

Noble Energy

Garfield County, CO

Sec. 19-T7S-R94W (Rulison 19H PAD)

Rulison Federal 19-42D

Plan #1

Plan: Plan #1 Proposal

Sperry Drilling Services

Proposal Report

18 March, 2009

Well Coordinates: 589,184.45 N, 1,316,816.41 E (39° 25' 34.10" N, 107° 55' 07.46" W)

Ground Level: 8,000.00 ft

Local Coordinate Origin:

Centered on Well Rulison Federal 19-42D

Viewing Datum:

RKB - 25' @ 8025.00ft (Original Well Elev)

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

HALLIBURTON

Plan Report for Rulison Federal 19-42D - Plan #1 Proposal

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)	Toolface Azimuth (°)
0.00	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	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kickoff at 225.00ft										
300.00	1.50	244.79	299.99	-0.42	-0.89	0.98	2.00	2.00	0.00	244.79
400.00	3.50	244.79	399.89	-2.28	-4.83	5.34	2.00	2.00	0.00	0.00
433.00	4.16	244.79	432.82	-3.21	-6.83	7.55	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
500.00	5.50	244.79	499.58	-5.62	-11.93	13.19	2.00	2.00	0.00	0.00
600.00	7.50	244.79	598.93	-10.44	-22.17	24.51	2.00	2.00	0.00	0.00
641.95	8.34	244.79	640.48	-12.90	-27.40	30.29	2.00	2.00	0.00	0.00
End Build at 641.95ft										
700.00	8.34	244.79	697.92	-16.49	-35.02	38.71	0.00	0.00	0.00	0.00
800.00	8.34	244.79	796.86	-22.66	-48.14	53.21	0.00	0.00	0.00	0.00
900.00	8.34	244.79	895.80	-28.84	-61.26	67.71	0.00	0.00	0.00	0.00
1,000.00	8.34	244.79	994.74	-35.02	-74.39	82.22	0.00	0.00	0.00	0.00
1,100.00	8.34	244.79	1,093.69	-41.20	-87.51	96.72	0.00	0.00	0.00	0.00
1,200.00	8.34	244.79	1,192.63	-47.37	-100.63	111.22	0.00	0.00	0.00	0.00
1,300.00	8.34	244.79	1,291.57	-53.55	-113.75	125.72	0.00	0.00	0.00	0.00
1,400.00	8.34	244.79	1,390.52	-59.73	-126.87	140.23	0.00	0.00	0.00	0.00
1,500.00	8.34	244.79	1,489.46	-65.90	-139.99	154.73	0.00	0.00	0.00	0.00
1,600.00	8.34	244.79	1,588.40	-72.08	-153.11	169.23	0.00	0.00	0.00	0.00
1,700.00	8.34	244.79	1,687.34	-78.26	-166.24	183.74	0.00	0.00	0.00	0.00
1,800.00	8.34	244.79	1,786.29	-84.44	-179.36	198.24	0.00	0.00	0.00	0.00
1,900.00	8.34	244.79	1,885.23	-90.61	-192.48	212.74	0.00	0.00	0.00	0.00
2,000.00	8.34	244.79	1,984.17	-96.79	-205.60	227.24	0.00	0.00	0.00	0.00
2,100.00	8.34	244.79	2,083.11	-102.97	-218.72	241.75	0.00	0.00	0.00	0.00
2,200.00	8.34	244.79	2,182.06	-109.15	-231.84	256.25	0.00	0.00	0.00	0.00
2,300.00	8.34	244.79	2,281.00	-115.32	-244.97	270.75	0.00	0.00	0.00	0.00
2,400.00	8.34	244.79	2,379.94	-121.50	-258.09	285.26	0.00	0.00	0.00	0.00
2,500.00	8.34	244.79	2,478.89	-127.68	-271.21	299.76	0.00	0.00	0.00	0.00
8 5/8" Casing Pt										
2,600.00	8.34	244.79	2,577.83	-133.85	-284.33	314.26	0.00	0.00	0.00	0.00
2,700.00	8.34	244.79	2,676.77	-140.03	-297.45	328.76	0.00	0.00	0.00	0.00
2,800.00	8.34	244.79	2,775.71	-146.21	-310.57	343.27	0.00	0.00	0.00	0.00
2,900.00	8.34	244.79	2,874.66	-152.39	-323.69	357.77	0.00	0.00	0.00	0.00
3,000.00	8.34	244.79	2,973.60	-158.56	-336.82	372.27	0.00	0.00	0.00	0.00
3,100.00	8.34	244.79	3,072.54	-164.74	-349.94	386.78	0.00	0.00	0.00	0.00
3,200.00	8.34	244.79	3,171.48	-170.92	-363.06	401.28	0.00	0.00	0.00	0.00
3,299.00	8.34	244.79	3,269.44	-177.03	-376.05	415.64	0.00	0.00	0.00	0.00
8.34 Inclination										
3,300.00	8.34	244.79	3,270.43	-177.10	-376.18	415.78	0.00	0.00	0.00	0.00
3,400.00	8.34	244.79	3,369.37	-183.27	-389.30	430.28	0.00	0.00	0.00	0.00
3,500.00	8.34	244.79	3,468.31	-189.45	-402.42	444.79	0.00	0.00	0.00	0.00
3,600.00	8.34	244.79	3,567.26	-195.63	-415.55	459.29	0.00	0.00	0.00	0.00
3,700.00	8.34	244.79	3,666.20	-201.80	-428.67	473.79	0.00	0.00	0.00	0.00
3,800.00	8.34	244.79	3,765.14	-207.98	-441.79	488.30	0.00	0.00	0.00	0.00
3,900.00	8.34	244.79	3,864.08	-214.16	-454.91	502.80	0.00	0.00	0.00	0.00
4,000.00	8.34	244.79	3,963.03	-220.34	-468.03	517.30	0.00	0.00	0.00	0.00
4,100.00	8.34	244.79	4,061.97	-226.51	-481.15	531.80	0.00	0.00	0.00	0.00
4,200.00	8.34	244.79	4,160.91	-232.69	-494.27	546.31	0.00	0.00	0.00	0.00
4,300.00	8.34	244.79	4,259.85	-238.87	-507.40	560.81	0.00	0.00	0.00	0.00
4,400.00	8.34	244.79	4,358.80	-245.05	-520.52	575.31	0.00	0.00	0.00	0.00
4,500.00	8.34	244.79	4,457.74	-251.22	-533.64	589.82	0.00	0.00	0.00	0.00
4,600.00	8.34	244.79	4,556.68	-257.40	-546.76	604.32	0.00	0.00	0.00	0.00
4,700.00	8.34	244.79	4,655.63	-263.58	-559.88	618.82	0.00	0.00	0.00	0.00
4,800.00	8.34	244.79	4,754.57	-269.75	-573.00	633.32	0.00	0.00	0.00	0.00

Plan Report for Rulison Federal 19-42D - Plan #1 Proposal

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)	Toolface Azimuth (°)
4,900.00	8.34	244.79	4,853.51	-275.93	-586.13	647.83	0.00	0.00	0.00	0.00
5,000.00	8.34	244.79	4,952.45	-282.11	-599.25	662.33	0.00	0.00	0.00	0.00
5,100.00	8.34	244.79	5,051.40	-288.29	-612.37	676.83	0.00	0.00	0.00	0.00
5,200.00	8.34	244.79	5,150.34	-294.46	-625.49	691.34	0.00	0.00	0.00	0.00
5,300.00	8.34	244.79	5,249.28	-300.64	-638.61	705.84	0.00	0.00	0.00	0.00
5,400.00	8.34	244.79	5,348.22	-306.82	-651.73	720.34	0.00	0.00	0.00	0.00
5,500.00	8.34	244.79	5,447.17	-313.00	-664.85	734.84	0.00	0.00	0.00	0.00
5,600.00	8.34	244.79	5,546.11	-319.17	-677.98	749.35	0.00	0.00	0.00	0.00
5,700.00	8.34	244.79	5,645.05	-325.35	-691.10	763.85	0.00	0.00	0.00	0.00
5,800.00	8.34	244.79	5,744.00	-331.53	-704.22	778.35	0.00	0.00	0.00	0.00
5,900.00	8.34	244.79	5,842.94	-337.70	-717.34	792.86	0.00	0.00	0.00	0.00
5,957.70	8.34	244.79	5,900.03	-341.27	-724.91	801.22	0.00	0.00	0.00	0.00
Begin Drop at 5957.70ft										
6,000.00	7.70	244.79	5,941.91	-343.78	-730.25	807.13	1.50	-1.50	0.00	180.00
6,100.00	6.20	244.79	6,041.18	-348.94	-741.21	819.23	1.50	-1.50	0.00	180.00
6,200.00	4.70	244.79	6,140.72	-352.99	-749.81	828.74	1.50	-1.50	0.00	180.00
6,235.00	4.18	244.79	6,175.61	-354.14	-752.26	831.45	1.50	-1.50	0.00	180.00
Drop Rate = 1.50°/100ft										
6,300.00	3.20	244.79	6,240.48	-355.93	-756.05	835.64	1.50	-1.50	0.00	-180.00
6,400.00	1.70	244.79	6,340.38	-357.75	-759.92	839.92	1.50	-1.50	0.00	180.00
6,500.00	0.20	244.79	6,440.37	-358.46	-761.43	841.58	1.50	-1.50	0.00	180.00
6,513.60	0.00	244.79	6,453.97	-358.47	-761.45	841.61	1.50	-1.50	0.00	180.00
End Drop at 6513.14ft										
6,513.63	0.00	0.00	6,454.00	-358.47	-761.45	841.61	1.50	-1.50	0.00	180.00
Williams Fork - Rulison Federal 19-42D Plan #1 Driller's Tgt										
6,600.00	0.07	243.44	6,540.37	-358.49	-761.50	841.66	0.08	0.08	0.00	243.44
6,700.00	0.15	243.44	6,640.37	-358.58	-761.67	841.85	0.08	0.08	0.00	0.00
6,800.00	0.23	243.44	6,740.37	-358.73	-761.96	842.18	0.08	0.08	0.00	0.00
6,900.00	0.31	243.44	6,840.37	-358.94	-762.38	842.65	0.08	0.08	0.00	0.00
7,000.00	0.39	243.44	6,940.36	-359.21	-762.93	843.26	0.08	0.08	0.00	0.00
7,100.00	0.47	243.44	7,040.36	-359.54	-763.60	844.01	0.08	0.08	0.00	0.00
7,200.00	0.55	243.44	7,140.36	-359.94	-764.39	844.90	0.08	0.08	0.00	0.00
7,300.00	0.63	243.44	7,240.35	-360.40	-765.31	845.92	0.08	0.08	0.00	0.00
7,331.65	0.65	243.44	7,272.00	-360.56	-765.63	846.28	0.08	0.08	0.00	0.00
Top of gas										
7,400.00	0.71	243.44	7,340.35	-360.92	-766.36	847.09	0.08	0.08	0.00	0.00
7,500.00	0.79	243.44	7,440.34	-361.51	-767.53	848.40	0.08	0.08	0.00	0.00
7,600.00	0.87	243.44	7,540.33	-362.15	-768.82	849.85	0.08	0.08	0.00	0.00
7,700.00	0.95	243.44	7,640.31	-362.86	-770.24	851.43	0.08	0.08	0.00	0.00
7,800.00	1.03	243.44	7,740.30	-363.64	-771.78	853.16	0.08	0.08	0.00	0.00
7,900.00	1.11	243.44	7,840.28	-364.47	-773.45	855.02	0.08	0.08	0.00	0.00
8,000.00	1.19	243.44	7,940.26	-365.37	-775.25	857.03	0.08	0.08	0.00	0.00
8,100.00	1.27	243.44	8,040.24	-366.33	-777.16	859.17	0.08	0.08	0.00	0.00
8,200.00	1.35	243.44	8,140.21	-367.35	-779.21	861.46	0.08	0.08	0.00	0.00
8,300.00	1.43	243.44	8,240.18	-368.43	-781.38	863.88	0.08	0.08	0.00	0.00
8,400.00	1.51	243.44	8,340.15	-369.58	-783.67	866.44	0.08	0.08	0.00	0.00
8,500.00	1.59	243.44	8,440.11	-370.79	-786.09	869.15	0.08	0.08	0.00	0.00
8,541.12	1.62	243.44	8,481.22	-371.30	-787.12	870.30	0.08	0.08	0.00	0.00
8,600.00	1.57	243.44	8,540.07	-372.04	-788.58	871.94	0.08	-0.08	0.00	180.00
8,700.00	1.49	243.44	8,640.04	-373.23	-790.97	874.61	0.08	-0.08	0.00	180.00
8,800.00	1.40	243.44	8,740.01	-374.36	-793.23	877.13	0.08	-0.08	0.00	180.00
8,900.00	1.32	243.44	8,839.98	-375.42	-795.35	879.51	0.08	-0.08	0.00	180.00
9,000.00	1.23	243.44	8,939.95	-376.42	-797.35	881.73	0.08	-0.08	0.00	180.00
9,100.00	1.15	243.44	9,039.93	-377.35	-799.21	883.81	0.08	-0.08	0.00	180.00
9,105.07	1.15	243.44	9,045.00	-377.39	-799.30	883.92	0.08	-0.08	0.00	-180.00
Cameo										
9,200.00	1.07	243.44	9,139.91	-378.21	-800.94	885.75	0.08	-0.08	0.00	180.00
9,300.00	0.98	243.44	9,239.90	-379.01	-802.54	887.53	0.08	-0.08	0.00	180.00
9,400.00	0.90	243.44	9,339.88	-379.75	-804.00	889.17	0.08	-0.08	0.00	180.00

Plan Report for Rulison Federal 19-42D - Plan #1 Proposal

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)	Toolface Azimuth (°)
9,500.00	0.81	243.44	9,439.87	-380.41	-805.34	890.67	0.08	-0.08	0.00	180.00
9,565.13	0.76	243.44	9,505.00	-380.81	-806.14	891.56	0.08	-0.08	0.00	180.00
Rollins										
9,600.00	0.73	243.44	9,539.86	-381.01	-806.54	892.01	0.08	-0.08	0.00	-180.00
9,700.00	0.64	243.44	9,639.86	-381.55	-807.61	893.21	0.08	-0.08	0.00	180.00
9,800.00	0.56	243.44	9,739.85	-382.02	-808.55	894.26	0.08	-0.08	0.00	180.00
9,900.00	0.48	243.44	9,839.85	-382.42	-809.36	895.16	0.08	-0.08	0.00	180.00
9,904.15	0.47	243.44	9,844.00	-382.44	-809.39	895.19	0.09	-0.09	0.00	-180.00
Cozzette										
10,000.00	0.39	243.44	9,939.84	-382.76	-810.04	895.92	0.08	-0.08	0.00	180.00
10,100.00	0.31	243.44	10,039.84	-383.03	-810.58	896.52	0.08	-0.08	0.00	180.00
10,183.16	0.24	243.44	10,123.00	-383.21	-810.93	896.92	0.08	-0.08	0.00	-180.00
Corcoran										
10,200.00	0.22	243.44	10,139.84	-383.24	-810.99	896.99	0.08	-0.08	0.00	180.00
10,300.00	0.14	243.44	10,239.84	-383.38	-811.27	897.30	0.08	-0.08	0.00	-180.00
10,313.16	0.13	243.44	10,253.00	-383.39	-811.30	897.33	0.08	-0.08	0.00	180.00
Mancos										
10,400.00	0.05	243.44	10,339.84	-383.46	-811.42	897.47	0.08	-0.08	0.00	-180.00
10,463.16	0.00	360.00	10,403.00	-383.47	-811.45	897.50	0.08	-0.08	0.00	180.00
Rulison Federal 19-42D Plan #1 BH Tgt										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
225.00	225.00	0.00	0.00	Kickoff at 225.00ft
433.00	432.82	-3.21	-6.83	Build Rate = 2.00°/100ft
641.95	640.48	-12.90	-27.40	End Build at 641.95ft
3,299.00	3,269.44	-177.03	-376.05	8.34 Inclination
5,957.70	5,900.03	-341.27	-724.91	Begin Drop at 5957.70ft
6,235.00	6,175.61	-354.14	-752.26	Drop Rate = 1.50°/100ft
6,513.60	6,453.97	-358.47	-761.45	End Drop at 6513.14ft
10,463.16	10,403.00	-383.47	-811.45	Total Depth = 10463.16ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Rulison Federal 19-42D Plan #1 BH Tgt	244.71	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	10,463.16	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
2,500.00	2,478.89	8 5/8" Casing Pt	8-5/8	12-1/4

Plan Report for Rulison Federal 19-42D - Plan #1 Proposal

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,513.63	6,454.00	Williams Fork		0.00	
7,331.65	7,272.00	Top of gas		0.00	
9,105.07	9,045.00	Cameo		0.00	
9,565.13	9,505.00	Rollins		0.00	
9,904.15	9,844.00	Cozzette		0.00	
10,183.16	10,123.00	Corcoran		0.00	
10,313.16	10,253.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Rulison Federal 19-42D Plan #1 BH Tgt	10,403.00	-383.47	-811.45	Point
Rulison Federal 19-42D Plan #1 Driller's Tgt	6,454.00	-358.47	-761.45	Rectangle
Rulison Federal 19-42D Plan #1 Zone Tgt	6,454.00	-383.47	-811.45	Rectangle
Rulison Federal 19-42D 100' FEL Hardline	0.00	0.00	0.00	Polygon
Rulison Federal 19-42D 100' FSL Hardline	0.00	0.00	0.00	Polygon

**North Reference Sheet for Sec. 19-T7S-R94W (Rulison 19H PAD) - Rulison Federal
19-42D - Plan #1**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to RKB - 25' @ 8025.00ft (Original Well Elev). Northing and Easting are relative to Rulison Federal 19-42D

Coordinate System is US State Plane 1927 (Exact solution), Colorado Central 502 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 39° 45' 0.000 N°

False Easting: 2,000,000.00ft, False Northing: 0.00ft, Scale Reduction: 0.99995197

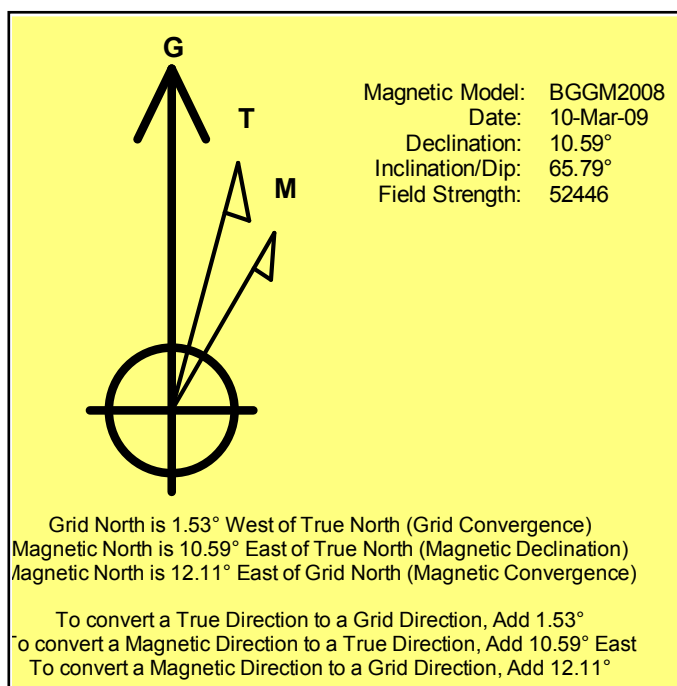
Grid Coordinates of Well: 589,184.45 ft N, 1,316,816.41 ft E

Geographical Coordinates of Well: 39° 25' 34.10" N, 107° 55' 07.46" W

Grid Convergence at Surface is: -1.53°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,463.16ft
the Bottom Hole Displacement is 897.50ft in the Direction of 244.71° (Grid).

Magnetic Convergence at surface is: -12.11° (10 March 2009, , BGGM2008)



Project: Garfield County, CO
Site: Sec. 19-T7S-R94W (Rulison 19H PAD)
Well: Rulison Federal 19-42D
Wellbore: Plan #1
Plan: Plan #1 Proposal

Noble Energy

HALLIBURTON

SECTION DETAILS

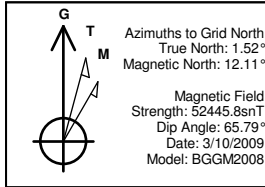
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	
641.95	8.34	244.79	640.48	-12.90	-27.40	2.00	244.79	30.29	
5957.70	8.34	244.79	5900.03	-341.27	-724.91	0.00	0.00	801.22	
6513.63	0.00	0.00	6454.00	-358.47	-761.45	1.50	180.00	841.61	Rulison Federal 19-42D Plan #1 Driller's Tgt
8541.12	1.62	243.44	8481.22	-371.30	-787.12	0.08	243.44	870.30	
10463.16	0.00	360.00	10403.00	-383.47	-811.45	0.08	180.00	897.50	Rulison Federal 19-42D Plan #1 BH Tgt

WELL DETAILS: Rulison Federal 19-42D

Ground Level:	8000.00		
Northings	Eastings	Latitude	Longitude
589184.45	1316816.41	39° 25' 34.101 N	107° 55' 7.458 W

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6454.00	6513.63	Williams Fork
7272.00	7331.65	Top of gas
9045.00	9105.07	Cameo
9505.00	9565.13	Rollins
9844.00	9904.15	Cozzette
10123.00	10183.16	Corcoran
10253.00	10313.16	Mancos



WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Rulison Federal 19-42D 100' FEL Hardline	0.00	0.00	0.00	Polygon
Rulison Federal 19-42D 100' FSL Hardline	0.00	0.00	0.00	Polygon
Rulison Federal 19-42D Plan #1 Driller's Tgt	6454.00	-358.47	-761.45	Rectangle (Sides: L25.00 W25.00)
Rulison Federal 19-42D Plan #1 Zone Tgt	6454.00	-383.47	-811.45	Rectangle (Sides: L100.00 W200.00)
Rulison Federal 19-42D Plan #1 BH Tgt	10403.00	-383.47	-811.45	Point

