



EOG Resources

Weld Co., CO

Sec 13-T11N-R64W

Lion Creek #02-13H

Hz

Survey: Survey #1

Standard Survey Report

09 March, 2011





WELL DETAILS: Lion Creek #02-13H

Ground Level: 5326.0						Slot
+N/-S 0.0	+E/-W 0.0	Northing 578228.10	Easting 2280084.44	Latitude 40° 54' 58.460 N	Longitude 104° 29' 11.890 W	

SECTION DETAILS

No plan data is available

FORMATION TOP DETAILS

No formation data is available

ANNOTATIONS

TVD 7540.4	MD 11675.0	Annotation Projection to Bit
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CASING DETAILS

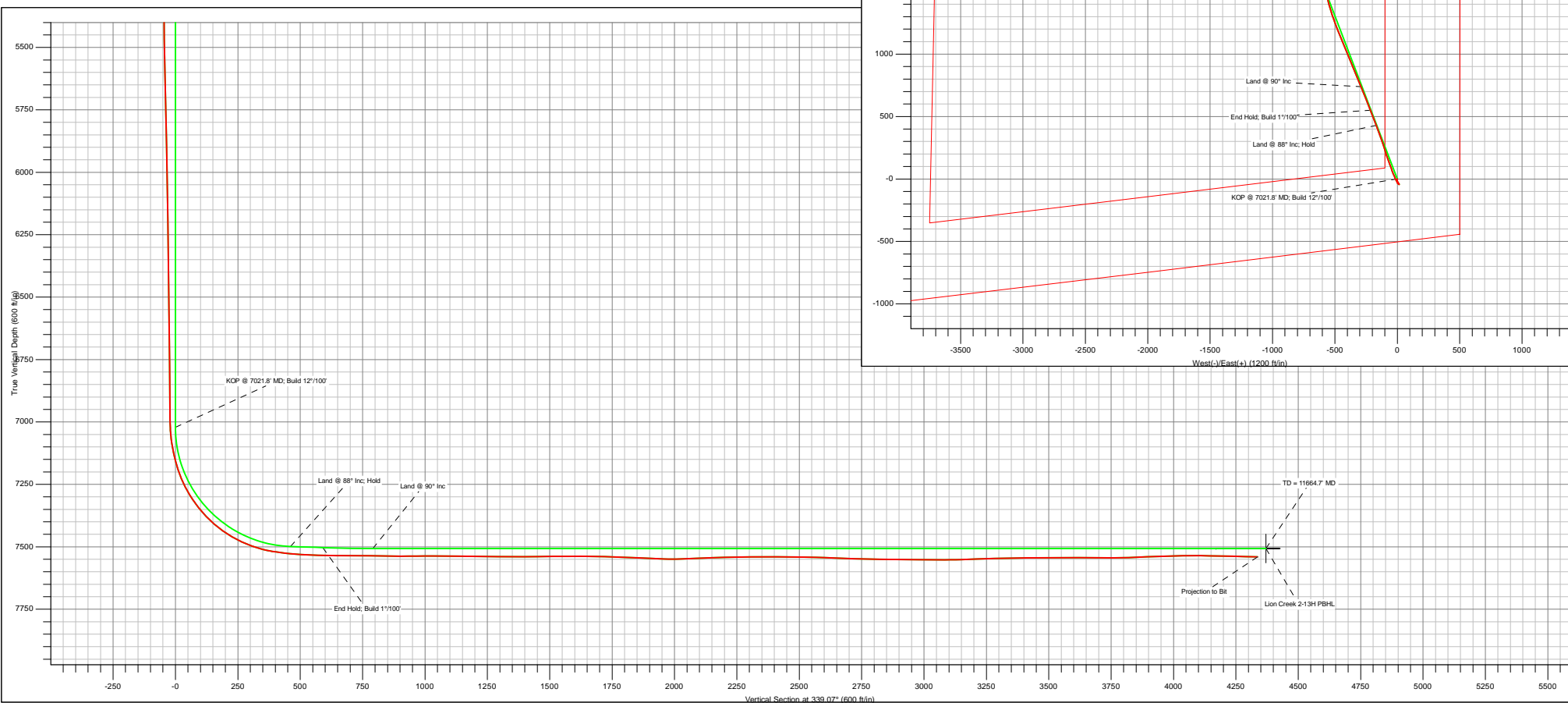
No casing data is available

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape	No wellbore target data is available.
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Azimuths to True North
Magnetic North: 8.80°
Magnetic Field
Strength: 53456.6mT
Dip Angle: 67.52°
Date: 12/24/2011
Model: IGRF2010-14



Company:	EOG Resources	Local Co-ordinate Reference:	Well Lion Creek #02-13H
Project:	Weld Co., CO	TVD Reference:	Lion Creek 2-13H KBE @ 5351.0ft (True 30)
Site:	Sec 13-T11N-R64W	MD Reference:	Lion Creek 2-13H KBE @ 5351.0ft (True 30)
Well:	Lion Creek #02-13H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	Database:	Local

Project	Weld Co., CO		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado North 501		

Site	Sec 13-T11N-R64W		
Site Position:		Northing:	
From:	Lat/Long	Easting:	
Position Uncertainty:	0.0 ft	Slot Radius:	
		Latitude:	
		Longitude:	
		Grid Convergence:	1.00

Well	Lion Creek #02-13H		
Well Position	+N/-S	0.0 ft	Northing: 578,228.10 ft
	+E/-W	0.0 ft	Easting: 2,280,084.44 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 54' 58.460 N
		Longitude:	104° 29' 11.890 W
		Ground Level:	5,326.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010-14	02/24/11	8.80	67.52	53,457

Design	Hz				
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	339.07	

Survey Program	Date	03/09/11			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
1,570.0	11,675.0	Survey #1 (Hz)	MWD		

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea 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	-5,351.0	0.0	0.0	0.0	0.00	0.00	0.00
1,570.0	0.00	0.00	1,570.0	-3,781.0	0.0	0.0	0.0	0.00	0.00	0.00
1,591.0	0.66	202.34	1,591.0	-3,760.0	-0.1	0.0	-0.1	3.14	3.14	0.00
1,865.0	0.92	184.41	1,865.0	-3,486.0	-3.8	-0.8	-3.2	0.13	0.09	-6.54
2,149.0	1.05	181.94	2,148.9	-3,202.1	-8.6	-1.1	-7.7	0.05	0.05	-0.87
2,436.0	1.32	169.46	2,435.9	-2,915.1	-14.5	-0.6	-13.4	0.13	0.09	-4.35
2,724.0	0.84	153.73	2,723.8	-2,627.2	-19.7	1.0	-18.7	0.19	-0.17	-5.46
3,010.0	0.48	145.38	3,009.8	-2,341.2	-22.5	2.6	-22.0	0.13	-0.13	-2.92
3,298.0	0.53	151.36	3,297.8	-2,053.2	-24.7	3.9	-24.5	0.03	0.02	2.08
3,589.0	0.40	217.10	3,588.8	-1,762.2	-26.7	3.9	-26.3	0.18	-0.04	22.59

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Well:	Lion Creek #02-13H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	Database:	Local

Survey											
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3,878.0	0.62	244.70	3,877.8	-1,473.2	-28.2	1.9	-27.0	0.11	0.08	9.55	
4,165.0	0.53	166.12	4,164.8	-1,186.2	-30.1	0.8	-28.4	0.25	-0.03	-27.38	
4,453.0	1.23	146.44	4,452.7	-898.3	-34.0	2.9	-32.8	0.26	0.24	-6.83	
4,740.0	1.36	129.47	4,739.7	-611.3	-38.7	7.2	-38.7	0.14	0.05	-5.91	
5,032.0	1.10	123.59	5,031.6	-319.4	-42.5	12.2	-44.0	0.10	-0.09	-2.01	
5,322.0	0.26	56.70	5,321.6	-29.4	-43.6	15.1	-46.2	0.35	-0.29	-23.07	
5,611.0	1.58	331.27	5,610.5	259.5	-39.8	13.7	-42.1	0.55	0.46	-29.56	
5,898.0	1.27	324.50	5,897.4	546.4	-33.7	10.0	-35.1	0.12	-0.11	-2.36	
6,189.0	0.97	290.49	6,188.4	837.4	-30.2	5.8	-30.3	0.25	-0.10	-11.69	
6,477.0	0.97	304.11	6,476.3	1,125.3	-28.0	1.5	-26.7	0.08	0.00	4.73	
6,767.0	0.44	345.68	6,766.3	1,415.3	-25.6	-0.8	-23.6	0.24	-0.18	14.33	
6,961.0	0.35	331.18	6,960.3	1,609.3	-24.3	-1.3	-22.3	0.07	-0.05	-7.47	
7,026.0	2.64	328.19	7,025.3	1,674.3	-22.9	-2.2	-20.6	3.52	3.52	-4.60	
7,059.0	5.89	329.60	7,058.2	1,707.2	-20.8	-3.4	-18.2	9.85	9.85	4.27	
7,091.0	9.32	330.22	7,089.9	1,738.9	-17.1	-5.6	-14.0	10.72	10.72	1.94	
7,124.0	12.35	331.89	7,122.3	1,771.3	-11.7	-8.6	-7.9	9.23	9.18	5.06	
7,156.0	14.51	333.29	7,153.4	1,802.4	-5.1	-12.0	-0.5	6.83	6.75	4.38	
7,189.0	17.41	334.52	7,185.2	1,834.2	3.1	-16.0	8.6	8.85	8.79	3.73	
7,221.0	20.75	337.95	7,215.4	1,864.4	12.7	-20.1	19.0	11.01	10.44	10.72	
7,253.0	24.75	338.57	7,244.9	1,893.9	24.1	-24.7	31.4	12.52	12.50	1.94	
7,286.0	29.27	337.77	7,274.3	1,923.3	38.1	-30.3	46.4	13.74	13.70	-2.42	
7,318.0	33.36	337.60	7,301.6	1,950.6	53.4	-36.6	63.0	12.78	12.78	-0.53	
7,349.0	36.48	338.48	7,327.0	1,976.0	69.9	-43.2	80.7	10.19	10.06	2.84	
7,381.0	39.21	340.06	7,352.3	2,001.3	88.3	-50.2	100.4	9.05	8.53	4.94	
7,414.0	42.99	341.20	7,377.2	2,026.2	108.7	-57.4	122.0	11.68	11.45	3.45	
7,446.0	47.03	340.50	7,399.8	2,048.8	130.1	-64.8	144.7	12.72	12.63	-2.19	
7,479.0	51.52	339.88	7,421.3	2,070.3	153.6	-73.3	169.7	13.68	13.61	-1.88	
7,511.0	56.22	340.50	7,440.2	2,089.2	177.9	-82.0	195.5	14.77	14.69	1.94	
7,544.0	59.74	342.17	7,457.7	2,106.7	204.4	-91.0	223.4	11.50	10.67	5.06	
7,576.0	62.59	342.61	7,473.1	2,122.1	231.1	-99.4	251.4	8.99	8.91	1.38	
7,607.0	66.29	342.26	7,486.5	2,135.5	257.8	-107.9	279.3	11.98	11.94	-1.13	
7,639.0	70.64	341.47	7,498.2	2,147.2	286.1	-117.2	309.1	13.79	13.59	-2.47	
7,671.0	74.95	341.03	7,507.7	2,156.7	315.0	-127.0	339.6	13.53	13.47	-1.38	
7,703.0	78.24	340.41	7,515.1	2,164.1	344.4	-137.3	370.7	10.45	10.28	-1.94	
7,736.0	81.67	340.32	7,520.9	2,169.9	375.0	-148.2	403.2	10.40	10.39	-0.27	
7,822.0	85.98	339.18	7,530.1	2,179.1	455.2	-177.8	488.7	5.18	5.01	-1.33	
7,855.0	86.95	338.65	7,532.1	2,181.1	485.9	-189.6	521.6	3.35	2.94	-1.61	
7,886.0	87.78	338.48	7,533.6	2,182.6	514.7	-200.9	552.6	2.73	2.68	-0.55	
7,918.0	89.10	337.86	7,534.4	2,183.4	544.4	-212.8	584.5	4.56	4.13	-1.94	
7,950.0	88.75	337.60	7,535.0	2,184.0	574.0	-224.9	616.5	1.36	-1.09	-0.81	
7,980.0	89.19	338.21	7,535.6	2,184.6	601.8	-236.2	646.5	2.51	1.47	2.03	
8,013.0	90.24	338.48	7,535.7	2,184.7	632.5	-248.4	679.5	3.29	3.18	0.82	
8,044.0	89.89	338.39	7,535.7	2,184.7	661.3	-259.8	710.5	1.17	-1.13	-0.29	

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8,076.0	89.63	337.77	7,535.8	2,184.8	691.0	-271.7	742.5	2.10	-0.81	-1.94	
8,108.0	89.63	338.04	7,536.1	2,185.1	720.7	-283.8	774.5	0.84	0.00	0.84	
8,140.0	89.10	338.13	7,536.4	2,185.4	750.4	-295.7	806.5	1.68	-1.66	0.28	
8,172.0	89.10	337.86	7,536.9	2,185.9	780.0	-307.7	838.5	0.84	0.00	-0.84	
8,204.0	88.79	337.95	7,537.5	2,186.5	809.7	-319.7	870.5	1.01	-0.97	0.28	
8,237.0	89.93	337.95	7,537.9	2,186.9	840.3	-332.1	903.5	3.45	3.45	0.00	
8,269.0	90.81	338.04	7,537.7	2,186.7	869.9	-344.1	935.5	2.76	2.75	0.28	
8,301.0	90.55	337.69	7,537.3	2,186.3	899.6	-356.2	967.4	1.36	-0.81	-1.09	
8,333.0	90.33	337.60	7,537.0	2,186.0	929.2	-368.4	999.4	0.74	-0.69	-0.28	
8,366.0	90.46	337.51	7,536.8	2,185.8	959.7	-381.0	1,032.4	0.48	0.39	-0.27	
8,431.0	89.45	337.25	7,536.9	2,185.9	1,019.7	-406.0	1,097.4	1.60	-1.55	-0.40	
8,495.0	88.84	336.98	7,537.8	2,186.8	1,078.6	-430.8	1,161.3	1.04	-0.95	-0.42	
8,527.0	88.48	336.81	7,538.6	2,187.6	1,108.0	-443.4	1,193.3	1.24	-1.13	-0.53	
8,559.0	89.45	337.25	7,539.1	2,188.1	1,137.5	-455.9	1,225.3	3.33	3.03	1.38	
8,590.0	90.42	338.30	7,539.2	2,188.2	1,166.2	-467.6	1,256.3	4.61	3.13	3.39	
8,653.0	89.80	339.44	7,539.1	2,188.1	1,225.0	-490.3	1,319.3	2.06	-0.98	1.81	
8,717.0	90.07	341.20	7,539.1	2,188.1	1,285.2	-511.9	1,383.3	2.78	0.42	2.75	
8,782.0	90.07	342.87	7,539.0	2,188.0	1,347.0	-531.9	1,448.2	2.57	0.00	2.57	
8,847.0	90.20	344.37	7,538.9	2,187.9	1,409.4	-550.2	1,513.0	2.32	0.20	2.31	
8,912.0	89.85	345.86	7,538.9	2,187.9	1,472.2	-566.9	1,577.6	2.35	-0.54	2.29	
8,976.0	90.20	347.09	7,538.8	2,187.8	1,534.4	-581.9	1,641.1	2.00	0.55	1.92	
9,039.0	89.14	347.27	7,539.2	2,188.2	1,595.9	-595.9	1,703.4	1.71	-1.68	0.29	
9,103.0	88.00	345.16	7,540.8	2,189.8	1,658.0	-611.1	1,766.9	3.75	-1.78	-3.30	
9,168.0	87.12	343.22	7,543.6	2,192.6	1,720.5	-628.8	1,831.6	3.27	-1.35	-2.98	
9,232.0	87.60	341.55	7,546.5	2,195.5	1,781.4	-648.2	1,895.4	2.71	0.75	-2.61	
9,296.0	88.09	340.24	7,548.9	2,197.9	1,841.8	-669.1	1,959.3	2.18	0.77	-2.05	
9,359.0	91.82	339.18	7,549.0	2,198.0	1,900.9	-690.9	2,022.3	6.15	5.92	-1.68	
9,423.0	92.53	339.27	7,546.5	2,195.5	1,960.7	-713.6	2,086.3	1.12	1.11	0.14	
9,488.0	91.87	338.04	7,544.0	2,193.0	2,021.2	-737.3	2,151.2	2.15	-1.02	-1.89	
9,553.0	91.56	337.60	7,542.1	2,191.1	2,081.4	-761.8	2,216.2	0.83	-0.48	-0.68	
9,618.0	90.42	337.51	7,541.0	2,190.0	2,141.4	-786.6	2,281.1	1.76	-1.75	-0.14	
9,681.0	90.33	337.51	7,540.6	2,189.6	2,199.7	-810.7	2,344.1	0.14	-0.14	0.00	
9,745.0	89.85	337.25	7,540.5	2,189.5	2,258.7	-835.3	2,408.1	0.85	-0.75	-0.41	
9,810.0	89.49	337.16	7,540.8	2,189.8	2,318.7	-860.5	2,473.1	0.57	-0.55	-0.14	
9,874.0	89.10	337.25	7,541.6	2,190.6	2,377.6	-885.3	2,537.0	0.63	-0.61	0.14	
9,938.0	87.87	336.90	7,543.3	2,192.3	2,436.6	-910.2	2,601.0	2.00	-1.92	-0.55	
10,002.0	87.52	336.81	7,545.9	2,194.9	2,495.4	-935.4	2,664.9	0.56	-0.55	-0.14	
10,033.0	87.74	336.98	7,547.2	2,196.2	2,523.9	-947.5	2,695.8	0.90	0.71	0.55	
10,098.0	88.48	336.28	7,549.3	2,198.3	2,583.5	-973.3	2,760.7	1.57	1.14	-1.08	
10,163.0	89.93	336.02	7,550.2	2,199.2	2,642.9	-999.6	2,825.6	2.27	2.23	-0.40	
10,228.0	89.58	336.10	7,550.5	2,199.5	2,702.3	-1,025.9	2,890.5	0.55	-0.54	0.12	
10,292.0	88.75	335.75	7,551.4	2,200.4	2,760.8	-1,052.0	2,954.4	1.41	-1.30	-0.55	

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10,357.0	89.80	336.02	7,552.3	2,201.3	2,820.1	-1,078.6	3,019.3	1.67	1.62	0.42
10,422.0	90.11	335.75	7,552.3	2,201.3	2,879.4	-1,105.1	3,084.2	0.63	0.48	-0.42
10,487.0	92.00	337.60	7,551.1	2,200.1	2,939.1	-1,130.9	3,149.1	4.07	2.91	2.85
10,551.0	91.65	337.86	7,549.1	2,198.1	2,998.3	-1,155.1	3,213.1	0.68	-0.55	0.41
10,615.0	91.47	337.42	7,547.3	2,196.3	3,057.5	-1,179.5	3,277.0	0.74	-0.28	-0.69
10,680.0	91.08	337.69	7,545.9	2,194.9	3,117.5	-1,204.3	3,342.0	0.73	-0.60	0.42
10,744.0	90.55	337.51	7,545.0	2,194.0	3,176.7	-1,228.7	3,406.0	0.87	-0.83	-0.28
10,808.0	90.55	337.77	7,544.4	2,193.4	3,235.9	-1,253.0	3,470.0	0.41	0.00	0.41
10,871.0	90.42	337.77	7,543.8	2,192.8	3,294.2	-1,276.8	3,532.9	0.21	-0.21	0.00
10,934.0	89.63	337.69	7,543.8	2,192.8	3,352.5	-1,300.7	3,595.9	1.26	-1.25	-0.13
10,999.0	89.36	337.86	7,544.4	2,193.4	3,412.6	-1,325.3	3,660.9	0.49	-0.42	0.26
11,062.0	90.02	338.21	7,544.7	2,193.7	3,471.1	-1,348.9	3,723.9	1.19	1.05	0.56
11,127.0	91.03	338.57	7,544.1	2,193.1	3,531.5	-1,372.8	3,788.9	1.65	1.55	0.55
11,191.0	92.53	338.65	7,542.1	2,191.1	3,591.1	-1,396.1	3,852.9	2.35	2.34	0.13
11,224.0	92.57	339.01	7,540.7	2,189.7	3,621.8	-1,408.0	3,885.8	1.10	0.12	1.09
11,257.0	92.26	338.57	7,539.3	2,188.3	3,652.5	-1,420.0	3,918.8	1.63	-0.94	-1.33
11,289.0	92.13	338.65	7,538.0	2,187.0	3,682.3	-1,431.6	3,950.8	0.48	-0.41	0.25
11,320.0	91.03	339.71	7,537.2	2,186.2	3,711.3	-1,442.6	3,981.8	4.93	-3.55	3.42
11,384.0	90.77	339.18	7,536.2	2,185.2	3,771.2	-1,465.1	4,045.7	0.92	-0.41	-0.83
11,416.0	90.24	339.09	7,535.9	2,184.9	3,801.1	-1,476.5	4,077.7	1.68	-1.66	-0.28
11,448.0	89.89	338.57	7,535.9	2,184.9	3,830.9	-1,488.1	4,109.7	1.96	-1.09	-1.63
11,481.0	89.19	338.65	7,536.1	2,185.1	3,861.7	-1,500.1	4,142.7	2.14	-2.12	0.24
11,546.0	88.62	338.21	7,537.4	2,186.4	3,922.1	-1,524.0	4,207.7	1.11	-0.88	-0.68
11,578.0	88.84	338.74	7,538.1	2,187.1	3,951.9	-1,535.7	4,239.7	1.79	0.69	1.66
11,626.0	88.57	338.74	7,539.2	2,188.2	3,996.6	-1,553.1	4,287.7	0.56	-0.56	0.00
Projection to Bit										
11,675.0	88.57	338.74	7,540.4	2,189.4	4,042.2	-1,570.9	4,336.7	0.00	0.00	0.00

Survey Annotations				
Measured Depth (')	Vertical Depth (')	Local Coordinates		Comment
		+N/-S (')	+E/-W (')	
11,675.0	7,540.4	4,042.2	-1,570.9	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____