



Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL DC-22	0.00	0.00	0.00	13710724.59	2290408.70	37.73720	-108.75161	Point
Top Of Leadville DC-22	8700.00	415.38	-447.95	13711129.09	2289950.90	37.73834	-108.75316	Circle (Radius: 150.00)
PBHL DC-22 p4	9146.00	415.38	-447.95	13711129.09	2289950.90	37.73834	-108.75316	Circle (Radius: 150.00)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2785.00	0.00	0.00	2785.00	0.00	0.00	0.00	0.00	0.00	
3	3493.89	21.27	312.84	3477.73	88.43	-95.37	3.00	312.84	130.06	
4	4281.72	21.27	312.84	4211.91	282.73	-304.90	0.00	0.00	415.81	
5	5345.06	0.00	0.00	5251.00	415.38	-447.95	2.00	180.00	610.90	
6	5445.06	0.00	0.00	5351.00	415.38	-447.95	0.00	0.00	610.90	
7	9240.06	0.00	0.00	9146.00	415.38	-447.95	0.00	0.00	610.90	PBHL DC-22 p4

KINDER MORGAN

Dolores/Montezuma County, CO

DC-22

DC-22

Original Hole

Plan: Plan #4a

Standard Planning Report

23 July, 2018

Precision Drilling Corporation

Planning Report

Database:	COMPASS_ROCKIES	Local Co-ordinate Reference:	Well DC-22
Company:	KINDER MORGAN	TVD Reference:	7560'GL+16'KB @ 7576.00usft (PD 829)
Project:	Dolores/Montezuma County, CO	MD Reference:	7560'GL+16'KB @ 7576.00usft (PD 829)
Site:	DC-22	North Reference:	True
Well:	DC-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #4a		

Project	Dolores/Montezuma County, CO		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 12N (114 W to 108 W)		

Site		DC-22			
Site Position:		Northing:	13,710,724.59 usft	Latitude:	37.73720
From:	Map	Easting:	2,290,408.70 usft	Longitude:	-108.75161
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	1.38

Well	DC-22					
Well Position	+N/-S	0.00 usft	Northing:	13,710,724.59 usft	Latitude:	37.73720
	+E/-W	0.00 usft	Easting:	2,290,408.70 usft	Longitude:	-108.75161
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	7,560.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/15/2018	9.69	63.98	50,327.80451110

Design	Plan #4a			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	312.84

Plan Survey Tool Program	Date	7/23/2018			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	9,240.06	Plan #4a (Original Hole)	MWD+IGRF	
				OWSG MWD + IGRF or W	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,785.00	0.00	0.00	2,785.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,493.89	21.27	312.84	3,477.73	88.43	-95.37	3.00	3.00	0.00	312.84	
4,281.72	21.27	312.84	4,211.91	282.73	-304.90	0.00	0.00	0.00	0.00	
5,345.06	0.00	0.00	5,251.00	415.38	-447.95	2.00	-2.00	0.00	180.00	
5,445.06	0.00	0.00	5,351.00	415.38	-447.95	0.00	0.00	0.00	0.00	
9,240.06	0.00	0.00	9,146.00	415.38	-447.95	0.00	0.00	0.00	0.00	PBHL DC-22 p4

Precision Drilling Corporation

Planning Report

Database:	COMPASS_ROCKIES	Local Co-ordinate Reference:	Well DC-22
Company:	KINDER MORGAN	TVD Reference:	7560'GL+16'KB @ 7576.00usft (PD 829)
Project:	Dolores/Montezuma County, CO	MD Reference:	7560'GL+16'KB @ 7576.00usft (PD 829)
Site:	DC-22	North Reference:	True
Well:	DC-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #4a		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,785.00	0.00	0.00	2,785.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.45	312.84	2,800.00	0.04	-0.04	0.06	3.00	3.00	0.00
2,900.00	3.45	312.84	2,899.93	2.35	-2.54	3.46	3.00	3.00	0.00
3,000.00	6.45	312.84	2,999.55	8.22	-8.86	12.09	3.00	3.00	0.00
3,100.00	9.45	312.84	3,098.57	17.62	-19.00	25.92	3.00	3.00	0.00
3,200.00	12.45	312.84	3,196.74	30.54	-32.93	44.91	3.00	3.00	0.00
3,300.00	15.45	312.84	3,293.78	46.93	-50.61	69.02	3.00	3.00	0.00
3,400.00	18.45	312.84	3,389.43	66.75	-71.98	98.17	3.00	3.00	0.00
3,493.89	21.27	312.84	3,477.73	88.43	-95.37	130.06	3.00	3.00	0.00
3,500.00	21.27	312.84	3,483.42	89.94	-96.99	132.27	0.00	0.00	0.00
3,600.00	21.27	312.84	3,576.61	114.60	-123.59	168.54	0.00	0.00	0.00
3,700.00	21.27	312.84	3,669.80	139.26	-150.18	204.82	0.00	0.00	0.00
3,800.00	21.27	312.84	3,762.99	163.93	-176.78	241.09	0.00	0.00	0.00
3,900.00	21.27	312.84	3,856.18	188.59	-203.38	277.36	0.00	0.00	0.00
4,000.00	21.27	312.84	3,949.37	213.25	-229.97	313.63	0.00	0.00	0.00
4,100.00	21.27	312.84	4,042.56	237.91	-256.57	349.90	0.00	0.00	0.00
4,200.00	21.27	312.84	4,135.75	262.58	-283.16	386.17	0.00	0.00	0.00
4,281.72	21.27	312.84	4,211.91	282.73	-304.90	415.81	0.00	0.00	0.00
4,300.00	20.90	312.84	4,228.96	287.20	-309.72	422.39	2.00	-2.00	0.00
4,400.00	18.90	312.84	4,322.98	310.35	-334.68	456.43	2.00	-2.00	0.00
4,500.00	16.90	312.84	4,418.14	331.25	-357.22	487.16	2.00	-2.00	0.00
4,600.00	14.90	312.84	4,514.31	349.87	-377.31	514.56	2.00	-2.00	0.00
4,700.00	12.90	312.84	4,611.37	366.21	-394.92	538.58	2.00	-2.00	0.00
4,800.00	10.90	312.84	4,709.22	380.23	-410.04	559.21	2.00	-2.00	0.00
4,900.00	8.90	312.84	4,807.72	391.92	-422.65	576.40	2.00	-2.00	0.00
5,000.00	6.90	312.84	4,906.77	401.27	-432.73	590.15	2.00	-2.00	0.00

Precision Drilling Corporation

Planning Report

Database:	COMPASS_ROCKIES	Local Co-ordinate Reference:	Well DC-22
Company:	KINDER MORGAN	TVD Reference:	7560'GL+16'KB @ 7576.00usft (PD 829)
Project:	Dolores/Montezuma County, CO	MD Reference:	7560'GL+16'KB @ 7576.00usft (PD 829)
Site:	DC-22	North Reference:	True
Well:	DC-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #4a		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.00	4.90	312.84	5,006.23	408.26	-440.27	600.43	2.00	-2.00	0.00
5,200.00	2.90	312.84	5,106.00	412.88	-445.26	607.23	2.00	-2.00	0.00
5,300.00	0.90	312.84	5,205.94	415.14	-447.69	610.55	2.00	-2.00	0.00
5,345.06	0.00	0.00	5,251.00	415.38	-447.95	610.90	2.00	-2.00	0.00
5,400.00	0.00	0.00	5,305.94	415.38	-447.95	610.90	0.00	0.00	0.00
5,445.06	0.00	0.00	5,351.00	415.38	-447.95	610.90	0.00	0.00	0.00
5,500.00	0.00	0.00	5,405.94	415.38	-447.95	610.90	0.00	0.00	0.00
5,600.00	0.00	0.00	5,505.94	415.38	-447.95	610.90	0.00	0.00	0.00
5,700.00	0.00	0.00	5,605.94	415.38	-447.95	610.90	0.00	0.00	0.00
5,800.00	0.00	0.00	5,705.94	415.38	-447.95	610.90	0.00	0.00	0.00
5,900.00	0.00	0.00	5,805.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,000.00	0.00	0.00	5,905.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,100.00	0.00	0.00	6,005.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,200.00	0.00	0.00	6,105.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,300.00	0.00	0.00	6,205.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,400.00	0.00	0.00	6,305.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,500.00	0.00	0.00	6,405.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,600.00	0.00	0.00	6,505.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,700.00	0.00	0.00	6,605.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,800.00	0.00	0.00	6,705.94	415.38	-447.95	610.90	0.00	0.00	0.00
6,900.00	0.00	0.00	6,805.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,000.00	0.00	0.00	6,905.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,100.00	0.00	0.00	7,005.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,200.00	0.00	0.00	7,105.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,300.00	0.00	0.00	7,205.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,400.00	0.00	0.00	7,305.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,500.00	0.00	0.00	7,405.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,600.00	0.00	0.00	7,505.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,700.00	0.00	0.00	7,605.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,800.00	0.00	0.00	7,705.94	415.38	-447.95	610.90	0.00	0.00	0.00
7,900.00	0.00	0.00	7,805.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,000.00	0.00	0.00	7,905.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,100.00	0.00	0.00	8,005.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,200.00	0.00	0.00	8,105.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,300.00	0.00	0.00	8,205.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,400.00	0.00	0.00	8,305.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,500.00	0.00	0.00	8,405.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,600.00	0.00	0.00	8,505.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,700.00	0.00	0.00	8,605.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,800.00	0.00	0.00	8,705.94	415.38	-447.95	610.90	0.00	0.00	0.00
8,900.00	0.00	0.00	8,805.94	415.38	-447.95	610.90	0.00	0.00	0.00
9,000.00	0.00	0.00	8,905.94	415.38	-447.95	610.90	0.00	0.00	0.00
9,100.00	0.00	0.00	9,005.94	415.38	-447.95	610.90	0.00	0.00	0.00
9,200.00	0.00	0.00	9,105.94	415.38	-447.95	610.90	0.00	0.00	0.00
9,240.06	0.00	0.00	9,146.00	415.38	-447.95	610.90	0.00	0.00	0.00

Precision Drilling Corporation

Planning Report

Database:	COMPASS_ROCKIES	Local Co-ordinate Reference:	Well DC-22
Company:	KINDER MORGAN	TVD Reference:	7560'GL+16'KB @ 7576.00usft (PD 829)
Project:	Dolores/Montezuma County, CO	MD Reference:	7560'GL+16'KB @ 7576.00usft (PD 829)
Site:	DC-22	North Reference:	True
Well:	DC-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #4a		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL DC-22 - hit/miss target - Shape	0.00	357.93	0.00	0.00	0.00	13,710,724.59	2,290,408.70	37.73720	-108.75161
Top Of Leadville DC-22 - plan hits target center - Circle (radius 150.00)	0.00	0.00	8,700.00	415.38	-447.95	13,711,129.09	2,289,950.90	37.73834	-108.75316
PBHL DC-22 p4 - plan hits target center - Circle (radius 150.00)	0.00	357.93	9,146.00	415.38	-447.95	13,711,129.09	2,289,950.90	37.73834	-108.75316

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,685.00	2,685.00	9 5/8"	9.62	12.25	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,831.06	5,737.00	Top Of Desert Creek		0.00		
8,794.06	8,700.00	Top Of Leadville		0.00		