

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Guttersen 6U-443**

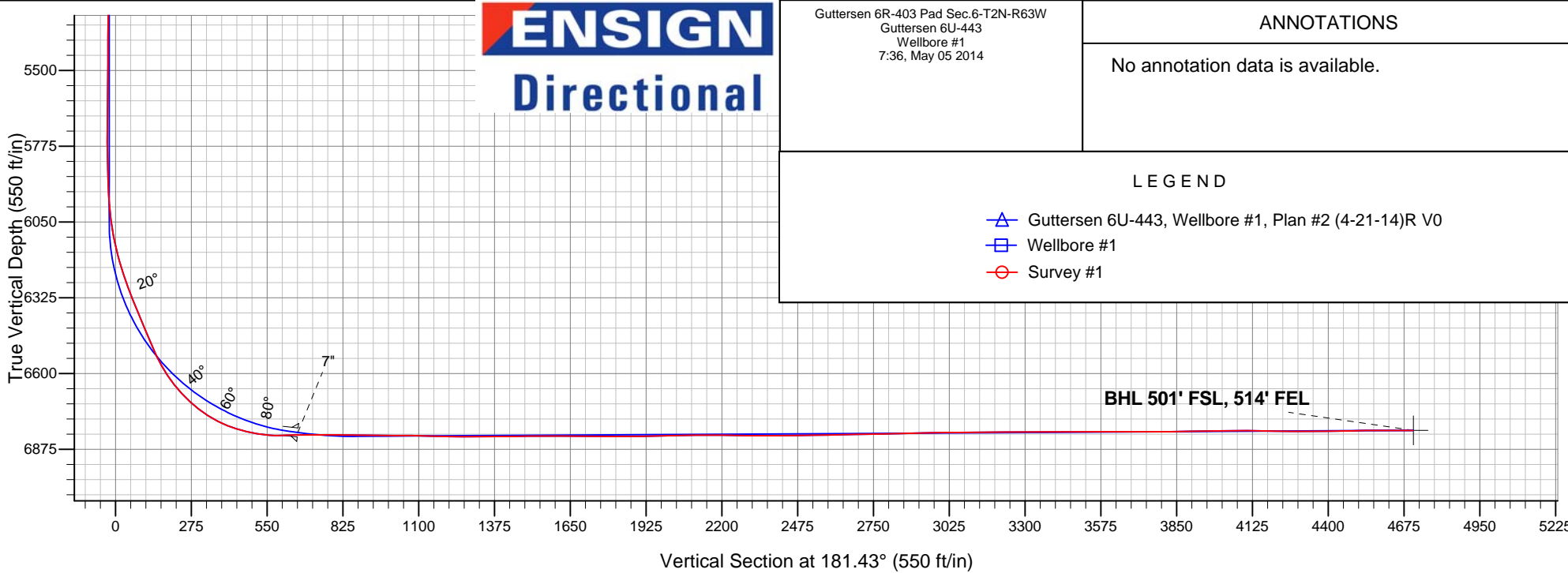
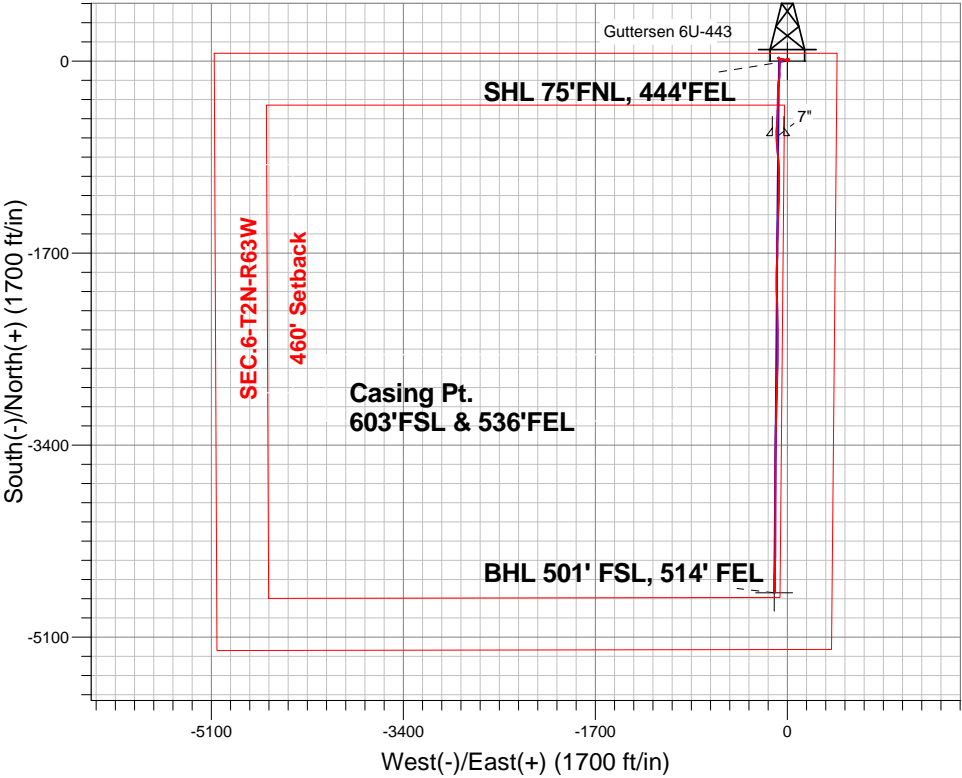
Surface Location: Guttersen 6R-403 Pad Sec.6-T2N-R63W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4836.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1308062.09	3287112.20	40.174460	-104.472510	
Ensign Rig #136 - RKB - 12.5' WELL @ 4848.5ft (Ensign Rig #136 - RKB - 12.5')						

FINAL SURVEY

Projected Bottom Hole Location
11248'MD 6807'TVD 4705'S & 111'W of SHL
90.0 degree Incl @ 180.4 degree AZM



Guttersen 6R-403 Pad Sec.6-T2N-R63W
Guttersen 6U-443
Wellbore #1
7:36, May 05 2014

ANNOTATIONS

No annotation data is available.

LEGEND

- Guttersen 6U-443, Wellbore #1, Plan #2 (4-21-14)R V0
- Wellbore #1
- Survey #1



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.6-T2N-R63W

Guttersen 6R-403 Pad Sec.6-T2N-R63W

Guttersen 6U-443

Wellbore #1

Survey: Survey #1

Standard Survey Report

05 May, 2014

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gutteresen 6U-443
Project:	SEC.6-T2N-R63W	TVD Reference:	WELL @ 4848.5ft (Ensign Rig #136 - RKB - 12.5')
Site:	Gutteresen 6R-403 Pad Sec.6-T2N-R63W	MD Reference:	WELL @ 4848.5ft (Ensign Rig #136 - RKB - 12.5')
Well:	Gutteresen 6U-443	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.6-T2N-R63W, 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		Guttersen 6R-403 Pad Sec.6-T2N-R63W			
Site Position:		Northing:	1,308,061.43ft	Latitude:	40.174460
From:	Lat/Long	Easting:	3,287,053.52ft	Longitude:	-104.472720
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.66 °

Well	Gutteresen 6U-443					
Well Position	+N-S	0.0 ft	Northing:	1,308,062.09 ft	Latitude:	40.174460
	+E-W	0.0 ft	Easting:	3,287,112.20 ft	Longitude:	-104.472510
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,836.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/21/2014	8.30	66.82	52,743

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	181.43	

Survey Program	Date 5/1/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
44.0	11,248.0	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	0.01	113.80	1.0	0.0	0.0	0.0	0.91	0.91	0.00	
SHL 75'FNL, 444'FEL										
44.0	0.40	113.80	44.0	-0.1	0.1	0.1	0.91	0.91	0.00	
133.0	0.50	85.80	133.0	-0.2	0.8	0.1	0.27	0.11	-31.46	
223.0	0.50	84.70	223.0	-0.1	1.6	0.1	0.01	0.00	-1.22	
318.0	0.60	42.10	318.0	0.3	2.3	-0.4	0.43	0.11	-44.84	
409.0	0.50	45.40	409.0	0.9	2.9	-1.0	0.12	-0.11	3.63	
499.0	0.40	51.00	499.0	1.4	3.5	-1.5	0.12	-0.11	6.22	
590.0	0.70	79.30	590.0	1.7	4.3	-1.8	0.44	0.33	31.10	

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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)
681.0	0.40	57.20	681.0	2.0	5.1	-2.1	0.40	-0.33	-24.29
802.0	0.50	53.00	802.0	2.5	5.8	-2.7	0.09	0.08	-3.47
881.0	1.00	41.70	881.0	3.3	6.6	-3.4	0.66	0.63	-14.30
963.0	0.50	345.60	963.0	4.1	7.0	-4.3	1.01	-0.61	-68.41
1,058.0	0.60	325.10	1,058.0	5.0	6.6	-5.1	0.23	0.11	-21.58
1,149.0	1.20	325.10	1,148.9	6.1	5.8	-6.3	0.66	0.66	0.00
1,240.0	1.90	336.70	1,239.9	8.3	4.6	-8.4	0.84	0.77	12.75
1,331.0	1.20	328.60	1,330.9	10.5	3.5	-10.6	0.80	-0.77	-8.90
1,422.0	1.70	180.00	1,421.9	10.0	3.0	-10.0	3.07	0.55	-163.30
1,512.0	2.90	85.30	1,511.8	8.8	5.3	-8.9	3.87	1.33	-105.22
1,603.0	3.00	46.60	1,602.7	10.6	9.3	-10.9	2.15	0.11	-42.53
1,694.0	3.10	350.60	1,693.6	14.7	10.7	-15.0	3.15	0.11	-61.54
1,785.0	2.40	316.10	1,784.5	18.5	8.9	-18.7	1.94	-0.77	-37.91
1,876.0	3.80	240.50	1,875.4	18.4	5.0	-18.5	4.35	1.54	-83.08
1,967.0	5.50	287.10	1,966.1	18.2	-1.8	-18.1	4.39	1.87	51.21
2,057.0	0.60	265.00	2,056.0	19.4	-6.4	-19.2	5.50	-5.44	-24.56
2,148.0	2.60	223.60	2,146.9	17.9	-8.3	-17.7	2.40	2.20	-45.49
2,242.0	3.20	152.10	2,240.8	14.0	-8.5	-13.8	3.64	0.64	-76.06
2,337.0	2.90	148.90	2,335.7	9.6	-6.1	-9.5	0.36	-0.32	-3.37
2,432.0	2.60	136.30	2,430.6	6.0	-3.3	-5.9	0.71	-0.32	-13.26
2,528.0	2.30	131.90	2,526.5	3.1	-0.4	-3.1	0.37	-0.31	-4.58
2,623.0	1.60	104.50	2,621.4	1.5	2.3	-1.6	1.21	-0.74	-28.84
2,718.0	0.70	66.50	2,716.4	1.4	4.1	-1.5	1.19	-0.95	-40.00
2,813.0	1.30	315.80	2,811.4	2.4	3.9	-2.5	1.77	0.63	-116.53
2,909.0	1.10	312.10	2,907.4	3.8	2.5	-3.9	0.22	-0.21	-3.85
3,004.0	1.10	318.40	3,002.4	5.1	1.2	-5.2	0.13	0.00	6.63
3,099.0	3.40	275.50	3,097.3	6.1	-2.2	-6.0	2.84	2.42	-45.16
3,194.0	2.70	284.10	3,192.2	6.9	-7.2	-6.7	0.88	-0.74	9.05
3,289.0	5.40	292.70	3,286.9	9.2	-13.5	-8.8	2.91	2.84	9.05
3,385.0	5.20	289.90	3,382.5	12.4	-21.8	-11.8	0.34	-0.21	-2.92
3,480.0	4.90	282.20	3,477.1	14.7	-29.8	-14.0	0.78	-0.32	-8.11
3,575.0	4.70	279.20	3,571.8	16.2	-37.6	-15.2	0.34	-0.21	-3.16
3,670.0	4.50	276.40	3,666.5	17.2	-45.1	-16.1	0.32	-0.21	-2.95
3,766.0	4.90	263.40	3,762.2	17.2	-52.9	-15.9	1.18	0.42	-13.54
3,861.0	4.10	287.10	3,856.9	17.7	-60.2	-16.2	2.11	-0.84	24.95
3,956.0	4.30	285.00	3,951.6	19.6	-66.9	-18.0	0.27	0.21	-2.21
4,051.0	2.70	284.30	4,046.5	21.1	-72.5	-19.3	1.68	-1.68	-0.74
4,147.0	1.90	264.40	4,142.4	21.5	-76.3	-19.6	1.17	-0.83	-20.73
4,242.0	0.60	306.10	4,237.4	21.6	-78.3	-19.7	1.59	-1.37	43.89
4,337.0	0.40	305.00	4,332.4	22.1	-78.9	-20.2	0.21	-0.21	-1.16
4,432.0	0.40	356.40	4,427.4	22.7	-79.2	-20.7	0.37	0.00	54.11
4,527.0	0.50	2.70	4,522.4	23.4	-79.2	-21.4	0.12	0.11	6.63
4,623.0	0.60	347.90	4,618.4	24.3	-79.3	-22.3	0.18	0.10	-15.42
4,718.0	0.70	316.10	4,713.3	25.2	-79.8	-23.2	0.39	0.11	-33.47
4,813.0	0.70	323.00	4,808.3	26.1	-80.6	-24.1	0.09	0.00	7.26
4,908.0	0.70	314.00	4,903.3	27.0	-81.3	-24.9	0.12	0.00	-9.47
5,004.0	0.60	293.40	4,999.3	27.6	-82.2	-25.5	0.26	-0.10	-21.46
5,099.0	0.70	300.60	5,094.3	28.1	-83.2	-26.0	0.14	0.11	7.58
5,194.0	0.70	285.30	5,189.3	28.5	-84.2	-26.4	0.20	0.00	-16.11
5,289.0	1.10	46.10	5,284.3	29.3	-84.1	-27.2	1.66	0.42	127.16
5,385.0	1.40	93.90	5,380.3	29.9	-82.3	-27.8	1.09	0.31	49.79

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5,480.0	1.00	80.40	5,475.3	29.9	-80.3	-27.9	0.51	-0.42	-14.21
5,575.0	1.00	41.90	5,570.3	30.7	-79.0	-28.7	0.69	0.00	-40.53
5,670.0	0.70	24.50	5,665.2	31.8	-78.2	-29.9	0.41	-0.32	-18.32
5,765.0	1.10	105.70	5,760.2	32.1	-77.0	-30.2	1.27	0.42	85.47
5,861.0	2.10	153.70	5,856.2	30.3	-75.4	-28.4	1.66	1.04	50.00
5,893.0	1.70	146.80	5,888.2	29.3	-74.9	-27.5	1.44	-1.25	-21.56
5,924.0	2.30	143.30	5,919.2	28.5	-74.2	-26.6	1.97	1.94	-11.29
5,956.0	3.60	153.70	5,951.1	27.0	-73.4	-25.2	4.38	4.06	32.50
5,988.0	4.90	161.90	5,983.0	24.8	-72.5	-23.0	4.47	4.06	25.63
6,019.0	6.20	166.50	6,013.9	22.0	-71.7	-20.2	4.43	4.19	14.84
6,051.0	7.60	175.50	6,045.7	18.2	-71.2	-16.4	5.52	4.38	28.13
6,083.0	9.20	174.20	6,077.3	13.5	-70.7	-11.7	5.03	5.00	-4.06
6,114.0	11.60	173.90	6,107.8	7.9	-70.2	-6.2	7.74	7.74	-0.97
6,146.0	12.90	172.30	6,139.1	1.2	-69.3	0.5	4.20	4.06	-5.00
6,178.0	14.70	175.00	6,170.1	-6.4	-68.5	8.1	5.97	5.63	8.44
6,210.0	16.20	177.90	6,201.0	-14.9	-68.0	16.6	5.27	4.69	9.06
6,241.0	17.60	182.00	6,230.6	-23.9	-68.0	25.6	5.93	4.52	13.23
6,273.0	19.00	184.10	6,261.0	-33.9	-68.5	35.6	4.84	4.38	6.56
6,305.0	20.30	186.40	6,291.2	-44.6	-69.5	46.4	4.73	4.06	7.19
6,336.0	21.30	186.60	6,320.1	-55.6	-70.8	57.3	3.23	3.23	0.65
6,368.0	22.40	181.50	6,349.8	-67.4	-71.6	69.2	6.85	3.44	-15.94
6,400.0	22.60	176.70	6,379.4	-79.7	-71.4	81.4	5.77	0.63	-15.00
6,432.0	23.80	177.40	6,408.8	-92.3	-70.8	94.0	3.85	3.75	2.19
6,464.0	21.90	176.90	6,438.3	-104.7	-70.1	106.4	5.97	-5.94	-1.56
6,495.0	22.70	181.10	6,467.0	-116.4	-69.9	118.1	5.75	2.58	13.55
6,527.0	23.30	185.70	6,496.5	-128.9	-70.7	130.6	5.92	1.88	14.38
6,559.0	24.90	188.30	6,525.7	-141.9	-72.3	143.6	6.00	5.00	8.13
6,591.0	27.40	188.10	6,554.4	-155.8	-74.3	157.6	7.82	7.81	-0.63
6,622.0	30.60	188.30	6,581.5	-170.7	-76.4	172.5	10.33	10.32	0.65
6,654.0	34.30	188.00	6,608.5	-187.7	-78.9	189.6	11.57	11.56	-0.94
6,686.0	37.50	187.40	6,634.4	-206.3	-81.4	208.2	10.06	10.00	-1.88
6,718.0	40.70	183.70	6,659.2	-226.4	-83.3	228.4	12.37	10.00	-11.56
6,749.0	44.20	180.60	6,682.1	-247.3	-84.1	249.3	13.15	11.29	-10.00
6,781.0	47.90	179.30	6,704.3	-270.3	-84.1	272.3	11.93	11.56	-4.06
6,813.0	51.40	182.00	6,725.0	-294.7	-84.3	296.7	12.69	10.94	8.44
6,845.0	55.30	181.60	6,744.1	-320.3	-85.1	322.4	12.23	12.19	-1.25
6,876.0	59.60	180.20	6,760.8	-346.5	-85.6	348.5	14.38	13.87	-4.52
6,908.0	63.80	180.00	6,776.0	-374.6	-85.6	376.6	13.14	13.13	-0.63
6,940.0	68.50	180.60	6,788.9	-403.9	-85.8	405.9	14.79	14.69	1.88
6,972.0	72.10	182.50	6,799.7	-434.0	-86.6	436.0	12.56	11.25	5.94
6,999.0	75.10	183.40	6,807.3	-459.9	-87.9	461.9	11.56	11.11	3.33
7,069.0	82.60	182.70	6,820.9	-528.4	-91.6	530.5	10.76	10.71	-1.00
7,099.0	86.00	183.00	6,823.8	-558.2	-93.0	560.3	11.38	11.33	1.00
7,130.0	89.70	183.20	6,825.0	-589.1	-94.7	591.3	11.95	11.94	0.65
7,160.0	92.40	182.00	6,824.4	-619.1	-96.1	621.3	9.85	9.00	-4.00
7,251.0	90.70	176.20	6,822.0	-710.0	-94.6	712.1	6.64	-1.87	-6.37
7,342.0	88.60	175.00	6,822.5	-800.7	-87.7	802.7	2.66	-2.31	-1.32
7,433.0	89.30	175.80	6,824.2	-891.4	-80.4	893.1	1.17	0.77	0.88
7,524.0	90.50	178.80	6,824.4	-982.3	-76.1	983.9	3.55	1.32	3.30
7,614.0	88.60	180.40	6,825.1	-1,072.3	-75.5	1,073.8	2.76	-2.11	1.78
7,705.0	88.30	182.00	6,827.5	-1,163.2	-77.4	1,164.8	1.79	-0.33	1.76
7,796.0	89.70	181.80	6,829.1	-1,254.2	-80.4	1,255.8	1.55	1.54	-0.22

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7,887.0	90.50	182.00	6,829.0	-1,345.1	-83.4	1,346.8	0.91	0.88	0.22	
7,981.0	90.60	181.50	6,828.1	-1,439.1	-86.3	1,440.8	0.54	0.11	-0.53	
8,076.0	90.70	180.40	6,827.0	-1,534.0	-87.8	1,535.8	1.16	0.11	-1.16	
8,171.0	89.50	180.40	6,826.8	-1,629.0	-88.5	1,630.7	1.26	-1.26	0.00	
8,266.0	89.90	182.30	6,827.3	-1,724.0	-90.7	1,725.7	2.04	0.42	2.00	
8,362.0	89.10	181.50	6,828.2	-1,819.9	-93.9	1,821.7	1.18	-0.83	-0.83	
8,457.0	91.50	180.90	6,827.7	-1,914.9	-95.9	1,916.7	2.60	2.53	-0.63	
8,552.0	91.20	179.20	6,825.4	-2,009.9	-96.0	2,011.7	1.82	-0.32	-1.79	
8,647.0	90.90	178.30	6,823.7	-2,104.8	-93.9	2,106.5	1.00	-0.32	-0.95	
8,743.0	89.10	178.60	6,823.7	-2,200.8	-91.3	2,202.4	1.90	-1.88	0.31	
8,838.0	89.00	178.80	6,825.3	-2,295.8	-89.2	2,297.3	0.24	-0.11	0.21	
8,933.0	90.90	178.80	6,825.3	-2,390.7	-87.2	2,392.2	2.00	2.00	0.00	
9,028.0	90.20	180.40	6,824.4	-2,485.7	-86.5	2,487.1	1.84	-0.74	1.68	
9,123.0	91.50	180.40	6,823.0	-2,580.7	-87.2	2,582.1	1.37	1.37	0.00	
9,219.0	91.10	181.60	6,820.8	-2,676.7	-88.9	2,678.1	1.32	-0.42	1.25	
9,314.0	90.80	180.90	6,819.3	-2,771.6	-90.9	2,773.0	0.80	-0.32	-0.74	
9,409.0	91.40	182.00	6,817.4	-2,866.6	-93.3	2,868.0	1.32	0.63	1.16	
9,504.0	91.50	181.60	6,815.0	-2,961.5	-96.3	2,963.0	0.43	0.11	-0.42	
9,600.0	90.10	181.30	6,813.7	-3,057.5	-98.7	3,059.0	1.49	-1.46	-0.31	
9,695.0	90.50	181.30	6,813.2	-3,152.4	-100.9	3,154.0	0.42	0.42	0.00	
9,790.0	90.50	181.60	6,812.4	-3,247.4	-103.3	3,249.0	0.32	0.00	0.32	
9,885.0	90.50	180.40	6,811.5	-3,342.4	-105.0	3,344.0	1.26	0.00	-1.26	
9,980.0	89.80	180.60	6,811.3	-3,437.4	-105.8	3,439.0	0.77	-0.74	0.21	
10,076.0	89.80	180.00	6,811.6	-3,533.4	-106.3	3,534.9	0.62	0.00	-0.63	
10,171.0	90.70	180.20	6,811.2	-3,628.4	-106.5	3,629.9	0.97	0.95	0.21	
10,266.0	89.40	180.80	6,811.1	-3,723.4	-107.3	3,724.9	1.51	-1.37	0.63	
10,361.0	90.80	180.90	6,811.0	-3,818.4	-108.7	3,819.9	1.48	1.47	0.11	
10,457.0	91.10	179.90	6,809.4	-3,914.3	-109.4	3,915.9	1.09	0.31	-1.04	
10,552.0	90.60	179.70	6,808.0	-4,009.3	-109.0	4,010.8	0.57	-0.53	-0.21	
10,647.0	90.10	179.90	6,807.4	-4,104.3	-108.7	4,105.8	0.57	-0.53	0.21	
10,743.0	88.30	179.70	6,808.7	-4,200.3	-108.4	4,201.7	1.89	-1.88	-0.21	
10,838.0	90.20	180.90	6,810.0	-4,295.3	-108.9	4,296.7	2.37	2.00	1.26	
10,933.0	90.60	180.20	6,809.3	-4,390.3	-109.8	4,391.7	0.85	0.42	-0.74	
11,028.0	91.30	180.60	6,807.7	-4,485.3	-110.4	4,486.6	0.85	0.74	0.42	
11,123.0	90.00	180.40	6,806.6	-4,580.3	-111.3	4,581.6	1.38	-1.37	-0.21	
11,195.0	90.00	179.70	6,806.6	-4,652.3	-111.3	4,653.6	0.97	0.00	-0.97	
11,248.0	90.00	180.40	6,806.6	-4,705.3	-111.4	4,706.6	1.32	0.00	1.32	
BHL 500' FSL, 520' FEL										

Checked By: _____	Approved By: _____	Date: _____
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