

Well Name: **LINDBLAD 20-25**

Surface Location: LINDBLAD 20-25 PAD S20-6N-66W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

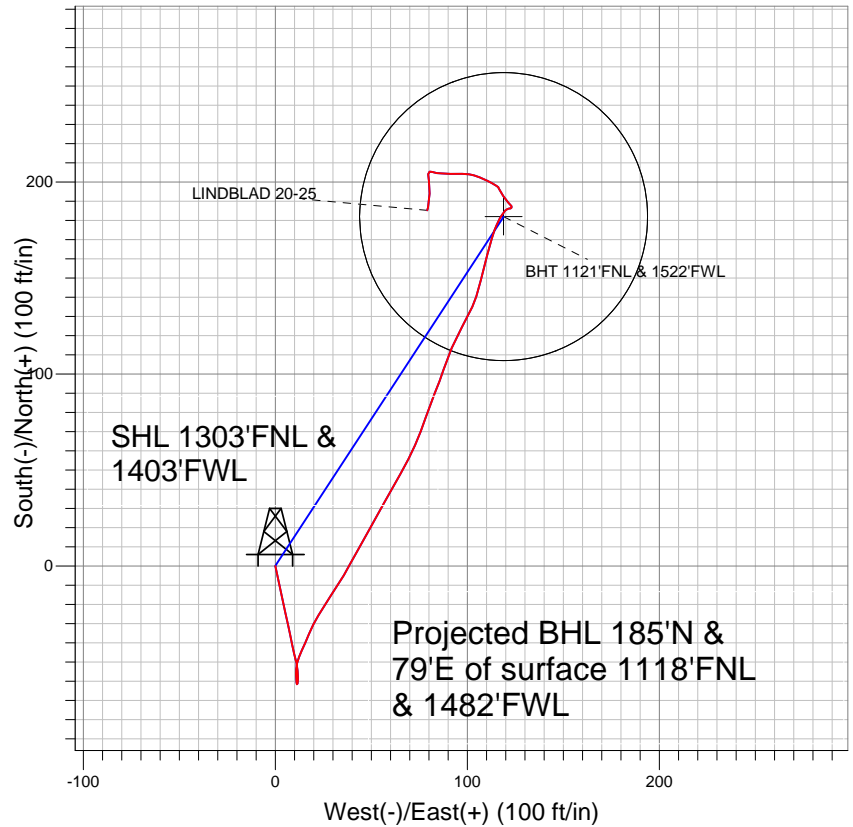
Ground Elevation: 4771.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1417413.37	3192939.13	40.477130	-104.806450

RKB CADE 21 13' RKB @ 4784.0ft (RKB CADE 21 13')

Slot

NOBLE ENERGY INC WELD COUNTY CO



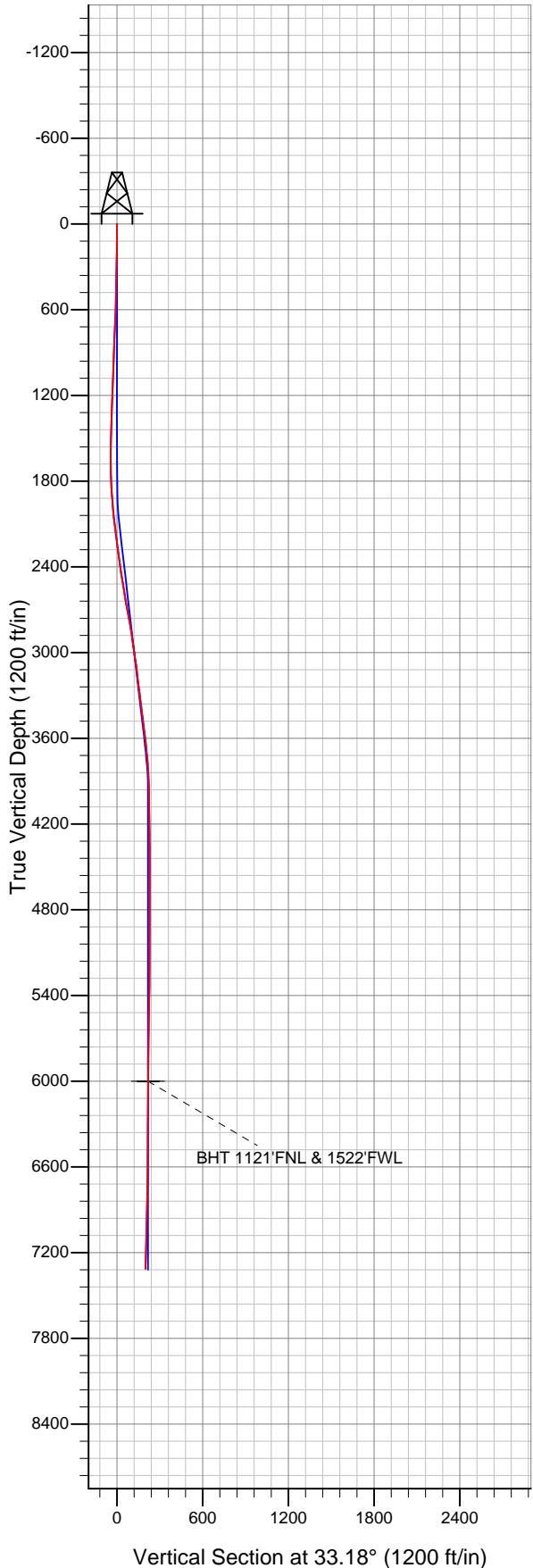
LEGEND

- ✕ LINDBLAD 20-25, Wellbore #1, PLAN 1 (FEB 1,2011) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7333'MD & 7312'TVD @ 198'VS
1.6 deg Inc 196.5 deg AZ

Project: SEC.20-T6N-R66W
Site: LINDBLAD 20-25 PAD S20-6N-66W
Well: LINDBLAD 20-25
Plan: Wellbore #1





Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.20-T6N-R66W

LINDBLAD 20-25 PAD S20-6N-66W

LINDBLAD 20-25

Wellbore #1

Survey: Survey #1

Standard Survey Report

20 October, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well LINDBLAD 20-25
Project:	SEC.20-T6N-R66W	TVD Reference:	RKB @ 4784.0ft (RKB CADE 21 13')
Site:	LINDBLAD 20-25 PAD S20-6N-66W	MD Reference:	RKB @ 4784.0ft (RKB CADE 21 13')
Well:	LINDBLAD 20-25	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.20-T6N-R66W		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	LINDBLAD 20-25 PAD S20-6N-66W		
Site Position:		Northing:	1,417,413.37 ft
From:	Lat/Long	Easting:	3,192,939.13 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.477130
		Longitude:	-104.806450
		Grid Convergence:	0.45 °

Well	LINDBLAD 20-25		
Well Position	+N/-S	0.0 ft	Northing: 1,417,413.37 ft
	+E/-W	0.0 ft	Easting: 3,192,939.13 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.477130
		Longitude:	-104.806450
		Ground Level:	4,771.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/1/2011	8.94	67.12	53,207

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	33.18	

Survey Program	Date	10/20/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
800.0	7,333.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
800.0	3.60	167.70	799.5	-24.5	5.4	-17.6	0.45	0.45	0.00	
900.0	3.40	167.90	899.3	-30.5	6.6	-21.9	0.20	-0.20	0.20	
1,000.0	3.00	167.60	999.1	-36.0	7.8	-25.8	0.40	-0.40	-0.30	
1,100.0	2.90	169.90	1,099.0	-41.0	8.8	-29.5	0.15	-0.10	2.30	
1,200.0	2.80	163.00	1,198.9	-45.8	10.0	-32.9	0.36	-0.10	-6.90	
1,300.0	2.66	170.20	1,298.8	-50.5	11.1	-36.2	0.37	-0.14	7.20	
1,400.0	2.10	174.40	1,398.7	-54.6	11.7	-39.3	0.59	-0.56	4.20	
1,500.0	1.60	178.50	1,498.6	-57.8	11.9	-41.9	0.52	-0.50	4.10	
1,547.0	1.80	183.60	1,545.6	-59.2	11.9	-43.0	0.53	0.43	10.85	
1,611.0	1.60	191.80	1,609.6	-61.1	11.6	-44.8	0.49	-0.31	12.81	
1,704.0	2.20	351.90	1,702.6	-60.6	11.1	-44.6	4.03	0.65	172.15	
1,797.0	3.10	359.80	1,795.5	-56.3	10.8	-41.2	1.04	0.97	8.49	

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Site:	LINDBLAD 20-25 PAD S20-6N-66W	MD Reference:	RKB @ 4784.0ft (RKB CADE 21 13')
Well:	LINDBLAD 20-25	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,891.0	3.90	12.00	1,889.3	-50.6	11.5	-36.1	1.16	0.85	12.98	
1,983.0	5.00	25.60	1,981.0	-43.9	13.9	-29.2	1.65	1.20	14.78	
2,076.0	6.50	21.90	2,073.5	-35.4	17.6	-20.0	1.66	1.61	-3.98	
2,169.0	7.10	31.20	2,165.9	-25.6	22.5	-9.1	1.35	0.65	10.00	
2,263.0	7.50	33.60	2,259.1	-15.5	28.9	2.8	0.54	0.43	2.55	
2,358.0	7.90	30.80	2,353.3	-4.7	35.7	15.6	0.58	0.42	-2.95	
2,450.0	9.00	28.10	2,444.3	7.0	42.3	29.1	1.27	1.20	-2.93	
2,545.0	9.00	29.70	2,538.1	20.0	49.5	43.9	0.26	0.00	1.68	
2,638.0	9.80	29.00	2,629.8	33.3	57.0	59.0	0.87	0.86	-0.75	
2,732.0	11.20	29.60	2,722.3	48.2	65.3	76.1	1.49	1.49	0.64	
2,824.0	9.50	24.00	2,812.8	62.9	72.8	92.5	2.15	-1.85	-6.09	
2,919.0	8.50	17.90	2,906.6	76.8	78.2	107.0	1.45	-1.05	-6.42	
3,014.0	8.60	22.10	3,000.5	90.0	83.0	120.8	0.67	0.11	4.42	
3,108.0	7.50	19.00	3,093.6	102.3	87.7	133.6	1.26	-1.17	-3.30	
3,201.0	7.30	22.60	3,185.8	113.5	91.9	145.3	0.54	-0.22	3.87	
3,296.0	7.40	29.40	3,280.1	124.4	97.2	157.4	0.92	0.11	7.16	
3,391.0	7.00	24.70	3,374.3	135.0	102.7	169.2	0.75	-0.42	-4.95	
3,484.0	7.50	12.80	3,466.6	146.1	106.4	180.5	1.70	0.54	-12.80	
3,578.0	7.30	16.20	3,559.8	157.8	109.4	191.9	0.51	-0.21	3.62	
3,672.0	6.60	14.10	3,653.1	168.8	112.4	202.8	0.79	-0.74	-2.23	
3,766.0	4.80	24.90	3,746.6	177.6	115.4	211.8	2.22	-1.91	11.49	
3,861.0	3.50	32.60	3,841.4	183.6	118.6	218.6	1.49	-1.37	8.11	
3,956.0	1.80	86.50	3,936.3	186.2	121.6	222.4	2.99	-1.79	56.74	
4,146.0	2.60	313.00	4,126.2	189.3	121.5	224.9	2.13	0.42	-70.26	
4,241.0	2.80	330.10	4,221.1	192.8	118.7	226.3	0.87	0.21	18.00	
4,336.0	1.70	330.70	4,316.1	196.0	116.9	228.0	1.16	-1.16	0.63	
4,431.0	0.10	32.80	4,411.0	197.3	116.2	228.8	1.74	-1.68	65.37	
4,526.0	0.40	285.70	4,506.0	197.5	116.0	228.7	0.46	0.32	-112.74	
4,621.0	0.70	316.20	4,601.0	198.0	115.2	228.8	0.43	0.32	32.11	
4,811.0	1.10	292.30	4,791.0	199.5	112.8	228.7	0.28	0.21	-12.58	
5,001.0	1.40	297.70	4,981.0	201.3	109.0	228.1	0.17	0.16	2.84	
5,191.0	1.30	287.60	5,170.9	203.0	104.9	227.3	0.14	-0.05	-5.32	
5,369.0	1.40	283.20	5,348.9	204.1	100.9	226.0	0.08	0.06	-2.47	
5,559.0	1.70	264.00	5,538.8	204.4	95.8	223.5	0.31	0.16	-10.11	
5,749.0	1.60	276.00	5,728.7	204.3	90.4	220.5	0.19	-0.05	6.32	
5,939.0	0.70	265.80	5,918.7	204.5	86.6	218.6	0.48	-0.47	-5.37	
6,019.8	0.78	273.13	5,999.5	204.5	85.5	218.0	0.16	0.10	9.07	
BHT 1121'FNL & 1522'FWL										
6,120.0	0.90	280.20	6,099.7	204.7	84.1	217.3	0.16	0.12	7.05	
6,309.0	0.50	291.10	6,288.6	205.3	81.8	216.6	0.22	-0.21	5.77	
6,498.0	0.40	255.70	6,477.6	205.4	80.4	215.9	0.15	-0.05	-18.73	
6,686.0	0.70	185.00	6,665.6	204.1	79.7	214.4	0.36	0.16	-37.61	
6,873.0	1.60	169.80	6,852.6	200.4	80.0	211.5	0.50	0.48	-8.13	
7,062.0	2.30	180.40	7,041.5	194.0	80.5	206.4	0.42	0.37	5.61	
7,280.0	1.60	196.50	7,259.4	186.7	79.6	199.8	0.40	-0.32	7.39	
7,333.0	1.60	196.50	7,312.3	185.3	79.2	198.4	0.00	0.00	0.00	

Checked By: _____ Approved By: _____ Date: _____