

Tekton Energy

Well Name: **Diamond Valley East #7**

Surface Location: Diamond Valley East Pad Sec.23-T6N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

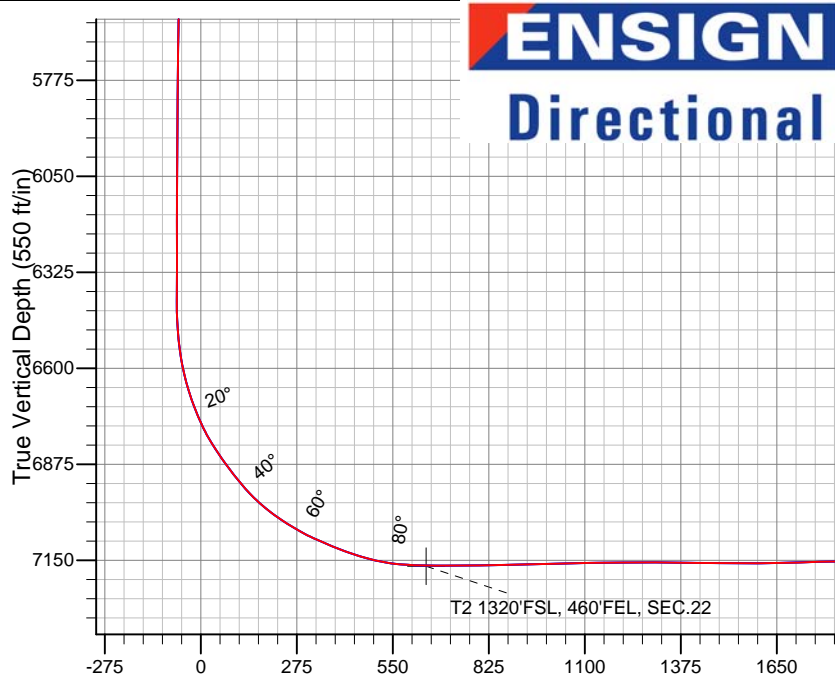
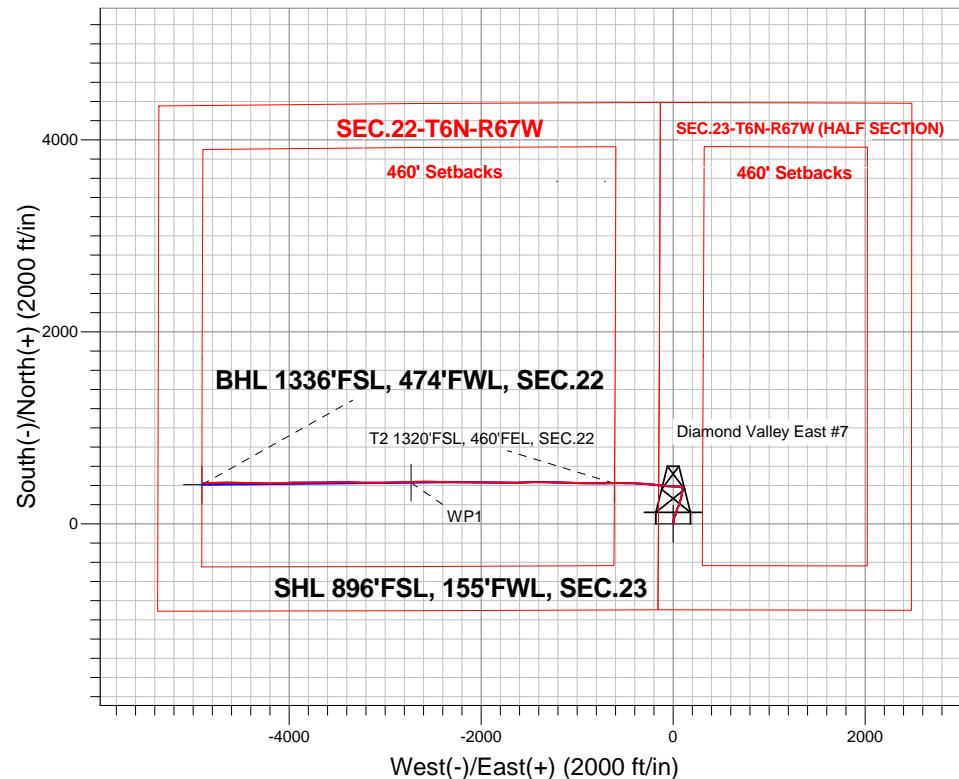
Ground Elevation: 4769.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1413831.93	3175337.80	40.467660	-104.869810	

RKB - 23' WELL @ 4792.0ft (RKB - 23')

FINAL SURVEY

Projected Bottom Hole Location
11873'MD 7159'TVD 424'N & 4894'W of SHL
90.7 degree Incl @ 268.3
degree AZM



ENSIGN
Directional

Diamond Valley East Pad Sec.23-T6N-R67W
Diamond Valley East #7

12:35, February 20 2014

Wellbore #1

ANNOTATIONS

No annotation data is available.

LEGEND

- Diamond Valley East #7, Wellbore #1, Plan #5 (2-18-14) V0
- Wellbore #1
- Survey #1

BHL 1336'FSL, 474'FWL, SEC.22

Vertical Section at 274.76° (550 ft/in)



Tekton Energy

SEC.23-T6N-R67W

Diamond Valley East Pad Sec.23-T6N-R67W

Diamond Valley East #7

Wellbore #1

Survey: Survey #1

Standard Survey Report

20 February, 2014

Company:	Tekton Energy	Local Co-ordinate Reference:	Well Diamond Valley East #7
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4792.0ft (RKB - 23')
Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4792.0ft (RKB - 23')
Well:	Diamond Valley East #7	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.23-T6N-R67W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Diamond Valley East Pad Sec.23-T6N-R67W				
Site Position:		Northing:	1,413,770.02ft	Latitude:	40.467490
From:	Lat/Long	Easting:	3,175,338.24ft	Longitude:	-104.869810
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.41 °

Well	Diamond Valley East #7					
Well Position	+N/-S	0.0 ft	Northing:	1,413,831.93 ft	Latitude:	40.467660
	+E/-W	0.0 ft	Easting:	3,175,337.80 ft	Longitude:	-104.869810
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,769.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/17/2014	8.57	67.00	52,874

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	274.76	

Survey Program	Date	2/20/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
223.0	11,873.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
1.0	0.00	39.20	1.0	0.0	0.0	0.0	0.18	0.18	0.00	
SHL 896'FSL, 155'FWL, SEC.23										
223.0	0.40	39.20	223.0	0.6	0.5	-0.4	0.18	0.18	0.00	
314.0	0.70	62.90	314.0	1.1	1.2	-1.1	0.41	0.33	26.04	
405.0	0.50	20.60	405.0	1.7	1.8	-1.7	0.52	-0.22	-46.48	
497.0	0.20	24.10	497.0	2.2	2.0	-1.8	0.33	-0.33	3.80	
528.0	0.40	90.70	528.0	2.3	2.2	-2.0	1.19	0.65	214.84	
583.0	0.40	90.70	583.0	2.3	2.5	-2.3	0.00	0.00	0.00	
640.0	0.40	33.60	640.0	2.5	2.9	-2.6	0.67	0.00	-100.18	
735.0	0.20	1.60	735.0	2.9	3.0	-2.8	0.27	-0.21	-33.68	
830.0	1.20	326.40	830.0	3.9	2.5	-2.2	1.10	1.05	-37.05	
926.0	0.60	300.90	926.0	5.0	1.5	-1.1	0.74	-0.63	-26.56	

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Well:	Diamond Valley East #7	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
1,021.0	1.10	60.50	1,021.0	5.7	1.9	-1.4	1.57	0.53	125.89
1,116.0	0.80	60.10	1,115.9	6.5	3.2	-2.7	0.32	-0.32	-0.42
1,211.0	0.70	48.00	1,210.9	7.2	4.2	-3.6	0.20	-0.11	-12.74
1,304.0	0.50	28.30	1,303.9	7.9	4.9	-4.2	0.31	-0.22	-21.18
1,394.0	0.70	4.20	1,393.9	8.8	5.1	-4.3	0.35	0.22	-26.78
1,485.0	0.80	12.10	1,484.9	10.0	5.3	-4.4	0.16	0.11	8.68
1,577.0	2.10	354.40	1,576.9	12.3	5.2	-4.2	1.48	1.41	-19.24
1,668.0	2.80	358.60	1,667.8	16.2	5.0	-3.7	0.79	0.77	4.62
1,761.0	3.10	5.80	1,760.7	21.0	5.2	-3.5	0.51	0.32	7.74
1,851.0	3.10	345.90	1,850.6	25.7	4.9	-2.7	1.19	0.00	-22.11
1,942.0	3.80	356.30	1,941.4	31.1	4.1	-1.5	1.03	0.77	11.43
2,033.0	4.80	2.60	2,032.1	37.9	4.1	-0.9	1.21	1.10	6.92
2,125.0	3.80	11.90	2,123.9	44.8	4.9	-1.1	1.32	-1.09	10.11
2,220.0	5.50	16.00	2,218.6	52.2	6.8	-2.4	1.82	1.79	4.32
2,315.0	5.50	14.90	2,313.1	61.0	9.2	-4.1	0.11	0.00	-1.16
2,411.0	5.60	26.50	2,408.7	69.6	12.5	-6.6	1.17	0.10	12.08
2,506.0	5.70	30.00	2,503.2	77.9	16.9	-10.4	0.38	0.11	3.68
2,601.0	5.30	25.30	2,597.8	85.9	21.1	-13.9	0.63	-0.42	-4.95
2,696.0	5.00	11.20	2,692.4	94.0	23.8	-15.9	1.37	-0.32	-14.84
2,790.0	4.70	23.90	2,786.1	101.5	26.2	-17.6	1.18	-0.32	13.51
2,886.0	4.60	20.60	2,881.7	108.7	29.1	-20.0	0.30	-0.10	-3.44
2,981.0	4.00	12.50	2,976.5	115.5	31.2	-21.5	0.90	-0.63	-8.53
3,076.0	3.20	35.10	3,071.3	120.9	33.4	-23.3	1.70	-0.84	23.79
3,170.0	3.10	20.20	3,165.2	125.4	35.8	-25.3	0.87	-0.11	-15.85
3,266.0	2.60	3.30	3,261.0	130.0	36.8	-25.9	1.01	-0.52	-17.60
3,361.0	3.90	2.60	3,355.9	135.4	37.1	-25.7	1.37	1.37	-0.74
3,456.0	4.90	10.70	3,450.6	142.6	38.0	-26.0	1.24	1.05	8.53
3,551.0	6.20	17.90	3,545.2	151.5	40.3	-27.6	1.55	1.37	7.58
3,647.0	6.60	18.80	3,640.6	161.7	43.7	-30.1	0.43	0.42	0.94
3,742.0	6.00	25.70	3,735.0	171.3	47.6	-33.2	1.02	-0.63	7.26
3,837.0	6.60	25.50	3,829.4	180.7	52.1	-36.9	0.63	0.63	-0.21
3,932.0	5.20	32.00	3,923.9	189.3	56.7	-40.8	1.63	-1.47	6.84
4,028.0	4.70	24.10	4,019.5	196.6	60.6	-44.1	0.88	-0.52	-8.23
4,123.0	4.10	19.80	4,114.3	203.3	63.4	-46.3	0.72	-0.63	-4.53
4,218.0	4.00	20.20	4,209.0	209.6	65.7	-48.1	0.11	-0.11	0.42
4,313.0	3.90	19.70	4,303.8	215.8	67.9	-49.8	0.11	-0.11	-0.53
4,409.0	3.70	16.50	4,399.6	221.8	69.9	-51.2	0.30	-0.21	-3.33
4,504.0	3.60	4.60	4,494.4	227.7	71.0	-51.9	0.80	-0.11	-12.53
4,599.0	4.70	9.10	4,589.2	234.5	71.9	-52.2	1.21	1.16	4.74
4,694.0	5.50	22.10	4,683.8	242.6	74.2	-53.8	1.47	0.84	13.68
4,790.0	5.20	23.40	4,779.4	250.9	77.6	-56.6	0.34	-0.31	1.35
4,885.0	4.00	18.60	4,874.1	258.0	80.4	-58.7	1.33	-1.26	-5.05
4,980.0	3.60	13.50	4,968.8	264.0	82.2	-60.0	0.55	-0.42	-5.37
5,075.0	2.90	7.50	5,063.7	269.3	83.2	-60.5	0.82	-0.74	-6.32
5,170.0	3.80	4.60	5,158.5	274.8	83.7	-60.7	0.96	0.95	-3.05
5,266.0	4.00	6.30	5,254.3	281.3	84.4	-60.7	0.24	0.21	1.77
5,361.0	4.50	16.30	5,349.0	288.2	85.8	-61.6	0.94	0.53	10.53
5,456.0	3.30	12.10	5,443.8	294.4	87.4	-62.7	1.30	-1.26	-4.42
5,551.0	3.10	10.90	5,538.7	299.6	88.4	-63.3	0.22	-0.21	-1.26
5,646.0	3.50	16.30	5,633.5	304.9	89.7	-64.1	0.53	0.42	5.68
5,741.0	5.10	13.20	5,728.2	311.8	91.5	-65.3	1.70	1.68	-3.26
5,837.0	6.10	11.40	5,823.8	321.0	93.5	-66.6	1.06	1.04	-1.88
5,932.0	4.80	7.50	5,918.4	329.9	95.0	-67.3	1.42	-1.37	-4.11
6,027.0	5.10	8.40	6,013.0	338.0	96.2	-67.8	0.33	0.32	0.95

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Well:	Diamond Valley East #7	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
6,122.0	5.80	8.10	6,107.6	346.9	97.5	-68.3	0.74	0.74	-0.32
6,216.0	4.40	1.60	6,201.2	355.2	98.2	-68.4	1.61	-1.49	-6.91
6,312.0	4.00	5.60	6,296.9	362.2	98.7	-68.3	0.52	-0.42	4.17
6,407.0	4.30	9.50	6,391.7	369.0	99.6	-68.6	0.43	0.32	4.11
6,454.0	3.80	355.20	6,438.6	372.3	99.7	-68.5	2.39	-1.06	-30.43
6,502.0	6.40	321.30	6,486.4	376.0	97.9	-66.4	8.07	5.42	-70.63
6,549.0	8.90	318.50	6,533.0	380.8	93.9	-62.0	5.38	5.32	-5.96
6,597.0	10.00	288.40	6,580.3	384.9	87.5	-55.2	10.42	2.29	-62.71
6,644.0	14.20	276.80	6,626.3	386.8	77.8	-45.5	10.28	8.94	-24.68
6,692.0	17.90	274.00	6,672.4	388.1	64.6	-32.2	7.87	7.71	-5.83
6,739.0	21.20	273.50	6,716.7	389.1	48.9	-16.5	7.03	7.02	-1.06
6,788.0	25.00	272.30	6,761.8	390.0	29.8	2.7	7.81	7.76	-2.45
6,835.0	30.20	272.10	6,803.4	390.9	8.0	24.4	11.07	11.06	-0.43
6,883.0	34.20	272.40	6,844.0	391.9	-17.6	50.0	8.34	8.33	0.63
6,930.0	36.30	273.00	6,882.4	393.2	-44.6	77.1	4.53	4.47	1.28
6,978.0	38.90	274.40	6,920.4	395.1	-73.9	106.4	5.70	5.42	2.92
7,021.0	42.80	275.10	6,952.9	397.4	-101.9	134.5	9.13	9.07	1.63
7,073.0	48.60	276.80	6,989.2	401.3	-138.9	171.7	11.40	11.15	3.27
7,120.0	53.60	277.40	7,018.7	405.8	-175.2	208.2	10.68	10.64	1.28
7,168.0	58.00	275.80	7,045.7	410.3	-214.6	247.9	9.57	9.17	-3.33
7,215.0	61.30	274.90	7,069.5	414.1	-255.0	288.4	7.21	7.02	-1.91
7,263.0	65.90	274.40	7,090.8	417.6	-297.8	331.4	9.63	9.58	-1.04
7,310.0	67.60	274.00	7,109.4	420.8	-340.9	374.6	3.70	3.62	-0.85
7,358.0	69.70	272.30	7,126.8	423.2	-385.5	419.3	5.48	4.38	-3.54
7,405.0	74.00	270.70	7,141.5	424.4	-430.1	463.9	9.70	9.15	-3.40
7,454.0	78.30	271.20	7,153.2	425.2	-477.7	511.3	8.83	8.78	1.02
7,520.0	85.70	270.30	7,162.4	426.0	-543.0	576.5	11.29	11.21	-1.36
7,589.2	89.56	270.43	7,165.2	426.5	-612.2	645.4	5.57	5.57	0.19
T2 1320°FSL, 460°FEL, SEC.22									
7,590.0	89.60	270.43	7,165.2	426.5	-612.9	646.2	5.57	5.57	0.19
7,684.0	90.31	269.61	7,165.3	426.5	-706.9	739.9	1.15	0.76	-0.87
7,778.0	91.01	269.04	7,164.2	425.4	-800.9	833.4	0.96	0.74	-0.61
7,872.0	91.10	269.98	7,162.5	424.6	-894.9	927.0	1.00	0.10	1.00
7,966.0	91.63	271.16	7,160.3	425.5	-988.9	1,020.8	1.38	0.56	1.26
8,060.0	91.19	272.15	7,158.0	428.2	-1,082.8	1,114.6	1.15	-0.47	1.05
8,154.0	90.40	272.04	7,156.7	431.7	-1,176.7	1,208.5	0.85	-0.84	-0.12
8,248.0	89.96	272.12	7,156.4	435.1	-1,270.7	1,302.4	0.48	-0.47	0.09
8,342.0	89.08	270.85	7,157.1	437.5	-1,364.6	1,396.2	1.64	-0.94	-1.35
8,436.0	89.43	267.89	7,158.4	436.5	-1,458.6	1,489.8	3.17	0.37	-3.15
8,530.0	89.96	266.88	7,158.9	432.2	-1,552.5	1,583.0	1.21	0.56	-1.07
8,624.0	92.07	269.47	7,157.2	429.2	-1,646.4	1,676.4	3.55	2.24	2.76
8,719.0	91.28	270.49	7,154.4	429.2	-1,741.4	1,771.0	1.36	-0.83	1.07
8,813.0	89.43	271.68	7,153.8	430.9	-1,835.4	1,864.8	2.34	-1.97	1.27
8,907.0	88.20	271.04	7,155.8	433.2	-1,929.3	1,958.6	1.47	-1.31	-0.68
9,001.0	88.72	270.23	7,158.3	434.2	-2,023.3	2,052.3	1.02	0.55	-0.86
9,095.0	89.69	269.61	7,159.6	434.1	-2,117.3	2,146.0	1.22	1.03	-0.66
9,189.0	89.87	270.86	7,160.0	434.5	-2,211.3	2,239.7	1.34	0.19	1.33
9,284.0	89.60	270.73	7,160.4	435.8	-2,306.2	2,334.4	0.32	-0.28	-0.14
9,378.0	89.69	270.60	7,161.0	436.9	-2,400.2	2,428.2	0.17	0.10	-0.14
9,472.0	89.60	270.61	7,161.6	437.9	-2,494.2	2,522.0	0.10	-0.10	0.01
9,567.0	88.81	270.44	7,162.9	438.7	-2,589.2	2,616.7	0.85	-0.83	-0.18
9,661.0	88.37	269.31	7,165.2	438.5	-2,683.2	2,710.3	1.29	-0.47	-1.20
9,707.8	89.06	268.84	7,166.3	437.8	-2,729.9	2,756.8	1.80	1.48	-1.01
WP1									

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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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)
9,756.0	89.78	268.35	7,166.7	436.6	-2,778.1	2,804.8	1.80	1.48	-1.01
9,849.0	90.48	268.32	7,166.5	433.9	-2,871.1	2,897.2	0.75	0.75	-0.03
9,944.0	90.31	268.57	7,165.9	431.3	-2,966.1	2,991.6	0.32	-0.18	0.26
10,038.0	90.75	269.39	7,165.0	429.6	-3,060.1	3,085.1	0.99	0.47	0.87
10,132.0	90.13	269.98	7,164.3	429.1	-3,154.0	3,178.8	0.91	-0.66	0.63
10,226.0	90.40	272.32	7,163.9	431.0	-3,248.0	3,272.6	2.51	0.29	2.49
10,320.0	89.08	272.79	7,164.3	435.2	-3,341.9	3,366.5	1.49	-1.40	0.50
10,414.0	87.67	270.20	7,166.9	437.7	-3,435.8	3,460.3	3.14	-1.50	-2.76
10,508.0	90.40	267.25	7,168.5	435.6	-3,529.8	3,553.8	4.28	2.90	-3.14
10,602.0	91.80	268.69	7,166.7	432.2	-3,623.7	3,647.1	2.14	1.49	1.53
10,695.0	91.98	270.41	7,163.7	431.5	-3,716.6	3,739.6	1.86	0.19	1.85
10,788.0	91.54	270.20	7,160.8	432.0	-3,809.6	3,832.3	0.52	-0.47	-0.23
10,881.0	90.22	268.71	7,159.4	431.1	-3,902.6	3,924.9	2.14	-1.42	-1.60
10,974.0	89.87	267.56	7,159.3	428.1	-3,995.5	4,017.3	1.29	-0.38	-1.24
11,068.0	90.75	268.72	7,158.8	425.0	-4,089.5	4,110.6	1.55	0.94	1.23
11,162.0	90.75	268.67	7,157.6	422.9	-4,183.4	4,204.1	0.05	0.00	-0.05
11,256.0	90.75	271.75	7,156.3	423.2	-4,277.4	4,297.8	3.28	0.00	3.28
11,350.0	88.99	271.57	7,156.5	426.0	-4,371.4	4,391.7	1.88	-1.87	-0.19
11,444.0	88.90	270.35	7,158.3	427.5	-4,465.4	4,485.4	1.30	-0.10	-1.30
11,538.0	89.78	271.12	7,159.4	428.7	-4,559.3	4,579.2	1.24	0.94	0.82
11,633.0	89.60	270.17	7,159.9	429.8	-4,654.3	4,673.9	1.02	-0.19	-1.00
11,728.0	89.69	268.32	7,160.5	428.6	-4,749.3	4,768.5	1.95	0.09	-1.95
11,791.0	90.66	268.32	7,160.3	426.7	-4,812.3	4,831.1	1.54	1.54	0.00
11,873.0	90.66	268.32	7,159.3	424.3	-4,894.2	4,912.6	0.00	0.00	0.00
BHL 1320'FSL, 460'FWL, SEC.22									

Checked By: _____ Approved By: _____ Date: _____