

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 18-T3N-R67W

Sekich State 9C-17HZ

Plan A

Plan: Rev A0 Permit

Sperry Drilling Services

Proposal Report

04 December, 2013

Well Coordinates: 1,325,172.57 N, 3,156,259.56 E (40° 13' 28.71" N, 104° 56' 25.40" W)

Ground Level: 4,850.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Sekich State 9C-17HZ

RKB = 17' @ 4867.00usft (Drilling Rig)

N

True

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 18-T3N-R67W
Well: Sekich State 9C-17HZ
Wellbore: Plan A
Design: Rev A0 Permit

Anadarko Petroleum Corp.

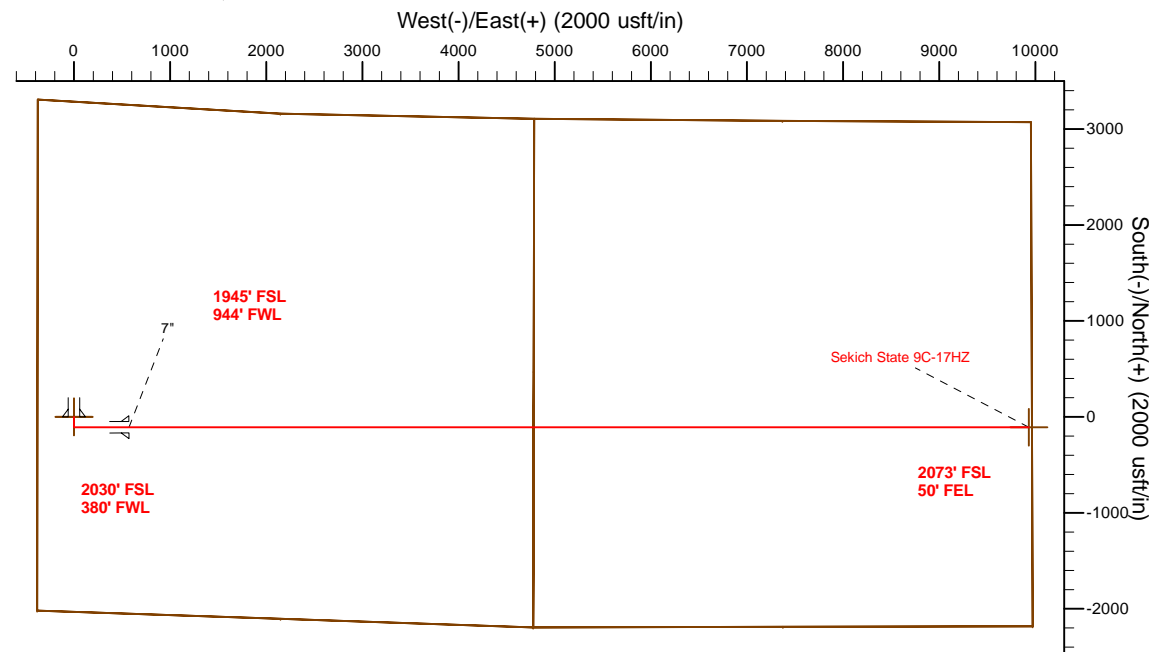
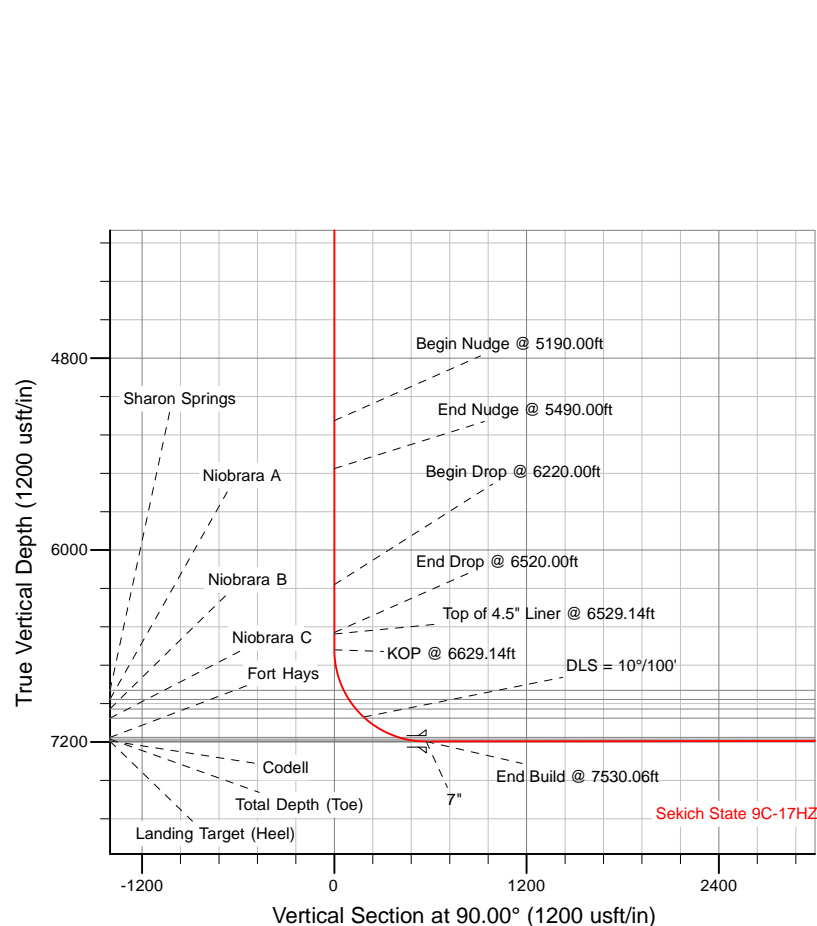
HALLIBURTON
Sperry Drilling

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	5190.00	0.00	0.00	5190.00	0.00	0.00	0.00	0.00	0.00	
3	5490.00	6.00	180.00	5489.45	-15.69	0.00	2.00	180.00	0.00	
4	6220.00	6.00	180.00	6215.45	-92.00	0.00	0.00	0.00	0.00	
5	6520.00	0.00	0.00	6514.90	-107.69	0.00	2.00	180.00	0.00	
6	6629.14	0.00	0.00	6624.04	-107.69	0.00	0.00	0.00	0.00	
7	7530.06	90.09	90.00	7197.00	-107.67	573.88	10.00	90.00	573.88	
8	16888.62	90.09	90.00	7182.00	-107.29	9932.43	0.00	0.00	9932.43	Sekich State 9C-17HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
Sekich State 9C-17HZ_SEC	0.00	0.00	0.00	40.224643	-104.940389	
Sekich State 9C-17HZ_SHL	0.00	0.00	0.00	40.224643	-104.940389	
Sekich State 9C-17HZ_BHL	7182.00	-107.29	9932.43	40.224343	-104.904820	



TVD MD

6524.04 6529.14 Top of 4.5" Liner @ 6529.14ft
6624.04 6629.14 KOP @ 6629.14ft

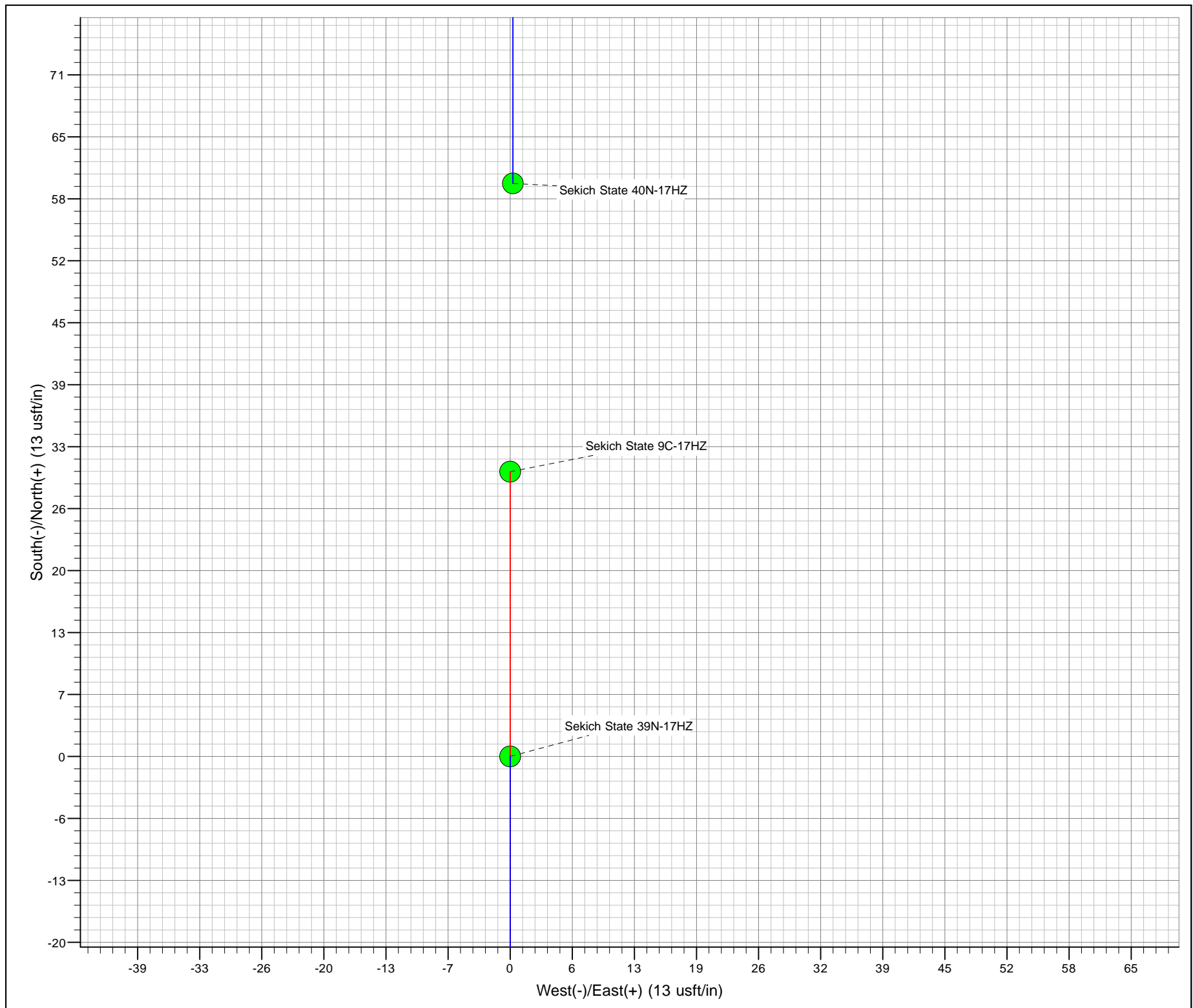
WELL DETAILS: Sekich State 9C-17HZ

Ground Level: 4850.00

RKB = 17' @ 4867.00usft (Drilling Rig)

Plan: Rev A0 Permit (Sekich State 9C-17HZ/Plan A)

Created By: Clint Eshelman Date: 12/4/2013
Reviewed: _____ Date: _____



Plan Report for Sekich State 9C-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
Sekich State 9C-17HZ_SEC - Sekich State 9C-17HZ_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
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
994.00	0.00	0.00	994.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Marker										
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,044.00	0.00	0.00	1,044.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
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
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
3,300.00	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
3,570.00	0.00	0.00	3,570.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parkman										
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
3,800.00	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
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
4,169.00	0.00	0.00	4,169.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sussex										
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
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Plan Report for Sekich State 9C-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 (°)
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,190.00	0.00	0.00	5,190.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 5190.00ft										
5,200.00	0.20	180.00	5,200.00	-0.02	0.00	0.00	2.00	2.00	0.00	180.00
5,300.00	2.20	180.00	5,299.97	-2.11	0.00	0.00	2.00	2.00	0.00	0.00
5,400.00	4.20	180.00	5,399.81	-7.69	0.00	0.00	2.00	2.00	0.00	0.00
5,490.00	6.00	180.00	5,489.45	-15.69	0.00	0.00	2.00	2.00	0.00	0.00
End Nudge @ 5490.00ft										
5,500.00	6.00	180.00	5,499.40	-16.74	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	6.00	180.00	5,598.85	-27.19	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	6.00	180.00	5,698.30	-37.64	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	6.00	180.00	5,797.75	-48.10	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	6.00	180.00	5,897.21	-58.55	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	6.00	180.00	5,996.66	-69.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	6.00	180.00	6,096.11	-79.46	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	6.00	180.00	6,195.56	-89.91	0.00	0.00	0.00	0.00	0.00	0.00
6,220.00	6.00	180.00	6,215.45	-92.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Drop @ 6220.00ft										
6,300.00	4.40	180.00	6,295.12	-99.25	0.00	0.00	2.00	-2.00	0.00	180.00
6,400.00	2.40	180.00	6,394.94	-105.18	0.00	0.00	2.00	-2.00	0.00	180.00
6,500.00	0.40	180.00	6,494.91	-107.62	0.00	0.00	2.00	-2.00	0.00	180.00
6,520.00	0.00	0.00	6,514.90	-107.69	0.00	0.00	2.00	-2.00	0.00	180.00
End Drop @ 6520.00ft										
6,529.14	0.00	0.00	6,524.04	-107.69	0.00	0.00	0.00	0.00	0.00	0.00
Top of 4.5" Liner @ 6529.14ft										
6,600.00	0.00	0.00	6,594.90	-107.69	0.00	0.00	0.00	0.00	0.00	0.00
6,629.14	0.00	0.00	6,624.04	-107.69	0.00	0.00	0.00	0.00	0.00	0.00
KOP @ 6629.14ft										
6,700.00	7.09	90.00	6,694.72	-107.69	4.38	4.38	10.00	10.00	0.00	90.00
6,800.00	17.09	90.00	6,792.38	-107.69	25.29	25.29	10.00	10.00	0.00	0.00
6,891.13	26.20	90.00	6,877.00	-107.69	58.86	58.86	10.00	10.00	0.00	0.00
Sharon Springs										
6,900.00	27.09	90.00	6,884.93	-107.69	62.84	62.84	10.00	10.00	0.00	0.00
6,955.45	32.63	90.00	6,933.00	-107.69	90.44	90.44	10.00	10.00	0.00	0.00
Niobrara A										
7,000.00	37.09	90.00	6,969.55	-107.69	115.89	115.89	10.00	10.00	0.00	0.00
7,030.01	40.09	90.00	6,993.00	-107.69	134.61	134.61	10.00	10.00	0.00	0.00
Niobrara B										
7,100.00	47.09	90.00	7,043.67	-107.69	182.83	182.83	10.00	10.00	0.00	0.00
DLS = 10°/100'										
7,110.88	48.17	90.00	7,051.00	-107.69	190.87	190.87	10.00	10.00	0.00	0.00
Niobrara C										
7,200.00	57.09	90.00	7,105.04	-107.68	261.62	261.62	10.00	10.00	0.00	0.00
7,300.00	67.09	90.00	7,151.79	-107.68	349.88	349.88	10.00	10.00	0.00	0.00
7,355.86	72.67	90.00	7,171.00	-107.68	402.31	402.31	10.00	10.00	0.00	0.00
Fort Hays										
7,400.00	77.09	90.00	7,182.51	-107.68	444.91	444.91	10.00	10.00	0.00	0.00
7,453.37	82.42	90.00	7,192.00	-107.67	497.41	497.41	10.00	10.00	0.00	0.00
Codell										
7,500.00	87.09	90.00	7,196.26	-107.67	543.83	543.83	10.00	10.00	0.00	0.00
7,530.06	90.09	90.00	7,197.00	-107.67	573.88	573.88	10.00	10.00	0.00	0.00
End Build @ 7530.06ft - Landing Target (Heel) - 7"										
7,600.00	90.09	90.00	7,196.89	-107.67	643.82	643.82	0.00	0.00	0.00	0.00
7,700.00	90.09	90.00	7,196.73	-107.66	743.82	743.82	0.00	0.00	0.00	0.00
7,800.00	90.09	90.00	7,196.57	-107.66	843.82	843.82	0.00	0.00	0.00	0.00
7,900.00	90.09	90.00	7,196.41	-107.66	943.82	943.82	0.00	0.00	0.00	0.00

Plan Report for Sekich State 9C-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 (°)
8,000.00	90.09	90.00	7,196.25	-107.65	1,043.82	1,043.82	0.00	0.00	0.00	0.00
8,100.00	90.09	90.00	7,196.09	-107.65	1,143.82	1,143.82	0.00	0.00	0.00	0.00
8,200.00	90.09	90.00	7,195.93	-107.64	1,243.82	1,243.82	0.00	0.00	0.00	0.00
8,300.00	90.09	90.00	7,195.77	-107.64	1,343.82	1,343.82	0.00	0.00	0.00	0.00
8,400.00	90.09	90.00	7,195.61	-107.63	1,443.82	1,443.82	0.00	0.00	0.00	0.00
8,500.00	90.09	90.00	7,195.45	-107.63	1,543.82	1,543.82	0.00	0.00	0.00	0.00
8,600.00	90.09	90.00	7,195.29	-107.63	1,643.82	1,643.82	0.00	0.00	0.00	0.00
8,700.00	90.09	90.00	7,195.13	-107.62	1,743.82	1,743.82	0.00	0.00	0.00	0.00
8,800.00	90.09	90.00	7,194.97	-107.62	1,843.82	1,843.82	0.00	0.00	0.00	0.00
8,900.00	90.09	90.00	7,194.81	-107.61	1,943.82	1,943.82	0.00	0.00	0.00	0.00
9,000.00	90.09	90.00	7,194.65	-107.61	2,043.82	2,043.82	0.00	0.00	0.00	0.00
9,100.00	90.09	90.00	7,194.49	-107.61	2,143.82	2,143.82	0.00	0.00	0.00	0.00
9,200.00	90.09	90.00	7,194.33	-107.60	2,243.82	2,243.82	0.00	0.00	0.00	0.00
9,300.00	90.09	90.00	7,194.16	-107.60	2,343.82	2,343.82	0.00	0.00	0.00	0.00
9,400.00	90.09	90.00	7,194.00	-107.59	2,443.82	2,443.82	0.00	0.00	0.00	0.00
9,500.00	90.09	90.00	7,193.84	-107.59	2,543.82	2,543.82	0.00	0.00	0.00	0.00
9,600.00	90.09	90.00	7,193.68	-107.59	2,643.82	2,643.82	0.00	0.00	0.00	0.00
9,700.00	90.09	90.00	7,193.52	-107.58	2,743.82	2,743.82	0.00	0.00	0.00	0.00
9,800.00	90.09	90.00	7,193.36	-107.58	2,843.81	2,843.81	0.00	0.00	0.00	0.00
9,900.00	90.09	90.00	7,193.20	-107.57	2,943.81	2,943.81	0.00	0.00	0.00	0.00
10,000.00	90.09	90.00	7,193.04	-107.57	3,043.81	3,043.81	0.00	0.00	0.00	0.00
10,100.00	90.09	90.00	7,192.88	-107.57	3,143.81	3,143.81	0.00	0.00	0.00	0.00
10,200.00	90.09	90.00	7,192.72	-107.56	3,243.81	3,243.81	0.00	0.00	0.00	0.00
10,300.00	90.09	90.00	7,192.56	-107.56	3,343.81	3,343.81	0.00	0.00	0.00	0.00
10,400.00	90.09	90.00	7,192.40	-107.55	3,443.81	3,443.81	0.00	0.00	0.00	0.00
10,500.00	90.09	90.00	7,192.24	-107.55	3,543.81	3,543.81	0.00	0.00	0.00	0.00
10,600.00	90.09	90.00	7,192.08	-107.55	3,643.81	3,643.81	0.00	0.00	0.00	0.00
10,700.00	90.09	90.00	7,191.92	-107.54	3,743.81	3,743.81	0.00	0.00	0.00	0.00
10,800.00	90.09	90.00	7,191.76	-107.54	3,843.81	3,843.81	0.00	0.00	0.00	0.00
10,900.00	90.09	90.00	7,191.60	-107.53	3,943.81	3,943.81	0.00	0.00	0.00	0.00
11,000.00	90.09	90.00	7,191.44	-107.53	4,043.81	4,043.81	0.00	0.00	0.00	0.00
11,100.00	90.09	90.00	7,191.28	-107.53	4,143.81	4,143.81	0.00	0.00	0.00	0.00
11,200.00	90.09	90.00	7,191.12	-107.52	4,243.81	4,243.81	0.00	0.00	0.00	0.00
11,300.00	90.09	90.00	7,190.96	-107.52	4,343.81	4,343.81	0.00	0.00	0.00	0.00
11,400.00	90.09	90.00	7,190.80	-107.51	4,443.81	4,443.81	0.00	0.00	0.00	0.00
11,500.00	90.09	90.00	7,190.64	-107.51	4,543.81	4,543.81	0.00	0.00	0.00	0.00
11,600.00	90.09	90.00	7,190.48	-107.51	4,643.81	4,643.81	0.00	0.00	0.00	0.00
11,700.00	90.09	90.00	7,190.32	-107.50	4,743.81	4,743.81	0.00	0.00	0.00	0.00
11,800.00	90.09	90.00	7,190.16	-107.50	4,843.81	4,843.81	0.00	0.00	0.00	0.00
11,900.00	90.09	90.00	7,190.00	-107.49	4,943.81	4,943.81	0.00	0.00	0.00	0.00
12,000.00	90.09	90.00	7,189.84	-107.49	5,043.81	5,043.81	0.00	0.00	0.00	0.00
12,100.00	90.09	90.00	7,189.68	-107.49	5,143.81	5,143.81	0.00	0.00	0.00	0.00
12,200.00	90.09	90.00	7,189.52	-107.48	5,243.81	5,243.81	0.00	0.00	0.00	0.00
12,300.00	90.09	90.00	7,189.36	-107.48	5,343.81	5,343.81	0.00	0.00	0.00	0.00
12,400.00	90.09	90.00	7,189.20	-107.47	5,443.81	5,443.81	0.00	0.00	0.00	0.00
12,500.00	90.09	90.00	7,189.04	-107.47	5,543.81	5,543.81	0.00	0.00	0.00	0.00
12,600.00	90.09	90.00	7,188.87	-107.47	5,643.81	5,643.81	0.00	0.00	0.00	0.00
12,700.00	90.09	90.00	7,188.71	-107.46	5,743.81	5,743.81	0.00	0.00	0.00	0.00
12,800.00	90.09	90.00	7,188.55	-107.46	5,843.81	5,843.81	0.00	0.00	0.00	0.00
12,900.00	90.09	90.00	7,188.39	-107.45	5,943.81	5,943.81	0.00	0.00	0.00	0.00
13,000.00	90.09	90.00	7,188.23	-107.45	6,043.81	6,043.81	0.00	0.00	0.00	0.00
13,100.00	90.09	90.00	7,188.07	-107.45	6,143.81	6,143.81	0.00	0.00	0.00	0.00
13,200.00	90.09	90.00	7,187.91	-107.44	6,243.81	6,243.81	0.00	0.00	0.00	0.00
13,300.00	90.09	90.00	7,187.75	-107.44	6,343.81	6,343.81	0.00	0.00	0.00	0.00
13,400.00	90.09	90.00	7,187.59	-107.43	6,443.81	6,443.81	0.00	0.00	0.00	0.00
13,500.00	90.09	90.00	7,187.43	-107.43	6,543.81	6,543.81	0.00	0.00	0.00	0.00
13,600.00	90.09	90.00	7,187.27	-107.43	6,643.81	6,643.81	0.00	0.00	0.00	0.00
13,700.00	90.09	90.00	7,187.11	-107.42	6,743.81	6,743.81	0.00	0.00	0.00	0.00
13,800.00	90.09	90.00	7,186.95	-107.42	6,843.81	6,843.81	0.00	0.00	0.00	0.00
13,900.00	90.09	90.00	7,186.79	-107.41	6,943.81	6,943.81	0.00	0.00	0.00	0.00

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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 (°)
14,000.00	90.09	90.00	7,186.63	-107.41	7,043.81	7,043.81	0.00	0.00	0.00	0.00
14,100.00	90.09	90.00	7,186.47	-107.41	7,143.81	7,143.81	0.00	0.00	0.00	0.00
14,200.00	90.09	90.00	7,186.31	-107.40	7,243.81	7,243.81	0.00	0.00	0.00	0.00
14,300.00	90.09	90.00	7,186.15	-107.40	7,343.81	7,343.81	0.00	0.00	0.00	0.00
14,400.00	90.09	90.00	7,185.99	-107.39	7,443.81	7,443.81	0.00	0.00	0.00	0.00
14,500.00	90.09	90.00	7,185.83	-107.39	7,543.81	7,543.81	0.00	0.00	0.00	0.00
14,600.00	90.09	90.00	7,185.67	-107.39	7,643.81	7,643.81	0.00	0.00	0.00	0.00
14,700.00	90.09	90.00	7,185.51	-107.38	7,743.81	7,743.81	0.00	0.00	0.00	0.00
14,800.00	90.09	90.00	7,185.35	-107.38	7,843.81	7,843.81	0.00	0.00	0.00	0.00
14,900.00	90.09	90.00	7,185.19	-107.37	7,943.81	7,943.81	0.00	0.00	0.00	0.00
15,000.00	90.09	90.00	7,185.03	-107.37	8,043.81	8,043.81	0.00	0.00	0.00	0.00
15,100.00	90.09	90.00	7,184.87	-107.37	8,143.81	8,143.81	0.00	0.00	0.00	0.00
15,200.00	90.09	90.00	7,184.71	-107.36	8,243.81	8,243.81	0.00	0.00	0.00	0.00
15,300.00	90.09	90.00	7,184.55	-107.36	8,343.81	8,343.81	0.00	0.00	0.00	0.00
15,400.00	90.09	90.00	7,184.39	-107.35	8,443.81	8,443.81	0.00	0.00	0.00	0.00
15,500.00	90.09	90.00	7,184.23	-107.35	8,543.81	8,543.81	0.00	0.00	0.00	0.00
15,600.00	90.09	90.00	7,184.07	-107.35	8,643.81	8,643.81	0.00	0.00	0.00	0.00
15,700.00	90.09	90.00	7,183.91	-107.34	8,743.81	8,743.81	0.00	0.00	0.00	0.00
15,800.00	90.09	90.00	7,183.75	-107.34	8,843.81	8,843.81	0.00	0.00	0.00	0.00
15,900.00	90.09	90.00	7,183.58	-107.33	8,943.81	8,943.81	0.00	0.00	0.00	0.00
16,000.00	90.09	90.00	7,183.42	-107.33	9,043.81	9,043.81	0.00	0.00	0.00	0.00
16,100.00	90.09	90.00	7,183.26	-107.33	9,143.81	9,143.81	0.00	0.00	0.00	0.00
16,200.00	90.09	90.00	7,183.10	-107.32	9,243.81	9,243.81	0.00	0.00	0.00	0.00
16,300.00	90.09	90.00	7,182.94	-107.32	9,343.81	9,343.81	0.00	0.00	0.00	0.00
16,400.00	90.09	90.00	7,182.78	-107.31	9,443.81	9,443.81	0.00	0.00	0.00	0.00
16,500.00	90.09	90.00	7,182.62	-107.31	9,543.81	9,543.81	0.00	0.00	0.00	0.00
16,600.00	90.09	90.00	7,182.46	-107.31	9,643.81	9,643.81	0.00	0.00	0.00	0.00
16,700.00	90.09	90.00	7,182.30	-107.30	9,743.81	9,743.81	0.00	0.00	0.00	0.00
16,800.00	90.09	90.00	7,182.14	-107.30	9,843.81	9,843.81	0.00	0.00	0.00	0.00
16,888.62	90.09	90.00	7,182.00	-107.29	9,932.43	9,932.43	0.00	0.00	0.00	0.00

TD Well @ 16888.62ft - Total Depth (Toe) - Sekich State 9C-17HZ_BHL

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
5,190.00	5,190.00	0.00	0.00	Begin Nudge @ 5190.00ft
5,490.00	5,489.45	-15.69	0.00	End Nudge @ 5490.00ft
6,220.00	6,215.45	-92.00	0.00	Begin Drop @ 6220.00ft
6,520.00	6,514.90	-107.69	0.00	End Drop @ 6520.00ft
6,529.14	6,524.04	-107.69	0.00	Top of 4.5" Liner @ 6529.14ft
6,629.14	6,624.04	-107.69	0.00	KOP @ 6629.14ft
7,100.00	7,043.67	-107.69	182.83	DLS = 10°/100'
7,530.06	7,197.00	-107.67	573.88	End Build @ 7530.06ft
16,888.62	7,182.00	-107.29	9,932.43	TD Well @ 16888.62ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +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	7,530.06	Rev A0 Permit	MWD

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Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
7,530.06	16,888.62	Rev A0 Permit	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,044.00	1,044.00	9 5/8"	9-5/8	13-1/2
7,530.06	7,197.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
994.00	994.00	Fox Hills Marker		0.00	
3,570.00	3,570.00	Parkman		0.00	
4,169.00	4,169.00	Sussex		0.00	
6,891.13	6,877.00	Sharon Springs		0.00	
6,955.45	6,933.00	Niobrara A		0.00	
7,030.01	6,993.00	Niobrara B		0.00	
7,110.88	7,051.00	Niobrara C		0.00	
7,355.86	7,171.00	Fort Hays		0.00	
7,453.37	7,192.00	Codell		0.00	
7,530.06	7,197.00	Landing Target (Heel)		0.00	
16,888.62	7,182.00	Total Depth (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Sekich State 9C-17HZ_SEC	0.00	0.00	0.00	Polygon
Sekich State 9C-17HZ_SHL	0.00	0.00	0.00	Point
Sekich State 9C-17HZ_BHL	7,182.00	-107.29	9,932.43	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.60 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,530.06 usft
Net Tortousity applicable to Plans:	0.60 °/100usft	Directional Difficulty Index:	6.494

Audit Info

North Reference Sheet for Sec. 18-T3N-R67W - Sekich State 9C-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' @ 4867.00usft (Drilling Rig). Northing and Easting are relative to Sekich State 9C-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: 1,325,172.57 usft N, 3,156,259.56 usft E
 Geographical Coordinates of Well: 40° 13' 28.71" N, 104° 56' 25.40" W
 Grid Convergence at Surface is: 0.36°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,888.62usft
 the Bottom Hole Displacement is 9,933.01usft in the Direction of 90.62° (True).
 Magnetic Convergence at surface is: -8.29° (4 December 2013, , BGGM2013)

