

Project: Weld County, CO (NAD 83)
Site: Sec. 18-T1N-R65W
Well: PETTINGER 3N-18HZ
Wellbore: Plan A0
Design: Plan A0 - PERMIT



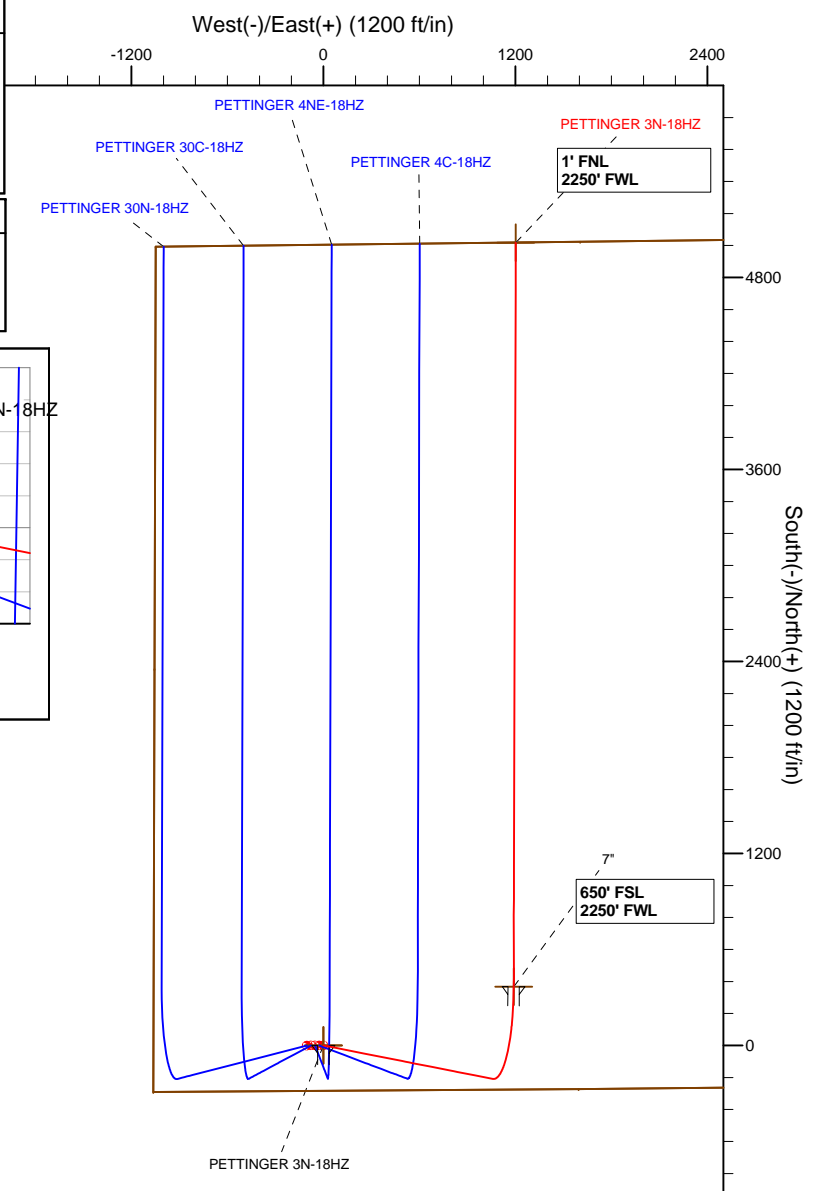
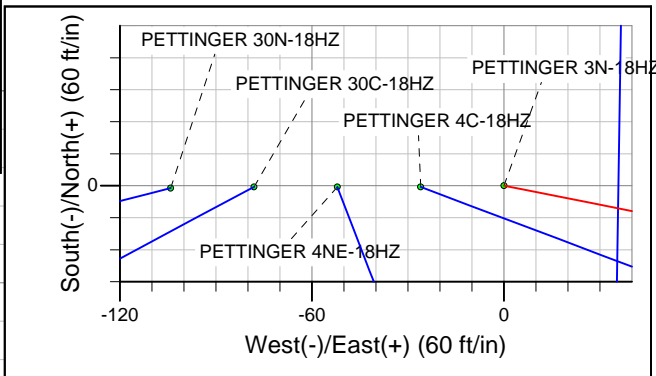
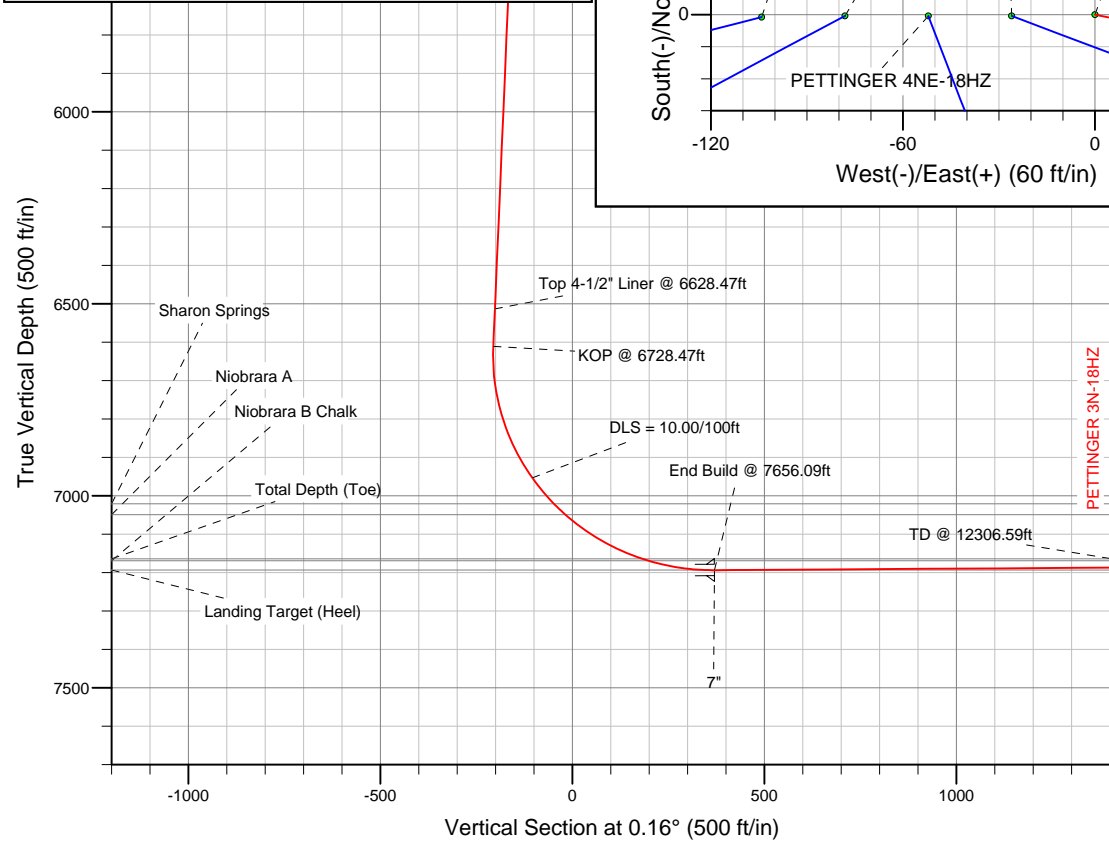
SECTION DETAILS

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	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	
3	2133.93	12.68	101.16	2128.77	-13.52	68.53	2.00	101.16	-13.33	
4	6728.47	12.68	101.16	6611.27	-208.71	1057.89	0.00	0.00	-205.75	
5	7656.09	90.37	0.16	7194.00	367.00	1189.00	10.00	-100.66	370.32	PETTINGER 3N-18HZ_tgt
6	12306.59	90.37	0.16	7164.00	5017.38	1201.71	0.00	0.00	5020.72	PETTINGER 3N-18HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PETTINGER 3N-18HZ_Sec	0.00	0.00	0.00	40.044891	-104.712248	Polygon
PETTINGER 3N-18HZ_SHL	0.00	0.00	0.00	40.044891	-104.712248	Point
PETTINGER 3N-18HZ_BHL	7164.00	5017.38	1201.71	40.058664	-104.707955	Point
PETTINGER 3N-18HZ_tgt	7194.00	367.00	1189.00	40.045898	-104.708001	Point

MD	TVD	
6628.47	6513.72	Top 4-1/2" Liner @ 6628.47ft
6728.47	6611.28	KOP @ 6728.47ft



283' FSL
1062' FWL

WELL DETAILS: PETTINGER 3N-18HZ	
Ground Level:	5007.00
RKB = 17 @ 5024.00ft (Drilling Rig)	
Plan: Plan A0 - PERMIT (PETTINGER 3N-18HZ/Plan A0)	
Created By: Fred Hartmann Date: 07/22/2013	

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 18-T1N-R65W

PETTINGER 3N-18HZ

Plan A0

Plan: Plan A0 - PERMIT

Sperry Drilling Services

Proposal Report

23 July, 2013

Well Coordinates: 1,260,179.10 N, 3,220,543.38 E (40° 02' 41.61" N, 104° 42' 44.09" W)

Ground Level: 5,007.00 ft

Local Coordinate Origin: Centered on Well PETTINGER 3N-18HZ

Viewing Datum: RKB = 17 @ 5024.00ft (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

Plan Report for PETTINGER 3N-18HZ - 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
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
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
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
1,180.00	0.00	0.00	1,180.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	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
Begin Nudge @ 1500.00ft										
1,600.00	2.00	101.16	1,599.98	-0.34	1.71	-0.33	2.00	2.00	0.00	101.16
1,700.00	4.00	101.16	1,699.84	-1.35	6.85	-1.33	2.00	2.00	0.00	0.00
1,800.00	6.00	101.16	1,799.45	-3.04	15.40	-2.99	2.00	2.00	0.00	0.00
1,900.00	8.00	101.16	1,898.70	-5.40	27.35	-5.32	2.00	2.00	0.00	0.00
2,000.00	10.00	101.16	1,997.47	-8.42	42.70	-8.30	2.00	2.00	0.00	0.00
2,100.00	12.00	101.16	2,095.62	-12.12	61.42	-11.95	2.00	2.00	0.00	0.00
2,133.93	12.68	101.16	2,128.77	-13.52	68.53	-13.33	2.00	2.00	0.00	0.00
End Nudge @ 2133.93ft										
2,200.00	12.68	101.16	2,193.23	-16.33	82.76	-16.10	0.00	0.00	0.00	0.00
2,300.00	12.68	101.16	2,290.79	-20.58	104.29	-20.28	0.00	0.00	0.00	0.00
2,400.00	12.68	101.16	2,388.35	-24.82	125.83	-24.47	0.00	0.00	0.00	0.00
2,500.00	12.68	101.16	2,485.91	-29.07	147.36	-28.66	0.00	0.00	0.00	0.00
2,600.00	12.68	101.16	2,583.47	-33.32	168.89	-32.85	0.00	0.00	0.00	0.00
2,700.00	12.68	101.16	2,681.04	-37.57	190.43	-37.04	0.00	0.00	0.00	0.00
2,800.00	12.68	101.16	2,778.60	-41.82	211.96	-41.22	0.00	0.00	0.00	0.00
2,900.00	12.68	101.16	2,876.16	-46.06	233.49	-45.41	0.00	0.00	0.00	0.00
3,000.00	12.68	101.16	2,973.72	-50.31	255.03	-49.60	0.00	0.00	0.00	0.00
3,100.00	12.68	101.16	3,071.28	-54.56	276.56	-53.79	0.00	0.00	0.00	0.00
3,200.00	12.68	101.16	3,168.84	-58.81	298.09	-57.98	0.00	0.00	0.00	0.00
3,300.00	12.68	101.16	3,266.41	-63.06	319.62	-62.17	0.00	0.00	0.00	0.00
3,400.00	12.68	101.16	3,363.97	-67.31	341.16	-66.35	0.00	0.00	0.00	0.00
3,500.00	12.68	101.16	3,461.53	-71.55	362.69	-70.54	0.00	0.00	0.00	0.00
3,600.00	12.68	101.16	3,559.09	-75.80	384.22	-74.73	0.00	0.00	0.00	0.00
3,700.00	12.68	101.16	3,656.65	-80.05	405.76	-78.92	0.00	0.00	0.00	0.00
3,800.00	12.68	101.16	3,754.21	-84.30	427.29	-83.11	0.00	0.00	0.00	0.00
3,900.00	12.68	101.16	3,851.78	-88.55	448.82	-87.29	0.00	0.00	0.00	0.00
4,000.00	12.68	101.16	3,949.34	-92.80	470.36	-91.48	0.00	0.00	0.00	0.00
4,100.00	12.68	101.16	4,046.90	-97.04	491.89	-95.67	0.00	0.00	0.00	0.00
4,200.00	12.68	101.16	4,144.46	-101.29	513.42	-99.86	0.00	0.00	0.00	0.00
4,223.10	12.68	101.16	4,167.00	-102.27	518.40	-100.83	0.00	0.00	0.00	0.00
Parkman										
4,300.00	12.68	101.16	4,242.02	-105.54	534.96	-104.05	0.00	0.00	0.00	0.00
4,400.00	12.68	101.16	4,339.58	-109.79	556.49	-108.23	0.00	0.00	0.00	0.00
4,500.00	12.68	101.16	4,437.15	-114.04	578.02	-112.42	0.00	0.00	0.00	0.00
4,600.00	12.68	101.16	4,534.71	-118.28	599.56	-116.61	0.00	0.00	0.00	0.00
4,610.55	12.68	101.16	4,545.00	-118.73	601.83	-117.05	0.00	0.00	0.00	0.00
Sussex										
4,700.00	12.68	101.16	4,632.27	-122.53	621.09	-120.80	0.00	0.00	0.00	0.00
4,800.00	12.68	101.16	4,729.83	-126.78	642.62	-124.99	0.00	0.00	0.00	0.00

Plan Report for PETTINGER 3N-18HZ - 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 (°)
4,900.00	12.68	101.16	4,827.39	-131.03	664.16	-129.17	0.00	0.00	0.00	0.00
5,000.00	12.68	101.16	4,924.95	-135.28	685.69	-133.36	0.00	0.00	0.00	0.00
5,100.00	12.68	101.16	5,022.52	-139.53	707.22	-137.55	0.00	0.00	0.00	0.00
5,200.00	12.68	101.16	5,120.08	-143.77	728.76	-141.74	0.00	0.00	0.00	0.00
5,300.00	12.68	101.16	5,217.64	-148.02	750.29	-145.93	0.00	0.00	0.00	0.00
5,400.00	12.68	101.16	5,315.20	-152.27	771.82	-150.11	0.00	0.00	0.00	0.00
5,500.00	12.68	101.16	5,412.76	-156.52	793.36	-154.30	0.00	0.00	0.00	0.00
5,600.00	12.68	101.16	5,510.32	-160.77	814.89	-158.49	0.00	0.00	0.00	0.00
5,700.00	12.68	101.16	5,607.89	-165.02	836.42	-162.68	0.00	0.00	0.00	0.00
5,800.00	12.68	101.16	5,705.45	-169.26	857.96	-166.87	0.00	0.00	0.00	0.00
5,900.00	12.68	101.16	5,803.01	-173.51	879.49	-171.06	0.00	0.00	0.00	0.00
6,000.00	12.68	101.16	5,900.57	-177.76	901.02	-175.24	0.00	0.00	0.00	0.00
6,100.00	12.68	101.16	5,998.13	-182.01	922.56	-179.43	0.00	0.00	0.00	0.00
6,200.00	12.68	101.16	6,095.69	-186.26	944.09	-183.62	0.00	0.00	0.00	0.00
6,300.00	12.68	101.16	6,193.26	-190.50	965.62	-187.81	0.00	0.00	0.00	0.00
6,400.00	12.68	101.16	6,290.82	-194.75	987.16	-192.00	0.00	0.00	0.00	0.00
6,500.00	12.68	101.16	6,388.38	-199.00	1,008.69	-196.18	0.00	0.00	0.00	0.00
6,600.00	12.68	101.16	6,485.94	-203.25	1,030.22	-200.37	0.00	0.00	0.00	0.00
6,628.47	12.68	101.16	6,513.72	-204.46	1,036.35	-201.56	0.00	0.00	0.00	0.00
Top 4-1/2" Liner @ 6628.47ft										
6,700.00	12.68	101.16	6,583.50	-207.50	1,051.76	-204.56	0.00	0.00	0.00	0.00
6,728.47	12.68	101.16	6,611.28	-208.71	1,057.89	-205.75	0.00	0.00	0.00	0.00
KOP @ 6728.47ft										
6,800.00	13.32	69.09	6,681.06	-207.28	1,073.31	-204.28	10.00	0.90	-44.84	-100.66
6,900.00	19.23	39.53	6,777.17	-190.42	1,094.61	-187.37	10.00	5.91	-29.56	-69.37
7,000.00	27.55	25.29	6,868.95	-156.73	1,115.02	-153.61	10.00	8.32	-14.23	-40.91
7,100.00	36.67	17.50	6,953.60	-107.22	1,133.92	-104.05	10.00	9.12	-7.79	-27.80
DLS = 10.00/100ft										
7,189.20	45.08	12.96	7,021.00	-50.92	1,149.05	-47.71	10.00	9.44	-5.09	-21.17
Sharon Springs										
7,200.00	46.11	12.51	7,028.55	-43.40	1,150.75	-40.18	10.00	9.53	-4.23	-17.73
7,230.30	49.01	11.30	7,049.00	-21.52	1,155.35	-18.29	10.00	9.56	-3.96	-17.41
Niobrara A										
7,300.00	55.72	8.90	7,091.54	32.79	1,164.98	36.05	10.00	9.62	-3.45	-16.60
7,400.00	65.40	6.04	7,140.64	119.04	1,176.18	122.32	10.00	9.69	-2.86	-15.13
7,480.33	73.22	4.06	7,169.00	193.84	1,182.76	197.14	10.00	9.73	-2.47	-13.72
Niobrara B Chalk										
7,500.00	75.14	3.60	7,174.36	212.72	1,184.02	216.03	10.00	9.75	-2.33	-13.02
7,600.00	84.89	1.37	7,191.68	310.99	1,188.26	314.31	10.00	9.76	-2.23	-12.89
7,656.09	90.37	0.16	7,194.00	367.00	1,189.00	370.32	10.00	9.76	-2.16	-12.51
End Build @ 7656.09ft - Landing Target (Heel) - 7" - PETTINGER 3N-18HZ_tgt										
7,700.00	90.37	0.16	7,193.72	410.91	1,189.12	414.23	0.00	0.00	0.00	-12.46
7,800.00	90.37	0.16	7,193.07	510.91	1,189.39	514.23	0.00	0.00	0.00	0.00
7,900.00	90.37	0.16	7,192.43	610.91	1,189.67	614.23	0.00	0.00	0.00	0.00
8,000.00	90.37	0.16	7,191.78	710.90	1,189.94	714.22	0.00	0.00	0.00	0.00
8,100.00	90.37	0.16	7,191.14	810.90	1,190.21	814.22	0.00	0.00	0.00	0.00
8,200.00	90.37	0.16	7,190.49	910.90	1,190.49	914.22	0.00	0.00	0.00	0.00
8,300.00	90.37	0.16	7,189.85	1,010.90	1,190.76	1,014.22	0.00	0.00	0.00	0.00
8,400.00	90.37	0.16	7,189.20	1,110.89	1,191.03	1,114.22	0.00	0.00	0.00	0.00
8,500.00	90.37	0.16	7,188.56	1,210.89	1,191.31	1,214.21	0.00	0.00	0.00	0.00
8,600.00	90.37	0.16	7,187.91	1,310.89	1,191.58	1,314.21	0.00	0.00	0.00	0.00
8,700.00	90.37	0.16	7,187.27	1,410.89	1,191.85	1,414.21	0.00	0.00	0.00	0.00
8,800.00	90.37	0.16	7,186.62	1,510.89	1,192.13	1,514.21	0.00	0.00	0.00	0.00
8,900.00	90.37	0.16	7,185.98	1,610.88	1,192.40	1,614.21	0.00	0.00	0.00	0.00
9,000.00	90.37	0.16	7,185.33	1,710.88	1,192.67	1,714.20	0.00	0.00	0.00	0.00
9,100.00	90.37	0.16	7,184.69	1,810.88	1,192.95	1,814.20	0.00	0.00	0.00	0.00
9,200.00	90.37	0.16	7,184.04	1,910.88	1,193.22	1,914.20	0.00	0.00	0.00	0.00
9,300.00	90.37	0.16	7,183.40	2,010.87	1,193.49	2,014.20	0.00	0.00	0.00	0.00
9,400.00	90.37	0.16	7,182.75	2,110.87	1,193.77	2,114.20	0.00	0.00	0.00	0.00

Plan Report for PETTINGER 3N-18HZ - 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 (°)
9,500.00	90.37	0.16	7,182.11	2,210.87	1,194.04	2,214.19	0.00	0.00	0.00	0.00
9,600.00	90.37	0.16	7,181.46	2,310.87	1,194.31	2,314.19	0.00	0.00	0.00	0.00
9,700.00	90.37	0.16	7,180.81	2,410.86	1,194.59	2,414.19	0.00	0.00	0.00	0.00
9,800.00	90.37	0.16	7,180.17	2,510.86	1,194.86	2,514.19	0.00	0.00	0.00	0.00
9,900.00	90.37	0.16	7,179.52	2,610.86	1,195.13	2,614.19	0.00	0.00	0.00	0.00
10,000.00	90.37	0.16	7,178.88	2,710.86	1,195.41	2,714.18	0.00	0.00	0.00	0.00
10,100.00	90.37	0.16	7,178.23	2,810.85	1,195.68	2,814.18	0.00	0.00	0.00	0.00
10,200.00	90.37	0.16	7,177.59	2,910.85	1,195.95	2,914.18	0.00	0.00	0.00	0.00
10,300.00	90.37	0.16	7,176.94	3,010.85	1,196.23	3,014.18	0.00	0.00	0.00	0.00
10,400.00	90.37	0.16	7,176.30	3,110.85	1,196.50	3,114.17	0.00	0.00	0.00	0.00
10,500.00	90.37	0.16	7,175.65	3,210.84	1,196.77	3,214.17	0.00	0.00	0.00	0.00
10,600.00	90.37	0.16	7,175.01	3,310.84	1,197.05	3,314.17	0.00	0.00	0.00	0.00
10,700.00	90.37	0.16	7,174.36	3,410.84	1,197.32	3,414.17	0.00	0.00	0.00	0.00
10,800.00	90.37	0.16	7,173.72	3,510.84	1,197.59	3,514.17	0.00	0.00	0.00	0.00
10,900.00	90.37	0.16	7,173.07	3,610.83	1,197.87	3,614.16	0.00	0.00	0.00	0.00
11,000.00	90.37	0.16	7,172.43	3,710.83	1,198.14	3,714.16	0.00	0.00	0.00	0.00
11,100.00	90.37	0.16	7,171.78	3,810.83	1,198.41	3,814.16	0.00	0.00	0.00	0.00
11,200.00	90.37	0.16	7,171.14	3,910.83	1,198.68	3,914.16	0.00	0.00	0.00	0.00
11,300.00	90.37	0.16	7,170.49	4,010.82	1,198.96	4,014.16	0.00	0.00	0.00	0.00
11,400.00	90.37	0.16	7,169.85	4,110.82	1,199.23	4,114.15	0.00	0.00	0.00	0.00
11,500.00	90.37	0.16	7,169.20	4,210.82	1,199.50	4,214.15	0.00	0.00	0.00	0.00
11,600.00	90.37	0.16	7,168.56	4,310.82	1,199.78	4,314.15	0.00	0.00	0.00	0.00
11,700.00	90.37	0.16	7,167.91	4,410.81	1,200.05	4,414.15	0.00	0.00	0.00	0.00
11,800.00	90.37	0.16	7,167.27	4,510.81	1,200.32	4,514.15	0.00	0.00	0.00	0.00
11,900.00	90.37	0.16	7,166.62	4,610.81	1,200.60	4,614.14	0.00	0.00	0.00	0.00
12,000.00	90.37	0.16	7,165.98	4,710.81	1,200.87	4,714.14	0.00	0.00	0.00	0.00
12,100.00	90.37	0.16	7,165.33	4,810.80	1,201.14	4,814.14	0.00	0.00	0.00	0.00
12,200.00	90.37	0.16	7,164.69	4,910.80	1,201.42	4,914.14	0.00	0.00	0.00	0.00
12,300.00	90.37	0.16	7,164.04	5,010.80	1,201.69	5,014.14	0.00	0.00	0.00	0.00
12,306.58	90.37	0.16	7,164.00	5,017.38	1,201.71	5,020.72	0.00	0.00	0.00	0.00
Total Depth (Toe)										
12,306.59	90.37	0.16	7,164.00	5,017.38	1,201.71	5,020.72	0.00	0.00	0.00	0.00
PETTINGER 3N-18HZ_BHL										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
1,500.00	1,500.00	0.00	0.00	Begin Nudge @ 1500.00ft
2,133.93	2,128.77	-13.52	68.53	End Nudge @ 2133.93ft
6,628.47	6,513.72	-204.46	1,036.35	Top 4-1/2" Liner @ 6628.47ft
6,728.47	6,611.28	-208.71	1,057.89	KOP @ 6728.47ft
7,100.00	6,953.60	-107.22	1,133.92	DLS = 10.00/100ft
7,656.09	7,194.00	367.00	1,189.00	End Build @ 7656.09ft
12,306.59	7,164.00	5,017.39	1,201.71	TD @ 12306.59ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N_S (ft)	+E-W (ft)	
User	No Target (Freehand)	0.16	Slot	0.00	0.00	0.00

Plan Report for PETTINGER 3N-18HZ - Plan A0 - PERMIT

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,306.59	Plan A0 - PERMIT	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,180.00	1,180.00	9 5/8"	9-5/8	13-1/2
7,656.09	7,194.00	7"	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,223.10	4,167.00	Parkman		0.00	
4,610.55	4,545.00	Sussex		0.00	
7,189.20	7,021.00	Sharon Springs		0.00	
7,230.30	7,049.00	Niobrara A		0.00	
7,480.33	7,169.00	Niobrara B Chalk		0.00	
7,656.09	7,194.00	Landing Target (Heel)		0.00	
12,306.58	7,164.00	Total Depth (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
PETTINGER 3N-18HZ_SHL	0.00	0.00	0.00	Point
PETTINGER 3N-18HZ_Sec	0.00	0.00	0.00	Polygon
PETTINGER 3N-18HZ_tgt	7,194.00	367.00	1,189.00	Point
PETTINGER 3N-18HZ_BHL	7,164.00	5,017.38	1,201.71	Point

North Reference Sheet for Sec. 18-T1N-R65W - PETTINGER 3N-18HZ - 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 = 17 @ 5024.00ft (Drilling Rig). Northing and Easting are relative to PETTINGER 3N-18HZ

Coordinate System is US State Plane 1983, Colorado Northern 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:40.783333°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99996327

Grid Coordinates of Well: 1,260,179.10 ft N, 3,220,543.38 ft E

Geographical Coordinates of Well: 40° 02' 41.61" N, 104° 42' 44.09" W

Grid Convergence at Surface is: 0.51°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,306.59ft
the Bottom Hole Displacement is 5,159.29ft in the Direction of 13.47° (True).

Magnetic Convergence at surface is: -8.04° (22 July 2013, , BGGM2013)

