



**Weatherford®**

## **Drilling Services**

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## **PROPOSAL**

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GOODMAN POINT #20

MONTEZUMA CO., COLORADO

WELL FILE: **PILOT HOLE PLAN 4**  
**LATERAL PLAN 4**

APRIL 28, 2011

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**Weatherford Drilling Services**

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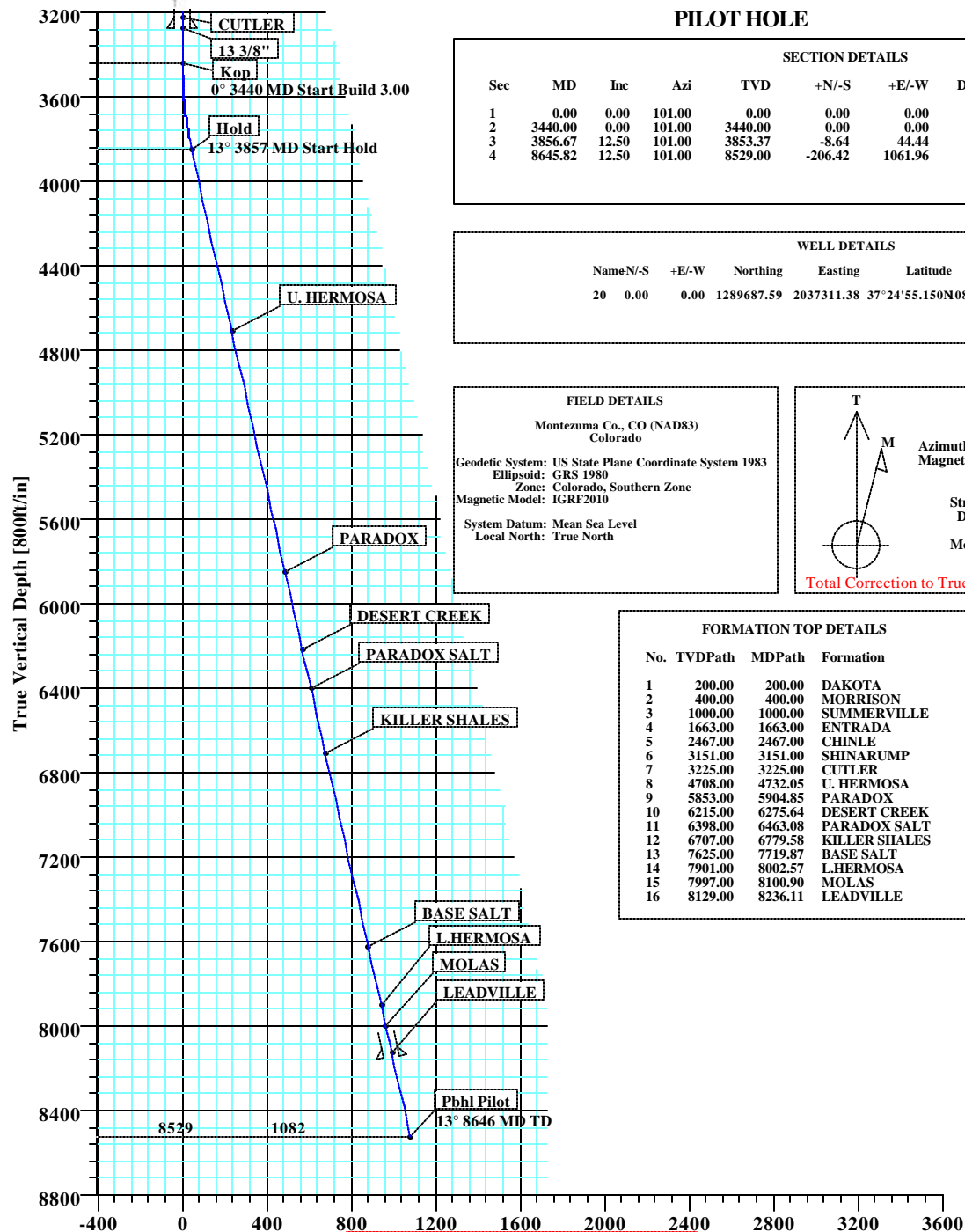
[www.weatherford.com](http://www.weatherford.com)



KB ELEV: 6660'  
GL ELEV: 6640'

# GOODMAN POINT #20 MONTEZUMA CO., COLORADO

## PILOT HOLE



Vertical Section at 101.00° [800ft/in]

### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	101.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	3440.00	0.00	101.00	3440.00	0.00	0.00	0.00	101.00	0.00	
3	3856.67	12.50	101.00	3853.37	-8.64	44.44	3.00	101.00	45.27	
4	8645.82	12.50	101.00	8529.00	-206.42	1061.96	0.00	0.00	1081.83	

### WELL DETAILS

Name/N-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
20	0.00	0.00	1289687.59	2037311.38	37°24'55.150N08°48'55.550W	N/A

### 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: 10.52°

Magnetic Field  
Strength: 51105nT  
Dip Angle: 63.86°  
Date: 8/20/2010  
Model: IGRF2010

Total Correction to True North 10.66°

### FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	200.00	200.00	DAKOTA
2	400.00	400.00	MORRISON
3	1000.00	1000.00	SUMMERVILLE
4	1663.00	1663.00	ENTRADA
5	2467.00	2467.00	CHINLE
6	3151.00	3151.00	SHINARUMP
7	3225.00	3225.00	CUTLER
8	4708.00	4732.05	U. HERMOSA
9	5853.00	5904.85	PARADOX
10	6215.00	6275.64	DESERT CREEK
11	6398.00	6463.08	PARADOX SALT
12	6707.00	6779.58	KILLER SHALES
13	7625.00	7719.87	BASE SALT
14	7901.00	8002.57	L.HERMOSA
15	7997.00	8100.90	MOLAS
16	8129.00	8236.11	LEADVILLE

### SITE DETAILS

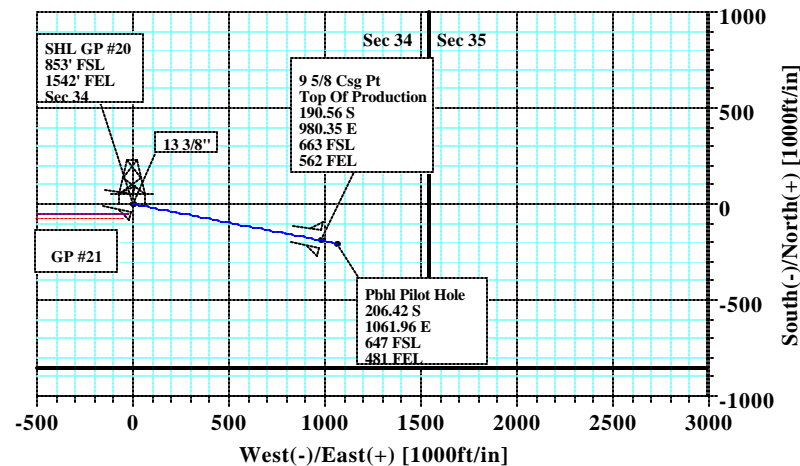
Goodman Point #20  
Site Centre Latitude: 37°24'55.150N  
Longitude: 108°48'55.550W  
Ground Level: 6640.00  
Positional Uncertainty: 0.00  
Convergence: -2.03

### CASING DETAILS

No.	TVD	MD	Name	Size
1	3275.00	3275.00	13 3/8"	13.375
2	8154.00	8261.71	9 5/8"	9.625

### LEGEND

- 21 (Lat)
- 21 (Pilot)
- Pilot
- Plan #4



Plan: Plan #4 (20/Pilot)

Created By: Russell W. Joyner

Date: 4/28/2011



<b>Company:</b> Kinder Morgan <b>Field:</b> Montezuma Co., CO (NAD83) <b>Site:</b> Goodman Point #20 <b>Well:</b> 20 <b>Wellpath:</b> Pilot	<b>Date:</b> 8/20/2010 <b>Co-ordinate(NE) Reference:</b> Well: 20, True North <b>Vertical (TVD) Reference:</b> SITE 6659.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,360.00Azi) <b>Survey Calculation Method:</b> Minimum Curvature	<b>Time:</b> 08:45:44 <b>Page:</b> 1 <b>Db:</b> Sybase
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<b>Plan:</b> Plan #1  <b>Principal:</b> Yes	<b>Date Composed:</b> 8/20/2010 <b>Version:</b> 1 <b>Tied-to:</b> From Surface
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**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:** Goodman Point #20

<b>Site Position:</b> <b>From:</b> Geographic <b>Position Uncertainty:</b> 0.00 ft <b>Ground Level:</b> 6640.00 ft	<b>Northing:</b> 1289687.59 ft <b>Easting:</b> 2037311.38 ft	<b>Latitude:</b> 37 24 55.150 N <b>Longitude:</b> 108 48 55.550 W <b>North Reference:</b> True <b>Grid Convergence:</b> -2.03 deg
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<b>Well:</b> 20  <b>Well Position:</b> +N/-S 0.00 ft +E/-W 0.00 ft <b>Position Uncertainty:</b> 0.00 ft	<b>Slot Name:</b>  <b>Northing:</b> 1289687.59 ft <b>Easting :</b> 2037311.38 ft <b>Latitude:</b> 37 24 55.150 N <b>Longitude:</b> 108 48 55.550 W
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<b>Wellpath:</b> Pilot  <b>Current Datum:</b> SITE <b>Magnetic Data:</b> 8/20/2010 <b>Field Strength:</b> 51105 nT <b>Vertical Section:</b> Depth From (TVD) ft	<b>Height</b> 6659.00 ft	<b>Drilled From:</b> Surface <b>Tie-on Depth:</b> 0.00 ft <b>Above System Datum:</b> Mean Sea Level <b>Declination:</b> 10.52 deg <b>Mag Dip Angle:</b> 63.86 deg <b>+E/-W</b> Direction deg ft
0.00	0.00	0.00 360.00

**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	
3440.00	0.00	360.00	3440.00	0.00	0.00	0.00	0.00	0.00	360.00	
3856.67	12.50	360.00	3853.37	45.27	0.00	3.00	3.00	0.00	0.00	
8645.82	12.50	360.00	8529.00	1081.83	0.00	0.00	0.00	0.00	0.00	

**Survey**

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
3400.00	0.00	360.00	3400.00	0.00	0.00	0.00	0.00	1289687.59	2037311.38	
3440.00	0.00	360.00	3440.00	0.00	0.00	0.00	0.00	1289687.59	2037311.38	Kop
3500.00	1.80	360.00	3499.99	0.94	0.00	0.94	3.00	1289688.53	2037311.42	
3600.00	4.80	360.00	3599.81	6.70	0.00	6.70	3.00	1289694.28	2037311.62	
3700.00	7.80	360.00	3699.20	17.67	0.00	17.67	3.00	1289705.25	2037312.01	
3800.00	10.80	360.00	3797.87	33.83	0.00	33.83	3.00	1289721.40	2037312.58	
3856.67	12.50	360.00	3853.37	45.27	0.00	45.27	3.00	1289732.83	2037312.99	Hold
3900.00	12.50	360.00	3895.68	54.65	0.00	54.65	0.00	1289742.21	2037313.32	
4000.00	12.50	360.00	3993.30	76.29	0.00	76.29	0.00	1289763.84	2037314.09	
4100.00	12.50	360.00	4090.93	97.94	0.00	97.94	0.00	1289785.47	2037314.86	
4200.00	12.50	360.00	4188.56	119.58	0.00	119.58	0.00	1289807.10	2037315.63	
4300.00	12.50	360.00	4286.19	141.23	0.00	141.23	0.00	1289828.73	2037316.40	
4400.00	12.50	360.00	4383.82	162.87	0.00	162.87	0.00	1289850.36	2037317.16	
4500.00	12.50	360.00	4481.45	184.51	0.00	184.51	0.00	1289871.99	2037317.93	
4600.00	12.50	360.00	4579.08	206.16	0.00	206.16	0.00	1289893.62	2037318.70	
4700.00	12.50	360.00	4676.71	227.80	0.00	227.80	0.00	1289915.25	2037319.47	
4732.05	12.50	360.00	4708.00	234.74	0.00	234.74	0.00	1289922.18	2037319.71	U. HERMOSA

<b>Company:</b> Kinder Morgan	<b>Date:</b> 8/20/2010	<b>Time:</b> 08:45:44	<b>Page:</b> 2
<b>Field:</b> Montezuma Co., CO (NAD83)	<b>Co-ordinate(NE) Reference:</b> Well: 20, True North		
<b>Site:</b> Goodman Point #20	<b>Vertical (TVD) Reference:</b> SITE 6659.0		
<b>Well:</b> 20	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,360.00Azi)		
<b>Wellpath:</b> Pilot	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Sybase	

### Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
4800.00	12.50	360.00	4774.34	249.45	0.00	249.45	0.00	1289936.88	2037320.24	
4900.00	12.50	360.00	4871.97	271.09	0.00	271.09	0.00	1289958.51	2037321.00	
5000.00	12.50	360.00	4969.60	292.73	0.00	292.73	0.00	1289980.14	2037321.77	
5100.00	12.50	360.00	5067.23	314.38	0.00	314.38	0.00	1290001.77	2037322.54	
5200.00	12.50	360.00	5164.86	336.02	0.00	336.02	0.00	1290023.40	2037323.31	
5300.00	12.50	360.00	5262.49	357.67	0.00	357.67	0.00	1290045.03	2037324.08	
5400.00	12.50	360.00	5360.12	379.31	0.00	379.31	0.00	1290066.66	2037324.84	
5500.00	12.50	360.00	5457.75	400.95	0.00	400.95	0.00	1290088.29	2037325.61	
5600.00	12.50	360.00	5555.38	422.60	0.00	422.60	0.00	1290109.92	2037326.38	
5700.00	12.50	360.00	5653.01	444.24	0.00	444.24	0.00	1290131.55	2037327.15	
5800.00	12.50	360.00	5750.64	465.89	0.00	465.89	0.00	1290153.18	2037327.92	
5900.00	12.50	360.00	5848.27	487.53	0.00	487.53	0.00	1290174.81	2037328.68	
5904.85	12.50	360.00	5853.00	488.58	0.00	488.58	0.00	1290175.86	2037328.72	PARADOX
6000.00	12.50	360.00	5945.90	509.17	0.00	509.17	0.00	1290196.44	2037329.45	
6100.00	12.50	360.00	6043.53	530.82	0.00	530.82	0.00	1290218.07	2037330.22	
6200.00	12.50	360.00	6141.16	552.46	0.00	552.46	0.00	1290239.70	2037330.99	
6275.64	12.50	360.00	6215.00	568.83	0.00	568.83	0.00	1290256.06	2037331.57	DESERT CREEK
6300.00	12.50	360.00	6238.79	574.11	0.00	574.11	0.00	1290261.33	2037331.76	
6400.00	12.50	360.00	6336.42	595.75	0.00	595.75	0.00	1290282.96	2037332.52	
6463.08	12.50	360.00	6398.00	609.40	0.00	609.40	0.00	1290296.61	2037333.01	PARADOX SALT
6500.00	12.50	360.00	6434.04	617.39	0.00	617.39	0.00	1290304.59	2037333.29	
6600.00	12.50	360.00	6531.67	639.04	0.00	639.04	0.00	1290326.22	2037334.06	
6700.00	12.50	360.00	6629.30	660.68	0.00	660.68	0.00	1290347.86	2037334.83	
6779.58	12.50	360.00	6707.00	677.91	0.00	677.91	0.00	1290365.07	2037335.44	KILLER SHALES
6800.00	12.50	360.00	6726.93	682.33	0.00	682.33	0.00	1290369.49	2037335.60	
6900.00	12.50	360.00	6824.56	703.97	0.00	703.97	0.00	1290391.12	2037336.36	
7000.00	12.50	360.00	6922.19	725.61	0.00	725.61	0.00	1290412.75	2037337.13	
7100.00	12.50	360.00	7019.82	747.26	0.00	747.26	0.00	1290434.38	2037337.90	
7200.00	12.50	360.00	7117.45	768.90	0.00	768.90	0.00	1290456.01	2037338.67	
7300.00	12.50	360.00	7215.08	790.55	0.00	790.55	0.00	1290477.64	2037339.44	
7400.00	12.50	360.00	7312.71	812.19	0.00	812.19	0.00	1290499.27	2037340.21	
7500.00	12.50	360.00	7410.34	833.83	0.00	833.83	0.00	1290520.90	2037340.97	
7600.00	12.50	360.00	7507.97	855.48	0.00	855.48	0.00	1290542.53	2037341.74	
7700.00	12.50	360.00	7605.60	877.12	0.00	877.12	0.00	1290564.16	2037342.51	
7719.87	12.50	360.00	7625.00	881.42	0.00	881.42	0.00	1290568.46	2037342.66	BASE SALT
7800.00	12.50	360.00	7703.23	898.76	0.00	898.76	0.00	1290585.79	2037343.28	
7900.00	12.50	360.00	7800.86	920.41	0.00	920.41	0.00	1290607.42	2037344.05	
8000.00	12.50	360.00	7898.49	942.05	0.00	942.05	0.00	1290629.05	2037344.81	
8002.57	12.50	360.00	7901.00	942.61	0.00	942.61	0.00	1290629.61	2037344.83	L.HERMOSA
8100.00	12.50	360.00	7996.12	963.70	0.00	963.70	0.00	1290650.68	2037345.58	
8100.90	12.50	360.00	7997.00	963.89	0.00	963.89	0.00	1290650.88	2037345.59	MOLAS
8200.00	12.50	360.00	8093.75	985.34	0.00	985.34	0.00	1290672.31	2037346.35	
8236.11	12.50	360.00	8129.00	993.16	0.00	993.16	0.00	1290680.12	2037346.63	LEADVILLE
8300.00	12.50	360.00	8191.38	1006.98	0.00	1006.98	0.00	1290693.94	2037347.12	
8400.00	12.50	360.00	8289.01	1028.63	0.00	1028.63	0.00	1290715.57	2037347.89	
8500.00	12.50	360.00	8386.64	1050.27	0.00	1050.27	0.00	1290737.20	2037348.65	
8600.00	12.50	360.00	8484.27	1071.92	0.00	1071.92	0.00	1290758.83	2037349.42	
8645.82	12.50	360.00	8529.00	1081.83	0.00	1081.83	0.00	1290768.74	2037349.77	Pbhl Pilot



<b>Company:</b> Kinder Morgan	<b>Date:</b> 8/20/2010	<b>Time:</b> 08:45:44	<b>Page:</b> 3
<b>Field:</b> Montezuma Co., CO (NAD83)	<b>Co-ordinate(NE) Reference:</b> Well: 20, True North		
<b>Site:</b> Goodman Point #20	<b>Vertical (TVD) Reference:</b> SITE 6659.0		
<b>Well:</b> 20	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,360.00Azi)		
<b>Wellpath:</b> Pilot	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Sybase	

### Targets

Name	Description Dip.	Dir.	TVD	+N/-S	+E/-W	Map Northing	Map Easting	<---- Latitude ---->			<--- Longitude --->		
								Deg	Min	Sec	Deg	Min	Sec

### Casing Points

MD	TVD	Diameter	Hole Size	Name
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### Annotation

MD ft	TVD ft	
3440.00	3440.00	Kop
3856.67	3853.37	Hold
8645.81	8528.99	Pbhl Pilot

### Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
200.00	200.00	DAKOTA		0.00	0.00
400.00	400.00	MORRISON		0.00	0.00
1000.00	1000.00	SUMMERVILLE		0.00	0.00
1663.00	1663.00	ENTRADA		0.00	0.00
2467.00	2467.00	CHINLE		0.00	0.00
3151.00	3151.00	SHINARUMP		0.00	0.00
3225.00	3225.00	CUTLER		0.00	0.00
4732.05	4708.00	U. HERMOSA		0.00	0.00
5904.85	5853.00	PARADOX		0.00	0.00
6275.64	6215.00	DESERT CREEK		0.00	0.00
6463.08	6398.00	PARADOX SALT		0.00	0.00
6779.58	6707.00	KILLER SHALES		0.00	0.00
7719.87	7625.00	BASE SALT		0.00	0.00
8002.57	7901.00	L.HERMOSA		0.00	0.00
8100.90	7997.00	MOLAS		0.00	0.00
8236.11	8129.00	LEADVILLE		0.00	0.00

GOODMAN POINT #20  
MONTEZUMA CO., COLORADO

LATERAL



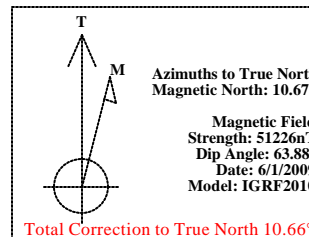
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	8261.71	12.50	101.00	8154.00	-190.56	980.35	0.00	0.00	998.70	
2	8266.83	12.50	101.00	8159.00	-190.77	981.44	0.00	0.00	999.81	
3	8508.51	90.00	101.00	8299.00	-224.06	1152.67	32.07	0.00	1174.24	
4	10334.27	90.00	101.00	8299.00	-572.43	2944.88	0.00	0.00	3000.00	Pbhl

SITE DETAILS	
Goodman Point #20	
Site Centre Latitude:	37°24'55.150N
Longitude:	108°48'55.550W
Ground Level:	6640.00
Positional Uncertainty:	0.00
Convergence:	-2.03

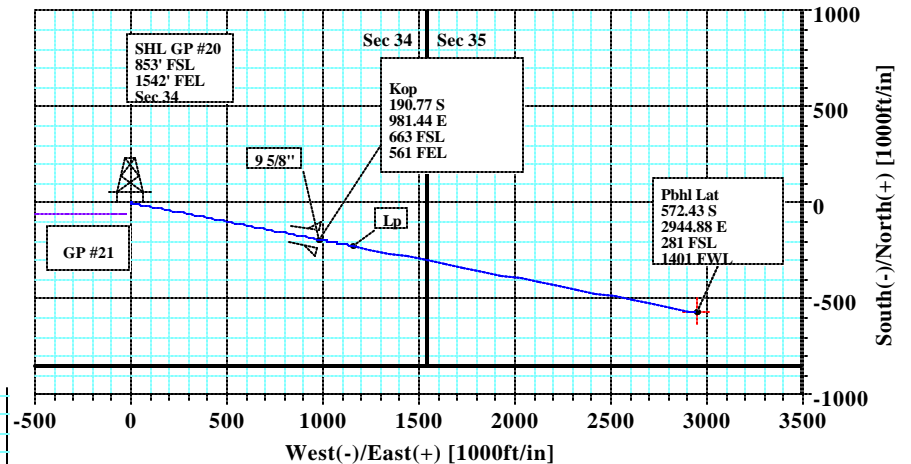
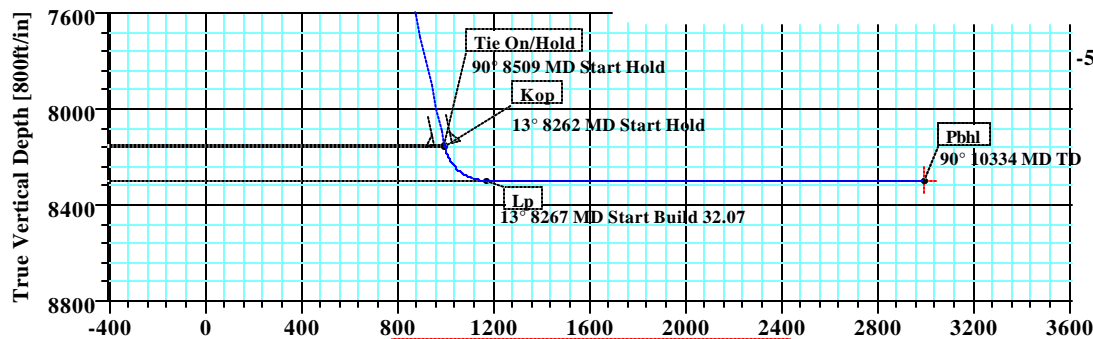
WELL DETAILS							
Name/N-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot	
20	0.00	0.00	1289687.59	2037311.38	37°24'55.150N08°48'55.550W	N/A	

CASING DETAILS				
No.	TVD	MD	Name	Size
1	8154.00	8261.71	9 5/8"	9.625

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	



LEGEND			
<span style="color: blue;">—</span>	20 (Pilot)		
<span style="color: blue;">—</span>	21 (Pilot)		
<span style="color: blue;">—</span>	Lat		
<span style="color: blue;">—</span>	Plan #4		





<b>Company:</b> Kinder Morgan	<b>Date:</b> 4/28/2011	<b>Time:</b> 09:16:44	<b>Page:</b> 1
<b>Field:</b> Montezuma Co., CO (NAD83)	<b>Co-ordinate(NE) Reference:</b> Well: 20, True North		
<b>Site:</b> Goodman Point #20	<b>Vertical (TVD) Reference:</b> SITE 6660.0		
<b>Well:</b> 20	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,101.00Azi)		
<b>Wellpath:</b> Lat	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Sybase	

<b>Plan:</b> Plan #4	<b>Date Composed:</b> 4/28/2011
<b>Principal:</b> Yes	<b>Version:</b> 1
	<b>Tied-to:</b> From: Definitive Path

**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:** Goodman Point #20

<b>Site Position:</b>	<b>Northing:</b> 1289687.59 ft	<b>Latitude:</b> 37 24 55.150 N
<b>From:</b> Geographic	<b>Easting:</b> 2037311.38 ft	<b>Longitude:</b> 108 48 55.550 W
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> True
<b>Ground Level:</b> 6640.00 ft		<b>Grid Convergence:</b> -2.03 deg

<b>Well:</b> 20	<b>Slot Name:</b>
<b>Well Position:</b> +N/-S 0.00 ft	<b>Northing:</b> 1289687.59 ft
+E/-W 0.00 ft	<b>Easting:</b> 2037311.38 ft
<b>Position Uncertainty:</b> 0.00 ft	<b>Latitude:</b> 37 24 55.150 N
	<b>Longitude:</b> 108 48 55.550 W

<b>Wellpath:</b> Lat	<b>Drilled From:</b> Pilot
<b>Current Datum:</b> SITE	<b>Tie-on Depth:</b> 8261.71 ft
<b>Magnetic Data:</b> 6/1/2009	<b>Above System Datum:</b> Mean Sea Level
<b>Field Strength:</b> 51226 nT	<b>Declination:</b> 10.67 deg
<b>Vertical Section:</b> Depth From (TVD)	<b>Mag Dip Angle:</b> 63.88 deg
ft	+N/-S
	+E/-W
	Direction
	deg
0.00	0.00
0.00	0.00
0.00	101.00

#### 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
8261.71	12.50	101.00	8154.00	-190.56	980.35	0.00	0.00	0.00	0.00	
8266.83	12.50	101.00	8159.00	-190.77	981.44	0.00	0.00	0.00	0.00	
8508.51	90.00	101.00	8299.00	-224.06	1152.67	32.07	32.07	0.00	0.00	
10334.27	90.00	101.00	8299.00	-572.43	2944.88	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	MapN ft	MapE ft	Comment
8261.71	12.50	101.00	8154.00	-190.56	980.35	998.70	0.00	1289462.36	2038284.35	9 5/8"
8266.83	12.50	101.00	8159.00	-190.77	981.44	999.81	0.00	1289462.11	2038285.43	Kop
8300.00	23.14	101.00	8190.53	-192.71	991.38	1009.94	32.07	1289459.83	2038295.31	
8400.00	55.20	101.00	8267.05	-204.60	1052.58	1072.28	32.07	1289445.77	2038356.04	
8500.00	87.27	101.00	8298.80	-222.43	1144.32	1165.73	32.07	1289424.69	2038447.09	
8508.51	90.00	101.00	8299.00	-224.06	1152.67	1174.24	32.07	1289422.77	2038455.38	Lp
8600.00	90.00	101.00	8299.00	-241.51	1242.48	1265.73	0.00	1289402.14	2038544.51	
8700.00	90.00	101.00	8299.00	-260.59	1340.64	1365.73	0.00	1289379.59	2038641.93	
8800.00	90.00	101.00	8299.00	-279.67	1438.80	1465.73	0.00	1289357.03	2038739.35	
8900.00	90.00	101.00	8299.00	-298.76	1536.96	1565.73	0.00	1289334.48	2038836.78	
9000.00	90.00	101.00	8299.00	-317.84	1635.13	1665.73	0.00	1289311.93	2038934.20	
9100.00	90.00	101.00	8299.00	-336.92	1733.29	1765.73	0.00	1289289.38	2039031.63	
9200.00	90.00	101.00	8299.00	-356.00	1831.45	1865.73	0.00	1289266.83	2039129.05	
9300.00	90.00	101.00	8299.00	-375.08	1929.61	1965.73	0.00	1289244.27	2039226.47	
9400.00	90.00	101.00	8299.00	-394.16	2027.78	2065.73	0.00	1289221.72	2039323.90	
9500.00	90.00	101.00	8299.00	-413.24	2125.94	2165.73	0.00	1289199.17	2039421.32	
9600.00	90.00	101.00	8299.00	-432.32	2224.10	2265.73	0.00	1289176.62	2039518.74	



<b>Company:</b> Kinder Morgan <b>Field:</b> Montezuma Co., CO (NAD83) <b>Site:</b> Goodman Point #20 <b>Well:</b> 20 <b>Wellpath:</b> Lat	<b>Date:</b> 4/28/2011 <b>Co-ordinate(NE) Reference:</b> Well: 20, True North <b>Vertical (TVD) Reference:</b> SITE 6660.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,101.00Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Sybase	<b>Page:</b> 2
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**Survey**

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
9700.00	90.00	101.00	8299.00	-451.40	2322.27	2365.73	0.00	1289154.06	2039616.17	
9800.00	90.00	101.00	8299.00	-470.48	2420.43	2465.73	0.00	1289131.51	2039713.59	
9900.00	90.00	101.00	8299.00	-489.56	2518.59	2565.73	0.00	1289108.96	2039811.02	
10000.00	90.00	101.00	8299.00	-508.65	2616.75	2665.73	0.00	1289086.41	2039908.44	
10100.00	90.00	101.00	8299.00	-527.73	2714.92	2765.73	0.00	1289063.86	2040005.86	
10200.00	90.00	101.00	8299.00	-546.81	2813.08	2865.73	0.00	1289041.30	2040103.29	
10300.00	90.00	101.00	8299.00	-565.89	2911.24	2965.73	0.00	1289018.75	2040200.71	
10334.27	90.00	101.00	8299.00	-572.43	2944.88	3000.00	0.00	1289011.02	2040234.10	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			8299.00	-572.43	2944.88	1289011.02	2040234.10	37	24	49.489	N	108	48	19.048	W

**Casing Points**

MD ft	TVD ft	Diameter in	Hole Size in	Name
8261.71	8154.00	9.625	12.250	9 5/8"

**Annotation**

MD ft	TVD ft	
8261.71	8154.00	Tie On/Hold
8266.83	8158.99	Kop
8508.51	8299.00	Lp
10334.26	8299.00	Pbhl

**Formations**

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
	0.00	DAKOTA		0.00	0.00
	0.00	MORRISON		0.00	0.00
	0.00	SUMMERVILLE		0.00	0.00
	0.00	ENTRADA		0.00	0.00
	0.00	CHINLE		0.00	0.00
	0.00	SHINARUMP		0.00	0.00
	0.00	CUTLER		0.00	0.00
	0.00	U. HERMOSA		0.00	0.00
	0.00	PARADOX		0.00	0.00
	0.00	DESERT CREEK		0.00	0.00
	0.00	PARADOX SALT		0.00	0.00
	0.00	KILLER SHALES		0.00	0.00
	0.00	BASE SALT		0.00	0.00
	0.00	L.HERMOSA		0.00	0.00
	0.00	MOLAS		0.00	0.00
	0.00	LEADVILLE		0.00	0.00





<b>Company:</b> Kinder Morgan	<b>Date:</b> 4/28/2011	<b>Time:</b> 09:58:42	<b>Page:</b> 1
<b>Field:</b> Montezuma Co., CO (NAD83)			
<b>Reference Site:</b> Goodman Point #20	<b>Co-ordinate(NE) Reference:</b>	Well: 20, True North	
<b>Reference Well:</b> 20	<b>Vertical (TVD) Reference:</b>	SITE 6660.0	
<b>Reference Wellpath:</b> Lat	<b>Db:</b> Sybase		

**NO GLOBAL SCAN: Using user defined selection & scan criteria**

**Interpolation Method:** MD **Interval:** 100.00 ft

**Depth Range:** 0.00 to 10334.27 ft

**Maximum Radius:** 10000.00 ft

**Reference:** Plan: Plan #4  
**Error Model:** ISCWSA Ellipse  
**Scan Method:** Closest Approach 3D  
**Error Surface:** Ellipse

**Plan:** Plan #4

**Date Composed:** 4/28/2011

**Principal:** Yes

**Version:** 1  
**Tied-to:** From: Definitive Path

### Summary

<----- Offset Wellpath ----->			Reference	Offset	Ctr-Ctr	Edge	Separation	Warning
Site	Well	Wellpath	MD ft	MD ft	Distance ft	Distance ft	Factor	
Goodman Point #21	21	Pilot V0 Plan: Plan #1	3500.00	3492.04	66.30	50.86	4.29	

**Site:** Goodman Point #21

**Well:** 21

**Wellpath:** Pilot V0 Plan: Plan #1 V1

**Inter-Site Error:** 0.00 ft

Reference MD ft	TVD ft	Offset MD ft	TVD ft	Semi-Major Axis Ref ft	Offset ft	TFO-HS deg	Offset Location North ft	East ft	Ctr-Ctr Distance ft	Edge Distance ft	Separation Factor	Warning
0.00	0.00	7.00	-7.00	0.00	0.01	213.61	-54.62	-36.30	65.58	65.58	10420.68	
100.00	100.00	93.00	93.00	0.09	0.08	213.61	-54.62	-36.30	65.58	65.41	377.95	
200.00	200.00	193.00	193.00	0.31	0.30	213.61	-54.62	-36.30	65.58	64.97	106.88	
300.00	300.00	293.00	293.00	0.54	0.52	213.61	-54.62	-36.30	65.58	64.52	61.69	
400.00	400.00	393.00	393.00	0.76	0.75	213.61	-54.62	-36.30	65.58	64.07	43.35	
500.00	500.00	493.00	493.00	0.99	0.97	213.61	-54.62	-36.30	65.58	63.62	33.42	
600.00	600.00	593.00	593.00	1.21	1.20	213.61	-54.62	-36.30	65.58	63.17	27.19	
700.00	700.00	693.00	693.00	1.44	1.42	213.61	-54.62	-36.30	65.58	62.72	22.92	
800.00	800.00	793.00	793.00	1.66	1.65	213.61	-54.62	-36.30	65.58	62.27	19.81	
900.00	900.00	893.00	893.00	1.89	1.87	213.61	-54.62	-36.30	65.58	61.82	17.44	
1000.00	1000.00	993.00	993.00	2.11	2.10	213.61	-54.62	-36.30	65.58	61.37	15.58	
1100.00	1100.00	1093.00	1093.00	2.34	2.32	213.61	-54.62	-36.30	65.58	60.92	14.08	
1200.00	1200.00	1193.00	1193.00	2.56	2.55	213.61	-54.62	-36.30	65.58	60.47	12.84	
1300.00	1300.00	1293.00	1293.00	2.79	2.77	213.61	-54.62	-36.30	65.58	60.02	11.80	
1400.00	1400.00	1393.00	1393.00	3.01	3.00	213.61	-54.62	-36.30	65.58	59.57	10.92	
1500.00	1500.00	1493.00	1493.00	3.24	3.22	213.61	-54.62	-36.30	65.58	59.12	10.16	
1600.00	1600.00	1593.00	1593.00	3.46	3.45	213.61	-54.62	-36.30	65.58	58.67	9.49	
1700.00	1700.00	1693.00	1693.00	3.69	3.67	213.61	-54.62	-36.30	65.58	58.23	8.91	
1800.00	1800.00	1793.00	1793.00	3.91	3.90	213.61	-54.62	-36.30	65.58	57.78	8.40	
1900.00	1900.00	1893.00	1893.00	4.14	4.12	213.61	-54.62	-36.30	65.58	57.33	7.94	
2000.00	2000.00	1993.00	1993.00	4.36	4.34	213.61	-54.62	-36.30	65.58	56.88	7.53	
2100.00	2100.00	2093.00	2093.00	4.59	4.57	213.61	-54.62	-36.30	65.58	56.43	7.16	
2200.00	2200.00	2193.00	2193.00	4.81	4.79	213.61	-54.62	-36.30	65.58	55.98	6.83	
2300.00	2300.00	2293.00	2293.00	5.03	5.02	213.61	-54.62	-36.30	65.58	55.53	6.52	
2400.00	2400.00	2393.00	2393.00	5.26	5.24	213.61	-54.62	-36.30	65.58	55.08	6.24	
2500.00	2500.00	2493.00	2493.00	5.48	5.47	213.61	-54.62	-36.30	65.58	54.63	5.99	
2600.00	2600.00	2593.00	2593.00	5.71	5.69	213.61	-54.62	-36.30	65.58	54.18	5.75	
2700.00	2700.00	2693.00	2693.00	5.93	5.92	213.61	-54.62	-36.30	65.58	53.73	5.53	
2800.00	2800.00	2793.00	2793.00	6.16	6.14	213.61	-54.62	-36.30	65.58	53.28	5.33	
2900.00	2900.00	2893.00	2893.00	6.38	6.37	213.61	-54.62	-36.30	65.58	52.83	5.14	
3000.00	3000.00	2993.00	2993.00	6.61	6.59	213.61	-54.62	-36.30	65.58	52.38	4.97	
3100.00	3100.00	3093.00	3093.00	6.83	6.82	213.61	-54.62	-36.30	65.58	51.93	4.80	
3200.00	3200.00	3193.00	3193.00	7.06	7.04	213.61	-54.62	-36.30	65.58	51.48	4.65	
3300.00	3300.00	3293.00	3293.00	7.28	7.27	213.61	-54.62	-36.30	65.58	51.03	4.51	
3400.00	3400.00	3393.00	3393.00	7.51	7.49	213.61	-54.62	-36.30	65.58	50.58	4.37	
3500.00	3499.99	3492.04	3492.04	7.73	7.71	113.76	-54.62	-36.91	66.30	50.86	4.29	



<b>Company:</b>	Kinder Morgan	<b>Date:</b>	4/28/2011	<b>Time:</b>	09:58:42	<b>Page:</b>	2
<b>Field:</b>	Montezuma Co., CO (NAD83)	<b>Co-ordinate(NE) Reference:</b>	Well: 20, True North				
<b>Reference Site:</b>	Goodman Point #20	<b>Vertical (TVD) Reference:</b>	SITE 6660.0				
<b>Reference Well:</b>	20						
<b>Reference Wellpath:</b>	Lat	<b>Db:</b> Sybase					

**Site:** Goodman Point #21  
**Well:** 21  
**Wellpath:** Pilot V0 Plan: Plan #1 V1

**Inter-Site Error:** 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr		Edge		Separation		Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor	Factor	Factor	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft					
3600.00	3599.81	3589.26	3589.12	7.96	7.93	120.92	-54.62	-41.83	72.12	56.25	4.54				
3700.00	3699.20	3684.14	3683.51	8.19	8.15	131.43	-54.62	-51.38	86.17	69.90	5.30				
3800.00	3797.87	3775.33	3773.67	8.43	8.37	141.31	-54.62	-64.97	110.70	94.10	6.67				
3900.00	3895.68	3861.96	3858.64	8.68	8.59	148.98	-54.62	-81.86	145.66	128.75	8.61				
4000.00	3993.30	3952.68	3947.20	8.96	8.83	154.52	-54.62	-101.49	185.05	167.72	10.68				
4100.00	4090.93	4043.40	4035.77	9.25	9.09	158.12	-54.62	-121.13	225.42	207.66	12.69				
4200.00	4188.56	4134.11	4124.33	9.55	9.36	160.64	-54.62	-140.76	266.32	248.11	14.63				
4300.00	4286.19	4224.83	4212.90	9.87	9.64	162.50	-54.62	-160.39	307.53	288.88	16.49				
4400.00	4383.82	4315.55	4301.47	10.20	9.93	163.91	-54.62	-180.03	348.95	329.85	18.27				
4500.00	4481.45	4406.26	4390.03	10.53	10.23	165.03	-54.62	-199.66	390.52	370.96	19.97				
4600.00	4579.08	4496.98	4478.60	10.88	10.54	165.94	-54.62	-219.30	432.18	412.16	21.59				
4700.00	4676.71	4587.70	4567.17	11.24	10.86	166.68	-54.62	-238.93	473.91	453.43	23.14				
4800.00	4774.34	4678.42	4655.73	11.60	11.18	167.30	-54.62	-258.57	515.70	494.75	24.62				
4900.00	4871.97	4769.13	4744.30	11.97	11.51	167.84	-54.62	-278.20	557.54	536.12	26.03				
5000.00	4969.60	4859.85	4832.87	12.35	11.84	168.29	-54.62	-297.84	599.40	577.51	27.38				
5100.00	5067.23	4950.57	4921.43	12.73	12.19	168.69	-54.62	-317.47	641.30	618.93	28.67				
5200.00	5164.86	5041.28	5010.00	13.12	12.53	169.04	-54.62	-337.11	683.21	660.37	29.91				
5300.00	5262.49	5132.00	5098.57	13.51	12.88	169.35	-54.62	-356.74	725.15	701.83	31.09				
5400.00	5360.12	5222.72	5187.13	13.91	13.24	169.62	-54.62	-376.38	767.10	743.30	32.23				
5500.00	5457.75	5313.43	5275.70	14.31	13.60	169.87	-54.62	-396.01	809.07	784.78	33.31				
5600.00	5555.38	5404.15	5364.27	14.71	13.96	170.09	-54.62	-415.65	851.04	826.27	34.35				
5700.00	5653.01	5494.87	5452.83	15.12	14.33	170.29	-54.62	-435.28	893.03	867.77	35.35				
5800.00	5750.64	5585.58	5541.40	15.53	14.69	170.48	-54.62	-454.92	935.02	909.27	36.32				
5900.00	5848.27	5676.30	5629.97	15.95	15.07	170.64	-54.62	-474.55	977.02	950.78	37.24				
6000.00	5945.90	5767.02	5718.53	16.37	15.44	170.80	-54.62	-494.18	1019.03	992.30	38.13				
6100.00	6043.53	5857.73	5807.10	16.79	15.82	170.94	-54.62	-513.82	1061.04	1033.82	38.98				
6200.00	6141.16	5948.45	5895.66	17.21	16.20	171.07	-54.62	-533.45	1103.05	1075.34	39.80				
6300.00	6238.79	6039.17	5984.23	17.63	16.58	171.19	-54.62	-553.09	1145.08	1116.87	40.59				
6400.00	6336.42	6129.88	6072.80	18.06	16.96	171.30	-54.62	-572.72	1187.10	1158.40	41.35				
6500.00	6434.04	6220.60	6161.36	18.49	17.35	171.41	-54.62	-592.36	1229.13	1199.93	42.09				
6600.00	6531.67	6311.32	6249.93	18.92	17.73	171.50	-54.62	-611.99	1271.16	1241.46	42.80				
6700.00	6629.30	6402.04	6338.50	19.35	18.12	171.60	-54.62	-631.63	1313.20	1283.00	43.48				
6800.00	6726.93	6492.75	6427.06	19.78	18.51	171.68	-54.62	-651.26	1355.23	1324.54	44.14				
6900.00	6824.56	6583.47	6515.63	20.22	18.90	171.76	-54.62	-670.90	1397.27	1366.07	44.78				
7000.00	6922.19	6674.19	6604.20	20.65	19.30	171.84	-54.62	-690.53	1439.32	1407.61	45.40				
7100.00	7019.82	6764.90	6692.76	21.09	19.69	171.91	-54.62	-710.17	1481.36	1449.16	46.00				
7200.00	7117.45	6855.62	6781.33	21.53	20.09	171.98	-54.62	-729.80	1523.41	1490.70	46.58				
7300.00	7215.08	6946.34	6869.90	21.97	20.48	172.04	-54.62	-749.44	1565.45	1532.24	47.13				
7400.00	7312.71	7037.05	6958.46	22.41	20.88	172.10	-54.62	-769.07	1607.50	1573.79	47.68				
7500.00	7410.34	7127.77	7047.03	22.85	21.28	172.16	-54.62	-788.71	1649.55	1615.33	48.20				
7600.00	7507.97	7218.49	7135.60	23.29	21.68	172.22	-54.62	-808.34	1691.61	1656.88	48.71				
7700.00	7605.60	7309.20	7224.16	23.73	22.08	172.27	-54.62	-827.97	1733.66	1698.42	49.20				
7800.00	7703.23	7399.92	7312.73	24.18	22.48	172.32	-54.62	-847.61	1775.71	1739.97	49.68				
7900.00	7800.86	7490.64	7401.30	24.62	22.88	172.37	-54.62	-867.24	1817.77	1781.52	50.15				
8000.00	7898.49	7581.35	7489.86	25.07	23.29	172.41	-54.62	-886.88	1859.82	1823.07	50.60				
8100.00	7996.12	7672.07	7578.43	25.51	23.69	172.45	-54.62	-906.51	1901.88	1864.61	51.03				
8200.00	8093.75	7762.79	7666.99	25.96	24.09	172.50	-54.62	-926.15	1943.94	1906.16	51.46				
8300.00	8190.53	7852.05	7754.14	26.45	24.49	171.70	-54.62	-945.47	1988.68	1950.94	52.69				
8400.00	8267.05	7913.51	7814.14	27.49	24.77	163.07	-54.62	-958.77	2065.64	2031.25	60.08				
8500.00	8298.80	7924.65	7825.02	29.03	24.82	32.91	-54.62	-961.18	2163.14	2127.99	61.55				
8600.00	8299.00	7903.60	7804.47	30.70	24.72	25.84	-54.62	-956.63	2260.24	2227.32	68.67				

<b>Company:</b> Kinder Morgan	<b>Date:</b> 4/28/2011	<b>Time:</b> 09:58:42	<b>Page:</b> 3
<b>Field:</b> Montezuma Co., CO (NAD83)			
<b>Reference Site:</b> Goodman Point #20	<b>Co-ordinate(NE) Reference:</b> Well: 20, True North		
<b>Reference Well:</b> 20	<b>Vertical (TVD) Reference:</b> SITE 6660.0		
<b>Reference Wellpath:</b> Lat	<b>Db:</b> Sybase		

**Site:** Goodman Point #21

**Well:** 21

**Wellpath:** Pilot V0 Plan: Plan #1 V1

**Inter-Site Error:** 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr	Edge	Separation	Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft		
8700.00	8299.00	7882.36	7783.73	32.49	24.63	24.84	-54.62	-952.03	2357.35	2324.07	70.85	
8800.00	8299.00	7861.11	7762.99	34.37	24.53	23.90	-54.62	-947.43	2454.51	2420.84	72.90	
8900.00	8299.00	7839.86	7742.24	36.33	24.44	23.01	-54.62	-942.83	2551.71	2517.61	74.83	
9000.00	8299.00	7818.62	7721.50	38.35	24.34	22.18	-54.62	-938.23	2648.95	2614.40	76.68	
9100.00	8299.00	7797.37	7700.76	40.44	24.25	21.40	-54.62	-933.63	2746.22	2711.21	78.44	
9200.00	8299.00	7776.12	7680.01	42.57	24.15	20.67	-54.62	-929.04	2843.53	2808.04	80.12	
9300.00	8299.00	7754.88	7659.27	44.75	24.06	19.98	-54.62	-924.44	2940.86	2904.88	81.74	
9400.00	8299.00	7733.63	7638.53	46.96	23.96	19.32	-54.62	-919.84	3038.22	3001.74	83.29	
9500.00	8299.00	7712.39	7617.79	49.20	23.87	18.70	-54.62	-915.24	3135.59	3098.61	84.79	
9600.00	8299.00	7691.14	7597.04	51.48	23.77	18.12	-54.62	-910.64	3232.99	3195.50	86.24	
9700.00	8299.00	7669.89	7576.30	53.77	23.68	17.56	-54.62	-906.04	3330.41	3292.41	87.64	
9800.00	8299.00	7648.65	7555.56	56.09	23.58	17.03	-54.62	-901.44	3427.85	3389.33	88.99	
9900.00	8299.00	7627.40	7534.82	58.42	23.49	16.53	-54.62	-896.85	3525.30	3486.26	90.30	
10000.00	8299.00	7606.15	7514.07	60.77	23.40	16.05	-54.62	-892.25	3622.76	3583.20	91.57	
10100.00	8299.00	7584.91	7493.33	63.14	23.30	15.60	-54.62	-887.65	3720.24	3680.15	92.80	
10200.00	8299.00	7563.66	7472.59	65.52	23.21	15.17	-54.62	-883.05	3817.73	3777.11	93.99	
10300.00	8299.00	7542.41	7451.85	67.91	23.11	14.75	-54.62	-878.45	3915.23	3874.08	95.15	
10334.27	8299.00	7535.13	7444.74	68.73	23.08	14.61	-54.62	-876.88	3948.65	3907.31	95.54	