

Anadarko Petroleum Corp.

Cheyenne County, CO (NAD 83)

Sec. 11-T16S-R48W

TRESTLE 1648-11-41-H

Plan A0

Plan: Plan A0 Permit

Sperry Drilling Services

Proposal Report

13 August, 2013

Well Coordinates: 1,322,044.78 N, 3,780,418.70 E (38° 41' 07.24" N, 102° 45' 56.15" W)

Ground Level: 4,250.00 ft

Local Coordinate Origin: Centered on Well TRESTLE 1648-11-41-H

Viewing Datum: RKB = 15' @ 4265.00ft (Drilling Rig)

TVDs to System: N

North Reference: True

Unit System: API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Project: Cheyenne County, CO (NAD 83)
Site: Sec. 11-T16S-R48W
Well: TRESTLE 1648-11-41-H
Wellbore: Plan A0
Design: Plan A0 Permit

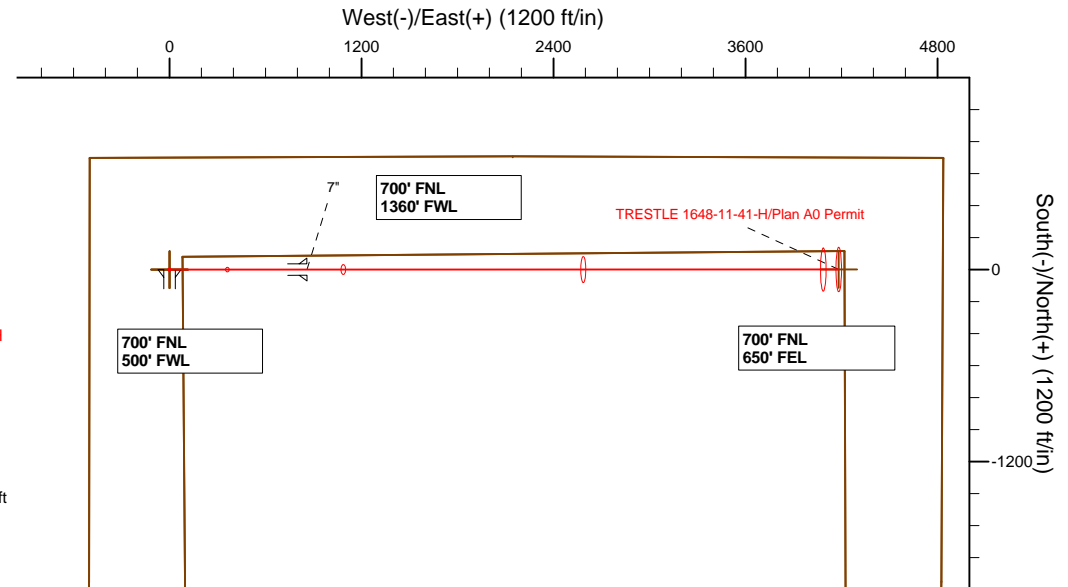
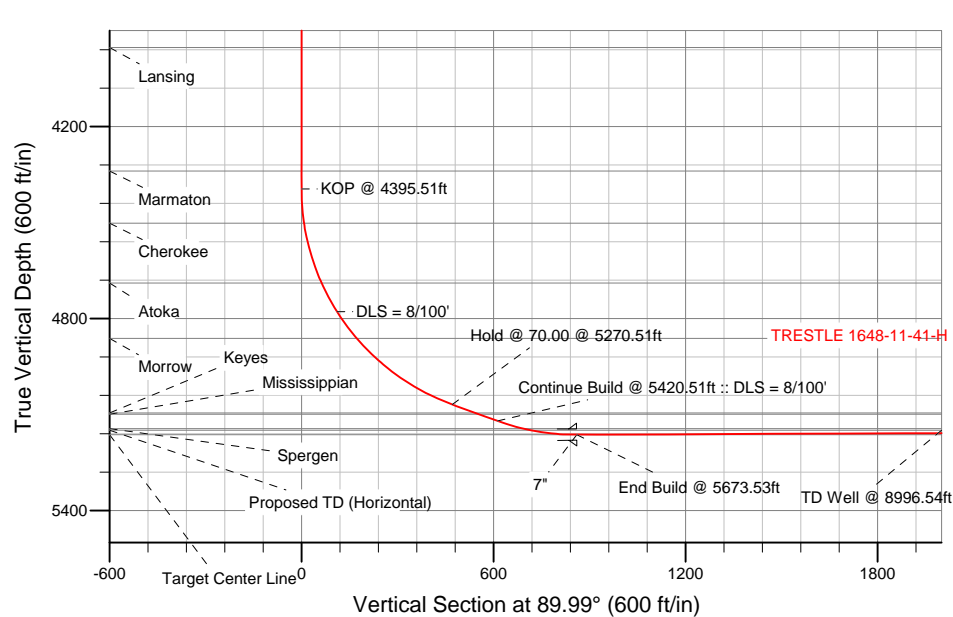


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	4395.51	0.00	0.00	4395.51	0.00	0.00	0.00	0.00	0.00	
3	5270.51	70.00	89.99	5068.52	0.08	471.24	8.00	89.99	471.24	
4	5420.51	70.00	89.99	5119.82	0.11	612.20	0.00	0.00	612.20	
5	5673.53	90.24	89.99	5163.00	0.15	860.17	8.00	0.00	860.17	
6	8996.54	90.24	89.99	5149.00	0.71	4183.15	0.00	0.00	4183.15	TRESTLE 1648-11-41-H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TRESTLE 1648-11-41-H_SB	0.00	0.00	0.00	38.685344	-102.765597	Polygon
TRESTLE 1648-11-41-H_SEC	0.00	0.00	0.00	38.685344	-102.765597	Polygon
TRESTLE 1648-11-41-H_SHL	0.00	0.00	0.00	38.685344	-102.765597	Point
TRESTLE 1648-11-41-H_BHL	5149.00	0.71	4183.15	38.685345	-102.750943	Point



TVD	MD	
4395.51	4395.51	KOP @ 4395.51ft
4778.84	4800.00	DLS = 8/100'
5068.52	5270.51	Hold @ 70.00 @ 5270.51ft
5119.82	5420.51	Continue Build @ 5420.51ft :: DLS = 8/100'
5163.00	5673.53	End Build @ 5673.53ft
5149.00	8996.54	TD Well @ 8996.54ft

WELL DETAILS: TRESTLE 1648-11-41-H

Ground Level: 4250.00
RKB = 15' @ 4265.00ft (Drilling Rig)

Plan: Plan A0 Permit (TRESTLE 1648-11-41-H/Plan A0)

Created By: Clint Eshelman Date: 08/13/2013

Plan Report for TRESTLE 1648-11-41-H - Plan A0 Permit

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
TRESTLE 1648-11-41-H_SB - TRESTLE 1648-11-41-H_SEC - TRESTLE 1648-11-41-H_SHL										
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
229.00	0.00	0.00	229.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Niobrara										
300.00	0.00	0.00	300.00	0.00	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	0.00
500.00	0.00	0.00	500.00	0.00	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	0.00
700.00	0.00	0.00	700.00	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	0.00
805.00	0.00	0.00	805.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ft Hays Limestone										
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,283.00	0.00	0.00	1,283.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dakota Sandstone										
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,620.00	0.00	0.00	1,620.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cheyenne Sandstone										
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,343.00	0.00	0.00	2,343.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Blaine Anhydrite										
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,493.00	0.00	0.00	2,493.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cedar Hills (Lyons) Sandstone										
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,633.00	0.00	0.00	2,633.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stone Corral Anhydrite										
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,296.00	0.00	0.00	3,296.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Neva Limestone										
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,744.00	0.00	0.00	3,744.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Plan Report for TRESTLE 1648-11-41-H - Plan A0 Permit

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 (°)
Shawnee										
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,953.00	0.00	0.00	3,953.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lansing										
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,339.00	0.00	0.00	4,339.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marmaton										
4,395.51	0.00	0.00	4,395.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP @ 4395.51ft										
4,400.00	0.36	89.99	4,400.00	0.00	0.01	0.01	8.00	8.00	0.00	89.99
4,500.00	8.36	89.99	4,499.63	0.00	7.61	7.61	8.00	8.00	0.00	0.00
4,502.40	8.55	89.99	4,502.00	0.00	7.96	7.96	8.00	8.00	0.00	0.00
Cherokee										
4,600.00	16.36	89.99	4,597.23	0.01	29.00	29.00	8.00	8.00	0.00	0.00
4,697.91	24.19	89.99	4,689.00	0.01	62.90	62.90	8.00	8.00	0.00	0.00
Atoka										
4,700.00	24.36	89.99	4,690.91	0.01	63.76	63.76	8.00	8.00	0.00	0.00
4,800.00	32.36	89.99	4,778.84	0.02	111.22	111.22	8.00	8.00	0.00	0.00
DLS = 8/100'										
4,900.00	40.36	89.99	4,859.30	0.03	170.46	170.46	8.00	8.00	0.00	0.00
4,903.55	40.64	89.99	4,862.00	0.03	172.76	172.76	8.00	8.00	0.00	0.00
Morrow										
5,000.00	48.36	89.99	4,930.74	0.04	240.31	240.31	8.00	8.00	0.00	0.00
5,100.00	56.36	89.99	4,991.76	0.06	319.44	319.44	8.00	8.00	0.00	0.00
5,200.00	64.36	89.99	5,041.18	0.07	406.28	406.28	8.00	8.00	0.00	0.00
5,270.51	70.00	89.99	5,068.52	0.08	471.24	471.24	8.00	8.00	0.00	0.00
Hold @ 70.00 @ 5270.51ft										
5,300.00	70.00	89.99	5,078.60	0.09	498.95	498.95	0.00	0.00	0.00	0.00
5,347.95	70.00	89.99	5,095.00	0.09	544.01	544.01	0.00	0.00	0.00	0.00
Keyes										
5,359.64	70.00	89.99	5,099.00	0.10	555.00	555.00	0.00	0.00	0.00	0.00
Mississippian										
5,400.00	70.00	89.99	5,112.80	0.10	592.92	592.92	0.00	0.00	0.00	0.00
5,420.51	70.00	89.99	5,119.82	0.11	612.20	612.20	0.00	0.00	0.00	0.00
Continue Build @ 5420.51ft :: DLS = 8/100'										
5,500.00	76.36	89.99	5,142.81	0.12	688.25	688.25	8.00	8.00	0.00	0.00
5,505.13	76.77	89.99	5,144.00	0.12	693.23	693.23	8.00	8.00	0.00	0.00
Spergen										
5,600.00	84.36	89.99	5,159.54	0.14	786.75	786.75	8.00	8.00	0.00	0.00
5,673.53	90.24	89.99	5,163.00	0.15	860.17	860.17	8.00	8.00	0.00	0.00
End Build @ 5673.53ft - Target Center Line - 7"										
5,700.00	90.24	89.99	5,162.89	0.15	886.64	886.64	0.00	0.00	0.00	0.00
5,800.00	90.24	89.99	5,162.47	0.17	986.64	986.64	0.00	0.00	0.00	0.00
5,900.00	90.24	89.99	5,162.05	0.19	1,086.64	1,086.64	0.00	0.00	0.00	0.00
6,000.00	90.24	89.99	5,161.63	0.20	1,186.64	1,186.64	0.00	0.00	0.00	0.00
6,100.00	90.24	89.99	5,161.21	0.22	1,286.64	1,286.64	0.00	0.00	0.00	0.00
6,200.00	90.24	89.99	5,160.79	0.24	1,386.64	1,386.64	0.00	0.00	0.00	0.00
6,300.00	90.24	89.99	5,160.36	0.26	1,486.64	1,486.64	0.00	0.00	0.00	0.00
6,400.00	90.24	89.99	5,159.94	0.27	1,586.63	1,586.63	0.00	0.00	0.00	0.00
6,500.00	90.24	89.99	5,159.52	0.29	1,686.63	1,686.63	0.00	0.00	0.00	0.00
6,600.00	90.24	89.99	5,159.10	0.31	1,786.63	1,786.63	0.00	0.00	0.00	0.00
6,700.00	90.24	89.99	5,158.68	0.32	1,886.63	1,886.63	0.00	0.00	0.00	0.00
6,800.00	90.24	89.99	5,158.26	0.34	1,986.63	1,986.63	0.00	0.00	0.00	0.00
6,900.00	90.24	89.99	5,157.84	0.36	2,086.63	2,086.63	0.00	0.00	0.00	0.00

Plan Report for TRESTLE 1648-11-41-H - Plan A0 Permit

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 (°)
7,000.00	90.24	89.99	5,157.41	0.37	2,186.63	2,186.63	0.00	0.00	0.00	0.00
7,100.00	90.24	89.99	5,156.99	0.39	2,286.63	2,286.63	0.00	0.00	0.00	0.00
7,200.00	90.24	89.99	5,156.57	0.41	2,386.63	2,386.63	0.00	0.00	0.00	0.00
7,300.00	90.24	89.99	5,156.15	0.42	2,486.63	2,486.63	0.00	0.00	0.00	0.00
7,400.00	90.24	89.99	5,155.73	0.44	2,586.63	2,586.63	0.00	0.00	0.00	0.00
7,500.00	90.24	89.99	5,155.31	0.46	2,686.62	2,686.62	0.00	0.00	0.00	0.00
7,600.00	90.24	89.99	5,154.89	0.47	2,786.62	2,786.62	0.00	0.00	0.00	0.00
7,700.00	90.24	89.99	5,154.46	0.49	2,886.62	2,886.62	0.00	0.00	0.00	0.00
7,800.00	90.24	89.99	5,154.04	0.51	2,986.62	2,986.62	0.00	0.00	0.00	0.00
7,900.00	90.24	89.99	5,153.62	0.53	3,086.62	3,086.62	0.00	0.00	0.00	0.00
8,000.00	90.24	89.99	5,153.20	0.54	3,186.62	3,186.62	0.00	0.00	0.00	0.00
8,100.00	90.24	89.99	5,152.78	0.56	3,286.62	3,286.62	0.00	0.00	0.00	0.00
8,200.00	90.24	89.99	5,152.36	0.58	3,386.62	3,386.62	0.00	0.00	0.00	0.00
8,300.00	90.24	89.99	5,151.94	0.59	3,486.62	3,486.62	0.00	0.00	0.00	0.00
8,400.00	90.24	89.99	5,151.51	0.61	3,586.62	3,586.62	0.00	0.00	0.00	0.00
8,500.00	90.24	89.99	5,151.09	0.63	3,686.62	3,686.62	0.00	0.00	0.00	0.00
8,600.00	90.24	89.99	5,150.67	0.64	3,786.62	3,786.62	0.00	0.00	0.00	0.00
8,700.00	90.24	89.99	5,150.25	0.66	3,886.61	3,886.61	0.00	0.00	0.00	0.00
8,800.00	90.24	89.99	5,149.83	0.68	3,986.61	3,986.61	0.00	0.00	0.00	0.00
8,900.00	90.24	89.99	5,149.41	0.69	4,086.61	4,086.61	0.00	0.00	0.00	0.00
8,996.53	90.24	89.99	5,149.00	0.71	4,183.14	4,183.14	0.00	0.00	0.00	0.00
Proposed TD (Horizontal)										
8,996.54	90.24	89.99	5,149.00	0.71	4,183.15	4,183.15	0.01	0.00	0.00	0.00
TRESTLE 1648-11-41-H_BHL										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,395.51	4,395.51	0.00	0.00	KOP @ 4395.51ft
4,800.00	4,778.84	0.02	111.22	DLS = 8/100'
5,270.51	5,068.52	0.08	471.24	Hold @ 70.00 @ 5270.51ft
5,420.51	5,119.82	0.11	612.20	Continue Build @ 5420.51ft :: DLS = 8/100'
5,673.53	5,163.00	0.15	860.17	End Build @ 5673.53ft
8,996.54	5,149.00	0.71	4,183.15	TD Well @ 8996.54ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	89.99	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	5,673.53	Plan A0 Permit	MWD
5,673.53	8,996.54	Plan A0 Permit	MWD

Plan Report for TRESTLE 1648-11-41-H - Plan A0 Permit**Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
2,000.00	2,000.00	9 5/8"	9-5/8	13-1/2
5,673.53	5,163.00	7"	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
229.00	229.00	Niobrara		0.00	
805.00	805.00	Ft Hays Limestone		0.00	
1,283.00	1,283.00	Dakota Sandstone		0.00	
1,620.00	1,620.00	Cheyenne Sandstone		0.00	
2,343.00	2,343.00	Blaine Anhydrite		0.00	
2,493.00	2,493.00	Cedar Hills (Lyons) Sandstone		0.00	
2,633.00	2,633.00	Stone Corral Anhydrite		0.00	
3,296.00	3,296.00	Neva Limestone		0.00	
3,744.00	3,744.00	Shawnee		0.00	
3,953.00	3,953.00	Lansing		0.00	
4,339.00	4,339.00	Marmaton		0.00	
4,502.40	4,502.00	Cherokee		0.00	
4,697.91	4,689.00	Atoka		0.00	
4,903.55	4,862.00	Morrow		0.00	
5,347.95	5,095.00	Keyes		0.00	
5,359.64	5,099.00	Mississippian		0.00	
5,505.13	5,144.00	Spergen		0.00	
5,673.53	5,163.00	Target Center Line		0.00	
8,996.53	5,149.00	Proposed TD (Horizontal)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
TRESTLE 1648-11-41-H_SHL	0.00	0.00	0.00	Point
TRESTLE 1648-11-41-H_SEC	0.00	0.00	0.00	Polygon
TRESTLE 1648-11-41-H_BHL	5,149.00	0.71	4,183.15	Point
TRESTLE 1648-11-41-H_SB	0.00	0.00	0.00	Polygon

North Reference Sheet for Sec. 11-T16S-R48W - TRESTLE 1648-11-41-H - Plan A0

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.
Vertical Depths are relative to RKB = 15' @ 4265.00ft (Drilling Rig). Northing and Easting are relative to TRESTLE 1648-11-41-H
Coordinate System is US State Plane 1983, Colorado Central Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)
Central Meridian is -105.50°, Longitude Origin:0.000000°, Latitude Origin:39.750000°
False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99996207

Grid Coordinates of Well: 1,322,044.78 ft N, 3,780,418.70 ft E
Geographical Coordinates of Well: 38° 41' 07.24" N, 102° 45' 56.15" W
Grid Convergence at Surface is: 1.72°

Based upon Minimum Curvature type calculations, at a Measured Depth of 8,996.54ft
the Bottom Hole Displacement is 4,183.15ft in the Direction of 89.99° (True).

Magnetic Convergence at surface is: -5.71° (13 August 2013, , BGGM2013)

