



**Weatherford®**

## **Drilling Services**

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## **Proposal**

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HF-4

MONTEZUMA CO., CO

WELL FILE: **PLAN 1**

JUNE 14, 2013

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## HF-4 Montezuma Co., Colorado

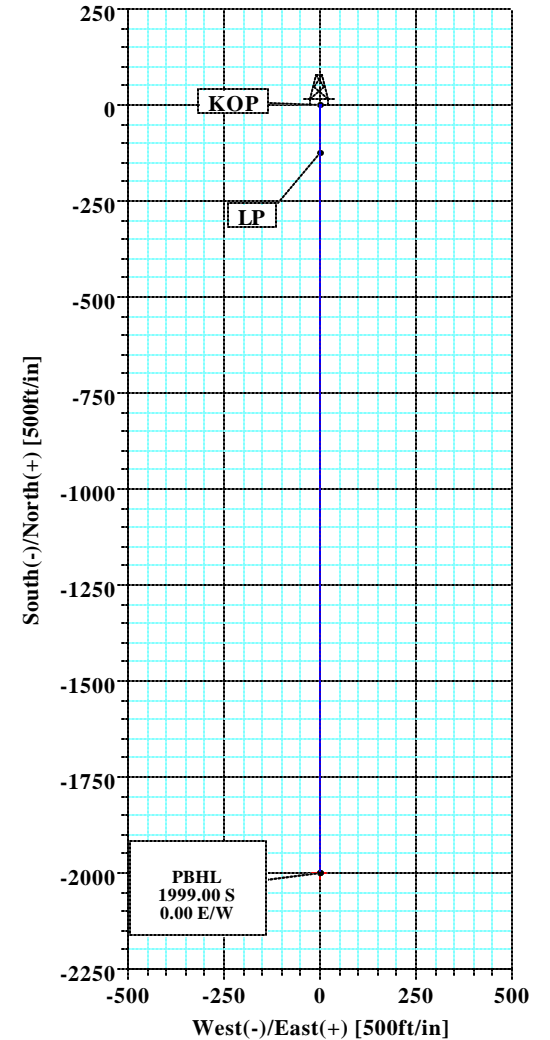
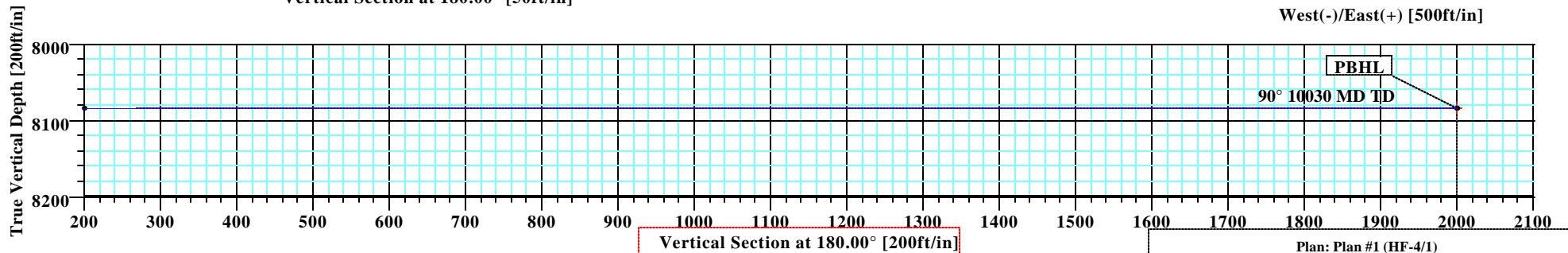
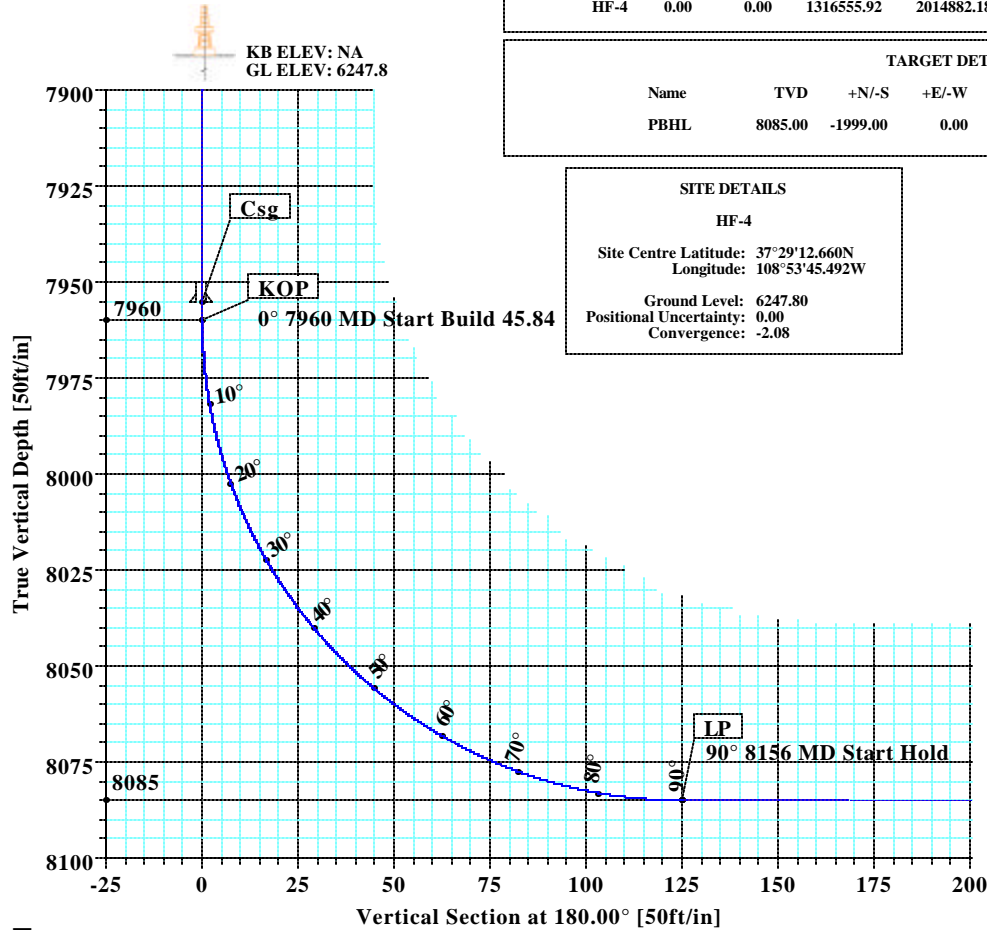
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	180.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	7960.00	0.00	180.00	7960.00	0.00	0.00	0.00	0.00	0.00	
3	8156.35	90.00	180.00	8085.00	-125.00	0.00	45.84	180.00	125.00	
4	10030.35	90.00	180.00	8085.00	-1999.00	0.00	0.00	0.00	1999.00	PBHL

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
HF-4	0.00	0.00	1316555.92	2014882.18	37°29'12.660N	108°53'45.492W	N/A

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL	8085.00	-1999.00	0.00	1314558.24	2014809.52	Point

SITE DETAILS	
HF-4	
Site Centre Latitude:	37°29'12.660N
Longitude:	108°53'45.492W
Ground Level:	6247.80
Positional Uncertainty:	0.00
Convergence:	-2.08

LEGEND	
<span style="color: red;">—</span>	1
<span style="color: blue;">—</span>	Plan #1





<b>Company:</b> Kinder Morgan	<b>Date:</b> 6/14/2013	<b>Time:</b> 09:07:55	<b>Page:</b> 1
<b>Field:</b> Montezuma Co., CO (NAD83)	<b>Co-ordinate(NE) Reference:</b> Well: HF-4, True North		
<b>Site:</b> HF-4	<b>Vertical (TVD) Reference:</b> SITE 6247.8		
<b>Well:</b> HF-4	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,180.00Azi)		
<b>Wellpath:</b> 1	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Sybase	

<b>Plan:</b> Plan #1	<b>Date Composed:</b> 6/14/2013
<b>Principal:</b> Yes	<b>Version:</b> 1
	<b>Tied-to:</b> From Surface

**Field:** Montezuma Co., CO (NAD83)  
Colorado

**Map System:** US State Plane Coordinate System 1983  
**Geo Datum:** GRS 1980  
**Sys Datum:** Mean Sea Level

**Map Zone:** Colorado, Southern Zone  
**Coordinate System:** Well Centre  
**Geomagnetic Model:** IGRF2010

**Site:** HF-4

<b>Site Position:</b>	<b>Northing:</b> 1316555.92 ft	<b>Latitude:</b> 37 29 12.660 N
<b>From:</b> Geographic	<b>Easting:</b> 2014882.18 ft	<b>Longitude:</b> 108 53 45.492 W
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> True
<b>Ground Level:</b> 6247.80 ft		<b>Grid Convergence:</b> -2.08 deg

<b>Well:</b> HF-4	<b>Slot Name:</b>
<b>Well Position:</b> +N/-S 0.00 ft	<b>Latitude:</b> 37 29 12.660 N
+E/-W 0.00 ft	<b>Longitude:</b> 108 53 45.492 W
<b>Position Uncertainty:</b> 0.00 ft	

<b>Wellpath:</b> 1	<b>Drilled From:</b> Surface
<b>Current Datum:</b> SITE	<b>Tie-on Depth:</b> 0.00 ft
<b>Magnetic Data:</b> 9/15/2013	<b>Above System Datum:</b> Mean Sea Level
<b>Field Strength:</b> 50833 nT	<b>Declination:</b> 10.19 deg
<b>Vertical Section:</b> Depth From (TVD)	<b>Mag Dip Angle:</b> 63.83 deg
ft	<b>+E/-W</b>
	<b>Direction</b>
	<b>deg</b>
8085.00	0.00
0.00	180.00

#### Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	180.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7960.00	0.00	180.00	7960.00	0.00	0.00	0.00	0.00	0.00	0.00	
8156.35	90.00	180.00	8085.00	-125.00	0.00	45.84	45.84	0.00	180.00	
10030.35	90.00	180.00	8085.00	-1999.00	0.00	0.00	0.00	0.00	0.00	PBHL

#### Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	Lat	Min	Sec	Long	Min	Sec	Comment
7900.00	0.00	180.00	7900.00	0.00	0.00	0.00	0.00	37	29	12.660	108	53	45.492	
7955.00	0.00	180.00	7955.00	0.00	0.00	0.00	0.00	37	29	12.660	108	53	45.492	
7960.00	0.00	180.00	7960.00	0.00	0.00	0.00	0.00	37	29	12.660	108	53	45.492	
7970.00	4.58	180.00	7969.99	-0.40	0.00	0.40	45.84	37	29	12.656	108	53	45.492	
7980.00	9.17	180.00	7979.91	-1.60	0.00	1.60	45.84	37	29	12.644	108	53	45.492	
7990.00	13.75	180.00	7989.71	-3.58	0.00	3.58	45.84	37	29	12.625	108	53	45.492	
8000.00	18.33	180.00	7999.32	-6.35	0.00	6.35	45.84	37	29	12.597	108	53	45.492	
8010.00	22.92	180.00	8008.68	-9.87	0.00	9.87	45.84	37	29	12.562	108	53	45.492	
8020.00	27.50	180.00	8017.72	-14.13	0.00	14.13	45.84	37	29	12.520	108	53	45.492	
8030.00	32.09	180.00	8026.40	-19.09	0.00	19.09	45.84	37	29	12.471	108	53	45.492	
8040.00	36.67	180.00	8034.65	-24.74	0.00	24.74	45.84	37	29	12.415	108	53	45.492	
8050.00	41.25	180.00	8042.42	-31.02	0.00	31.02	45.84	37	29	12.353	108	53	45.492	
8060.00	45.84	180.00	8049.67	-37.91	0.00	37.91	45.84	37	29	12.285	108	53	45.492	
8070.00	50.42	180.00	8056.34	-45.36	0.00	45.36	45.84	37	29	12.212	108	53	45.492	
8080.00	55.00	180.00	8062.40	-53.31	0.00	53.31	45.84	37	29	12.133	108	53	45.492	
8090.00	59.59	180.00	8067.80	-61.72	0.00	61.72	45.84	37	29	12.050	108	53	45.492	
8100.00	64.17	180.00	8072.51	-70.54	0.00	70.54	45.84	37	29	11.963	108	53	45.492	



Company: Kinder Morgan  
 Field: Montezuma Co., CO (NAD83)  
 Site: HF-4  
 Well: HF-4  
 Wellpath: 1

Date: 6/14/2013 Time: 09:07:55 Page: 2  
 Co-ordinate(NE) Reference: Well: HF-4, True North  
 Vertical (TVD) Reference: SITE 6247.8  
 Section (VS) Reference: Well (0.00N,0.00E,180.00Azi)  
 Survey Calculation Method: Minimum Curvature Db: Sybase

## Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	Lat	Min	Sec	Long	Min	Sec	Comment
8110.00	68.75	180.00	8076.50	-79.71	0.00	79.71	45.84	37	29	11.872	108	53	45.492	
8120.00	73.34	180.00	8079.75	-89.16	0.00	89.16	45.84	37	29	11.778	108	53	45.492	
8130.00	77.92	180.00	8082.23	-98.85	0.00	98.85	45.84	37	29	11.683	108	53	45.492	
8140.00	82.51	180.00	8083.93	-108.70	0.00	108.70	45.84	37	29	11.585	108	53	45.492	
8150.00	87.09	180.00	8084.84	-118.65	0.00	118.65	45.84	37	29	11.487	108	53	45.492	
8156.35	90.00	180.00	8085.00	-125.00	0.00	125.00	45.84	37	29	11.424	108	53	45.492	LP
8200.00	90.00	180.00	8085.00	-168.65	0.00	168.65	0.00	37	29	10.993	108	53	45.492	
8300.00	90.00	180.00	8085.00	-268.65	0.00	268.65	0.00	37	29	10.004	108	53	45.492	
8400.00	90.00	180.00	8085.00	-368.65	0.00	368.65	0.00	37	29	9.015	108	53	45.492	
8500.00	90.00	180.00	8085.00	-468.65	0.00	468.65	0.00	37	29	8.026	108	53	45.492	
8600.00	90.00	180.00	8085.00	-568.65	0.00	568.65	0.00	37	29	7.038	108	53	45.492	
8700.00	90.00	180.00	8085.00	-668.65	0.00	668.65	0.00	37	29	6.049	108	53	45.492	
8800.00	90.00	180.00	8085.00	-768.65	0.00	768.65	0.00	37	29	5.060	108	53	45.492	
8900.00	90.00	180.00	8085.00	-868.65	0.00	868.65	0.00	37	29	4.072	108	53	45.492	
9000.00	90.00	180.00	8085.00	-968.65	0.00	968.65	0.00	37	29	3.083	108	53	45.492	
9100.00	90.00	180.00	8085.00	-1068.65	0.00	1068.65	0.00	37	29	2.094	108	53	45.492	
9200.00	90.00	180.00	8085.00	-1168.65	0.00	1168.65	0.00	37	29	1.106	108	53	45.492	
9300.00	90.00	180.00	8085.00	-1268.65	0.00	1268.65	0.00	37	29	0.117	108	53	45.492	
9400.00	90.00	180.00	8085.00	-1368.65	0.00	1368.65	0.00	37	28	59.128	108	53	45.492	
9500.00	90.00	180.00	8085.00	-1468.65	0.00	1468.65	0.00	37	28	58.139	108	53	45.492	
9600.00	90.00	180.00	8085.00	-1568.65	0.00	1568.65	0.00	37	28	57.151	108	53	45.492	
9700.00	90.00	180.00	8085.00	-1668.65	0.00	1668.65	0.00	37	28	56.162	108	53	45.492	
9800.00	90.00	180.00	8085.00	-1768.65	0.00	1768.65	0.00	37	28	55.173	108	53	45.492	
9900.00	90.00	180.00	8085.00	-1868.65	0.00	1868.65	0.00	37	28	54.185	108	53	45.492	
10000.00	90.00	180.00	8085.00	-1968.65	0.00	1968.65	0.00	37	28	53.196	108	53	45.492	
10030.35	90.00	180.00	8085.00	-1999.00	0.00	1999.00	0.00	37	28	52.896	108	53	45.492	PBHL

## Targets

Name	Description	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude --->			<--- Longitude --->			
	Dip.							Deg	Min	Sec		Deg	Min	Sec
PBHL			8085.00	-1999.00	0.00	1314558.24	2014809.52	37	28	52.896	N	108	53	45.492 W

## Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
7955.00	7955.00	7.000	0.000	Csg

## Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

## Annotation

MD ft	TVD ft	
7960.00	7960.00	KOP
8156.35	8085.00	LP
10030.34	8085.00	PBHL



<b>Company:</b> Kinder Morgan	<b>Date:</b> 6/14/2013	<b>Time:</b> 09:07:55	<b>Page:</b> 3
<b>Field:</b> Montezuma Co., CO (NAD83)	<b>Co-ordinate(NE) Reference:</b> Well: HF-4, True North		
<b>Site:</b> HF-4	<b>Vertical (TVD) Reference:</b> SITE 6247.8		
<b>Well:</b> HF-4	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,180.00Azi)		
<b>Wellpath:</b> 1	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Sybase	

**Field:** Montezuma Co., CO (NAD83)  
Colorado

**Map System:** US State Plane Coordinate System 1983  
**Geo Datum:** GRS 1980  
**Sys Datum:** Mean Sea Level

**Map Zone:** Colorado, Southern Zone  
**Coordinate System:** Well Centre  
**Geomagnetic Model:** IGRF2010

**Weatherford®****Weatherford Drilling Services**

GeoDec v5.03

Report Date: June 14, 2013

Job Number: \_\_\_\_\_

Customer: Kinder Morgan

Well Name: HF-4

API Number: \_\_\_\_\_

Rig Name: \_\_\_\_\_

Location: Montezuma Co., CO

Block: \_\_\_\_\_

Engineer: Patrick Rudolph

Geodetic Latitude / Longitude

System: Latitude / Longitude

Projection: Geodetic Latitude and Longitude

Datum: North American Datum 1983

Ellipsoid: GRS 1980

Latitude 37.4868500 DEG

Longitude -108.8959700 DEG

Geodetic Latitude / Longitude

System: Latitude / Longitude

Projection: Geodetic Latitude and Longitude

Datum: North American Datum 1983

Ellipsoid: GRS 1980

Latitude 37 29 12.660000 DMS

Longitude -108 53 45.492000 DMS

Geodetic Location WGS84

Elevation = 0.0 Meters

Latitude = 37.48685° N 37° 29 min 12.660 sec

Longitude = 108.89597° W 108° 53 min 45.492 sec

Magnetic Declination = 10.24° [True North Offset]

Local Gravity = .9993 g CheckSum = 7466

Local Field Strength = 50770 nT Magnetic Vector X = 22021 nT

Magnetic Dip = 63.85° Magnetic Vector Y = 3977 nT

Magnetic Model = bggm2013 Magnetic Vector Z = 45572 nT

Spud Date = Sep 15, 2013 Magnetic Vector H = 22377 nT

Signed: \_\_\_\_\_

Date: \_\_\_\_\_