41	2.04
7265.00	18.080	353.470	7155.41	267.20	716.04	-187.42	2.75
7360.00	18.230	341.650	7245.71	276.77	744.80	-193.77	3.87
7454.00	18.320	342.240	7334.97	289.02	772.83	-202.91	0.22
7549.00	22.140	325.480	7424.17	306.92	801.83	-217.63	7.27
7644.00	30.380	304.620	7509.47	339.98	830.34	-247.65	12.91
7738.00	35.440	304.880	7588.36	384.95	859.44	-289.60	5.39
7833.00	43.130	298.070	7661.87	439.49	890.54	-340.95	9.27
7927.00	50.820	291.170	7726.00	504.75	918.87	-403.41	9.77
8021.00	57.220	281.690	7781.28	579.54	940.09	-476.26	10.62
8116.00	62.210	269.510	7829.31	661.30	947.85	-557.67	12.24
8211.00	69.890	266.440	7867.85	747.07	944.72	-644.36	8.61
8305.00	76.520	266.920	7894.99	835.70	939.51	-734.15	7.07

REFERENCE WELLPATH IDENTIFICATION			
Operator	Burlington Resources	Slot	SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21)
Area	COLORADO	Well	GRANDE #4-65 20-19 3AH ST01
Field	ARAPAHOE COUNTY (NAD83/TN)	Wellbore	GRANDE #4-65 20-19 3AH ST01 AWP
Facility	SEC.21-T04S-R65W	Sidetrack from	GRANDE #4-65 20-19 3AH AWP at 10516.00 MD

WELLPATH DATA (168 stations) † = interpolated/extrapolated station									
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]		
8400.00	85.930	267.740	7909.47	928.29	935.15	-827.83	9.94		
8494.00	89.940	266.720	7912.86	1020.98	930.61	-921.63	4.40		
8531.00	90.250	265.500	7912.80	1057.37	928.10	-958.55	3.40		
8626.00	90.310	264.030	7912.33	1150.38	919.44	-1053.15	1.55		
8720.00	90.220	264.780	7911.90	1242.30	910.27	-1146.70	0.80		
8815.00	90.120	266.600	7911.62	1335.61	903.13	-1241.43	1.92		
8909.00	90.090	268.700	7911.44	1428.49	899.28	-1335.34	2.23		
9004.00	90.150	269.330	7911.24	1522.68	897.64	-1430.33	0.67		
9098.00	90.120	271.410	7911.02	1616.14	898.25	-1524.32	2.21		
9193.00	90.000	271.450	7910.92	1710.76	900.62	-1619.29	0.13		
9287.00	89.880	269.970	7911.02	1804.28	901.79	-1713.28	1.58		
9382.00	90.280	270.170	7910.89	1898.69	901.90	-1808.28	0.47		
9476.00	90.680	270.790	7910.10	1992.17	902.69	-1902.27	0.78		
9571.00	90.920	271.160	7908.77	2086.72	904.31	-1997.25	0.46		
9665.00	90.650	271.740	7907.49	2180.34	906.69	-2091.21	0.68		
9760.00	90.550	272.050	7906.49	2275.03	909.83	-2186.15	0.34		
9855.00	90.680	272.670	7905.47	2369.78	913.74	-2281.07	0.67		
9949.00	90.580	272.610	7904.44	2463.56	918.07	-2374.96	0.12		
10044.00	90.520	272.320	7903.53	2558.32	922.15	-2469.87	0.31		
10138.00	90.400	271.540	7902.77	2652.02	925.32	-2563.81	0.84		
10232.00	90.650	271.470	7901.91	2745.66	927.79	-2657.77	0.28		
10327.00	90.490	270.670	7900.97	2840.23	929.56	-2752.75	0.86		
10421.00	90.650	269.730	7900.03	2933.65	929.89	-2846.75	1.01		
10516.00	90.490	269.630	7899.09	3027.98	929.36	-2941.74	0.20		
10614.00	87.550	269.630	7900.76	3125.25	928.73	-3039.71	3.00		
10616.00†	87.550	269.630	7900.85	3127.24	928.71	-3041.71	0.02		
10716.00†	87.550	269.647	7905.12	3226.43	928.08	-3141.62	0.02		
10816.00†	87.550	269.664	7909.40	3325.63	927.48	-3241.52	0.02		
10916.00†	87.550	269.680	7913.67	3424.83	926.91	-3341.43	0.02		
11016.00†	87.550	269.697	7917.95	3524.03	926.37	-3441.34	0.02		
11116.00†	87.550	269.714	7922.22	3623.24	925.85	-3541.25	0.02		
11216.00†	87.550	269.730	7926.50	3722.45	925.37	-3641.15	0.02		
11316.00†	87.550	269.747	7930.77	3821.67	924.91	-3741.06	0.02		
11416.00†	87.550	269.764	7935.05	3920.89	924.49	-3840.97	0.02		
11516.00†	87.550	269.780	7939.32	4020.11	924.09	-3940.88	0.02		
11616.00†	87.550	269.797	7943.59	4119.33	923.72	-4040.78	0.02		
11716.00†	87.550	269.814	7947.87	4218.56	923.38	-4140.69	0.02		
11816.00†	87.550	269.830	7952.14	4317.79	923.07	-4240.60	0.02		
11916.00†	87.550	269.847	7956.42	4417.03	922.79	-4340.51	0.02		
12016.00†	87.550	269.864	7960.69	4516.27	922.54	-4440.42	0.02		
12116.00†	87.550	269.880	7964.97	4615.51	922.32	-4540.32	0.02		
12216.00†	87.550	269.897	7969.24	4714.75	922.12	-4640.23	0.02		
12316.00†	87.550	269.914	7973.52	4814.00	921.96	-4740.14	0.02		
12416.00†	87.550	269.930	7977.79	4913.25	921.82	-4840.05	0.02		
12516.00†	87.550	269.947	7982.07	5012.51	921.71	-4939.96	0.02		

REFERENCE WELLPATH IDENTIFICATION			
Operator	Burlington Resources	Slot	SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21)
Area	COLORADO	Well	GRANDE #4-65 20-19 3AH ST01
Field	ARAPAHOE COUNTY (NAD83/TN)	Wellbore	GRANDE #4-65 20-19 3AH ST01 AWB
Facility	SEC.21-T04S-R65W	Sidetrack from	GRANDE #4-65 20-19 3AH AWP at 10516.00 MD

WELLPATH DATA (168 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]			
12616.00†	87.550	269.964	7986.34	5111.77	921.64	-5039.87	0.02			
12716.00†	87.550	269.981	7990.62	5211.03	921.59	-5139.78	0.02			
12816.00†	87.550	269.997	7994.89	5310.30	921.57	-5239.68	0.02			
12916.00†	87.550	270.014	7999.17	5409.56	921.58	-5339.59	0.02			
13016.00†	87.550	270.031	8003.44	5508.84	921.62	-5439.50	0.02			
13116.00†	87.550	270.047	8007.72	5608.11	921.69	-5539.41	0.02			
13216.00†	87.550	270.064	8011.99	5707.39	921.78	-5639.32	0.02			
13316.00†	87.550	270.081	8016.27	5806.67	921.91	-5739.23	0.02			
13416.00†	87.550	270.097	8020.54	5905.96	922.06	-5839.14	0.02			
13516.00†	87.550	270.114	8024.82	6005.24	922.25	-5939.04	0.02			
13616.00†	87.550	270.131	8029.09	6104.54	922.46	-6038.95	0.02			
13716.00†	87.550	270.147	8033.37	6203.83	922.70	-6138.86	0.02			
13816.00†	87.550	270.164	8037.64	6303.13	922.97	-6238.77	0.02			
13916.00†	87.550	270.181	8041.92	6402.43	923.27	-6338.68	0.02			
14016.00†	87.550	270.197	8046.19	6501.73	923.60	-6438.58	0.02			
14116.00†	87.550	270.214	8050.47	6601.04	923.96	-6538.49	0.02			
14216.00†	87.550	270.231	8054.74	6700.35	924.35	-6638.40	0.02			
14316.00†	87.550	270.247	8059.02	6799.66	924.77	-6738.31	0.02			
14416.00†	87.550	270.264	8063.29	6898.98	925.21	-6838.22	0.02			
14516.00†	87.550	270.281	8067.56	6998.30	925.69	-6938.12	0.02			
14616.00†	87.550	270.297	8071.84	7097.63	926.19	-7038.03	0.02			
14716.00†	87.550	270.314	8076.11	7196.95	926.72	-7137.94	0.02			
14816.00†	87.550	270.331	8080.39	7296.28	927.29	-7237.84	0.02			
14916.00†	87.550	270.347	8084.66	7395.61	927.88	-7337.75	0.02			
15016.00†	87.550	270.364	8088.94	7494.95	928.50	-7437.66	0.02			
15116.00†	87.550	270.381	8093.21	7594.29	929.15	-7537.56	0.02			
15216.00†	87.550	270.397	8097.49	7693.63	929.83	-7637.47	0.02			
15316.00†	87.550	270.414	8101.76	7792.97	930.53	-7737.38	0.02			
15416.00†	87.550	270.431	8106.04	7892.32	931.27	-7837.28	0.02			
15516.00†	87.550	270.447	8110.31	7991.67	932.03	-7937.19	0.02			
15616.00†	87.550	270.464	8114.59	8091.03	932.83	-8037.09	0.02			
15716.00†	87.550	270.481	8118.86	8190.39	933.65	-8137.00	0.02			
15785.91	87.550	270.492	8121.85 <sup>1</sup>	8259.85	934.25	-8206.84	0.02			

HOLE & CASING SECTIONS - Ref Wellbore: GRANDE #4-65 20-19 3AH ST01 AWB Ref Wellpath: GRANDE #4-65 20-19 3AH ST01 (REV-A.0) PWP									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
9.625in Casing Surface	24.00	2195.00	2171.00	24.00	2194.97	0.00	0.00	-6.16	7.85
8.5in Open Hole	2195.00	10516.00	8321.00	2194.97	7899.09	-6.16	7.85	929.36	-2941.74
8.75in Open Hole	10516.00	15785.91	5269.91	7899.09	N/A	929.36	-2941.74	N/A	N/A
5.5in Casing Production	10516.00	15785.91	5269.91	7899.09	N/A	929.36	-2941.74	N/A	N/A

REFERENCE WELLPATH IDENTIFICATION			
Operator	Burlington Resources	Slot	SLOT#01 GRANDE #4-65 20-19 3AH (1557'FSL & 431'FWL, SEC.21)
Area	COLORADO	Well	GRANDE #4-65 20-19 3AH ST01
Field	ARAPAHOE COUNTY (NAD83/TN)	Wellbore	GRANDE #4-65 20-19 3AH ST01 AWB
Facility	SEC.21-T04S-R65W	Sidetrack from	GRANDE #4-65 20-19 3AH AWP at 10516.00 MD

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.19-T04S-R65W		0.00	0.00	0.00	3231645.60	1675919.17	39°41'10.740"N	104°40'36.870"W	polygon
SEC.19-T04S-R65W NW CORNER		0.00	3735.16	-11042.61	3220569.76	1679554.08	39°41'47.630"N	104°42'58.140"W	point
SEC.19-T04S-R65W SW CORNER		0.00	-1554.00	-11045.74	3220614.55	1674265.18	39°40'55.358"N	104°42'58.151"W	point
SEC.20-T04S-R65W		0.00	0.00	0.00	3231645.60	1675919.17	39°41'10.740"N	104°40'36.870"W	polygon
SEC.20-T04S-R65W E 1/2 CORNER		0.00	1086.73	-428.52	3231207.26	1677001.96	39°41'21.480"N	104°40'42.352"W	point
SEC.20-T04S-R65W NE CORNER		0.00	3727.68	-422.01	3231189.85	1679642.82	39°41'47.580"N	104°40'42.269"W	point
SEC.20-T04S-R65W NW CORNER		0.00	3709.01	-5738.23	3225874.09	1679575.99	39°41'47.389"N	104°41'50.280"W	point
SEC.20-T04S-R65W SE CORNER		0.00	-1554.20	-434.76	3231224.95	1674361.12	39°40'55.380"N	104°40'42.431"W	point
SEC.20-T04S-R65W SW CORNER		0.00	-1543.35	-5774.59	3225885.32	1674323.59	39°40'55.481"N	104°41'50.730"W	point
GRANDE #4-65 20-19 3AH BHL ON PLAT REV-1 (2483'FSL & 2450'FEL, SEC.19)		7899.00	934.25	-8206.84	3223430.75	1676779.01	39°41'19.960"N	104°42'21.850"W	point
GRANDE #4-65 20-19 3AH EPI REV-1 (2483'FSL & 2315'FEL, SEC.19)		7899.17	934.20	-8071.60	3223565.98	1676780.19	39°41'19.960"N	104°42'20.120"W	point
GRANDE #4-65 20-19 3AH BPI REV-1 (2483'FSL & 460'FEL, SEC.20)		7908.00	928.90	-888.07	3230749.16	1676839.97	39°41'19.920"N	104°40'48.230"W	point
1) GRANDE #4-65 20-19 3AH ST01 BHL REV-1 (2483'FSL & 2450'FEL, SEC.19)	15785.91	8121.85	934.25	-8206.84	3223430.75	1676779.01	39°41'19.960"N	104°42'21.850"W	point

SURVEY PROGRAM - Ref Wellbore: GRANDE #4-65 20-19 3AH ST01 AWB Ref Wellpath: GRANDE #4-65 20-19 3AH ST01 (REV-A.0) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
24.00	2178.05	Gyrodata relative depth - Drop gyro or Multi-shot	GYRODATA SURFACE SURVEYS <24 - 2178.05>	GRANDE #4-65 20-19 3AH AWB
2178.05	10516.00	Custom BHI AutoTrak Curve (IFR1, Short) (Rockies 0.03Gt model)	BHGE AUTOTRAK CURVE (IFR1, SHORT) <2258 - 15334>	GRANDE #4-65 20-19 3AH AWB
10516.00	15785.91	Custom BHI AutoTrak Curve (IFR1, Short) (Rockies 0.03Gt model)		GRANDE #4-65 20-19 3AH ST01 AWB