



Job Number: HMLCO-111-09010
 Company: SWEPI LP
 Lease/Well: DURHAM 1-31
 Location: WILLIAMS FORK UNIT
 Rig Name: NABBORS C94
 RKB: 0.00 Ft
 Vertical Datum:

State/Country:
 Declination: 10.15°E
 Grid: -1.31;US State Plane 1983
 Project name: DURHAM 1-31 / 2-31-Project
 Date/Time: 14-Nov-11 / 10:03
 Well Name: DURHAM 1-31 FINAL Surveys (11-08-11)
 North Reference: Grid North
 Convergence: -1.3144°

EXCEL Directional Technologies LLC

WinSURV3D SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 359.73°
Vertical Section Referenced to Wellhead
Local Coordinates Referenced to Structure Reference :
EW=2432936.68 Ft, NS=1371551.02 Ft
Direction referenced to Grid North -1.314° Convergence

Measured Depth Ft	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	LOCALS		GEOGRAPHIC		Vertical Section Ft	Dogleg Severity Deg/100
				N-S Ft	E-W Ft	Latitude °/'"	Longitude °/'"		
0.00	0.00	0.00	0.00	0.00	0.00	40° 20' 7.6300" N	-107° 32' 3.4801" W	0.00	0.00
102.00	0.40	87.80	102.00	0.01	0.36	40° 20' 7.6302" N	-107° 32' 3.4755" W	0.01	0.39
133.00	0.60	81.00	133.00	0.04	0.62	40° 20' 7.6305" N	-107° 32' 3.4720" W	0.04	0.67
164.00	1.10	70.90	163.99	0.17	1.07	40° 20' 7.6319" N	-107° 32' 3.4664" W	0.16	1.68
195.00	1.40	112.90	194.99	0.12	1.70	40° 20' 7.6315" N	-107° 32' 3.4582" W	0.11	3.03
226.00	1.50	94.10	225.98	-0.06	2.45	40° 20' 7.6299" N	-107° 32' 3.4484" W	-0.07	1.56
257.00	1.20	109.50	256.97	-0.20	3.16	40° 20' 7.6287" N	-107° 32' 3.4392" W	-0.21	1.51
287.00	0.60	72.20	286.97	-0.25	3.61	40° 20' 7.6283" N	-107° 32' 3.4334" W	-0.27	2.70
318.00	0.90	56.00	317.96	-0.07	3.96	40° 20' 7.6302" N	-107° 32' 3.4289" W	-0.09	1.18
349.00	1.20	61.00	348.96	0.22	4.45	40° 20' 7.6332" N	-107° 32' 3.4227" W	0.20	1.01
380.00	1.20	33.80	379.95	0.65	4.91	40° 20' 7.6375" N	-107° 32' 3.4168" W	0.63	1.82
411.00	1.50	83.50	410.94	0.97	5.50	40° 20' 7.6408" N	-107° 32' 3.4094" W	0.94	3.76
442.00	1.40	100.20	441.93	0.95	6.27	40° 20' 7.6408" N	-107° 32' 3.3994" W	0.92	1.40
473.00	1.80	97.90	472.92	0.81	7.13	40° 20' 7.6396" N	-107° 32' 3.3883" W	0.78	1.31
504.00	1.80	91.70	503.91	0.73	8.10	40° 20' 7.6390" N	-107° 32' 3.3758" W	0.69	0.63

Measured Depth Ft	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	L O C A L S		G E O G R A P H I C		Vertical Section Ft	Dogleg Severity Deg/100
				N-S Ft	E-W Ft	Latitude °/'/"	Longitude °/'/"		
535.00	1.60	86.90	534.89	0.74	9.01	40° 20' 7.6393" N	-107° 32' 3.3639" W	0.70	0.79
565.00	0.40	83.30	564.89	0.77	9.54	40° 20' 7.6398" N	-107° 32' 3.3572" W	0.73	4.00
596.00	0.80	295.00	595.89	0.88	9.45	40° 20' 7.6408" N	-107° 32' 3.3584" W	0.83	3.74
626.00	1.10	307.10	625.88	1.14	9.03	40° 20' 7.6433" N	-107° 32' 3.3638" W	1.10	1.20
657.00	1.20	344.90	656.88	1.63	8.71	40° 20' 7.6481" N	-107° 32' 3.3681" W	1.59	2.42
672.00	1.30	2.80	671.87	1.96	8.67	40° 20' 7.6513" N	-107° 32' 3.3687" W	1.91	2.68
753.00	2.90	41.50	752.82	4.41	10.08	40° 20' 7.6758" N	-107° 32' 3.3513" W	4.36	2.53
846.00	1.50	46.50	845.75	7.01	12.52	40° 20' 7.7021" N	-107° 32' 3.3205" W	6.95	1.52
938.00	1.40	232.60	937.74	7.15	12.50	40° 20' 7.7035" N	-107° 32' 3.3208" W	7.10	3.15
1033.00	1.10	219.00	1032.72	5.74	11.00	40° 20' 7.6892" N	-107° 32' 3.3397" W	5.69	0.44
1129.00	0.50	237.60	1128.71	4.80	10.07	40° 20' 7.6797" N	-107° 32' 3.3515" W	4.75	0.67
1224.00	0.50	297.70	1223.70	4.77	9.35	40° 20' 7.6792" N	-107° 32' 3.3607" W	4.73	0.53
1319.00	0.70	116.30	1318.70	4.71	9.51	40° 20' 7.6786" N	-107° 32' 3.3587" W	4.66	1.26
1413.00	1.80	265.60	1412.69	4.34	8.55	40° 20' 7.6748" N	-107° 32' 3.3710" W	4.30	2.58
1507.00	0.40	310.20	1506.67	4.44	6.83	40° 20' 7.6754" N	-107° 32' 3.3933" W	4.41	1.64
1602.00	0.70	165.20	1601.67	4.09	6.72	40° 20' 7.6719" N	-107° 32' 3.3945" W	4.06	1.11
1696.00	2.60	350.20	1695.64	5.64	6.50	40° 20' 7.6871" N	-107° 32' 3.3978" W	5.61	3.51
1790.00	1.40	322.20	1789.59	8.65	5.44	40° 20' 7.7166" N	-107° 32' 3.4124" W	8.62	1.61
1883.00	0.70	296.00	1882.57	9.79	4.23	40° 20' 7.7277" N	-107° 32' 3.4283" W	9.77	0.89
1977.00	1.10	205.30	1976.56	9.23	3.33	40° 20' 7.7219" N	-107° 32' 3.4398" W	9.21	1.39
2072.00	1.80	156.90	2071.53	7.03	3.53	40° 20' 7.7002" N	-107° 32' 3.4366" W	7.01	1.42
2167.00	1.60	214.10	2166.50	4.56	3.37	40° 20' 7.6758" N	-107° 32' 3.4379" W	4.54	1.72
2262.00	0.50	211.10	2261.48	3.11	2.41	40° 20' 7.6612" N	-107° 32' 3.4499" W	3.10	1.16
2293.00	0.80	3.60	2292.48	3.21	2.35	40° 20' 7.6622" N	-107° 32' 3.4506" W	3.20	4.08
2325.00	2.50	1.60	2324.47	4.13	2.39	40° 20' 7.6713" N	-107° 32' 3.4505" W	4.12	5.31
2356.00	4.50	356.70	2355.41	6.02	2.34	40° 20' 7.6900" N	-107° 32' 3.4517" W	6.01	6.52
2388.00	6.50	0.10	2387.26	9.08	2.27	40° 20' 7.7202" N	-107° 32' 3.4535" W	9.07	6.33
2419.00	7.90	1.30	2418.01	12.97	2.32	40° 20' 7.7586" N	-107° 32' 3.4540" W	12.96	4.54
2451.00	5.40	6.20	2449.80	16.66	2.53	40° 20' 7.7952" N	-107° 32' 3.4523" W	16.65	8.00
2483.00	7.80	3.90	2481.58	20.33	2.84	40° 20' 7.8315" N	-107° 32' 3.4494" W	20.31	7.54
2514.00	8.60	4.20	2512.26	24.74	3.15	40° 20' 7.8751" N	-107° 32' 3.4467" W	24.72	2.58
2546.00	9.40	4.50	2543.87	29.73	3.53	40° 20' 7.9245" N	-107° 32' 3.4433" W	29.71	2.50
2577.00	10.40	3.50	2574.41	35.05	3.90	40° 20' 7.9771" N	-107° 32' 3.4401" W	35.03	3.27
2609.00	11.10	3.70	2605.85	41.00	4.28	40° 20' 8.0360" N	-107° 32' 3.4370" W	40.98	2.19
2640.00	12.50	4.60	2636.19	47.32	4.74	40° 20' 8.0986" N	-107° 32' 3.4329" W	47.30	4.55
2671.00	14.40	4.30	2666.34	54.51	5.30	40° 20' 8.1698" N	-107° 32' 3.4278" W	54.49	6.13

Measured Depth Ft	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	LOCALS		GEOGRAPHIC		Vertical Section Ft	Dogleg Severity Deg/100
				N-S Ft	E-W Ft	Latitude °/'/"	Longitude °/'/"		
2703.00	15.80	4.60	2697.23	62.82	5.95	40° 20' 8.2520" N	-107° 32' 3.4219" W	62.80	4.38
2735.00	18.10	1.60	2727.84	72.14	6.43	40° 20' 8.3441" N	-107° 32' 3.4184" W	72.11	7.69
2767.00	20.80	359.40	2758.01	82.79	6.51	40° 20' 8.4494" N	-107° 32' 3.4205" W	82.76	8.74
2798.00	23.40	359.40	2786.73	94.45	6.39	40° 20' 8.5646" N	-107° 32' 3.4255" W	94.42	8.39
2831.00	25.20	358.90	2816.81	108.03	6.19	40° 20' 8.6987" N	-107° 32' 3.4322" W	108.00	5.49
2862.00	26.80	0.00	2844.67	121.62	6.06	40° 20' 8.8329" N	-107° 32' 3.4378" W	121.59	5.39
2894.00	29.10	0.80	2872.93	136.61	6.17	40° 20' 8.9811" N	-107° 32' 3.4409" W	136.58	7.28
2957.00	33.50	1.10	2926.75	169.33	6.72	40° 20' 9.3044" N	-107° 32' 3.4435" W	169.30	6.99
2990.00	34.30	0.80	2954.14	187.73	7.02	40° 20' 9.4863" N	-107° 32' 3.4450" W	187.70	2.48
3022.00	35.20	0.10	2980.44	205.97	7.16	40° 20' 9.6665" N	-107° 32' 3.4486" W	205.94	3.08
3054.00	36.30	359.00	3006.41	224.67	7.02	40° 20' 9.8512" N	-107° 32' 3.4561" W	224.63	3.98
3085.00	37.70	358.00	3031.16	243.31	6.52	40° 20' 10.0353" N	-107° 32' 3.4679" W	243.28	4.92
3117.00	39.10	358.10	3056.24	263.18	5.85	40° 20' 10.2314" N	-107° 32' 3.4825" W	263.15	4.38
3149.00	40.70	357.60	3080.79	283.69	5.08	40° 20' 10.4339" N	-107° 32' 3.4986" W	283.66	5.10
3180.00	43.00	358.20	3103.88	304.36	4.32	40° 20' 10.6379" N	-107° 32' 3.5144" W	304.33	7.53
3212.00	45.40	358.70	3126.82	326.66	3.72	40° 20' 10.8581" N	-107° 32' 3.5288" W	326.64	7.58
3244.00	47.70	359.40	3148.82	349.88	3.34	40° 20' 11.0874" N	-107° 32' 3.5406" W	349.86	7.36
3276.00	47.50	359.90	3170.40	373.51	3.19	40° 20' 11.3209" N	-107° 32' 3.5495" W	373.49	1.31
3308.00	47.20	359.30	3192.08	397.05	3.03	40° 20' 11.5533" N	-107° 32' 3.5586" W	397.03	1.67
3339.00	47.80	359.70	3213.03	419.90	2.83	40° 20' 11.7791" N	-107° 32' 3.5679" W	419.89	2.16
3371.00	48.50	0.20	3234.38	443.74	2.81	40° 20' 12.0146" N	-107° 32' 3.5752" W	443.72	2.48
3416.00	47.70	0.02	3264.43	477.23	2.87	40° 20' 12.3455" N	-107° 32' 3.5843" W	477.21	1.80
3511.00	48.00	1.80	3328.18	547.65	4.00	40° 20' 13.0415" N	-107° 32' 3.5907" W	547.63	1.42
3543.00	49.90	2.30	3349.20	571.77	4.86	40° 20' 13.2799" N	-107° 32' 3.5867" W	571.74	6.05
3638.00	57.90	2.00	3405.13	648.41	7.73	40° 20' 14.0378" N	-107° 32' 3.5724" W	648.37	8.42
3734.00	61.40	2.10	3453.62	731.19	10.69	40° 20' 14.8562" N	-107° 32' 3.5586" W	731.13	3.65
3829.00	66.60	2.10	3495.26	816.49	13.82	40° 20' 15.6997" N	-107° 32' 3.5435" W	816.41	5.47
3924.00	73.10	359.70	3527.97	905.61	15.18	40° 20' 16.5804" N	-107° 32' 3.5524" W	905.52	7.24
4018.00	76.90	357.60	3552.30	996.35	13.03	40° 20' 17.4765" N	-107° 32' 3.6070" W	996.28	4.58
4113.00	78.50	357.50	3572.53	1089.09	9.06	40° 20' 18.3917" N	-107° 32' 3.6857" W	1089.03	1.69
4210.00	80.50	356.60	3590.21	1184.33	4.15	40° 20' 19.3316" N	-107° 32' 3.7774" W	1184.30	2.25
4302.00	82.50	356.60	3603.81	1275.15	-1.25	40° 20' 20.2277" N	-107° 32' 3.8739" W	1275.15	2.17
4395.00	85.00	358.40	3613.93	1367.50	-5.28	40° 20' 21.1391" N	-107° 32' 3.9533" W	1367.51	3.31
4487.00	89.80	0.00	3618.10	1459.37	-6.56	40° 20' 22.0464" N	-107° 32' 3.9970" W	1459.38	5.50
4579.00	92.20	359.10	3616.50	1551.34	-7.28	40° 20' 22.9550" N	-107° 32' 4.0336" W	1551.36	2.79
4670.00	92.10	1.00	3613.08	1642.28	-7.20	40° 20' 23.8533" N	-107° 32' 4.0595" W	1642.29	2.09

Measured Depth Ft	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	LOCALS		GEOGRAPHIC		Vertical Section Ft	Dogleg Severity Deg/100
				N-S Ft	E-W Ft	Latitude °/'/"	Longitude °/'/"		
4762.00	91.80	0.60	3609.95	1734.21	-5.92	40° 20' 24.7619" N	-107° 32' 4.0702" W	1734.22	0.54
4855.00	92.70	0.80	3606.30	1827.13	-4.78	40° 20' 25.6802" N	-107° 32' 4.0831" W	1827.14	0.99
4949.00	90.70	0.10	3603.51	1921.08	-4.04	40° 20' 26.6086" N	-107° 32' 4.1014" W	1921.08	2.25
5041.00	91.50	0.30	3601.75	2013.07	-3.72	40° 20' 27.5174" N	-107° 32' 4.1245" W	2013.06	0.90
5138.00	93.10	0.00	3597.85	2109.98	-3.47	40° 20' 28.4749" N	-107° 32' 4.1499" W	2109.98	1.68
5235.00	90.70	0.60	3594.64	2206.92	-2.96	40° 20' 29.4328" N	-107° 32' 4.1721" W	2206.91	2.55
5330.00	93.00	359.60	3591.57	2301.86	-2.79	40° 20' 30.3708" N	-107° 32' 4.1981" W	2301.85	2.64
5425.00	90.90	357.30	3588.34	2396.76	-5.36	40° 20' 31.3078" N	-107° 32' 4.2594" W	2396.76	3.28
5520.00	92.90	357.70	3585.19	2491.62	-9.50	40° 20' 32.2439" N	-107° 32' 4.3409" W	2491.63	2.15
5614.00	90.80	357.70	3582.16	2585.49	-13.27	40° 20' 33.1705" N	-107° 32' 4.4174" W	2585.52	2.23
5710.00	92.90	356.00	3579.06	2681.28	-18.55	40° 20' 34.1157" N	-107° 32' 4.5139" W	2681.34	2.81
5805.00	90.10	359.50	3576.57	2776.15	-22.27	40° 20' 35.0521" N	-107° 32' 4.5901" W	2776.23	4.72
5900.00	91.30	0.70	3575.41	2871.14	-22.11	40° 20' 35.9906" N	-107° 32' 4.6161" W	2871.21	1.79
5995.00	93.00	1.90	3571.84	2966.04	-19.95	40° 20' 36.9287" N	-107° 32' 4.6164" W	2966.11	2.19
6090.00	88.80	2.20	3570.35	3060.95	-16.56	40° 20' 37.8671" N	-107° 32' 4.6007" W	3060.99	4.43
6187.00	90.00	2.50	3571.37	3157.86	-12.58	40° 20' 38.8255" N	-107° 32' 4.5780" W	3157.89	1.28
6282.00	91.80	358.80	3569.88	3252.82	-11.50	40° 20' 39.7639" N	-107° 32' 4.5923" W	3252.84	4.33
6376.00	90.90	358.30	3567.66	3346.77	-13.88	40° 20' 40.6915" N	-107° 32' 4.6508" W	3346.79	1.10
6471.00	92.80	359.10	3564.59	3441.69	-16.03	40° 20' 41.6287" N	-107° 32' 4.7067" W	3441.72	2.17
6566.00	92.50	357.20	3560.20	3536.53	-19.10	40° 20' 42.5651" N	-107° 32' 4.7744" W	3536.58	2.02
6662.00	92.90	0.00	3555.68	3632.39	-21.44	40° 20' 43.5115" N	-107° 32' 4.8331" W	3632.45	2.94
Proj to TD @ 6750 MD / 3551 Ft TVD									
6750.00	92.90	0.00	3551.23	3720.27	-21.44	40° 20' 44.3798" N	-107° 32' 4.8591" W	3720.33	0.00