

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_DOWDY 19-11PAD**

**DOWDY 13-11**

**DOWDY 13-11**

**Plan: P\_DOWDY 13-11**

## **Standard Planning Report**

**10 November, 2010**



**Weatherford®**

Project: COLORADO NORTHERN ZONE - 83  
 Site: WELD\_DOWDY 19-11 PAD  
 Well: DOWDY 13-11  
 Wellbore: DOWDY 13-11  
 Section:  
 SHL:  
 Design: P\_DOWDY 13-11  
 Latitude: 40.148550  
 Longitude: -104.636887  
 GL: 4866.00  
 KB: WELL @ 4866.00ft (Original Well Elev)



Azimuths to True North  
Magnetic North: 8.85°

Magnetic Field  
Strength: 53075.6snT  
Dip Angle: 66.89°  
Date: 11/10/2010  
Model: IGRF2010



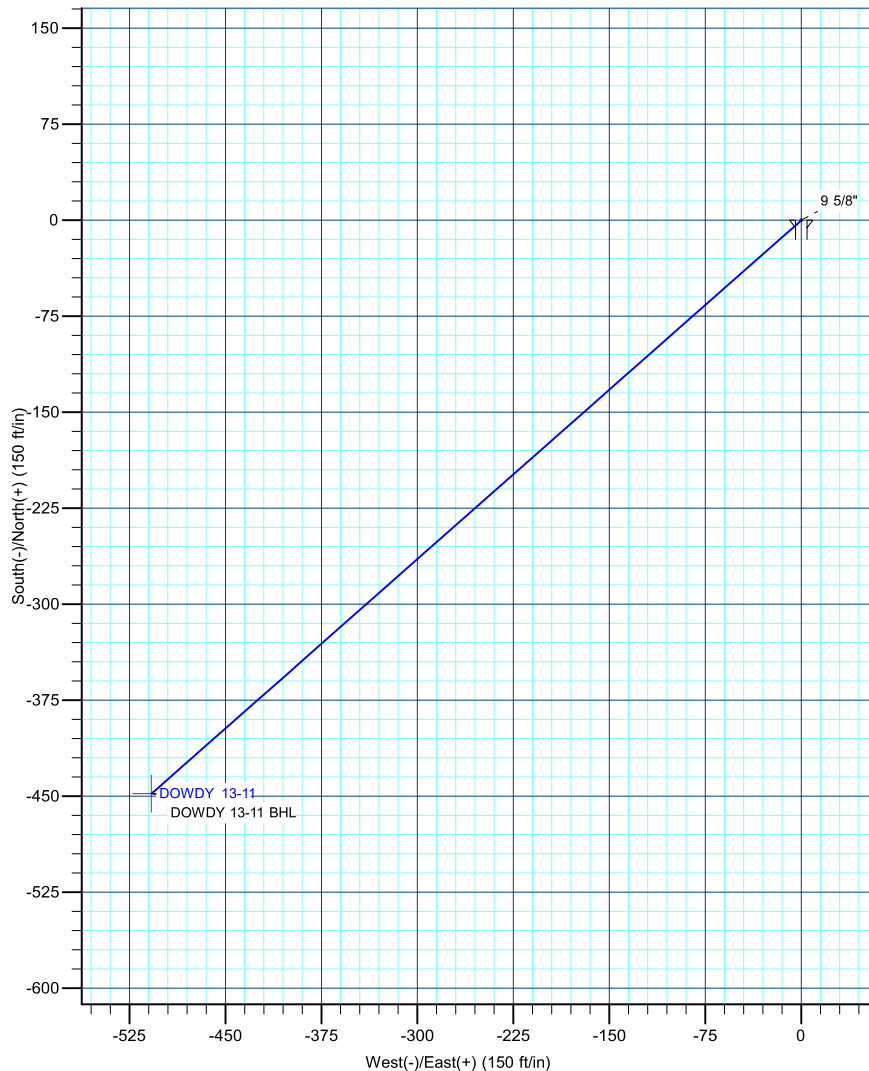
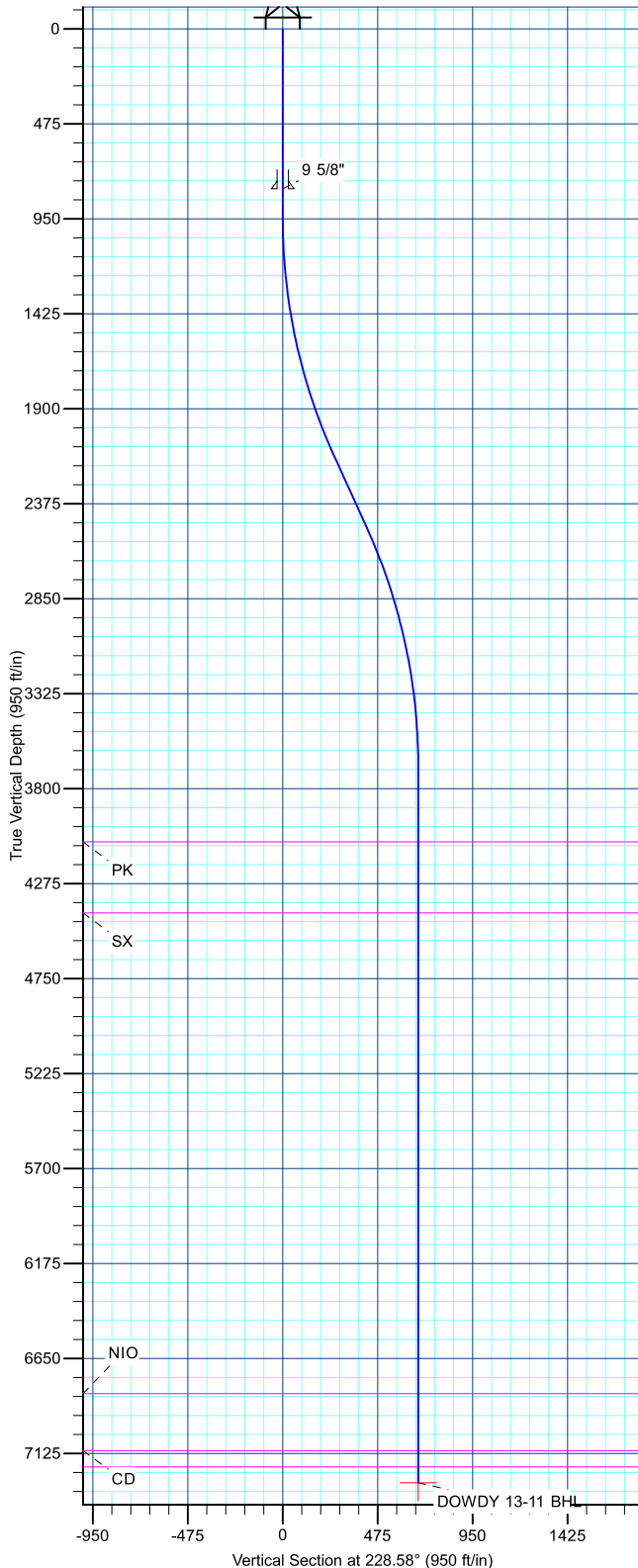
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4066.00	4174.97	PK
4421.00	4529.97	SX
6826.00	6934.97	NIO
7111.00	7219.97	CD
7192.00	7300.97	GH

WELL DETAILS: DOWDY 13-11						
+N/-S	+E/-W	Northing	Ground Level: Easting	4866.00 Latitude	Longitude	Slot
0.00	0.00	1298134.38	3241273.69	40.148550	-104.636887	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)							
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Point	Shape
DOWDY 13-11 BHL	7271.00	-448.06	-507.94	40.147320	-104.638704		

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	
3	2172.72	24.45	228.58	2135.93	-170.01	-192.73	2.00	228.58	257.00	
4	2567.25	24.45	228.58	2495.07	-278.05	-315.21	0.00	0.00	420.32	
5	3789.97	0.00	0.00	3681.00	-448.06	-507.94	2.00	180.00	677.32	
6	7379.97	0.00	0.00	7271.00	-448.06	-507.94	0.00	0.00	677.32	DOWDY 13-11 BHL

CASING DETAILS			
TVD	MD	Name	Size
800.00	800.00	9 5/8"	9-5/8



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well DOWDY 13-11
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4866.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4866.00ft (Original Well Elev)
<b>Site:</b>	WELD_DOWDY 19-11 PAD	<b>North Reference:</b>	True
<b>Well:</b>	DOWDY 13-11	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DOWDY 13-11		
<b>Design:</b>	P_DOWDY 13-11		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<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 Northern Zone		

<b>Site</b>	WELD_DOWDY 19-11 PAD				
<b>Site Position:</b>		<b>Northing:</b>	1,298,134.39 ft	<b>Latitude:</b>	40.148550
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,241,273.69 ft	<b>Longitude:</b>	-104.636887
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	0 "	<b>Grid Convergence:</b>	0.56 °

<b>Well</b>	DOWDY 13-11					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	1,298,134.38 ft	<b>Latitude:</b>	40.148550
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	3,241,273.69 ft	<b>Longitude:</b>	-104.636887
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	4,866.00 ft

<b>Wellbore</b>	DOWDY 13-11				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/10/2010	8.85	66.89	53,076

<b>Design</b>	P_DOWDY 13-11			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	228.58

<b>Plan Sections</b>										
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	
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,172.72	24.45	228.58	2,135.93	-170.01	-192.73	2.00	2.00	0.00	228.58	
2,567.25	24.45	228.58	2,495.07	-278.05	-315.21	0.00	0.00	0.00	0.00	
3,789.97	0.00	0.00	3,681.00	-448.06	-507.94	2.00	-2.00	0.00	180.00	
7,379.97	0.00	0.00	7,271.00	-448.06	-507.94	0.00	0.00	0.00	0.00	DOWDY 13-11 BHL

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well DOWDY 13-11
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4866.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4866.00ft (Original Well Elev)
<b>Site:</b>	WELD_DOWDY 19-11 PAD	<b>North Reference:</b>	True
<b>Well:</b>	DOWDY 13-11	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DOWDY 13-11		
<b>Design:</b>	P_DOWDY 13-11		

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	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
<b>9 5/8"</b>									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	1.00	228.58	1,000.00	-0.29	-0.33	0.44	2.00	2.00	0.00
1,100.00	3.00	228.58	1,099.93	-2.60	-2.94	3.93	2.00	2.00	0.00
1,200.00	5.00	228.58	1,199.68	-7.21	-8.18	10.90	2.00	2.00	0.00
1,300.00	7.00	228.58	1,299.13	-14.13	-16.01	21.35	2.00	2.00	0.00
1,400.00	9.00	228.58	1,398.15	-23.33	-26.45	35.27	2.00	2.00	0.00
1,500.00	11.00	228.58	1,496.63	-34.82	-39.47	52.63	2.00	2.00	0.00
1,600.00	13.00	228.58	1,594.44	-48.57	-55.06	73.42	2.00	2.00	0.00
1,700.00	15.00	228.58	1,691.46	-64.57	-73.20	97.62	2.00	2.00	0.00
1,800.00	17.00	228.58	1,787.58	-82.81	-93.87	125.18	2.00	2.00	0.00
1,900.00	19.00	228.58	1,882.68	-103.25	-117.05	156.08	2.00	2.00	0.00
2,000.00	21.00	228.58	1,976.65	-125.87	-142.70	190.28	2.00	2.00	0.00
2,100.00	23.00	228.58	2,069.36	-150.65	-170.79	227.74	2.00	2.00	0.00
2,172.72	24.45	228.58	2,135.93	-170.01	-192.73	257.00	2.00	2.00	0.00
2,200.00	24.45	228.58	2,160.77	-177.48	-201.20	268.29	0.00	0.00	0.00
2,300.00	24.45	228.58	2,251.80	-204.86	-232.24	309.69	0.00	0.00	0.00
2,400.00	24.45	228.58	2,342.82	-232.25	-263.29	351.08	0.00	0.00	0.00
2,500.00	24.45	228.58	2,433.85	-259.63	-294.33	392.48	0.00	0.00	0.00
2,567.25	24.45	228.58	2,495.07	-278.05	-315.21	420.32	0.00	0.00	0.00
2,600.00	23.80	228.58	2,524.96	-286.90	-325.25	433.71	2.00	-2.00	0.00
2,700.00	21.80	228.58	2,617.14	-312.54	-354.31	472.46	2.00	-2.00	0.00
2,800.00	19.80	228.58	2,710.62	-336.03	-380.94	507.96	2.00	-2.00	0.00
2,900.00	17.80	228.58	2,805.28	-357.34	-405.10	540.19	2.00	-2.00	0.00
3,000.00	15.80	228.58	2,901.01	-376.46	-426.78	569.09	2.00	-2.00	0.00
3,100.00	13.80	228.58	2,997.69	-393.36	-445.93	594.63	2.00	-2.00	0.00
3,200.00	11.80	228.58	3,095.20	-408.01	-462.54	616.78	2.00	-2.00	0.00
3,300.00	9.80	228.58	3,193.42	-420.41	-476.59	635.52	2.00	-2.00	0.00
3,400.00	7.80	228.58	3,292.24	-430.52	-488.07	650.81	2.00	-2.00	0.00
3,500.00	5.80	228.58	3,391.53	-438.36	-496.94	662.65	2.00	-2.00	0.00
3,600.00	3.80	228.58	3,491.17	-443.89	-503.22	671.02	2.00	-2.00	0.00
3,700.00	1.80	228.58	3,591.05	-447.12	-506.88	675.90	2.00	-2.00	0.00
3,789.97	0.00	0.00	3,681.00	-448.06	-507.94	677.32	2.00	-2.00	0.00
3,800.00	0.00	0.00	3,691.03	-448.06	-507.94	677.32	0.00	0.00	0.00
3,900.00	0.00	0.00	3,791.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,000.00	0.00	0.00	3,891.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,100.00	0.00	0.00	3,991.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,174.97	0.00	0.00	4,066.00	-448.06	-507.94	677.32	0.00	0.00	0.00
<b>PK</b>									
4,200.00	0.00	0.00	4,091.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,300.00	0.00	0.00	4,191.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,400.00	0.00	0.00	4,291.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,500.00	0.00	0.00	4,391.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,529.97	0.00	0.00	4,421.00	-448.06	-507.94	677.32	0.00	0.00	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well DOWDY 13-11
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4866.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4866.00ft (Original Well Elev)
<b>Site:</b>	WELD_DOWDY 19-11 PAD	<b>North Reference:</b>	True
<b>Well:</b>	DOWDY 13-11	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DOWDY 13-11		
<b>Design:</b>	P_DOWDY 13-11		

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)
<b>SX</b>									
4,600.00	0.00	0.00	4,491.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,700.00	0.00	0.00	4,591.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,800.00	0.00	0.00	4,691.03	-448.06	-507.94	677.32	0.00	0.00	0.00
4,900.00	0.00	0.00	4,791.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,000.00	0.00	0.00	4,891.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,100.00	0.00	0.00	4,991.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,200.00	0.00	0.00	5,091.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,300.00	0.00	0.00	5,191.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,400.00	0.00	0.00	5,291.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,500.00	0.00	0.00	5,391.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,600.00	0.00	0.00	5,491.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,700.00	0.00	0.00	5,591.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,800.00	0.00	0.00	5,691.03	-448.06	-507.94	677.32	0.00	0.00	0.00
5,900.00	0.00	0.00	5,791.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,000.00	0.00	0.00	5,891.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,100.00	0.00	0.00	5,991.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,200.00	0.00	0.00	6,091.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,300.00	0.00	0.00	6,191.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,400.00	0.00	0.00	6,291.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,500.00	0.00	0.00	6,391.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,600.00	0.00	0.00	6,491.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,700.00	0.00	0.00	6,591.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,800.00	0.00	0.00	6,691.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,900.00	0.00	0.00	6,791.03	-448.06	-507.94	677.32	0.00	0.00	0.00
6,934.97	0.00	0.00	6,826.00	-448.06	-507.94	677.32	0.00	0.00	0.00
<b>NIO</b>									
7,000.00	0.00	0.00	6,891.03	-448.06	-507.94	677.32	0.00	0.00	0.00
7,100.00	0.00	0.00	6,991.03	-448.06	-507.94	677.32	0.00	0.00	0.00
7,200.00	0.00	0.00	7,091.03	-448.06	-507.94	677.32	0.00	0.00	0.00
7,219.97	0.00	0.00	7,111.00	-448.06	-507.94	677.32	0.00	0.00	0.00
<b>CD</b>									
7,300.00	0.00	0.00	7,191.03	-448.06	-507.94	677.32	0.00	0.00	0.00
7,300.97	0.00	0.00	7,192.00	-448.06	-507.94	677.32	0.00	0.00	0.00
<b>GH</b>									
7,379.97	0.00	0.00	7,271.00	-448.06	-507.94	677.32	0.00	0.00	0.00
<b>DOWDY 13-11 BHL</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
DOWDY 13-11 BHL - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	7,271.00	-448.06	-507.94	1,297,681.41	3,240,770.13	40.147320	-104.638704

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well DOWDY 13-11
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4866.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4866.00ft (Original Well Elev)
<b>Site:</b>	WELD_DOWDY 19-11 PAD	<b>North Reference:</b>	True
<b>Well:</b>	DOWDY 13-11	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DOWDY 13-11		
<b>Design:</b>	P_DOWDY 13-11		

**Casing Points**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
800.00	800.00	9 5/8"	9-5/8	12-1/4

**Formations**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,174.97	4,060.00	PK			
4,529.97	4,415.00	SX			
6,934.97	6,820.00	NIO			
7,219.97	7,105.00	CD			
7,300.97	7,186.00	GH			