

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Stonebraker 28V-234**

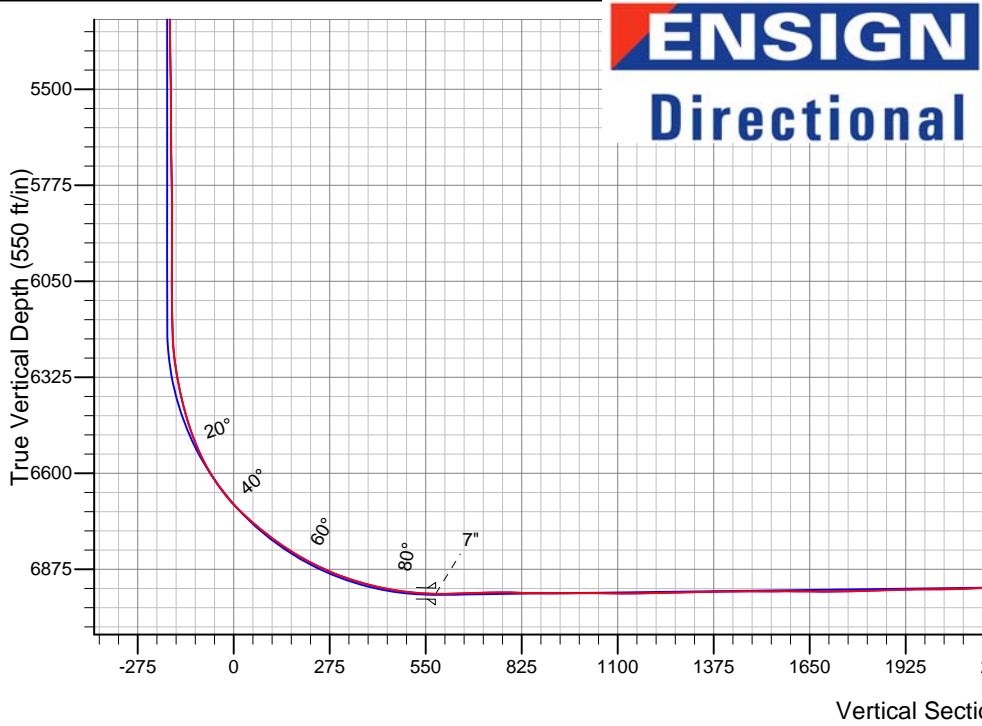
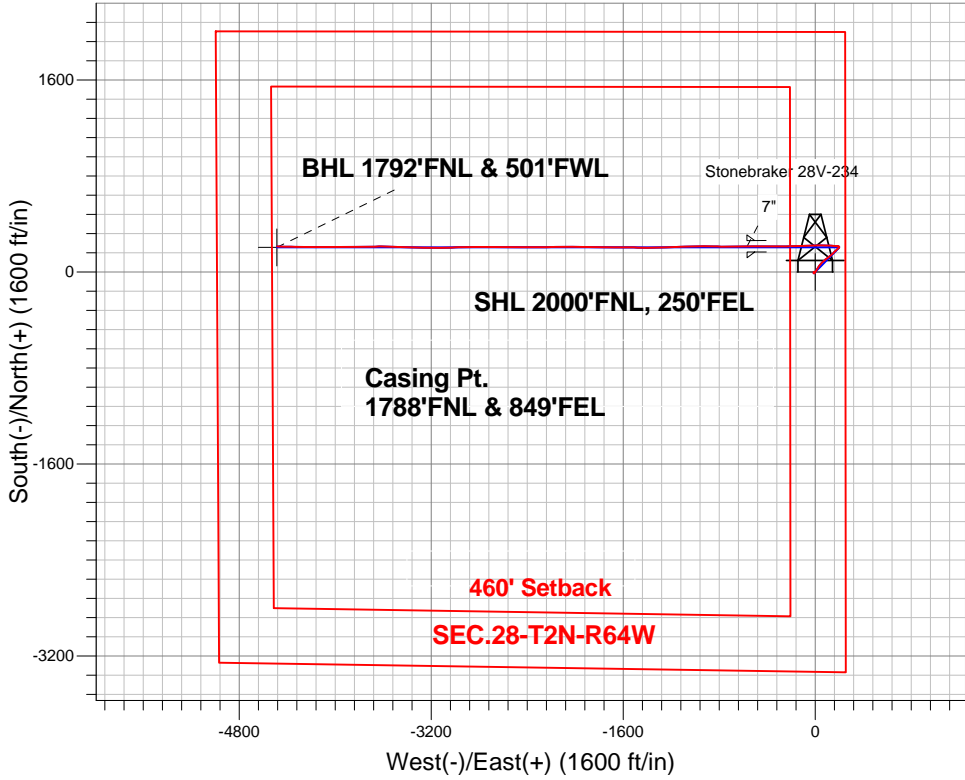
Surface Location: Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4958.0

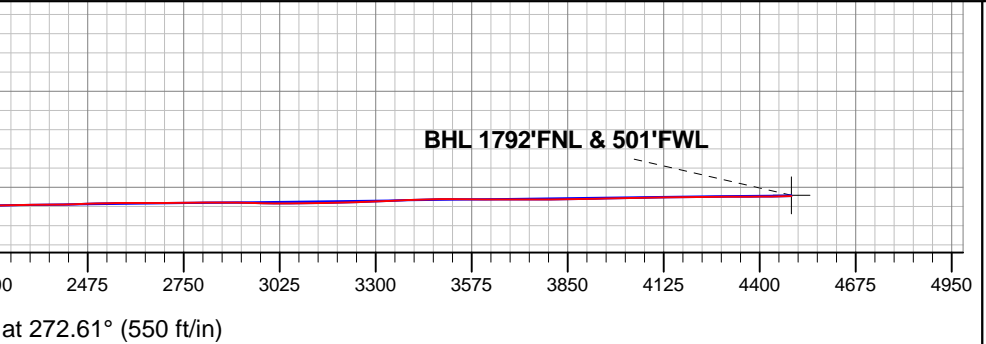
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1284791.87	3266355.64	40.111220	-104.547680	
Ensign Rig #136 - RKB - 12.5' WELL @ 4971ft (Ensign Rig #136 - RKB - 13')						

FINAL SURVEY

Projected Bottom Hole Location  
11319'MD 6900'TVD 212'N & 4486'W of SHL  
91.4 degree Incl @ 270.8 degree AZM



Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W Stonebraker 28V-234 Wellbore #1 13:23, February 04 2014	ANNOTATIONS
	No annotation data is available.
LEGEND	
✕ Stonebraker 28V-234, Wellbore #1, Plan #2 (12-03-13) V0	
□ Wellbore #1	
○ Survey #1	





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.28-T2N-R64W**

**Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W**

**Stonebraker 28V-234**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**04 February, 2014**

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Stonebraker 28V-234
<b>Project:</b>	SEC.28-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4970.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site:</b>	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	<b>MD Reference:</b>	WELL @ 4970.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Well:</b>	Stonebraker 28V-234	<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

<b>Project</b>	SEC.28-T2N-R64W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W				
Site Position:		Northing:	1,284,762.75 ft	Latitude:	40.111140
From:	Lat/Long	Easting:	3,266,355.95 ft	Longitude:	-104.547680
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.62 °

Well	Stonebraker 28V-234					
Well Position	+N-S	0.0 ft	Northing:	1,284,791.87 ft	Latitude:	40.111220
	+E-W	0.0 ft	Easting:	3,266,355.64 ft	Longitude:	-104.547680
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,958.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	1/2/2014	8.38	66.76	52,733

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	272.61	

<b>Survey Program</b>	<b>Date</b> 2/4/2014				
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
42.0	11,319.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
1.0	0.00	147.20	1.0	0.0	0.0	0.0	0.24	0.24	0.00	
<b>SHL 2000'FNL, 250'FEL</b>										
42.0	0.10	147.20	42.0	0.0	0.0	0.0	0.24	0.24	0.00	
131.0	0.40	164.30	131.0	-0.4	0.1	-0.2	0.34	0.34	19.21	
221.0	0.90	187.00	221.0	-1.4	0.1	-0.2	0.61	0.56	25.22	
316.0	0.70	193.80	316.0	-2.7	-0.1	0.0	0.23	-0.21	7.16	
407.0	1.20	200.00	407.0	-4.1	-0.5	0.4	0.56	0.55	6.81	
498.0	1.10	218.60	498.0	-5.7	-1.4	1.2	0.42	-0.11	20.44	
589.0	1.10	221.10	588.9	-7.1	-2.5	2.2	0.05	0.00	2.75	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Stonebraker 28V-234
<b>Project:</b>	SEC.28-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4970.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site:</b>	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	<b>MD Reference:</b>	WELL @ 4970.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Well:</b>	Stonebraker 28V-234	<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)
682.0	1.40	222.70	681.9	-8.6	-3.9	3.5	0.32	0.32	1.72
772.0	1.50	235.70	771.9	-10.0	-5.6	5.1	0.38	0.11	14.44
863.0	1.70	251.00	862.9	-11.1	-7.9	7.4	0.52	0.22	16.81
952.0	1.30	246.20	951.8	-12.0	-10.0	9.5	0.47	-0.45	-5.39
1,022.0	1.60	271.70	1,021.8	-12.3	-11.7	11.2	1.01	0.43	36.43
1,088.0	1.80	309.00	1,087.8	-11.6	-13.5	12.9	1.67	0.30	56.52
1,179.0	1.90	340.10	1,178.7	-9.3	-15.1	14.7	1.09	0.11	34.18
1,270.0	3.10	12.20	1,269.6	-5.5	-15.1	14.8	1.98	1.32	35.27
1,361.0	1.30	358.20	1,360.6	-2.0	-14.6	14.5	2.05	-1.98	-15.38
1,451.0	1.30	61.10	1,450.6	-0.5	-13.7	13.7	1.51	0.00	69.89
1,542.0	1.10	71.80	1,541.5	0.3	-12.0	12.0	0.33	-0.22	11.76
1,633.0	1.10	86.80	1,632.5	0.6	-10.3	10.3	0.32	0.00	16.48
1,724.0	0.90	106.80	1,723.5	0.4	-8.7	8.8	0.44	-0.22	21.98
1,815.0	0.90	82.40	1,814.5	0.3	-7.4	7.4	0.42	0.00	-26.81
1,906.0	1.20	101.00	1,905.5	0.2	-5.7	5.7	0.49	0.33	20.44
1,996.0	2.50	62.70	1,995.4	1.0	-3.0	3.1	1.92	1.44	-42.56
2,087.0	2.50	55.50	2,086.3	3.0	0.4	-0.2	0.34	0.00	-7.91
2,178.0	2.90	35.60	2,177.2	6.0	3.3	-3.1	1.11	0.44	-21.87
2,273.0	4.30	33.00	2,272.1	10.9	6.7	-6.2	1.48	1.47	-2.74
2,368.0	4.80	29.50	2,366.8	17.4	10.6	-9.8	0.60	0.53	-3.68
2,463.0	5.60	31.10	2,461.4	24.8	14.9	-13.8	0.86	0.84	1.68
2,559.0	7.70	36.70	2,556.7	34.0	21.2	-19.6	2.29	2.19	5.83
2,654.0	7.80	31.60	2,650.8	44.6	28.4	-26.3	0.73	0.11	-5.37
2,749.0	8.80	37.60	2,744.9	55.8	36.2	-33.6	1.39	1.05	6.32
2,844.0	7.80	43.50	2,838.9	66.2	45.0	-42.0	1.38	-1.05	6.21
2,939.0	8.40	45.30	2,932.9	75.8	54.4	-50.9	0.69	0.63	1.89
3,034.0	9.00	46.90	3,026.8	85.8	64.8	-60.8	0.68	0.63	1.68
3,130.0	8.40	47.40	3,121.7	95.6	75.4	-71.0	0.63	-0.63	0.52
3,225.0	8.40	54.40	3,215.7	104.4	86.2	-81.3	1.08	0.00	7.37
3,320.0	8.40	52.50	3,309.7	112.6	97.3	-92.1	0.29	0.00	-2.00
3,415.0	8.10	47.20	3,403.7	121.4	107.7	-102.1	0.86	-0.32	-5.58
3,510.0	8.40	51.80	3,497.7	130.2	118.1	-112.0	0.76	0.32	4.84
3,606.0	8.40	49.50	3,592.7	139.1	128.9	-122.5	0.35	0.00	-2.40
3,701.0	9.10	49.70	3,686.6	148.5	139.9	-133.0	0.74	0.74	0.21
3,796.0	8.90	44.60	3,780.4	158.6	150.8	-143.5	0.87	-0.21	-5.37
3,891.0	8.70	48.10	3,874.3	168.6	161.3	-153.5	0.60	-0.21	3.68
3,987.0	9.10	47.80	3,969.1	178.6	172.4	-164.1	0.42	0.42	-0.31
4,082.0	7.50	45.60	4,063.1	188.0	182.4	-173.6	1.72	-1.68	-2.32
4,177.0	5.90	44.10	4,157.5	195.8	190.2	-181.1	1.69	-1.68	-1.58
4,272.0	4.00	36.90	4,252.1	202.0	195.6	-186.2	2.10	-2.00	-7.58
4,368.0	1.70	18.00	4,348.0	206.0	198.0	-188.5	2.56	-2.40	-19.69
4,463.0	0.80	29.80	4,443.0	207.9	198.8	-189.1	0.98	-0.95	12.42
4,558.0	0.60	335.20	4,538.0	208.9	198.9	-189.2	0.70	-0.21	-57.47
4,653.0	0.70	192.40	4,633.0	208.8	198.6	-188.9	1.30	0.11	-150.32
4,748.0	0.60	225.50	4,728.0	207.9	198.1	-188.4	0.40	-0.11	34.84
4,844.0	0.70	306.70	4,824.0	207.9	197.3	-187.6	0.88	0.10	84.58
4,939.0	1.30	331.80	4,918.9	209.2	196.3	-186.6	0.77	0.63	26.42
5,034.0	1.60	329.50	5,013.9	211.3	195.1	-185.3	0.32	0.32	-2.42
5,129.0	0.40	328.30	5,108.9	212.7	194.3	-184.4	1.26	-1.26	-1.26
5,225.0	0.70	326.90	5,204.9	213.5	193.8	-183.9	0.31	0.31	-1.46
5,320.0	0.60	284.20	5,299.9	214.1	193.0	-183.0	0.51	-0.11	-44.95

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<b>Site:</b>	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	<b>MD Reference:</b>	WELL @ 4970.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Well:</b>	Stonebraker 28V-234	<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)	
5,415.0	0.80	303.90	5,394.9	214.6	191.9	-182.0	0.33	0.21	20.74	
5,510.0	1.20	302.30	5,489.9	215.5	190.6	-180.5	0.42	0.42	-1.68	
5,605.0	0.40	182.10	5,584.9	215.7	189.7	-179.7	1.52	-0.84	-126.53	
5,701.0	0.80	245.50	5,680.9	215.1	189.1	-179.1	0.75	0.42	66.04	
5,796.0	0.90	280.10	5,775.8	214.9	187.7	-177.8	0.54	0.11	36.42	
5,891.0	0.30	61.60	5,870.8	215.2	187.2	-177.2	1.21	-0.63	148.95	
5,986.0	0.30	298.80	5,965.8	215.4	187.2	-177.2	0.55	0.00	-129.26	
6,082.0	0.40	240.80	6,061.8	215.4	186.7	-176.7	0.37	0.10	-60.42	
6,113.0	0.10	292.60	6,092.8	215.3	186.6	-176.6	1.12	-0.97	167.10	
6,145.0	0.40	190.70	6,124.8	215.2	186.5	-176.6	1.35	0.94	-318.44	
6,176.0	0.60	241.50	6,155.8	215.1	186.4	-176.4	1.50	0.65	163.87	
6,208.0	1.80	264.10	6,187.8	214.9	185.7	-175.8	3.96	3.75	70.63	
6,240.0	3.70	259.00	6,219.8	214.7	184.2	-174.3	5.98	5.94	-15.94	
6,271.0	5.40	263.80	6,250.7	214.3	181.8	-171.8	5.62	5.48	15.48	
6,303.0	7.50	270.80	6,282.5	214.2	178.2	-168.3	7.00	6.56	21.88	
6,335.0	9.40	272.10	6,314.1	214.3	173.5	-163.6	5.97	5.94	4.06	
6,367.0	11.10	275.70	6,345.6	214.7	167.8	-157.9	5.67	5.31	11.25	
6,398.0	12.60	275.90	6,376.0	215.4	161.5	-151.5	4.84	4.84	0.65	
6,430.0	14.40	276.80	6,407.1	216.2	154.1	-144.1	5.66	5.63	2.81	
6,462.0	16.40	275.20	6,437.9	217.1	145.6	-135.6	6.39	6.25	-5.00	
6,494.0	18.60	275.90	6,468.5	218.0	136.0	-126.0	6.91	6.88	2.19	
6,525.0	20.50	273.50	6,497.7	218.8	125.7	-115.6	6.65	6.13	-7.74	
6,557.0	23.00	271.90	6,527.4	219.4	113.9	-103.8	8.03	7.81	-5.00	
6,589.0	26.10	271.50	6,556.5	219.8	100.6	-90.5	9.70	9.69	-1.25	
6,621.0	29.40	272.40	6,584.8	220.3	85.7	-75.6	10.40	10.31	2.81	
6,652.0	32.60	271.30	6,611.4	220.8	69.7	-59.6	10.48	10.32	-3.55	
6,684.0	35.50	271.00	6,637.9	221.2	51.8	-41.7	9.08	9.06	-0.94	
6,716.0	38.70	271.30	6,663.4	221.6	32.5	-22.4	10.02	10.00	0.94	
6,748.0	42.40	269.60	6,687.7	221.7	11.7	-1.6	12.07	11.56	-5.31	
6,779.0	45.90	268.20	6,710.0	221.3	-9.9	19.9	11.72	11.29	-4.52	
6,811.0	48.70	267.70	6,731.7	220.4	-33.4	43.4	8.82	8.75	-1.56	
6,843.0	50.60	267.10	6,752.4	219.3	-57.7	67.6	6.11	5.94	-1.88	
6,875.0	51.60	267.10	6,772.5	218.1	-82.6	92.4	3.13	3.13	0.00	
6,906.0	53.60	266.40	6,791.3	216.7	-107.2	116.9	6.70	6.45	-2.26	
6,938.0	56.30	267.70	6,809.7	215.3	-133.3	143.0	9.07	8.44	4.06	
6,970.0	58.70	268.90	6,826.9	214.5	-160.3	169.9	8.14	7.50	3.75	
7,001.0	60.30	269.20	6,842.6	214.1	-187.0	196.6	5.23	5.16	0.97	
7,033.0	62.70	268.90	6,857.9	213.6	-215.1	224.6	7.55	7.50	-0.94	
7,065.0	65.40	269.40	6,871.9	213.2	-243.9	253.3	8.55	8.44	1.56	
7,097.0	67.80	270.50	6,884.6	213.2	-273.3	282.7	8.14	7.50	3.44	
7,129.0	70.00	269.90	6,896.1	213.3	-303.1	312.5	7.09	6.88	-1.88	
7,160.0	72.10	269.90	6,906.2	213.2	-332.4	341.8	6.77	6.77	0.00	
7,192.0	74.40	269.80	6,915.4	213.2	-363.1	372.4	7.19	7.19	-0.31	
7,224.0	76.80	269.90	6,923.3	213.1	-394.1	403.4	7.51	7.50	0.31	
7,255.0	78.90	270.30	6,929.9	213.1	-424.4	433.6	6.89	6.77	1.29	
7,287.0	81.00	269.80	6,935.4	213.2	-455.9	465.1	6.74	6.56	-1.56	
7,319.0	82.80	269.40	6,940.0	212.9	-487.6	496.7	5.76	5.63	-1.25	
7,351.0	85.60	269.20	6,943.2	212.5	-519.4	528.5	8.77	8.75	-0.63	
7,401.0	89.10	269.89	6,945.5	212.1	-569.3	578.4	7.13	7.00	1.38	
7"										
7,431.0	91.20	270.30	6,945.4	212.2	-599.3	608.4	7.13	7.00	1.37	

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<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)	
7,461.0	91.70	270.10	6,944.7	212.3	-629.3	638.3	1.79	1.67	-0.67	
7,492.0	92.20	269.60	6,943.6	212.2	-660.3	669.3	2.28	1.61	-1.61	
7,522.0	91.90	269.10	6,942.5	211.9	-690.3	699.2	1.94	-1.00	-1.67	
7,552.0	91.00	269.40	6,941.8	211.5	-720.3	729.1	3.16	-3.00	1.00	
7,582.0	90.10	270.10	6,941.5	211.4	-750.3	759.1	3.80	-3.00	2.33	
7,614.0	89.20	270.50	6,941.7	211.5	-782.3	791.1	3.08	-2.81	1.25	
7,646.0	88.60	270.30	6,942.3	211.7	-814.2	823.0	1.98	-1.88	-0.63	
7,678.0	88.70	270.30	6,943.0	211.9	-846.2	855.0	0.31	0.31	0.00	
7,709.0	89.20	270.50	6,943.6	212.1	-877.2	886.0	1.74	1.61	0.65	
7,741.0	89.90	270.50	6,943.9	212.4	-909.2	918.0	2.19	2.19	0.00	
7,773.0	90.20	270.80	6,943.8	212.8	-941.2	949.9	1.33	0.94	0.94	
7,805.0	90.70	270.80	6,943.6	213.2	-973.2	981.9	1.56	1.56	0.00	
7,836.0	90.40	270.10	6,943.3	213.5	-1,004.2	1,012.9	2.46	-0.97	-2.26	
7,868.0	89.30	268.70	6,943.4	213.1	-1,036.2	1,044.8	5.56	-3.44	-4.38	
7,900.0	89.30	267.80	6,943.8	212.1	-1,068.2	1,076.7	2.81	0.00	-2.81	
7,931.0	89.80	267.70	6,944.0	210.9	-1,099.2	1,107.6	1.64	1.61	-0.32	
7,963.0	90.30	267.50	6,944.0	209.6	-1,131.1	1,139.5	1.68	1.56	-0.63	
7,995.0	90.70	267.10	6,943.7	208.1	-1,163.1	1,171.4	1.77	1.25	-1.25	
8,027.0	90.90	266.80	6,943.3	206.4	-1,195.1	1,203.2	1.13	0.63	-0.94	
8,058.0	91.80	267.70	6,942.5	204.9	-1,226.0	1,234.1	4.11	2.90	2.90	
8,090.0	91.50	268.40	6,941.6	203.8	-1,258.0	1,266.0	2.38	-0.94	2.19	
8,122.0	91.50	268.70	6,940.8	203.0	-1,290.0	1,297.9	0.94	0.00	0.94	
8,154.0	91.50	269.40	6,939.9	202.5	-1,321.9	1,329.8	2.19	0.00	2.19	
8,185.0	91.30	269.60	6,939.2	202.2	-1,352.9	1,360.7	0.91	-0.65	0.65	
8,217.0	90.00	270.30	6,938.8	202.2	-1,384.9	1,392.7	4.61	-4.06	2.19	
8,249.0	89.90	270.50	6,938.8	202.4	-1,416.9	1,424.7	0.70	-0.31	0.63	
8,280.0	90.10	270.80	6,938.8	202.7	-1,447.9	1,455.7	1.16	0.65	0.97	
8,312.0	90.50	271.20	6,938.7	203.3	-1,479.9	1,487.6	1.77	1.25	1.25	
8,344.0	90.80	271.00	6,938.3	203.9	-1,511.9	1,519.6	1.13	0.94	-0.63	
8,375.0	90.70	271.00	6,937.9	204.5	-1,542.9	1,550.6	0.32	-0.32	0.00	
8,407.0	89.90	270.50	6,937.7	204.9	-1,574.9	1,582.6	2.95	-2.50	-1.56	
8,439.0	89.30	270.10	6,938.0	205.0	-1,606.9	1,614.6	2.25	-1.88	-1.25	
8,471.0	89.30	269.40	6,938.3	204.9	-1,638.9	1,646.5	2.19	0.00	-2.19	
8,502.0	89.80	270.10	6,938.6	204.8	-1,669.9	1,677.5	2.77	1.61	2.26	
8,534.0	90.20	269.80	6,938.6	204.7	-1,701.9	1,709.5	1.56	1.25	-0.94	
8,566.0	90.90	270.30	6,938.3	204.8	-1,733.9	1,741.4	2.69	2.19	1.56	
8,598.0	91.30	270.80	6,937.7	205.1	-1,765.9	1,773.4	2.00	1.25	1.56	
8,629.0	91.70	271.00	6,936.9	205.6	-1,796.9	1,804.4	1.44	1.29	0.65	
8,661.0	92.20	271.00	6,935.8	206.1	-1,828.9	1,836.3	1.56	1.56	0.00	
8,693.0	92.10	271.50	6,934.6	206.8	-1,860.8	1,868.3	1.59	-0.31	1.56	
8,724.0	91.50	272.10	6,933.6	207.8	-1,891.8	1,899.3	2.74	-1.94	1.94	
8,756.0	90.80	272.10	6,933.0	209.0	-1,923.8	1,931.3	2.19	-2.19	0.00	
8,788.0	90.50	271.50	6,932.6	210.0	-1,955.7	1,963.3	2.10	-0.94	-1.88	
8,820.0	90.30	270.80	6,932.4	210.6	-1,987.7	1,995.3	2.27	-0.63	-2.19	
8,851.0	90.50	269.60	6,932.1	210.7	-2,018.7	2,026.2	3.92	0.65	-3.87	
8,883.0	91.10	268.40	6,931.7	210.2	-2,050.7	2,058.2	4.19	1.88	-3.75	
8,915.0	91.70	268.40	6,930.9	209.3	-2,082.7	2,090.1	1.88	1.88	0.00	
8,947.0	92.00	268.00	6,929.9	208.3	-2,114.7	2,122.0	1.56	0.94	-1.25	
8,978.0	92.60	268.90	6,928.6	207.4	-2,145.6	2,152.9	3.49	1.94	2.90	
9,010.0	92.30	269.10	6,927.3	206.9	-2,177.6	2,184.8	1.13	-0.94	0.63	
9,043.0	91.40	269.80	6,926.2	206.6	-2,210.6	2,217.7	3.45	-2.73	2.12	
9,074.0	90.10	269.40	6,925.8	206.3	-2,241.6	2,248.6	4.39	-4.19	-1.29	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Stonebraker 28V-234
<b>Project:</b>	SEC.28-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4970.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site:</b>	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	<b>MD Reference:</b>	WELL @ 4970.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Well:</b>	Stonebraker 28V-234	<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)	
9,105.0	90.00	269.10	6,925.8	205.9	-2,272.6	2,279.6	1.02	-0.32	-0.97	
9,137.0	90.00	268.70	6,925.8	205.3	-2,304.6	2,311.5	1.25	0.00	-1.25	
9,169.0	90.40	269.40	6,925.7	204.8	-2,336.6	2,343.5	2.52	1.25	2.19	
9,201.0	91.00	270.30	6,925.3	204.7	-2,368.6	2,375.4	3.38	1.88	2.81	
9,232.0	91.50	271.00	6,924.6	205.1	-2,399.6	2,406.4	2.77	1.61	2.26	
9,264.0	92.20	271.50	6,923.6	205.7	-2,431.5	2,438.4	2.69	2.19	1.56	
9,296.0	92.20	271.00	6,922.3	206.4	-2,463.5	2,470.3	1.56	0.00	-1.56	
9,328.0	91.90	271.00	6,921.2	207.0	-2,495.5	2,502.3	0.94	-0.94	0.00	
9,359.0	91.10	270.30	6,920.4	207.4	-2,526.5	2,533.3	3.43	-2.58	-2.26	
9,391.0	90.40	269.80	6,920.0	207.4	-2,558.5	2,565.2	2.69	-2.19	-1.56	
9,423.0	89.70	269.60	6,919.9	207.2	-2,590.5	2,597.2	2.28	-2.19	-0.63	
9,454.0	89.60	269.80	6,920.1	207.1	-2,621.5	2,628.2	0.72	-0.32	0.65	
9,486.0	90.00	270.30	6,920.2	207.1	-2,653.5	2,660.1	2.00	1.25	1.56	
9,518.0	90.40	270.50	6,920.1	207.3	-2,685.5	2,692.1	1.40	1.25	0.63	
9,550.0	90.70	270.50	6,919.8	207.6	-2,717.4	2,724.1	0.94	0.94	0.00	
9,581.0	91.10	270.50	6,919.3	207.9	-2,748.4	2,755.1	1.29	1.29	0.00	
9,613.0	90.80	270.30	6,918.8	208.1	-2,780.4	2,787.0	1.13	-0.94	-0.63	
9,645.0	90.10	270.30	6,918.5	208.2	-2,812.4	2,819.0	2.19	-2.19	0.00	
9,677.0	89.60	270.30	6,918.6	208.4	-2,844.4	2,851.0	1.56	-1.56	0.00	
9,708.0	89.40	269.90	6,918.9	208.5	-2,875.4	2,881.9	1.44	-0.65	-1.29	
9,740.0	89.10	268.90	6,919.3	208.1	-2,907.4	2,913.9	3.26	-0.94	-3.13	
9,772.0	89.10	268.40	6,919.8	207.4	-2,939.4	2,945.8	1.56	0.00	-1.56	
9,804.0	88.90	267.00	6,920.4	206.1	-2,971.4	2,977.7	4.42	-0.63	-4.38	
9,835.0	89.30	266.80	6,920.9	204.4	-3,002.3	3,008.5	1.44	1.29	-0.65	
9,867.0	90.00	267.50	6,921.1	202.8	-3,034.3	3,040.4	3.09	2.19	2.19	
9,899.0	90.50	268.70	6,920.9	201.8	-3,066.3	3,072.3	4.06	1.56	3.75	
9,930.0	90.70	269.20	6,920.6	201.2	-3,097.3	3,103.2	1.74	0.65	1.61	
9,962.0	91.10	269.60	6,920.1	200.9	-3,129.3	3,135.2	1.77	1.25	1.25	
9,996.0	91.20	270.80	6,919.4	201.0	-3,163.3	3,169.1	3.54	0.29	3.53	
10,026.0	91.20	270.60	6,918.8	201.3	-3,193.2	3,199.1	0.67	0.00	-0.67	
10,057.0	91.50	270.80	6,918.1	201.7	-3,224.2	3,230.1	1.16	0.97	0.65	
10,089.0	91.90	271.20	6,917.1	202.3	-3,256.2	3,262.1	1.77	1.25	1.25	
10,121.0	92.20	271.00	6,916.0	202.9	-3,288.2	3,294.0	1.13	0.94	-0.63	
10,153.0	92.70	271.70	6,914.6	203.7	-3,320.2	3,326.0	2.69	1.56	2.19	
10,184.0	92.70	271.70	6,913.1	204.6	-3,351.1	3,356.9	0.00	0.00	0.00	
10,216.0	92.50	271.70	6,911.7	205.5	-3,383.1	3,388.9	0.63	-0.63	0.00	
10,248.0	91.80	271.80	6,910.5	206.5	-3,415.0	3,420.9	2.21	-2.19	0.31	
10,280.0	91.10	271.70	6,909.7	207.5	-3,447.0	3,452.9	2.21	-2.19	-0.31	
10,311.0	90.80	272.10	6,909.2	208.5	-3,478.0	3,483.9	1.61	-0.97	1.29	
10,343.0	90.30	271.90	6,908.9	209.6	-3,510.0	3,515.9	1.68	-1.56	-0.63	
10,375.0	89.70	272.20	6,908.9	210.8	-3,541.9	3,547.9	2.10	-1.88	0.94	
10,407.0	89.20	271.00	6,909.2	211.7	-3,573.9	3,579.8	4.06	-1.56	-3.75	
10,438.0	89.40	270.30	6,909.5	212.0	-3,604.9	3,610.8	2.35	0.65	-2.26	
10,470.0	89.20	269.20	6,909.9	211.9	-3,636.9	3,642.8	3.49	-0.63	-3.44	
10,502.0	89.70	269.20	6,910.2	211.4	-3,668.9	3,674.7	1.56	1.56	0.00	
10,534.0	90.00	269.60	6,910.3	211.1	-3,700.9	3,706.7	1.56	0.94	1.25	
10,565.0	90.50	269.60	6,910.2	210.9	-3,731.9	3,737.6	1.61	1.61	0.00	
10,599.0	90.60	269.40	6,909.9	210.6	-3,765.9	3,771.6	0.66	0.29	-0.59	
10,629.0	90.90	269.20	6,909.5	210.2	-3,795.9	3,801.5	1.20	1.00	-0.67	
10,661.0	90.60	268.70	6,909.0	209.6	-3,827.9	3,833.5	1.82	-0.94	-1.56	
10,692.0	90.60	268.90	6,908.7	209.0	-3,858.9	3,864.4	0.65	0.00	0.65	
10,724.0	90.90	269.20	6,908.3	208.4	-3,890.9	3,896.3	1.33	0.94	0.94	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Stonebraker 28V-234
<b>Project:</b>	SEC.28-T2N-R64W	<b>TVD Reference:</b>	WELL @ 4970.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site:</b>	Stonebraker 28VW-HZ Pad Sec.28-T2N-R64W	<b>MD Reference:</b>	WELL @ 4970.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Well:</b>	Stonebraker 28V-234	<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)
10,756.0	91.30	269.60	6,907.7	208.1	-3,922.9	3,928.3	1.77	1.25	1.25
10,787.0	91.80	269.90	6,906.8	208.0	-3,953.9	3,959.2	1.88	1.61	0.97
10,819.0	91.30	269.90	6,906.0	207.9	-3,985.8	3,991.2	1.56	-1.56	0.00
10,851.0	90.30	269.60	6,905.5	207.8	-4,017.8	4,023.1	3.26	-3.13	-0.94
10,883.0	90.10	269.60	6,905.4	207.6	-4,049.8	4,055.1	0.63	-0.63	0.00
10,914.0	90.60	269.90	6,905.2	207.4	-4,080.8	4,086.0	1.88	1.61	0.97
10,946.0	90.80	270.10	6,904.8	207.4	-4,112.8	4,118.0	0.88	0.63	0.63
10,978.0	91.20	270.50	6,904.3	207.6	-4,144.8	4,150.0	1.77	1.25	1.25
11,010.0	91.70	270.60	6,903.5	207.9	-4,176.8	4,181.9	1.59	1.56	0.31
11,041.0	91.50	271.20	6,902.6	208.4	-4,207.8	4,212.9	2.04	-0.65	1.94
11,073.0	90.70	271.00	6,902.0	209.0	-4,239.8	4,244.9	2.58	-2.50	-0.63
11,105.0	89.80	270.50	6,901.9	209.4	-4,271.8	4,276.9	3.22	-2.81	-1.56
11,137.0	89.80	270.10	6,902.0	209.6	-4,303.8	4,308.9	1.25	0.00	-1.25
11,168.0	90.20	271.00	6,902.0	209.9	-4,334.8	4,339.8	3.18	1.29	2.90
11,200.0	90.40	270.80	6,901.8	210.4	-4,366.8	4,371.8	0.88	0.63	-0.63
11,232.0	90.40	270.80	6,901.6	210.8	-4,398.8	4,403.8	0.00	0.00	0.00
11,264.0	90.60	270.80	6,901.3	211.3	-4,430.8	4,435.8	0.63	0.63	0.00
11,319.0	91.40	270.80	6,900.3	212.0	-4,485.8	4,490.8	1.45	1.45	0.00
BHL 1800'FNL & 500'FWL									

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,401.0	6,945.5	7"	7	7-1/2

Checked By: _____	Approved By: _____	Date: _____
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