

# **Denver Division- Colorado**

**DJ - Hereford Ranch**

**Dutch Lake 11-13H**

**Dutch Lake 11-13H**

**Original Wellbore**

**Plan: APD Directional Plan**

## **Standard Planning Report**

**14 March, 2011**

# EOG Resources Inc

## Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Site Dutch Lake 11-13H
<b>Company:</b>	Denver Division- Colorado	<b>TVD Reference:</b>	RIG @ 4714.00ft (TBD)
<b>Project:</b>	DJ - Hereford Ranch	<b>MD Reference:</b>	RIG @ 4714.00ft (TBD)
<b>Site:</b>	Dutch Lake 11-13H	<b>North Reference:</b>	True
<b>Well:</b>	Dutch Lake 11-13H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Wellbore		
<b>Design:</b>	APD Directional Plan		

<b>Project</b>	DJ - Hereford Ranch, Weld County		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Colorado North 501		

<b>Site</b>	Dutch Lake 11-13H		
<b>Site Position:</b>		<b>Northing:</b>	424,816.66 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,339,983.96 ft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40° 29' 35.200 N
		<b>Longitude:</b>	104° 16' 39.331 W
		<b>Grid Convergence:</b>	0.79 deg

<b>Well</b>	Dutch Lake 11-13H		
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b> 424,816.66 ft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b> 2,339,983.96 ft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40° 29' 35.200 N
		<b>Longitude:</b>	104° 16' 39.331 W
		<b>Ground Level:</b>	4,692.00 ft

<b>Wellbore</b>	Original Wellbore				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (deg)</b>	<b>Dip Angle (deg)</b>	<b>Field Strength (nT)</b>
	IGRF200510	3/14/2011	8.60	67.22	53,280

<b>Design</b>	APD Directional Plan			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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 (deg)</b>
	0.00	0.00	0.00	152.88

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (?/100ft)	Build Rate (?/100ft)	Turn Rate (?/100ft)	TFO (deg)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,824.53	0.00	0.00	5,824.53	0.00	0.00	0.00	0.00	0.00	0.00	
6,574.54	90.00	152.88	6,302.00	-424.97	217.65	12.00	12.00	0.00	152.88	
10,553.80	90.00	152.88	6,302.00	-3,966.77	2,031.55	0.00	0.00	0.00	0.00	Dutch Lake 11-13H

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## Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Site Dutch Lake 11-13H
<b>Company:</b>	Denver Division- Colorado	<b>TVD Reference:</b>	RIG @ 4714.00ft (TBD)
<b>Project:</b>	DJ - Hereford Ranch	<b>MD Reference:</b>	RIG @ 4714.00ft (TBD)
<b>Site:</b>	Dutch Lake 11-13H	<b>North Reference:</b>	True
<b>Well:</b>	Dutch Lake 11-13H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Wellbore		
<b>Design:</b>	APD Directional Plan		

### Planned Survey

Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (?/100ft)	Build Rate (?/100ft)	Turn Rate (?/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	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
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9-5/8"</b>									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00

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## Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Site Dutch Lake 11-13H
<b>Company:</b>	Denver Division- Colorado	<b>TVD Reference:</b>	RIG @ 4714.00ft (TBD)
<b>Project:</b>	DJ - Hereford Ranch	<b>MD Reference:</b>	RIG @ 4714.00ft (TBD)
<b>Site:</b>	Dutch Lake 11-13H	<b>North Reference:</b>	True
<b>Well:</b>	Dutch Lake 11-13H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Wellbore		
<b>Design:</b>	APD Directional Plan		

### Planned Survey

Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (?/100ft)	Build Rate (?/100ft)	Turn Rate (?/100ft)
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,824.53	0.00	0.00	5,824.53	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	9.06	152.88	5,899.69	-5.30	2.71	5.95	12.00	12.00	0.00
6,000.00	21.06	152.88	5,996.08	-28.38	14.53	31.88	12.00	12.00	0.00
6,100.00	33.06	152.88	6,084.97	-68.79	35.23	77.28	12.00	12.00	0.00
6,200.00	45.06	152.88	6,162.48	-124.76	63.90	140.18	12.00	12.00	0.00
6,300.00	57.06	152.88	6,225.22	-193.86	99.29	217.81	12.00	12.00	0.00
6,400.00	69.06	152.88	6,270.45	-273.06	139.85	306.79	12.00	12.00	0.00
6,500.00	81.06	152.88	6,296.19	-358.90	183.81	403.23	12.00	12.00	0.00
6,574.54	90.00	152.88	6,302.00	-424.98	217.65	477.47	12.00	12.00	0.00
7"									
6,600.00	90.00	152.88	6,302.00	-447.64	229.26	502.93	0.00	0.00	0.00
6,700.00	90.00	152.88	6,302.00	-536.65	274.84	602.93	0.00	0.00	0.00
6,800.00	90.00	152.88	6,302.00	-625.65	320.42	702.93	0.00	0.00	0.00
6,900.00	90.00	152.88	6,302.00	-714.66	366.01	802.93	0.00	0.00	0.00
7,000.00	90.00	152.88	6,302.00	-803.66	411.59	902.93	0.00	0.00	0.00
7,100.00	90.00	152.88	6,302.00	-892.67	457.17	1,002.93	0.00	0.00	0.00
7,200.00	90.00	152.88	6,302.00	-981.68	502.76	1,102.93	0.00	0.00	0.00
7,300.00	90.00	152.88	6,302.00	-1,070.68	548.34	1,202.93	0.00	0.00	0.00
7,400.00	90.00	152.88	6,302.00	-1,159.69	593.93	1,302.93	0.00	0.00	0.00
7,500.00	90.00	152.88	6,302.00	-1,248.69	639.51	1,402.93	0.00	0.00	0.00
7,600.00	90.00	152.88	6,302.00	-1,337.70	685.09	1,502.93	0.00	0.00	0.00
7,700.00	90.00	152.88	6,302.00	-1,426.71	730.68	1,602.93	0.00	0.00	0.00
7,800.00	90.00	152.88	6,302.00	-1,515.71	776.26	1,702.93	0.00	0.00	0.00
7,900.00	90.00	152.88	6,302.00	-1,604.72	821.85	1,802.93	0.00	0.00	0.00
8,000.00	90.00	152.88	6,302.00	-1,693.73	867.43	1,902.93	0.00	0.00	0.00
8,100.00	90.00	152.88	6,302.00	-1,782.73	913.01	2,002.93	0.00	0.00	0.00
8,200.00	90.00	152.88	6,302.00	-1,871.74	958.60	2,102.93	0.00	0.00	0.00
8,300.00	90.00	152.88	6,302.00	-1,960.74	1,004.18	2,202.93	0.00	0.00	0.00
8,400.00	90.00	152.88	6,302.00	-2,049.75	1,049.77	2,302.93	0.00	0.00	0.00
8,500.00	90.00	152.88	6,302.00	-2,138.76	1,095.35	2,402.93	0.00	0.00	0.00
8,600.00	90.00	152.88	6,302.00	-2,227.76	1,140.93	2,502.93	0.00	0.00	0.00
8,700.00	90.00	152.88	6,302.00	-2,316.77	1,186.52	2,602.93	0.00	0.00	0.00
8,800.00	90.00	152.88	6,302.00	-2,405.78	1,232.10	2,702.93	0.00	0.00	0.00
8,900.00	90.00	152.88	6,302.00	-2,494.78	1,277.69	2,802.93	0.00	0.00	0.00
9,000.00	90.00	152.88	6,302.00	-2,583.79	1,323.27	2,902.93	0.00	0.00	0.00
9,100.00	90.00	152.88	6,302.00	-2,672.79	1,368.85	3,002.93	0.00	0.00	0.00
9,200.00	90.00	152.88	6,302.00	-2,761.80	1,414.44	3,102.93	0.00	0.00	0.00
9,300.00	90.00	152.88	6,302.00	-2,850.81	1,460.02	3,202.93	0.00	0.00	0.00
9,400.00	90.00	152.88	6,302.00	-2,939.81	1,505.60	3,302.93	0.00	0.00	0.00
9,500.00	90.00	152.88	6,302.00	-3,028.82	1,551.19	3,402.93	0.00	0.00	0.00
9,600.00	90.00	152.88	6,302.00	-3,117.83	1,596.77	3,502.93	0.00	0.00	0.00
9,700.00	90.00	152.88	6,302.00	-3,206.83	1,642.36	3,602.93	0.00	0.00	0.00
9,800.00	90.00	152.88	6,302.00	-3,295.84	1,687.94	3,702.93	0.00	0.00	0.00
9,900.00	90.00	152.88	6,302.00	-3,384.84	1,733.52	3,802.93	0.00	0.00	0.00
10,000.00	90.00	152.88	6,302.00	-3,473.85	1,779.11	3,902.93	0.00	0.00	0.00
10,100.00	90.00	152.88	6,302.00	-3,562.86	1,824.69	4,002.93	0.00	0.00	0.00

# EOG Resources Inc

## Planning Report

**Database:**  
**Company:**  
**Project:**  
**Site:**  
**Well:**  
**Wellbore:**  
**Design:**

EDM  
Denver Division- Colorado  
DJ - Hereford Ranch  
Dutch Lake 11-13H  
Dutch Lake 11-13H  
Original Wellbore  
APD Directional Plan

**Local Co-ordinate Reference:**  
**TVD Reference:**  
**MD Reference:**  
**North Reference:**  
**Survey Calculation Method:**

Site Dutch Lake 11-13H  
RIG @ 4714.00ft (TBD)  
RIG @ 4714.00ft (TBD)  
True  
Minimum Curvature

### Planned Survey

Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (?/100ft)	Build Rate (?/100ft)	Turn Rate (?/100ft)
10,200.00	90.00	152.88	6,302.00	-3,651.86	1,870.28	4,102.93	0.00	0.00	0.00
10,300.00	90.00	152.88	6,302.00	-3,740.87	1,915.86	4,202.93	0.00	0.00	0.00
10,400.00	90.00	152.88	6,302.00	-3,829.88	1,961.44	4,302.93	0.00	0.00	0.00
10,500.00	90.00	152.88	6,302.00	-3,918.88	2,007.03	4,402.93	0.00	0.00	0.00
10,553.80	90.00	152.88	6,302.00	-3,966.77	2,031.55	4,456.73	0.00	0.00	0.00
4 1/2" - Dutch Lake 11-13H (BHL)									

### Targets

#### Target Name

- hit/miss target	Dip Angle (deg)	Dip Dir. (deg)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
Dutch Lake 11-13H (E	0.00	0.00	6,302.00	-3,966.77	2,031.55	420,878.28	2,342,069.99	40° 28' 55.999 N	104° 16' 13.040 W
- plan hits target center									
- Point									

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
800.00	800.00	9-5/8"	9-5/8	13-1/2
6,574.54	6,302.00	7"	7	8-3/4
10,553.80	6,302.00	4 1/2"	4-1/2	6

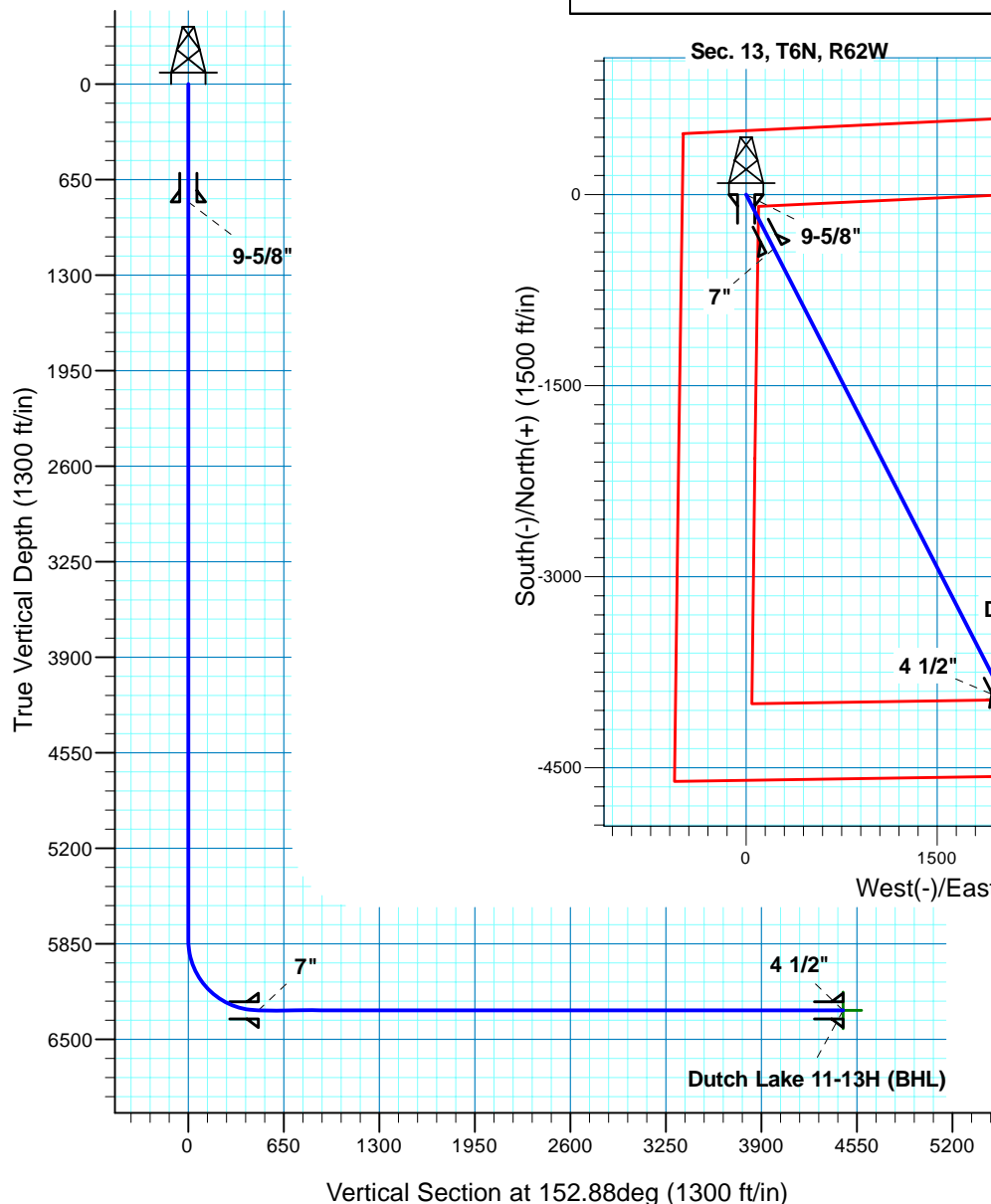
# Dutch Lake 11-13H

## Section 13 T6N R62W

### Weld County, CO

#### Surface Location

NAD 1927 (NADCON CONUS) Colorado North 501  
 Ground Elevation: 4692.00 RIG @ 4714.00ft (TBD)  
 Northing Easting Latitude Longitude  
 424816.66 2339983.96 40° 29' 35.200 N 104° 16' 39.331 W



**T M**  
 Azimuths to True North  
 Magnetic North: 8.60°  
 Magnetic Field  
 Strength: 53280.1nT  
 Dip Angle: 67.22°  
 Date: 3/14/2011  
 Model: IGRF200510

Project: DJ - Hereford Ranch  
 Site: Dutch Lake 11-13H  
 Well: Dutch Lake 11-13H  
 Plan: APD Directional Plan

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5824.53	0.00	0.00	5824.53	0.00	0.00	0.00	0.00	0.00	
3	6574.54	90.00	152.88	6302.00	-424.97	217.65	12.00	152.88	477.47	
4	10553.80	90.00	152.88	6302.00	-3966.77	2031.55	0.00	0.00	4456.73	Dutch Lake 11-13H (BHL)

#### TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Dutch Lake 11-13H (BHL)	6302.00	-3966.77	2031.55	420878.28	2342069.99	40° 28' 55.999 N	104° 16' 13.040 W	Point