

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 18-T3N-R67W

Sekich State 39N-17HZ

Plan A

Plan: Rev A0 Permit

## Sperry Drilling Services

### Proposal Report

04 December, 2013

Well Coordinates: 1,325,142.69 N, 3,156,259.75 E (40° 13' 28.42" N, 104° 56' 25.40" W)

Ground Level: 4,851.00 usft

Local Coordinate Origin:

Centered on Well Sekich State 39N-17HZ

Viewing Datum:

RKB = 17' @ 4868.00usft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
 Site: Sec. 18-T3N-R67W  
 Well: Sekich State 39N-17HZ  
 Wellbore: Plan A  
 Design: Rev A0 Permit

# Anadarko Petroleum Corp.

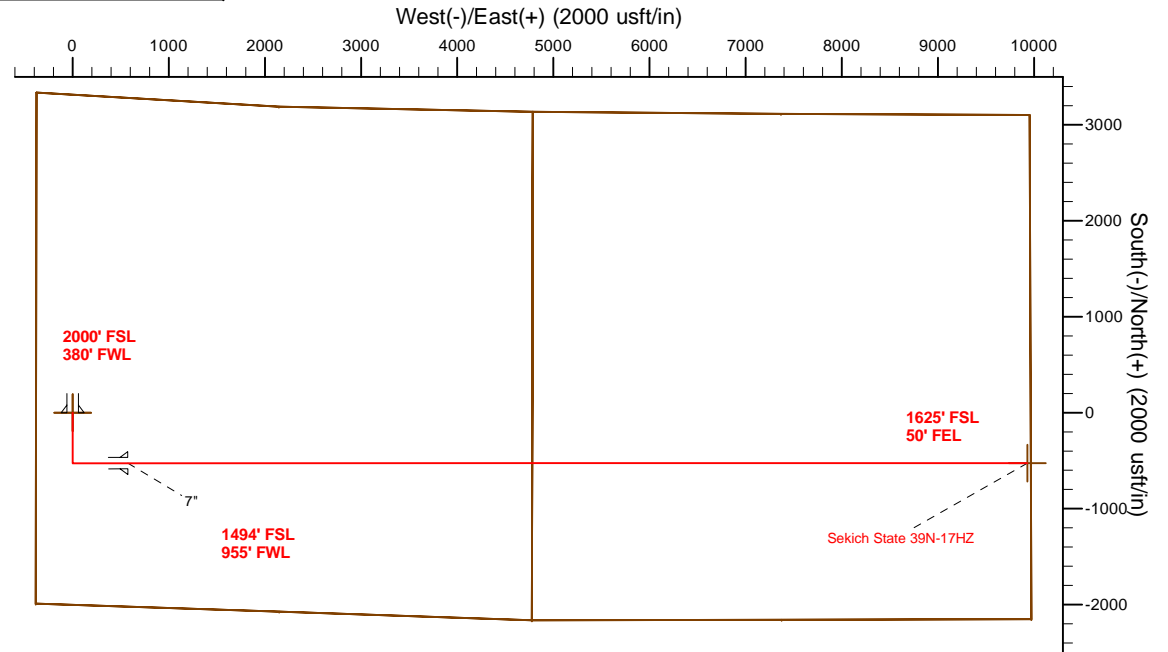
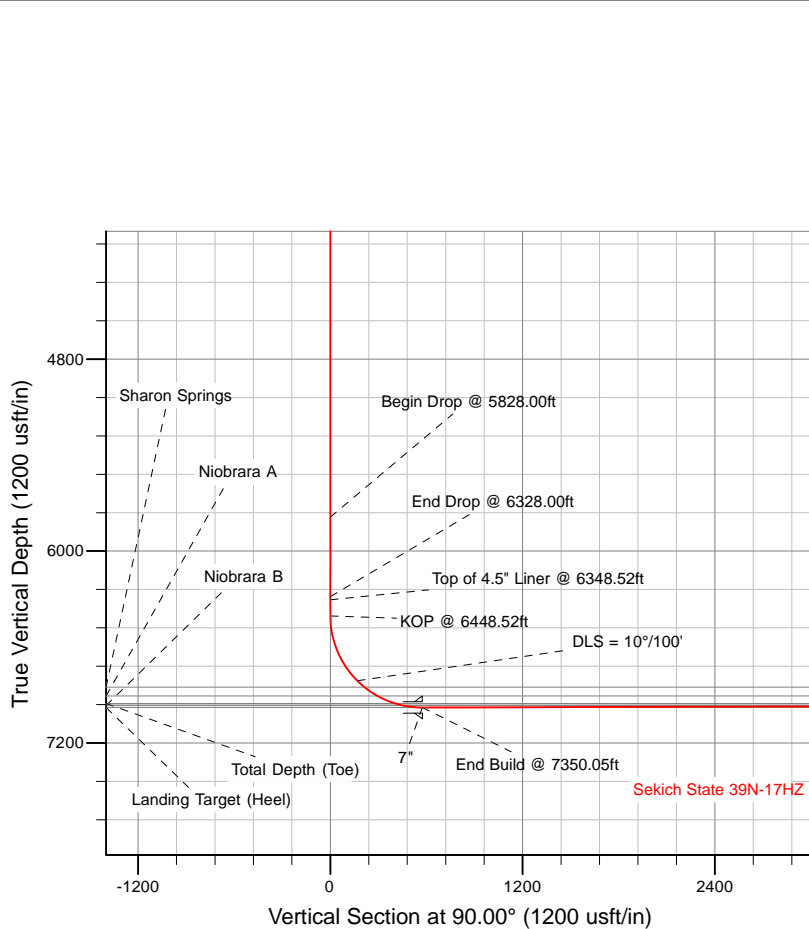


### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2800.00	0.00	0.00	2800.00	0.00	0.00	0.00	0.00	0.00	
3	3300.00	10.00	180.00	3297.47	-43.52	0.00	2.00	180.00	0.00	
4	5828.00	10.00	180.00	5787.06	-482.51	0.00	0.00	0.00	0.00	
5	6328.00	0.00	0.00	6284.52	-526.03	0.00	2.00	180.00	0.00	
6	6448.52	0.00	0.00	6405.04	-526.03	0.00	0.00	0.00	0.00	
7	7350.05	90.15	90.00	6978.00	-526.00	574.49	10.00	90.00	574.49	
8	16706.25	90.15	90.00	6953.00	-525.51	9930.65	0.00	0.00	9930.65	Sekich State 39N-17HZ_BHL

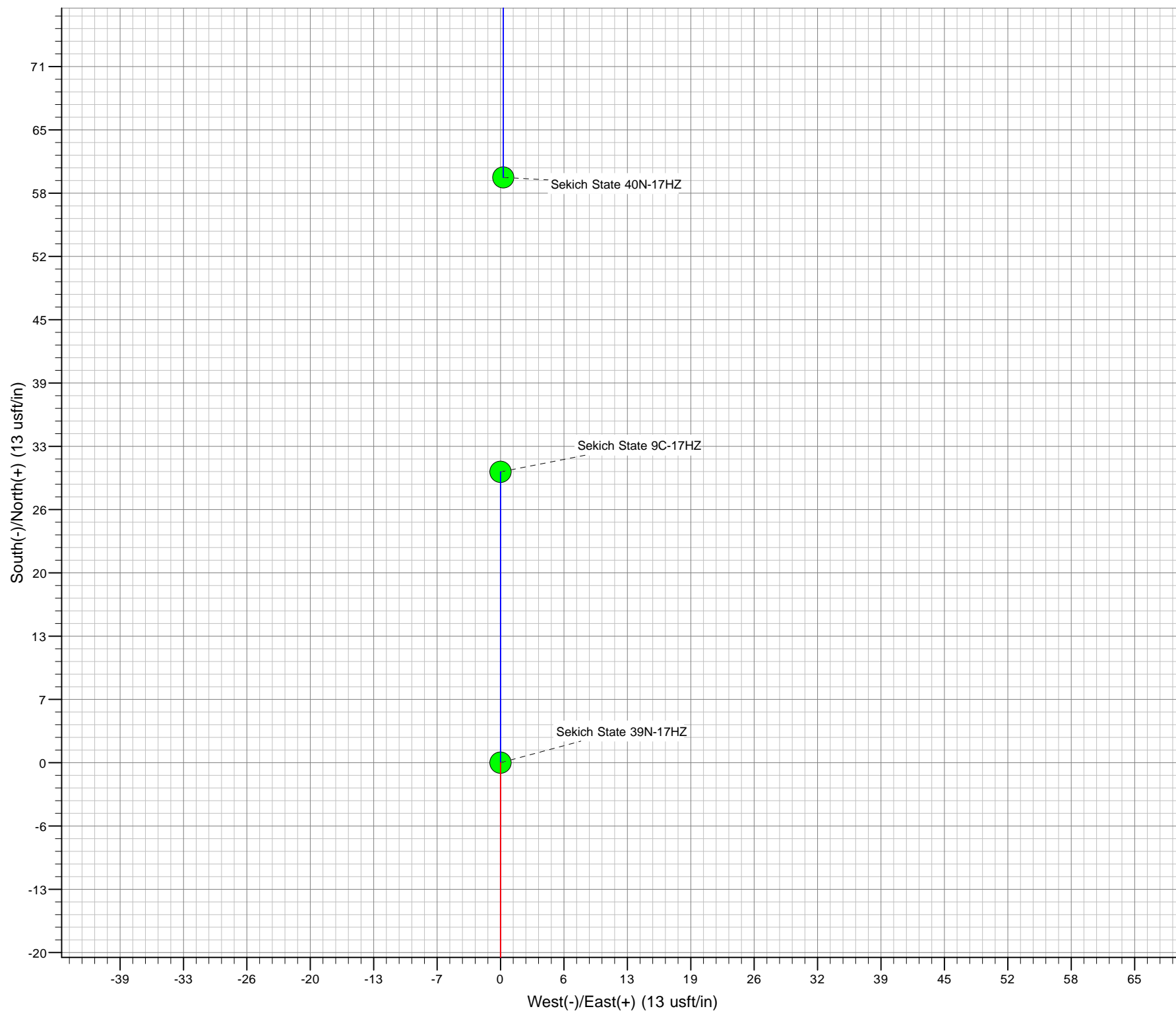
### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
Sekich State 39N-17HZ_SEC	0.00	0.00	0.00	40.224561	-104.940389	
Sekich State 39N-17HZ_SHL	0.00	0.00	0.00	40.224561	-104.940389	
Sekich State 39N-17HZ_BHL	6953.00	-525.51	9930.65	40.223113	-104.904827	



TVD	MD	Description
6305.04	6348.52	Top of 4.5" Liner @ 6348.52ft
6405.04	6448.52	KOP @ 6448.52ft

WELL DETAILS: Sekich State 39N-17HZ	
Ground Level:	4851.00
RKB = 17' @ 4868.00usft (Drilling Rig)	
Plan: Rev A0 Permit (Sekich State 39N-17HZ/Plan A)	
Created By: Clint Eshelman	Date: 12/4/2013
Reviewed: _____	Date: _____



**Plan Report for Sekich State 39N-17HZ - Rev A0 Permit**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Sekich State 39N-17HZ_SEC - Sekich State 39N-17HZ_SHL</b>										
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
995.00	0.00	0.00	995.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Marker</b>										
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,045.00	0.00	0.00	1,045.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
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
1,300.00	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
1,700.00	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
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
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
2,700.00	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
<b>Begin Nudge @ 2800.00ft</b>										
2,900.00	2.00	180.00	2,899.98	-1.75	0.00	0.00	2.00	2.00	0.00	180.00
3,000.00	4.00	180.00	2,999.84	-6.98	0.00	0.00	2.00	2.00	0.00	0.00
3,100.00	6.00	180.00	3,099.45	-15.69	0.00	0.00	2.00	2.00	0.00	0.00
3,200.00	8.00	180.00	3,198.70	-27.88	0.00	0.00	2.00	2.00	0.00	0.00
3,300.00	10.00	180.00	3,297.47	-43.52	0.00	0.00	2.00	2.00	0.00	0.00
<b>End Nudge @ 3300.00ft</b>										
3,400.00	10.00	180.00	3,395.95	-60.89	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	10.00	180.00	3,494.43	-78.25	0.00	0.00	0.00	0.00	0.00	0.00
3,549.32	10.00	180.00	3,543.00	-86.82	0.00	0.00	0.00	0.00	0.00	0.00
<b>Parkman</b>										
3,600.00	10.00	180.00	3,592.91	-95.62	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	10.00	180.00	3,691.39	-112.98	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	10.00	180.00	3,789.87	-130.35	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	10.00	180.00	3,888.35	-147.71	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	10.00	180.00	3,986.83	-165.08	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	10.00	180.00	4,085.31	-182.44	0.00	0.00	0.00	0.00	0.00	0.00
4,157.56	10.00	180.00	4,142.00	-192.44	0.00	0.00	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,200.00	10.00	180.00	4,183.79	-199.81	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	10.00	180.00	4,282.27	-217.17	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	10.00	180.00	4,380.75	-234.54	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	10.00	180.00	4,479.23	-251.90	0.00	0.00	0.00	0.00	0.00	0.00

**Plan Report for Sekich State 39N-17HZ - Rev A0 Permit**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Tooface Azimuth (°)
4,600.00	10.00	180.00	4,577.72	-269.27	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	10.00	180.00	4,676.20	-286.63	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	10.00	180.00	4,774.68	-303.99	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	10.00	180.00	4,873.16	-321.36	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	10.00	180.00	4,971.64	-338.72	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	10.00	180.00	5,070.12	-356.09	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	10.00	180.00	5,168.60	-373.45	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	10.00	180.00	5,267.08	-390.82	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	10.00	180.00	5,365.56	-408.18	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	10.00	180.00	5,464.04	-425.55	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	10.00	180.00	5,562.52	-442.91	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	10.00	180.00	5,661.00	-460.28	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	10.00	180.00	5,759.48	-477.64	0.00	0.00	0.00	0.00	0.00	0.00
5,828.00	10.00	180.00	5,787.06	-482.51	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Drop @ 5828.00ft</b>										
5,900.00	8.56	180.00	5,858.12	-494.12	0.00	0.00	2.00	-2.00	0.00	180.00
6,000.00	6.56	180.00	5,957.24	-507.27	0.00	0.00	2.00	-2.00	0.00	180.00
6,100.00	4.56	180.00	6,056.77	-516.96	0.00	0.00	2.00	-2.00	0.00	180.00
6,200.00	2.56	180.00	6,156.57	-523.17	0.00	0.00	2.00	-2.00	0.00	180.00
6,300.00	0.56	180.00	6,256.53	-525.89	0.00	0.00	2.00	-2.00	0.00	180.00
6,328.00	0.00	0.00	6,284.52	-526.03	0.00	0.00	2.00	-2.00	0.00	180.00
<b>End Drop @ 6328.00ft</b>										
6,348.52	0.00	0.00	6,305.04	-526.03	0.00	0.00	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6348.52ft</b>										
6,400.00	0.00	0.00	6,356.52	-526.03	0.00	0.00	0.00	0.00	0.00	0.00
6,448.52	0.00	0.00	6,405.04	-526.03	0.00	0.00	0.00	0.00	0.00	0.00
<b>KOP @ 6448.52ft</b>										
6,500.00	5.15	90.00	6,456.46	-526.03	2.31	2.31	10.00	10.00	0.00	90.00
6,600.00	15.15	90.00	6,554.77	-526.03	19.91	19.91	10.00	10.00	0.00	0.00
6,700.00	25.15	90.00	6,648.53	-526.02	54.31	54.31	10.00	10.00	0.00	0.00
6,800.00	35.15	90.00	6,734.89	-526.02	104.47	104.47	10.00	10.00	0.00	0.00
6,900.00	45.15	90.00	6,811.23	-526.02	168.86	168.86	10.00	10.00	0.00	0.00
<b>DLS = 10°/100'</b>										
6,958.02	50.95	90.00	6,850.00	-526.02	211.99	211.99	10.00	10.00	0.00	0.00
<b>Sharon Springs</b>										
7,000.00	55.15	90.00	6,875.23	-526.01	245.54	245.54	10.00	10.00	0.00	0.00
7,058.18	60.97	90.00	6,906.00	-526.01	294.88	294.88	10.00	10.00	0.00	0.00
<b>Niobrara A</b>										
7,100.00	65.15	90.00	6,924.94	-526.01	332.16	332.16	10.00	10.00	0.00	0.00
7,200.00	75.15	90.00	6,958.86	-526.01	426.10	426.10	10.00	10.00	0.00	0.00
7,231.04	78.25	90.00	6,966.00	-526.00	456.30	456.30	10.00	10.00	0.00	0.00
<b>Niobrara B</b>										
7,300.00	85.15	90.00	6,975.95	-526.00	524.50	524.50	10.00	10.00	0.00	0.00
7,350.05	90.15	90.00	6,978.00	-526.00	574.49	574.49	10.00	10.00	0.00	0.00
<b>End Build @ 7350.05ft - Landing Target (Heel) - 7"</b>										
7,400.00	90.15	90.00	6,977.87	-526.00	624.44	624.44	0.00	0.00	0.00	0.00
7,500.00	90.15	90.00	6,977.60	-525.99	724.44	724.44	0.00	0.00	0.00	0.00
7,600.00	90.15	90.00	6,977.33	-525.98	824.44	824.44	0.00	0.00	0.00	0.00
7,700.00	90.15	90.00	6,977.07	-525.98	924.44	924.44	0.00	0.00	0.00	0.00
7,800.00	90.15	90.00	6,976.80	-525.97	1,024.44	1,024.44	0.00	0.00	0.00	0.00
7,900.00	90.15	90.00	6,976.53	-525.97	1,124.44	1,124.44	0.00	0.00	0.00	0.00
8,000.00	90.15	90.00	6,976.26	-525.96	1,224.44	1,224.44	0.00	0.00	0.00	0.00
8,100.00	90.15	90.00	6,976.00	-525.96	1,324.44	1,324.44	0.00	0.00	0.00	0.00
8,200.00	90.15	90.00	6,975.73	-525.95	1,424.43	1,424.43	0.00	0.00	0.00	0.00
8,300.00	90.15	90.00	6,975.46	-525.95	1,524.43	1,524.43	0.00	0.00	0.00	0.00
8,400.00	90.15	90.00	6,975.19	-525.94	1,624.43	1,624.43	0.00	0.00	0.00	0.00
8,500.00	90.15	90.00	6,974.93	-525.94	1,724.43	1,724.43	0.00	0.00	0.00	0.00
8,600.00	90.15	90.00	6,974.66	-525.93	1,824.43	1,824.43	0.00	0.00	0.00	0.00
8,700.00	90.15	90.00	6,974.39	-525.93	1,924.43	1,924.43	0.00	0.00	0.00	0.00

**Plan Report for Sekich State 39N-17HZ - Rev A0 Permit**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
8,800.00	90.15	90.00	6,974.13	-525.92	2,024.43	2,024.43	0.00	0.00	0.00	0.00
8,900.00	90.15	90.00	6,973.86	-525.92	2,124.43	2,124.43	0.00	0.00	0.00	0.00
9,000.00	90.15	90.00	6,973.59	-525.91	2,224.43	2,224.43	0.00	0.00	0.00	0.00
9,100.00	90.15	90.00	6,973.32	-525.91	2,324.43	2,324.43	0.00	0.00	0.00	0.00
9,200.00	90.15	90.00	6,973.06	-525.90	2,424.43	2,424.43	0.00	0.00	0.00	0.00
9,300.00	90.15	90.00	6,972.79	-525.90	2,524.43	2,524.43	0.00	0.00	0.00	0.00
9,400.00	90.15	90.00	6,972.52	-525.89	2,624.43	2,624.43	0.00	0.00	0.00	0.00
9,500.00	90.15	90.00	6,972.26	-525.88	2,724.43	2,724.43	0.00	0.00	0.00	0.00
9,600.00	90.15	90.00	6,971.99	-525.88	2,824.43	2,824.43	0.00	0.00	0.00	0.00
9,700.00	90.15	90.00	6,971.72	-525.87	2,924.43	2,924.43	0.00	0.00	0.00	0.00
9,800.00	90.15	90.00	6,971.45	-525.87	3,024.43	3,024.43	0.00	0.00	0.00	0.00
9,900.00	90.15	90.00	6,971.19	-525.86	3,124.43	3,124.43	0.00	0.00	0.00	0.00
10,000.00	90.15	90.00	6,970.92	-525.86	3,224.43	3,224.43	0.00	0.00	0.00	0.00
10,100.00	90.15	90.00	6,970.65	-525.85	3,324.43	3,324.43	0.00	0.00	0.00	0.00
10,200.00	90.15	90.00	6,970.39	-525.85	3,424.43	3,424.43	0.00	0.00	0.00	0.00
10,300.00	90.15	90.00	6,970.12	-525.84	3,524.43	3,524.43	0.00	0.00	0.00	0.00
10,400.00	90.15	90.00	6,969.85	-525.84	3,624.43	3,624.43	0.00	0.00	0.00	0.00
10,500.00	90.15	90.00	6,969.58	-525.83	3,724.43	3,724.43	0.00	0.00	0.00	0.00
10,600.00	90.15	90.00	6,969.32	-525.83	3,824.43	3,824.43	0.00	0.00	0.00	0.00
10,700.00	90.15	90.00	6,969.05	-525.82	3,924.43	3,924.43	0.00	0.00	0.00	0.00
10,800.00	90.15	90.00	6,968.78	-525.82	4,024.43	4,024.43	0.00	0.00	0.00	0.00
10,900.00	90.15	90.00	6,968.51	-525.81	4,124.43	4,124.43	0.00	0.00	0.00	0.00
11,000.00	90.15	90.00	6,968.25	-525.81	4,224.42	4,224.42	0.00	0.00	0.00	0.00
11,100.00	90.15	90.00	6,967.98	-525.80	4,324.42	4,324.42	0.00	0.00	0.00	0.00
11,200.00	90.15	90.00	6,967.71	-525.80	4,424.42	4,424.42	0.00	0.00	0.00	0.00
11,300.00	90.15	90.00	6,967.45	-525.79	4,524.42	4,524.42	0.00	0.00	0.00	0.00
11,400.00	90.15	90.00	6,967.18	-525.79	4,624.42	4,624.42	0.00	0.00	0.00	0.00
11,500.00	90.15	90.00	6,966.91	-525.78	4,724.42	4,724.42	0.00	0.00	0.00	0.00
11,600.00	90.15	90.00	6,966.64	-525.77	4,824.42	4,824.42	0.00	0.00	0.00	0.00
11,700.00	90.15	90.00	6,966.38	-525.77	4,924.42	4,924.42	0.00	0.00	0.00	0.00
11,800.00	90.15	90.00	6,966.11	-525.76	5,024.42	5,024.42	0.00	0.00	0.00	0.00
11,900.00	90.15	90.00	6,965.84	-525.76	5,124.42	5,124.42	0.00	0.00	0.00	0.00
12,000.00	90.15	90.00	6,965.58	-525.75	5,224.42	5,224.42	0.00	0.00	0.00	0.00
12,100.00	90.15	90.00	6,965.31	-525.75	5,324.42	5,324.42	0.00	0.00	0.00	0.00
12,200.00	90.15	90.00	6,965.04	-525.74	5,424.42	5,424.42	0.00	0.00	0.00	0.00
12,300.00	90.15	90.00	6,964.77	-525.74	5,524.42	5,524.42	0.00	0.00	0.00	0.00
12,400.00	90.15	90.00	6,964.51	-525.73	5,624.42	5,624.42	0.00	0.00	0.00	0.00
12,500.00	90.15	90.00	6,964.24	-525.73	5,724.42	5,724.42	0.00	0.00	0.00	0.00
12,600.00	90.15	90.00	6,963.97	-525.72	5,824.42	5,824.42	0.00	0.00	0.00	0.00
12,700.00	90.15	90.00	6,963.71	-525.72	5,924.42	5,924.42	0.00	0.00	0.00	0.00
12,800.00	90.15	90.00	6,963.44	-525.71	6,024.42	6,024.42	0.00	0.00	0.00	0.00
12,900.00	90.15	90.00	6,963.17	-525.71	6,124.42	6,124.42	0.00	0.00	0.00	0.00
13,000.00	90.15	90.00	6,962.90	-525.70	6,224.42	6,224.42	0.00	0.00	0.00	0.00
13,100.00	90.15	90.00	6,962.64	-525.70	6,324.42	6,324.42	0.00	0.00	0.00	0.00
13,200.00	90.15	90.00	6,962.37	-525.69	6,424.42	6,424.42	0.00	0.00	0.00	0.00
13,300.00	90.15	90.00	6,962.10	-525.69	6,524.42	6,524.42	0.00	0.00	0.00	0.00
13,400.00	90.15	90.00	6,961.83	-525.68	6,624.42	6,624.42	0.00	0.00	0.00	0.00
13,500.00	90.15	90.00	6,961.57	-525.68	6,724.42	6,724.42	0.00	0.00	0.00	0.00
13,600.00	90.15	90.00	6,961.30	-525.67	6,824.42	6,824.42	0.00	0.00	0.00	0.00
13,700.00	90.15	90.00	6,961.03	-525.66	6,924.42	6,924.42	0.00	0.00	0.00	0.00
13,800.00	90.15	90.00	6,960.77	-525.66	7,024.41	7,024.41	0.00	0.00	0.00	0.00
13,900.00	90.15	90.00	6,960.50	-525.65	7,124.41	7,124.41	0.00	0.00	0.00	0.00
14,000.00	90.15	90.00	6,960.23	-525.65	7,224.41	7,224.41	0.00	0.00	0.00	0.00
14,100.00	90.15	90.00	6,959.96	-525.64	7,324.41	7,324.41	0.00	0.00	0.00	0.00
14,200.00	90.15	90.00	6,959.70	-525.64	7,424.41	7,424.41	0.00	0.00	0.00	0.00
14,300.00	90.15	90.00	6,959.43	-525.63	7,524.41	7,524.41	0.00	0.00	0.00	0.00
14,400.00	90.15	90.00	6,959.16	-525.63	7,624.41	7,624.41	0.00	0.00	0.00	0.00
14,500.00	90.15	90.00	6,958.90	-525.62	7,724.41	7,724.41	0.00	0.00	0.00	0.00
14,600.00	90.15	90.00	6,958.63	-525.62	7,824.41	7,824.41	0.00	0.00	0.00	0.00
14,700.00	90.15	90.00	6,958.36	-525.61	7,924.41	7,924.41	0.00	0.00	0.00	0.00



Plan Report for Sekich State 39N-17HZ - Rev A0 Permit

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Tooface Azimuth (°)
14,800.00	90.15	90.00	6,958.09	-525.61	8,024.41	8,024.41	0.00	0.00	0.00	0.00
14,900.00	90.15	90.00	6,957.83	-525.60	8,124.41	8,124.41	0.00	0.00	0.00	0.00
15,000.00	90.15	90.00	6,957.56	-525.60	8,224.41	8,224.41	0.00	0.00	0.00	0.00
15,100.00	90.15	90.00	6,957.29	-525.59	8,324.41	8,324.41	0.00	0.00	0.00	0.00
15,200.00	90.15	90.00	6,957.02	-525.59	8,424.41	8,424.41	0.00	0.00	0.00	0.00
15,300.00	90.15	90.00	6,956.76	-525.58	8,524.41	8,524.41	0.00	0.00	0.00	0.00
15,400.00	90.15	90.00	6,956.49	-525.58	8,624.41	8,624.41	0.00	0.00	0.00	0.00
15,500.00	90.15	90.00	6,956.22	-525.57	8,724.41	8,724.41	0.00	0.00	0.00	0.00
15,600.00	90.15	90.00	6,955.96	-525.57	8,824.41	8,824.41	0.00	0.00	0.00	0.00
15,700.00	90.15	90.00	6,955.69	-525.56	8,924.41	8,924.41	0.00	0.00	0.00	0.00
15,800.00	90.15	90.00	6,955.42	-525.55	9,024.41	9,024.41	0.00	0.00	0.00	0.00
15,900.00	90.15	90.00	6,955.15	-525.55	9,124.41	9,124.41	0.00	0.00	0.00	0.00
16,000.00	90.15	90.00	6,954.89	-525.54	9,224.41	9,224.41	0.00	0.00	0.00	0.00
16,100.00	90.15	90.00	6,954.62	-525.54	9,324.41	9,324.41	0.00	0.00	0.00	0.00
16,200.00	90.15	90.00	6,954.35	-525.53	9,424.41	9,424.41	0.00	0.00	0.00	0.00
16,300.00	90.15	90.00	6,954.09	-525.53	9,524.41	9,524.41	0.00	0.00	0.00	0.00
16,400.00	90.15	90.00	6,953.82	-525.52	9,624.41	9,624.41	0.00	0.00	0.00	0.00
16,500.00	90.15	90.00	6,953.55	-525.52	9,724.41	9,724.41	0.00	0.00	0.00	0.00
16,600.00	90.15	90.00	6,953.28	-525.51	9,824.40	9,824.40	0.00	0.00	0.00	0.00
16,700.00	90.15	90.00	6,953.02	-525.51	9,924.40	9,924.40	0.00	0.00	0.00	0.00
16,706.25	90.15	90.00	6,953.00	-525.51	9,930.65	9,930.65	0.00	0.00	0.00	0.00

TD Well @ 16706.25ft - Total Depth (Toe) - Sekich State 39N-17HZ\_BHL

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
2,800.00	2,800.00	0.00	0.00	Begin Nudge @ 2800.00ft
3,300.00	3,297.47	-43.52	0.00	End Nudge @ 3300.00ft
5,828.00	5,787.06	-482.51	0.00	Begin Drop @ 5828.00ft
6,328.00	6,284.52	-526.03	0.00	End Drop @ 6328.00ft
6,348.52	6,305.04	-526.03	0.00	Top of 4.5" Liner @ 6348.52ft
6,448.52	6,405.04	-526.03	0.00	KOP @ 6448.52ft
6,900.00	6,811.23	-526.02	168.86	DLS = 10°/100'
7,350.05	6,978.00	-526.00	574.49	End Build @ 7350.05ft
16,706.25	6,953.00	-525.51	9,930.65	TD Well @ 16706.25ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	+E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	90.00	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,350.05	Rev A0 Permit	MWD
7,350.05	16,706.25	Rev A0 Permit	MWD

**Plan Report for Sekich State 39N-17HZ - Rev A0 Permit****Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,045.00	1,045.00	9 5/8"	9-5/8	13-1/2
7,350.05	6,978.00	7"	7	8-3/4

**Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
995.00	995.00	Fox Hills Marker		0.00	
3,549.32	3,543.00	Parkman		0.00	
4,157.56	4,142.00	Sussex		0.00	
6,958.02	6,850.00	Sharon Springs		0.00	
7,058.18	6,906.00	Niobrara A		0.00	
7,231.04	6,966.00	Niobrara B		0.00	
7,350.05	6,978.00	Landing Target (Heel)		0.00	
16,706.25	6,953.00	Total Depth (Toe)		0.00	

**Targets associated with this wellbore**

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Sekich State 39N-17HZ_SEC	0.00	0.00	0.00	Polygon
Sekich State 39N-17HZ_SHL	0.00	0.00	0.00	Point
Sekich State 39N-17HZ_BHL	6,953.00	-525.51	9,930.65	Point

**Directional Difficulty Index**

Average Dogleg over Survey:	0.66 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,350.05 usft
Net Tortosity applicable to Plans:	0.66 °/100usft	Directional Difficulty Index:	6.664

**Audit Info**

**North Reference Sheet for Sec. 18-T3N-R67W - Sekich State 39N-17HZ - Plan A**

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' @ 4868.00usft (Drilling Rig). Northing and Easting are relative to Sekich State 39N-17HZ

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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99995695

Grid Coordinates of Well: 1,325,142.69 usft N, 3,156,259.75 usft E

Geographical Coordinates of Well: 40° 13' 28.42" N, 104° 56' 25.40" W

Grid Convergence at Surface is: 0.36°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,706.25usft the Bottom Hole Displacement is 9,944.55usft in the Direction of 93.03° ( True).

Magnetic Convergence at surface is: -8.29° ( 4 December 2013, , BGGM2013)

Magnetic Model: BGGM2013  
 Date: 04-Dec-13  
 Declination: 8.65°  
 Inclination/Dip: 66.78°  
 Field Strength: 52686

Grid North is 0.36° East of True North (Grid Convergence)  
 Magnetic North is 8.65° East of True North (Magnetic Declination)  
 Magnetic North is 8.29° East of Grid North (Magnetic Convergence)

To convert a True Direction to a Grid Direction, Subtract 0.36°  
 To convert a Magnetic Direction to a True Direction, Add 8.65° East  
 To convert a Magnetic Direction to a Grid Direction, Add 8.29°