

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Brown 2F-432**

Surface Location: Brown Pad Sec.2-T6N-R63W

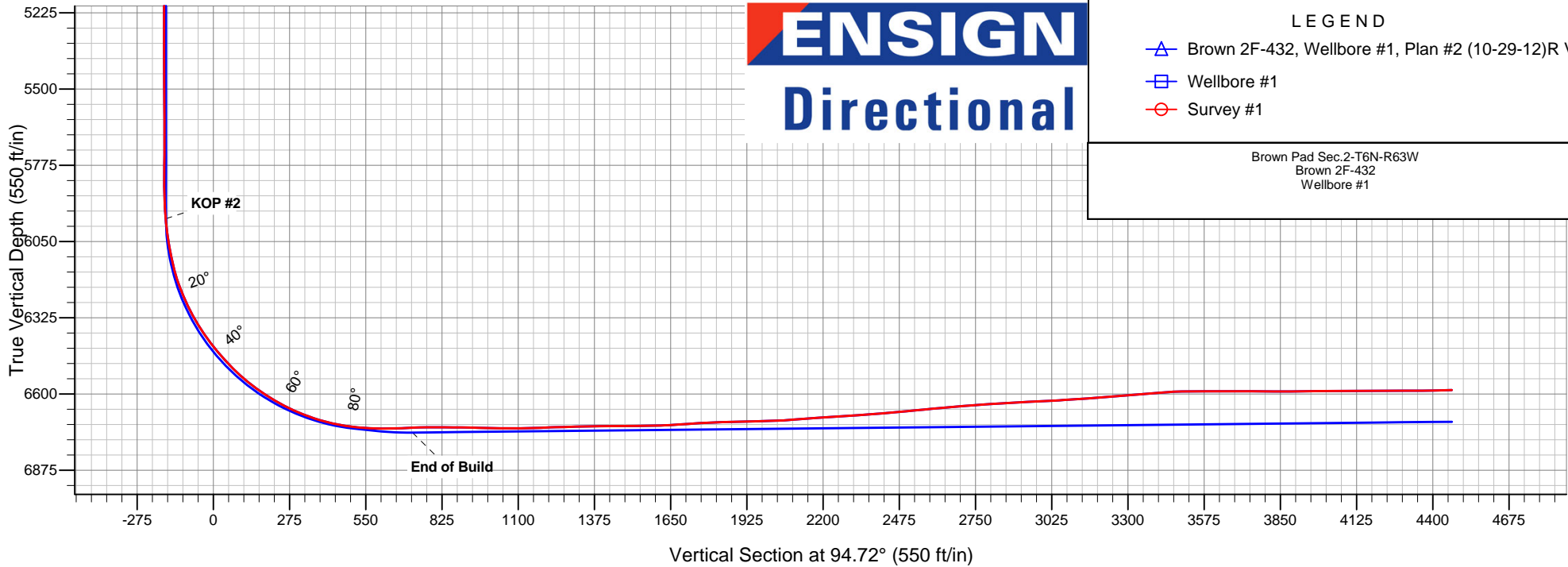
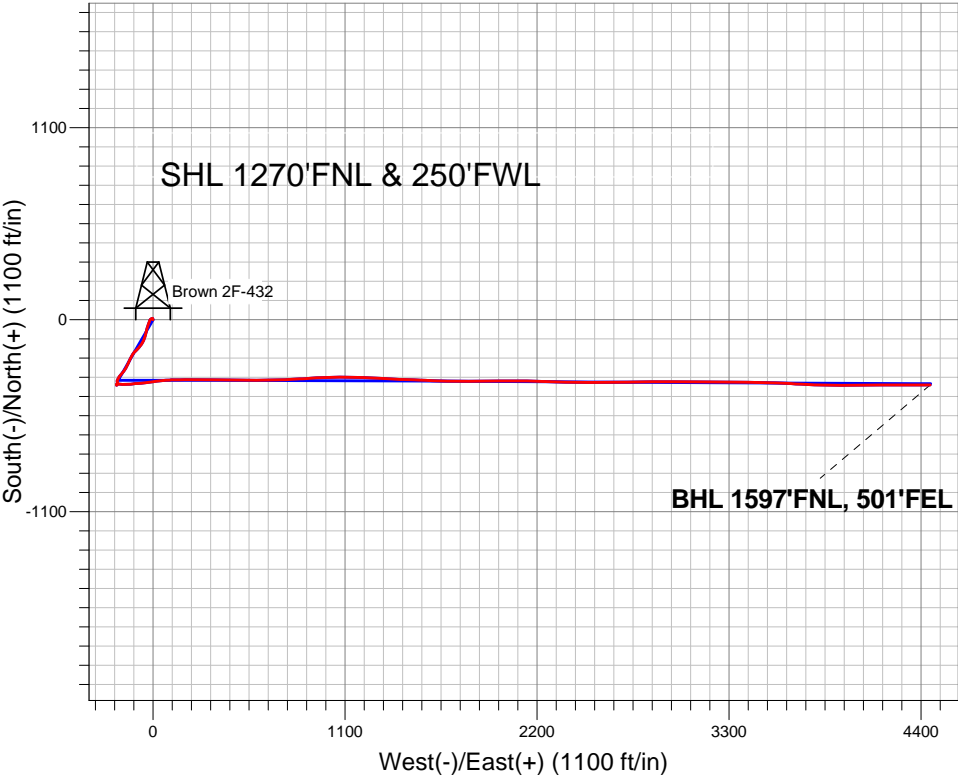
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4710.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1433931.32	3302430.50	40.519450	-104.412170	
RKB Ensign 32 - 15' WELL @ 4725.0ft (RKB Ensign 32 - 15')						

FINAL SURVEY

Projected Bottom Hole Location
11,077' MD 6585' TVD 374'S & 4453'E of
SHL 91.4 degree Incl @ 89.7 degree AZM





Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.2-T6N-R63W

Brown Pad Sec.2-T6N-R63W

Brown 2F-432

Wellbore #1

Survey: Survey #1

Standard Survey Report

16 November, 2012

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Brown 2F-432
Project:	SEC.2-T6N-R63W	TVD Reference:	WELL @ 4725.0ft (RKB Ensign 32 - 15')
Site:	Brown Pad Sec.2-T6N-R63W	MD Reference:	WELL @ 4725.0ft (RKB Ensign 32 - 15')
Well:	Brown 2F-432	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.2-T6N-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		Brown Pad Sec.2-T6N-R63W			
Site Position:		Northing:	1,433,964.08 ft	Latitude:	40.519540
From:	Lat/Long	Easting:	3,302,427.32 ft	Longitude:	-104.412180
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.70 °

Well	Brown 2F-432					
Well Position	+N-S	0.0 ft	Northing:	1,433,931.32 ft	Latitude:	40.519450
	+E-W	0.0 ft	Easting:	3,302,430.50 ft	Longitude:	-104.412170
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,710.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/29/2012	8.50	67.16	53,087

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	94.72	

Survey Program	Date 11/16/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
126.0	11,077.0	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
SECTIONLINE 250'W OF SHL (4) - HARDLINE BHL 460'FEL (4) - HARDLINE SHL 460'FWL (4)									
126.0	1.10	346.70	126.0	1.2	-0.3	-0.4	0.87	0.87	0.00
214.0	1.10	314.30	214.0	2.6	-1.1	-1.3	0.70	0.00	-36.82
305.0	1.10	353.60	305.0	4.1	-1.8	-2.1	0.81	0.00	43.19
398.0	0.70	337.70	397.9	5.5	-2.1	-2.6	0.50	-0.43	-17.10
490.0	1.30	285.00	489.9	6.3	-3.3	-3.8	1.13	0.65	-57.28
583.0	2.10	265.70	582.9	6.4	-6.1	-6.6	1.05	0.86	-20.75
676.0	3.50	241.90	675.8	5.0	-10.3	-10.6	1.93	1.51	-25.59
769.0	4.50	215.40	768.6	0.6	-14.9	-14.9	2.23	1.08	-28.49
894.0	5.60	203.20	893.1	-9.0	-20.1	-19.3	1.23	0.88	-9.76
964.0	6.40	200.80	962.7	-15.8	-22.9	-21.5	1.20	1.14	-3.43

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Site:	Brown Pad Sec.2-T6N-R63W	MD Reference:	WELL @ 4725.0ft (RKB Ensign 32 - 15')
Well:	Brown 2F-432	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)
1,090.0	7.40	198.70	1,087.8	-30.0	-27.9	-25.4	0.82	0.79	-1.67
1,217.0	8.00	198.20	1,213.6	-46.1	-33.3	-29.4	0.48	0.47	-0.39
1,341.0	8.90	193.80	1,336.3	-63.7	-38.3	-32.9	0.89	0.73	-3.55
1,462.0	9.60	192.40	1,455.7	-82.6	-42.7	-35.8	0.61	0.58	-1.16
1,584.0	9.30	198.00	1,576.1	-101.9	-47.9	-39.4	0.79	-0.25	4.59
1,706.0	6.70	201.90	1,696.9	-117.9	-53.6	-43.8	2.18	-2.13	3.20
1,829.0	5.20	211.70	1,819.2	-129.3	-59.2	-48.4	1.47	-1.22	7.97
1,956.0	5.70	215.20	1,945.6	-139.3	-65.9	-54.2	0.47	0.39	2.76
2,083.0	5.90	217.90	2,072.0	-149.6	-73.6	-61.0	0.27	0.16	2.13
2,211.0	6.70	219.60	2,199.2	-160.6	-82.4	-68.9	0.64	0.63	1.33
2,338.0	6.50	223.70	2,325.4	-171.5	-92.0	-77.6	0.40	-0.16	3.23
2,465.0	7.50	227.70	2,451.4	-182.3	-103.1	-87.8	0.88	0.79	3.15
2,592.0	8.30	213.60	2,577.2	-195.5	-114.3	-97.9	1.65	0.63	-11.10
2,719.0	8.60	207.30	2,702.8	-211.6	-123.8	-106.0	0.77	0.24	-4.96
2,845.0	8.70	204.90	2,827.4	-228.6	-132.1	-112.9	0.30	0.08	-1.90
2,972.0	10.20	206.60	2,952.7	-247.3	-141.2	-120.4	1.20	1.18	1.34
3,099.0	8.90	204.00	3,077.9	-266.4	-150.2	-127.8	1.08	-1.02	-2.05
3,227.0	7.80	211.20	3,204.6	-282.9	-158.7	-134.9	1.18	-0.86	5.63
3,353.0	6.10	218.00	3,329.6	-295.4	-167.3	-142.4	1.50	-1.35	5.40
3,480.0	5.60	223.20	3,456.0	-305.3	-175.7	-150.0	0.57	-0.39	4.09
3,607.0	6.90	219.40	3,582.2	-315.7	-184.8	-158.2	1.07	1.02	-2.99
3,734.0	6.90	213.30	3,708.3	-328.0	-193.8	-166.2	0.58	0.00	-4.80
3,861.0	5.40	206.80	3,834.6	-339.7	-200.7	-172.1	1.30	-1.18	-5.12
3,988.0	3.60	197.60	3,961.2	-348.8	-204.6	-175.2	1.52	-1.42	-7.24
4,115.0	2.20	177.40	4,088.0	-355.0	-205.7	-175.8	1.35	-1.10	-15.91
4,242.0	1.10	137.70	4,215.0	-358.4	-204.8	-174.6	1.20	-0.87	-31.26
4,369.0	1.20	167.10	4,341.9	-360.6	-203.6	-173.3	0.47	0.08	23.15
4,496.0	1.10	192.50	4,468.9	-363.1	-203.6	-173.1	0.41	-0.08	20.00
4,623.0	1.20	207.30	4,595.9	-365.4	-204.5	-173.7	0.25	0.08	11.65
4,750.0	1.40	213.50	4,722.9	-367.9	-205.9	-175.0	0.19	0.16	4.88
4,877.0	1.10	210.50	4,849.8	-370.3	-207.4	-176.3	0.24	-0.24	-2.36
5,005.0	1.10	196.10	4,977.8	-372.5	-208.4	-177.0	0.22	0.00	-11.25
5,130.0	0.50	190.10	5,102.8	-374.2	-208.8	-177.3	0.48	-0.48	-4.80
5,257.0	0.50	201.40	5,229.8	-375.2	-209.1	-177.5	0.08	0.00	8.90
5,384.0	0.20	139.30	5,356.8	-375.9	-209.2	-177.5	0.35	-0.24	-48.90
5,511.0	0.30	75.70	5,483.8	-376.0	-208.7	-177.1	0.22	0.08	-50.08
5,638.0	0.40	38.10	5,610.8	-375.6	-208.1	-176.5	0.19	0.08	-29.61
5,765.0	1.10	3.30	5,737.8	-374.0	-207.8	-176.3	0.63	0.55	-27.40
5,892.0	1.40	2.00	5,864.7	-371.3	-207.6	-176.4	0.24	0.24	-1.02
5,924.0	2.00	39.10	5,896.7	-370.4	-207.3	-176.1	3.82	1.88	115.94
5,955.0	3.60	68.40	5,927.7	-369.6	-206.0	-174.9	6.77	5.16	94.52
5,987.0	5.40	79.20	5,959.6	-369.0	-203.6	-172.6	6.19	5.63	33.75
6,019.0	6.40	86.90	5,991.4	-368.6	-200.4	-169.4	3.98	3.13	24.06
6,051.0	7.70	96.20	6,023.2	-368.8	-196.4	-165.4	5.39	4.06	29.06
6,082.0	9.40	100.10	6,053.8	-369.4	-191.9	-160.9	5.79	5.48	12.58
6,114.0	10.60	99.80	6,085.3	-370.4	-186.4	-155.3	3.75	3.75	-0.94
6,146.0	12.30	94.80	6,116.7	-371.2	-180.1	-149.0	6.15	5.31	-15.63
6,178.0	14.00	94.50	6,147.9	-371.8	-172.9	-141.7	5.32	5.31	-0.94
6,209.0	17.30	89.00	6,177.7	-372.0	-164.5	-133.4	11.66	10.65	-17.74
6,241.0	20.40	85.50	6,208.0	-371.4	-154.2	-123.1	10.31	9.69	-10.94
6,273.0	23.00	84.60	6,237.7	-370.4	-142.4	-111.5	8.19	8.13	-2.81
6,305.0	24.90	85.00	6,267.0	-369.2	-129.5	-98.7	5.96	5.94	1.25
6,336.0	27.00	85.00	6,294.8	-368.1	-116.0	-85.3	6.77	6.77	0.00
6,368.0	29.50	85.90	6,323.0	-366.9	-100.9	-70.3	7.92	7.81	2.81

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Well:	Brown 2F-432	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)
6,399.0	31.60	87.60	6,349.7	-366.0	-85.1	-54.7	7.32	6.77	5.48
6,431.0	34.10	84.30	6,376.6	-364.7	-67.8	-37.6	9.61	7.81	-10.31
6,462.0	36.80	82.90	6,401.9	-362.7	-50.0	-20.0	9.09	8.71	-4.52
6,494.0	39.50	81.30	6,427.0	-360.0	-30.4	-0.7	8.98	8.44	-5.00
6,526.0	41.30	81.50	6,451.4	-356.9	-9.9	19.5	5.64	5.63	0.63
6,557.0	42.30	83.40	6,474.5	-354.2	10.6	39.7	5.20	3.23	6.13
6,589.0	44.30	83.60	6,497.8	-351.7	32.4	61.2	6.26	6.25	0.63
6,621.0	47.00	83.90	6,520.2	-349.2	55.2	83.7	8.46	8.44	0.94
6,653.0	49.00	85.90	6,541.6	-347.1	78.8	107.1	7.79	6.25	6.25
6,684.0	52.10	88.10	6,561.3	-345.9	102.7	130.8	11.40	10.00	7.10
6,716.0	55.00	89.00	6,580.3	-345.2	128.5	156.4	9.34	9.06	2.81
6,748.0	56.50	89.60	6,598.3	-344.9	154.9	182.8	4.94	4.69	1.88
6,780.0	58.30	90.30	6,615.5	-344.9	181.9	209.6	5.92	5.63	2.19
6,811.0	60.40	90.40	6,631.3	-345.0	208.5	236.2	6.78	6.77	0.32
6,843.0	63.00	90.10	6,646.5	-345.2	236.7	264.3	8.17	8.13	-0.94
6,875.0	65.80	89.90	6,660.3	-345.2	265.6	293.1	8.77	8.75	-0.63
6,907.0	68.70	89.70	6,672.7	-345.1	295.1	322.5	9.08	9.06	-0.63
6,938.0	71.30	89.60	6,683.3	-344.9	324.2	351.5	8.39	8.39	-0.32
6,970.0	73.40	90.30	6,693.0	-344.9	354.7	381.9	6.89	6.56	2.19
7,002.0	75.60	90.60	6,701.6	-345.1	385.5	412.6	6.93	6.88	0.94
7,034.0	78.00	91.00	6,708.9	-345.5	416.7	443.7	7.60	7.50	1.25
7,065.0	81.30	91.30	6,714.4	-346.1	447.2	474.1	10.69	10.65	0.97
7,153.0	87.40	90.60	6,723.1	-347.6	534.7	561.5	6.98	6.93	-0.80
7,183.0	88.60	89.70	6,724.1	-347.7	564.7	591.3	5.00	4.00	-3.00
7,214.0	90.60	89.70	6,724.4	-347.5	595.7	622.2	6.45	6.45	0.00
7,244.0	91.70	89.90	6,723.7	-347.4	625.7	652.1	3.73	3.67	0.67
7,275.0	92.40	89.20	6,722.6	-347.2	656.6	683.0	3.19	2.26	-2.26
7,305.0	92.30	88.10	6,721.4	-346.5	686.6	712.8	3.68	-0.33	-3.67
7,335.0	91.10	86.90	6,720.5	-345.2	716.6	742.5	5.66	-4.00	-4.00
7,366.0	90.50	87.30	6,720.1	-343.6	747.5	773.2	2.33	-1.94	1.29
7,396.0	90.00	88.00	6,720.0	-342.4	777.5	803.0	2.87	-1.67	2.33
7,427.0	89.50	88.50	6,720.1	-341.4	808.5	833.8	2.28	-1.61	1.61
7,458.0	89.30	87.80	6,720.4	-340.4	839.5	864.6	2.35	-0.65	-2.26
7,488.0	89.70	86.00	6,720.7	-338.8	869.4	894.3	6.15	1.33	-6.00
7,519.0	89.00	86.00	6,721.0	-336.6	900.3	925.0	2.26	-2.26	0.00
7,549.0	88.50	85.50	6,721.7	-334.4	930.2	954.6	2.36	-1.67	-1.67
7,580.0	88.30	88.00	6,722.6	-332.6	961.2	985.3	8.09	-0.65	8.06
7,610.0	88.90	87.40	6,723.3	-331.4	991.1	1,015.0	2.83	2.00	-2.00
7,641.0	89.30	89.00	6,723.8	-330.5	1,022.1	1,045.8	5.32	1.29	5.16
7,671.0	90.10	88.80	6,723.9	-329.9	1,052.1	1,075.7	2.75	2.67	-0.67
7,703.0	91.20	89.70	6,723.6	-329.5	1,084.1	1,107.5	4.44	3.44	2.81
7,735.0	91.00	90.60	6,722.9	-329.6	1,116.1	1,139.4	2.88	-0.63	2.81
7,767.0	91.80	91.80	6,722.2	-330.2	1,148.1	1,171.4	4.51	2.50	3.75
7,798.0	93.10	92.20	6,720.8	-331.3	1,179.0	1,202.3	4.39	4.19	1.29
7,830.0	91.40	91.80	6,719.6	-332.4	1,211.0	1,234.2	5.46	-5.31	-1.25
7,862.0	91.60	92.40	6,718.7	-333.6	1,243.0	1,266.2	1.98	0.63	1.88
7,894.0	92.40	93.60	6,717.6	-335.3	1,274.9	1,298.1	4.51	2.50	3.75
7,926.0	91.60	92.90	6,716.5	-337.1	1,306.8	1,330.1	3.32	-2.50	-2.19
7,957.0	90.40	93.40	6,716.0	-338.8	1,337.8	1,361.1	4.19	-3.87	1.61
7,989.0	90.10	92.70	6,715.8	-340.5	1,369.7	1,393.1	2.38	-0.94	-2.19
8,021.0	90.00	92.90	6,715.8	-342.0	1,401.7	1,425.1	0.70	-0.31	0.63
8,053.0	90.60	91.80	6,715.6	-343.4	1,433.7	1,457.0	3.92	1.88	-3.44
8,084.0	90.90	91.80	6,715.2	-344.3	1,464.6	1,488.0	0.97	0.97	0.00

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Site:	Brown Pad Sec.2-T6N-R63W	MD Reference:	WELL @ 4725.0ft (RKB Ensign 32 - 15')
Well:	Brown 2F-432	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)
8,116.0	90.40	92.20	6,714.9	-345.4	1,496.6	1,520.0	2.00	-1.56	1.25
8,148.0	90.80	92.40	6,714.5	-346.7	1,528.6	1,551.9	1.40	1.25	0.63
8,180.0	91.00	91.80	6,714.0	-347.9	1,560.6	1,583.9	1.98	0.63	-1.88
8,211.0	91.60	92.20	6,713.3	-349.0	1,591.5	1,614.8	2.33	1.94	1.29
8,243.0	93.30	92.70	6,712.0	-350.4	1,623.5	1,646.8	5.54	5.31	1.56
8,275.0	94.10	91.90	6,709.9	-351.6	1,655.4	1,678.7	3.53	2.50	-2.50
8,307.0	93.30	91.70	6,707.8	-352.6	1,687.3	1,710.6	2.58	-2.50	-0.63
8,338.0	93.30	90.40	6,706.0	-353.2	1,718.2	1,741.5	4.19	0.00	-4.19
8,370.0	93.30	90.30	6,704.2	-353.4	1,750.2	1,773.3	0.31	0.00	-0.31
8,402.0	92.60	90.30	6,702.6	-353.6	1,782.2	1,805.2	2.19	-2.19	0.00
8,433.0	91.50	89.60	6,701.4	-353.5	1,813.1	1,836.1	4.21	-3.55	-2.26
8,465.0	91.50	89.20	6,700.6	-353.2	1,845.1	1,867.9	1.25	0.00	-1.25
8,497.0	91.50	89.70	6,699.8	-352.9	1,877.1	1,899.8	1.56	0.00	1.56
8,528.0	91.60	89.00	6,698.9	-352.5	1,908.1	1,930.6	2.28	0.32	-2.26
8,560.0	91.50	88.70	6,698.1	-351.9	1,940.1	1,962.4	0.99	-0.31	-0.94
8,592.0	91.10	89.40	6,697.3	-351.4	1,972.1	1,994.3	2.52	-1.25	2.19
8,624.0	91.90	90.30	6,696.5	-351.3	2,004.0	2,026.2	3.76	2.50	2.81
8,655.0	93.60	89.90	6,695.0	-351.3	2,035.0	2,057.0	5.63	5.48	-1.29
8,688.0	94.50	90.40	6,692.7	-351.4	2,067.9	2,089.8	3.12	2.73	1.52
8,719.0	94.60	91.00	6,690.2	-351.8	2,098.8	2,120.7	1.96	0.32	1.94
8,751.0	94.40	91.10	6,687.7	-352.4	2,130.7	2,152.5	0.70	-0.63	0.31
8,783.0	93.50	91.50	6,685.5	-353.1	2,162.6	2,184.4	3.08	-2.81	1.25
8,814.0	93.20	91.80	6,683.7	-354.0	2,193.6	2,215.3	1.37	-0.97	0.97
8,846.0	93.60	91.00	6,681.8	-354.8	2,225.5	2,247.1	2.79	1.25	-2.50
8,878.0	94.00	91.00	6,679.7	-355.3	2,257.4	2,279.0	1.25	1.25	0.00
8,909.0	94.00	92.00	6,677.5	-356.2	2,288.3	2,309.9	3.22	0.00	3.23
8,941.0	94.30	91.70	6,675.2	-357.2	2,320.2	2,341.8	1.32	0.94	-0.94
8,973.0	94.70	91.00	6,672.7	-357.9	2,352.1	2,373.6	2.51	1.25	-2.19
9,005.0	94.80	90.60	6,670.0	-358.4	2,384.0	2,405.4	1.28	0.31	-1.25
9,036.0	94.70	90.60	6,667.5	-358.7	2,414.9	2,436.2	0.32	-0.32	0.00
9,068.0	94.90	91.00	6,664.8	-359.2	2,446.8	2,468.0	1.39	0.63	1.25
9,100.0	95.30	90.60	6,662.0	-359.6	2,478.7	2,499.8	1.76	1.25	-1.25
9,132.0	95.20	90.80	6,659.0	-360.0	2,510.5	2,531.6	0.70	-0.31	0.63
9,163.0	95.60	90.40	6,656.1	-360.3	2,541.4	2,562.4	1.82	1.29	-1.29
9,195.0	95.50	89.90	6,653.0	-360.4	2,573.2	2,594.2	1.59	-0.31	-1.56
9,227.0	95.00	89.40	6,650.1	-360.2	2,605.1	2,625.9	2.21	-1.56	-1.56
9,258.0	94.70	88.30	6,647.5	-359.6	2,636.0	2,656.6	3.67	-0.97	-3.55
9,290.0	94.40	89.60	6,644.9	-359.0	2,667.9	2,688.4	4.16	-0.94	4.06
9,321.0	94.60	88.30	6,642.5	-358.4	2,698.8	2,719.1	4.23	0.65	-4.19
9,353.0	94.40	89.40	6,640.0	-357.8	2,730.7	2,750.9	3.48	-0.63	3.44
9,385.0	94.00	88.80	6,637.6	-357.3	2,762.6	2,782.6	2.25	-1.25	-1.88
9,417.0	94.10	89.00	6,635.4	-356.7	2,794.5	2,814.4	0.70	0.31	0.63
9,448.0	93.60	89.50	6,633.3	-356.3	2,825.4	2,845.2	2.28	-1.61	1.61
9,481.0	92.80	90.40	6,631.5	-356.2	2,858.4	2,878.0	3.65	-2.42	2.73
9,513.0	92.60	90.40	6,629.9	-356.5	2,890.3	2,909.9	0.63	-0.63	0.00
9,544.0	92.90	89.90	6,628.5	-356.5	2,921.3	2,940.7	1.88	0.97	-1.61
9,576.0	93.00	89.70	6,626.8	-356.4	2,953.3	2,972.6	0.70	0.31	-0.63
9,608.0	93.10	89.70	6,625.1	-356.3	2,985.2	3,004.4	0.31	0.31	0.00
9,640.0	92.80	90.10	6,623.5	-356.2	3,017.2	3,036.2	1.56	-0.94	1.25
9,672.0	93.80	90.30	6,621.6	-356.3	3,049.1	3,068.1	3.19	3.13	0.63
9,704.0	94.00	90.30	6,619.4	-356.5	3,081.0	3,099.9	0.63	0.63	0.00
9,735.0	93.70	89.90	6,617.4	-356.5	3,112.0	3,130.8	1.61	-0.97	-1.29
9,767.0	94.00	90.30	6,615.2	-356.6	3,143.9	3,162.6	1.56	0.94	1.25

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Brown 2F-432
Project:	SEC.2-T6N-R63W	TVD Reference:	WELL @ 4725.0ft (RKB Ensign 32 - 15')
Site:	Brown Pad Sec.2-T6N-R63W	MD Reference:	WELL @ 4725.0ft (RKB Ensign 32 - 15')
Well:	Brown 2F-432	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)
9,799.0	94.10	90.80	6,613.0	-356.9	3,175.8	3,194.4	1.59	0.31	1.56
9,831.0	94.40	91.10	6,610.6	-357.4	3,207.7	3,226.3	1.32	0.94	0.94
9,863.0	95.10	90.40	6,607.9	-357.9	3,239.6	3,258.1	3.09	2.19	-2.19
9,894.0	94.10	91.00	6,605.4	-358.2	3,270.5	3,288.9	3.76	-3.23	1.94
9,926.0	94.60	90.60	6,603.0	-358.7	3,302.4	3,320.7	2.00	1.56	-1.25
9,958.0	95.10	90.60	6,600.3	-359.0	3,334.3	3,352.5	1.56	1.56	0.00
9,990.0	94.70	90.10	6,597.6	-359.2	3,366.2	3,384.3	2.00	-1.25	-1.56
10,021.0	94.40	90.10	6,595.1	-359.3	3,397.1	3,415.1	0.97	-0.97	0.00
10,053.0	93.60	89.70	6,592.9	-359.2	3,429.0	3,446.9	2.79	-2.50	-1.25
10,085.0	92.00	90.30	6,591.3	-359.2	3,461.0	3,478.8	5.34	-5.00	1.88
10,117.0	90.60	91.30	6,590.6	-359.6	3,493.0	3,510.7	5.38	-4.38	3.13
10,149.0	90.00	91.50	6,590.4	-360.4	3,524.9	3,542.6	1.98	-1.88	0.63
10,180.0	90.30	92.40	6,590.4	-361.5	3,555.9	3,573.6	3.06	0.97	2.90
10,212.0	91.10	93.10	6,590.0	-363.0	3,587.9	3,605.6	3.32	2.50	2.19
10,244.0	90.60	92.90	6,589.5	-364.7	3,619.8	3,637.6	1.68	-1.56	-0.63
10,276.0	89.50	93.30	6,589.5	-366.4	3,651.8	3,669.6	3.66	-3.44	1.25
10,307.0	89.70	93.60	6,589.7	-368.3	3,682.7	3,700.5	1.16	0.65	0.97
10,338.0	89.40	92.90	6,589.9	-370.0	3,713.7	3,731.5	2.46	-0.97	-2.26
10,370.0	89.30	92.40	6,590.3	-371.5	3,745.6	3,763.5	1.59	-0.31	-1.56
10,402.0	89.60	91.50	6,590.6	-372.6	3,777.6	3,795.5	2.96	0.94	-2.81
10,433.0	89.60	91.70	6,590.8	-373.5	3,808.6	3,826.4	0.65	0.00	0.65
10,465.0	90.00	91.50	6,590.9	-374.4	3,840.6	3,858.4	1.40	1.25	-0.63
10,497.0	90.90	92.20	6,590.7	-375.4	3,872.6	3,890.3	3.56	2.81	2.19
10,529.0	91.00	92.00	6,590.1	-376.6	3,904.6	3,922.3	0.70	0.31	-0.63
10,560.0	90.80	90.30	6,589.7	-377.2	3,935.5	3,953.2	5.52	-0.65	-5.48
10,592.0	90.30	88.90	6,589.3	-377.0	3,967.5	3,985.1	4.65	-1.56	-4.38
10,624.0	90.00	89.00	6,589.3	-376.4	3,999.5	4,016.9	0.99	-0.94	0.31
10,656.0	90.00	88.70	6,589.3	-375.7	4,031.5	4,048.8	0.94	0.00	-0.94
10,687.0	90.30	89.00	6,589.2	-375.1	4,062.5	4,079.6	1.37	0.97	0.97
10,719.0	90.70	89.20	6,588.9	-374.6	4,094.5	4,111.5	1.40	1.25	0.63
10,751.0	90.60	88.70	6,588.5	-374.0	4,126.5	4,143.3	1.59	-0.31	-1.56
10,782.0	89.90	89.90	6,588.4	-373.7	4,157.5	4,174.2	4.48	-2.26	3.87
10,814.0	90.00	90.30	6,588.4	-373.7	4,189.5	4,206.1	1.29	0.31	1.25
10,846.0	90.50	89.40	6,588.3	-373.6	4,221.5	4,237.9	3.22	1.56	-2.81
10,878.0	90.70	90.20	6,588.0	-373.5	4,253.5	4,269.8	2.58	0.63	2.50
10,910.0	90.10	89.90	6,587.7	-373.5	4,285.5	4,301.7	2.10	-1.88	-0.94
10,941.0	89.70	90.40	6,587.8	-373.6	4,316.5	4,332.6	2.07	-1.29	1.61
10,972.0	90.50	90.60	6,587.7	-373.9	4,347.5	4,363.5	2.66	2.58	0.65
11,005.0	91.10	90.60	6,587.3	-374.2	4,380.5	4,396.4	1.82	1.82	0.00
11,027.0	91.40	89.70	6,586.8	-374.3	4,402.5	4,418.4	4.31	1.36	-4.09
11,075.9	91.40	89.70	6,585.6	-374.0	4,451.3	4,467.0	0.00	0.00	0.00
BHL 1590'FNL & 500'FEL									
11,077.0	91.40	89.70	6,585.6	-374.0	4,452.5	4,468.2	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____