



Weatherford[®]

Drilling Services

Proposal



HE 6

MONTEZUMA CO., CO

WELL FILE: **PLAN &**

ÖÖÖÖMBER FG, 2011

Weatherford International, Ltd.

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Midland, TX 79711 USA

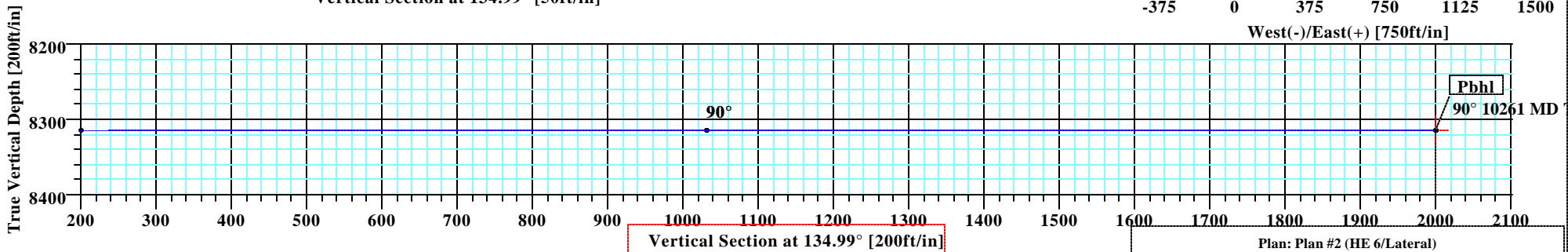
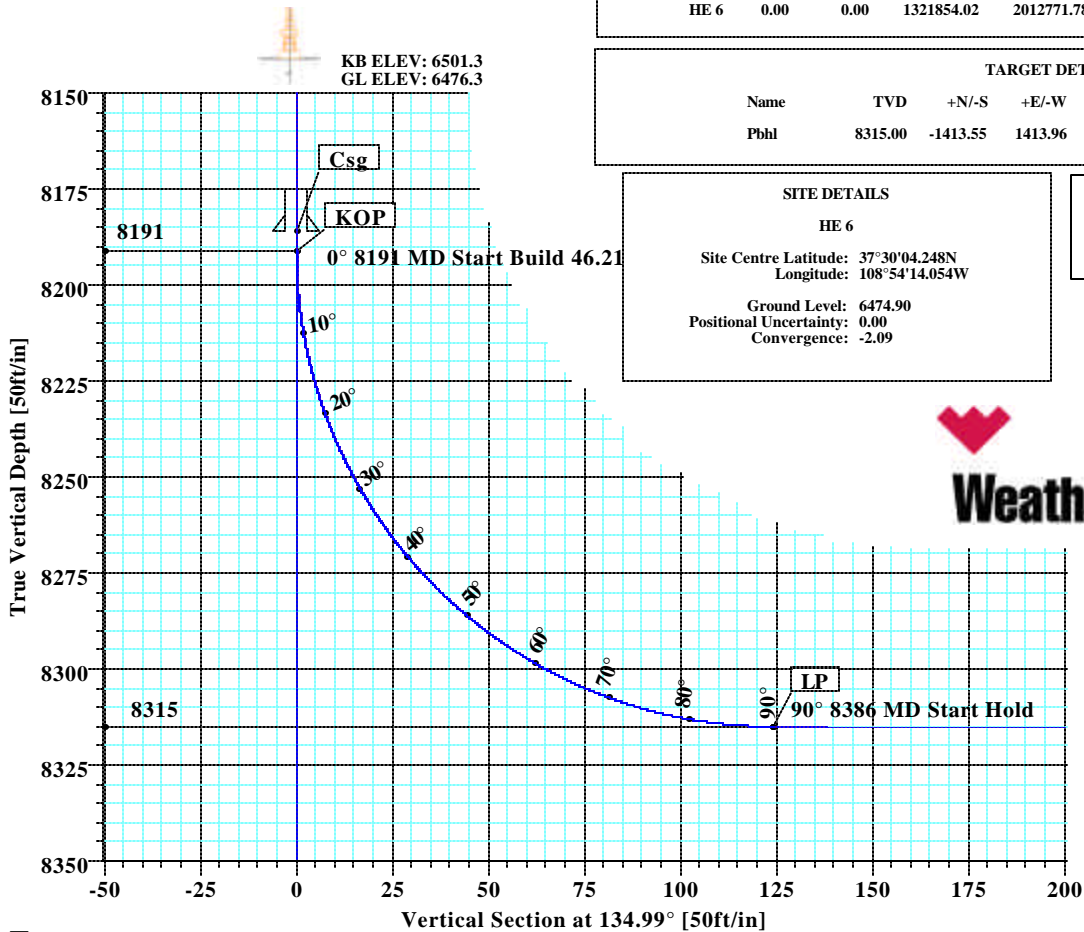
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HE 6 Montezuma Co., Colorado



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	134.99	0.00	0.00	0.00	0.00	0.00	0.00	
2	8191.00	0.00	134.99	8191.00	0.00	0.00	0.00	0.00	0.00	
3	8385.78	90.00	134.99	8315.00	-87.67	87.69	46.21	134.99	124.00	
4	10261.13	90.00	134.99	8315.00	-1413.55	1413.96	0.00	0.00	1999.35	Pbhl

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
HE 6	0.00	0.00	1321854.02	2012771.78	37°30'04.248N	108°54'14.054W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Pbhl	8315.00	-1413.55	1413.96	1320389.90	2014133.31	Point

SITE DETAILS

HE 6

Site Centre Latitude: 37°30'04.248N
Longitude: 108°54'14.054W

Ground Level: 6474.90
Positional Uncertainty: 0.00
Convergence: -2.09

LEGEND

- HE 6 (Pilot)
- Lateral
- Plan #2

FIELD DETAILS

Montezuma Co., CO (NAD83)
Colorado

Geodetic System: US State Plane Coordinate System 1983

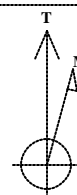
Ellipsoid: GRS 1980

Zone: Colorado, Southern Zone

Magnetic Model: IGRF2010

System Datum: Mean Sea Level

Local North: True North



Azimuths to True North
Magnetic North: 10.37°

Magnetic Field

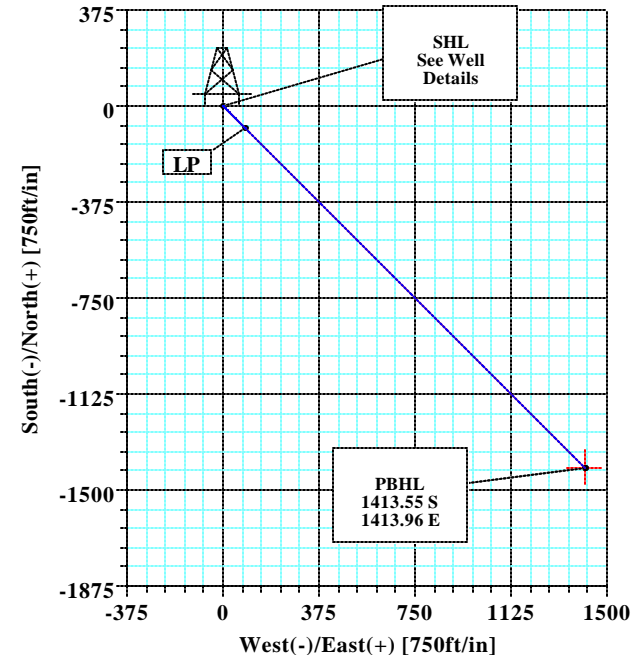
Strength: 5098InT

Dip Angle: 63.87°

Date: 4/6/2012

Model: IGRF2010

Total Correction to True North: 10.37°



Plan: Plan #2 (HE 6/Lateral)

Created By: Keith Noack

Date: 12/12/2011



Company: Kinder Morgan	Date: 12/12/2011	Time: 10:13:42	Page: 1
Field: Montezuma Co., CO (NAD83)	Co-ordinate(NE) Reference: Well: HE 6, True North		
Site: HE 6	Vertical (TVD) Reference: SITE 6499.9		
Well: HE 6	Section (VS) Reference: Well (0.00N,0.00E,134.99Azi)		
Wellpath: Lateral	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Plan: Plan #2	Date Composed: 11/21/2011
Principal: Yes	Version: 1
	Tied-to: 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: HE 6

Site Position:	Northing: 1321854.02 ft	Latitude: 37 30 4.248 N
From: Geographic	Easting: 2012771.78 ft	Longitude: 108 54 14.054 W
Position Uncertainty: 0.00 ft		North Reference: True
Ground Level: 6474.90 ft		Grid Convergence: -2.09 deg

Well: HE 6	Slot Name:
Well Position: +N/-S 0.00 ft	Latitude: 37 30 4.248 N
+E/-W 0.00 ft	Longitude: 108 54 14.054 W
Position Uncertainty: 0.00 ft	

Wellpath: Lateral	Drilled From: Pilot
Current Datum: SITE	Tie-on Depth: 0.00 ft
Magnetic Data: 4/6/2012	Above System Datum: Mean Sea Level
Field Strength: 50981 nT	Declination: 10.37 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 63.87 deg
ft	+N/-S ft
	+E/-W ft
	Direction deg
8315.00	0.00 0.00 134.99

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	134.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8191.00	0.00	134.99	8191.00	0.00	0.00	0.00	0.00	0.00	0.00	
8385.78	90.00	134.99	8315.00	-87.67	87.69	46.21	46.21	0.00	134.99	
10261.13	90.00	134.99	8315.00	-1413.55	1413.96	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
8100.00	0.00	134.99	8100.00	0.00	0.00	0.00	0.00	37	30	4.248	108	54	14.054	Csg KOP
8186.00	0.00	134.99	8186.00	0.00	0.00	0.00	0.00	37	30	4.248	108	54	14.054	
8191.00	0.00	134.99	8191.00	0.00	0.00	0.00	0.00	37	30	4.248	108	54	14.054	
8200.00	4.16	134.99	8199.99	-0.23	0.23	0.33	46.21	37	30	4.246	108	54	14.051	
8210.00	8.78	134.99	8209.93	-1.03	1.03	1.45	46.21	37	30	4.238	108	54	14.041	
8220.00	13.40	134.99	8219.74	-2.39	2.39	3.38	46.21	37	30	4.224	108	54	14.024	
8230.00	18.02	134.99	8229.36	-4.30	4.30	6.08	46.21	37	30	4.205	108	54	14.001	
8240.00	22.64	134.99	8238.73	-6.76	6.76	9.56	46.21	37	30	4.181	108	54	13.970	
8250.00	27.26	134.99	8247.80	-9.74	9.74	13.77	46.21	37	30	4.152	108	54	13.933	
8260.00	31.88	134.99	8256.49	-13.23	13.23	18.71	46.21	37	30	4.117	108	54	13.890	
8270.00	36.50	134.99	8264.76	-17.20	17.20	24.33	46.21	37	30	4.078	108	54	13.841	
8280.00	41.12	134.99	8272.55	-21.63	21.63	30.59	46.21	37	30	4.034	108	54	13.786	
8290.00	45.74	134.99	8279.81	-26.49	26.50	37.47	46.21	37	30	3.986	108	54	13.725	
8300.00	50.36	134.99	8286.50	-31.75	31.75	44.90	46.21	37	30	3.934	108	54	13.660	
8310.00	54.99	134.99	8292.56	-37.37	37.38	52.85	46.21	37	30	3.879	108	54	13.590	
8320.00	59.61	134.99	8297.96	-43.31	43.33	61.26	46.21	37	30	3.820	108	54	13.516	
8330.00	64.23	134.99	8302.66	-49.55	49.56	70.08	46.21	37	30	3.758	108	54	13.439	

Company: Kinder Morgan	Date: 12/12/2011	Time: 10:13:42	Page: 2
Field: Montezuma Co., CO (NAD83)	Co-ordinate(NE) Reference: Well: HE 6, True North		
Site: HE 6	Vertical (TVD) Reference: SITE 6499.9		
Well: HE 6	Section (VS) Reference: Well (0.00N,0.00E,134.99Azi)		
Wellpath: Lateral	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
8340.00	68.85	134.99	8306.65	-56.03	56.05	79.25	46.21	37	30	3.694	108	54	13.358	
8350.00	73.47	134.99	8309.87	-62.72	62.74	88.72	46.21	37	30	3.628	108	54	13.275	
8360.00	78.09	134.99	8312.33	-69.57	69.59	98.41	46.21	37	30	3.560	108	54	13.190	
8370.00	82.71	134.99	8314.00	-76.54	76.57	108.26	46.21	37	30	3.491	108	54	13.104	
8380.00	87.33	134.99	8314.87	-83.58	83.61	118.22	46.21	37	30	3.422	108	54	13.016	
8385.78	90.00	134.99	8315.00	-87.67	87.69	124.00	46.21	37	30	3.381	108	54	12.966	LP
8400.00	90.00	134.99	8315.00	-97.72	97.75	138.22	0.00	37	30	3.282	108	54	12.841	
8500.00	90.00	134.99	8315.00	-168.42	168.47	238.22	0.00	37	30	2.583	108	54	11.963	
8600.00	90.00	134.99	8315.00	-239.12	239.19	338.22	0.00	37	30	1.884	108	54	11.086	
8700.00	90.00	134.99	8315.00	-309.82	309.91	438.22	0.00	37	30	1.185	108	54	10.208	
8800.00	90.00	134.99	8315.00	-380.52	380.64	538.22	0.00	37	30	0.486	108	54	9.330	
8900.00	90.00	134.99	8315.00	-451.22	451.36	638.22	0.00	37	29	59.787	108	54	8.453	
9000.00	90.00	134.99	8315.00	-521.92	522.08	738.22	0.00	37	29	59.088	108	54	7.575	
9100.00	90.00	134.99	8315.00	-592.63	592.80	838.22	0.00	37	29	58.389	108	54	6.698	
9200.00	90.00	134.99	8315.00	-663.33	663.52	938.22	0.00	37	29	57.690	108	54	5.820	
9300.00	90.00	134.99	8315.00	-734.03	734.24	1038.22	0.00	37	29	56.991	108	54	4.942	
9400.00	90.00	134.99	8315.00	-804.73	804.96	1138.22	0.00	37	29	56.292	108	54	4.065	
9500.00	90.00	134.99	8315.00	-875.43	875.68	1238.22	0.00	37	29	55.593	108	54	3.187	
9600.00	90.00	134.99	8315.00	-946.13	946.40	1338.22	0.00	37	29	54.893	108	54	2.310	
9700.00	90.00	134.99	8315.00	-1016.83	1017.13	1438.22	0.00	37	29	54.194	108	54	1.432	
9800.00	90.00	134.99	8315.00	-1087.53	1087.85	1538.22	0.00	37	29	53.495	108	54	0.555	
9900.00	90.00	134.99	8315.00	-1158.23	1158.57	1638.22	0.00	37	29	52.796	108	53	59.677	
10000.00	90.00	134.99	8315.00	-1228.93	1229.29	1738.22	0.00	37	29	52.097	108	53	58.800	
10100.00	90.00	134.99	8315.00	-1299.63	1300.01	1838.22	0.00	37	29	51.398	108	53	57.922	
10200.00	90.00	134.99	8315.00	-1370.33	1370.73	1938.22	0.00	37	29	50.699	108	53	57.044	
10261.13	90.00	134.99	8315.00	-1413.55	1413.96	1999.35	0.00	37	29	50.272	108	53	56.508	Pbhl

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ----> Deg Min Sec			<--- Longitude ---> Deg Min Sec				
Pbhl			8315.00	-1413.55	1413.96	1320389.90	2014133.31	37	29	50.272	N	108	53	56.508	W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
2997.00	2997.00	9.625	9.625	Csg
8186.00	8186.00	7.000	7.000	Csg

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Annotation

MD ft	TVD ft	
8191.00	8191.00	KOP
8385.78	8315.00	LP
10261.12	8315.00	Pbhl

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

GeoDec v5.03

Report Date: December 12, 2011

Job Number: _____

Customer: Kinder Morgan

Well Name: HE 6

API Number: _____

Rig Name: _____

Location: Montezuma Co., CO

Block: _____

Engineer: KRN

Geodetic Latitude / Longitude

System: Latitude / Longitude

Projection: Geodetic Latitude and Longitude

Datum: North American Datum 1983

Ellipsoid: GRS 1980

Latitude 37.5011800 DEG

Longitude -108.9039040 DEG

Geodetic Latitude / Longitude

System: Latitude / Longitude

Projection: Geodetic Latitude and Longitude

Datum: North American Datum 1983

Ellipsoid: GRS 1980

Latitude 37 30 4.2480000 DMS

Longitude -108 54 14.0544000 DMS

Geodetic Location WGS84

Elevation = 0.0 Meters

Latitude = 37.50118° N 37° 30 min 4.248 sec

Longitude = 108.90390° W 108° 54 min 14.054 sec

Magnetic Declination = 10.37° [True North Offset]

Local Gravity = .9993 g CheckSum = 7601

Local Field Strength = 50977 nT Magnetic Vector X = 22080 nT

Magnetic Dip = 63.88° Magnetic Vector Y = 4042 nT

Magnetic Model = IGRF-2010g11 Magnetic Vector Z = 45769 nT

Spud Date = Apr 06, 2012 Magnetic Vector H = 22447 nT

Signed: _____

Date: _____