

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 13-T2N-67W

KERR 28N-12HZ

Plan B

Plan: Rev B0 Permit

Sperry Drilling Services

Proposal Report

17 June, 2014

Well Coordinates: 1,291,735.13 N, 3,184,163.42 E (40° 07' 56.38" N, 104° 50' 28.86" W)

Ground Level: 4,883.00 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 KERR 28N-12HZ

RKB = 25' @ 4908.00usft (Drilling Rig)

N

True

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 13-T2N-67W
Well: KERR 28N-12HZ
Wellbore: Plan B
Design: Rev B0 Permit

Anadarko Petroleum Corp.

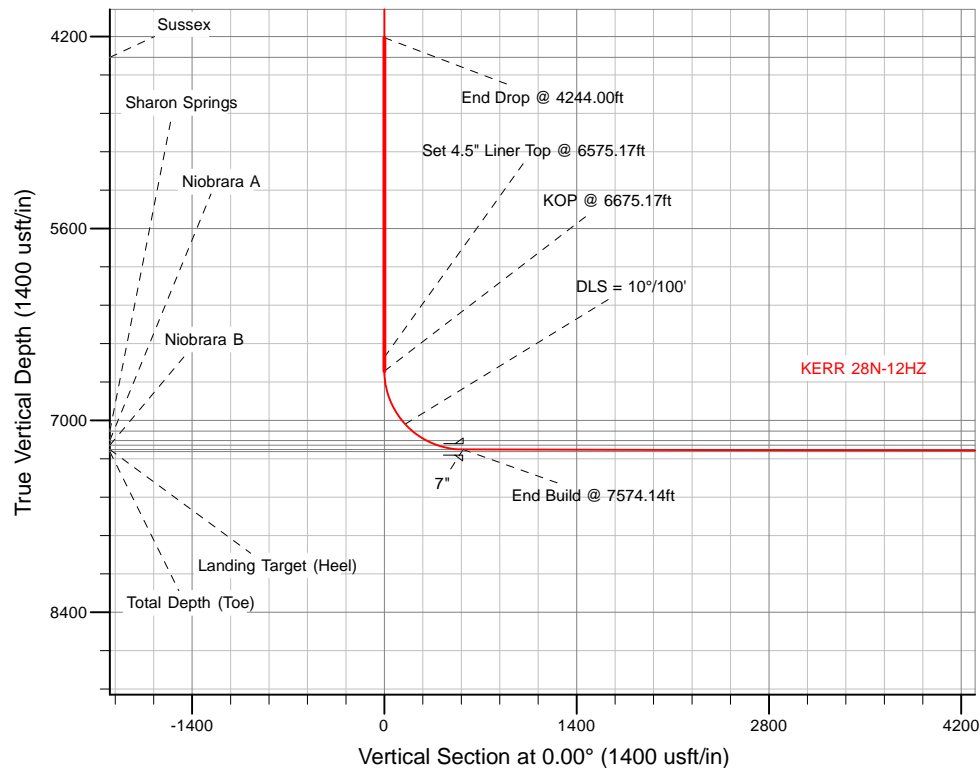
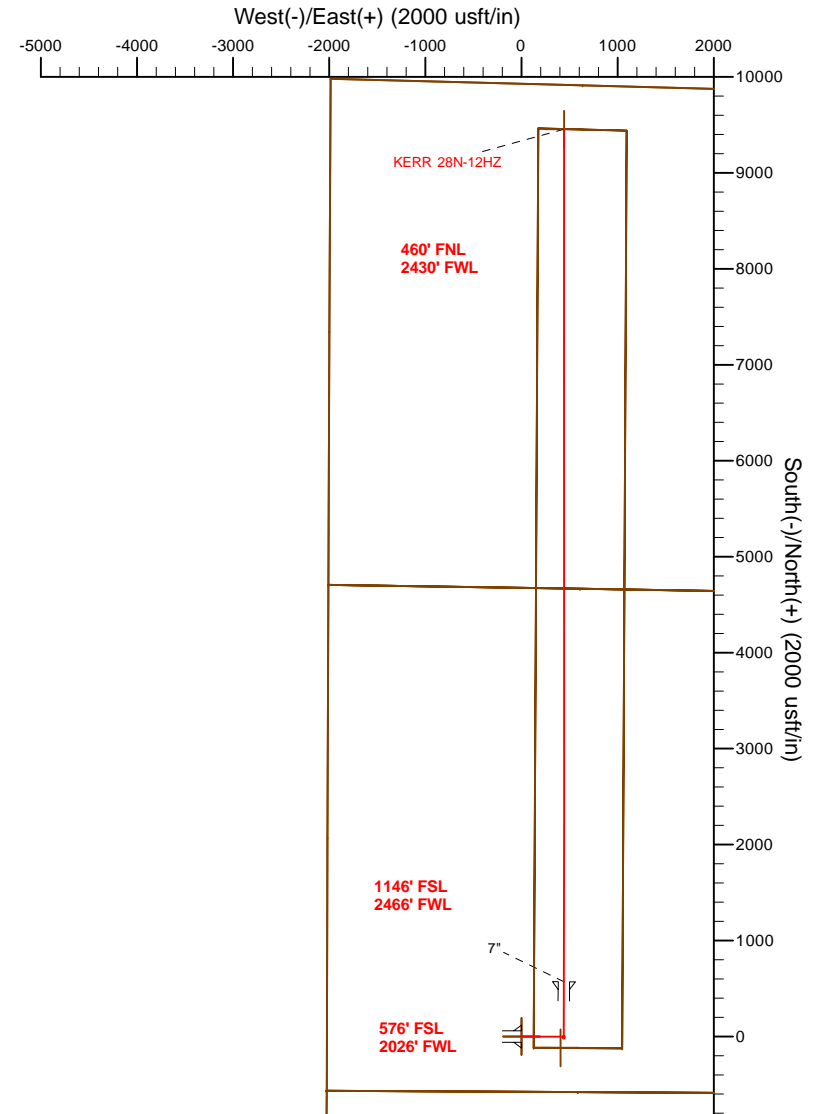
HALLIBURTON
Sperry Drilling

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	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	
3	1700.00	10.00	90.00	1697.47	0.00	43.52	2.00	90.00	0.00	
4	3744.00	10.00	90.00	3710.41	0.00	398.46	0.00	0.00	0.00	
5	4244.00	0.00	0.00	4207.88	0.00	441.98	2.00	180.00	0.00	
6	6675.17	0.00	0.00	6639.05	0.00	441.98	0.00	0.00	0.00	
7	7574.14	89.90	0.00	7212.00	571.93	442.01	10.00	0.00	571.93	
8	16460.07	89.90	0.00	7228.00	9457.85	442.47	0.00	0.00	9457.85	Kerr 28N-12HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
Kerr 28N-12HZ_LD	0.00	0.00	0.00	40.132329	-104.841350	Polygon
Kerr 28N-12HZ_SHL	0.00	0.00	0.00	40.132329	-104.841350	Polygon
Kerr_SEC	0.00	2699.57	599.35	40.139739	-104.839206	Polygon
Kerr 28N-12HZ_CP	7212.00	-117.31	406.77	40.132007	-104.839895	Polygon
Kerr 28N-12HZ_BHL	7228.00	9457.85	442.47	40.158291	-104.839767	Point



TVD MD

6539.05 6575.17 Set 4.5" Liner Top @ 6575.17ft
6639.05 6675.17 KOP @ 6675.17ft

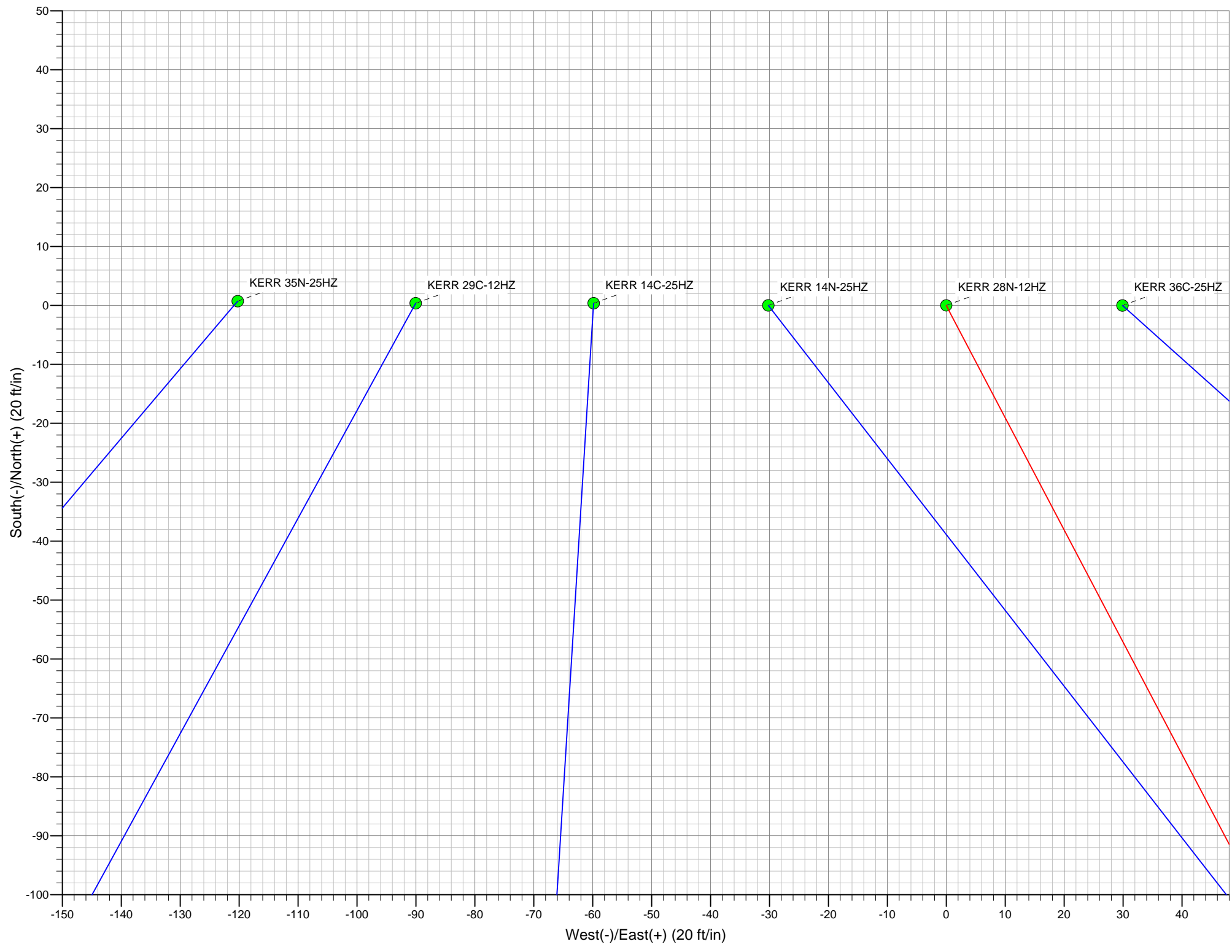
WELL DETAILS: KERR 28N-12HZ

Ground Level: 4883.00

RKB = 25' @ 4908.00usft (Drilling Rig)

Plan: Rev B0 Permit (KERR 28N-12HZ/Plan B)

Created By: Clint Eshelman Date: 6/17/2014
Reviewed: _____ Date: _____



Plan Report for KERR 28N-12HZ - Rev B0 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
Kerr 28N-12HZ_SHL - Kerr 28N-12HZ_LD - Kerr_SEC										
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
943.00	0.00	0.00	943.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base										
995.00	0.00	0.00	995.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
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
Begin Nudge @ 1200.00ft										
1,300.00	2.00	90.00	1,299.98	0.00	1.75	0.00	2.00	2.00	0.00	90.00
1,400.00	4.00	90.00	1,399.84	0.00	6.98	0.00	2.00	2.00	0.00	0.00
1,500.00	6.00	90.00	1,499.45	0.00	15.69	0.00	2.00	2.00	0.00	0.00
1,600.00	8.00	90.00	1,598.70	0.00	27.88	0.00	2.00	2.00	0.00	0.00
1,700.00	10.00	90.00	1,697.47	0.00	43.52	0.00	2.00	2.00	0.00	0.00
End Nudge @ 1700.00ft										
1,800.00	10.00	90.00	1,795.95	0.00	60.89	0.00	0.00	0.00	0.00	0.00
1,900.00	10.00	90.00	1,894.43	0.00	78.25	0.00	0.00	0.00	0.00	0.00
2,000.00	10.00	90.00	1,992.91	0.00	95.62	0.00	0.00	0.00	0.00	0.00
2,100.00	10.00	90.00	2,091.39	0.00	112.98	0.00	0.00	0.00	0.00	0.00
2,200.00	10.00	90.00	2,189.87	0.00	130.35	0.00	0.00	0.00	0.00	0.00
2,300.00	10.00	90.00	2,288.35	0.00	147.71	0.00	0.00	0.00	0.00	0.00
2,400.00	10.00	90.00	2,386.83	0.00	165.08	0.00	0.00	0.00	0.00	0.00
2,500.00	10.00	90.00	2,485.31	0.00	182.44	0.00	0.00	0.00	0.00	0.00
2,600.00	10.00	90.00	2,583.79	0.00	199.81	0.00	0.00	0.00	0.00	0.00
2,700.00	10.00	90.00	2,682.27	0.00	217.17	0.00	0.00	0.00	0.00	0.00
2,800.00	10.00	90.00	2,780.75	0.00	234.54	0.00	0.00	0.00	0.00	0.00
2,900.00	10.00	90.00	2,879.23	0.00	251.90	0.00	0.00	0.00	0.00	0.00
3,000.00	10.00	90.00	2,977.72	0.00	269.27	0.00	0.00	0.00	0.00	0.00
3,100.00	10.00	90.00	3,076.20	0.00	286.63	0.00	0.00	0.00	0.00	0.00
3,200.00	10.00	90.00	3,174.68	0.00	303.99	0.00	0.00	0.00	0.00	0.00
3,300.00	10.00	90.00	3,273.16	0.00	321.36	0.00	0.00	0.00	0.00	0.00
3,400.00	10.00	90.00	3,371.64	0.00	338.72	0.00	0.00	0.00	0.00	0.00
3,500.00	10.00	90.00	3,470.12	0.00	356.09	0.00	0.00	0.00	0.00	0.00
3,600.00	10.00	90.00	3,568.60	0.00	373.45	0.00	0.00	0.00	0.00	0.00
3,700.00	10.00	90.00	3,667.08	0.00	390.82	0.00	0.00	0.00	0.00	0.00
3,744.00	10.00	90.00	3,710.41	0.00	398.46	0.00	0.00	0.00	0.00	0.00
Begin Drop @ 3744.00ft										
3,800.00	8.88	90.00	3,765.65	0.00	407.64	0.00	2.00	-2.00	0.00	180.00
3,900.00	6.88	90.00	3,864.70	0.00	421.35	0.00	2.00	-2.00	0.00	180.00
3,969.70	5.49	90.00	3,934.00	0.00	428.86	0.00	2.00	-2.00	0.00	180.00
Parkman										
4,000.00	4.88	90.00	3,964.17	0.00	431.60	0.00	2.00	-2.00	0.00	180.00
4,100.00	2.88	90.00	4,063.94	0.00	438.36	0.00	2.00	-2.00	0.00	180.00
4,200.00	0.88	90.00	4,163.88	0.00	441.64	0.00	2.00	-2.00	0.00	180.00
4,244.00	0.00	0.00	4,207.88	0.00	441.98	0.00	2.00	-2.00	0.00	-180.00
End Drop @ 4244.00ft										
4,300.00	0.00	0.00	4,263.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
4,387.12	0.00	0.00	4,351.00	0.00	441.98	0.00	0.00	0.00	0.00	0.00

Plan Report for KERR 28N-12HZ - Rev B0 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 (°)
Sussex										
4,400.00	0.00	0.00	4,363.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,463.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,563.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,663.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,763.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,863.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,963.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,063.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,163.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,263.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,363.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,463.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,563.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,663.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,763.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,863.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,963.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,063.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,163.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,263.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,363.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,463.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
6,575.17	0.00	0.00	6,539.05	0.00	441.98	0.00	0.00	0.00	0.00	0.00
Set 4.5" Liner Top @ 6575.17ft										
6,600.00	0.00	0.00	6,563.88	0.00	441.98	0.00	0.00	0.00	0.00	0.00
6,675.17	0.00	0.00	6,639.05	0.00	441.98	0.00	0.00	0.00	0.00	0.00
KOP @ 6675.17ft										
6,700.00	2.48	0.00	6,663.87	0.54	441.98	0.54	10.00	10.00	0.00	0.00
6,800.00	12.48	0.00	6,762.89	13.54	441.98	13.54	10.00	10.00	0.00	0.00
6,900.00	22.48	0.00	6,858.15	43.55	441.98	43.55	10.00	10.00	0.00	0.00
7,000.00	32.48	0.00	6,946.75	89.64	441.99	89.64	10.00	10.00	0.00	0.00
7,084.65	40.95	0.00	7,014.55	140.20	441.99	140.20	10.00	10.00	0.00	0.00
Kerr 28N-12HZ_CP										
7,100.00	42.48	0.00	7,026.01	150.41	441.99	150.41	10.00	10.00	0.00	0.00
DLS = 10°/100'										
7,175.23	50.01	0.00	7,078.00	204.72	441.99	204.72	10.00	10.00	0.00	0.00
Sharon Springs										
7,200.00	52.48	0.00	7,093.50	224.03	441.99	224.03	10.00	10.00	0.00	0.00
7,297.44	62.23	0.00	7,146.00	305.97	442.00	305.97	10.00	10.00	0.00	0.00
Niobrara A										
7,300.00	62.48	0.00	7,147.19	308.24	442.00	308.24	10.00	10.00	0.00	0.00
7,382.76	70.76	0.00	7,180.00	384.14	442.00	384.14	10.00	10.00	0.00	0.00
Niobrara B										
7,400.00	72.48	0.00	7,185.44	400.50	442.00	400.50	10.00	10.00	0.00	0.00
7,500.00	82.48	0.00	7,207.08	498.00	442.01	498.00	10.00	10.00	0.00	0.00
7,574.14	89.90	0.00	7,212.00	571.93	442.01	571.93	10.00	10.00	0.00	0.00
End Build @ 7574.14ft - Landing Target (Heel) - 7"										
7,600.00	89.90	0.00	7,212.05	597.79	442.01	597.79	0.00	0.00	0.00	0.00
7,700.00	89.90	0.00	7,212.23	697.79	442.02	697.79	0.00	0.00	0.00	0.00
7,800.00	89.90	0.00	7,212.41	797.79	442.02	797.79	0.00	0.00	0.00	0.00
7,900.00	89.90	0.00	7,212.59	897.79	442.03	897.79	0.00	0.00	0.00	0.00
8,000.00	89.90	0.00	7,212.77	997.79	442.03	997.79	0.00	0.00	0.00	0.00
8,100.00	89.90	0.00	7,212.95	1,097.79	442.04	1,097.79	0.00	0.00	0.00	0.00
8,200.00	89.90	0.00	7,213.13	1,197.79	442.04	1,197.79	0.00	0.00	0.00	0.00
8,300.00	89.90	0.00	7,213.31	1,297.79	442.05	1,297.79	0.00	0.00	0.00	0.00
8,400.00	89.90	0.00	7,213.49	1,397.79	442.05	1,397.79	0.00	0.00	0.00	0.00
8,500.00	89.90	0.00	7,213.67	1,497.79	442.06	1,497.79	0.00	0.00	0.00	0.00

Plan Report for KERR 28N-12HZ - Rev B0 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 (°)
8,600.00	89.90	0.00	7,213.85	1,597.79	442.06	1,597.79	0.00	0.00	0.00	0.00
8,700.00	89.90	0.00	7,214.03	1,697.79	442.07	1,697.79	0.00	0.00	0.00	0.00
8,800.00	89.90	0.00	7,214.21	1,797.79	442.08	1,797.79	0.00	0.00	0.00	0.00
8,900.00	89.90	0.00	7,214.39	1,897.79	442.08	1,897.79	0.00	0.00	0.00	0.00
9,000.00	89.90	0.00	7,214.57	1,997.79	442.09	1,997.79	0.00	0.00	0.00	0.00
9,100.00	89.90	0.00	7,214.75	2,097.79	442.09	2,097.79	0.00	0.00	0.00	0.00
9,200.00	89.90	0.00	7,214.93	2,197.79	442.10	2,197.79	0.00	0.00	0.00	0.00
9,300.00	89.90	0.00	7,215.11	2,297.78	442.10	2,297.78	0.00	0.00	0.00	0.00
9,400.00	89.90	0.00	7,215.29	2,397.78	442.11	2,397.78	0.00	0.00	0.00	0.00
9,500.00	89.90	0.00	7,215.47	2,497.78	442.11	2,497.78	0.00	0.00	0.00	0.00
9,600.00	89.90	0.00	7,215.65	2,597.78	442.12	2,597.78	0.00	0.00	0.00	0.00
9,700.00	89.90	0.00	7,215.83	2,697.78	442.12	2,697.78	0.00	0.00	0.00	0.00
9,800.00	89.90	0.00	7,216.01	2,797.78	442.13	2,797.78	0.00	0.00	0.00	0.00
9,900.00	89.90	0.00	7,216.19	2,897.78	442.13	2,897.78	0.00	0.00	0.00	0.00
10,000.00	89.90	0.00	7,216.37	2,997.78	442.14	2,997.78	0.00	0.00	0.00	0.00
10,100.00	89.90	0.00	7,216.55	3,097.78	442.14	3,097.78	0.00	0.00	0.00	0.00
10,200.00	89.90	0.00	7,216.73	3,197.78	442.15	3,197.78	0.00	0.00	0.00	0.00
10,300.00	89.90	0.00	7,216.91	3,297.78	442.15	3,297.78	0.00	0.00	0.00	0.00
10,400.00	89.90	0.00	7,217.09	3,397.78	442.16	3,397.78	0.00	0.00	0.00	0.00
10,500.00	89.90	0.00	7,217.27	3,497.78	442.16	3,497.78	0.00	0.00	0.00	0.00
10,600.00	89.90	0.00	7,217.45	3,597.78	442.17	3,597.78	0.00	0.00	0.00	0.00
10,700.00	89.90	0.00	7,217.63	3,697.78	442.17	3,697.78	0.00	0.00	0.00	0.00
10,800.00	89.90	0.00	7,217.81	3,797.78	442.18	3,797.78	0.00	0.00	0.00	0.00
10,900.00	89.90	0.00	7,217.99	3,897.78	442.18	3,897.78	0.00	0.00	0.00	0.00
11,000.00	89.90	0.00	7,218.17	3,997.78	442.19	3,997.78	0.00	0.00	0.00	0.00
11,100.00	89.90	0.00	7,218.35	4,097.78	442.19	4,097.78	0.00	0.00	0.00	0.00
11,200.00	89.90	0.00	7,218.53	4,197.78	442.20	4,197.78	0.00	0.00	0.00	0.00
11,300.00	89.90	0.00	7,218.71	4,297.78	442.20	4,297.78	0.00	0.00	0.00	0.00
11,400.00	89.90	0.00	7,218.89	4,397.78	442.21	4,397.78	0.00	0.00	0.00	0.00
11,500.00	89.90	0.00	7,219.07	4,497.78	442.22	4,497.78	0.00	0.00	0.00	0.00
11,600.00	89.90	0.00	7,219.25	4,597.78	442.22	4,597.78	0.00	0.00	0.00	0.00
11,700.00	89.90	0.00	7,219.43	4,697.78	442.23	4,697.78	0.00	0.00	0.00	0.00
11,800.00	89.90	0.00	7,219.61	4,797.78	442.23	4,797.78	0.00	0.00	0.00	0.00
11,900.00	89.90	0.00	7,219.79	4,897.78	442.24	4,897.78	0.00	0.00	0.00	0.00
12,000.00	89.90	0.00	7,219.97	4,997.78	442.24	4,997.78	0.00	0.00	0.00	0.00
12,100.00	89.90	0.00	7,220.15	5,097.78	442.25	5,097.78	0.00	0.00	0.00	0.00
12,200.00	89.90	0.00	7,220.33	5,197.78	442.25	5,197.78	0.00	0.00	0.00	0.00
12,300.00	89.90	0.00	7,220.51	5,297.78	442.26	5,297.78	0.00	0.00	0.00	0.00
12,400.00	89.90	0.00	7,220.69	5,397.78	442.26	5,397.78	0.00	0.00	0.00	0.00
12,500.00	89.90	0.00	7,220.87	5,497.78	442.27	5,497.78	0.00	0.00	0.00	0.00
12,600.00	89.90	0.00	7,221.05	5,597.78	442.27	5,597.78	0.00	0.00	0.00	0.00
12,700.00	89.90	0.00	7,221.23	5,697.78	442.28	5,697.78	0.00	0.00	0.00	0.00
12,800.00	89.90	0.00	7,221.41	5,797.78	442.28	5,797.78	0.00	0.00	0.00	0.00
12,900.00	89.90	0.00	7,221.59	5,897.78	442.29	5,897.78	0.00	0.00	0.00	0.00
13,000.00	89.90	0.00	7,221.77	5,997.78	442.29	5,997.78	0.00	0.00	0.00	0.00
13,100.00	89.90	0.00	7,221.95	6,097.78	442.30	6,097.78	0.00	0.00	0.00	0.00
13,200.00	89.90	0.00	7,222.13	6,197.78	442.30	6,197.78	0.00	0.00	0.00	0.00
13,300.00	89.90	0.00	7,222.31	6,297.78	442.31	6,297.78	0.00	0.00	0.00	0.00
13,400.00	89.90	0.00	7,222.49	6,397.78	442.31	6,397.78	0.00	0.00	0.00	0.00
13,500.00	89.90	0.00	7,222.67	6,497.78	442.32	6,497.78	0.00	0.00	0.00	0.00
13,600.00	89.90	0.00	7,222.85	6,597.78	442.32	6,597.78	0.00	0.00	0.00	0.00
13,700.00	89.90	0.00	7,223.03	6,697.78	442.33	6,697.78	0.00	0.00	0.00	0.00
13,800.00	89.90	0.00	7,223.21	6,797.78	442.33	6,797.78	0.00	0.00	0.00	0.00
13,900.00	89.90	0.00	7,223.39	6,897.78	442.34	6,897.78	0.00	0.00	0.00	0.00
14,000.00	89.90	0.00	7,223.57	6,997.78	442.34	6,997.78	0.00	0.00	0.00	0.00
14,100.00	89.90	0.00	7,223.75	7,097.78	442.35	7,097.78	0.00	0.00	0.00	0.00
14,200.00	89.90	0.00	7,223.93	7,197.78	442.35	7,197.78	0.00	0.00	0.00	0.00
14,300.00	89.90	0.00	7,224.11	7,297.78	442.36	7,297.78	0.00	0.00	0.00	0.00
14,400.00	89.90	0.00	7,224.29	7,397.78	442.37	7,397.78	0.00	0.00	0.00	0.00
14,500.00	89.90	0.00	7,224.47	7,497.78	442.37	7,497.78	0.00	0.00	0.00	0.00

Plan Report for KERR 28N-12HZ - Rev B0 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 (°)
14,600.00	89.90	0.00	7,224.65	7,597.78	442.38	7,597.78	0.00	0.00	0.00	0.00
14,700.00	89.90	0.00	7,224.83	7,697.78	442.38	7,697.78	0.00	0.00	0.00	0.00
14,800.00	89.90	0.00	7,225.01	7,797.78	442.39	7,797.78	0.00	0.00	0.00	0.00
14,900.00	89.90	0.00	7,225.19	7,897.78	442.39	7,897.78	0.00	0.00	0.00	0.00
15,000.00	89.90	0.00	7,225.37	7,997.78	442.40	7,997.78	0.00	0.00	0.00	0.00
15,100.00	89.90	0.00	7,225.55	8,097.78	442.40	8,097.78	0.00	0.00	0.00	0.00
15,200.00	89.90	0.00	7,225.73	8,197.78	442.41	8,197.78	0.00	0.00	0.00	0.00
15,300.00	89.90	0.00	7,225.91	8,297.78	442.41	8,297.78	0.00	0.00	0.00	0.00
15,400.00	89.90	0.00	7,226.09	8,397.78	442.42	8,397.78	0.00	0.00	0.00	0.00
15,500.00	89.90	0.00	7,226.27	8,497.77	442.42	8,497.77	0.00	0.00	0.00	0.00
15,600.00	89.90	0.00	7,226.45	8,597.77	442.43	8,597.77	0.00	0.00	0.00	0.00
15,700.00	89.90	0.00	7,226.63	8,697.77	442.43	8,697.77	0.00	0.00	0.00	0.00
15,800.00	89.90	0.00	7,226.81	8,797.77	442.44	8,797.77	0.00	0.00	0.00	0.00
15,900.00	89.90	0.00	7,226.99	8,897.77	442.44	8,897.77	0.00	0.00	0.00	0.00
16,000.00	89.90	0.00	7,227.17	8,997.77	442.45	8,997.77	0.00	0.00	0.00	0.00
16,100.00	89.90	0.00	7,227.35	9,097.77	442.45	9,097.77	0.00	0.00	0.00	0.00
16,200.00	89.90	0.00	7,227.53	9,197.77	442.46	9,197.77	0.00	0.00	0.00	0.00
16,300.00	89.90	0.00	7,227.71	9,297.77	442.46	9,297.77	0.00	0.00	0.00	0.00
16,400.00	89.90	0.00	7,227.89	9,397.77	442.47	9,397.77	0.00	0.00	0.00	0.00
16,460.07	89.90	0.00	7,228.00	9,457.84	442.47	9,457.84	0.00	0.00	0.00	0.00

TD Well @ 16460.07ft - Kerr 28N-12HZ_BHL

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
1,200.00	1,200.00	0.00	0.00	Begin Nudge @ 1200.00ft
1,700.00	1,697.47	0.00	43.52	End Nudge @ 1700.00ft
3,744.00	3,710.41	0.00	398.46	Begin Drop @ 3744.00ft
4,244.00	4,207.88	0.00	441.98	End Drop @ 4244.00ft
6,575.17	6,539.05	0.00	441.98	Set 4.5" Liner Top @ 6575.17ft
6,675.17	6,639.05	0.00	441.98	KOP @ 6675.17ft
7,100.00	7,026.01	150.41	441.99	DLS = 10°/100'
7,574.14	7,212.00	571.93	442.01	End Build @ 7574.14ft
16,460.07	7,228.00	9,457.84	442.47	TD Well @ 16460.07ft

Vertical Section Information

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

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,574.14	Rev B0 Permit	MWD
7,574.14	16,460.07	Rev B0 Permit	MWD

Plan Report for KERR 28N-12HZ - Rev B0 Permit

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
995.00	995.00	9 5/8"	9-5/8	13-1/2
7,574.14	7,212.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
943.00	943.00	Fox Hills Base		0.00	
3,969.70	3,934.00	Parkman		0.00	
4,387.12	4,351.00	Sussex		0.00	
7,175.23	7,078.00	Sharon Springs		0.00	
7,297.44	7,146.00	Niobrara A		0.00	
7,382.76	7,180.00	Niobrara B		0.00	
7,574.14	7,212.00	Landing Target (Heel)		0.00	
16,460.07	7,228.00	Total Depth (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Kerr 28N-12HZ_SHL	0.00	0.00	0.00	Point
Kerr 28N-12HZ_LD	0.00	0.00	0.00	Polygon
Kerr_SEC	0.00	2,699.57	599.35	Polygon
Kerr 28N-12HZ_CP	7,212.00	-117.31	406.77	Point
Kerr 28N-12HZ_BHL	7,228.00	9,457.85	442.47	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.62 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,596.74 usft
Net Tortousity applicable to Plans:	0.62 °/100usft	Directional Difficulty Index:	6.494

Audit Info

North Reference Sheet for Sec. 13-T2N-67W - KERR 28N-12HZ - Plan B

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.
 Vertical Depths are relative to RKB = 25' @ 4908.00usft (Drilling Rig). Northing and Easting are relative to KERR 28N-12HZ
 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: 0.99995897

Grid Coordinates of Well: 1,291,735.13 usft N, 3,184,163.42 usft E
 Geographical Coordinates of Well: 40° 07' 56.38" N, 104° 50' 28.86" W
 Grid Convergence at Surface is: 0.43°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,460.07usft
 the Bottom Hole Displacement is 9,468.19usft in the Direction of 2.68° (True).
 Magnetic Convergence at surface is: -8.20° (7 August 2013, , BGGM2013)

