

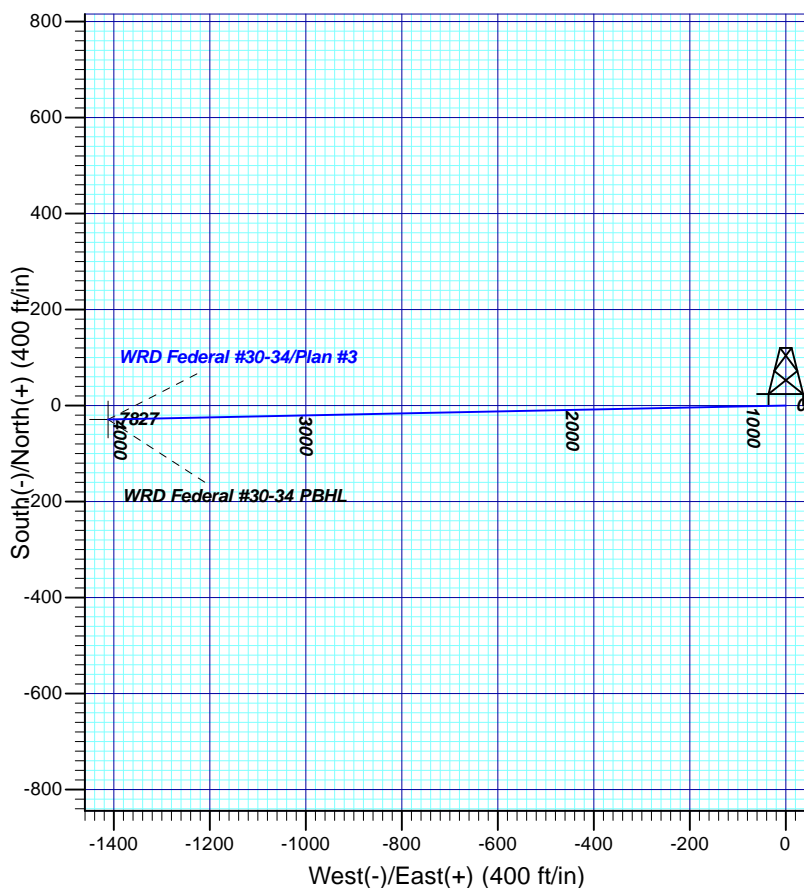
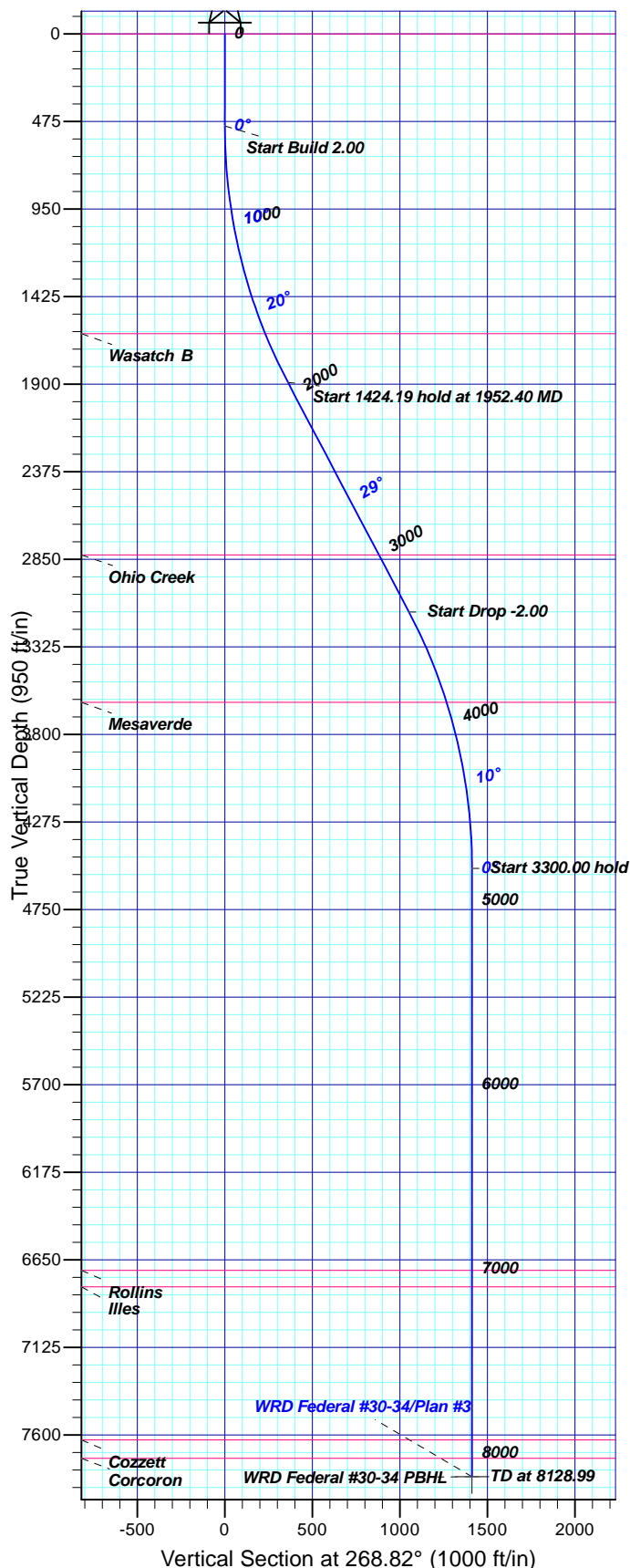
## Well Details: WRD Federal #30-34

GL 6025.5 @ 6025.50ft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1294835.16	2246167.82	40.1112610	-108.1955940	

**T M** Azimuths to True North  
 Magnetic North: 10.31°

Magnetic Field  
 Strength: 52278.5nT  
 Dip Angle: 66.14°  
 Date: 7/23/2013  
 Model: BGGM2013



### FORMATION TOP DETAILS

TVDP	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1627.00	1658.30	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
2827.00	3023.11	0.00	0.00	1890.98	-7.42	-360.28	2.00	268.82	360.35	
3627.00	3913.49	0.00	0.00	3136.02	-21.67	-1051.64	0.00	0.00	0.00	
6707.00	7008.99	0.00	0.00	4527.00	-29.09	-1411.91	2.00	180.00	412.21	
6797.00	7098.99	0.00	0.00	7827.00	-29.09	-1411.91	0.00	0.00	412.21	WRD Federal #30-34 PBHL
7627.00	7928.99	0.00	0.00							
7727.00	8028.99	0.00	0.00							

### Plan: Plan #3

17:31, October 02 2014  
 Created By: Janie Collins

PROJECT DETAILS: Rio Blanco County, CO NAD83

Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Colorado Northern Zone

System Datum: Mean Sea Level

### CASING DETAILS

No casing data is available

### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	1952.40	29.05	268.82	1890.98	-7.42	-360.28	2.00	268.82	360.35	
4	3376.59	29.05	268.82	3136.02	-21.67	-1051.64	0.00	0.00	0.00	
5	4828.99	0.00	0.00	4527.00	-29.09	-1411.91	2.00	180.00	412.21	
6	8128.99	0.00	0.00	7827.00	-29.09	-1411.91	0.00	0.00	412.21	WRD Federal #30-34 PBHL

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
WRD Federal #30-34 PBHL	7827.00	-29.09	-1411.91	1294848.99	2244755.68	40.1111810	-108.2006420	Point

- plan hits target center

# **Koch Exploration Co. LLC**

Rio Blanco County, CO NAD83

WRD Federal

WRD Federal #30-34

OH

Plan: Plan #3

## **Standard Planning Report - Geographic**

02 October, 2014



[www.scientificdrilling.com](http://www.scientificdrilling.com)



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well WRD Federal #30-34
<b>Company:</b>	Koch Exploration Co. LLC	<b>TVD Reference:</b>	GL 6025.5 @ 6025.50ft
<b>Project:</b>	Rio Blanco County, CO NAD83	<b>MD Reference:</b>	GL 6025.5 @ 6025.50ft
<b>Site:</b>	WRD Federal	<b>North Reference:</b>	True
<b>Well:</b>	WRD Federal #30-34	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

<b>Project</b>	Rio Blanco County, CO NAD83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Site</b>	WRD Federal			
<b>Site Position:</b>		<b>Northing:</b>	1,294,798.36 usft	<b>Latitude:</b> 40.1109139
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,243,223.73 usft	<b>Longitude:</b> -108.2061111
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.75 °

<b>Well</b>	WRD Federal #30-34			
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	1,294,835.15 usft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	2,246,167.82 usft
<b>Position Uncertainty</b>	0.00 ft		<b>Wellhead Elevation:</b>	<b>Latitude:</b> 40.1112610
				<b>Longitude:</b> -108.1955940
				<b>Ground Level:</b> 6,025.50 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2013	7/23/2013	10.31	66.14	52,278

<b>Design</b>	Plan #3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	268.82

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,952.40	29.05	268.82	1,890.98	-7.42	-360.28	2.00	2.00	0.00	268.82	
3,376.59	29.05	268.82	3,136.02	-21.67	-1,051.64	0.00	0.00	0.00	0.00	
4,828.99	0.00	0.00	4,527.00	-29.09	-1,411.91	2.00	-2.00	0.00	180.00	
8,128.99	0.00	0.00	7,827.00	-29.09	-1,411.91	0.00	0.00	0.00	0.00	WRD Federal #30-34

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well WRD Federal #30-34
<b>Company:</b>	Koch Exploration Co. LLC	<b>TVD Reference:</b>	GL 6025.5 @ 6025.50ft
<b>Project:</b>	Rio Blanco County, CO NAD83	<b>MD Reference:</b>	GL 6025.5 @ 6025.50ft
<b>Site:</b>	WRD Federal	<b>North Reference:</b>	True
<b>Well:</b>	WRD Federal #30-34	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	1,294,835.15	2,246,167.82	40.1112610	-108.1955940
<b>Wasatch</b>									
100.00	0.00	0.00	100.00	0.00	0.00	1,294,835.15	2,246,167.82	40.1112610	-108.1955940
200.00	0.00	0.00	200.00	0.00	0.00	1,294,835.15	2,246,167.82	40.1112610	-108.1955940
300.00	0.00	0.00	300.00	0.00	0.00	1,294,835.15	2,246,167.82	40.1112610	-108.1955940
400.00	0.00	0.00	400.00	0.00	0.00	1,294,835.15	2,246,167.82	40.1112610	-108.1955940
500.00	0.00	0.00	500.00	0.00	0.00	1,294,835.15	2,246,167.82	40.1112610	-108.1955940
600.00	2.00	268.82	599.98	-0.04	-1.74	1,294,835.17	2,246,166.08	40.1112609	-108.1956003
700.00	4.00	268.82	699.84	-0.14	-6.98	1,294,835.22	2,246,160.85	40.1112606	-108.1956190
800.00	6.00	268.82	799.45	-0.32	-15.69	1,294,835.31	2,246,152.13	40.1112601	-108.1956501
900.00	8.00	268.82	898.70	-0.57	-27.87	1,294,835.43	2,246,139.94	40.1112594	-108.1956937
1,000.00	10.00	268.82	997.47	-0.90	-43.51	1,294,835.58	2,246,124.30	40.1112585	-108.1957496
1,100.00	12.00	268.82	1,095.62	-1.29	-62.59	1,294,835.77	2,246,105.22	40.1112574	-108.1958178
1,200.00	14.00	268.82	1,193.06	-1.75	-85.08	1,294,835.99	2,246,082.73	40.1112562	-108.1958982
1,300.00	16.00	268.82	1,289.64	-2.29	-110.95	1,294,836.24	2,246,056.85	40.1112547	-108.1959907
1,400.00	18.00	268.82	1,385.27	-2.89	-140.18	1,294,836.53	2,246,027.62	40.1112531	-108.1960952
1,500.00	20.00	268.82	1,479.82	-3.56	-172.73	1,294,836.85	2,245,995.06	40.1112512	-108.1962116
1,600.00	22.00	268.82	1,573.17	-4.30	-208.56	1,294,837.20	2,245,959.23	40.1112492	-108.1963397
1,658.30	23.17	268.82	1,627.00	-4.76	-230.94	1,294,837.42	2,245,936.84	40.1112479	-108.1964197
<b>Wasatch B</b>									
1,700.00	24.00	268.82	1,665.21	-5.10	-247.62	1,294,837.58	2,245,920.16	40.1112470	-108.1964794
1,800.00	26.00	268.82	1,755.84	-5.97	-289.87	1,294,837.99	2,245,877.90	40.1112446	-108.1966304
1,900.00	28.00	268.82	1,844.94	-6.91	-335.26	1,294,838.44	2,245,832.51	40.1112420	-108.1967927
1,952.40	29.05	268.82	1,890.98	-7.42	-360.28	1,294,838.68	2,245,807.49	40.1112406	-108.1968821
2,000.00	29.05	268.82	1,932.59	-7.90	-383.38	1,294,838.91	2,245,784.38	40.1112393	-108.1969647
2,100.00	29.05	268.82	2,020.01	-8.90	-431.93	1,294,839.39	2,245,735.83	40.1112365	-108.1971383
2,200.00	29.05	268.82	2,107.43	-9.90	-480.47	1,294,839.86	2,245,687.27	40.1112338	-108.1973119
2,300.00	29.05	268.82	2,194.85	-10.90	-529.01	1,294,840.34	2,245,638.72	40.1112310	-108.1974854
2,400.00	29.05	268.82	2,282.27	-11.90	-577.56	1,294,840.81	2,245,590.17	40.1112283	-108.1976590
2,500.00	29.05	268.82	2,369.69	-12.90	-626.10	1,294,841.29	2,245,541.62	40.1112256	-108.1978325
2,600.00	29.05	268.82	2,457.12	-13.90	-674.65	1,294,841.77	2,245,493.07	40.1112228	-108.1980061
2,700.00	29.05	268.82	2,544.54	-14.90	-723.19	1,294,842.24	2,245,444.52	40.1112201	-108.1981797
2,800.00	29.05	268.82	2,631.96	-15.90	-771.73	1,294,842.72	2,245,395.96	40.1112173	-108.1983532
2,900.00	29.05	268.82	2,719.38	-16.90	-820.28	1,294,843.19	2,245,347.41	40.1112146	-108.1985268
3,000.00	29.05	268.82	2,806.80	-17.90	-868.82	1,294,843.67	2,245,298.86	40.1112118	-108.1987003
3,023.11	29.05	268.82	2,827.00	-18.13	-880.04	1,294,843.78	2,245,287.64	40.1112112	-108.1987404
<b>Ohio Creek</b>									
3,100.00	29.05	268.82	2,894.22	-18.90	-917.37	1,294,844.14	2,245,250.31	40.1112091	-108.1988739
3,200.00	29.05	268.82	2,981.64	-19.90	-965.91	1,294,844.62	2,245,201.76	40.1112063	-108.1990475
3,300.00	29.05	268.82	3,069.07	-20.90	-1,014.45	1,294,845.10	2,245,153.20	40.1112036	-108.1992210
3,376.59	29.05	268.82	3,136.02	-21.67	-1,051.64	1,294,845.46	2,245,116.02	40.1112014	-108.1993539
3,400.00	28.58	268.82	3,156.53	-21.90	-1,062.92	1,294,845.57	2,245,104.74	40.1112008	-108.1993943
3,500.00	26.58	268.82	3,245.16	-22.85	-1,109.20	1,294,846.02	2,245,058.44	40.1111982	-108.1995598
3,600.00	24.58	268.82	3,335.36	-23.74	-1,152.37	1,294,846.45	2,245,015.27	40.1111957	-108.1997141
3,700.00	22.58	268.82	3,427.00	-24.57	-1,192.36	1,294,846.84	2,244,975.27	40.1111935	-108.1998571
3,800.00	20.58	268.82	3,519.99	-25.32	-1,229.13	1,294,847.20	2,244,938.49	40.1111914	-108.1999885
3,900.00	18.58	268.82	3,614.20	-26.01	-1,262.63	1,294,847.53	2,244,904.99	40.1111895	-108.2001083
3,913.49	18.31	268.82	3,627.00	-26.10	-1,266.90	1,294,847.57	2,244,900.72	40.1111892	-108.2001236
<b>Mesaverde</b>									
4,000.00	16.58	268.82	3,709.53	-26.64	-1,292.83	1,294,847.82	2,244,874.79	40.1111878	-108.2002163
4,100.00	14.58	268.82	3,805.85	-27.19	-1,319.68	1,294,848.09	2,244,847.93	40.1111863	-108.2003123
4,200.00	12.58	268.82	3,903.05	-27.67	-1,343.15	1,294,848.32	2,244,824.45	40.1111849	-108.2003962
4,300.00	10.58	268.82	4,001.01	-28.09	-1,363.22	1,294,848.51	2,244,804.38	40.1111838	-108.2004679
4,400.00	8.58	268.82	4,099.61	-28.43	-1,379.86	1,294,848.68	2,244,787.74	40.1111828	-108.2005274

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well WRD Federal #30-34
<b>Company:</b>	Koch Exploration Co. LLC	<b>TVD Reference:</b>	GL 6025.5 @ 6025.50ft
<b>Project:</b>	Rio Blanco County, CO NAD83	<b>MD Reference:</b>	GL 6025.5 @ 6025.50ft
<b>Site:</b>	WRD Federal	<b>North Reference:</b>	True
<b>Well:</b>	WRD Federal #30-34	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

**Planned Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,500.00	6.58	268.82	4,198.73	-28.70	-1,393.05	1,294,848.81	2,244,774.55	40.1111821	-108.2005746
4,600.00	4.58	268.82	4,298.25	-28.90	-1,402.77	1,294,848.90	2,244,764.83	40.1111815	-108.2006093
4,700.00	2.58	268.82	4,398.05	-29.03	-1,409.01	1,294,848.96	2,244,758.59	40.1111812	-108.2006317
4,800.00	0.58	268.82	4,498.01	-29.09	-1,411.77	1,294,848.99	2,244,755.83	40.1111810	-108.2006415
4,828.99	0.00	0.00	4,527.00	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
4,900.00	0.00	0.00	4,598.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,000.00	0.00	0.00	4,698.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,100.00	0.00	0.00	4,798.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,200.00	0.00	0.00	4,898.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,300.00	0.00	0.00	4,998.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,400.00	0.00	0.00	5,098.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,500.00	0.00	0.00	5,198.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,600.00	0.00	0.00	5,298.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,700.00	0.00	0.00	5,398.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,800.00	0.00	0.00	5,498.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
5,900.00	0.00	0.00	5,598.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,000.00	0.00	0.00	5,698.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,100.00	0.00	0.00	5,798.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,200.00	0.00	0.00	5,898.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,300.00	0.00	0.00	5,998.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,400.00	0.00	0.00	6,098.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,500.00	0.00	0.00	6,198.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,600.00	0.00	0.00	6,298.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,700.00	0.00	0.00	6,398.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,800.00	0.00	0.00	6,498.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
6,900.00	0.00	0.00	6,598.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,000.00	0.00	0.00	6,698.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,008.99	0.00	0.00	6,707.00	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
<b>Rollins</b>									
7,098.99	0.00	0.00	6,797.00	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
<b>Illes</b>									
7,100.00	0.00	0.00	6,798.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,200.00	0.00	0.00	6,898.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,300.00	0.00	0.00	6,998.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,400.00	0.00	0.00	7,098.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,500.00	0.00	0.00	7,198.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,600.00	0.00	0.00	7,298.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,700.00	0.00	0.00	7,398.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,800.00	0.00	0.00	7,498.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,900.00	0.00	0.00	7,598.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
7,928.99	0.00	0.00	7,627.00	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
<b>Cozzett</b>									
8,000.00	0.00	0.00	7,698.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
8,028.99	0.00	0.00	7,727.00	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
<b>Corcoran</b>									
8,100.00	0.00	0.00	7,798.01	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
8,128.99	0.00	0.00	7,827.00	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
<b>WRD Federal #30-34 PBHL</b>									

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well WRD Federal #30-34
<b>Company:</b>	Koch Exploration Co. LLC	<b>TVD Reference:</b>	GL 6025.5 @ 6025.50ft
<b>Project:</b>	Rio Blanco County, CO NAD83	<b>MD Reference:</b>	GL 6025.5 @ 6025.50ft
<b>Site:</b>	WRD Federal	<b>North Reference:</b>	True
<b>Well:</b>	WRD Federal #30-34	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
WRD Federal #30-34 PE	0.00	0.00	7,827.00	-29.09	-1,411.91	1,294,848.99	2,244,755.68	40.1111810	-108.2006420
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Wasatch		0.00		
1,658.30	1,627.00	Wasatch B		0.00		
3,023.11	2,827.00	Ohio Creek		0.00		
3,913.49	3,627.00	Mesaverde		0.00		
7,008.99	6,707.00	Rollins		0.00		
7,098.99	6,797.00	Illes		0.00		
7,928.99	7,627.00	Cozzett		0.00		
8,028.99	7,727.00	Corcoron		0.00		