



Company: Sundance Energy  
Field: WATTENBERG  
Cty/Bk/Par: WELD  
Well Name: GRANT BROTHERS 23-43  
Rig: CADE 25

Job Number: PA-25-49  
Magnetic Decl.: 8.63  
Grid Corr.: TRUE  
Total Survey Corr.: 8.63  
Target Info: PBHL @ 1985'FSL @ 661'FEL

Calculation Method: 43.30  
Proposed Azimuth: 43.30  
Depth Reference: RKB  
Tie Into Drill SURFACE

Minimum Curvature

8" Mud Mtr SN: 775-77259  
Surface TD: 845  
6.5" Mud Mtr SN: 350-36B-04B  
Production TD: 8020  
Spud Date: 24-Aug

8" Circ Hrs:  
8" Bit Hrs:  
6.5" Circ Hrs:  
6.5" Bit Hrs:  
Completion Date:

Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates N/S (ft)	E/W (ft)	DLS (°/100')	Bit Rate (°/100')	Wk Rate (°/100')	Remarks
177	0.80	336.30	177	176.99	0.48	1.13 N	0.50 W	0.45	0.5	190.0	
266	2.60	47.80	89	265.96	2.74	3.06 N	0.75 E	2.77	2.0	-324.2	
356	5.00	53.30	90	355.75	8.64	6.77 N	5.41 E	2.69	2.7	6.1	
446	6.70	55.40	90	445.28	17.63	12.10 N	12.87 E	1.90	1.9	2.3	
536	8.30	48.00	90	534.51	29.24	19.43 N	22.02 E	2.07	1.8	-8.2	
625	10.10	45.40	89	622.36	43.44	29.21 N	32.35 E	2.08	2.0	-2.9	
714	11.40	42.60	89	709.80	60.04	41.16 N	43.87 E	1.57	1.5	-3.1	
795	12.70	43.60	81	789.01	76.95	53.50 N	55.42 E	1.63	1.6	1.2	SURFACE TD @ 845'WD
911	14.40	51.50	116	901.79	103.98	71.72 N	75.51 E	2.16	1.5	6.8	
1006	15.50	53.80	95	993.57	128.15	86.57 N	95.00 E	1.32	1.2	2.4	
1102	17.10	60.00	96	1085.72	154.29	101.20 N	117.58 E	2.46	1.7	6.5	
1197	18.50	59.80	95	1176.17	182.12	115.77 N	142.70 E	1.48	1.5	-0.2	
1292	20.70	59.10	95	1265.66	212.73	131.97 N	170.14 E	2.33	2.3	-0.7	
1387	22.00	56.30	95	1354.14	246.23	150.47 N	199.35 E	1.74	1.4	-2.9	
1482	22.20	55.60	95	1442.16	281.10	170.48 N	228.96 E	0.35	0.2	-0.7	
1577	24.20	57.80	95	1529.48	317.49	191.00 N	260.25 E	2.29	2.1	2.3	
1671	24.40	55.40	94	1615.15	355.13	212.29 N	292.54 E	1.07	0.2	-2.6	
1766	24.60	53.10	95	1701.60	393.80	235.31 N	324.50 E	1.03	0.2	-2.4	
1861	24.00	48.90	95	1788.19	432.52	259.88 N	354.87 E	1.93	-0.6	-4.4	
1956	23.00	45.50	95	1875.31	470.29	285.60 N	382.67 E	1.77	-1.1	-3.6	
2052	21.00	40.30	96	1964.32	506.22	311.87 N	407.18 E	2.91	-2.1	-5.4	
2147	18.70	41.30	95	2053.67	538.44	336.29 N	428.25 E	2.45	-2.4	1.1	
2242	17.10	42.70	95	2144.07	567.63	358.00 N	447.77 E	1.74	-1.7	1.5	
2338	17.10	43.60	96	2235.83	595.86	378.59 N	467.07 E	0.28	0.0	0.9	
2433	17.60	45.20	95	2326.51	624.18	398.83 N	486.90 E	0.73	0.5	1.7	
2528	17.50	43.60	95	2417.09	652.82	419.29 N	506.94 E	0.52	-0.1	-1.7	
2623	18.00	42.00	95	2507.56	681.78	440.54 N	526.61 E	0.74	0.5	-1.7	
2718	18.50	38.30	95	2597.79	711.47	463.28 N	545.78 E	1.33	0.5	-3.9	
2813	17.80	37.80	95	2688.06	740.93	486.58 N	564.02 E	0.75	-0.7	-0.5	
2907	17.40	39.20	94	2777.66	769.26	508.83 N	581.71 E	0.62	-0.4	1.5	
3003	18.40	38.70	96	2869.01	798.68	531.78 N	600.25 E	1.05	1.0	-0.5	
3098	17.40	38.20	95	2959.41	827.77	554.64 N	618.41 E	1.06	-1.1	-0.5	
3193	19.40	38.20	95	3049.55	857.64	578.20 N	636.95 E	2.11	2.1	0.0	
3288	18.40	33.90	95	3139.43	888.15	603.05 N	655.07 E	1.80	-1.1	-4.5	
3382	17.40	36.90	94	3228.88	916.75	626.60 N	671.79 E	1.45	-1.1	3.2	
3478	16.90	40.60	96	3320.62	944.95	648.68 N	689.49 E	1.25	-0.5	3.9	
3573	17.10	42.00	95	3411.47	972.71	669.54 N	707.82 E	0.48	0.2	1.5	
3668	16.90	40.40	95	3502.32	1000.47	690.44 N	726.12 E	0.54	-0.2	-1.7	
3763	16.40	38.20	95	3593.33	1027.61	711.49 N	743.36 E	0.85	-0.5	-2.3	
3858	16.40	39.40	95	3684.47	1054.35	732.40 N	760.17 E	0.36	0.0	1.3	
3952	16.40	41.30	94	3774.65	1080.85	752.62 N	777.35 E	0.57	0.0	2.0	
4047	16.40	42.70	95	3865.78	1107.67	772.55 N	795.29 E	0.42	0.0	1.5	
4142	18.00	43.10	95	3956.53	1135.76	793.13 N	814.42 E	1.69	1.7	0.4	
4237	18.50	39.70	95	4046.75	1165.48	815.44 N	834.08 E	1.24	0.5	-3.6	
4333	18.60	38.90	96	4137.77	1195.95	839.07 N	853.42 E	0.28	0.1	-0.8	
4427	18.20	37.30	94	4226.96	1225.49	862.42 N	871.73 E	0.69	-0.4	-1.7	
4522	17.90	35.70	95	4317.29	1254.72	886.08 N	889.24 E	0.61	-0.3	-1.7	
4617	18.30	35.50	95	4407.58	1283.97	910.07 N	906.42 E	0.43	0.4	-0.2	
4712	18.80	38.90	95	4497.65	1314.01	934.13 N	924.69 E	1.25	0.5	3.6	
4807	20.20	38.90	95	4587.20	1345.62	958.81 N	944.61 E	1.47	1.5	0.0	
4903	21.40	37.30	96	4676.94	1379.57	985.64 N	965.63 E	1.38	1.3	-1.7	
4997	21.90	39.40	94	4764.31	1414.11	1012.83 N	987.15 E	0.98	0.5	2.2	
5092	21.90	40.00	95	4852.46	1449.48	1040.09 N	1009.78 E	0.24	0.0	0.6	
5187	20.90	41.10	95	4940.91	1484.10	1066.43 N	1032.31 E	1.13	-1.1	1.2	
5283	19.80	40.60	96	5030.91	1517.45	1091.68 N	1054.15 E	1.16	-1.1	-0.5	
5377	19.60	42.60	94	5119.41	1549.12	1115.38 N	1075.18 E	0.75	-0.2	2.1	
5471	18.30	41.10	94	5208.32	1579.63	1138.11 N	1095.56 E	1.48	-1.4	-1.6	
5566	16.90	39.90	95	5298.87	1608.32	1159.94 N	1114.22 E	1.52	-1.5	-1.3	
5662	16.70	42.20	96	5390.77	1636.04	1180.86 N	1132.43 E	0.72	-0.2	2.4	
5757	16.40	42.40	95	5481.84	1663.10	1200.88 N	1150.65 E	0.32	-0.3	0.2	
5852	16.40	37.50	95	5572.97	1689.85	1221.42 N	1167.85 E	1.46	0.0	-5.2	
5947	16.10	38.50	95	5664.18	1716.32	1242.37 N	1184.22 E	0.43	-0.3	1.1	
6042	14.90	42.00	95	5755.72	1741.66	1261.76 N	1200.59 E	1.60	-1.3	3.7	
6137	15.10	41.70	95	5847.49	1766.24	1280.07 N	1217.00 E	0.23	0.2	-0.3	
6231	15.20	38.90	94	5938.22	1790.77	1298.80 N	1232.88 E	0.79	0.1	-3.0	
6326	13.50	38.00	95	6030.25	1814.23	1317.24 N	1247.53 E	1.80	-1.8	-0.9	
6420	12.00	37.80	94	6121.93	1834.88	1333.60 N	1260.27 E	1.60	-1.6	-0.2	
6515	9.90	37.50	95	6215.20	1852.84	1347.89 N	1271.30 E	2.21	-2.2	-0.3	
6611	8.50	34.60	96	6309.96	1868.06	1360.28 N	1280.35 E	1.54	-1.5	-3.0	
6706	6.60	43.10	95	6404.14	1880.46	1370.04 N	1288.07 E	2.31	-2.0	8.9	
6801	4.10	52.60	95	6498.72	1889.28	1376.09 N	1294.50 E	2.78	-2.6	10.0	
6895	2.90	30.60	94	6592.55	1894.91	1380.18 N	1298.38 E	1.89	-1.3	-23.4	
6990	2.60	29.40	95	6687.44	1899.35	1384.13 N	1300.66 E	0.32	-0.3	-1.3	
7085	1.90	24.10	95	6782.36	1902.93	1387.44 N	1302.36 E	0.77	-0.7	-5.6	
7180	1.80	32.90	95	6877.31	1905.88	1390.13 N	1303.82 E	0.32	-0.1	9.3	
7275	1.40	28.10	95	6972.28	1908.47	1392.41 N	1305.17 E	0.44	-0.4	-5.1	
7369	0.90	20.80	94	7066.26	1910.26	1394.11 N	1305.98 E	0.55	-0.5	-7.8	
7592	1.00	1.10	223	7289.23	1913.32	1397.69 N	1306.64 E	0.15	0.0	-8.8	
7781	1.10	359.80	189	7478.19	1915.86	1401.16 N	1306.66 E	0.05	0.1	189.8	
7970	1.40	17.90	189	7667.15	1919.26	1405.17 N	1307.36 E	0.26	0.2	-180.9	TD SURVEY
8020	1.40	17.90	50	7717.13	1920.36	1406.33 N	1307.74 E	0.00	0.0	0.0	BIT PROJECTION

Surveys			
N/S	E/W	VS	TVD
1.13	-0.50	0.48	176.99
3.06	0.75	2.74	265.96
6.77	5.41	8.64	355.75
12.10	12.87	17.63	445.28
19.43	22.02	29.24	534.51
29.21	32.35	43.44	622.36
41.16	43.87	60.04	709.80
53.50	55.42	76.95	789.01
71.72	75.51	103.98	901.79
86.57	95.00	128.15	993.57
101.20	117.58	154.29	1085.72
115.77	142.70	182.12	1176.17
131.97	170.14	212.73	1265.66
150.47	199.35	246.23	1354.14
170.48	228.96	281.10	1442.16
191.00	260.25	317.49	1529.48
212.29	292.54	355.13	1615.15
235.31	324.50	393.80	1701.60
259.88	354.87	432.52	1788.19
285.60	382.67	470.29	1875.31
311.87	407.18	506.22	1964.32
336.29	428.25	538.44	2053.67
358.00	447.77	567.63	2144.07
378.59	467.07	595.86	2235.83
398.83	486.90	624.18	2326.51
419.29	506.94	652.82	2417.09
440.54	526.61	681.78	2507.56
463.28	545.78	711.47	2597.79
486.58	564.02	740.93	2688.06
508.83	581.71	769.26	2777.66
531.78	600.25	798.68	2869.01
554.64	618.41	827.77	2959.41
578.20	636.95	857.64	3049.55
603.05	655.07	888.15	3139.43
626.60	671.79	916.75	3228.88
648.68	689.49	944.95	3320.62
669.54	707.82	972.71	3411.47
690.44	726.12	1000.47	3502.32
711.49	743.36	1027.61	3593.33
732.40	760.17	1054.35	3684.47
752.62	777.35	1080.85	3774.65
772.55	795.29	1107.67	3865.78
793.13	814.42	1135.76	3956.53
815.44	834.08	1165.48	4046.75
839.07	853.42	1195.95	4137.77
862.42	871.73	1225.49	4226.96
886.08	889.24	1254.72	4317.29
910.07	906.42	1283.97	4407.58
934.13	924.69	1314.01	4497.65
958.81	944.61	1345.62	4587.20
985.64	965.63	1379.57	4676.94
1012.83	987.15	1414.11	4764.31
1040.09	1009.78	1449.48	4852.46
1066.43	1032.31	1484.10	4940.91
1091.68	1054.15	1517.45	5030.91
1115.38	1075.18	1549.12	5119.41
1138.11	1095.56	1579.63	5208.32
1159.94	1114.22	1608.32	5298.87
1180.86	1132.43	1636.04	5390.77
1200.88	1150.65	1663.10	5481.84
1221.42	1167.85	1689.85	5572.97
1242.37	1184.22	1716.32	5664.18
1261.76	1200.59	1741.66	5755.72
1280.07	1217.00	1766.24	5847.49
1298.80	1232.88	1790.77	5938.22
1317.24	1247.53	1814.23	6030.25
1333.60	1260.27	1834.88	6121.93
1347.89	1271.30	1852.84	6215.20
1360.28	1280.35	1868.06	6309.96
1370.04	1288.07	1880.46	6404.14
1376.09	1294.50	1889.28	6498.72
1380.18	1298.38	1894.91	6592.55
1384.13	1300.66	1899.35	6687.44
1387.44	1302.36	1902.93	6782.36
1390.13	1303.82	1905.88	6877.31
1392.41	1305.17	1908.47	6972.28
1394.11	1305.98	1910.26	7066.26
1397.69	1306.64	1913.32	7289.23
1401.16	1306.66	1915.86	7478.19
1405.17	1307.36	1919.26	7667.15
1406.33	1307.74	1920.36	7717.13