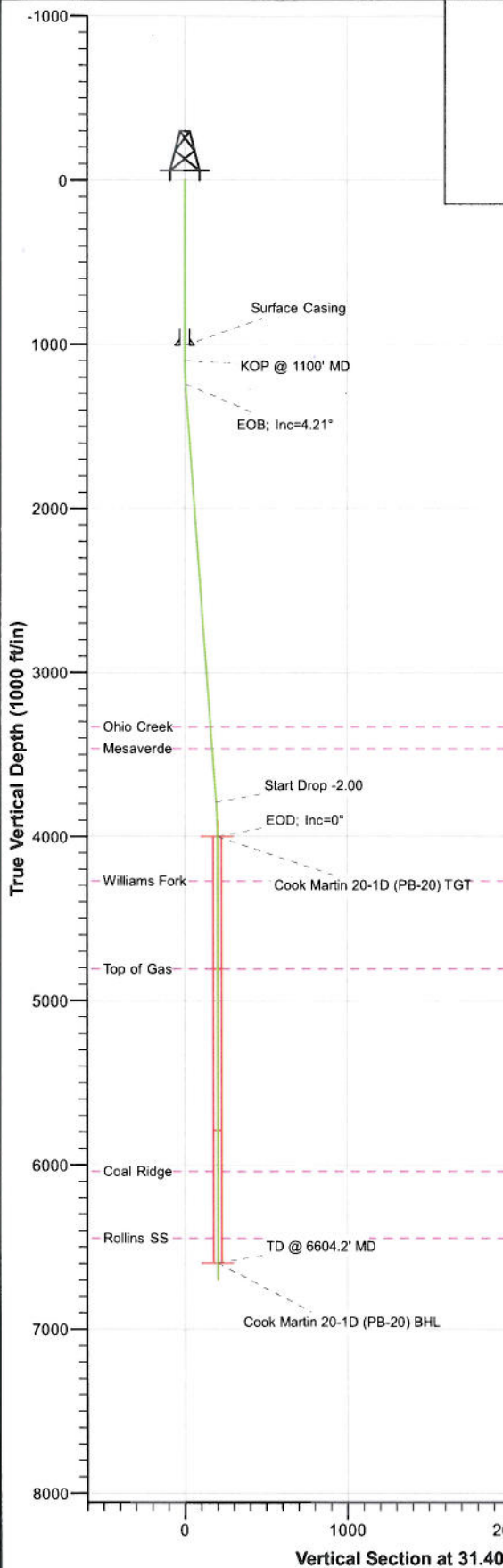
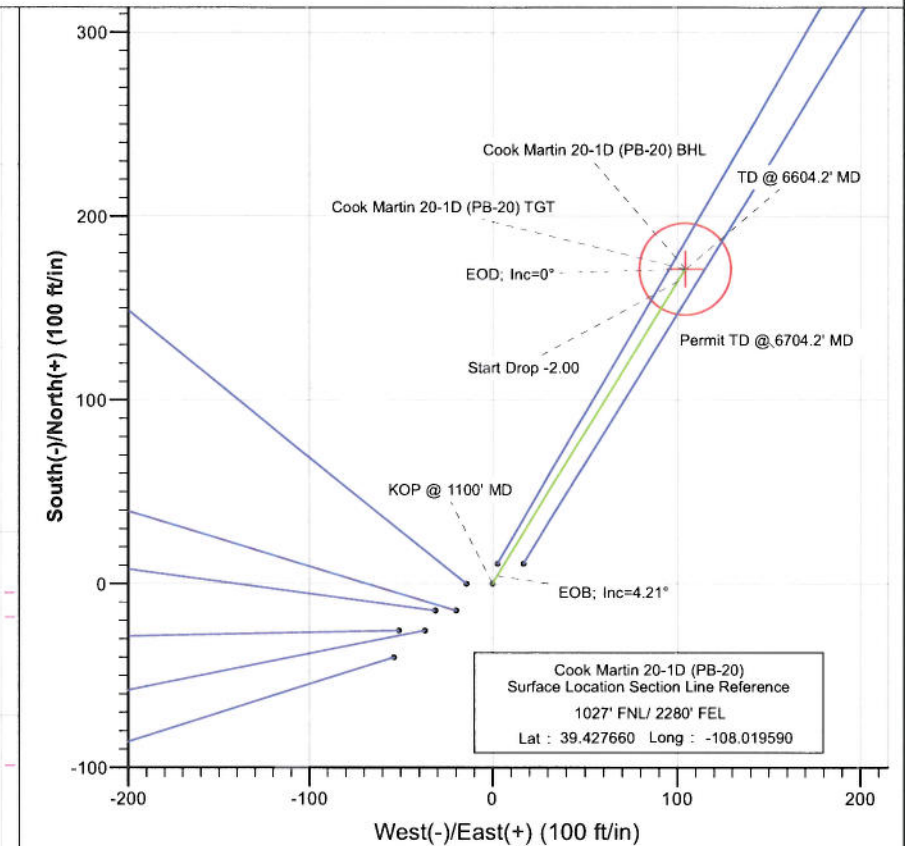




Project: S. Piceance (Parachute)  
 Site: NWE S20-T7S-R95W (PB-20)  
 Well: Cook Martin 20-1D (PB-20)  
 Wellbore: DD  
 Plan: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeal	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1100.0	0.00	0.00	1100.0	0.0	0.0	0.00	0.00	0.0	
3	1240.4	4.21	31.40	1240.2	4.4	2.7	3.00	31.40	5.2	
4	3796.7	4.21	31.40	3789.7	164.6	100.5	0.00	0.00	192.9	
5	4007.2	0.00	0.00	4000.0	171.2	104.5	2.00	180.00	200.6	Cook Martin 20-1D (PB-20) TGT
6	6604.2	0.00	0.00	6597.0	171.2	104.5	0.00	0.00	200.6	Cook Martin 20-1D (PB-20) BHL
7	6704.2	0.00	0.00	6697.0	171.2	104.5	0.00	0.00	200.6	



Cook Martin 20-1D (PB-20)  
 Surface Location Section Line Reference  
 1027' FNL/ 2280' FEL  
 Lat : 39.427660 Long : -108.019590

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3331.0	3336.8	Ohio Creek
3464.0	3470.1	Mesaverde
4271.0	4278.2	Williams Fork
4808.0	4815.2	Top of Gas
6040.0	6047.2	Coal Ridge
6447.0	6454.2	Rollins SS



Azimuths to True North  
 Magnetic North: 10.39°  
 Magnetic Field  
 Strength: 52292.6nT  
 Dip Angle: 65.70°  
 Date: 12/21/2010  
 Model: IGRF200510

Plan #1 Cook Martin 20-1D (PB-20) 105XXX; BH					
KBE @ 5665.0ft (Original Well Elev) North American Datum 1983 Well Cook Martin 20-1D (PB-20), True North					
Target	Name	TVD	Azimuth	Origin Type	N/S
Cook Martin 20-1D (PB-20) BHL			31.40	Slot	0.0
Cook Martin 20-1D (PB-20) TGT		4000.0	171.2	104.5	Latitude
Cook Martin 20-1D (PB-20) BHL		6597.0	171.2	104.5	Longitude

# Cathedral Energy Services

## Planning Report

**Database:** EDM 5000.1 US Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** S. Piceance (Parachute)  
**Site:** NWNE S20-T7S-R95W (PB-20)  
**Well:** Cook Martin 20-1D (PB-20)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Cook Martin 20-1D (PB-20)  
**TVD Reference:** KBE @ 5665.0ft (Original Well Elev)  
**MD Reference:** KBE @ 5665.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

<b>Project</b>	S. Piceance (Parachute), Garfield County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

<b>Site</b>	NWNE S20-T7S-R95W (PB-20)		
<b>Site Position:</b>		<b>Northing:</b>	1,590,537.60 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,288,393.21 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	39.427690
		<b>Longitude:</b>	-108.019530
		<b>Grid Convergence:</b>	-1.59 °

<b>Well</b>	Cook Martin 20-1D (PB-20)		
<b>Well Position</b>	+N/-S	0.0 ft	<b>Northing:</b> 1,590,527.13 ft
	+E/-W	0.0 ft	<b>Easting:</b> 2,288,375.96 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	39.427660
		<b>Longitude:</b>	-108.019590
		<b>Ground Level:</b>	5,643.0 ft

<b>Wellbore</b>	DD		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>
	IGRF200510	12/21/2010	(°)
			10.39
			<b>Dip Angle</b>
			(°)
			65.70
			<b>Field Strength</b>
			(nT)
			52,293

<b>Design</b>	Plan #1		
<b>Audit Notes:</b>			
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b> 0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			<b>Direction</b>
			(°)
			31.40

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,240.4	4.21	31.40	1,240.2	4.4	2.7	3.00	3.00	0.00	31.40	
3,796.7	4.21	31.40	3,789.7	164.6	100.5	0.00	0.00	0.00	0.00	
4,007.2	0.00	0.00	4,000.0	171.2	104.5	2.00	-2.00	0.00	180.00	Cook Martin 20-1D (P
6,604.2	0.00	0.00	6,597.0	171.2	104.5	0.00	0.00	0.00	0.00	Cook Martin 20-1D (P
6,704.2	0.00	0.00	6,697.0	171.2	104.5	0.00	0.00	0.00	0.00	

# Cathedral Energy Services

## Planning Report

**Database:** EDM 5000.1 US Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** S. Piceance (Parachute)  
**Site:** NWNE S20-T7S-R95W (PB-20)  
**Well:** Cook Martin 20-1D (PB-20)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Cook Martin 20-1D (PB-20)  
**TVD Reference:** KBE @ 5665.0ft (Original Well Elev)  
**MD Reference:** KBE @ 5665.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,005.6	0.00	0.00	1,005.6	0.0	0.0	0.0	0.00	0.00	Surface Casing
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1100' MD
1,200.0	3.00	31.40	1,200.0	2.2	1.4	2.6	3.00	3.00	
1,240.4	4.21	31.40	1,240.2	4.4	2.7	5.2	3.00	3.00	EOB; Inc=4.21°
1,300.0	4.21	31.40	1,299.7	8.1	5.0	9.5	0.00	0.00	
1,400.0	4.21	31.40	1,399.4	14.4	8.8	16.9	0.00	0.00	
1,500.0	4.21	31.40	1,499.2	20.7	12.6	24.2	0.00	0.00	
1,600.0	4.21	31.40	1,598.9	26.9	16.4	31.6	0.00	0.00	
1,700.0	4.21	31.40	1,698.6	33.2	20.3	38.9	0.00	0.00	
1,800.0	4.21	31.40	1,798.4	39.5	24.1	46.2	0.00	0.00	
1,900.0	4.21	31.40	1,898.1	45.7	27.9	53.6	0.00	0.00	
2,000.0	4.21	31.40	1,997.8	52.0	31.7	60.9	0.00	0.00	
2,100.0	4.21	31.40	2,097.6	58.3	35.6	68.3	0.00	0.00	
2,200.0	4.21	31.40	2,197.3	64.5	39.4	75.6	0.00	0.00	
2,300.0	4.21	31.40	2,297.0	70.8	43.2	83.0	0.00	0.00	
2,400.0	4.21	31.40	2,396.7	77.1	47.1	90.3	0.00	0.00	
2,500.0	4.21	31.40	2,496.5	83.3	50.9	97.6	0.00	0.00	
2,600.0	4.21	31.40	2,596.2	89.6	54.7	105.0	0.00	0.00	
2,700.0	4.21	31.40	2,695.9	95.9	58.5	112.3	0.00	0.00	
2,800.0	4.21	31.40	2,795.7	102.1	62.4	119.7	0.00	0.00	
2,900.0	4.21	31.40	2,895.4	108.4	66.2	127.0	0.00	0.00	
3,000.0	4.21	31.40	2,995.1	114.7	70.0	134.4	0.00	0.00	
3,100.0	4.21	31.40	3,094.9	120.9	73.8	141.7	0.00	0.00	
3,200.0	4.21	31.40	3,194.6	127.2	77.7	149.0	0.00	0.00	
3,300.0	4.21	31.40	3,294.3	133.5	81.5	156.4	0.00	0.00	
3,336.8	4.21	31.40	3,331.0	135.8	82.9	159.1	0.00	0.00	Ohio Creek
3,400.0	4.21	31.40	3,394.0	139.7	85.3	163.7	0.00	0.00	
3,470.1	4.21	31.40	3,464.0	144.1	88.0	168.9	0.00	0.00	Mesaverde
3,500.0	4.21	31.40	3,493.8	146.0	89.1	171.1	0.00	0.00	
3,600.0	4.21	31.40	3,593.5	152.3	93.0	178.4	0.00	0.00	
3,700.0	4.21	31.40	3,693.2	158.5	96.8	185.8	0.00	0.00	
3,796.7	4.21	31.40	3,789.7	164.6	100.5	192.9	0.00	0.00	Start Drop -2.00
3,800.0	4.14	31.40	3,793.0	164.8	100.6	193.1	2.00	-2.00	
3,900.0	2.14	31.40	3,892.8	169.5	103.5	198.6	2.00	-2.00	
4,000.0	0.14	31.40	3,992.8	171.2	104.5	200.6	2.00	-2.00	
4,007.2	0.00	0.00	4,000.0	171.2	104.5	200.6	2.00	-2.00	EOD; Inc=0° - Cook Martin 20-1D (PB-20) TGT
4,100.0	0.00	0.00	4,092.8	171.2	104.5	200.6	0.00	0.00	
4,200.0	0.00	0.00	4,192.8	171.2	104.5	200.6	0.00	0.00	
4,278.2	0.00	0.00	4,271.0	171.2	104.5	200.6	0.00	0.00	Williams Fork
4,300.0	0.00	0.00	4,292.8	171.2	104.5	200.6	0.00	0.00	
4,400.0	0.00	0.00	4,392.8	171.2	104.5	200.6	0.00	0.00	



# Cathedral Energy Services

## Planning Report

Database: EDM 5000.1 US Multi Users DB  
 Company: EnCana Oil & Gas (USA) Inc  
 Project: S. Piceance (Parachute)  
 Site: NWN S20-T7S-R95W (PB-20)  
 Well: Cook Martin 20-1D (PB-20)  
 Wellbore: DD  
 Design: Plan #1

Local Co-ordinate Reference: Well Cook Martin 20-1D (PB-20)  
 TVD Reference: KBE @ 5665.0ft (Original Well Elev)  
 MD Reference: KBE @ 5665.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,500.0	0.00	0.00	4,492.8	171.2	104.5	200.6	0.00	0.00	
4,600.0	0.00	0.00	4,592.8	171.2	104.5	200.6	0.00	0.00	
4,700.0	0.00	0.00	4,692.8	171.2	104.5	200.6	0.00	0.00	
4,800.0	0.00	0.00	4,792.8	171.2	104.5	200.6	0.00	0.00	
4,815.2	0.00	0.00	4,808.0	171.2	104.5	200.6	0.00	0.00	Top of Gas
4,900.0	0.00	0.00	4,892.8	171.2	104.5	200.6	0.00	0.00	
5,000.0	0.00	0.00	4,992.8	171.2	104.5	200.6	0.00	0.00	
5,100.0	0.00	0.00	5,092.8	171.2	104.5	200.6	0.00	0.00	
5,200.0	0.00	0.00	5,192.8	171.2	104.5	200.6	0.00	0.00	
5,300.0	0.00	0.00	5,292.8	171.2	104.5	200.6	0.00	0.00	
5,400.0	0.00	0.00	5,392.8	171.2	104.5	200.6	0.00	0.00	
5,500.0	0.00	0.00	5,492.8	171.2	104.5	200.6	0.00	0.00	
5,600.0	0.00	0.00	5,592.8	171.2	104.5	200.6	0.00	0.00	
5,700.0	0.00	0.00	5,692.8	171.2	104.5	200.6	0.00	0.00	
5,800.0	0.00	0.00	5,792.8	171.2	104.5	200.6	0.00	0.00	
5,900.0	0.00	0.00	5,892.8	171.2	104.5	200.6	0.00	0.00	
6,000.0	0.00	0.00	5,992.8	171.2	104.5	200.6	0.00	0.00	
6,047.2	0.00	0.00	6,040.0	171.2	104.5	200.6	0.00	0.00	Coal Ridge
6,100.0	0.00	0.00	6,092.8	171.2	104.5	200.6	0.00	0.00	
6,200.0	0.00	0.00	6,192.8	171.2	104.5	200.6	0.00	0.00	
6,300.0	0.00	0.00	6,292.8	171.2	104.5	200.6	0.00	0.00	
6,400.0	0.00	0.00	6,392.8	171.2	104.5	200.6	0.00	0.00	
6,454.2	0.00	0.00	6,447.0	171.2	104.5	200.6	0.00	0.00	Rollins SS
6,500.0	0.00	0.00	6,492.8	171.2	104.5	200.6	0.00	0.00	
6,600.0	0.00	0.00	6,592.8	171.2	104.5	200.6	0.00	0.00	
6,604.2	0.00	0.00	6,597.0	171.2	104.5	200.6	0.00	0.00	TD @ 6604.2' MD - Cook Martin 20-1D (PB-20)
6,700.0	0.00	0.00	6,692.8	171.2	104.5	200.6	0.00	0.00	
6,704.2	0.00	0.00	6,697.0	171.2	104.5	200.6	0.00	0.00	Permit TD @ 6704.2' MD

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Cook Martin 20-1D (PB- - plan hits target center - Circle (radius 25.0)	0.00	0.00	6,597.0	171.2	104.5	1,590,695.37	2,288,485.19	39.428130	-108.019220
Cook Martin 20-1D (PB- - plan hits target center - Circle (radius 25.0)	0.00	0.00	4,000.0	171.2	104.5	1,590,695.37	2,288,485.19	39.428130	-108.019220

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,005.6	1,005.6	Surface Casing	0.000	0.000

# Cathedral Energy Services

## Planning Report

**Database:** EDM 5000.1 US Multi Users DB  
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**Project:** S. Piceance (Parachute)  
**Site:** NWN S20-T7S-R95W (PB-20)  
**Well:** Cook Martin 20-1D (PB-20)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Cook Martin 20-1D (PB-20)  
**TVD Reference:** KBE @ 5665.0ft (Original Well Elev)  
**MD Reference:** KBE @ 5665.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,336.8	3,331.0	Ohio Creek		0.00	
3,470.1	3,464.0	Mesaverde		0.00	
4,278.2	4,271.0	Williams Fork		0.00	
4,815.2	4,808.0	Top of Gas		0.00	
6,047.2	6,040.0	Coal Ridge		0.00	
6,454.2	6,447.0	Rollins SS		0.00	

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,100.0	1,100.0	0.0	0.0	KOP @ 1100' MD
1,240.4	1,240.2	4.4	2.7	EOB; Inc=4.21°
3,796.7	3,789.7	164.6	100.5	Start Drop -2.00
4,007.2	4,000.0	171.2	104.5	EOD; Inc=0°
6,604.2	6,597.0	171.2	104.5	TD @ 6604.2' MD
6,704.2	6,697.0	171.2	104.5	Permit TD @ 6704.2' MD