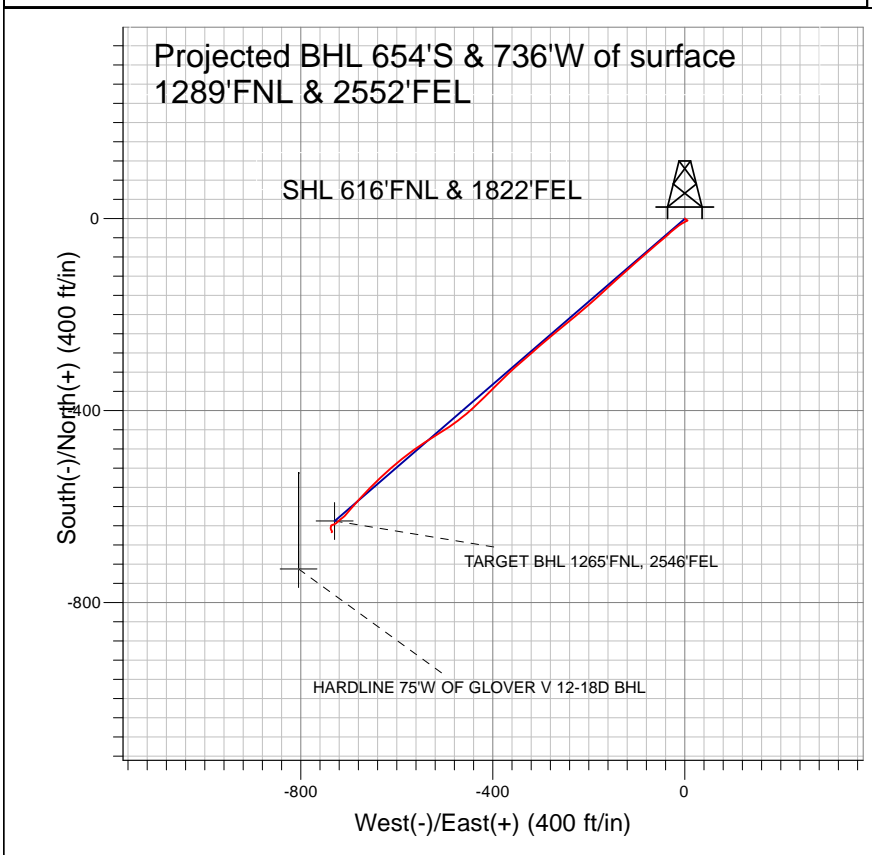


NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Glover V 12-18D, Glover V 12-18D, Glover V 12-18D V0
- Glover V 12-18D
- Survey #1

Final Survey Plot

Projected Final Survey -
 7621'MD & 7497.5'TVD @ 984' VS
 0.4 deg Inc 210.3 deg AZ

Project: SEC.12-T2N-R67W
 Site: Glover Pad Sec.12-T2N-R67W
 Well: Glover V 12-18D
 Plan: Glover V 12-18D



NOBLE ENERGY INC WELD COUNTY CO

SEC.12-T2N-R67W

Glover Pad Sec.12-T2N-R67W

Glover V 12-18D

Glover V 12-18D

Survey: Survey #1

Standard Survey Report

19 October, 2009



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Glover V 12-18D
Project:	SEC.12-T2N-R67W	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	Glover Pad Sec.12-T2N-R67W	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Well:	Glover V 12-18D	North Reference:	True
Wellbore:	Glover V 12-18D	Survey Calculation Method:	Minimum Curvature
Design:	Glover V 12-18D	Database:	EDM den0-adp01 Server Data

Project	SEC.12-T2N-R67W, Weld County, Colorado		
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	Glover Pad Sec.12-T2N-R67W		
Site Position:		Northing:	1,301,045.97 ft
From:	Lat/Long	Easting:	3,185,522.57 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 9' 28.296 N
		Longitude:	104° 50' 10.464 W
		Grid Convergence:	0.43 °

Well	Glover V 12-18D		
Well Position	+N/-S	0.0 ft	Northing: 1,301,020.50 ft
	+E/-W	0.0 ft	Easting: 3,185,528.35 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 9' 28.044 N
		Longitude:	104° 50' 10.392 W
		Ground Level:	4,836.0 ft

Wellbore	Glover V 12-18D				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/1/2008	9.19	66.94	53,281
	IGRF200510	10/1/2009	9.07	66.91	53,195

Design	Glover V 12-18D				
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	228.38	

Survey Program		Date	10/19/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
861.0	7,621.0	Survey #1 (Glover V 12-18D)	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
861.0	0.60	125.40	861.0	-2.6	3.7	-1.0	0.07	0.07	0.00
946.0	0.70	122.20	946.0	-3.1	4.5	-1.3	0.13	0.12	-3.76
1,032.0	0.60	122.60	1,032.0	-3.7	5.3	-1.5	0.12	-0.12	0.47
1,117.0	1.10	236.20	1,117.0	-4.4	5.0	-0.8	1.70	0.59	133.65
1,203.0	3.00	245.90	1,202.9	-5.7	2.3	2.1	2.24	2.21	11.28
1,288.0	3.20	237.10	1,287.8	-7.9	-1.8	6.6	0.61	0.24	-10.35
1,374.0	3.10	243.40	1,373.7	-10.3	-5.9	11.2	0.42	-0.12	7.33
1,460.0	5.20	233.10	1,459.4	-13.7	-11.1	17.3	2.58	2.44	-11.98
1,545.0	6.20	233.30	1,544.0	-18.7	-17.8	25.8	1.18	1.18	0.24
1,631.0	7.10	231.30	1,629.4	-24.8	-25.7	35.7	1.08	1.05	-2.33
1,716.0	8.90	225.10	1,713.6	-32.7	-34.4	47.5	2.35	2.12	-7.29

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Glover V 12-18D
Project:	SEC.12-T2N-R67W	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	Glover Pad Sec.12-T2N-R67W	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Well:	Glover V 12-18D	North Reference:	True
Wellbore:	Glover V 12-18D	Survey Calculation Method:	Minimum Curvature
Design:	Glover V 12-18D	Database:	EDM den0-adp01 Server Data

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)
1,802.0	10.50	230.50	1,798.4	-42.4	-45.2	62.0	2.14	1.86	6.28
1,887.0	12.30	230.70	1,881.7	-53.1	-58.2	78.8	2.12	2.12	0.24
1,973.0	13.50	228.70	1,965.5	-65.5	-72.8	98.0	1.49	1.40	-2.33
2,058.0	15.60	228.70	2,047.8	-79.6	-88.9	119.3	2.47	2.47	0.00
2,143.0	16.00	227.70	2,129.6	-95.0	-106.1	142.4	0.57	0.47	-1.18
2,229.0	16.60	229.00	2,212.1	-111.1	-124.2	166.6	0.82	0.70	1.51
2,314.0	17.00	227.80	2,293.5	-127.4	-142.5	191.1	0.62	0.47	-1.41
2,400.0	16.60	226.90	2,375.8	-144.2	-160.8	216.0	0.55	-0.47	-1.05
2,485.0	16.50	227.70	2,457.3	-160.6	-178.6	240.2	0.29	-0.12	0.94
2,570.0	16.50	229.10	2,538.8	-176.7	-196.6	264.3	0.47	0.00	1.65
2,656.0	17.60	230.40	2,621.0	-193.0	-215.9	289.6	1.35	1.28	1.51
2,741.0	18.20	229.60	2,701.9	-209.7	-235.9	315.7	0.76	0.71	-0.94
2,827.0	18.20	230.10	2,783.6	-227.1	-256.4	342.5	0.18	0.00	0.58
2,912.0	17.90	231.00	2,864.4	-243.8	-276.8	368.8	0.48	-0.35	1.06
2,997.0	17.30	230.20	2,945.4	-260.1	-296.6	394.5	0.76	-0.71	-0.94
3,083.0	17.00	227.90	3,027.6	-276.7	-315.8	419.9	0.86	-0.35	-2.67
3,168.0	17.30	229.20	3,108.8	-293.3	-334.6	444.9	0.57	0.35	1.53
3,253.0	17.10	227.90	3,190.0	-310.0	-353.4	470.1	0.51	-0.24	-1.53
3,339.0	16.60	225.20	3,272.3	-327.1	-371.5	495.0	1.08	-0.58	-3.14
3,424.0	16.00	227.60	3,353.9	-343.5	-388.8	518.8	1.06	-0.71	2.82
3,510.0	14.90	224.60	3,436.8	-359.4	-405.3	541.7	1.58	-1.28	-3.49
3,595.0	16.10	224.10	3,518.7	-375.7	-421.2	564.4	1.42	1.41	-0.59
3,681.0	15.50	228.20	3,601.5	-391.9	-438.0	587.7	1.47	-0.70	4.77
3,766.0	15.60	229.10	3,683.4	-406.9	-455.1	610.5	0.31	0.12	1.06
3,851.0	15.00	233.80	3,765.4	-420.9	-472.7	632.9	1.62	-0.71	5.53
3,937.0	15.20	235.10	3,848.4	-433.9	-490.9	655.2	0.46	0.23	1.51
4,022.0	15.20	237.70	3,930.4	-446.3	-509.4	677.2	0.80	0.00	3.06
4,108.0	15.10	238.30	4,013.4	-458.2	-528.5	699.4	0.22	-0.12	0.70
4,193.0	16.40	236.00	4,095.2	-470.7	-547.9	722.2	1.70	1.53	-2.71
4,279.0	15.30	234.90	4,178.0	-484.0	-567.2	745.5	1.33	-1.28	-1.28
4,364.0	14.50	231.50	4,260.1	-497.1	-584.7	767.3	1.39	-0.94	-4.00
4,450.0	15.00	230.60	4,343.3	-510.9	-601.8	789.2	0.64	0.58	-1.05
4,536.0	15.10	227.10	4,426.3	-525.5	-618.6	811.5	1.06	0.12	-4.07
4,621.0	14.20	226.80	4,508.6	-540.2	-634.3	833.0	1.06	-1.06	-0.35
4,707.0	12.40	225.30	4,592.2	-553.9	-648.5	852.7	2.13	-2.09	-1.74
4,792.0	11.40	224.80	4,675.4	-566.3	-660.9	870.2	1.18	-1.18	-0.59
4,878.0	10.40	222.10	4,759.9	-578.1	-672.1	886.4	1.31	-1.16	-3.14
4,963.0	9.20	221.50	4,843.6	-588.9	-681.8	900.8	1.42	-1.41	-0.71
5,049.0	8.40	221.10	4,928.6	-598.8	-690.5	913.9	0.93	-0.93	-0.47
5,134.0	8.10	220.50	5,012.7	-608.0	-698.4	925.9	0.37	-0.35	-0.71
5,220.0	7.00	222.90	5,098.0	-616.5	-705.9	937.2	1.33	-1.28	2.79
5,305.0	5.60	230.80	5,182.5	-622.9	-712.7	946.5	1.93	-1.65	9.29
5,391.0	4.80	230.60	5,268.1	-627.8	-718.7	954.3	0.93	-0.93	-0.23
5,476.0	3.30	223.30	5,352.9	-631.8	-723.1	960.2	1.86	-1.76	-8.59
5,562.0	3.20	240.00	5,438.8	-634.8	-726.9	965.1	1.10	-0.12	19.42
5,647.0	0.80	235.90	5,523.7	-636.4	-729.4	968.0	2.83	-2.82	-4.82
5,732.0	0.70	229.40	5,608.7	-637.0	-730.3	969.1	0.15	-0.12	-7.65
5,823.3	0.48	244.52	5,700.0	-637.6	-731.1	970.0	0.30	-0.25	16.57
TARGET BHL 1265'FNL, 2546'FEL									
5,861.0	0.40	255.40	5,737.7	-637.7	-731.4	970.3	0.30	-0.20	28.83
5,989.0	0.70	266.60	5,865.7	-637.8	-732.6	971.3	0.25	0.23	8.75
6,117.0	0.50	248.70	5,993.7	-638.1	-733.9	972.4	0.21	-0.16	-13.98
6,248.0	0.50	248.70	6,124.7	-638.5	-734.9	973.5	0.00	0.00	0.00
6,373.0	0.70	246.70	6,249.7	-639.0	-736.2	974.7	0.16	0.16	-1.60

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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)
6,501.0	0.70	195.80	6,377.7	-640.0	-737.1	976.1	0.47	0.00	-39.77
6,629.0	0.90	182.60	6,505.7	-641.8	-737.3	977.5	0.21	0.16	-10.31
6,757.0	0.90	181.20	6,633.6	-643.8	-737.4	978.9	0.02	0.00	-1.09
6,885.0	1.00	180.10	6,761.6	-645.9	-737.4	980.3	0.08	0.08	-0.86
7,014.0	1.00	160.30	6,890.6	-648.1	-737.1	981.5	0.27	0.00	-15.35
7,142.0	0.90	137.30	7,018.6	-649.9	-736.0	981.9	0.31	-0.08	-17.97
7,270.0	0.50	161.90	7,146.6	-651.2	-735.1	982.1	0.38	-0.31	19.22
7,399.0	0.30	190.80	7,275.6	-652.0	-735.0	982.6	0.22	-0.16	22.40
7,527.0	0.60	201.10	7,403.6	-653.0	-735.3	983.4	0.24	0.23	8.05
7,576.0	0.40	210.30	7,452.6	-653.4	-735.5	983.8	0.44	-0.41	18.78
7,621.0	0.40	210.30	7,497.6	-653.7	-735.7	984.1	0.00	0.00	0.00
HARDLINE 75'W OF GLOVER V 12-18D BHL									

Wellbore Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
TARGET BHL 1265'F	0.00	0.00	5,700.0	-630.2	-729.6	1,300,384.87	3,184,803.56	40° 9' 21.816 N	104° 50' 19.788 W
- survey misses target center by 7.5ft at 5823.3ft MD (5700.0 TVD, -637.6 N, -731.1 E)									
- Point									
HARDLINE 75'W OF (0.00	0.00	7,937.0	-730.2	-804.6	1,300,284.33	3,184,729.28	40° 9' 20.828 N	104° 50' 20.754 W
- survey misses target center by 451.3ft at 7621.0ft MD (7497.6 TVD, -653.7 N, -735.7 E)									
- Polygon									
Point 1			7,937.0	0.0	0.0	1,300,284.33	3,184,729.28		
Point 2			7,937.0	200.0	0.0	1,300,484.32	3,184,727.78		

Checked By: _____ Approved By: _____ Date: _____