

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_NICHOLS 20-6 PAD

Nichols 24-6

Nichols 24-6

Plan: Nichols 24-6 (wp02)

Standard Planning Report

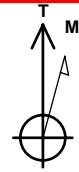
15 February, 2011



Project: COLORADO NORTHERN ZONE - 83
Site: WELD_NICHOLS 20-6 PAD
Well: Nichols 24-6
Wellbore: Nichols 24-6
Section:
SHL:
Design: Nichols 24-6 (wp02)
Latitude: 40.164726
Longitude: -104.702551
GL: 4872.00
KB: WELL @ 4872.00ft (Original Well Elev)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4132.00	4198.67	PK Depth
4507.00	4580.90	SX Depth
7010.00	7102.49	NIO Depth
7292.00	7384.49	CD Depth
7378.00	7470.49	GH Depth
7748.00	7840.49	J Depth



Azimuths to True North
Magnetic North: 8.86°

Magnetic Field
Strength: 53052.9snT
Dip Angle: 66.88°
Date: 2/1/2011
Model: IGRF2010

WELL DETAILS: Nichols 24-6

+N/-S	+E/-W	Northing	Ground Level: Easting	4872.00 Latitude	Longitude	Slot
0.00	0.00	1303854.88	3222865.57	40.164726	-104.702551	

CASING DETAILS

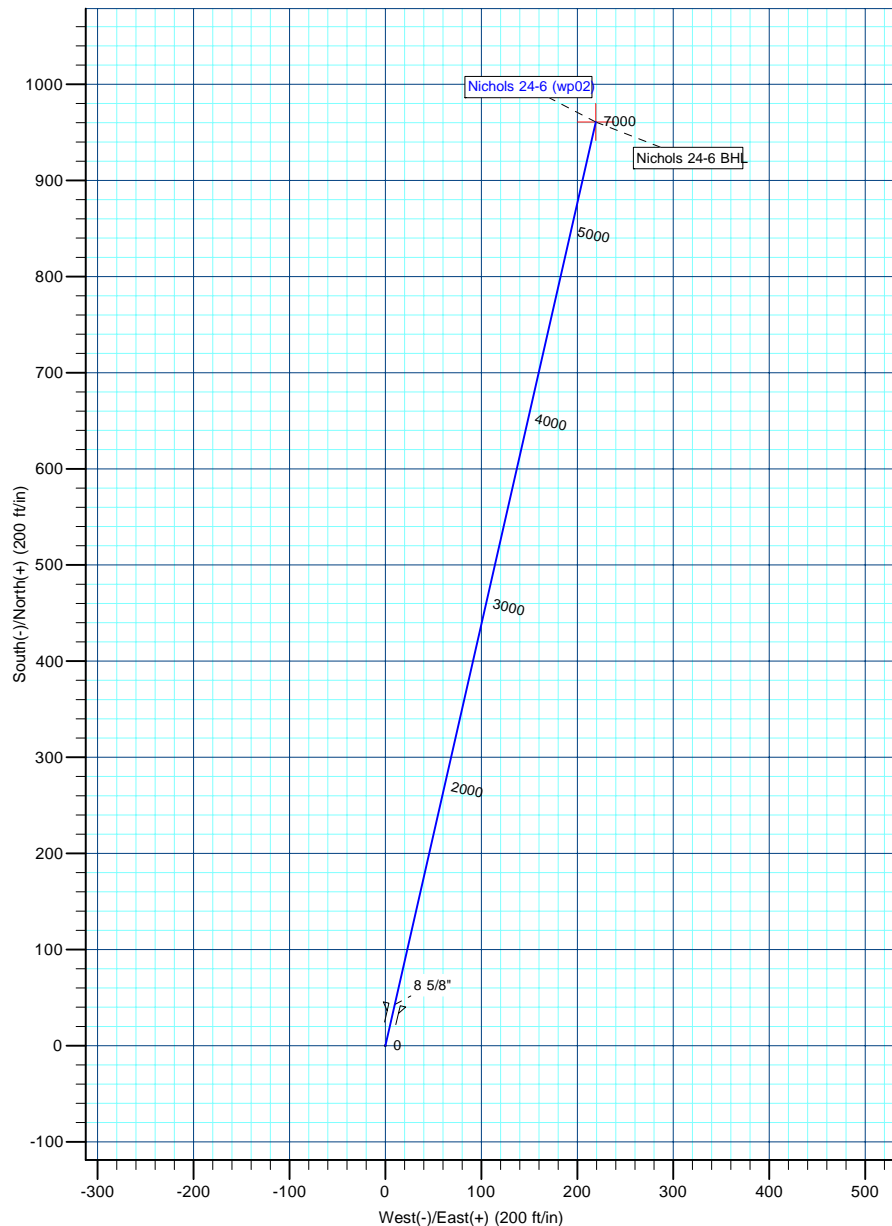
TVD	MD	Name	Size
800.00	802.57	8 5/8"	8-5/8

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Nichols 24-6 BHL	7897.00	960.99	219.38	1304817.80	3223076.30	40.167364	-104.701766	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	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
857.91	11.16	12.86	854.39	52.80	12.05	2.00	12.86	54.15
5351.88	11.16	12.86	5263.41	900.65	205.61	0.00	0.00	923.82
5989.49	0.00	0.00	5897.00	960.99	219.38	1.75	180.00	985.71
7989.49	0.00	0.00	7897.00	960.99	219.38	0.00	0.00	985.71



Database:	edm5000p	Local Co-ordinate Reference:	Well Nichols 24-6
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4872.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4872.00ft (Original Well Elev)
Site:	WELD_NICHOLS 20-6 PAD	North Reference:	True
Well:	Nichols 24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Nichols 24-6		
Design:	Nichols 24-6 (wp02)		

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		WELD_NICHOLS 20-6 PAD			
Site Position:		Northing:	1,303,855.91 ft	Latitude:	40.164728
From:	Lat/Long	Easting:	3,222,897.70 ft	Longitude:	-104.702436
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.52

Well	Nichols 24-6					
Well Position	+N-S	-0.74 ft	Northing:	1,303,854.87 ft	Latitude:	40.164726
	+E-W	-32.14 ft	Easting:	3,222,865.57 ft	Longitude:	-104.702551
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,872.00 ft

Wellbore	Nichols 24-6				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/1/2011	8.86	66.88	53,053

Design	Nichols 24-6 (wp02)				
Audit Notes:					
Version:	Phase:	PLAN		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	12.86	

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
0.00	0.00	0.00	0.00	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	
857.91	11.16	12.86	854.39	52.80	12.05	2.00	2.00	0.00	12.86	
5,351.88	11.16	12.86	5,263.41	900.65	205.61	0.00	0.00	0.00	0.00	
5,989.49	0.00	0.00	5,897.00	960.99	219.38	1.75	-1.75	0.00	180.00	
7,989.49	0.00	0.00	7,897.00	960.99	219.38	0.00	0.00	0.00	0.00	Nichols 24-6 BHL

Database:	edm5000p	Local Co-ordinate Reference:	Well Nichols 24-6
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4872.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4872.00ft (Original Well Elev)
Site:	WELD_NICHOLS 20-6 PAD	North Reference:	True
Well:	Nichols 24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Nichols 24-6		
Design:	Nichols 24-6 (wp02)		

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)	Turn Rate (°/100ft)
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	2.00	12.86	399.98	1.70	0.39	1.75	2.00	2.00	0.00
500.00	4.00	12.86	499.84	6.80	1.55	6.98	2.00	2.00	0.00
600.00	6.00	12.86	599.45	15.30	3.49	15.69	2.00	2.00	0.00
700.00	8.00	12.86	698.70	27.18	6.20	27.88	2.00	2.00	0.00
800.00	10.00	12.86	797.47	42.43	9.69	43.52	2.00	2.00	0.00
802.57	10.05	12.86	800.00	42.87	9.79	43.97	2.00	2.00	0.00
8 5/8"									
857.91	11.16	12.86	854.39	52.80	12.05	54.15	2.00	2.00	0.00
900.00	11.16	12.86	895.68	60.74	13.87	62.30	0.00	0.00	0.00
1,000.00	11.16	12.86	993.79	79.60	18.17	81.65	0.00	0.00	0.00
1,100.00	11.16	12.86	1,091.90	98.47	22.48	101.00	0.00	0.00	0.00
1,200.00	11.16	12.86	1,190.01	117.34	26.79	120.35	0.00	0.00	0.00
1,300.00	11.16	12.86	1,288.12	136.20	31.09	139.71	0.00	0.00	0.00
1,400.00	11.16	12.86	1,386.23	155.07	35.40	159.06	0.00	0.00	0.00
1,500.00	11.16	12.86	1,484.34	173.94	39.71	178.41	0.00	0.00	0.00
1,600.00	11.16	12.86	1,582.45	192.80	44.01	197.76	0.00	0.00	0.00
1,700.00	11.16	12.86	1,680.56	211.67	48.32	217.11	0.00	0.00	0.00
1,800.00	11.16	12.86	1,778.67	230.53	52.63	236.47	0.00	0.00	0.00
1,900.00	11.16	12.86	1,876.78	249.40	56.94	255.82	0.00	0.00	0.00
2,000.00	11.16	12.86	1,974.89	268.27	61.24	275.17	0.00	0.00	0.00
2,100.00	11.16	12.86	2,073.00	287.13	65.55	294.52	0.00	0.00	0.00
2,200.00	11.16	12.86	2,171.11	306.00	69.86	313.87	0.00	0.00	0.00
2,300.00	11.16	12.86	2,269.22	324.87	74.16	333.22	0.00	0.00	0.00
2,400.00	11.16	12.86	2,367.33	343.73	78.47	352.58	0.00	0.00	0.00
2,500.00	11.16	12.86	2,465.44	362.60	82.78	371.93	0.00	0.00	0.00
2,600.00	11.16	12.86	2,563.55	381.47	87.08	391.28	0.00	0.00	0.00
2,700.00	11.16	12.86	2,661.66	400.33	91.39	410.63	0.00	0.00	0.00
2,800.00	11.16	12.86	2,759.77	419.20	95.70	429.98	0.00	0.00	0.00
2,900.00	11.16	12.86	2,857.88	438.07	100.00	449.34	0.00	0.00	0.00
3,000.00	11.16	12.86	2,955.99	456.93	104.31	468.69	0.00	0.00	0.00
3,100.00	11.16	12.86	3,054.10	475.80	108.62	488.04	0.00	0.00	0.00
3,200.00	11.16	12.86	3,152.21	494.67	112.93	507.39	0.00	0.00	0.00
3,300.00	11.16	12.86	3,250.32	513.53	117.23	526.74	0.00	0.00	0.00
3,400.00	11.16	12.86	3,348.43	532.40	121.54	546.09	0.00	0.00	0.00
3,500.00	11.16	12.86	3,446.54	551.26	125.85	565.45	0.00	0.00	0.00
3,600.00	11.16	12.86	3,544.65	570.13	130.15	584.80	0.00	0.00	0.00
3,700.00	11.16	12.86	3,642.76	589.00	134.46	604.15	0.00	0.00	0.00
3,800.00	11.16	12.86	3,740.86	607.86	138.77	623.50	0.00	0.00	0.00
3,900.00	11.16	12.86	3,838.97	626.73	143.07	642.85	0.00	0.00	0.00
4,000.00	11.16	12.86	3,937.08	645.60	147.38	662.21	0.00	0.00	0.00
4,100.00	11.16	12.86	4,035.19	664.46	151.69	681.56	0.00	0.00	0.00
4,198.67	11.16	12.86	4,132.00	683.08	155.94	700.65	0.00	0.00	0.00
PK Depth									
4,200.00	11.16	12.86	4,133.30	683.33	156.00	700.91	0.00	0.00	0.00
4,300.00	11.16	12.86	4,231.41	702.20	160.30	720.26	0.00	0.00	0.00
4,400.00	11.16	12.86	4,329.52	721.06	164.61	739.61	0.00	0.00	0.00
4,500.00	11.16	12.86	4,427.63	739.93	168.92	758.97	0.00	0.00	0.00
4,580.90	11.16	12.86	4,507.00	755.19	172.40	774.62	0.00	0.00	0.00
SX Depth									

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Site:	WELD_NICHOLS 20-6 PAD	North Reference:	True
Well:	Nichols 24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Nichols 24-6		
Design:	Nichols 24-6 (wp02)		

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)	Turn Rate (°/100ft)
4,600.00	11.16	12.86	4,525.74	758.80	173.22	778.32	0.00	0.00	0.00
4,700.00	11.16	12.86	4,623.85	777.66	177.53	797.67	0.00	0.00	0.00
4,800.00	11.16	12.86	4,721.96	796.53	181.84	817.02	0.00	0.00	0.00
4,900.00	11.16	12.86	4,820.07	815.40	186.14	836.37	0.00	0.00	0.00
5,000.00	11.16	12.86	4,918.18	834.26	190.45	855.72	0.00	0.00	0.00
5,100.00	11.16	12.86	5,016.29	853.13	194.76	875.08	0.00	0.00	0.00
5,200.00	11.16	12.86	5,114.40	871.99	199.06	894.43	0.00	0.00	0.00
5,300.00	11.16	12.86	5,212.51	890.86	203.37	913.78	0.00	0.00	0.00
5,351.88	11.16	12.86	5,263.41	900.65	205.61	923.82	0.00	0.00	0.00
5,400.00	10.32	12.86	5,310.69	909.39	207.60	932.78	1.75	-1.75	0.00
5,500.00	8.57	12.86	5,409.33	925.38	211.25	949.19	1.75	-1.75	0.00
5,600.00	6.82	12.86	5,508.42	938.43	214.23	962.57	1.75	-1.75	0.00
5,700.00	5.07	12.86	5,607.88	948.52	216.53	972.92	1.75	-1.75	0.00
5,800.00	3.32	12.86	5,707.61	955.64	218.16	980.23	1.75	-1.75	0.00
5,900.00	1.57	12.86	5,807.52	959.80	219.11	984.49	1.75	-1.75	0.00
5,989.49	0.00	0.00	5,897.00	960.99	219.38	985.71	1.75	-1.75	0.00
6,000.00	0.00	0.00	5,907.51	960.99	219.38	985.71	0.00	0.00	0.00
6,100.00	0.00	0.00	6,007.51	960.99	219.38	985.71	0.00	0.00	0.00
6,200.00	0.00	0.00	6,107.51	960.99	219.38	985.71	0.00	0.00	0.00
6,300.00	0.00	0.00	6,207.51	960.99	219.38	985.71	0.00	0.00	0.00
6,400.00	0.00	0.00	6,307.51	960.99	219.38	985.71	0.00	0.00	0.00
6,500.00	0.00	0.00	6,407.51	960.99	219.38	985.71	0.00	0.00	0.00
6,600.00	0.00	0.00	6,507.51	960.99	219.38	985.71	0.00	0.00	0.00
6,700.00	0.00	0.00	6,607.51	960.99	219.38	985.71	0.00	0.00	0.00
6,800.00	0.00	0.00	6,707.51	960.99	219.38	985.71	0.00	0.00	0.00
6,900.00	0.00	0.00	6,807.51	960.99	219.38	985.71	0.00	0.00	0.00
7,000.00	0.00	0.00	6,907.51	960.99	219.38	985.71	0.00	0.00	0.00
7,100.00	0.00	0.00	7,007.51	960.99	219.38	985.71	0.00	0.00	0.00
7,102.49	0.00	0.00	7,010.00	960.99	219.38	985.71	0.00	0.00	0.00
NIO Depth									
7,200.00	0.00	0.00	7,107.51	960.99	219.38	985.71	0.00	0.00	0.00
7,300.00	0.00	0.00	7,207.51	960.99	219.38	985.71	0.00	0.00	0.00
7,384.49	0.00	0.00	7,292.00	960.99	219.38	985.71	0.00	0.00	0.00
CD Depth									
7,400.00	0.00	0.00	7,307.51	960.99	219.38	985.71	0.00	0.00	0.00
7,470.49	0.00	0.00	7,378.00	960.99	219.38	985.71	0.00	0.00	0.00
GH Depth									
7,500.00	0.00	0.00	7,407.51	960.99	219.38	985.71	0.00	0.00	0.00
7,600.00	0.00	0.00	7,507.51	960.99	219.38	985.71	0.00	0.00	0.00
7,700.00	0.00	0.00	7,607.51	960.99	219.38	985.71	0.00	0.00	0.00
7,800.00	0.00	0.00	7,707.51	960.99	219.38	985.71	0.00	0.00	0.00
7,840.49	0.00	0.00	7,748.00	960.99	219.38	985.71	0.00	0.00	0.00
J Depth									
7,900.00	0.00	0.00	7,807.51	960.99	219.38	985.71	0.00	0.00	0.00
7,989.49	0.00	0.00	7,897.00	960.99	219.38	985.71	0.00	0.00	0.00
Nichols 24-6 BHL									

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4872.00ft (Original Well Elev)
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Well:	Nichols 24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Nichols 24-6		
Design:	Nichols 24-6 (wp02)		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
Nichols 24-6 BHL	0.00	0.00	7,897.00	960.99	219.38	1,304,817.80	3,223,076.30	40.167364	-104.701766
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
802.57	800.00	8 5/8"	8-5/8	11

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,198.67	4,132.00	PK Depth			
4,580.90	4,507.00	SX Depth			
7,102.49	7,010.00	NIO Depth			
7,384.49	7,292.00	CD Depth			
7,470.49	7,378.00	GH Depth			
7,840.49	7,748.00	J Depth			