





**DIRECTIONAL DRILLING SPECIALISTS**

## **Mak J**

**McCoy 11-33 Pad**

**11-33**

**McCoy 5-2-4-33 - Slot 5-2-4-33**

**McCoy 5-2-4-33**

**Plan: Design #1**

## **Standard Planning Report**

**21 December, 2012**



# Native Navigation Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well McCoy 5-2-4-33 - Slot 5-2-4-33
Company:	Mak J	TVD Reference:	WELL @ 5027.00usft (Original Well Elev)
Project:	McCoy 11-33 Pad	MD Reference:	WELL @ 5027.00usft (Original Well Elev)
Site:	11-33	North Reference:	Grid
Well:	McCoy 5-2-4-33	Survey Calculation Method:	Minimum Curvature
Wellbore:	McCoy 5-2-4-33		
Design:	Design #1		

Project	McCoy 11-33 Pad		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	11-33		
Site Position:		Northing:	1,889,583.551 usft
From:	Lat/Long	Easting:	3,134,824.666 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Grid Convergence:	0.30 °

Well	McCoy 5-2-4-33 - Slot 5-2-4-33		
Well Position	+N/-S	-62.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	

Wellbore	McCoy 5-2-4-33		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	12/19/2012	8.78
			Dip Angle
			(°)
			Field Strength
			(nT)
			52,877

Design	Design #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			148.03

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	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	
1,666.67	26.00	148.03	1,637.23	-163.97	102.34	3.00	3.00	0.00	148.03	
5,540.36	26.00	148.03	5,118.88	-1,604.52	1,001.47	0.00	0.00	0.00	0.00	
6,407.03	0.00	0.00	5,956.11	-1,768.49	1,103.81	3.00	-3.00	0.00	180.00	
8,229.92	0.00	0.00	7,779.00	-1,768.49	1,103.81	0.00	0.00	0.00	0.00	McCoy 5-2-4-33

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Well:	McCoy 5-2-4-33	Survey Calculation Method:	Minimum Curvature
Wellbore:	McCoy 5-2-4-33		
Design:	Design #1		

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	3.00	148.03	899.95	-2.22	1.39	2.62	3.00	3.00	0.00
1,000.00	6.00	148.03	999.63	-8.88	5.54	10.46	3.00	3.00	0.00
1,100.00	9.00	148.03	1,098.77	-19.95	12.45	23.51	3.00	3.00	0.00
1,200.00	12.00	148.03	1,197.08	-35.40	22.10	41.74	3.00	3.00	0.00
1,300.00	15.00	148.03	1,294.31	-55.21	34.46	65.08	3.00	3.00	0.00
1,400.00	18.00	148.03	1,390.18	-79.30	49.49	93.48	3.00	3.00	0.00
1,500.00	21.00	148.03	1,484.43	-107.61	67.17	126.85	3.00	3.00	0.00
1,600.00	24.00	148.03	1,576.81	-140.07	87.43	165.12	3.00	3.00	0.00
1,666.67	26.00	148.03	1,637.23	-163.97	102.34	193.29	3.00	3.00	0.00
1,700.00	26.00	148.03	1,667.19	-176.37	110.08	207.90	0.00	0.00	0.00
1,800.00	26.00	148.03	1,757.07	-213.55	133.29	251.74	0.00	0.00	0.00
1,900.00	26.00	148.03	1,846.95	-250.74	156.50	295.58	0.00	0.00	0.00
2,000.00	26.00	148.03	1,936.83	-287.93	179.71	339.41	0.00	0.00	0.00
2,100.00	26.00	148.03	2,026.70	-325.12	202.93	383.25	0.00	0.00	0.00
2,200.00	26.00	148.03	2,116.58	-362.31	226.14	427.09	0.00	0.00	0.00
2,300.00	26.00	148.03	2,206.46	-399.49	249.35	470.92	0.00	0.00	0.00
2,400.00	26.00	148.03	2,296.34	-436.68	272.56	514.76	0.00	0.00	0.00
2,500.00	26.00	148.03	2,386.22	-473.87	295.77	558.60	0.00	0.00	0.00
2,600.00	26.00	148.03	2,476.10	-511.06	318.98	602.44	0.00	0.00	0.00
2,700.00	26.00	148.03	2,565.98	-548.25	342.19	646.27	0.00	0.00	0.00
2,800.00	26.00	148.03	2,655.86	-585.43	365.40	690.11	0.00	0.00	0.00
2,900.00	26.00	148.03	2,745.74	-622.62	388.61	733.95	0.00	0.00	0.00
3,000.00	26.00	148.03	2,835.62	-659.81	411.82	777.78	0.00	0.00	0.00
3,100.00	26.00	148.03	2,925.50	-697.00	435.04	821.62	0.00	0.00	0.00
3,200.00	26.00	148.03	3,015.38	-734.18	458.25	865.46	0.00	0.00	0.00
3,300.00	26.00	148.03	3,105.26	-771.37	481.46	909.30	0.00	0.00	0.00
3,400.00	26.00	148.03	3,195.14	-808.56	504.67	953.13	0.00	0.00	0.00
3,500.00	26.00	148.03	3,285.02	-845.75	527.88	996.97	0.00	0.00	0.00
3,600.00	26.00	148.03	3,374.90	-882.94	551.09	1,040.81	0.00	0.00	0.00
3,700.00	26.00	148.03	3,464.78	-920.12	574.30	1,084.64	0.00	0.00	0.00
3,800.00	26.00	148.03	3,554.65	-957.31	597.51	1,128.48	0.00	0.00	0.00
3,900.00	26.00	148.03	3,644.53	-994.50	620.72	1,172.32	0.00	0.00	0.00
4,000.00	26.00	148.03	3,734.41	-1,031.69	643.94	1,216.16	0.00	0.00	0.00
4,100.00	26.00	148.03	3,824.29	-1,068.88	667.15	1,259.99	0.00	0.00	0.00
4,200.00	26.00	148.03	3,914.17	-1,106.06	690.36	1,303.83	0.00	0.00	0.00
4,300.00	26.00	148.03	4,004.05	-1,143.25	713.57	1,347.67	0.00	0.00	0.00
4,400.00	26.00	148.03	4,093.93	-1,180.44	736.78	1,391.50	0.00	0.00	0.00
4,429.00	26.00	148.03	4,120.00	-1,191.23	743.51	1,404.22	0.00	0.00	0.00
<b>Sussex</b>									
4,500.00	26.00	148.03	4,183.81	-1,217.63	759.99	1,435.34	0.00	0.00	0.00
4,600.00	26.00	148.03	4,273.69	-1,254.82	783.20	1,479.18	0.00	0.00	0.00
4,700.00	26.00	148.03	4,363.57	-1,292.00	806.41	1,523.01	0.00	0.00	0.00
4,800.00	26.00	148.03	4,453.45	-1,329.19	829.62	1,566.85	0.00	0.00	0.00
4,886.28	26.00	148.03	4,531.00	-1,361.28	849.65	1,604.68	0.00	0.00	0.00
<b>Shannon</b>									



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<b>Company:</b>	Mak J	<b>TVD Reference:</b>	WELL @ 5027.00usft (Original Well Elev)
<b>Project:</b>	McCoy 11-33 Pad	<b>MD Reference:</b>	WELL @ 5027.00usft (Original Well Elev)
<b>Site:</b>	11-33	<b>North Reference:</b>	Grid
<b>Well:</b>	McCoy 5-2-4-33	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	McCoy 5-2-4-33		
<b>Design:</b>	Design #1		

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)
4,900.00	26.00	148.03	4,543.33	-1,366.38	852.84	1,610.69	0.00	0.00	0.00
5,000.00	26.00	148.03	4,633.21	-1,403.57	876.05	1,654.53	0.00	0.00	0.00
5,100.00	26.00	148.03	4,723.09	-1,440.75	899.26	1,698.36	0.00	0.00	0.00
5,200.00	26.00	148.03	4,812.97	-1,477.94	922.47	1,742.20	0.00	0.00	0.00
5,300.00	26.00	148.03	4,902.85	-1,515.13	945.68	1,786.04	0.00	0.00	0.00
5,400.00	26.00	148.03	4,992.73	-1,552.32	968.89	1,829.87	0.00	0.00	0.00
5,500.00	26.00	148.03	5,082.60	-1,589.51	992.10	1,873.71	0.00	0.00	0.00
5,540.36	26.00	148.03	5,118.88	-1,604.52	1,001.47	1,891.41	0.00	0.00	0.00
5,600.00	24.21	148.03	5,172.88	-1,625.98	1,014.87	1,916.71	3.00	-3.00	0.00
5,700.00	21.21	148.03	5,265.12	-1,658.73	1,035.31	1,955.31	3.00	-3.00	0.00
5,800.00	18.21	148.03	5,359.25	-1,687.34	1,053.16	1,989.04	3.00	-3.00	0.00
5,900.00	15.21	148.03	5,455.01	-1,711.73	1,068.39	2,017.79	3.00	-3.00	0.00
6,000.00	12.21	148.03	5,552.15	-1,731.83	1,080.94	2,041.49	3.00	-3.00	0.00
6,100.00	9.21	148.03	5,650.40	-1,747.60	1,090.78	2,060.07	3.00	-3.00	0.00
6,200.00	6.21	148.03	5,749.49	-1,758.98	1,097.88	2,073.49	3.00	-3.00	0.00
6,300.00	3.21	148.03	5,849.14	-1,765.94	1,102.23	2,081.70	3.00	-3.00	0.00
6,400.00	0.21	148.03	5,949.08	-1,768.48	1,103.81	2,084.68	3.00	-3.00	0.00
6,407.03	0.00	0.00	5,956.11	-1,768.49	1,103.81	2,084.70	3.00	-3.00	0.00
6,500.00	0.00	0.00	6,049.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
6,600.00	0.00	0.00	6,149.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
6,700.00	0.00	0.00	6,249.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
6,800.00	0.00	0.00	6,349.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
6,900.00	0.00	0.00	6,449.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,000.00	0.00	0.00	6,549.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,100.00	0.00	0.00	6,649.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,200.00	0.00	0.00	6,749.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,300.00	0.00	0.00	6,849.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,400.00	0.00	0.00	6,949.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,464.92	0.00	0.00	7,014.00	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
<b>Niobrara</b>									
7,500.00	0.00	0.00	7,049.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,600.00	0.00	0.00	7,149.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,700.00	0.00	0.00	7,249.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,758.92	0.00	0.00	7,308.00	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
<b>Ft Hays</b>									
7,776.92	0.00	0.00	7,326.00	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
<b>Codell</b>									
7,800.00	0.00	0.00	7,349.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
7,900.00	0.00	0.00	7,449.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
8,000.00	0.00	0.00	7,549.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
8,100.00	0.00	0.00	7,649.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
8,200.00	0.00	0.00	7,749.08	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
8,229.92	0.00	0.00	7,779.00	-1,768.49	1,103.81	2,084.70	0.00	0.00	0.00
<b>J Sand</b>									

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well McCoy 5-2-4-33 - Slot 5-2-4-33
Company:	Mak J	TVD Reference:	WELL @ 5027.00usft (Original Well Elev)
Project:	McCoy 11-33 Pad	MD Reference:	WELL @ 5027.00usft (Original Well Elev)
Site:	11-33	North Reference:	Grid
Well:	McCoy 5-2-4-33	Survey Calculation Method:	Minimum Curvature
Wellbore:	McCoy 5-2-4-33		
Design:	Design #1		

#### Design Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
McCoy 5-2-4-33	0.00	0.00	7,779.00	-1,768.49	1,103.81	1,887,753.064	3,135,928.481	40.26967	-105.01297
- plan hits target center									
- Point									

#### Formations

Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
4,429.00	4,120.00	Sussex		0.00	
4,886.28	4,531.00	Shannon		0.00	
7,464.92	7,014.00	Niobrara		0.00	
7,758.92	7,308.00	Ft Hays		0.00	
7,776.92	7,326.00	Codell		0.00	
8,229.92	7,779.00	J Sand		0.00	