



Weatherford[®]

Drilling Services

Proposal



HA-4

MONTEZUMA CO., CO

WELL FILE: **PLAN 2**

JANUARY 31, 2012

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HA-4 Montezuma Co., Colorado

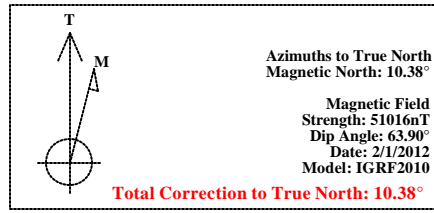
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	8260.00	0.00	360.00	8260.00	0.00	0.00	0.00	0.00	0.00	
3	8456.35	90.00	360.00	8385.00	125.00	0.00	45.84	360.00	125.00	
4	10329.61	90.00	360.00	8385.00	1998.26	0.00	0.00	0.00	1998.26	PBHL

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
HA-4	0.00	0.00	1328026.13	2027067.56	37°31'10.344N	108°51'19.512W	N/A

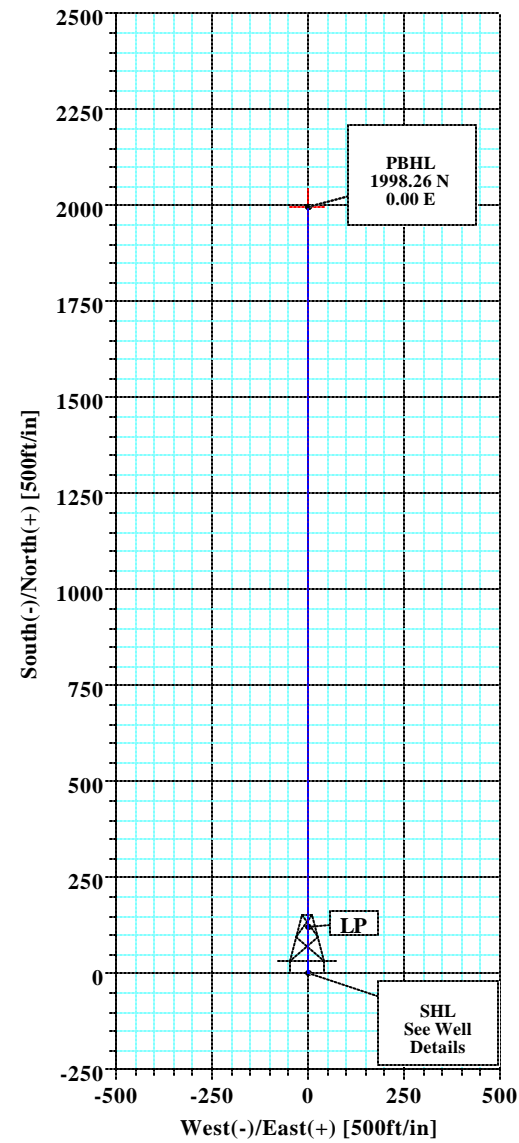
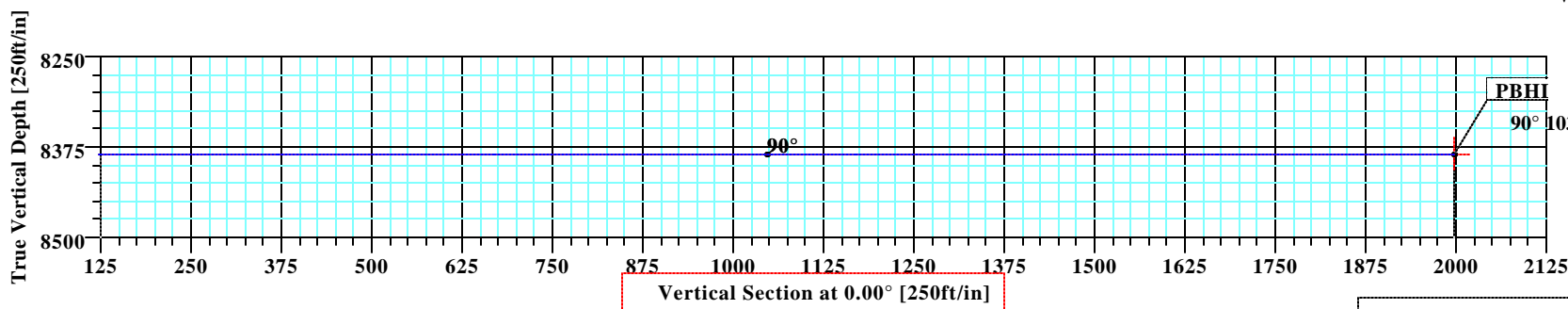
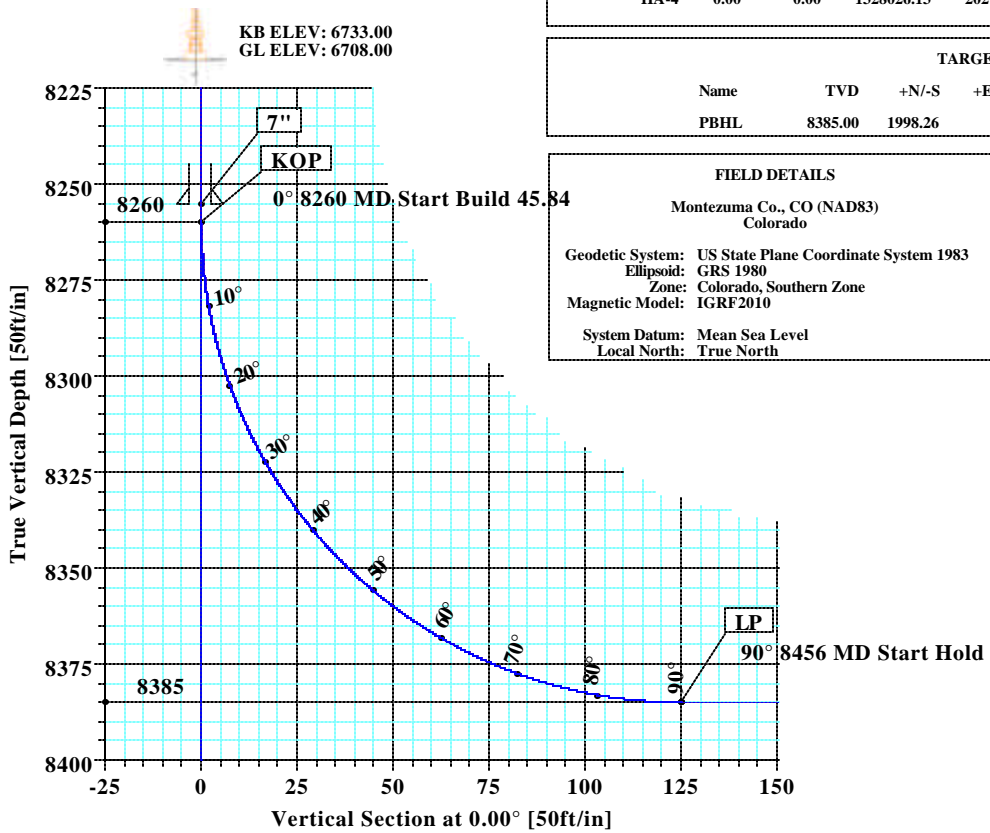
TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL	8385.00	1998.26	0.00	1330023.10	2027139.33	Point

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

SITE DETAILS	
HA-4	
Site Centre Latitude:	37°31'10.344N
Longitude:	108°51'19.512W
Ground Level:	6708.00
Positional Uncertainty:	0.00
Convergence:	-2.06



LEGEND	
—	HA-4 (Pilot)
—	Lateral
—	Plan #2





Company: Kinder Morgan	Date: 1/31/2012	Time: 12:43:34	Page: 1
Field: Montezuma Co., CO (NAD83)	Co-ordinate(NE) Reference: Well: HA-4, True North		
Site: HA-4	Vertical (TVD) Reference: SITE 6733.0		
Well: HA-4	Section (VS) Reference: Well (0.00N,0.00E,0.00Azi)		
Wellpath: Lateral	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Plan: Plan #2	Date Composed: 11/21/2011
	Version: 1
Principal: Yes	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: HA-4

Site Position:	Northing: 1328026.13 ft	Latitude: 37 31 10.344 N
From: Geographic	Easting: 2027067.56 ft	Longitude: 108 51 19.512 W
Position Uncertainty: 0.00 ft		North Reference: True
Ground Level: 6708.00 ft		Grid Convergence: -2.06 deg

Well: HA-4	Slot Name:
Well Position: +N/-S 0.00 ft	Northing: 1328026.13 ft
+E/-W 0.00 ft	Easting : 2027067.56 ft
Position Uncertainty: 0.00 ft	Latitude: 37 31 10.344 N
	Longitude: 108 51 19.512 W

Wellpath: Lateral	Drilled From: Pilot
	Tie-on Depth: 0.00 ft
Current Datum: SITE	Above System Datum: Mean Sea Level
Magnetic Data: 2/1/2012	Declination: 10.38 deg
Field Strength: 51016 nT	Mag Dip Angle: 63.90 deg
Vertical Section: Depth From (TVD)	+E/-W
ft	ft
0.00	0.00
	Direction
	deg
	0.00

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	360.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8260.00	0.00	360.00	8260.00	0.00	0.00	0.00	0.00	0.00	0.00	
8456.35	90.00	360.00	8385.00	125.00	0.00	45.84	45.84	0.00	360.00	
10329.61	90.00	360.00	8385.00	1998.26	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
8200.00	0.00	360.00	8200.00	0.00	0.00	0.00	0.00	37	31	10.344	108	51	19.512	
8255.00	0.00	360.00	8255.00	0.00	0.00	0.00	0.00	37	31	10.344	108	51	19.512	
8260.00	0.00	360.00	8260.00	0.00	0.00	0.00	0.00	37	31	10.344	108	51	19.512	7" KOP
8300.00	18.33	360.00	8299.32	6.35	0.00	6.35	45.84	37	31	10.407	108	51	19.512	
8400.00	64.17	360.00	8372.51	70.54	0.00	70.54	45.84	37	31	11.041	108	51	19.512	
8456.35	90.00	360.00	8385.00	125.00	0.00	125.00	45.84	37	31	11.580	108	51	19.512	LP
8500.00	90.00	360.00	8385.00	168.65	0.00	168.65	0.00	37	31	12.011	108	51	19.512	
8600.00	90.00	360.00	8385.00	268.65	0.00	268.65	0.00	37	31	13.000	108	51	19.512	
8700.00	90.00	360.00	8385.00	368.65	0.00	368.65	0.00	37	31	13.989	108	51	19.512	
8800.00	90.00	360.00	8385.00	468.65	0.00	468.65	0.00	37	31	14.977	108	51	19.512	
8900.00	90.00	360.00	8385.00	568.65	0.00	568.65	0.00	37	31	15.966	108	51	19.512	
9000.00	90.00	360.00	8385.00	668.65	0.00	668.65	0.00	37	31	16.955	108	51	19.512	
9100.00	90.00	360.00	8385.00	768.65	0.00	768.65	0.00	37	31	17.944	108	51	19.512	
9200.00	90.00	360.00	8385.00	868.65	0.00	868.65	0.00	37	31	18.932	108	51	19.512	
9300.00	90.00	360.00	8385.00	968.65	0.00	968.65	0.00	37	31	19.921	108	51	19.512	
9400.00	90.00	360.00	8385.00	1068.65	0.00	1068.65	0.00	37	31	20.910	108	51	19.512	
9500.00	90.00	360.00	8385.00	1168.65	0.00	1168.65	0.00	37	31	21.898	108	51	19.512	



Company: Kinder Morgan	Date: 1/31/2012	Time: 12:43:34	Page: 2
Field: Montezuma Co., CO (NAD83)	Co-ordinate(NE) Reference: Well: HA-4, True North		
Site: HA-4	Vertical (TVD) Reference: SITE 6733.0		
Well: HA-4	Section (VS) Reference: Well (0.00N,0.00E,0.00Azi)		
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
9600.00	90.00	360.00	8385.00	1268.65	0.00	1268.65	0.00	37	31	22.887	108	51	19.512	
9700.00	90.00	360.00	8385.00	1368.65	0.00	1368.65	0.00	37	31	23.876	108	51	19.512	
9800.00	90.00	360.00	8385.00	1468.65	0.00	1468.65	0.00	37	31	24.864	108	51	19.512	
9900.00	90.00	360.00	8385.00	1568.65	0.00	1568.65	0.00	37	31	25.853	108	51	19.512	
10000.00	90.00	360.00	8385.00	1668.65	0.00	1668.65	0.00	37	31	26.842	108	51	19.512	
10100.00	90.00	360.00	8385.00	1768.65	0.00	1768.65	0.00	37	31	27.830	108	51	19.512	
10200.00	90.00	360.00	8385.00	1868.65	0.00	1868.65	0.00	37	31	28.819	108	51	19.512	
10300.00	90.00	360.00	8385.00	1968.65	0.00	1968.65	0.00	37	31	29.808	108	51	19.512	
10329.61	90.00	360.00	8385.00	1998.26	0.00	1998.26	0.00	37	31	30.101	108	51	19.512	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			8385.00	1998.26	0.00	1330023.10	2027139.33	37	31	30.101 N	108	51	19.512 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
2847.00	2847.00	9.625	9.625	9 5/8"
8255.00	8255.00	7.000	7.000	7"

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Annotation

MD ft	TVD ft	
8260.00	8260.00	KOP
8456.35	8385.00	LP
10329.60	8385.00	PBHL

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

GeoDec v5.03

Report Date: November 21, 2011

Job Number: _____

Customer: Kinder Morgan

Well Name: HA-4

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 37.5195400 DEG

Longitude -108.8554200 DEG

Geodetic Latitude / Longitude

System: Latitude / Longitude

Projection: Geodetic Latitude and Longitude

Datum: North American Datum 1983

Ellipsoid: GRS 1980

Latitude 37 31 10.3440000 DMS

Longitude -108 51 19.5120000 DMS

Geodetic Location WGS84

Elevation = 0.0 Meters

Latitude = 37.51954° N 37° 31 min 10.344 sec

Longitude = 108.85542° W 108° 51 min 19.512 sec

Magnetic Declination = 10.38° [True North Offset]

Local Gravity = .9993 g CheckSum = 7418

Local Field Strength = 51012 nT Magnetic Vector X = 22072 nT

Magnetic Dip = 63.90° Magnetic Vector Y = 4043 nT

Magnetic Model = IGRF-2010g11 Magnetic Vector Z = 45811 nT

Spud Date = Feb 01, 2012 Magnetic Vector H = 22439 nT

Signed: _____

Date: _____