



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	4506.00	35.95	66.33	4229.84	473.77	1092.93	0.00	0.001191.19		
2	4551.00	35.95	66.33	4266.26	484.37	1117.12	0.00	0.001217.60		
3	4936.86	32.29	86.00	4586.63	537.21	1324.38	3.00	116.351428.90		
4	5026.86	32.29	86.00	4662.72	540.57	1372.34	0.00	0.001474.29		
5	5483.19	32.05	60.14	5050.82	609.69	1600.02	3.00	-101.971710.77		
6	6584.20	32.05	60.14	5984.00	900.66	2106.74	0.00	0.002291.18		
7	7794.50	8.00	70.00	7113.00	1092.24	2469.80	2.00	176.672700.38		
8	9942.41	8.00	70.00	9240.00	1194.48	2750.70	0.00	0.002998.83		PUCKETT 23C-19 PBHL ST

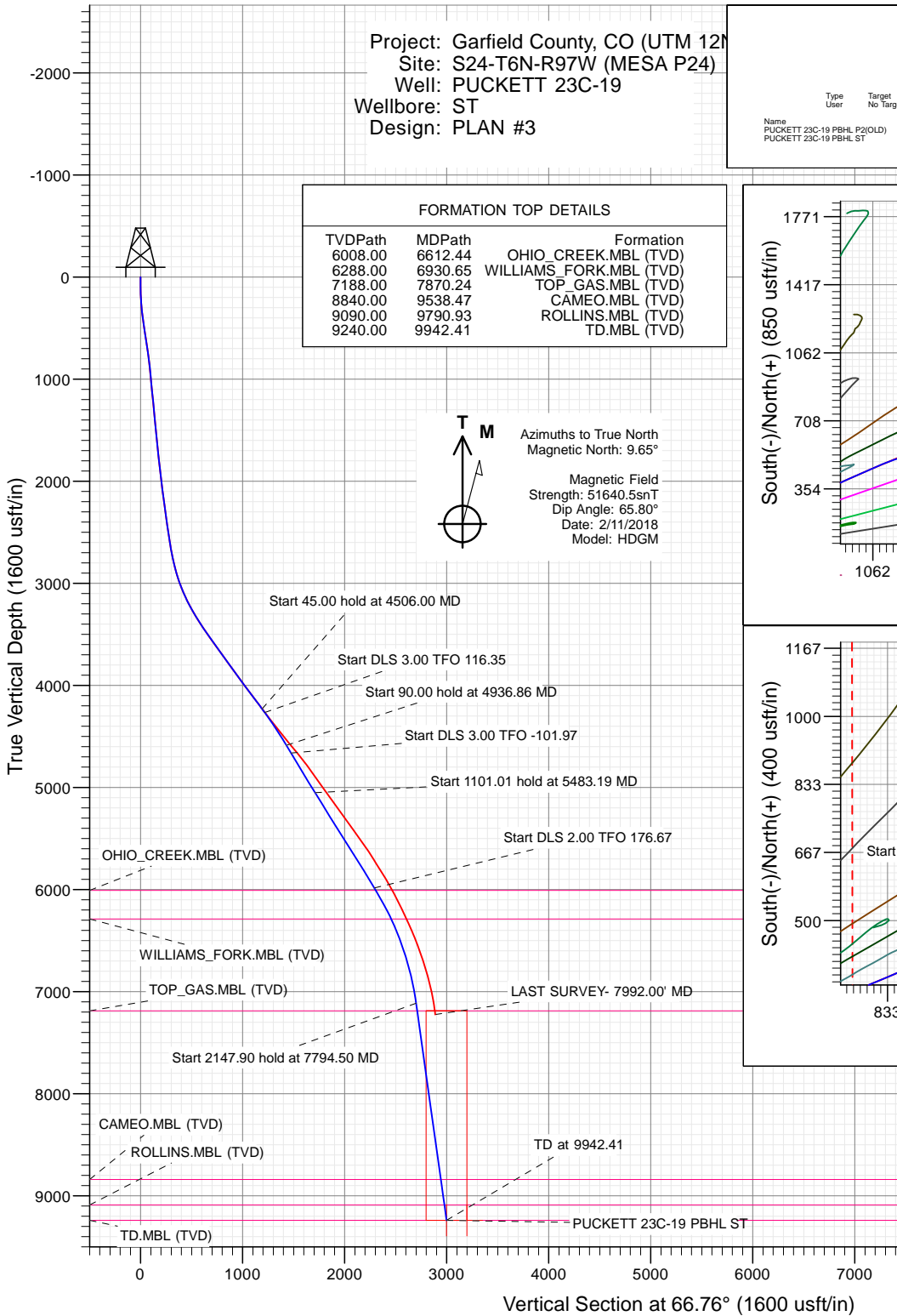
Project: Garfield County, CO (UTM 12N)
Site: S24-T6N-R97W (MESA P24)
Well: PUCKETT 23C-19
Wellbore: ST
Design: PLAN #3

FORMATION TOP DETAILS

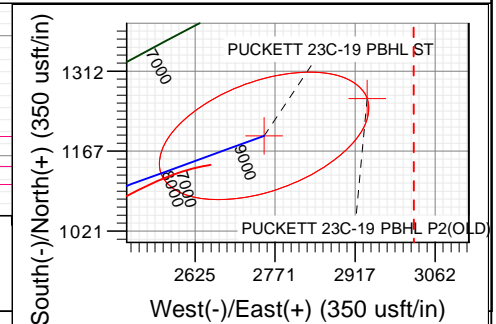
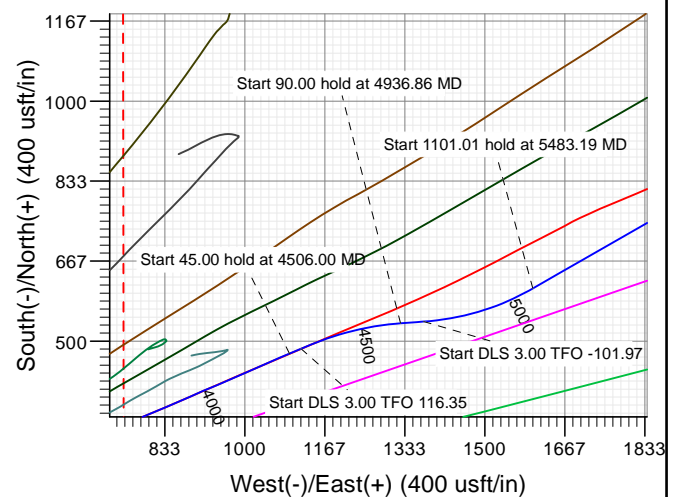
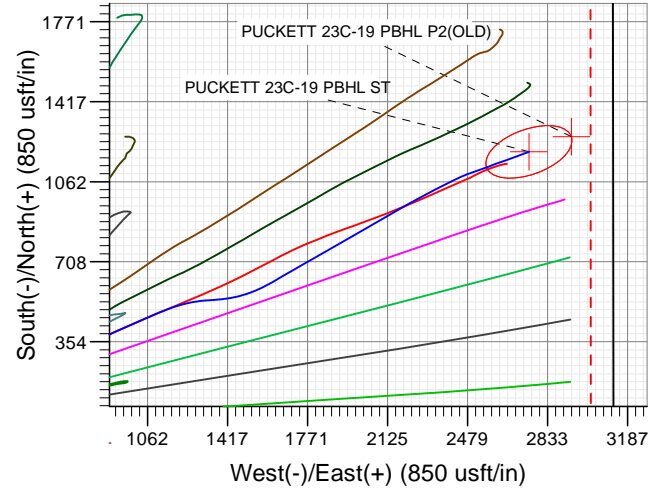
TVDPATH	MDPATH	FORMATION
6008.00	6612.44	OHIO_CREEK.MBL (TVD)
6288.00	6930.65	WILLIAMS_FORK.MBL (TVD)
7188.00	7870.24	TOP_GAS.MBL (TVD)
8840.00	9538.47	CAMEO.MBL (TVD)
9090.00	9790.93	ROLLINS.MBL (TVD)
9240.00	9942.41	TD.MBL (TVD)



Azimuths to True North
Magnetic North: 9.65°
Magnetic Field
Strength: 51640.5nT
Dip Angle: 65.80°
Date: 2/11/2018
Model: HDGM



Name	Type	User	Target	No Target (Freehand)	Azimuth	Origin Type	Slot	N/S	E/W	From TVD	Latitude	Longitude
PUCKETT 23C-19 PBHL P2(OLD)					66.76			0.00	0.00	0.00	39.506439	-108.150649
PUCKETT 23C-19 PBHL ST					66.76			0.00	0.00	0.00	39.506439	-108.151316



WELL DETAILS: PUCKETT 23C-19

+E/-W	North	Ground Level:	8151.00	Latitude	Longitude	A5
0.00	14357695.70	Easting	2441282.50	39.502976	-108.161061	



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well PUCKETT 23C-19 - Slot A5
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 8181.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 8181.00usft
Site:	S24-T6N-R97W (MESA P24)	North Reference:	True
Well:	PUCKETT 23C-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	PLAN #3		

Project	Garfield County, CO (UTM 12N)		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 - Western US		
Map Zone:	Zone 12N (114 W to 108 W)		

Site	S24-T6N-R97W (MESA P24), Gravity = 0.9976g		
Site Position:		Northing:	14,357,707.60 usft
From:	Map	Easting:	2,441,222.80 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	39.503013
		Longitude:	-108.161271
		Grid Convergence:	1.81 °

Well	PUCKETT 23C-19 - Slot A5		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	39.502976
		Longitude:	-108.161061
		Ground Level:	8,151.00 usft

Wellbore	ST				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	2/11/2018	9.65	65.80	51,640.50000000

Design	PLAN #3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	4,506.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	66.76

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
4,506.00	35.95	66.33	4,229.84	473.77	1,092.93	0.00	0.00	0.00	0.00	
4,551.00	35.95	66.33	4,266.26	484.37	1,117.12	0.00	0.00	0.00	0.00	
4,936.86	32.29	86.00	4,586.63	537.21	1,324.38	3.00	-0.95	5.10	116.35	
5,026.86	32.29	86.00	4,662.72	540.57	1,372.34	0.00	0.00	0.00	0.00	
5,483.19	32.05	60.14	5,050.82	609.69	1,600.02	3.00	-0.05	-5.67	-101.97	
6,584.20	32.05	60.14	5,984.00	900.66	2,106.74	0.00	0.00	0.00	0.00	
7,794.50	8.00	70.00	7,113.00	1,092.24	2,469.80	2.00	-1.99	0.82	176.67	
9,942.41	8.00	70.00	9,240.00	1,194.48	2,750.70	0.00	0.00	0.00	0.00	PUCKETT 23C-19 PE

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well PUCKETT 23C-19 - Slot A5
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 8181.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 8181.00usft
Site:	S24-T6N-R97W (MESA P24)	North Reference:	True
Well:	PUCKETT 23C-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	PLAN #3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,506.00	35.95	66.33	4,229.84	473.77	1,092.93	1,191.19	0.00	0.00	Start 45.00 hold at 4506.00 MD
4,551.00	35.95	66.33	4,266.26	484.37	1,117.12	1,217.60	0.00	0.00	Start DLS 3.00 TFO 116.35
4,600.00	35.32	68.61	4,306.09	495.31	1,143.48	1,246.14	3.00	-1.29	
4,700.00	34.17	73.47	4,388.28	513.85	1,197.33	1,302.94	3.00	-1.15	
4,800.00	33.22	78.61	4,471.49	527.25	1,251.12	1,357.65	3.00	-0.95	
4,900.00	32.50	83.97	4,555.51	535.49	1,304.71	1,410.14	3.00	-0.73	
4,936.86	32.29	86.00	4,586.63	537.21	1,324.38	1,428.90	3.00	-0.57	Start 90.00 hold at 4936.86 MD
5,000.00	32.29	86.00	4,640.01	539.57	1,358.02	1,460.74	0.00	0.00	
5,026.86	32.29	86.00	4,662.72	540.57	1,372.34	1,474.29	0.00	0.00	Start DLS 3.00 TFO -101.97
5,100.00	31.90	81.94	4,724.68	544.64	1,410.96	1,511.39	3.00	-0.53	
5,200.00	31.58	76.26	4,809.75	554.57	1,462.57	1,562.72	3.00	-0.32	
5,300.00	31.51	70.53	4,894.99	569.50	1,512.66	1,614.64	3.00	-0.07	
5,400.00	31.70	64.82	4,980.17	589.40	1,561.09	1,666.99	3.00	0.19	
5,483.19	32.05	60.14	5,050.82	609.69	1,600.02	1,710.77	3.00	0.42	Start 1101.01 hold at 5483.19 MD
5,500.00	32.05	60.14	5,065.07	614.14	1,607.76	1,719.63	0.00	0.00	
5,600.00	32.05	60.14	5,149.83	640.56	1,653.78	1,772.35	0.00	0.00	
5,700.00	32.05	60.14	5,234.58	666.99	1,699.80	1,825.07	0.00	0.00	
5,800.00	32.05	60.14	5,319.34	693.42	1,745.82	1,877.78	0.00	0.00	
5,900.00	32.05	60.14	5,404.10	719.84	1,791.85	1,930.50	0.00	0.00	
6,000.00	32.05	60.14	5,488.85	746.27	1,837.87	1,983.21	0.00	0.00	
6,100.00	32.05	60.14	5,573.61	772.70	1,883.89	2,035.93	0.00	0.00	
6,200.00	32.05	60.14	5,658.36	799.12	1,929.92	2,088.64	0.00	0.00	
6,300.00	32.05	60.14	5,743.12	825.55	1,975.94	2,141.36	0.00	0.00	
6,400.00	32.05	60.14	5,827.87	851.98	2,021.96	2,194.08	0.00	0.00	
6,500.00	32.05	60.14	5,912.63	878.40	2,067.98	2,246.79	0.00	0.00	
6,584.20	32.05	60.14	5,984.00	900.66	2,106.74	2,291.18	0.00	0.00	Start DLS 2.00 TFO 176.67
6,600.00	31.74	60.17	5,997.41	904.81	2,113.98	2,299.47	2.00	-2.00	
6,612.44	31.49	60.20	6,008.00	908.05	2,119.63	2,305.95	2.00	-2.00	OHIO_CREEK.MBL (TVD)
6,700.00	29.74	60.41	6,083.35	930.15	2,158.37	2,350.26	2.00	-2.00	
6,800.00	27.75	60.67	6,171.03	953.80	2,200.23	2,398.06	2.00	-2.00	
6,900.00	25.75	60.98	6,260.32	975.74	2,239.52	2,442.82	2.00	-2.00	
6,930.65	25.14	61.08	6,288.00	982.12	2,251.05	2,455.92	2.00	-1.99	WILLIAMS_FORK.MBL (TVD)
7,000.00	23.76	61.33	6,351.13	995.94	2,276.20	2,484.49	2.00	-1.99	
7,100.00	21.76	61.74	6,443.34	1,014.38	2,310.20	2,523.01	2.00	-1.99	
7,200.00	19.77	62.24	6,536.84	1,031.04	2,341.50	2,558.34	2.00	-1.99	
7,300.00	17.78	62.83	6,631.52	1,045.89	2,370.05	2,590.43	2.00	-1.99	
7,400.00	15.79	63.58	6,727.25	1,058.91	2,395.82	2,619.25	2.00	-1.99	
7,500.00	13.80	64.53	6,823.93	1,070.10	2,418.78	2,644.76	2.00	-1.99	
7,600.00	11.82	65.79	6,921.43	1,079.43	2,438.89	2,666.93	2.00	-1.98	
7,700.00	9.85	67.55	7,019.65	1,086.90	2,456.15	2,685.73	2.00	-1.97	
7,794.50	8.00	70.00	7,113.00	1,092.24	2,469.80	2,700.38	2.00	-1.96	Start 2147.90 hold at 7794.50 MD
7,800.00	8.00	70.00	7,118.44	1,092.50	2,470.52	2,701.14	0.00	0.00	
7,870.24	8.00	70.00	7,188.00	1,095.85	2,479.70	2,710.90	0.00	0.00	TOP_GAS.MBL (TVD)
7,900.00	8.00	70.00	7,217.47	1,097.26	2,483.60	2,715.04	0.00	0.00	
8,000.00	8.00	70.00	7,316.50	1,102.02	2,496.67	2,728.93	0.00	0.00	
8,100.00	8.00	70.00	7,415.52	1,106.78	2,509.75	2,742.83	0.00	0.00	
8,200.00	8.00	70.00	7,514.55	1,111.54	2,522.83	2,756.72	0.00	0.00	
8,300.00	8.00	70.00	7,613.58	1,116.30	2,535.91	2,770.62	0.00	0.00	
8,400.00	8.00	70.00	7,712.60	1,121.06	2,548.99	2,784.51	0.00	0.00	
8,500.00	8.00	70.00	7,811.63	1,125.82	2,562.06	2,798.41	0.00	0.00	
8,600.00	8.00	70.00	7,910.66	1,130.58	2,575.14	2,812.30	0.00	0.00	
8,700.00	8.00	70.00	8,009.68	1,135.34	2,588.22	2,826.20	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well PUCKETT 23C-19 - Slot A5
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 8181.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 8181.00usft
Site:	S24-T6N-R97W (MESA P24)	North Reference:	True
Well:	PUCKETT 23C-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	PLAN #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
8,800.00	8.00	70.00	8,108.71	1,140.10	2,601.30	2,840.09	0.00	0.00	
8,900.00	8.00	70.00	8,207.74	1,144.86	2,614.38	2,853.99	0.00	0.00	
9,000.00	8.00	70.00	8,306.77	1,149.62	2,627.45	2,867.88	0.00	0.00	
9,100.00	8.00	70.00	8,405.79	1,154.38	2,640.53	2,881.78	0.00	0.00	
9,200.00	8.00	70.00	8,504.82	1,159.14	2,653.61	2,895.67	0.00	0.00	
9,300.00	8.00	70.00	8,603.85	1,163.90	2,666.69	2,909.57	0.00	0.00	
9,400.00	8.00	70.00	8,702.87	1,168.66	2,679.77	2,923.46	0.00	0.00	
9,500.00	8.00	70.00	8,801.90	1,173.42	2,692.84	2,937.36	0.00	0.00	
9,538.47	8.00	70.00	8,840.00	1,175.25	2,697.88	2,942.71	0.00	0.00	CAMEO.MBL (TVD)
9,600.00	8.00	70.00	8,900.93	1,178.18	2,705.92	2,951.25	0.00	0.00	
9,700.00	8.00	70.00	8,999.95	1,182.94	2,719.00	2,965.15	0.00	0.00	
9,790.93	8.00	70.00	9,090.00	1,187.27	2,730.89	2,977.79	0.00	0.00	ROLLINS.MBL (TVD)
9,800.00	8.00	70.00	9,098.98	1,187.70	2,732.08	2,979.05	0.00	0.00	
9,900.00	8.00	70.00	9,198.01	1,192.46	2,745.16	2,992.94	0.00	0.00	
9,942.41	8.00	70.00	9,240.00	1,194.48	2,750.70	2,998.83	0.00	0.00	TD at 9942.41 - TD.MBL (TVD) - PUCKETT 23C

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude
PUCKETT 23C-19 PBHI	- plan misses target center by 0.01usft at 9942.41usft MD (9240.00 TVD, 1194.48 N, 2750.70 E)	0.00	0.00	9,240.00	1,194.48	2,750.70	14,358,976.31	2,443,994.17	39.506253 -108.151316
	- Ellipse (radii L200.00 W100.00 on 250.00 azi)								
PUCKETT 23C-19 PBHI	- plan misses target center by 199.90usft at 9942.41usft MD (9240.00 TVD, 1194.48 N, 2750.70 E)	0.00	0.00	9,240.00	1,262.27	2,938.76	14,359,050.00	2,444,180.00	39.506439 -108.150649
	- Point								

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,612.44	6,008.00	OHIO_CREEK.MBL (TVD)				
6,930.65	6,288.00	WILLIAMS_FORK.MBL (TVD)				
7,870.24	7,188.00	TOP_GAS.MBL (TVD)				
9,538.47	8,840.00	CAMEO.MBL (TVD)				
9,790.93	9,090.00	ROLLINS.MBL (TVD)				
9,942.41	9,240.00	TD.MBL (TVD)				

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well PUCKETT 23C-19 - Slot A5
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 8181.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 8181.00usft
Site:	S24-T6N-R97W (MESA P24)	North Reference:	True
Well:	PUCKETT 23C-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST		
Design:	PLAN #3		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,506.00	4,229.84	473.77	1,092.93	Start 45.00 hold at 4506.00 MD
4,551.00	4,266.26	484.37	1,117.12	Start DLS 3.00 TFO 116.35
4,936.86	4,586.63	537.21	1,324.38	Start 90.00 hold at 4936.86 MD
5,026.86	4,662.72	540.57	1,372.34	Start DLS 3.00 TFO -101.97
5,483.19	5,050.82	609.69	1,600.02	Start 1101.01 hold at 5483.19 MD
6,584.20	5,984.00	900.66	2,106.74	Start DLS 2.00 TFO 176.67
7,794.50	7,113.00	1,092.24	2,469.80	Start 2147.90 hold at 7794.50 MD
9,942.41	9,240.00	1,194.48	2,750.70	TD at 9942.41