



EOG Resources

Weld Co., CO

Sec 24-T11N-R64W

Lion Creek #07-24H

Hz

Survey: Survey #1

Standard Survey Report

22 February, 2011



Company:	EOG Resources	Local Co-ordinate Reference:	Well Lion Creek #07-24H
Project:	Weld Co., CO	TVD Reference:	Lion Creek 7-24H KBE @ 5323.0ft (True 30)
Site:	Sec 24-T11N-R64W	MD Reference:	Lion Creek 7-24H KBE @ 5323.0ft (True 30)
Well:	Lion Creek #07-24H	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 24-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 #07-24H		
Well Position	+N/-S	0.0 ft	Northing: 572,831.45 ft
	+E/-W	0.0 ft	Easting: 2,279,381.20 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 54' 5.220 N
		Longitude:	104° 29' 21.850 W
		Ground Level:	5,298.0 ft

Wellbore	Hz		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010-14	02/04/11	8.81
			Dip Angle (°)
			67.51
			Field Strength (nT)
			53,455

Design	Hz		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			Direction (°)
			333.57

Survey Program	Date 02/22/11		
From	To	Survey (Wellbore)	Tool Name
(ft)	(ft)		
1,533.0	11,490.0	Survey #1 (Hz)	MWD
			Description

Survey										
Measured Depth	Inclination	Azimuth	Vertical Depth	Subsea Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)
0.0	0.00	0.00	0.0	-5,323.0	0.0	0.0	0.0	0.00	0.00	0.00
1,533.0	0.00	0.00	1,533.0	-3,790.0	0.0	0.0	0.0	0.00	0.00	0.00
1,748.0	0.48	72.88	1,748.0	-3,575.0	0.3	0.9	-0.1	0.22	0.22	0.00
2,027.0	0.44	134.41	2,027.0	-3,296.0	-0.1	2.7	-1.3	0.17	-0.01	22.05
2,317.0	0.35	125.18	2,317.0	-3,006.0	-1.4	4.3	-3.2	0.04	-0.03	-3.18
2,607.0	0.53	146.27	2,607.0	-2,716.0	-3.1	5.7	-5.3	0.08	0.06	7.27
2,898.0	0.44	186.44	2,898.0	-2,425.0	-5.3	6.4	-7.6	0.12	-0.03	13.80
3,187.0	0.22	173.34	3,187.0	-2,136.0	-6.9	6.3	-9.0	0.08	-0.08	-4.53
3,473.0	0.22	209.99	3,473.0	-1,850.0	-8.0	6.1	-9.8	0.05	0.00	12.81
3,763.0	0.31	327.33	3,763.0	-1,560.0	-7.8	5.4	-9.4	0.16	0.03	40.46

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Well:	Lion Creek #07-24H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	Database:	Local

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)
4,050.0	0.70	321.79	4,049.9	-1,273.1	-5.8	3.9	-6.9	0.14	0.14	-1.93
4,340.0	1.14	296.74	4,339.9	-983.1	-3.1	0.2	-2.8	0.20	0.15	-8.64
4,630.0	1.41	319.59	4,629.8	-693.2	1.0	-4.7	2.9	0.20	0.09	7.88
4,919.0	1.23	335.24	4,918.8	-404.2	6.5	-8.3	9.5	0.14	-0.06	5.42
5,208.0	1.76	315.64	5,207.7	-115.3	12.5	-12.7	16.8	0.25	0.18	-6.78
5,499.0	2.07	286.19	5,498.5	175.5	17.1	-20.9	24.6	0.35	0.11	-10.12
5,786.0	1.23	307.37	5,785.4	462.4	20.4	-28.3	30.9	0.36	-0.29	7.38
6,075.0	1.23	355.54	6,074.3	751.3	25.4	-31.0	36.6	0.35	0.00	16.67
6,363.0	0.79	22.70	6,362.3	1,039.3	30.3	-30.5	40.7	0.22	-0.15	9.43
6,647.0	0.70	54.95	6,646.3	1,323.3	33.1	-28.3	42.3	0.15	-0.03	11.36
6,873.0	0.75	73.06	6,872.2	1,549.2	34.4	-25.7	42.2	0.10	0.02	8.01
6,906.0	0.66	61.10	6,905.2	1,582.2	34.5	-25.4	42.2	0.52	-0.27	-36.24
6,938.0	1.71	341.39	6,937.2	1,614.2	35.1	-25.4	42.7	5.37	3.28	-249.09
6,970.0	4.97	324.69	6,969.2	1,646.2	36.6	-26.3	44.5	10.53	10.19	-52.19
7,003.0	8.48	318.54	7,001.9	1,678.9	39.6	-28.8	48.3	10.84	10.64	-18.64
7,035.0	12.04	320.47	7,033.4	1,710.4	44.0	-32.4	53.8	11.18	11.13	6.03
7,067.0	14.99	323.99	7,064.5	1,741.5	49.9	-37.0	61.2	9.57	9.22	11.00
7,098.0	18.02	327.41	7,094.3	1,771.3	57.2	-41.9	69.9	10.26	9.77	11.03
7,130.0	21.58	330.14	7,124.4	1,801.4	66.5	-47.5	80.7	11.49	11.13	8.53
7,162.0	25.41	331.19	7,153.7	1,830.7	77.6	-53.8	93.4	12.04	11.97	3.28
7,194.0	28.66	331.54	7,182.2	1,859.2	90.3	-60.8	107.9	10.17	10.16	1.09
7,226.0	32.44	332.42	7,209.8	1,886.8	104.7	-68.4	124.2	11.89	11.81	2.75
7,258.0	35.96	333.65	7,236.2	1,913.2	120.7	-76.5	142.2	11.21	11.00	3.84
7,290.0	39.08	336.55	7,261.6	1,938.6	138.4	-84.7	161.7	11.20	9.75	9.06
7,322.0	41.63	338.75	7,286.0	1,963.0	157.6	-92.6	182.3	9.13	7.97	6.88
7,353.0	44.57	339.89	7,308.6	1,985.6	177.4	-100.1	203.4	9.81	9.48	3.68
7,386.0	47.87	340.42	7,331.4	2,008.4	199.8	-108.1	227.1	10.07	10.00	1.61
7,418.0	51.56	340.68	7,352.1	2,029.1	222.8	-116.3	251.3	11.55	11.53	0.81
7,449.0	54.81	340.95	7,370.7	2,047.7	246.3	-124.4	275.9	10.51	10.48	0.87
7,481.0	57.98	340.60	7,388.4	2,065.4	271.4	-133.2	302.3	9.95	9.91	-1.09
7,512.0	60.57	339.81	7,404.3	2,081.3	296.5	-142.2	328.8	8.64	8.35	-2.55
7,544.0	63.08	338.58	7,419.4	2,096.4	322.9	-152.2	356.9	8.54	7.84	-3.84
7,576.0	65.98	337.26	7,433.1	2,110.1	349.6	-163.1	385.7	9.80	9.06	-4.13
7,609.0	69.45	335.94	7,445.6	2,122.6	377.6	-175.2	416.2	11.15	10.52	-4.00
7,640.0	72.13	334.88	7,455.8	2,132.8	404.3	-187.4	445.4	9.23	8.65	-3.42
7,672.0	74.90	334.36	7,464.9	2,141.9	432.0	-200.6	476.1	8.80	8.66	-1.63
7,703.0	77.76	334.36	7,472.2	2,149.2	459.1	-213.6	506.2	9.23	9.23	0.00
7,735.0	81.89	334.80	7,477.9	2,154.9	487.6	-227.1	537.7	12.98	12.91	1.38
7,855.0	85.36	336.82	7,491.2	2,168.2	596.3	-276.0	656.8	3.34	2.89	1.68
7,887.0	86.29	337.70	7,493.5	2,170.5	625.8	-288.3	688.7	4.00	2.91	2.75
7,918.0	88.04	336.91	7,495.1	2,172.1	654.3	-300.3	719.6	6.19	5.65	-2.55
7,950.0	89.32	336.55	7,495.8	2,172.8	683.7	-312.9	751.5	4.16	4.00	-1.13
8,015.0	88.84	336.38	7,496.9	2,173.9	743.3	-338.8	816.4	0.78	-0.74	-0.26

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Well:	Lion Creek #07-24H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	Database:	Local

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)
8,077.0	89.01	336.20	7,498.0	2,175.0	800.1	-363.8	878.4	0.40	0.27	-0.29
8,140.0	88.48	335.06	7,499.4	2,176.4	857.4	-389.8	941.3	2.00	-0.84	-1.81
8,204.0	88.92	335.50	7,500.9	2,177.9	915.6	-416.5	1,005.2	0.97	0.69	0.69
8,299.0	88.44	335.76	7,503.0	2,180.0	1,002.1	-455.7	1,100.2	0.57	-0.51	0.27
8,363.0	89.63	335.76	7,504.1	2,181.1	1,060.4	-482.0	1,164.1	1.86	1.86	0.00
8,427.0	89.23	335.24	7,504.8	2,181.8	1,118.6	-508.5	1,228.1	1.03	-0.63	-0.81
8,492.0	89.76	335.85	7,505.3	2,182.3	1,177.8	-535.4	1,293.0	1.24	0.82	0.94
8,556.0	89.80	337.17	7,505.6	2,182.6	1,236.5	-560.9	1,356.9	2.06	0.06	2.06
8,622.0	90.02	337.26	7,505.7	2,182.7	1,297.4	-586.5	1,422.8	0.36	0.33	0.14
8,685.0	89.89	337.87	7,505.7	2,182.7	1,355.6	-610.5	1,485.6	0.99	-0.21	0.97
8,747.0	90.11	338.58	7,505.7	2,182.7	1,413.2	-633.5	1,547.4	1.20	0.35	1.15
8,811.0	88.97	338.49	7,506.2	2,183.2	1,472.7	-657.0	1,611.2	1.79	-1.78	-0.14
8,876.0	88.57	338.66	7,507.6	2,184.6	1,533.2	-680.7	1,675.9	0.67	-0.62	0.26
8,943.0	87.87	337.17	7,509.7	2,186.7	1,595.3	-705.9	1,742.7	2.46	-1.04	-2.22
9,004.0	88.70	336.11	7,511.5	2,188.5	1,651.2	-730.0	1,803.6	2.21	1.36	-1.74
9,069.0	90.64	337.17	7,511.9	2,188.9	1,710.9	-755.8	1,868.5	3.40	2.98	1.63
9,133.0	89.71	335.94	7,511.7	2,188.7	1,769.6	-781.3	1,932.4	2.41	-1.45	-1.92
9,198.0	89.71	336.20	7,512.1	2,189.1	1,829.0	-807.6	1,997.3	0.40	0.00	0.40
9,294.0	89.54	336.20	7,512.7	2,189.7	1,916.9	-846.4	2,093.2	0.18	-0.18	0.00
9,357.0	89.63	336.55	7,513.1	2,190.1	1,974.6	-871.6	2,156.2	0.57	0.14	0.56
9,422.0	89.67	337.08	7,513.5	2,190.5	2,034.3	-897.2	2,221.1	0.82	0.06	0.82
9,487.0	89.80	337.17	7,513.8	2,190.8	2,094.2	-922.5	2,285.9	0.24	0.20	0.14
9,551.0	89.89	337.52	7,514.0	2,191.0	2,153.3	-947.1	2,349.8	0.56	0.14	0.55
9,616.0	89.93	338.05	7,514.1	2,191.1	2,213.5	-971.7	2,414.6	0.82	0.06	0.82
9,680.0	89.32	338.49	7,514.5	2,191.5	2,272.9	-995.4	2,478.4	1.18	-0.95	0.69
9,745.0	89.58	337.61	7,515.2	2,192.2	2,333.2	-1,019.7	2,543.2	1.41	0.40	-1.35
9,842.0	89.45	337.43	7,516.0	2,193.0	2,422.8	-1,056.8	2,640.0	0.23	-0.13	-0.19
9,874.0	89.93	337.52	7,516.1	2,193.1	2,452.4	-1,069.0	2,671.9	1.53	1.50	0.28
9,938.0	89.80	337.61	7,516.3	2,193.3	2,511.5	-1,093.5	2,735.7	0.25	-0.20	0.14
10,035.0	89.80	337.78	7,516.6	2,193.6	2,601.3	-1,130.3	2,832.5	0.18	0.00	0.18
10,099.0	90.15	336.55	7,516.7	2,193.7	2,660.3	-1,155.1	2,896.3	2.00	0.55	-1.92
10,163.0	89.49	336.03	7,516.9	2,193.9	2,718.9	-1,180.9	2,960.3	1.31	-1.03	-0.81
10,228.0	91.25	336.64	7,516.4	2,193.4	2,778.4	-1,206.9	3,025.2	2.87	2.71	0.94
10,292.0	90.99	336.38	7,515.2	2,192.2	2,837.1	-1,232.5	3,089.1	0.57	-0.41	-0.41
10,356.0	90.55	336.55	7,514.3	2,191.3	2,895.7	-1,258.0	3,153.0	0.74	-0.69	0.27
10,421.0	89.01	335.94	7,514.6	2,191.6	2,955.2	-1,284.2	3,217.9	2.55	-2.37	-0.94
10,485.0	90.81	336.47	7,514.7	2,191.7	3,013.8	-1,310.0	3,281.9	2.93	2.81	0.83
10,549.0	89.54	335.94	7,514.5	2,191.5	3,072.3	-1,335.8	3,345.8	2.15	-1.98	-0.83
10,613.0	88.57	335.76	7,515.5	2,192.5	3,130.7	-1,362.0	3,409.7	1.54	-1.52	-0.28
10,678.0	88.97	336.03	7,516.9	2,193.9	3,190.1	-1,388.5	3,474.7	0.74	0.62	0.42
10,741.0	91.12	335.94	7,516.9	2,193.9	3,247.6	-1,414.2	3,537.6	3.42	3.41	-0.14
10,805.0	90.51	335.85	7,516.0	2,193.0	3,306.0	-1,440.3	3,601.5	0.96	-0.95	-0.14

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Well:	Lion Creek #07-24H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	Database:	Local

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)
10,868.0	90.59	337.35	7,515.4	2,192.4	3,363.8	-1,465.3	3,664.5	2.38	0.13	2.38
10,900.0	90.86	337.96	7,515.0	2,192.0	3,393.4	-1,477.5	3,696.4	2.08	0.84	1.91
10,962.0	90.55	338.93	7,514.2	2,191.2	3,451.1	-1,500.3	3,758.1	1.64	-0.50	1.56
11,027.0	90.15	339.10	7,513.8	2,190.8	3,511.8	-1,523.6	3,822.8	0.67	-0.62	0.26
11,123.0	90.15	338.05	7,513.6	2,190.6	3,601.1	-1,558.6	3,918.5	1.09	0.00	-1.09
11,188.0	89.71	338.93	7,513.6	2,190.6	3,661.6	-1,582.5	3,983.2	1.51	-0.68	1.35
11,251.0	89.93	339.10	7,513.8	2,190.8	3,720.4	-1,605.0	4,045.9	0.44	0.35	0.27
11,316.0	89.63	339.45	7,514.1	2,191.1	3,781.2	-1,628.0	4,110.6	0.71	-0.46	0.54
11,380.0	88.62	339.54	7,515.1	2,192.1	3,841.2	-1,650.4	4,174.3	1.58	-1.58	0.14
11,440.0	88.04	338.93	7,516.8	2,193.8	3,897.2	-1,671.7	4,234.0	1.40	-0.97	-1.02
Projection to Bit										
11,490.0	88.04	338.93	7,518.5	2,195.5	3,943.9	-1,689.7	4,283.7	0.00	0.00	0.00

Survey Annotations

Measured Depth (')	Vertical Depth (')	Local Coordinates		Comment
		+N-S (')	+E-W (')	
11,490.0	7,518.5	3,943.6	-1,690.3	Projection to Bit

Checked By: _____	Approved By: _____	Date: _____
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WELL DETAILS: Lion Creek #07-24H

	Ground Level:	Easting	Latitude	Longitude	Sht
+85.5	5296.0	2276001.20	40° 54' 5.220 N	104° 39' 21.850 W	
+84.0	5296.0	577831.45			

SECTION DETAILS

No plan data is available

FORMATION TOP DETAILS

No formation data is available

ANNOTATIONS

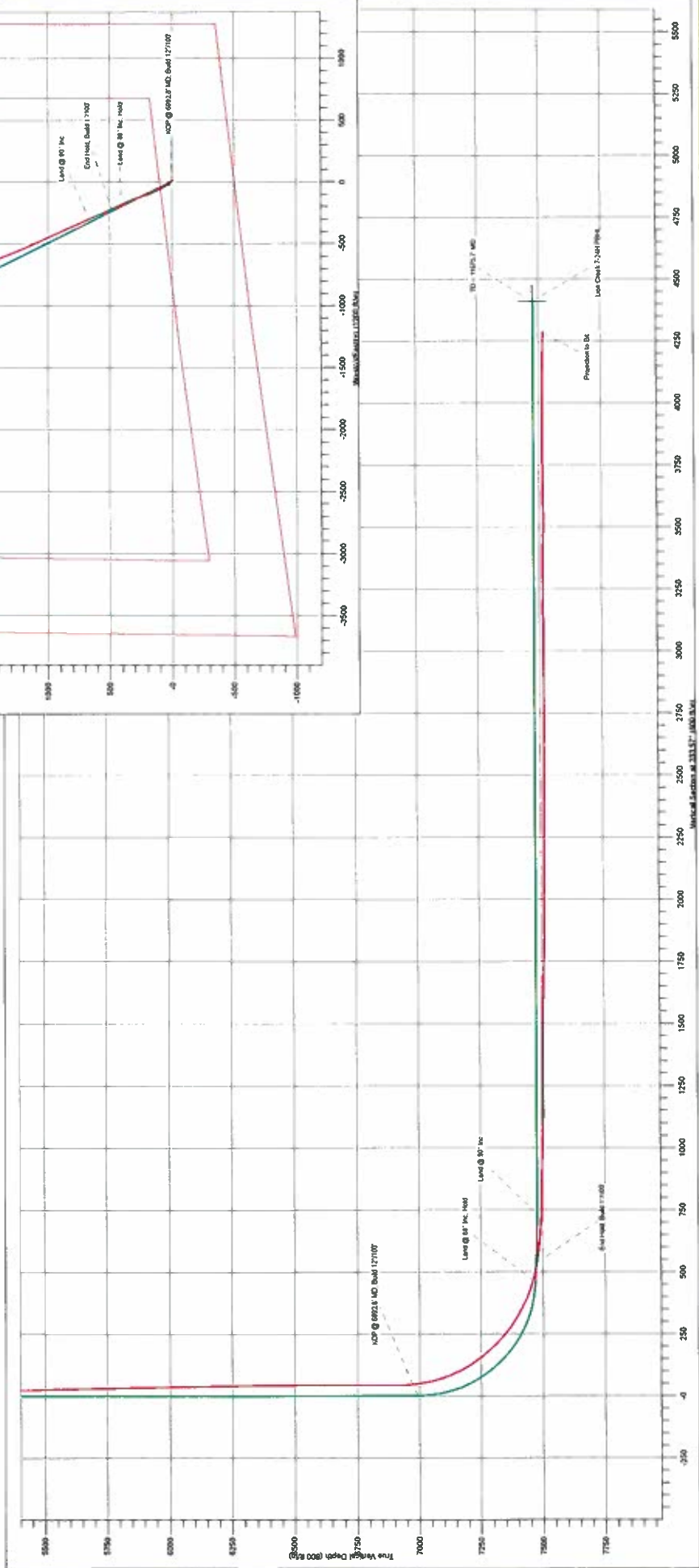
TVD	MD	Annotation
7518.5	11490.0	Projection to B4

CASINO DETAILS

Actualizado de 2010

WE'LL BORE TARGET DETAILS RAY1.ONG1

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shearline target data if available.
TABLE 10-1. Shearline Target Data						



Approximate to True North
Magnetic North 8.81°



PHOENIX
TECHNOLOGY SERVICES