

# NOBLE ENERGY, INC

Location: COLORADO Slot: Bernhardt O12-19 466'FNL & 1985'FWL  
Field: WELD COUNTY (NOBLE NAD 83) Well: Bernhardt O12-19  
Facility: SEC.12-T4N-R67W Wellbore: Bernhardt O12-19 PWB

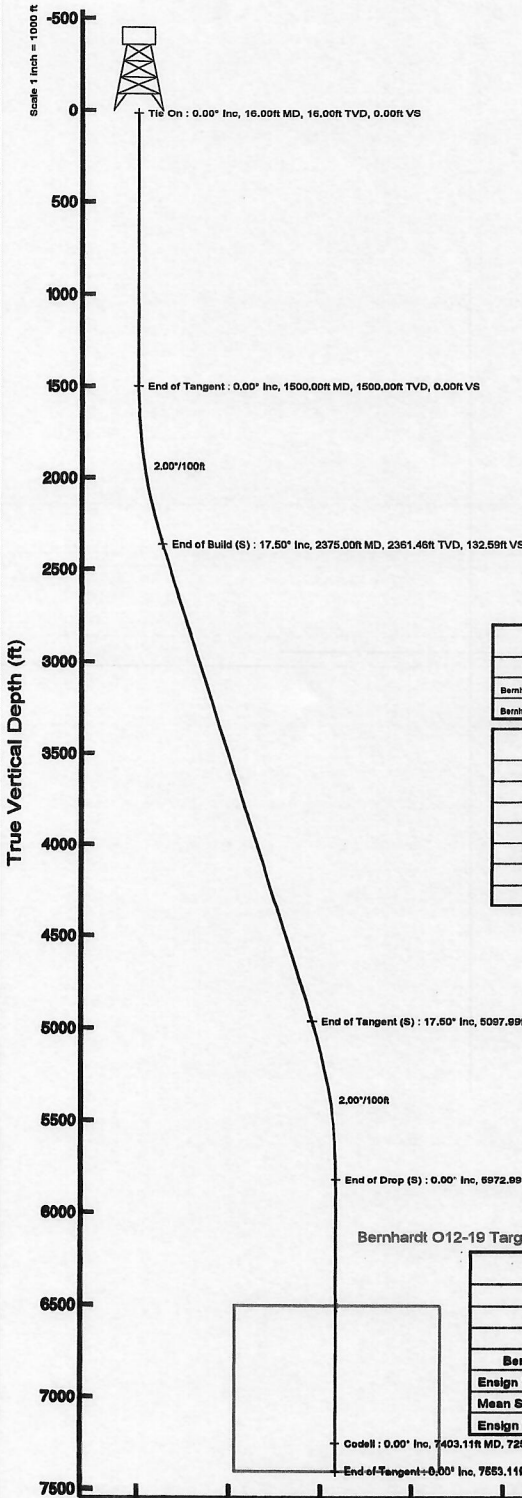
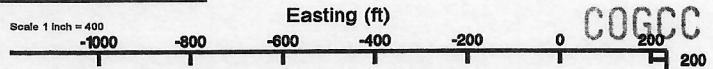
no noble  
energy



REBAKERD  
HUGHES

INTCO  
SEP 5 07

Plot reference wellbore is Bernhardt O12-19 PWB	
True vertical depths are referenced to Ensign 7 (RT)	Grid System: NAD83 / Lambert Colorado State Planes, Northern Zone (S01), US feet
Measured depths are referenced to Ensign 7 (RT)	North Reference: True north
Ensign 7 (RT) to Mean Sea Level: 4748 feet	Scale: True distance
Mean Sea Level to Mud line (Facility - SEC.12-T4N-R67W): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	
Created by: Suzanne Thompson on 8/4/2007	



Bernhardt O12-19  
466'FNL & 1985'FWL



Bernhardt O12-19 Target  
1316'FNL & 1322'FWL

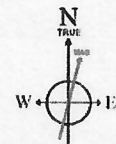
Bernhardt O12-19 Legal Box 800' X 800'  
Center @ 1320'FNL & 1320'FWL

## Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (USF)	Grid North (USF)	Latitude	Longitude
Bernhardt O12-19 Legal Box 800' X 800' Center @ 1320'FNL & 1320'FWL	8500.00	-854.19	-851.84	3182947.00	1303746.88	40° 19' 48.100"N	104° 50' 37.855"W	
Bernhardt O12-19 Target 1316'FNL & 1322'FWL	8500.00	-860.19	-858.84	3182946.00	1303750.87	40° 19' 48.140"N	104° 50' 37.822"W	

## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	16.00	0.000	217.483	16.00	0.00	0.00	0.00	0.00
End of Tangent	1500.00	0.000	217.483	1500.00	0.00	0.00	0.00	0.00
End of Build (S)	2375.00	17.500	217.483	2361.46	-105.22	-80.69	2.00	132.59
End of Tangent (S)	5097.99	17.500	217.483	4958.42	-754.98	-578.96	0.00	951.41
End of Drop (S)	5972.99	0.000	217.483	5819.88	-860.19	-659.64	2.00	1084.00
End of Tangent	7553.11	0.000	217.483	7400.00	-860.19	-659.64	0.00	1084.00



BGGM (1945.0 to 2009.0) Dip: 67.14° Field: 53523.1 nT  
Magnetic North is 9.42 degrees East of True North (at 08/30/07)

To correct azimuth from Magnetic to True add 9.42 degrees

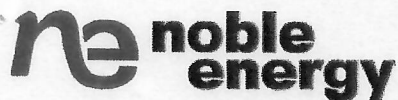
## Location Information

Location Information						
Facility Name			Grid East (USF)	Grid North (USF)	Latitude	Longitude
SEC.12-T4N-R67W			3183602.560	1364615.900	40° 19' 56.840"N	104° 50' 28.112"W
Slot	Local N (ft)	Local E (ft)	Grid East (USF)	Grid North (USF)	Latitude	Longitude
Bernhardt O12-19 466'FNL & 1985'FWL	0.00	0.00	3183602.560	1364615.900	40° 19' 56.840"N	104° 50' 28.112"W
Ensign 7 (RT) to Mud line (Facility - SEC.12-T4N-R67W)					4748ft	
Mean Sea Level to Mud line (Facility - SEC.12-T4N-R67W)					0ft	
Ensign 7 (RT) to Mean Sea Level					4748ft	

Vertical Section (ft)

Azimuth 217.48° with reference 0.00 N, 0.00 E from wellhead

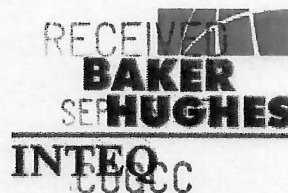
Scale 1 inch = 1000 ft



# Planned Wellpath Report

Bernhardt O12-19 PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY, INC	Slot	Bernhardt O12-19 466'FNL & 1985'FWL
Area	COLORADO	Well	Bernhardt O12-19
Field	WELD COUNTY (NOBLE NAD 83)	Wellbore	Bernhardt O12-19 PWB
Facility	SEC.12-T4N-R67W		

## REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado State Planes, Northern Zone (501), US feet	Software System	WellArchitect™ 1.2
North Reference	True	User	Suzanne Thompson
Scale	0.999958	Report Generated	09/04/07 at 10:44:47
Wellbore last revised	08/30/07	Database/Source file	WA_Denver/Bernhar

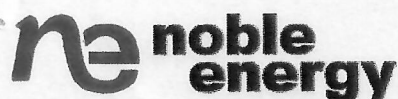
## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North [feet]	East [feet]	Easting [US feet]	Northing [US feet]	Latitude [°]	Longitude [°]
Slot Location	0.00	0.00	3183602.56	1364615.90	40 19 56.640N	104 50 29.112W
Facility Reference Pt			3183602.56	1364615.90	40 19 56.640N	104 50 29.112W
Field Reference Pt			3000000.00	4454105.15	48 46 34.315N	105 30 00.000W

## WELLPATH DATUM

Calculation method	Minimum curvature	Ensign 7 (RT) to Facility Vertical Datum	4748.00 feet
Horizontal Reference Pt	Slot	Ensign 7 (RT) to Mean Sea Level	4748.00 feet
Vertical Reference Pt	Ensign 7 (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00 feet
MD Reference Pt	Ensign 7 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	217.48°





# Planned Wellpath Report

Bernhardt O12-19 PWP

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Area	COLORADO	Well	Bernhardt O12-19
Field	WELD COUNTY (NOBLE NAD 83)	Wellbore	Bernhardt O12-19 PWB
Facility	SEC.12-T4N-R67W		

## WELLPATH DATA (82 stations) † = interpolated/extrapolated station

MD [feet]	Inclination [°]	Azimuth [°]	TVD [feet]	Vert Sect [feet]	North [feet]	East [feet]	DLS [°/100ft]
0.00†	0.000	217.483	0.00	0.00	0.00	0.00	0.00
16.00	0.000	217.483	16.00	0.00	0.00	0.00	0.00
116.00†	0.000	0.000	116.00	0.00	0.00	0.00	0.00
216.00†	0.000	0.000	216.00	0.00	0.00	0.00	0.00
316.00†	0.000	0.000	316.00	0.00	0.00	0.00	0.00
416.00†	0.000	0.000	416.00	0.00	0.00	0.00	0.00
516.00†	0.000	0.000	516.00	0.00	0.00	0.00	0.00
616.00†	0.000	0.000	616.00	0.00	0.00	0.00	0.00
716.00†	0.000	0.000	716.00	0.00	0.00	0.00	0.00
816.00†	0.000	0.000	816.00	0.00	0.00	0.00	0.00
916.00†	0.000	0.000	916.00	0.00	0.00	0.00	0.00
1016.00†	0.000	0.000	1016.00	0.00	0.00	0.00	0.00
1116.00†	0.000	0.000	1116.00	0.00	0.00	0.00	0.00
1216.00†	0.000	0.000	1216.00	0.00	0.00	0.00	0.00
1316.00†	0.000	0.000	1316.00	0.00	0.00	0.00	0.00
1416.00†	0.000	0.000	1416.00	0.00	0.00	0.00	0.00
1500.00	0.000	217.483	1500.00	0.00	0.00	0.00	0.00
1516.00†	0.320	217.483	1516.00	0.04	-0.04	-0.03	2.00
1616.00†	2.320	217.483	1615.97	2.35	-1.86	-1.43	2.00
1716.00†	4.320	217.483	1715.80	8.14	-6.46	-4.95	2.00
1816.00†	6.320	217.483	1815.36	17.41	-13.82	-10.59	2.00
1916.00†	8.320	217.483	1914.54	30.15	-23.93	-18.35	2.00
2016.00†	10.320	217.483	2013.21	46.34	-36.78	-28.20	2.00
2116.00†	12.320	217.483	2111.26	65.97	-52.35	-40.15	2.00
2216.00†	14.320	217.483	2208.57	89.01	-70.63	-54.17	2.00
2316.00†	16.320	217.483	2305.01	115.43	-91.60	-70.24	2.00
2375.00	17.500	217.483	2361.46	132.59	-105.22	-80.69	2.00
2416.00†	17.500	217.483	2400.56	144.92	-115.00	-88.19	0.00
2516.00†	17.500	217.483	2495.93	174.99	-138.86	-106.49	0.00
2616.00†	17.500	217.483	2591.30	205.06	-162.72	-124.79	0.00
2716.00†	17.500	217.483	2686.68	235.13	-186.59	-143.08	0.00
2816.00†	17.500	217.483	2782.05	265.20	-210.45	-161.38	0.00
2916.00†	17.500	217.483	2877.42	295.27	-234.31	-179.68	0.00
3016.00†	17.500	217.483	2972.79	325.34	-258.17	-197.98	0.00
3116.00†	17.500	217.483	3068.16	355.41	-282.03	-216.28	0.00
3216.00†	17.500	217.483	3163.53	385.48	-305.90	-234.58	0.00
3316.00†	17.500	217.483	3258.91	415.56	-329.76	-252.88	0.00
3416.00†	17.500	217.483	3354.28	445.63	-353.62	-271.17	0.00
3516.00†	17.500	217.483	3449.65	475.70	-377.48	-289.47	0.00
3616.00†	17.500	217.483	3545.02	505.77	-401.34	-307.77	0.00

# Planned Wellpath Report

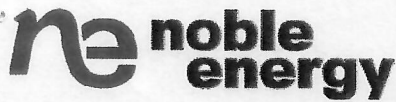
Bernhardt O12-19 PWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	Bernhardt O12-19 466'FNL & 1985'FWL
Area	COLORADO	Well	Bernhardt O12-19
Field	WELD COUNTY (NOBLE NAD 83)	Wellbore	Bernhardt O12-19 PWB
Facility	SEC.12-T4N-R67W		

WELLPATH DATA (82 stations) † = interpolated/extrapolated station							
MD [feet]	Inclination [°]	Azimuth [°]	TVD [feet]	Vert Sect [feet]	North [feet]	East [feet]	DLS [°/100ft]
3716.00†	17.500	217.483	3640.39	535.84	-425.21	-326.07	0.00
3816.00†	17.500	217.483	3735.76	565.91	-449.07	-344.37	0.00
3916.00†	17.500	217.483	3831.14	595.98	-472.93	-362.67	0.00
4016.00†	17.500	217.483	3926.51	626.05	-496.79	-380.97	0.00
4116.00†	17.500	217.483	4021.88	656.12	-520.65	-399.27	0.00
4216.00†	17.500	217.483	4117.25	686.19	-544.52	-417.56	0.00
4316.00†	17.500	217.483	4212.62	716.26	-568.38	-435.86	0.00
4416.00†	17.500	217.483	4307.99	746.33	-592.24	-454.16	0.00
4516.00†	17.500	217.483	4403.37	776.40	-616.10	-472.46	0.00
4616.00†	17.500	217.483	4498.74	806.47	-639.96	-490.76	0.00
4716.00†	17.500	217.483	4594.11	836.54	-663.83	-509.06	0.00
4816.00†	17.500	217.483	4689.48	866.61	-687.69	-527.36	0.00
4916.00†	17.500	217.483	4784.85	896.68	-711.55	-545.66	0.00
5016.00†	17.500	217.483	4880.23	926.76	-735.41	-563.95	0.00
5097.99	17.500	217.483	4958.42	951.41	-754.98	-578.96	0.00
5116.00†	17.140	217.483	4975.61	956.77	-759.23	-582.22	2.00
5216.00†	15.140	217.483	5071.67	984.57	-781.29	-599.14	2.00
5316.00†	13.140	217.483	5168.63	1009.00	-800.67	-614.00	2.00
5416.00†	11.140	217.483	5266.39	1030.02	-817.36	-626.80	2.00
5516.00†	9.140	217.483	5364.82	1047.63	-831.33	-637.51	2.00
5616.00†	7.140	217.483	5463.81	1061.79	-842.56	-646.12	2.00
5716.00†	5.140	217.483	5563.23	1072.48	-851.05	-652.63	2.00
5816.00†	3.140	217.483	5662.97	1079.70	-856.78	-657.03	2.00
5916.00†	1.140	217.483	5762.89	1083.43	-859.74	-659.30	2.00
5972.99	0.000	217.483	5819.88 <sup>1</sup>	1084.00	-860.19	-659.64	2.00
6016.00†	0.000	0.000	5862.89	1084.00	-860.19	-659.64	0.00
6116.00†	0.000	0.000	5962.89	1084.00	-860.19	-659.64	0.00
6216.00†	0.000	0.000	6062.89	1084.00	-860.19	-659.64	0.00
6316.00†	0.000	0.000	6162.89	1084.00	-860.19	-659.64	0.00
6416.00†	0.000	0.000	6262.89	1084.00	-860.19	-659.64	0.00
6516.00†	0.000	0.000	6362.89	1084.00	-860.19	-659.64	0.00
6616.00†	0.000	0.000	6462.89	1084.00	-860.19	-659.64	0.00
6716.00†	0.000	0.000	6562.89	1084.00	-860.19	-659.64	0.00
6816.00†	0.000	0.000	6662.89	1084.00	-860.19	-659.64	0.00
6916.00†	0.000	0.000	6762.89	1084.00	-860.19	-659.64	0.00
7016.00†	0.000	0.000	6862.89	1084.00	-860.19	-659.64	0.00
7116.00†	0.000	0.000	6962.89	1084.00	-860.19	-659.64	0.00
7216.00†	0.000	0.000	7062.89	1084.00	-860.19	-659.64	0.00
7316.00†	0.000	0.000	7162.89	1084.00	-860.19	-659.64	0.00
7416.00†	0.000	0.000	7262.89	1084.00	-860.19	-659.64	0.00





# Planned Wellpath Report

Bernhardt O12-19 PWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY, INC	Slot	Bernhardt O12-19 466'FNL & 1985'FWL
Area	COLORADO	Well	Bernhardt O12-19
Field	WELD COUNTY (NOBLE NAD 83)	Wellbore	Bernhardt O12-19 PWB
Facility	SEC.12-T4N-R67W		

WELLPATH DATA (82 stations) † = interpolated/extrapolated station							
MD [feet]	Inclination [°]	Azimuth [°]	TVD [feet]	Vert Sect [feet]	North [feet]	East [feet]	DLS [°/100ft]
7516.00†	0.000	0.000	7362.89	1084.00	-860.19	-659.64	0.00
7553.11	0.000	217.483	7400.00	1084.00	-860.19	-659.64	0.00

TARGETS									
Name	MD [feet]	TVD [feet]	North [feet]	East [feet]	Grid East [us survey feet]	Grid North [us survey feet]	Latitude [°]	Longitude [°]	Shape
Bernhardt O12-19 Legal Box 800' X 800' Center @ 1320'FNL & 1320'FWL		6500.00	-864.19	-661.64	3182947.39	1363746.86	40 19 48.100N	104 50 37.655W	square
1) Bernhardt O12-19 Target 1316'FNL & 1322'FWL		6500.00	-860.19	-659.64	3182949.35	1363750.87	40 19 48.140N	104 50 37.629W	point

SURVEY PROGRAM Ref Wellbore: Bernhardt O12-19 PWB Ref Wellpath: Bernhardt O12-19 PWP				
Start MD [feet]	End MD [feet]	Positional Uncertainty Model	Log Name/Comment	Wellbore
16.00	7553.11	MTC (Collar, pre-2000) (Standard)		Bernhardt O12-19 PWB

WELLPATH COMMENTS				
MD [feet]	Inclination [degrees]	Azimuth [degrees]	TVD [feet]	Comment
7403.11	0.000	217.483	7250.00	Codell