

# **Denver Division- Colorado**

**DJ - Hereford Ranch  
Garden Creek 12-19H  
Garden Creek 12-19H  
Original Wellbore**

**Plan: APD Directional Plan**

## **Standard Planning Report**

**11 November, 2010**

# EOG Resources Inc

## Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Site Garden Creek 12-19H
<b>Company:</b>	Denver Division- Colorado	<b>TVD Reference:</b>	Rig @ 5223.00ft (TBD)
<b>Project:</b>	DJ - Hereford Ranch	<b>MD Reference:</b>	Rig @ 5223.00ft (TBD)
<b>Site:</b>	Garden Creek 12-19H	<b>North Reference:</b>	True
<b>Well:</b>	Garden Creek 12-19H	<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		

Site	Garden Creek 12-19H				
Site Position:		Northing:	573,913.79ft	Latitude:	40° 54' 11.459 N
From:	Lat/Long	Easting:	2,316,478.59ft	Longitude:	104° 21' 18.630 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.74 deg

Well	Garden Creek 12-19H					
Well Position	+N/-S	0.00 ft	Northing:	573,913.79 ft	Latitude:	40° 54' 11.459 N
	+E/-W	0.00 ft	Easting:	2,316,478.59 ft	Longitude:	104° 21' 18.630 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,201.00ft

<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	12/31/2009	8.84	67.58	53,605

<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	312.95

<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	
6,669.53	0.00	0.00	6,669.53	0.00	0.00	0.00	0.00	0.00	0.00	
7,419.54	90.00	300.29	7,147.00	240.84	-412.28	12.00	12.00	0.00	300.29	
9,903.97	90.00	300.29	7,147.00	1,494.00	-2,557.50	0.00	0.00	0.00	0.00	Garden Creek 12-1
11,720.04	90.00	345.69	7,147.00	2,906.59	-3,622.25	2.50	0.00	2.50	90.00	Garden Creek 12-1
12,349.19	90.00	345.69	7,147.00	3,516.24	-3,777.71	0.00	0.00	0.00	0.00	Garden Creek 12-1

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<b>Site:</b>	Garden Creek 12-19H	<b>North Reference:</b>	True
<b>Well:</b>	Garden Creek 12-19H	<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
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
1,230.00	0.00	0.00	1,230.00	0.00	0.00	0.00	0.00	0.00	0.00
9-5/8"									
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

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<b>Well:</b>	Garden Creek 12-19H	<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)
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
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
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,669.53	0.00	0.00	6,669.53	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	3.66	300.29	6,699.98	0.49	-0.84	0.95	12.00	12.00	0.00
6,800.00	15.66	300.29	6,798.38	8.94	-15.30	17.28	12.00	12.00	0.00
6,900.00	27.66	300.29	6,891.15	27.52	-47.10	53.22	12.00	12.00	0.00
7,000.00	39.66	300.29	6,974.24	55.42	-94.87	107.20	12.00	12.00	0.00
7,100.00	51.66	300.29	7,044.01	91.43	-156.51	176.85	12.00	12.00	0.00
7,200.00	63.66	300.29	7,097.41	133.96	-229.32	259.13	12.00	12.00	0.00
7,300.00	75.66	300.29	7,132.11	181.17	-310.14	350.45	12.00	12.00	0.00
7,400.00	87.66	300.29	7,146.60	230.99	-395.41	446.81	12.00	12.00	0.00
7,419.54	90.00	300.29	7,147.00	240.84	-412.28	465.87	12.00	12.00	0.00
7"									
7,500.00	90.00	300.29	7,147.00	281.42	-481.75	544.38	0.00	0.00	0.00
7,600.00	90.00	300.29	7,147.00	331.86	-568.10	641.95	0.00	0.00	0.00
7,700.00	90.00	300.29	7,147.00	382.30	-654.45	739.52	0.00	0.00	0.00
7,800.00	90.00	300.29	7,147.00	432.75	-740.79	837.09	0.00	0.00	0.00
7,900.00	90.00	300.29	7,147.00	483.19	-827.14	934.66	0.00	0.00	0.00
8,000.00	90.00	300.29	7,147.00	533.63	-913.49	1,032.23	0.00	0.00	0.00
8,100.00	90.00	300.29	7,147.00	584.07	-999.83	1,129.80	0.00	0.00	0.00
8,200.00	90.00	300.29	7,147.00	634.51	-1,086.18	1,227.37	0.00	0.00	0.00
8,300.00	90.00	300.29	7,147.00	684.95	-1,172.53	1,324.94	0.00	0.00	0.00
8,400.00	90.00	300.29	7,147.00	735.39	-1,258.87	1,422.51	0.00	0.00	0.00
8,500.00	90.00	300.29	7,147.00	785.83	-1,345.22	1,520.08	0.00	0.00	0.00
8,600.00	90.00	300.29	7,147.00	836.27	-1,431.57	1,617.65	0.00	0.00	0.00
8,700.00	90.00	300.29	7,147.00	886.71	-1,517.91	1,715.22	0.00	0.00	0.00
8,800.00	90.00	300.29	7,147.00	937.15	-1,604.26	1,812.80	0.00	0.00	0.00
8,900.00	90.00	300.29	7,147.00	987.59	-1,690.61	1,910.37	0.00	0.00	0.00
9,000.00	90.00	300.29	7,147.00	1,038.03	-1,776.95	2,007.94	0.00	0.00	0.00
9,100.00	90.00	300.29	7,147.00	1,088.47	-1,863.30	2,105.51	0.00	0.00	0.00
9,200.00	90.00	300.29	7,147.00	1,138.91	-1,949.65	2,203.08	0.00	0.00	0.00
9,300.00	90.00	300.29	7,147.00	1,189.35	-2,035.99	2,300.65	0.00	0.00	0.00
9,400.00	90.00	300.29	7,147.00	1,239.80	-2,122.34	2,398.22	0.00	0.00	0.00
9,500.00	90.00	300.29	7,147.00	1,290.24	-2,208.69	2,495.79	0.00	0.00	0.00
9,600.00	90.00	300.29	7,147.00	1,340.68	-2,295.03	2,593.36	0.00	0.00	0.00
9,700.00	90.00	300.29	7,147.00	1,391.12	-2,381.38	2,690.93	0.00	0.00	0.00
9,800.00	90.00	300.29	7,147.00	1,441.56	-2,467.73	2,788.50	0.00	0.00	0.00
9,900.00	90.00	300.29	7,147.00	1,492.00	-2,554.07	2,886.07	0.00	0.00	0.00
9,903.97	90.00	300.29	7,147.00	1,494.00	-2,557.50	2,889.95	0.00	0.00	0.00

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### 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)
10,000.00	90.00	302.69	7,147.00	1,544.16	-2,639.38	2,984.06	2.50	0.00	2.50
10,100.00	90.00	305.19	7,147.00	1,599.99	-2,722.33	3,082.82	2.50	0.00	2.50
10,200.00	90.00	307.69	7,147.00	1,659.39	-2,802.77	3,182.17	2.50	0.00	2.50
10,300.00	90.00	310.19	7,147.00	1,722.24	-2,880.54	3,281.91	2.50	0.00	2.50
10,400.00	90.00	312.69	7,147.00	1,788.42	-2,955.50	3,381.87	2.50	0.00	2.50
10,500.00	90.00	315.19	7,147.00	1,857.81	-3,027.50	3,481.85	2.50	0.00	2.50
10,600.00	90.00	317.69	7,147.00	1,930.27	-3,096.40	3,581.65	2.50	0.00	2.50
10,700.00	90.00	320.19	7,147.00	2,005.67	-3,162.08	3,681.10	2.50	0.00	2.50
10,800.00	90.00	322.69	7,147.00	2,083.86	-3,224.40	3,779.99	2.50	0.00	2.50
10,900.00	90.00	325.19	7,147.00	2,164.70	-3,283.26	3,878.15	2.50	0.00	2.50
11,000.00	90.00	327.69	7,147.00	2,248.03	-3,338.53	3,975.38	2.50	0.00	2.50
11,100.00	90.00	330.19	7,147.00	2,333.69	-3,390.11	4,071.50	2.50	0.00	2.50
11,200.00	90.00	332.69	7,147.00	2,421.51	-3,437.91	4,166.33	2.50	0.00	2.50
11,300.00	90.00	335.19	7,147.00	2,511.34	-3,481.84	4,259.68	2.50	0.00	2.50
11,400.00	90.00	337.69	7,147.00	2,603.00	-3,521.80	4,351.38	2.50	0.00	2.50
11,500.00	90.00	340.19	7,147.00	2,696.32	-3,557.73	4,441.26	2.50	0.00	2.50
11,600.00	90.00	342.69	7,147.00	2,791.11	-3,589.55	4,529.14	2.50	0.00	2.50
11,700.00	90.00	345.19	7,147.00	2,887.20	-3,617.21	4,614.85	2.50	0.00	2.50
11,720.04	90.00	345.69	7,147.00	2,906.59	-3,622.25	4,631.75	2.50	0.00	2.50
11,800.00	90.00	345.69	7,147.00	2,984.08	-3,642.00	4,699.01	0.00	0.00	0.00
11,900.00	90.00	345.69	7,147.00	3,080.97	-3,666.72	4,783.11	0.00	0.00	0.00
12,000.00	90.00	345.69	7,147.00	3,177.87	-3,691.43	4,867.22	0.00	0.00	0.00
12,100.00	90.00	345.69	7,147.00	3,274.77	-3,716.14	4,951.33	0.00	0.00	0.00
12,200.00	90.00	345.69	7,147.00	3,371.67	-3,740.85	5,035.43	0.00	0.00	0.00
12,300.00	90.00	345.69	7,147.00	3,468.57	-3,765.56	5,119.54	0.00	0.00	0.00
12,349.19	90.00	345.69	7,147.00	3,516.23	-3,777.71	5,160.91	0.00	0.00	0.00
4 1/2"									

### Targets

Target Name	Dip Angle (deg)	Dip Dir. (deg)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Garden Creek 12-19H	0.00	0.00	7,147.00	3,516.24	-3,777.71	577,380.96	2,312,655.80	40° 54' 46.199 N	104° 22' 7.831 W
- plan hits target center									
- Point									
Garden Creek 12-19H	0.00	0.00	7,147.00	1,494.00	-2,557.50	575,374.65	2,313,902.02	40° 54' 26.219 N	104° 21' 51.936 W
- plan hits target center									
- Point									

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,230.00	1,230.00	9-5/8"	9-5/8	13-1/2
7,419.54	7,147.00	7"	7	8-3/4
12,349.19	7,147.00	4 1/2"	4-1/2	6-1/4

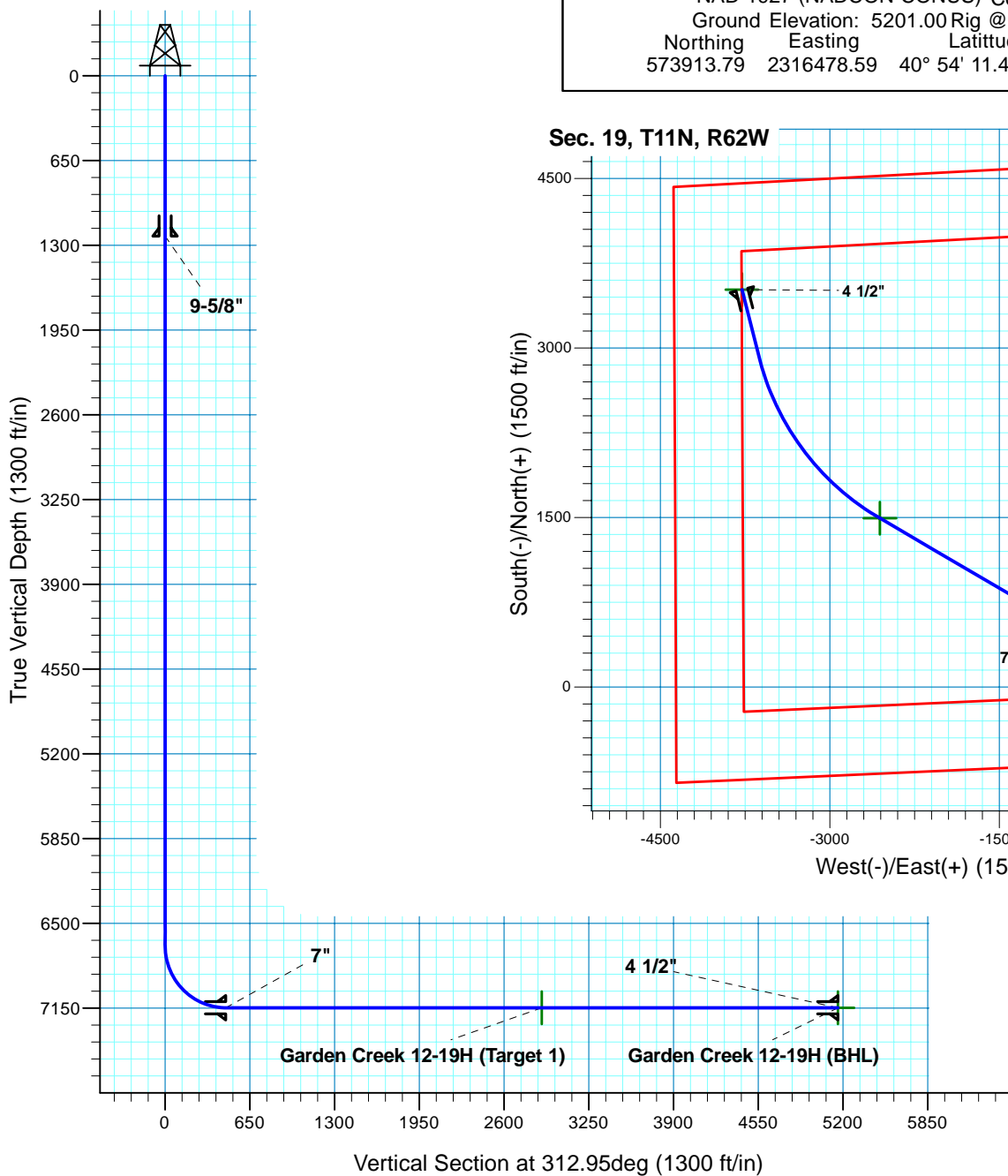
# Garden Creek 12-19H

Section 19 T11N R62W  
Weld County, CO



## Surface Location

NAD 1927 (NADCON CONUS) Colorado North 501  
Ground Elevation: 5201.00 Rig @ 5223.00ft (TBD)  
Northing Easting Latitude Longitude  
573913.79 2316478.59 40° 54' 11.459 N 104° 21' 18.630 W



**T M**  
Azimuths to True North  
Magnetic North: 8.84°  
Magnetic Field  
Strength: 53605.5nT  
Dip Angle: 67.58°  
Date: 12/31/2009  
Model: IGRF200510

Project: DJ - Hereford Ranch  
Site: Garden Creek 12-19H  
Well: Garden Creek 12-19H  
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	6669.53	0.00	0.00	6669.53	0.00	0.00	0.00	0.00	0.00	
3	7419.54	90.00	300.29	7147.00	240.84	-412.28	12.00	300.29	465.87	
4	9903.97	90.00	300.29	7147.00	1494.00	-2557.50	0.00	0.00	2889.95	Garden Creek 12-19H (Target 1)
5	11720.04	90.00	345.69	7147.00	2906.59	-3622.25	2.50	90.00	4631.75	Garden Creek 12-19H (BHL)
6	12349.19	90.00	345.69	7147.00	3516.24	-3777.71	0.00	0.00	5160.91	Garden Creek 12-19H (BHL)

## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Garden Creek 12-19H (BHL)	7147.00	3516.24	-3777.71	577380.96	2312655.80	40° 54' 46.199 N	104° 22' 7.831 W	Point
Garden Creek 12-19H (Target 1)	7147.00	1494.00	-2557.50	575374.65	2313902.02	40° 54' 26.219 N	104° 21' 51.936 W	Point