

5D Plan Report**Kinder Morgan****Field Name:** *Kinder Morgan Montezuma Co., CO (NAD 83 COS)***Site Name:** *Cow Canyon N-1***Well Name:** *CN-1 Lateral***Plan:** *P1:V1*

09 December 2013



Cow Canyon N-1 (CN-1)
Montezuma Co, CO

Plan Data for CN-1 Lateral

Site: Cow Canyon N-1
Unit: USFeet TVD Reference:
Company Name: Kinder Morgan
Position: Northing: 1360637.20USft Latitude: 37°36'28.1"
Easting: 2014574.21USft Longitude: -108°54'9.2"
North Reference: True Grid Convergence: -2.09°
Elevation Above VRD: 0.00USft

Plan Data for CN-1 Lateral

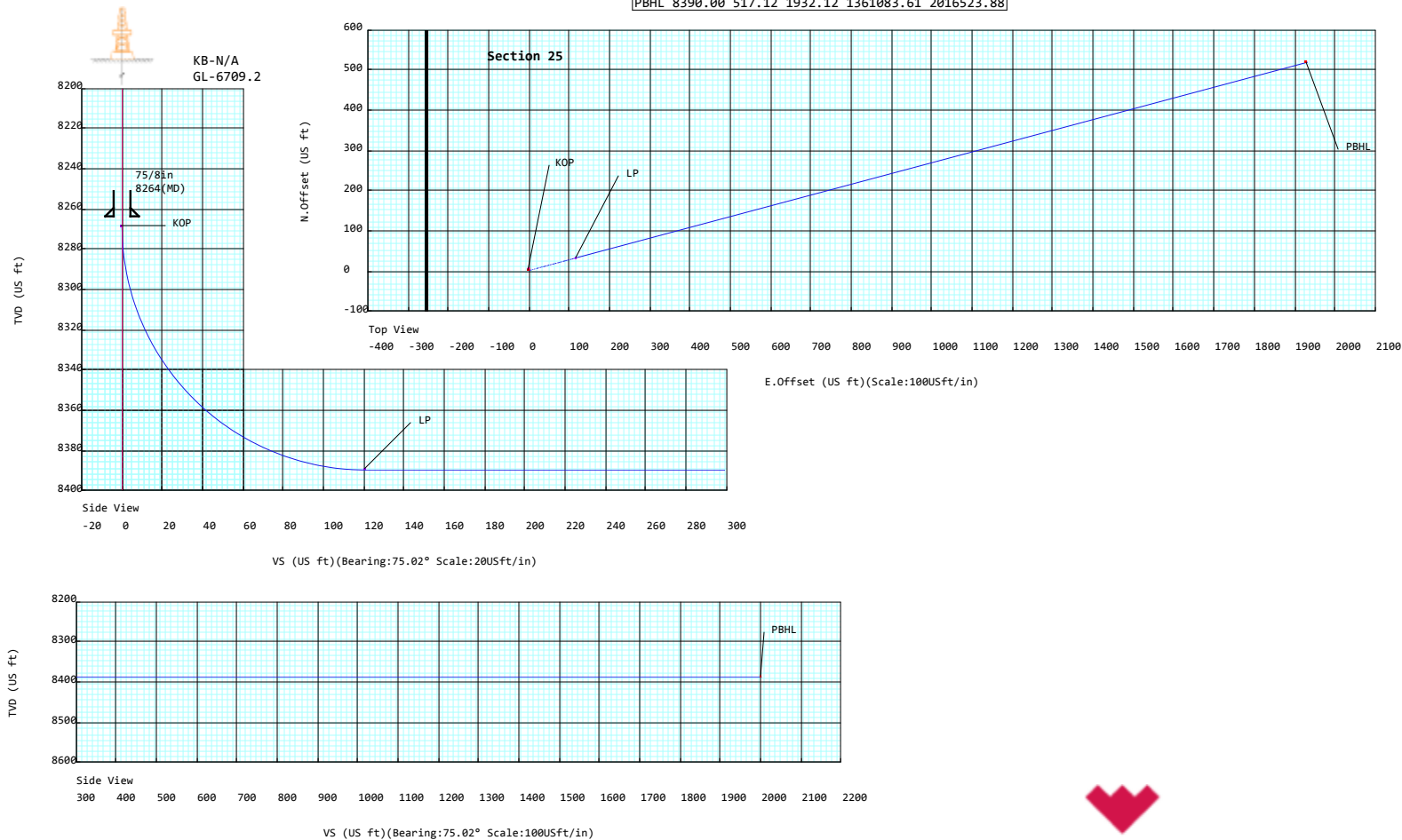
Plan Point Information:
DogLeg Severity Unit: °/100.00ft Position offsets from Slot centre

MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	VSec	DLS
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)
8269.00	0.00	0.00	8269.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00
8459.07	90.00	75.02	8390.00	31.29	116.89	1360664.21	2014692.16	121.01	47.35
10338.19	90.00	75.02	8390.00	517.12	1932.12	1361083.61	2016523.88	2000.12	0.00

Plan Data for CN-1 Lateral

Target Set Information:
Name: CN-1 Lateral PBHL
Position offsets from Slot centre

Name	TVD	+N/-S	+E/-W	Northing	Easting
(USft)	(USft)	(USft)	(USft)	(USft)	(USft)
PBHL	8390.00	517.12	1932.12	1361083.61	2016523.88





CN-1 Lateral

Field Name Kinder Morgan Montezuma Co., CO (NAD 83 COS)	Map Units : US ft		Company Name : Kinder Morgan	
	Vertical Reference Datum (VRD) : Mean Sea Level			
	Projected Coordinate System : NAD83 / Colorado South (ftUS)			
	Comment :			
Site Name Cow Canyon N-1	Units : US ft	North Reference : True		Convergence Angle : -2.09
	Position	Northing : 1360637.20 US ft		Latitude : 37° 36' 28.12"
		Easting : 2014574.21 US ft		Longitude : -108° 54' 9.18"
	Elevation above Mean Sea Level:6709.20 US ft			
Comment :				
Slot Name CN-1	Position (Offsets relative to Site Centre)			
	+N / -S : 0.00 US ft	Northing :1360637.20 US ft		Latitude : 37°36'28.12"
	+E / -W : 0.00 US ft	Easting :2014574.21 US ft		Longitude : -108°54'9.18"
	Slot TVD Reference : Ground Elevation			
	Elevation above Mean Sea Level : 6709.20 US ft			
	Comment :			
Well Name CN-1 Lateral	Type : Sidetrack		UWI :	Plan : P1:V1
	Parent : CN-1 Pilot		Tie Point Method : MD	Tie Point :8269.00 US ft
	Rig Height <i>Drill Floor</i> : 0.00 US ft		Comment :	
	Relative to Mean Sea Level: 6709.20 US ft			
	Closure Distance : 2000.12 US ft		Closure Azimuth : 75.0163°	
	Vertical Section (Position of Origin Relative to Slot)			
	+N / -S : 0.00 US ft		+E / -W : 0.00 US ft	Az :75.02°
	Magnetic Parameters			
	Model : BGGM	Field Strength :	Dec : 10.21°	Dip : 63.93°
	50776.7nT		Date : 15/Mar/2014	

Target Set

Name : CN-1 Lateral PBHL **Number of Targets** : 1

Comment :

Target Name: PBHL	Position (Relative to Slot centre)	
	+N / -S : 517.12US ft	Northing : 1361083.61 US ft
	+E / -W : 1932.12 US ft	Latitude : 37°36'33.23"
Shape: Cuboid	Easting : 2016523.88US ft	
	Longitude : -108°53'45.17"	
	TVD (Drill Floor) : 8390.00 US ft	
	Orientation Azimuth : 0.00°	
	Inclination : 0.00°	
	Dimensions Length : 0.00 US ft	
	Breadth : 0.00 US ft	
	Height : 0.00 US ft	

5D Plan Report

Well path created using minimum curvature

Salient Points (Relative to Slot centre, TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	VS (US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
8264.00	0.00	0.00	8264.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	7 5/8 in
8269.00	0.00	0.00	8269.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	KOP
8459.07	90.00	75.02	8390.00	31.29	116.89	1360664.21	2014692.16	47.35	121.01	LP
10338.19	90.00	75.02	8390.00	517.12	1932.12	1361083.61	2016523.88	0.00	2000.12	PBHL

Interpolated Points (Relative to Slot centre, TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	VS (US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1300.00	0.00	0.00	1300.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1400.00	0.00	0.00	1400.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1500.00	0.00	0.00	1500.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1600.00	0.00	0.00	1600.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1700.00	0.00	0.00	1700.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1800.00	0.00	0.00	1800.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
1900.00	0.00	0.00	1900.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2000.00	0.00	0.00	2000.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2100.00	0.00	0.00	2100.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2200.00	0.00	0.00	2200.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2300.00	0.00	0.00	2300.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2400.00	0.00	0.00	2400.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2600.00	0.00	0.00	2600.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2700.00	0.00	0.00	2700.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2800.00	0.00	0.00	2800.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
2900.00	0.00	0.00	2900.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3000.00	0.00	0.00	3000.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3100.00	0.00	0.00	3100.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3200.00	0.00	0.00	3200.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3300.00	0.00	0.00	3300.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3400.00	0.00	0.00	3400.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3500.00	0.00	0.00	3500.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3600.00	0.00	0.00	3600.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3700.00	0.00	0.00	3700.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3800.00	0.00	0.00	3800.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
3900.00	0.00	0.00	3900.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
4000.00	0.00	0.00	4000.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
4100.00	0.00	0.00	4100.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
4200.00	0.00	0.00	4200.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
4300.00	0.00	0.00	4300.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
4400.00	0.00	0.00	4400.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
4500.00	0.00	0.00	4500.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
4600.00	0.00	0.00	4600.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	

5D Plan Report

Interpolated Points (Relative to Slot centre, TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	VS (US ft)	Comment
4700.00	0.00	0.00	4700.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
4800.00	0.00	0.00	4800.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
4900.00	0.00	0.00	4900.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5000.00	0.00	0.00	5000.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5100.00	0.00	0.00	5100.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5200.00	0.00	0.00	5200.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5300.00	0.00	0.00	5300.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5400.00	0.00	0.00	5400.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5500.00	0.00	0.00	5500.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5600.00	0.00	0.00	5600.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5700.00	0.00	0.00	5700.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5800.00	0.00	0.00	5800.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
5900.00	0.00	0.00	5900.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6000.00	0.00	0.00	6000.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6100.00	0.00	0.00	6100.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6200.00	0.00	0.00	6200.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6300.00	0.00	0.00	6300.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6400.00	0.00	0.00	6400.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6500.00	0.00	0.00	6500.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6600.00	0.00	0.00	6600.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6700.00	0.00	0.00	6700.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6800.00	0.00	0.00	6800.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
6900.00	0.00	0.00	6900.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7000.00	0.00	0.00	7000.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7100.00	0.00	0.00	7100.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7200.00	0.00	0.00	7200.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7300.00	0.00	0.00	7300.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7400.00	0.00	0.00	7400.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7500.00	0.00	0.00	7500.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7600.00	0.00	0.00	7600.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7700.00	0.00	0.00	7700.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7800.00	0.00	0.00	7800.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
7900.00	0.00	0.00	7900.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
8000.00	0.00	0.00	8000.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
8100.00	0.00	0.00	8100.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
8200.00	0.00	0.00	8200.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
8264.00	0.00	0.00	8264.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	7 5/8 in KOP
8269.00	0.00	0.00	8269.00	0.00	0.00	1360637.20	2014574.21	0.00	0.00	
8300.00	14.68	75.02	8299.66	1.02	3.81	1360638.08	2014578.06	47.35	3.95	
8400.00	62.03	75.02	8375.87	16.61	62.07	1360651.54	2014636.84	47.35	64.25	
8459.07	90.00	75.02	8390.00	31.29	116.89	1360664.21	2014692.16	47.35	121.01	LP
8500.00	90.00	75.02	8390.00	41.87	156.43	1360673.34	2014732.06	0.00	161.93	
8600.00	90.00	75.02	8390.00	67.72	253.03	1360695.66	2014829.53	0.00	261.93	
8700.00	90.00	75.02	8390.00	93.58	349.63	1360717.98	2014927.01	0.00	361.93	
8800.00	90.00	75.02	8390.00	119.43	446.23	1360740.30	2015024.49	0.00	461.93	
8900.00	90.00	75.02	8390.00	145.28	542.82	1360762.62	2015121.97	0.00	561.93	
9000.00	90.00	75.02	8390.00	171.14	639.42	1360784.94	2015219.44	0.00	661.93	
9100.00	90.00	75.02	8390.00	196.99	736.02	1360807.26	2015316.92	0.00	761.93	
9200.00	90.00	75.02	8390.00	222.85	832.62	1360829.58	2015414.40	0.00	861.93	
9300.00	90.00	75.02	8390.00	248.70	929.22	1360851.89	2015511.87	0.00	961.93	
9400.00	90.00	75.02	8390.00	274.56	1025.82	1360874.21	2015609.35	0.00	1061.93	
9500.00	90.00	75.02	8390.00	300.41	1122.42	1360896.53	2015706.83	0.00	1161.93	
9600.00	90.00	75.02	8390.00	326.26	1219.02	1360918.85	2015804.31	0.00	1261.93	
9700.00	90.00	75.02	8390.00	352.12	1315.62	1360941.17	2015901.78	0.00	1361.93	
9800.00	90.00	75.02	8390.00	377.97	1412.22	1360963.49	2015999.26	0.00	1461.93	
9900.00	90.00	75.02	8390.00	403.83	1508.82	1360985.81	2016096.74	0.00	1561.93	
10000.00	90.00	75.02	8390.00	429.68	1605.42	1361008.13	2016194.22	0.00	1661.93	
10100.00	90.00	75.02	8390.00	455.54	1702.02	1361030.45	2016291.69	0.00	1761.93	
10200.00	90.00	75.02	8390.00	481.39	1798.62	1361052.77	2016389.17	0.00	1861.93	

5D Plan Report

Interpolated Points (Relative to Slot centre, TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	VS (US ft)	Comment
10300.00	90.00	75.02	8390.00	507.25	1895.22	1361075.09	2016486.65	0.00	1961.93	
10338.19	90.00	75.02	8390.00	517.12	1932.12	1361083.61	2016523.88	0.00	2000.12	PBHL

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

GeoDec v5.03

Report Date: December 09, 2013
Job Number: _____
Customer: Kinder Morgan
Well Name: Cow Canyon N-1 (CN-1)
API Number: _____
Rig Name: _____
Location: Montezuma Co., CO
Block: _____
Engineer: Patrick Rudolph

Geodetic Latitude / Longitude	Geodetic Latitude / Longitude
System: Latitude / Longitude	System: Latitude / Longitude
Projection: Geodetic Latitude and Longitude	Projection: Geodetic Latitude and Longitude
Datum: North American Datum 1983	Datum: North American Datum 1983
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
Latitude 37.6078100 DEG	Latitude 37.6078100 DEG
Longitude -108.9025500 DEG	Longitude -108.9025500 DEG

Geodetic Location WGS84	Elevation =	0.0 Meters
Latitude =	37.60781° N	37° 36 min 28.116 sec
Longitude =	108.90255° W	108° 54 min 9.180 sec

Magnetic Declination =	10.21°	[True North Offset]
Local Gravity =	.9993 g	Checksum = 7450
Local Field Strength =	50777 nT	Magnetic Vector X = 21958 nT
Magnetic Dip =	63.93°	Magnetic Vector Y = 3953 nT
Magnetic Model =	bggm2013	Magnetic Vector Z = 45613 nT
Spud Date =	Mar 15, 2014	Magnetic Vector H = 22311 nT

Signed: _____

Date: _____