

# Tekton Energy

Well Name: **Pavistma South 3 #1-6-32-090-4-NH**

Surface Location: Pavistma South Pad Sec.32-T6N-R67W

North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

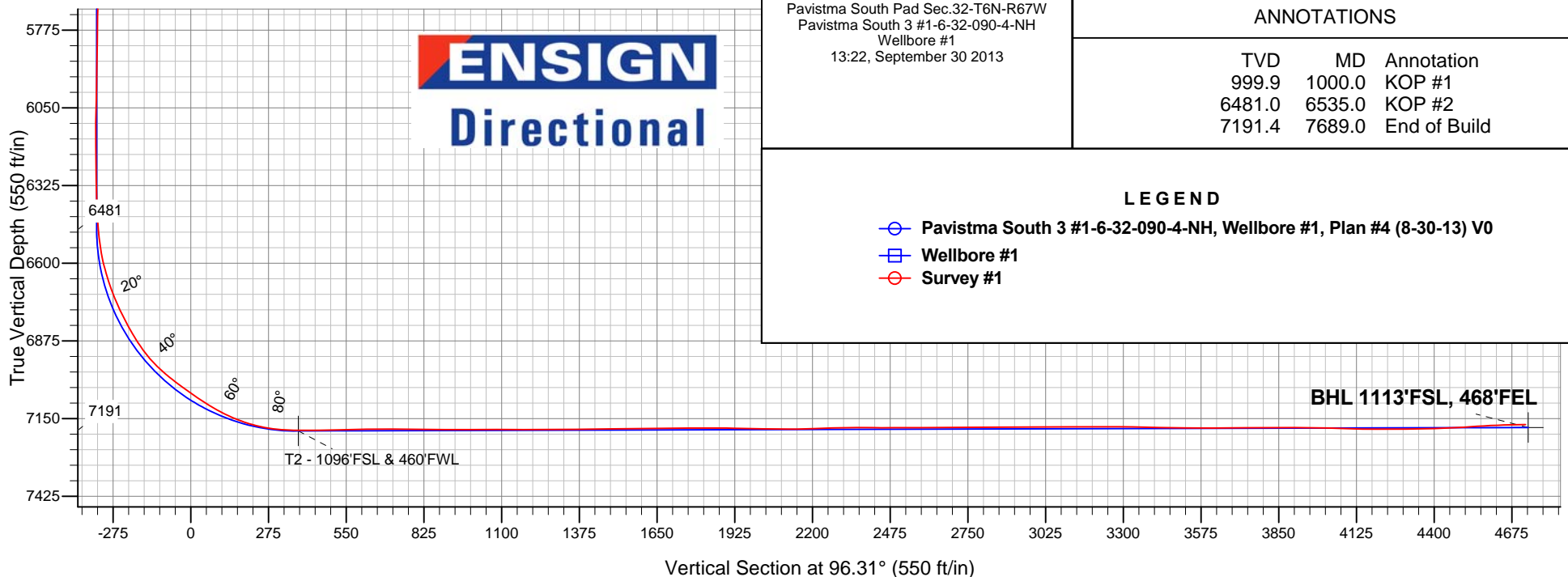
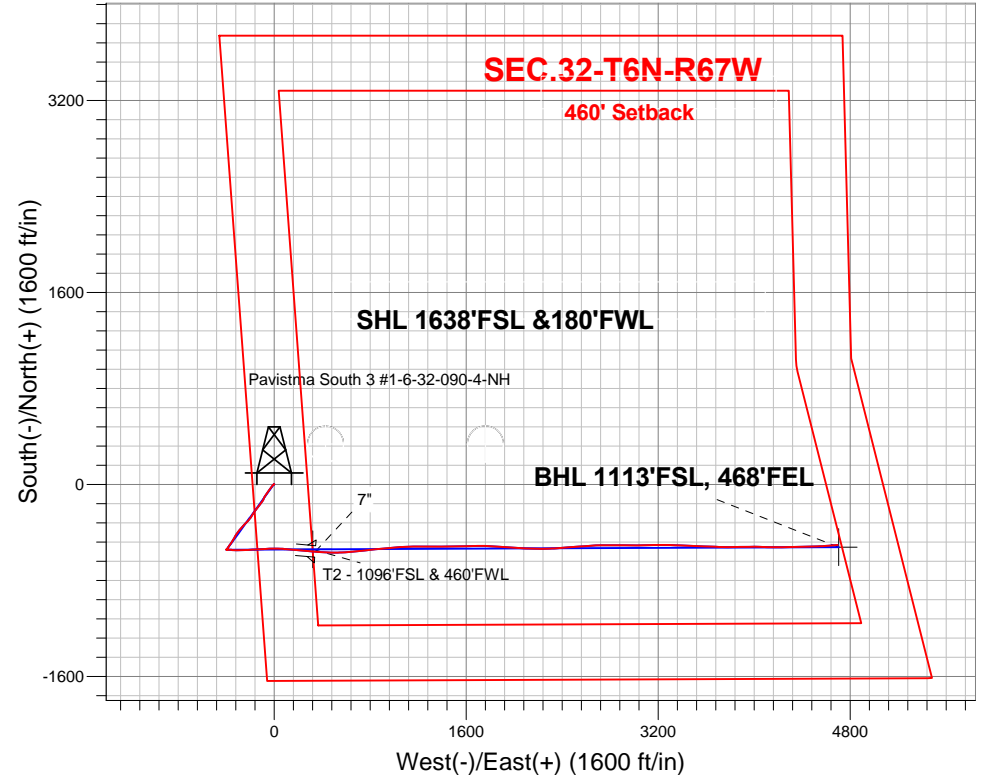
Ground Elevation: 4954.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1403819.04	3160085.72	40.440460	-104.924860	

Frontier Rig 10 RKB - 22.5' WELL @ 4976.5ft (Frontier Rig 10 RKB - 22.5')

## FINAL SURVEY

Projected Bottom Hole Location  
12018'MD 7171'TVD 504'S & 4696'E of SHL  
91.4 degree Incl @ 85.9 degree AZM



Pavistma South Pad Sec.32-T6N-R67W  
Pavistma South 3 #1-6-32-090-4-NH  
Wellbore #1  
13:22, September 30 2013

### ANNOTATIONS

TVD	MD	Annotation
999.9	1000.0	KOP #1
6481.0	6535.0	KOP #2
7191.4	7689.0	End of Build

### LEGEND

- Pavistma South 3 #1-6-32-090-4-NH, Wellbore #1, Plan #4 (8-30-13) V0
- Wellbore #1
- Survey #1



## **Tekton Energy**

**SEC.32-T6N-R67W**

**Pavistma South Pad Sec.32-T6N-R67W**

**Pavistma South 3 #1-6-32-090-4-NH**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**30 September, 2013**

Survey	Wellbore Data									
	Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Main Survey	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	213.0	0.30	10.10	213.0	0.5	0.1	0.0	0.14	0.14	0.00
	305.0	0.70	50.20	305.0	1.1	0.6	0.4	0.55	0.43	43.59
	397.0	0.60	23.30	397.0	1.9	1.2	1.0	0.35	-0.11	-29.24
	490.0	1.30	7.10	490.0	3.4	1.5	1.1	0.80	0.75	-17.42
	582.0	1.10	298.00	582.0	4.9	0.9	0.3	1.49	-0.22	-75.11
	674.0	0.40	233.90	674.0	5.1	-0.2	-0.7	1.08	-0.76	-69.67
	766.0	0.60	233.50	765.9	4.6	-0.8	-1.3	0.22	0.22	-0.43
	859.0	0.60	220.70	858.9	4.0	-1.5	-2.0	0.14	0.00	-13.76
	1,000.0	0.90	221.60	999.9	2.6	-2.7	-3.0	0.21	0.21	0.64
	1,092.0	2.60	224.90	1,091.9	0.6	-4.7	-4.7	1.85	1.85	3.59
	1,186.0	4.40	226.50	1,185.7	-3.4	-8.8	-8.4	1.92	1.91	1.70
	1,281.0	5.50	219.30	1,280.4	-9.4	-14.3	-13.2	1.33	1.16	-7.58

<b>Company:</b>	Tekton Energy	<b>Local Co-ordinate Reference:</b>	Well Pavistma South 3 #1-6-32-090-4-NH
<b>Project:</b>	SEC.32-T6N-R67W	<b>TVD Reference:</b>	WELL @ 4976.5ft (Frontier Rig 10 RKB - 22.5')
<b>Site:</b>	Pavistma South Pad Sec.32-T6N-R67W	<b>MD Reference:</b>	WELL @ 4976.5ft (Frontier Rig 10 RKB - 22.5')
<b>Well:</b>	Pavistma South 3 #1-6-32-090-4-NH	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

#### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,373.0	6.80	215.80	1,371.8	-17.3	-20.3	-18.3	1.47	1.41	-3.80
1,466.0	8.30	217.50	1,464.0	-27.1	-27.6	-24.5	1.63	1.61	1.83
1,558.0	7.50	214.70	1,555.1	-37.3	-35.1	-30.8	0.96	-0.87	-3.04
1,650.0	8.40	216.50	1,646.3	-47.6	-42.5	-37.0	1.01	0.98	1.96
1,742.0	9.20	213.80	1,737.2	-59.1	-50.6	-43.8	0.98	0.87	-2.93
1,834.0	9.40	217.90	1,828.0	-71.2	-59.3	-51.1	0.75	0.22	4.46
1,927.0	10.80	213.50	1,919.5	-84.4	-68.8	-59.1	1.72	1.51	-4.73
2,019.0	10.50	208.50	2,009.9	-99.0	-77.5	-66.2	1.06	-0.33	-5.43
2,111.0	10.80	206.30	2,100.4	-114.1	-85.4	-72.3	0.55	0.33	-2.39
2,203.0	10.10	205.60	2,190.8	-129.1	-92.7	-77.9	0.77	-0.76	-0.76
2,297.0	9.30	214.90	2,283.5	-142.7	-100.6	-84.3	1.87	-0.85	9.89
2,391.0	9.40	217.20	2,376.2	-155.1	-109.6	-91.8	0.41	0.11	2.45
2,484.0	10.80	221.90	2,467.8	-167.6	-120.0	-100.8	1.75	1.51	5.05
2,578.0	10.90	220.00	2,560.1	-181.0	-131.6	-110.9	0.40	0.11	-2.02
2,671.0	10.50	216.10	2,651.5	-194.6	-142.2	-119.9	0.89	-0.43	-4.19
2,764.0	10.20	215.60	2,743.0	-208.1	-152.0	-128.2	0.34	-0.32	-0.54
2,858.0	9.80	214.50	2,835.6	-221.5	-161.4	-136.0	0.47	-0.43	-1.17
2,952.0	9.50	213.60	2,928.2	-234.5	-170.2	-143.4	0.36	-0.32	-0.96
3,046.0	9.00	209.60	3,021.0	-247.4	-178.1	-149.8	0.87	-0.53	-4.26
3,139.0	9.10	214.30	3,112.9	-259.8	-185.9	-156.2	0.80	0.11	5.05
3,234.0	9.10	215.40	3,206.7	-272.1	-194.4	-163.3	0.18	0.00	1.16
3,327.0	9.40	221.20	3,298.4	-283.8	-203.7	-171.3	1.05	0.32	6.24
3,421.0	8.70	214.50	3,391.3	-295.5	-212.8	-179.0	1.34	-0.74	-7.13
3,514.0	8.40	222.80	3,483.2	-306.2	-221.4	-186.4	1.36	-0.32	8.92
3,609.0	9.10	228.60	3,577.1	-316.3	-231.7	-195.5	1.18	0.74	6.11
3,704.0	9.50	224.70	3,670.9	-326.8	-242.9	-205.5	0.79	0.42	-4.11
3,799.0	9.60	222.30	3,764.6	-338.3	-253.7	-215.0	0.43	0.11	-2.53
3,894.0	10.10	219.40	3,858.2	-350.6	-264.3	-224.2	0.74	0.53	-3.05
3,988.0	9.30	221.20	3,950.8	-362.6	-274.6	-233.0	0.91	-0.85	1.91
4,081.0	9.40	220.70	4,042.6	-374.1	-284.5	-241.6	0.14	0.11	-0.54
4,175.0	10.10	217.00	4,135.2	-386.5	-294.5	-250.2	1.00	0.74	-3.94
4,270.0	10.00	217.00	4,228.8	-399.7	-304.4	-258.6	0.11	-0.11	0.00
4,363.0	10.70	213.30	4,320.3	-413.4	-314.0	-266.7	1.04	0.75	-3.98
4,457.0	10.40	211.50	4,412.7	-427.9	-323.3	-274.2	0.47	-0.32	-1.91
4,550.0	9.00	207.10	4,504.4	-441.5	-331.0	-280.4	1.70	-1.51	-4.73
4,645.0	9.50	212.20	4,598.1	-454.8	-338.5	-286.5	1.01	0.53	5.37
4,740.0	8.50	209.20	4,691.9	-467.5	-346.1	-292.6	1.16	-1.05	-3.16
4,834.0	9.00	213.80	4,784.9	-479.7	-353.6	-298.7	0.91	0.53	4.89
4,930.0	9.10	215.80	4,879.7	-492.1	-362.2	-305.9	0.34	0.10	2.08
5,024.0	7.30	213.60	4,972.7	-503.1	-369.9	-312.3	1.94	-1.91	-2.34
5,118.0	7.50	216.30	5,065.9	-513.0	-376.8	-318.1	0.43	0.21	2.87
5,213.0	5.90	215.00	5,160.3	-522.0	-383.3	-323.5	1.69	-1.68	-1.37
5,309.0	5.40	213.80	5,255.8	-529.8	-388.6	-328.0	0.54	-0.52	-1.25
5,403.0	3.70	201.50	5,349.5	-536.3	-392.2	-330.8	2.08	-1.81	-13.09
5,497.0	2.50	181.80	5,443.4	-541.2	-393.4	-331.5	1.69	-1.28	-20.96
5,591.0	1.60	135.60	5,537.3	-544.2	-392.5	-330.3	1.92	-0.96	-49.15
5,686.0	1.10	355.10	5,632.3	-544.2	-391.7	-329.4	2.68	-0.53	-147.90
5,779.0	1.20	335.80	5,725.3	-542.4	-392.1	-330.1	0.43	0.11	-20.75
5,873.0	0.70	310.50	5,819.3	-541.2	-393.0	-331.1	0.68	-0.53	-26.91
5,967.0	1.00	272.70	5,913.3	-540.8	-394.2	-332.4	0.66	0.32	-40.21
6,062.0	1.40	251.10	6,008.2	-541.1	-396.2	-334.3	0.63	0.42	-22.74
6,156.0	1.20	256.70	6,102.2	-541.7	-398.2	-336.2	0.25	-0.21	5.96
6,251.0	0.70	116.60	6,197.2	-542.2	-398.7	-336.6	1.89	-0.53	-147.47
6,346.0	1.50	85.80	6,292.2	-542.4	-396.9	-334.8	1.02	0.84	-32.42

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<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

#### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,393.0	1.00	90.10	6,339.2	-542.3	-395.9	-333.8	1.08	-1.06	9.15
6,440.0	1.00	89.70	6,386.2	-542.3	-395.1	-333.0	0.01	0.00	-0.85
6,487.0	3.60	92.90	6,433.1	-542.4	-393.2	-331.1	5.54	5.53	6.81
6,535.0	5.50	92.90	6,481.0	-542.6	-389.4	-327.3	3.96	3.96	0.00
6,582.0	7.30	90.10	6,527.7	-542.7	-384.1	-322.1	3.89	3.83	-5.96
6,629.0	10.80	88.80	6,574.1	-542.6	-376.7	-314.8	7.46	7.45	-2.77
6,676.0	15.20	94.30	6,619.9	-543.0	-366.2	-304.3	9.71	9.36	11.70
6,722.0	18.30	96.70	6,663.9	-544.3	-353.0	-291.0	6.90	6.74	5.22
6,769.0	21.10	93.80	6,708.2	-545.7	-337.2	-275.2	6.31	5.96	-6.17
6,816.0	24.30	89.40	6,751.5	-546.2	-319.1	-257.1	7.70	6.81	-9.36
6,863.0	27.40	89.00	6,793.8	-545.9	-298.6	-236.8	6.61	6.60	-0.85
6,910.0	29.60	89.00	6,835.1	-545.5	-276.2	-214.5	4.68	4.68	0.00
6,957.0	32.50	88.50	6,875.4	-544.9	-252.0	-190.5	6.19	6.17	-1.06
7,003.0	36.90	88.00	6,913.2	-544.1	-225.8	-164.6	9.59	9.57	-1.09
7,050.0	43.50	87.60	6,949.1	-543.0	-195.5	-134.6	14.05	14.04	-0.85
7,097.0	48.80	86.40	6,981.6	-541.2	-161.7	-101.2	11.43	11.28	-2.55
7,144.0	51.80	86.60	7,011.6	-539.0	-125.6	-65.5	6.39	6.38	0.43
7,191.0	54.20	86.70	7,039.9	-536.8	-88.1	-28.5	5.11	5.11	0.21
7,238.0	56.50	87.10	7,066.6	-534.7	-49.5	9.6	4.94	4.89	0.85
7,285.0	57.40	89.20	7,092.3	-533.4	-10.1	48.6	4.21	1.91	4.47
7,332.0	59.70	91.60	7,116.8	-533.7	30.0	88.5	6.55	4.89	5.11
7,376.0	64.20	93.60	7,137.5	-535.5	68.7	127.2	10.99	10.23	4.55
7,423.0	69.80	94.60	7,155.8	-538.6	111.9	170.4	12.07	11.91	2.13
7,471.0	74.30	95.20	7,170.6	-542.5	157.4	216.1	9.45	9.38	1.25
7,518.0	79.10	95.00	7,181.4	-546.5	202.9	261.8	10.22	10.21	-0.43
7,566.0	84.60	94.80	7,188.2	-550.6	250.2	309.3	11.47	11.46	-0.42
7,607.0	88.70	94.80	7,190.6	-554.0	291.0	350.2	10.00	10.00	0.00
7,637.6	89.27	94.76	7,191.2	-556.6	321.5	380.7	1.86	1.85	-0.12
<b>T2 - 1096'FSL &amp; 460'FWL</b>									
7,658.9	89.66	94.74	7,191.4	-558.3	342.7	402.0	1.86	1.85	-0.12
<b>7"</b>									
7,689.0	90.22	94.70	7,191.4	-560.8	372.7	432.1	1.86	1.85	-0.12
7,784.0	91.71	92.07	7,189.8	-566.4	467.5	527.0	3.18	1.57	-2.77
7,878.0	90.84	86.88	7,187.7	-565.6	561.5	620.3	5.60	-0.93	-5.52
7,972.0	89.96	84.51	7,187.1	-558.5	655.2	712.6	2.69	-0.94	-2.52
8,067.0	89.16	83.89	7,187.8	-548.9	749.7	805.5	1.07	-0.84	-0.65
8,161.0	89.52	84.25	7,188.9	-539.2	843.2	897.4	0.54	0.38	0.38
8,256.0	90.48	84.77	7,188.9	-530.1	937.7	990.4	1.15	1.01	0.55
8,350.0	89.87	86.27	7,188.6	-522.8	1,031.5	1,082.7	1.72	-0.65	1.60
8,445.0	89.78	87.67	7,188.9	-517.7	1,126.3	1,176.4	1.48	-0.09	1.47
8,539.0	90.31	90.05	7,188.8	-515.9	1,220.3	1,269.6	2.59	0.56	2.53
8,633.0	90.57	90.40	7,188.1	-516.2	1,314.3	1,363.1	0.46	0.28	0.37
8,728.0	90.66	89.70	7,187.1	-516.3	1,409.3	1,457.5	0.74	0.09	-0.74
8,822.0	91.19	88.64	7,185.5	-515.0	1,503.3	1,550.8	1.26	0.56	-1.13
8,916.0	90.04	88.64	7,184.5	-512.7	1,597.2	1,643.9	1.22	-1.22	0.00
9,011.0	90.66	89.52	7,183.9	-511.2	1,692.2	1,738.2	1.13	0.65	0.93
9,106.0	90.31	91.98	7,183.1	-512.5	1,787.2	1,832.7	2.62	-0.37	2.59
9,200.0	88.29	94.00	7,184.3	-517.4	1,881.1	1,926.5	3.04	-2.15	2.15
9,295.0	89.16	93.83	7,186.4	-523.8	1,975.8	2,021.4	0.93	0.92	-0.18
9,389.0	90.13	93.39	7,187.0	-529.8	2,069.6	2,115.3	1.13	1.03	-0.47
9,484.0	91.71	92.16	7,185.5	-534.4	2,164.5	2,210.1	2.11	1.66	-1.29
9,578.0	91.89	88.55	7,182.5	-534.9	2,258.4	2,303.6	3.84	0.19	-3.84
9,673.0	88.99	85.74	7,181.8	-530.2	2,353.3	2,397.3	4.25	-3.05	-2.96
9,767.0	90.48	85.48	7,182.2	-523.0	2,447.0	2,489.7	1.61	1.59	-0.28

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,861.0	90.13	85.65	7,181.7	-515.7	2,540.7	2,582.0	0.41	-0.37	0.18
9,956.0	90.04	86.09	7,181.6	-508.9	2,635.5	2,675.5	0.47	-0.09	0.46
10,050.0	90.75	89.26	7,180.9	-505.1	2,729.4	2,768.4	3.46	0.76	3.37
10,144.0	89.96	90.22	7,180.3	-504.7	2,823.4	2,861.7	1.32	-0.84	1.02
10,239.0	90.57	90.31	7,179.9	-505.1	2,918.4	2,956.2	0.65	0.64	0.09
10,333.0	89.96	89.70	7,179.5	-505.1	3,012.4	3,049.6	0.92	-0.65	-0.65
10,428.0	90.40	89.43	7,179.2	-504.4	3,107.4	3,144.0	0.54	0.46	-0.28
10,523.0	90.22	89.43	7,178.7	-503.4	3,202.4	3,238.3	0.19	-0.19	0.00
10,617.0	89.08	90.93	7,179.2	-503.7	3,296.4	3,331.8	2.00	-1.21	1.60
10,712.0	88.46	92.51	7,181.3	-506.6	3,391.3	3,426.4	1.79	-0.65	1.66
10,806.0	89.25	92.24	7,183.1	-510.5	3,485.2	3,520.2	0.89	0.84	-0.29
10,900.0	90.13	92.66	7,183.7	-514.5	3,579.1	3,614.0	1.04	0.94	0.45
10,995.0	90.92	91.80	7,182.8	-518.2	3,674.0	3,708.7	1.23	0.83	-0.91
11,089.0	89.87	90.40	7,182.1	-520.0	3,768.0	3,802.3	1.86	-1.12	-1.49
11,184.0	90.40	89.34	7,181.9	-519.8	3,863.0	3,896.7	1.25	0.56	-1.12
11,278.0	88.81	89.26	7,182.6	-518.6	3,957.0	3,990.0	1.69	-1.69	-0.09
11,373.0	87.76	90.93	7,185.4	-518.8	4,051.9	4,084.4	2.08	-1.11	1.76
11,467.0	89.87	90.66	7,187.3	-520.1	4,145.9	4,178.0	2.26	2.24	-0.29
11,561.0	90.75	90.05	7,186.8	-520.7	4,239.9	4,271.4	1.14	0.94	-0.65
11,656.0	90.66	88.99	7,185.7	-519.9	4,334.9	4,365.8	1.12	-0.09	-1.12
11,751.0	92.77	88.20	7,182.8	-517.6	4,429.8	4,459.9	2.37	2.22	-0.83
11,845.0	94.00	87.94	7,177.3	-514.4	4,523.6	4,552.7	1.34	1.31	-0.28
11,940.0	91.36	85.92	7,172.8	-509.3	4,618.3	4,646.3	3.50	-2.78	-2.13
12,018.0	91.36	85.92	7,171.0	-503.8	4,696.1	4,723.0	0.00	0.00	0.00
BHL 1096'FSL, 460'FEL									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (")	Hole Diameter (")
7,658.9	7,191.4	7"		7	7-1/2

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_