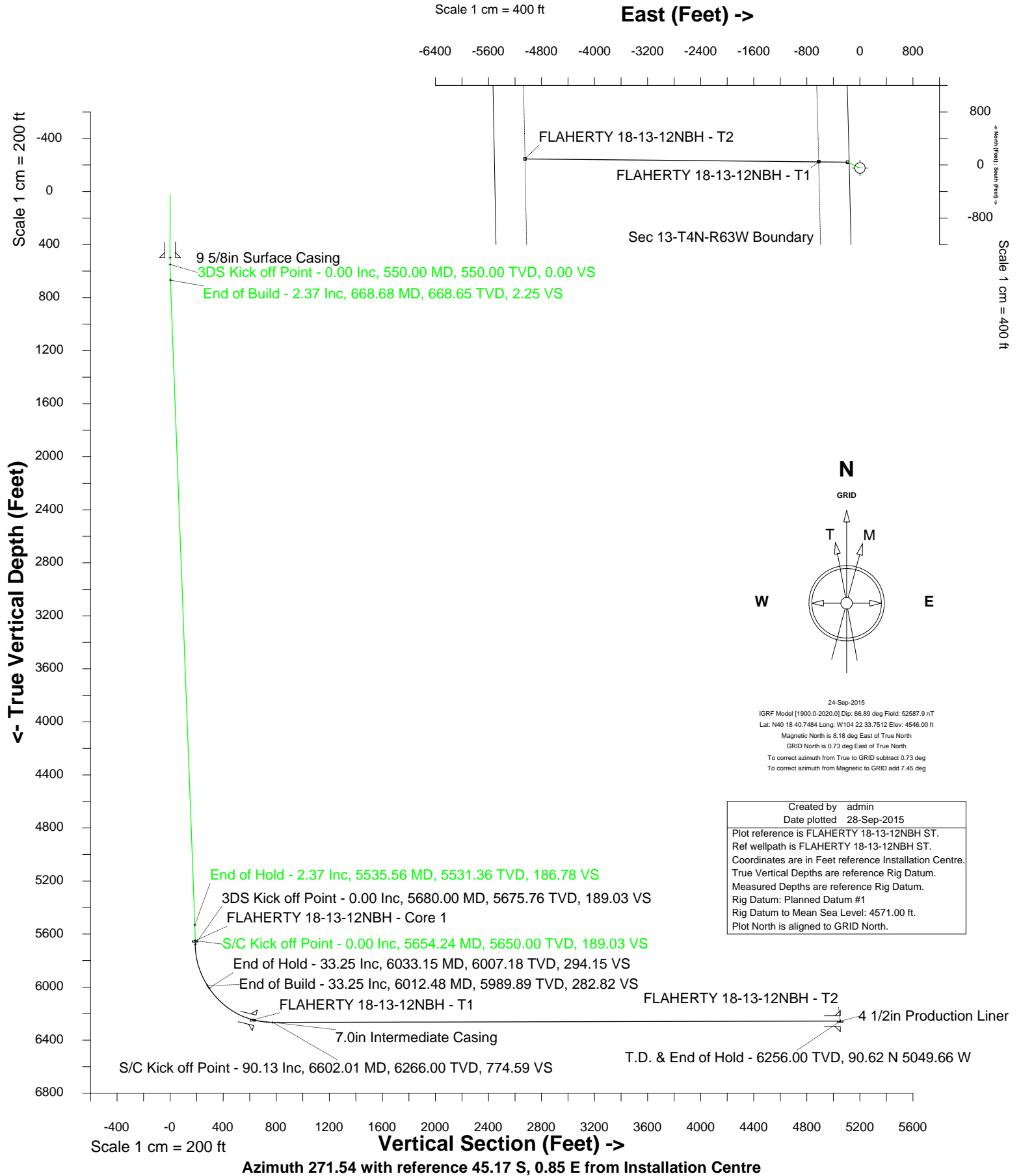


Edge Energy LLC

Location	DJ Basin	Slot	FLAHERTY 18-13-12NBH
Field	Wattenberg	Well	FLAHERTY 18-13-12NBH
Installation	Flaherty 18-I	Wellbore	FLAHERTY 18-13-12NBH ST





SYSDRILL
Well Design Combined Report
Wellbore: FLAHERTY 18-13-12NBH ST

Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
FLAHERTY 18-13-12NBH	40.31119500	-104.37604100	1358195.7427	3313435.8806	45.17S	0.85E	0.00

Declination		
Date	Source	Time
24-Sep-2015	IGRF Model [1900.0-2020.0]	15:38

Installation Details						
Name	Installation Position (Latitude)	Installation Position (Longitude)	Northing	Easting	Coord System Name	North Alignment
Flaherty 18-I	40.31131900	-104.37604200	1358240.9076	3313435.0292	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Summary Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
5680.00	0.00	269.270	5675.76	88.12N	186.73W		189.03	1358283.86	3313249.16
10880.40	90.13	270.550	6256.00	135.79N	5050.51W	==>	5052.33	1358331.52	3308385.60

Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	Rig Datum Slot Datum
25.00	0.00	0.000	25.00	0.00N	0.00E	==>	0.00	
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	9 5/8in Surface Casing
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	
600.00	1.00	295.260	600.00	0.19N	0.39W	2.00	0.40	
700.00	2.37	295.260	699.94	1.60N	3.40W	==>	3.44	
800.00	2.37	295.260	799.85	3.37N	7.14W	==>	7.23	
900.00	2.37	295.260	899.77	5.14N	10.89W	==>	11.02	
1000.00	2.37	295.260	999.68	6.91N	14.63W	==>	14.81	
1100.00	2.37	295.260	1099.60	8.67N	18.38W	==>	18.60	
1200.00	2.37	295.260	1199.51	10.44N	22.12W	==>	22.40	
1300.00	2.37	295.260	1299.42	12.21N	25.87W	==>	26.19	
1400.00	2.37	295.260	1399.34	13.98N	29.61W	==>	29.98	
1500.00	2.37	295.260	1499.25	15.74N	33.36W	==>	33.77	
1600.00	2.37	295.260	1599.17	17.51N	37.11W	==>	37.56	
1700.00	2.37	295.260	1699.08	19.28N	40.85W	==>	41.35	
1800.00	2.37	295.260	1799.00	21.05N	44.60W	==>	45.15	
1900.00	2.37	295.260	1898.91	22.81N	48.34W	==>	48.94	
2000.00	2.37	295.260	1998.82	24.58N	52.09W	==>	52.73	
2100.00	2.37	295.260	2098.74	26.35N	55.83W	==>	56.52	
2200.00	2.37	295.260	2198.65	28.12N	59.58W	==>	60.31	
2300.00	2.37	295.260	2298.57	29.88N	63.32W	==>	64.10	
2400.00	2.37	295.260	2398.48	31.65N	67.07W	==>	67.90	
2500.00	2.37	295.260	2498.39	33.42N	70.81W	==>	71.69	
2600.00	2.37	295.260	2598.31	35.19N	74.56W	==>	75.48	
2700.00	2.37	295.260	2698.22	36.95N	78.31W	==>	79.27	
2800.00	2.37	295.260	2798.14	38.72N	82.05W	==>	83.06	
2900.00	2.37	295.260	2898.05	40.49N	85.80W	==>	86.85	
3000.00	2.37	295.260	2997.97	42.26N	89.54W	==>	90.64	
3100.00	2.37	295.260	3097.88	44.02N	93.29W	==>	94.44	
3200.00	2.37	295.260	3197.79	45.79N	97.03W	==>	98.23	
3300.00	2.37	295.260	3297.71	47.56N	100.78W	==>	102.02	
3400.00	2.37	295.260	3397.62	49.33N	104.52W	==>	105.81	
3500.00	2.37	295.260	3497.54	51.09N	108.27W	==>	109.60	
3600.00	2.37	295.260	3597.45	52.86N	112.01W	==>	113.39	
3700.00	2.37	295.260	3697.37	54.63N	115.76W	==>	117.19	

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Vertical Section is from 0.00N 0.00E on azimuth 271.540 degrees
Bottom hole distance is 5052.33 Feet on azimuth 271.54 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 28-Sep-2015



SYSDRILL
Well Design Combined Report
Wellbore: FLAHERTY 18-13-12NBH ST

Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
3800.00	2.37	295.260	3797.28	56.40N	119.51W	==>	120.98	
3900.00	2.37	295.260	3897.19	58.16N	123.25W	==>	124.77	
4000.00	2.37	295.260	3997.11	59.93N	127.00W	==>	128.56	
4100.00	2.37	295.260	4097.02	61.70N	130.74W	==>	132.35	
4200.00	2.37	295.260	4196.94	63.47N	134.49W	==>	136.14	
4300.00	2.37	295.260	4296.85	65.23N	138.23W	==>	139.94	
4400.00	2.37	295.260	4396.76	67.00N	141.98W	==>	143.73	
4500.00	2.37	295.260	4496.68	68.77N	145.72W	==>	147.52	
4600.00	2.37	295.260	4596.59	70.54N	149.47W	==>	151.31	
4700.00	2.37	295.260	4696.51	72.30N	153.21W	==>	155.10	
4800.00	2.37	295.260	4796.42	74.07N	156.96W	==>	158.89	
4900.00	2.37	295.260	4896.34	75.84N	160.71W	==>	162.69	
5000.00	2.37	295.260	4996.25	77.61N	164.45W	==>	166.48	
5100.00	2.37	295.260	5096.16	79.37N	168.20W	==>	170.27	
5200.00	2.37	295.260	5196.08	81.14N	171.94W	==>	174.06	
5300.00	2.37	295.260	5295.99	82.91N	175.69W	==>	177.85	
5400.00	2.37	295.260	5395.91	84.68N	179.43W	==>	181.64	
5500.00	2.37	295.260	5495.82	86.44N	183.18W	==>	185.44	
5600.00	1.08	295.260	5595.76	87.90N	186.27W	2.00	188.56	
5680.00	0.00	269.270	5675.76	88.12N	186.73W	==>	189.03	Sidetrack Tie
5780.00	10.00	270.700	5775.25	88.23N	195.44W	10.00	197.74	
5880.00	20.00	270.700	5871.72	88.54N	221.28W	10.00	223.58	
5980.00	30.00	270.700	5962.24	89.06N	263.49W	10.00	265.79	
6080.00	37.93	270.680	6045.26	89.74N	319.10W	10.00	321.40	
6180.00	47.93	270.640	6118.38	90.52N	387.13W	10.00	389.42	
6280.00	57.93	270.620	6178.58	91.40N	466.81W	10.00	469.10	
6380.00	67.93	270.590	6224.03	92.33N	555.74W	10.00	558.03	7.0in Intermediate Casing
6465.00	76.43	270.580	6250.01	93.16N	636.59W	10.00	638.86	
6480.00	77.93	270.570	6253.34	93.31N	651.21W	10.00	653.49	
6580.00	87.93	270.560	6265.63	94.28N	750.32W	10.00	752.59	
6680.00	90.13	270.550	6265.82	95.25N	850.31W	==>	852.57	
6780.00	90.13	270.550	6265.58	96.22N	950.31W	==>	952.55	
6880.00	90.13	270.550	6265.35	97.18N	1050.30W	==>	1052.54	
6980.00	90.13	270.550	6265.12	98.15N	1150.30W	==>	1152.52	
7080.00	90.13	270.550	6264.88	99.11N	1250.29W	==>	1252.51	
7180.00	90.13	270.550	6264.65	100.08N	1350.29W	==>	1352.49	
7280.00	90.13	270.550	6264.42	101.04N	1450.28W	==>	1452.48	
7380.00	90.13	270.550	6264.18	102.01N	1550.28W	==>	1552.46	
7480.00	90.13	270.550	6263.95	102.97N	1650.27W	==>	1652.45	
7580.00	90.13	270.550	6263.71	103.94N	1750.27W	==>	1752.43	
7680.00	90.13	270.550	6263.48	104.90N	1850.27W	==>	1852.42	
7780.00	90.13	270.550	6263.25	105.87N	1950.26W	==>	1952.40	
7880.00	90.13	270.550	6263.01	106.83N	2050.26W	==>	2052.39	
7980.00	90.13	270.550	6262.78	107.80N	2150.25W	==>	2152.37	
8080.00	90.13	270.550	6262.55	108.76N	2250.25W	==>	2252.36	
8180.00	90.13	270.550	6262.31	109.73N	2350.24W	==>	2352.34	
8280.00	90.13	270.550	6262.08	110.69N	2450.24W	==>	2452.33	
8380.00	90.13	270.550	6261.84	111.66N	2550.23W	==>	2552.31	
8480.00	90.13	270.550	6261.61	112.62N	2650.23W	==>	2652.30	
8580.00	90.13	270.550	6261.38	113.59N	2750.22W	==>	2752.28	
8680.00	90.13	270.550	6261.14	114.55N	2850.22W	==>	2852.26	
8780.00	90.13	270.550	6260.91	115.52N	2950.21W	==>	2952.25	
8880.00	90.13	270.550	6260.68	116.48N	3050.21W	==>	3052.23	
8980.00	90.13	270.550	6260.44	117.45N	3150.20W	==>	3152.22	
9080.00	90.13	270.550	6260.21	118.41N	3250.20W	==>	3252.20	
9180.00	90.13	270.550	6259.97	119.38N	3350.19W	==>	3352.19	
9280.00	90.13	270.550	6259.74	120.34N	3450.19W	==>	3452.17	
9380.00	90.13	270.550	6259.51	121.31N	3550.18W	==>	3552.16	
9480.00	90.13	270.550	6259.27	122.27N	3650.18W	==>	3652.14	
9580.00	90.13	270.550	6259.04	123.24N	3750.17W	==>	3752.13	
9680.00	90.13	270.550	6258.81	124.20N	3850.17W	==>	3852.11	

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SYSDRILL
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Wellbore: FLAHERTY 18-13-12NBH ST

Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
9780.00	90.13	270.550	6258.57	125.17N	3950.16W	==>	3952.10	
9880.00	90.13	270.550	6258.34	126.13N	4050.16W	==>	4052.08	
9980.00	90.13	270.550	6258.10	127.10N	4150.15W	==>	4152.07	
10080.00	90.13	270.550	6257.87	128.06N	4250.15W	==>	4252.05	
10180.00	90.13	270.550	6257.64	129.03N	4350.14W	==>	4352.04	
10280.00	90.13	270.550	6257.40	129.99N	4450.14W	==>	4452.02	
10380.00	90.13	270.550	6257.17	130.96N	4550.13W	==>	4552.01	
10480.00	90.13	270.550	6256.94	131.92N	4650.13W	==>	4651.99	
10580.00	90.13	270.550	6256.70	132.89N	4750.12W	==>	4751.98	
10680.00	90.13	270.550	6256.47	133.85N	4850.12W	==>	4851.96	
10780.00	90.13	270.550	6256.23	134.82N	4950.11W	==>	4951.95	
10880.00	90.13	270.550	6256.00	135.78N	5050.11W	==>	5051.93	
10880.40	90.13	270.550	6256.00	135.79N	5050.51W	==>	5052.33	4 1/2in Production Liner

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Hole Sections								
Diameter [in]	Start MD[ft]	Start TVD[ft]	Start North[ft]	Start East[ft]	End MD[ft]	End TVD[ft]	End North[ft]	End East[ft]
12 1/4	25.00	25.00	0.00N	0.00E	500.00	500.00	0.00N	0.00E
8 3/4	500.00	500.00	0.00N	0.00E	5680.00	5675.76	88.12N	186.73W
6 1/8	5680.00	5675.76	88.12N	186.73W	10880.40	6256.00	135.79N	5050.51W

Casings								
Name	Top MD[ft]	Top TVD[ft]	Top North[ft]	Top East[ft]	Shoe MD[ft]	Shoe TVD[ft]	Shoe North[ft]	Shoe East[ft]
9 5/8in Surface Casing	25.00	25.00	0.00N	0.00E	500.00	500.00	0.00N	0.00E
7.0in Intermediate Casing	25.00	25.00	0.00N	0.00E	6465.00	6250.01	93.16N	636.59W
4 1/2in Production Liner	5680.00	5675.76	88.12N	186.73W	10880.40	6256.00	135.79N	5050.51W

Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
FLAHERTY 18-13-12NBH - T1	94.50N	622.33W	6246.00	40.31147600	-104.37826800	1358290.24	3312813.58
FLAHERTY 18-13-12NBH - T2	135.79N	5050.51W	6256.00	40.31174200	-104.39414300	1358331.52	3308385.60

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
415671	Planned	5680.00	5675.76	WdW Rate Gyro	Standard	
415727	Planned	10880.40	6256.00	ISCWSA MWD	Rev 3 + Fixed Rig + Rotating	

Notes

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