

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-66W-32 Land Fed 13S-32HZ Pad

LAND FED 3N-32HZ

Plan A

Plan: Permit Rev-1

Sperry Drilling Services Proposal Report

27 May, 2015

Well Coordinates: 14,562,852.70 N, 1,694,847.26 E (40° 05' 56.49" N, 104° 48' 19.29" W)

Ground Level: 4,897.00 usft

Local Coordinate Origin:

Centered on Well LAND FED 3N-32HZ

Viewing Datum:

RKB = 17' @ 4914.00usft (D Rig)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 70

HALLIBURTON

Project: WELD-NAD83-UTMFT13N
Site: 2N-66W-32 Land Fed 13S-32HZ Pad
Well: LAND FED 3N-32HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

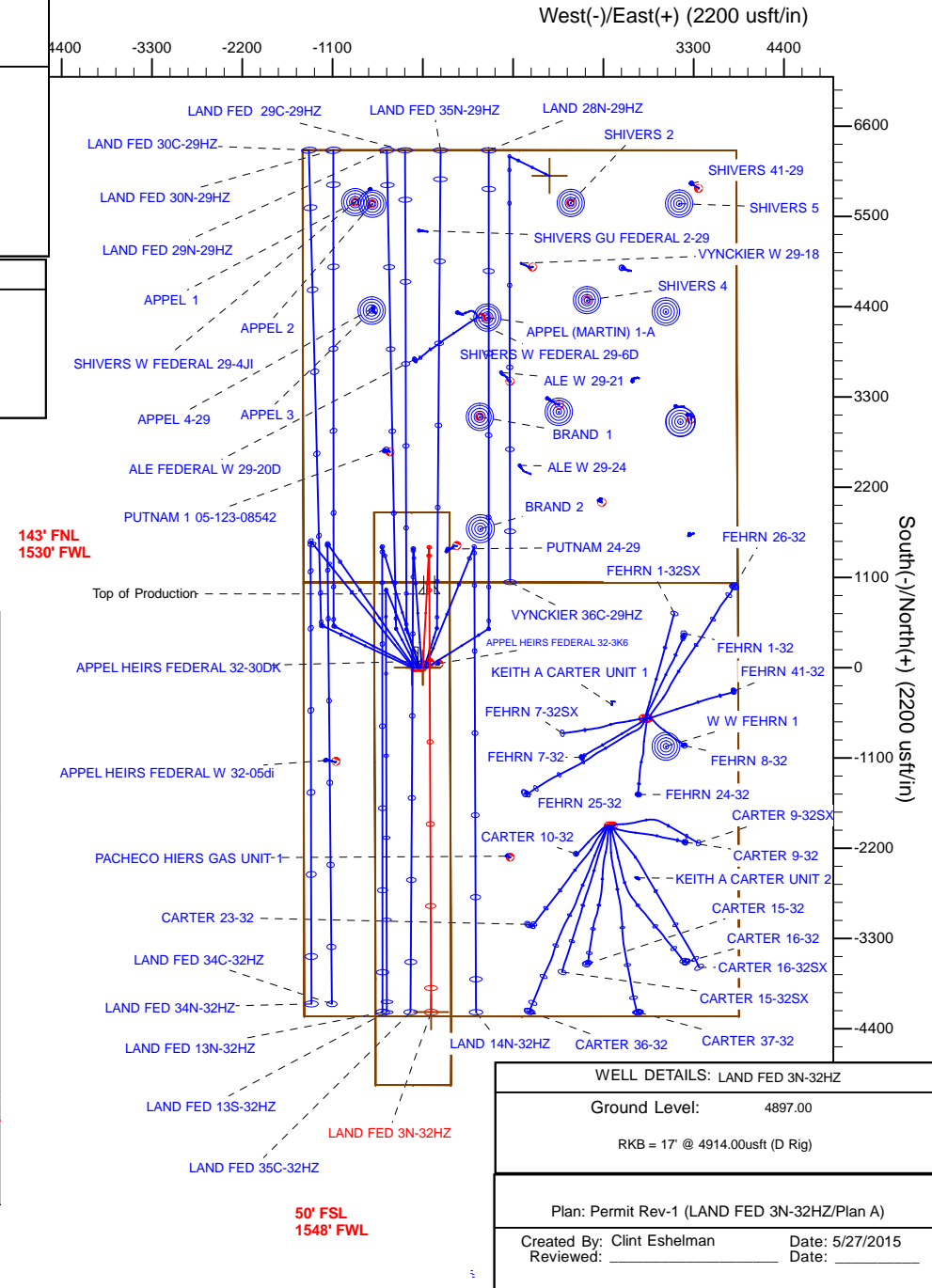
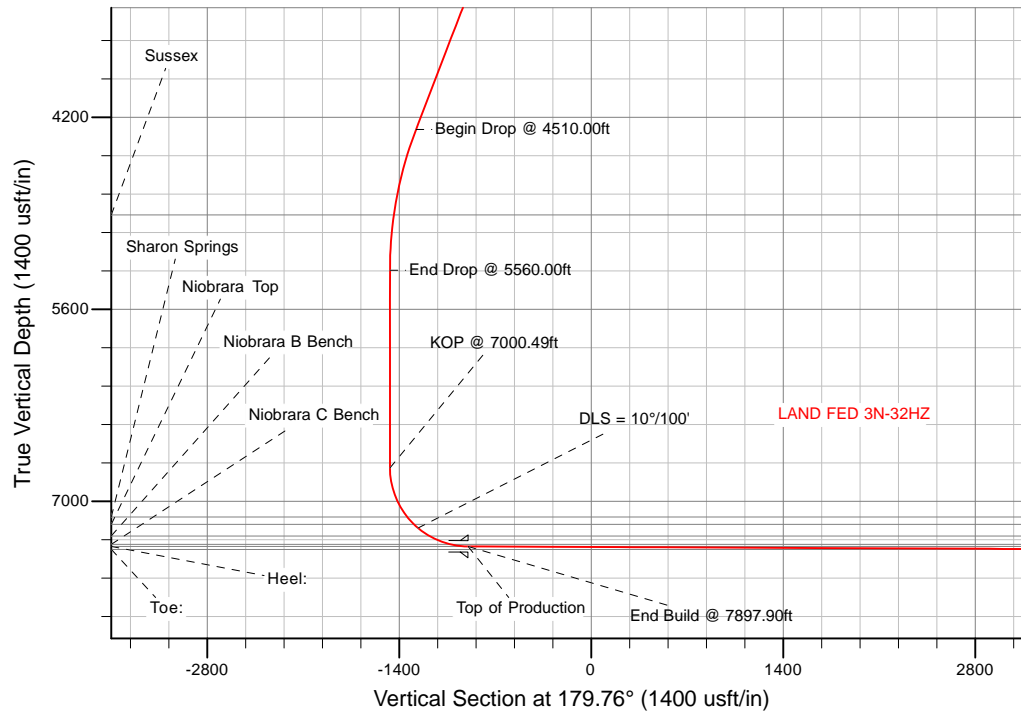
HALLIBURTON
Sperry Drilling

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	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1650.00	21.00	3.00	1618.86	253.36	13.28	1.50	3.00	-253.30	
4	4510.00	21.00	3.00	4288.90	1276.88	66.92	0.00	0.00	-1276.59	
5	5560.00	0.00	0.00	5315.55	1466.90	76.88	2.00	180.00	-1466.57	
6	7000.49	0.00	0.00	6756.04	1466.90	76.88	0.00	0.00	-1466.57	
7	7897.90	89.74	179.76	7329.00	896.54	79.30	10.00	179.76	-896.20	
8	12993.89	89.74	179.76	7352.00	-4199.35	100.97	0.00	0.00	4199.74	LAND 3N-32HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
LAND 3N-32HZ_SHL	0.00	0.00	0.00	40.099026	-104.805359	Point
LAND 3N-32HZ_BHL	7352.00	-4199.35	100.97	40.087494	-104.804998	Point



Plan Report for LAND FED 3N-32HZ - Permit Rev-1

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
2N-R66W-Sec. 32_Section Lines - LAND 3N-32HZ_SHL - LAND FED 3N-32HZ_Landing Diagram										
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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft										
300.00	0.75	3.00	300.00	0.33	0.02	-0.33	1.50	1.50	0.00	3.00
400.00	2.25	3.00	399.96	2.94	0.15	-2.94	1.50	1.50	0.00	0.00
500.00	3.75	3.00	499.82	8.17	0.43	-8.17	1.50	1.50	0.00	0.00
600.00	5.25	3.00	599.51	16.00	0.84	-16.00	1.50	1.50	0.00	0.00
700.00	6.75	3.00	698.96	26.44	1.39	-26.43	1.50	1.50	0.00	0.00
800.00	8.25	3.00	798.10	39.47	2.07	-39.47	1.50	1.50	0.00	0.00
900.00	9.75	3.00	896.87	55.10	2.89	-55.08	1.50	1.50	0.00	0.00
1,000.00	11.25	3.00	995.19	73.29	3.84	-73.28	1.50	1.50	0.00	0.00
1,100.00	12.75	3.00	1,093.00	94.06	4.93	-94.03	1.50	1.50	0.00	0.00
1,200.00	14.25	3.00	1,190.24	117.37	6.15	-117.34	1.50	1.50	0.00	0.00
1,300.00	15.75	3.00	1,286.83	143.21	7.51	-143.18	1.50	1.50	0.00	0.00
1,322.02	16.08	3.00	1,308.00	149.24	7.82	-149.21	1.50	1.50	0.00	0.00
Fox Hills										
1,400.00	17.25	3.00	1,382.71	171.58	8.99	-171.54	1.50	1.50	0.00	0.00
1,500.00	18.75	3.00	1,477.81	202.43	10.61	-202.39	1.50	1.50	0.00	0.00
1,600.00	20.25	3.00	1,572.07	235.77	12.36	-235.71	1.50	1.50	0.00	0.00
1,629.81	20.70	3.00	1,600.00	246.18	12.90	-246.13	1.50	1.50	0.00	0.00
9 5/8"										
1,650.00	21.00	3.00	1,618.86	253.36	13.28	-253.30	1.50	1.50	0.00	0.00
End Nudge @ 1650.00ft										
1,700.00	21.00	3.00	1,665.54	271.25	14.22	-271.19	0.00	0.00	0.00	0.00
1,800.00	21.00	3.00	1,758.90	307.04	16.09	-306.97	0.00	0.00	0.00	0.00
1,900.00	21.00	3.00	1,852.26	342.83	17.97	-342.75	0.00	0.00	0.00	0.00
2,000.00	21.00	3.00	1,945.62	378.61	19.84	-378.53	0.00	0.00	0.00	0.00
2,100.00	21.00	3.00	2,038.98	414.40	21.72	-414.31	0.00	0.00	0.00	0.00
2,200.00	21.00	3.00	2,132.33	450.19	23.59	-450.09	0.00	0.00	0.00	0.00
2,231.11	21.00	3.00	2,161.38	461.32	24.18	-461.22	0.00	0.00	0.00	0.00
2N-R66W-Sec. 29_Section Lines										
2,300.00	21.00	3.00	2,225.69	485.98	25.47	-485.87	0.00	0.00	0.00	0.00
2,400.00	21.00	3.00	2,319.05	521.76	27.34	-521.64	0.00	0.00	0.00	0.00
2,500.00	21.00	3.00	2,412.41	557.55	29.22	-557.42	0.00	0.00	0.00	0.00
2,600.00	21.00	3.00	2,505.77	593.34	31.10	-593.20	0.00	0.00	0.00	0.00
2,700.00	21.00	3.00	2,599.12	629.13	32.97	-628.98	0.00	0.00	0.00	0.00
2,800.00	21.00	3.00	2,692.48	664.91	34.85	-664.76	0.00	0.00	0.00	0.00
2,900.00	21.00	3.00	2,785.84	700.70	36.72	-700.54	0.00	0.00	0.00	0.00
3,000.00	21.00	3.00	2,879.20	736.49	38.60	-736.32	0.00	0.00	0.00	0.00
3,100.00	21.00	3.00	2,972.56	772.28	40.47	-772.10	0.00	0.00	0.00	0.00
3,200.00	21.00	3.00	3,065.91	808.07	42.35	-807.88	0.00	0.00	0.00	0.00
3,300.00	21.00	3.00	3,159.27	843.85	44.22	-843.66	0.00	0.00	0.00	0.00
3,400.00	21.00	3.00	3,252.63	879.64	46.10	-879.44	0.00	0.00	0.00	0.00
3,500.00	21.00	3.00	3,345.99	915.43	47.98	-915.22	0.00	0.00	0.00	0.00
3,600.00	21.00	3.00	3,439.35	951.22	49.85	-951.00	0.00	0.00	0.00	0.00
3,700.00	21.00	3.00	3,532.70	987.00	51.73	-986.78	0.00	0.00	0.00	0.00
3,800.00	21.00	3.00	3,626.06	1,022.79	53.60	-1,022.56	0.00	0.00	0.00	0.00
3,900.00	21.00	3.00	3,719.42	1,058.58	55.48	-1,058.34	0.00	0.00	0.00	0.00
4,000.00	21.00	3.00	3,812.78	1,094.37	57.35	-1,094.12	0.00	0.00	0.00	0.00
4,100.00	21.00	3.00	3,906.14	1,130.15	59.23	-1,129.90	0.00	0.00	0.00	0.00
4,200.00	21.00	3.00	3,999.49	1,165.94	61.10	-1,165.68	0.00	0.00	0.00	0.00
4,300.00	21.00	3.00	4,092.85	1,201.73	62.98	-1,201.46	0.00	0.00	0.00	0.00
4,400.00	21.00	3.00	4,186.21	1,237.52	64.86	-1,237.24	0.00	0.00	0.00	0.00
4,500.00	21.00	3.00	4,279.57	1,273.31	66.73	-1,273.01	0.00	0.00	0.00	0.00
4,510.00	21.00	3.00	4,288.90	1,276.88	66.92	-1,276.59	0.00	0.00	0.00	0.00

Plan Report for LAND FED 3N-32HZ - Permit Rev-1

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 (°)
Begin Drop @ 4510.00ft										
4,600.00	19.20	3.00	4,373.42	1,307.77	68.54	-1,307.47	2.00	-2.00	0.00	180.00
4,700.00	17.20	3.00	4,468.41	1,338.96	70.17	-1,338.65	2.00	-2.00	0.00	180.00
4,800.00	15.20	3.00	4,564.44	1,366.82	71.63	-1,366.51	2.00	-2.00	0.00	180.00
4,900.00	13.20	3.00	4,661.38	1,391.31	72.92	-1,391.00	2.00	-2.00	0.00	180.00
5,000.00	11.20	3.00	4,759.11	1,412.42	74.02	-1,412.09	2.00	-2.00	0.00	180.00
5,100.00	9.20	3.00	4,857.53	1,430.10	74.95	-1,429.77	2.00	-2.00	0.00	180.00
5,155.10	8.10	3.00	4,912.00	1,438.37	75.38	-1,438.05	2.00	-2.00	0.00	180.00
Sussex										
5,200.00	7.20	3.00	4,956.50	1,444.34	75.69	-1,444.01	2.00	-2.00	0.00	-180.00
5,300.00	5.20	3.00	5,055.91	1,455.13	76.26	-1,454.80	2.00	-2.00	0.00	180.00
5,400.00	3.20	3.00	5,155.64	1,462.44	76.64	-1,462.11	2.00	-2.00	0.00	180.00
5,500.00	1.20	3.00	5,255.56	1,466.27	76.84	-1,465.94	2.00	-2.00	0.00	180.00
5,560.00	0.00	0.00	5,315.55	1,466.90	76.88	-1,466.57	2.00	-2.00	-5.00	-180.00
End Drop @ 5560.00ft										
5,600.00	0.00	0.00	5,355.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	180.00
5,700.00	0.00	0.00	5,455.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,555.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,655.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,755.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	5,855.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	5,955.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,055.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,155.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,255.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,355.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,455.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,555.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,655.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	6,755.55	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
7,000.49	0.00	0.00	6,756.04	1,466.90	76.88	-1,466.57	0.00	0.00	0.00	0.00
KOP @ 7000.49ft										
7,100.00	9.95	179.76	6,855.05	1,458.28	76.91	-1,457.95	10.00	10.00	0.00	179.76
7,200.00	19.95	179.76	6,951.55	1,432.52	77.02	-1,432.18	10.00	10.00	0.00	0.00
7,300.00	29.95	179.76	7,042.10	1,390.39	77.20	-1,390.05	10.00	10.00	0.00	0.00
7,387.83	38.73	179.76	7,114.55	1,340.88	77.41	-1,340.55	10.00	10.00	0.00	0.00
Sharon Springs										
7,400.00	39.95	179.76	7,123.96	1,333.17	77.45	-1,332.83	10.00	10.00	0.00	0.00
7,459.56	45.91	179.76	7,167.55	1,292.62	77.62	-1,292.29	10.00	10.00	0.00	0.00
Niobrara Top										
7,500.00	49.95	179.76	7,194.64	1,262.61	77.75	-1,262.27	10.00	10.00	0.00	0.00
DLS = 10°/100'										
7,600.00	59.95	179.76	7,251.99	1,180.85	78.09	-1,180.51	10.00	10.00	0.00	0.00
7,602.63	60.21	179.76	7,253.30	1,178.57	78.10	-1,178.24	10.00	10.00	0.00	0.00
Niobrara B Bench										
7,700.00	69.95	179.76	7,294.28	1,090.37	78.48	-1,090.03	10.00	10.00	0.00	0.00
7,766.00	76.55	179.76	7,313.29	1,027.20	78.75	-1,026.86	10.00	10.00	0.00	0.00
Niobrara C Bench										
7,800.00	79.95	179.76	7,320.21	993.92	78.89	-993.58	10.00	10.00	0.00	0.00
7,897.90	89.74	179.76	7,329.00	896.54	79.30	-896.20	10.00	10.00	0.00	0.00
End Build @ 7897.90ft - Heel: - Top of Production										
7,900.00	89.74	179.76	7,329.00	894.44	79.31	-894.10	0.02	0.02	0.00	0.00
8,000.00	89.74	179.76	7,329.46	794.44	79.74	-794.10	0.00	0.00	0.00	0.00
8,100.00	89.74	179.76	7,329.91	694.44	80.16	-694.10	0.00	0.00	0.00	0.00
8,200.00	89.74	179.76	7,330.36	594.44	80.59	-594.10	0.00	0.00	0.00	0.00
8,300.00	89.74	179.76	7,330.81	494.45	81.01	-494.10	0.00	0.00	0.00	0.00
8,400.00	89.74	179.76	7,331.26	394.45	81.44	-394.10	0.00	0.00	0.00	0.00
8,500.00	89.74	179.76	7,331.71	294.45	81.86	-294.10	0.00	0.00	0.00	0.00

Plan Report for LAND FED 3N-32HZ - Permit Rev-1

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	89.74	179.76	7,332.16	194.45	82.29	-194.11	0.00	0.00	0.00	0.00
8,700.00	89.74	179.76	7,332.62	94.45	82.71	-94.11	0.00	0.00	0.00	0.00
8,800.00	89.74	179.76	7,333.07	-5.54	83.14	5.89	0.00	0.00	0.00	0.00
8,900.00	89.74	179.76	7,333.52	-105.54	83.56	105.89	0.00	0.00	0.00	0.00
9,000.00	89.74	179.76	7,333.97	-205.54	83.99	205.89	0.00	0.00	0.00	0.00
9,100.00	89.74	179.76	7,334.42	-305.54	84.41	305.89	0.00	0.00	0.00	0.00
9,200.00	89.74	179.76	7,334.87	-405.54	84.84	405.89	0.00	0.00	0.00	0.00
9,300.00	89.74	179.76	7,335.32	-505.53	85.26	505.89	0.00	0.00	0.00	0.00
9,400.00	89.74	179.76	7,335.78	-605.53	85.69	605.89	0.00	0.00	0.00	0.00
9,500.00	89.74	179.76	7,336.23	-705.53	86.11	705.88	0.00	0.00	0.00	0.00
9,600.00	89.74	179.76	7,336.68	-805.53	86.54	805.88	0.00	0.00	0.00	0.00
9,700.00	89.74	179.76	7,337.13	-905.53	86.96	905.88	0.00	0.00	0.00	0.00
9,800.00	89.74	179.76	7,337.58	-1,005.52	87.39	1,005.88	0.00	0.00	0.00	0.00
9,900.00	89.74	179.76	7,338.03	-1,105.52	87.81	1,105.88	0.00	0.00	0.00	0.00
10,000.00	89.74	179.76	7,338.48	-1,205.52	88.24	1,205.88	0.00	0.00	0.00	0.00
10,100.00	89.74	179.76	7,338.94	-1,305.52	88.66	1,305.88	0.00	0.00	0.00	0.00
10,200.00	89.74	179.76	7,339.39	-1,405.52	89.09	1,405.88	0.00	0.00	0.00	0.00
10,300.00	89.74	179.76	7,339.84	-1,505.52	89.51	1,505.88	0.00	0.00	0.00	0.00
10,400.00	89.74	179.76	7,340.29	-1,605.51	89.94	1,605.88	0.00	0.00	0.00	0.00
10,500.00	89.74	179.76	7,340.74	-1,705.51	90.37	1,705.87	0.00	0.00	0.00	0.00
10,600.00	89.74	179.76	7,341.19	-1,805.51	90.79	1,805.87	0.00	0.00	0.00	0.00
10,700.00	89.74	179.76	7,341.64	-1,905.51	91.22	1,905.87	0.00	0.00	0.00	0.00
10,800.00	89.74	179.76	7,342.10	-2,005.51	91.64	2,005.87	0.00	0.00	0.00	0.00
10,900.00	89.74	179.76	7,342.55	-2,105.50	92.07	2,105.87	0.00	0.00	0.00	0.00
11,000.00	89.74	179.76	7,343.00	-2,205.50	92.49	2,205.87	0.00	0.00	0.00	0.00
11,100.00	89.74	179.76	7,343.45	-2,305.50	92.92	2,305.87	0.00	0.00	0.00	0.00
11,200.00	89.74	179.76	7,343.90	-2,405.50	93.34	2,405.87	0.00	0.00	0.00	0.00
11,300.00	89.74	179.76	7,344.35	-2,505.50	93.77	2,505.87	0.00	0.00	0.00	0.00
11,400.00	89.74	179.76	7,344.80	-2,605.49	94.19	2,605.87	0.00	0.00	0.00	0.00
11,500.00	89.74	179.76	7,345.26	-2,705.49	94.62	2,705.86	0.00	0.00	0.00	0.00
11,600.00	89.74	179.76	7,345.71	-2,805.49	95.04	2,805.86	0.00	0.00	0.00	0.00
11,700.00	89.74	179.76	7,346.16	-2,905.49	95.47	2,905.86	0.00	0.00	0.00	0.00
11,800.00	89.74	179.76	7,346.61	-3,005.49	95.89	3,005.86	0.00	0.00	0.00	0.00
11,900.00	89.74	179.76	7,347.06	-3,105.48	96.32	3,105.86	0.00	0.00	0.00	0.00
12,000.00	89.74	179.76	7,347.51	-3,205.48	96.74	3,205.86	0.00	0.00	0.00	0.00
12,100.00	89.74	179.76	7,347.96	-3,305.48	97.17	3,305.86	0.00	0.00	0.00	0.00
12,200.00	89.74	179.76	7,348.42	-3,405.48	97.59	3,405.86	0.00	0.00	0.00	0.00
12,300.00	89.74	179.76	7,348.87	-3,505.48	98.02	3,505.86	0.00	0.00	0.00	0.00
12,400.00	89.74	179.76	7,349.32	-3,605.47	98.44	3,605.86	0.00	0.00	0.00	0.00
12,500.00	89.74	179.76	7,349.77	-3,705.47	98.87	3,705.85	0.00	0.00	0.00	0.00
12,600.00	89.74	179.76	7,350.22	-3,805.47	99.29	3,805.85	0.00	0.00	0.00	0.00
12,700.00	89.74	179.76	7,350.67	-3,905.47	99.72	3,905.85	0.00	0.00	0.00	0.00
12,800.00	89.74	179.76	7,351.12	-4,005.47	100.14	4,005.85	0.00	0.00	0.00	0.00
12,900.00	89.74	179.76	7,351.58	-4,105.47	100.57	4,105.85	0.00	0.00	0.00	0.00
12,993.89	89.74	179.76	7,352.00	-4,199.35	100.97	4,199.74	0.00	0.00	0.00	0.00

TD Well @ 12993.89ft - LAND 3N-32HZ_BHL

Plan Report for LAND FED 3N-32HZ - Permit Rev-1

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft
1,650.00	1,618.86	253.36	13.28	End Nudge @ 1650.00ft
4,510.00	4,288.90	1,276.88	66.92	Begin Drop @ 4510.00ft
5,560.00	5,315.55	1,466.90	76.88	End Drop @ 5560.00ft
7,000.49	6,756.04	1,466.90	76.88	KOP @ 7000.49ft
7,500.00	7,194.64	1,262.61	77.75	DLS = 10°/100'
7,897.90	7,329.00	896.54	79.30	End Build @ 7897.90ft
12,993.89	7,352.00	-4,199.35	100.97	TD Well @ 12993.89ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	179.76	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,897.90	Permit Rev-1	APC_ISCWSA REV 2 MWD+IFR1
7,897.90	12,993.89	Permit Rev-1	APC_ISCWSA REV 2 MWD+IFR1

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,629.81	1,600.00	9 5/8"	9-5/8	13-1/2
7,897.90	7,329.00	Top of Production	5-1/2	7-7/8

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,322.02	1,308.00	Fox Hills		0.00	
5,155.10	4,912.00	Sussex		0.00	
7,387.83	7,114.55	Sharon Springs		0.00	
7,459.56	7,167.55	Niobrara Top		0.00	
7,602.63	7,253.30	Niobrara B Bench		0.00	
7,766.00	7,313.29	Niobrara C Bench		0.00	
7,897.90	7,329.00	Heel:		0.00	
12,993.89	7,352.00	Toe:		0.00	

Plan Report for LAND FED 3N-32HZ - Permit Rev-1

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
2N-R66W-Sec. 29_Section Lines	10.00	5,993.93	1,543.28	Polygon
2N-R66W-Sec. 32_Section Lines	0.00	1.09	-135.07	Polygon
LAND 3N-32HZ_SHL	0.00	0.00	0.00	Point
LAND 3N-32HZ_BHL	7,352.00	-4,199.35	100.97	Point
LAND FED 3N-32HZ_Landing Diagram	0.00	0.00	0.00	Polygon

North Reference Sheet for 2N-66W-32 Land Fed 13S-32HZ Pad - LAND FED 3N-32HZ - 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' @ 4914.00usft (D Rig). Northing and Easting are relative to LAND FED 3N-32HZ

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -105.00°, Longitude Origin:0.000000°, Latitude Origin:0.000000°

False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99960339

Grid Coordinates of Well: 14,562,852.70 usft N, 1,694,847.26 usft E

Geographical Coordinates of Well: 40° 05' 56.49" N, 104° 48' 19.29" W

Grid Convergence at Surface is: 0.13°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,993.89usft
the Bottom Hole Displacement is 4,200.56usft in the Direction of 178.62° (True).

Magnetic Convergence at surface is: -8.21° (19 May 2015, , IGRF2010)

