

30-015-39430

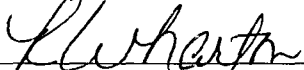
OCCIDENTAL PERMIAN LTD.

Nash Draw Delaware
Eddy County, NM
Cypress 34 Federal #8H
DH - Job #320313-MPH-278

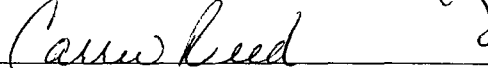
Survey: MWD

SDI Standard Survey Report

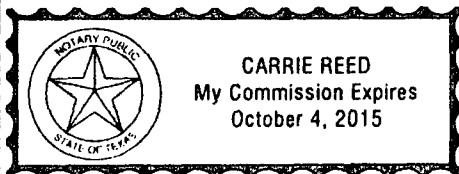
This survey is correct to the best of my knowledge and is supported by actual field data.



Notarized this date 16th of May, 2013.



Notary Signature
County of Midland
State of Texas



Scientific Drilling

Cypress 34 Federal 8H MWD 455' to 8074' Survey Report

(Def Survey)

Report Date: June 10, 2013 - 12:01 PM
Client: Oxy
Field: NM, Eddy (NAD27) 2011
Structure / Slot: Oxy (Cypress 34 Federal 8H) H&P 474 / Cypress 34 Federal 8H
Well: Cypress 34 Federal 8H
Borehole: Original Hole
UWI / API#: NM-OXY-0051 / 30-015-39430
Survey Name: Cypress 34 Federal 8H MWD 455' to 8074'
Survey Date: March 21, 2013
Tort / AHD / DDI / ERD Ratio: 23.424 ° / 178.585 ft / 3.622 / 0.022
Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 15' 19.66788", W 103° 58' 11.37000"
Location Grid N/E Y/X: N 456845.883 ftUS, E 612372.435 ftUS
CRS Grid Convergence Angle: 0.19400453 °
Grid Scale Factor: 0.99992355

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 0.000 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3066.000 ft above MSL
Seabed / Ground Elevation: 3041.000 ft above MSL
Magnetic Declination: 7.621 °
Total Field Strength: 48390.973 nT
Magnetic Dip Angle: 80.059 °
Declination Date: March 21, 2013
Magnetic Declination Model: BGGM 2012
North Reference: Grid North
Grid Convergence Used: 0.194 °
Total Corr Mag North->Grid North: 7.427 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	456845.88	612372.43	N 32 15 19.67	W 103 58 11.37
Assumed Vertical	408.00	0.00	0.00	408.00	0.00	0.00	0.00	0.00	456845.88	612372.43	N 32 15 19.67	W 103 58 11.37
First MWD Survey	455.00	1.01	149.24	455.00	-0.36	-0.36	0.21	2.15	456845.53	612372.65	N 32 15 19.66	W 103 58 11.37
	676.00	1.10	151.74	675.96	-3.90	-3.90	2.21	0.05	456841.99	612374.65	N 32 15 19.63	W 103 58 11.34
	841.00	1.32	167.04	840.92	-7.15	-7.15	3.39	0.24	456838.74	612375.82	N 32 15 19.60	W 103 58 11.33
	1025.00	1.32	174.51	1024.87	-11.32	-11.32	4.07	0.09	456834.56	612376.50	N 32 15 19.56	W 103 58 11.32
	1224.00	1.71	182.51	1223.81	-16.57	-16.57	4.16	0.22	456829.32	612376.59	N 32 15 19.50	W 103 58 11.32
	1419.00	1.80	184.61	1418.71	-22.53	-22.53	3.78	0.06	456823.36	612376.22	N 32 15 19.44	W 103 58 11.33
	1608.00	1.80	186.81	1607.62	-28.43	-28.43	3.19	0.04	456817.45	612375.63	N 32 15 19.39	W 103 58 11.33
	1800.00	1.32	178.81	1799.55	-33.64	-33.64	2.88	0.27	456812.25	612375.31	N 32 15 19.33	W 103 58 11.34
	1989.00	0.70	178.95	1988.52	-36.97	-36.97	2.95	0.33	456808.92	612375.38	N 32 15 19.30	W 103 58 11.34
	2178.00	0.62	169.32	2177.51	-39.13	-39.13	3.16	0.07	456806.76	612375.59	N 32 15 19.28	W 103 58 11.33
	2365.00	0.40	188.31	2364.50	-40.77	-40.77	3.25	0.15	456805.12	612375.68	N 32 15 19.26	W 103 58 11.33
	2552.00	1.19	145.11	2551.48	-43.01	-43.01	4.27	0.50	456802.88	612376.70	N 32 15 19.24	W 103 58 11.32
	2743.00	1.80	157.63	2742.42	-47.41	-47.41	6.54	0.36	456798.48	612378.98	N 32 15 19.20	W 103 58 11.30
	2930.00	2.42	154.42	2929.29	-53.69	-53.69	9.37	0.34	456792.20	612381.80	N 32 15 19.14	W 103 58 11.26
	3027.00	2.20	154.51	3026.21	-57.21	-57.21	11.05	0.23	456788.67	612383.48	N 32 15 19.10	W 103 58 11.24
	3051.00	2.29	152.71	3050.19	-58.06	-58.06	11.47	0.48	456787.83	612383.90	N 32 15 19.09	W 103 58 11.24
	3154.00	2.02	153.33	3153.12	-61.51	-61.51	13.23	0.26	456784.38	612385.66	N 32 15 19.06	W 103 58 11.22
	3344.00	2.20	152.93	3342.99	-67.75	-67.75	16.39	0.10	456778.14	612388.82	N 32 15 19.00	W 103 58 11.18
	3533.00	2.11	151.13	3531.85	-74.02	-74.02	19.72	0.06	456771.87	612392.15	N 32 15 18.93	W 103 58 11.14
	3722.00	2.20	151.13	3720.72	-80.25	-80.25	23.15	0.05	456765.64	612395.58	N 32 15 18.87	W 103 58 11.10
	3911.00	2.11	37.44	3909.65	-80.66	-80.66	27.02	1.91	456765.23	612399.45	N 32 15 18.87	W 103 58 11.06
	4100.00	2.11	31.24	4098.52	-74.92	-74.92	30.94	0.12	456770.97	612403.37	N 32 15 18.93	W 103 58 11.01
	4290.00	2.11	30.23	4288.39	-68.91	-68.91	34.51	0.02	456776.98	612406.95	N 32 15 18.98	W 103 58 10.97
	4479.00	2.20	31.84	4477.26	-62.82	-62.82	38.17	0.06	456783.07	612410.60	N 32 15 19.05	W 103 58 10.93
	4668.00	2.20	30.32	4666.12	-56.60	-56.60	41.90	0.03	456789.29	612414.34	N 32 15 19.11	W 103 58 10.88
	4857.00	0.62	330.73	4855.06	-52.57	-52.57	43.24	1.04	456793.31	612415.67	N 32 15 19.15	W 103 58 10.87
	5047.00	0.48	348.62	5045.05	-50.90	-50.90	42.58	0.12	456794.99	612415.01	N 32 15 19.16	W 103 58 10.88
	5236.00	0.40	1.14	5234.05	-49.46	-49.46	42.43	0.07	456796.43	612414.86	N 32 15 19.18	W 103 58 10.88
	5425.00	0.31	343.21	5423.05	-48.31	-48.31	42.30	0.08	456797.58	612414.73	N 32 15 19.19	W 103 58 10.88
	5614.00	0.40	308.14	5612.04	-47.41	-47.41	41.63	0.12	456798.47	612414.06	N 32 15 19.20	W 103 58 10.89
	5804.00	0.62	288.63	5802.03	-46.68	-46.68	40.14	0.15	456799.21	612412.57	N 32 15 19.20	W 103 58 10.90
	5993.00	0.40	276.81	5991.03	-46.27	-46.27	38.51	0.13	456799.62	612410.94	N 32 15 19.21	W 103 58 10.92
	6183.00	0.48	276.72	6181.02	-46.10	-46.10	37.06	0.04	456799.79	612409.49	N 32 15 19.21	W 103 58 10.94
	6372.00	0.31	258.53	6370.02	-46.11	-46.11	35.78	0.11	456799.78	612408.21	N 32 15 19.21	W 103 58 10.96
	6562.00	0.40	222.71	6560.01	-46.70	-46.70	34.82	0.12	456799.19	612407.25	N 32 15 19.20	W 103 58 10.97
	6751.00	0.48	229.83	6749.01	-47.69	-47.69	33.77	0.05	456798.19	612406.20	N 32 15 19.19	W 103 58 10.98
	6940.00	0.70	227.11	6938.00	-48.99	-48.99	32.32	0.12	456796.90	612404.75	N 32 15 19.18	W 103 58 11.00
	7129.00	1.71	220.34	7126.95	-51.92	-51.92	29.65	0.54	456793.96	612402.08	N 32 15 19.15	W 103 58 11.03
	7319.00	1.80	198.63	7316.87	-56.91	-56.91	26.86	0.35	456788.97	612399.29	N 32 15 19.10	W 103 58 11.06
	7508.00	3.12	184.83	7505.69	-64.85	-64.85	25.48	0.76	456781.04	612397.91	N 32 15 19.03	W 103 58 11.08
	7697.00	1.41	251.15	7694.56	-70.73	-70.73	22.84	1.51	456775.16	612395.28	N 32 15 18.97	W 103 58 11.11
	7886.00	2.20	213.53	7883.47	-74.50	-74.50	18.64	0.73	456771.38	612391.07	N 32 15 18.93	W 103 58 11.16
Final MWD Survey	8074.00	2.90	226.01	8071.29	-80.82	-80.82	13.22	0.47	456765.07	612385.66	N 32 15 18.87	W 103 58 11.22

Survey Type: Def Survey

Survey Error Model: ICSWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Survey Tool Type	Borehole / Survey
	0.000	25.000	1/25.000	SLB_BLIND+TREND-Depth Only	Original Hole / Cypress 34 Federal 8H MWD 455' to 8074'
	25.000	408.000	1/98.425	SLB_BLIND+TREND	Original Hole / Cypress 34 Federal 8H MWD 455' to 8074'
	408.000	408.000	Act Sins	SLB_BLIND+TREND	Original Hole / Cypress 34 Federal 8H MWD 455' to 8074'
	408.000	8074.000	1/7686.000	SLB_MWD-STD	Original Hole / Cypress 34 Federal 8H MWD 455' to 8074'

Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Cypress 34 Federal #8H
Project:	Nash Draw Delaware	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Cypress 34 Federal #8H	North Reference:	Grid
Wellbore:	DH - Job #320313-MPH-278	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320313-MPH-278	Database:	EDM-Regulatory

Project:	Nash Draw Delaware		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Eddy County, NM		
Site Position:	Northing:	461,073.91 usft	Latitude: 32° 16' 1.542 N
From: Lat/Long	Easting:	611,392.06 usft	Longitude: 103° 58' 22.621 W
Position Uncertainty: 0.00 usft	Slot Radius: 13-3/16"	Grid Convergence: 0.19 °	

Well:	Cypress 34 Federal #8H, Directional		
Well Position	+N/-S 0.00 usft	Northing: 456,849.04 usft	Latitude: 32° 15' 19.668 N
	+E/-W 0.00 usft	Easting: 613,301.23 usft	Longitude: 103° 58' 0.554 W
Position Uncertainty 0.00 usft	Wellhead Elevation: usft	Ground Level: 0.00 usft	

Wellbore	DH - Job #320313-MPH-278				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/17/13	7.56	60.11	48,442

Design					DH - Job #320313-MPH-278							
Audit Notes:												
Version:		1.0		Phase:		ACTUAL		Tie On Depth:		0.00		
Vertical Section:		Depth From (TVD)			+N/-S			+E/-W			Direction	
		(usft)			(usft)			(usft)			(°)	
		0.00			0.00			0.00			359.39	

Survey Program	Date	05/09/13		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
3,154.00	13,073.00	MWD (DH - Job #320313-MPH-278)	Keeper	Keeper Surface Readout

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
3,051.00	2.29	152.71	3,050.18	-61.15	13.31	167.72	62.58	
3,154.00	2.02	153.55	3,153.11	-64.60	15.06	166.88	66.34	
3,344.00	2.20	152.93	3,342.98	-70.85	18.21	165.58	73.15	
3,533.00	2.11	151.13	3,531.84	-77.13	21.54	164.39	80.08	
3,722.00	2.20	151.13	3,720.71	-83.35	24.98	163.32	87.01	
3,911.00	2.11	37.62	3,909.64	-83.77	28.85	161.00	88.60	
4,100.00	2.11	32.74	4,098.51	-78.09	32.86	157.18	84.72	
4,290.00	2.11	34.72	4,288.38	-72.27	36.74	153.05	81.08	
4,479.00	2.20	31.64	4,477.25	-66.32	40.63	148.51	77.78	
4,668.00	2.20	30.32	4,666.11	-60.10	44.36	143.57	74.70	
4,857.00	0.62	330.73	4,855.05	-56.08	45.69	140.83	72.34	
5,047.00	0.48	348.62	5,045.04	-54.40	45.03	140.38	70.62	

Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Cypress 34 Federal #8H
Project:	Nash Draw Delaware	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Cypress 34 Federal #8H	North Reference:	Grid
Wellbore:	DH - Job #320313-MPH-278	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320313-MPH-278	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,236.00	0.40	1.14	5,234.04	-52.97	44.89	139.72	69.43
5,425.00	0.31	343.21	5,423.04	-51.82	44.75	139.18	68.47
5,614.00	0.40	308.14	5,612.03	-50.92	44.09	139.11	67.36
5,804.00	0.62	288.63	5,802.02	-50.18	42.59	139.68	65.82
5,993.00	0.40	276.81	5,991.02	-49.78	40.97	140.55	64.47
6,183.00	0.48	276.72	6,181.01	-49.61	39.52	141.46	63.42
6,372.00	0.31	258.53	6,370.01	-49.62	38.23	142.38	62.64
6,562.00	0.40	221.71	6,560.00	-50.21	37.29	143.40	62.54
6,751.00	0.48	229.83	6,749.00	-51.22	36.24	144.71	62.74
6,940.00	0.70	227.11	6,937.99	-52.51	34.79	146.47	62.99
7,129.00	1.71	220.34	7,126.94	-55.45	32.12	149.92	64.08
7,319.00	1.80	198.63	7,316.86	-60.44	29.33	154.11	67.18
7,508.00	3.12	184.83	7,505.68	-68.37	27.95	157.77	73.87
7,697.00	1.41	251.15	7,694.55	-74.25	25.32	161.17	78.45
7,886.00	2.20	213.53	7,883.46	-78.03	21.11	164.86	80.83
8,074.00	2.90	226.01	8,071.27	-84.34	15.70	169.46	85.79
8,100.00	2.81	227.27	8,097.24	-85.23	14.76	170.18	86.50
8,132.00	3.25	227.27	8,129.20	-86.38	13.51	171.11	87.43
8,163.00	3.31	255.11	8,160.15	-87.20	12.00	172.16	88.02
8,195.00	3.96	281.94	8,192.09	-87.21	10.03	173.44	87.79
8,226.00	5.72	287.91	8,222.98	-86.51	7.51	175.04	86.84
8,258.00	7.65	299.16	8,254.76	-84.99	4.13	177.22	85.09
8,289.00	9.76	307.78	8,285.40	-82.37	0.25	179.82	82.37
8,321.00	12.40	318.32	8,316.80	-78.14	-4.18	183.06	78.25
8,353.00	14.77	324.91	8,347.91	-72.24	-8.81	186.95	72.77
8,384.00	17.15	329.22	8,377.71	-65.08	-13.42	191.65	66.44
8,416.00	18.82	334.05	8,408.15	-56.38	-18.09	197.79	59.21
8,447.00	19.43	339.77	8,437.44	-47.04	-22.06	205.12	51.96
8,479.00	19.79	347.33	8,467.59	-36.76	-25.09	214.31	44.51
8,510.00	21.63	352.86	8,496.59	-25.97	-26.95	226.06	37.43
8,543.00	23.48	354.45	8,527.06	-13.39	-28.34	244.71	31.35
8,574.00	27.00	356.38	8,555.10	-0.22	-29.39	269.57	29.39
8,606.00	31.92	356.47	8,582.95	15.48	-30.37	297.02	34.09
8,637.00	35.61	356.55	8,608.72	32.68	-31.41	316.13	45.33
8,669.00	37.90	357.17	8,634.36	51.80	-32.46	327.93	61.13
8,700.00	40.63	358.58	8,658.36	71.40	-33.18	335.08	78.73
8,732.00	44.32	359.81	8,681.95	93.00	-33.48	340.20	98.84
8,763.00	48.36	1.48	8,703.35	115.42	-33.21	343.95	120.11
8,795.00	53.55	3.41	8,723.50	140.24	-32.14	347.09	143.88
8,826.00	56.01	4.82	8,741.38	165.50	-30.32	349.62	168.25
8,858.00	57.16	5.26	8,759.00	192.10	-27.97	351.72	194.13
8,890.00	59.09	5.52	8,775.90	219.16	-25.42	353.38	220.63
8,921.00	61.55	5.87	8,791.25	245.96	-22.74	354.72	247.00
8,953.00	63.58	6.18	8,805.99	274.20	-19.76	355.88	274.91

Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Cypress 34 Federal #8H
Project:	Nash Draw Delaware	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Cypress 34 Federal #8H	North Reference:	Grid
Wellbore:	DH - Job #320313-MPH-278	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320313-MPH-278	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
8,984.00	65.42	6.05	8,819.34	302.02	-16.78	356.82	302.48
9,016.00	67.45	5.61	8,832.13	331.20	-13.80	357.61	331.48
9,047.00	70.00	5.17	8,843.38	359.95	-11.09	358.24	360.12
9,079.00	72.72	5.17	8,853.61	390.15	-8.36	358.77	390.24
9,110.00	75.97	5.34	8,861.97	419.87	-5.62	359.23	419.91
9,142.00	79.32	5.61	8,868.82	450.98	-2.64	359.66	450.99
9,189.00	83.80	4.29	8,875.71	497.29	1.37	0.16	497.29
9,220.00	84.77	1.74	8,878.80	528.09	2.99	0.32	528.09
9,252.00	86.17	359.81	8,881.33	559.98	3.42	0.35	559.99
9,315.00	85.82	359.37	8,885.73	622.82	2.97	0.27	622.83
9,410.00	88.64	359.19	8,890.32	717.70	1.78	0.14	717.70
9,504.00	88.37	0.42	8,892.77	811.66	1.46	0.10	811.66
9,599.00	87.93	0.25	8,895.84	906.61	2.01	0.13	906.61
9,694.00	88.64	358.75	8,898.68	1,001.56	1.18	0.07	1,001.56
9,788.00	91.10	358.66	8,898.89	1,095.53	-0.94	359.95	1,095.53
9,883.00	90.84	358.14	8,897.29	1,190.48	-3.59	359.83	1,190.48
9,978.00	90.22	359.10	8,896.41	1,285.45	-5.88	359.74	1,285.46
10,072.00	89.87	358.14	8,896.33	1,379.42	-8.15	359.66	1,379.44
10,167.00	89.87	357.78	8,896.55	1,474.36	-11.53	359.55	1,474.40
10,262.00	89.78	357.17	8,896.84	1,569.26	-15.71	359.43	1,569.34
10,356.00	89.43	357.61	8,897.49	1,663.16	-19.99	359.31	1,663.28
10,451.00	90.04	359.63	8,897.93	1,758.13	-22.28	359.27	1,758.27
10,546.00	90.31	359.37	8,897.64	1,853.13	-23.11	359.29	1,853.27
10,640.00	90.04	359.37	8,897.35	1,947.12	-24.14	359.29	1,947.27
10,735.00	89.87	0.25	8,897.42	2,042.12	-24.46	359.31	2,042.26
10,829.00	89.96	0.16	8,897.56	2,136.12	-24.12	359.35	2,136.25
10,924.00	91.28	0.07	8,896.54	2,231.11	-23.93	359.39	2,231.24
11,019.00	91.80	0.07	8,893.98	2,326.07	-23.81	359.41	2,326.20
11,113.00	93.21	359.45	8,889.87	2,419.98	-24.21	359.43	2,420.10
11,208.00	91.45	0.25	8,886.01	2,514.90	-24.46	359.44	2,515.02
11,302.00	91.10	359.54	8,883.92	2,608.87	-24.63	359.46	2,608.99
11,397.00	90.84	359.63	8,882.31	2,703.86	-25.32	359.46	2,703.98
11,492.00	91.54	358.49	8,880.34	2,798.82	-26.87	359.45	2,798.95
11,586.00	89.34	359.37	8,879.62	2,892.80	-28.63	359.43	2,892.94
11,681.00	89.16	358.84	8,880.86	2,987.78	-30.11	359.42	2,987.93
11,775.00	90.04	359.37	8,881.52	3,081.76	-31.58	359.41	3,081.92
11,870.00	90.48	358.22	8,881.09	3,176.74	-33.58	359.39	3,176.91
11,965.00	91.28	358.49	8,879.63	3,271.69	-36.31	359.36	3,271.89
12,059.00	90.48	357.96	8,878.18	3,365.63	-39.22	359.33	3,365.86
12,154.00	89.60	359.19	8,878.12	3,460.60	-41.58	359.31	3,460.85
12,249.00	89.52	358.66	8,878.85	3,555.58	-43.36	359.30	3,555.84
12,343.00	87.58	359.19	8,881.22	3,649.52	-45.12	359.29	3,649.80
12,438.00	87.41	359.10	8,885.38	3,744.42	-46.54	359.29	3,744.71
12,553.00	87.76	359.02	8,890.22	3,859.31	-48.43	359.28	3,859.61

Scientific Drilling International, Inc.
SDI Standard Survey Report



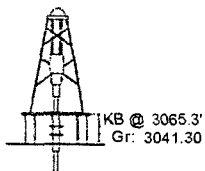
Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Cypress 34 Federal #8H
Project:	Nash Draw Delaware	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Cypress 34 Federal #8H	North Reference:	Grid
Wellbore:	DH - Job #320313-MPH-278	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320313-MPH-278	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
12,627.00	87.93	358.75	8,893.01	3,933.24	-49.86	359.27	3,933.56
12,722.00	88.29	358.75	8,896.14	4,028.16	-51.94	359.26	4,028.50
12,871.00	87.41	358.14	8,901.73	4,177.00	-55.98	359.23	4,177.38
12,911.00	87.41	358.22	8,903.54	4,216.94	-57.25	359.22	4,217.33
13,006.00	87.76	358.31	8,907.54	4,311.81	-60.12	359.20	4,312.23
13,019.00	87.49	358.84	8,908.08	4,324.80	-60.44	359.20	4,325.22
Last MWD Survey							
13,073.00	87.49	358.84	8,910.44	4,378.74	-61.53	359.19	4,379.17
Projection to Bit							

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		N/S (usft)	E/W (usft)		
13,019.00	8,908.08	4,324.80	-60.44	Last MWD Survey	
13,073.00	8,910.44	4,378.74	-61.53	Projection to Bit	



Cyp-34F 8H
Cypress
 Northing: 456845.90
 Easting: 612373.80
 Design #3



WELL DETAILS Cyp-34F 8H						
Ground Level: 3041.30						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	456845.90	612373.80	32° 15' 19.668 N	103° 58' 11.354 W	

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
8074.00	2.90226	0.18071	26	-84.33	15.70	0.00	0.00	-84.50	
8177.58	0.00	0.008174	80	-86.15	13.81	2.80	180.00	-86.30	
9302.58	90.00	359.22	8891.00	629.98	4.11	8.00	359.22	629.90	
13074.15	90.00	359.22	8891.00	4401.20	-47.00	0.00	0.00	4401.45	PBHL

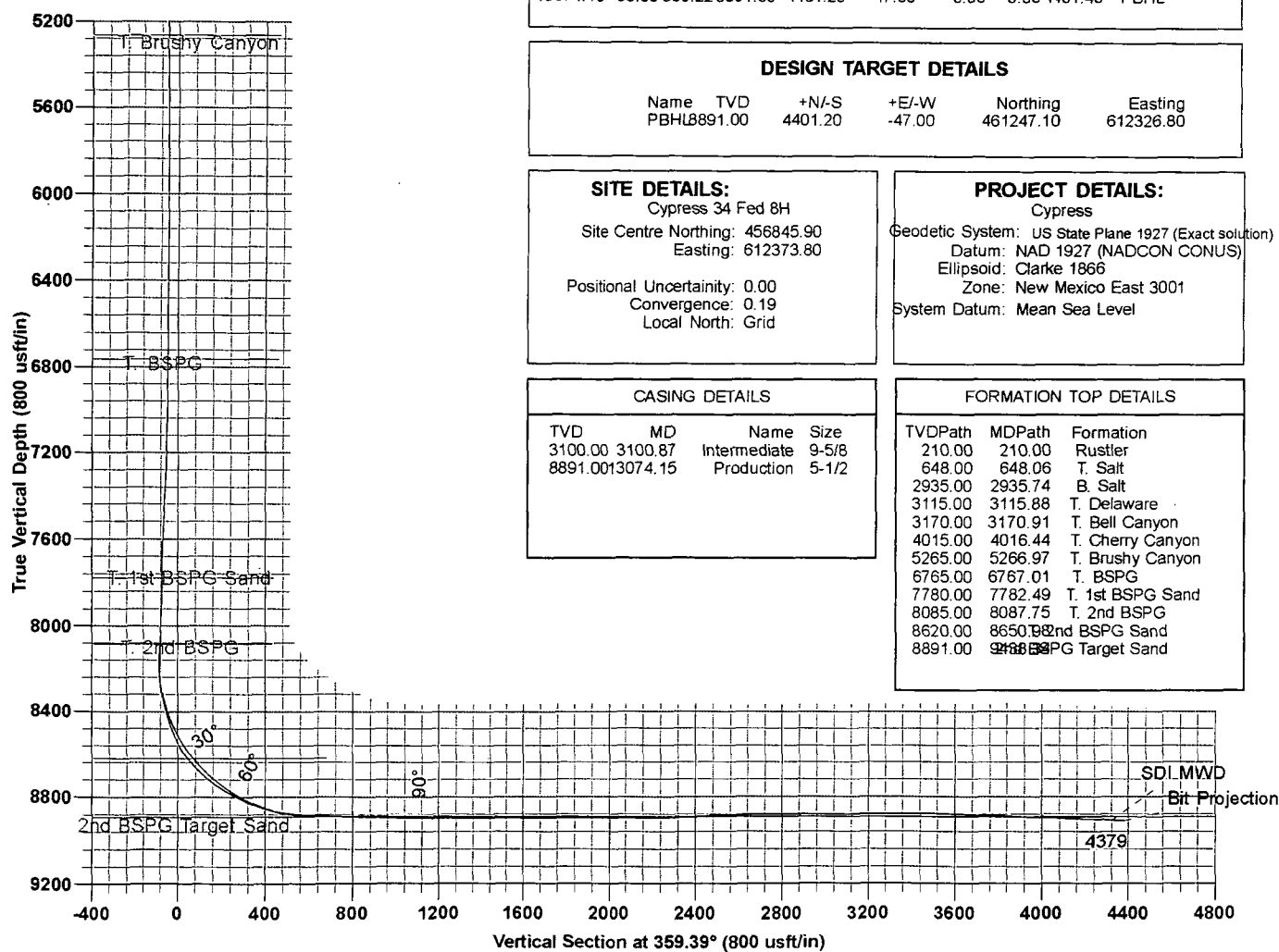
DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL8891.00	4401.20	-47.00		461247.10	612326.80

SITE DETAILS:
 Cypress 34 Fed 8H
 Site Centre Northing: 456845.90
 Easting: 612373.80
 Positional Uncertainty: 0.00
 Convergence: 0.19
 Local North: Grid

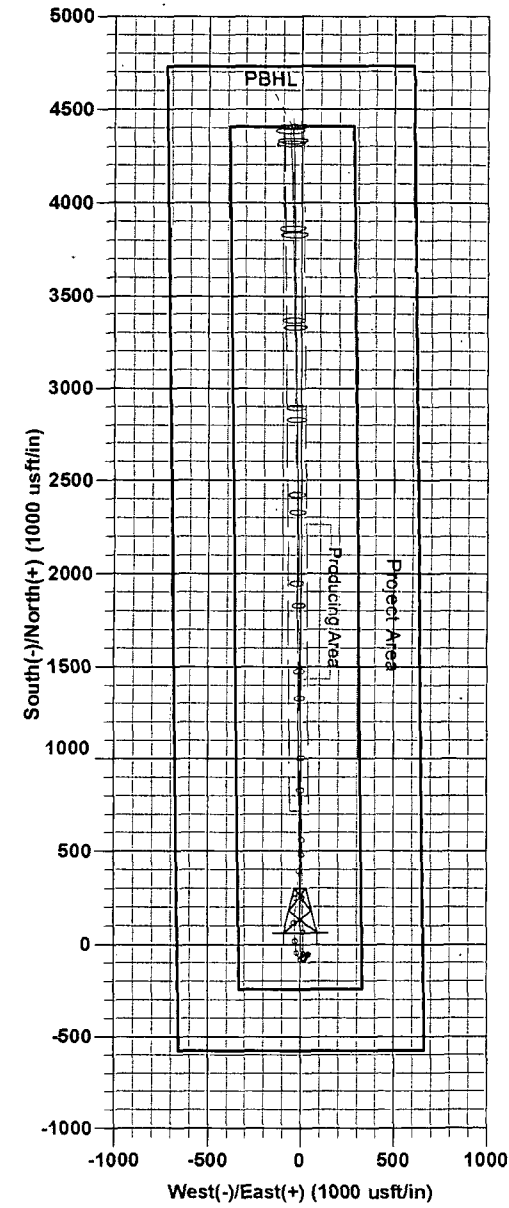
PROJECT DETAILS:
 Cypress
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level

CASING DETAILS				
TVD	MD	Name	Size	
3100.00	3100.87	Intermediate	9-5/8	
8891.00	13074.15	Production	5-1/2	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
210.00	210.00	Rustler
648.00	648.06	T. Salt
2935.00	2935.74	B. Salt
3115.00	3115.88	T. Delaware
3170.00	3170.91	T. Bell Canyon
4015.00	4016.44	T. Cherry Canyon
5265.00	5266.97	T. Brushy Canyon
6765.00	6767.01	T. BSPG
7780.00	7782.49	T. 1st BSPG Sand
8085.00	8087.75	T. 2nd BSPG
8620.00	8650.98	2nd BSPG Sand
8891.00	9168.89	2nd BSPG Target Sand



Azimuths to Grid North
 True North: -0.19°
 Magnetic North: 7.36°
 Magnetic Field
 Strength: 48417.9snT
 Dip Angle: 60.10°
 Date: 03/21/2013
 Model: IGRF2010



Jody Barclay
 8:24, April 04 2013
 Scientific Drilling
 2740 N. Highway 287
 Decatur, Texas 76234