

15- 40840

OCCIDENTAL PERMIAN LTD.

Quahada Ridge
Eddy County, NM
Federal "12" #1H
VH - Job #32K11121445

Survey: Gyro

SDI Standard Survey Report

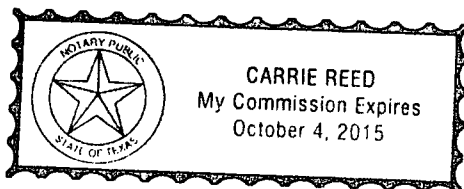
This survey is correct to the best of my knowledge and is supported by actual field data.

Richardson

Notarized this date 17th of December, 2012.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Federal "12" #1H
Project:	Quahada Ridge	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Federal "12" #1H	North Reference:	Grid
Wellbore:	VH - Job #32K11121445	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K11121445	Database:	EDM-Regulatory

Project	Quahada Ridge		
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:	484,079.86 usft
From:	Lat/Long	Easting:	655,632.02 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 19' 47.444 N
		Longitude:	103° 49' 46.116 W
		Grid Convergence:	0.27 °

Well	Federal "12" #1H, Directional (Baker)		
Well Position	+N/-S	0.00 usft	Northing: 484,079.86 usft
	+E/-W	0.00 usft	Easting: 655,632.02 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 19' 47.444 N
		Longitude:	103° 49' 46.116 W
		Ground Level:	0.00 usft

Wellbore	VH - Job #32K11121445		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	11/29/12	7.54
			60.20
			48,532

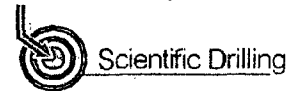
Design	VH - Job #32K11121445		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			173.52

Survey Program	Date: 12/16/12		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	3,747.00	Gyro (VH - Job #32K11121445)	Keeper
			Keeper Surface Readout

Survey			
Measured Depth	Inclination	Azimuth	True Vertical
(usft)	(°)	(°)	Depth
0.00	0.00	0.00	0.00
100.00	0.30	334.10	100.00
200.00	1.19	285.41	199.99
300.00	1.23	284.93	299.97
400.00	1.36	312.70	399.94
500.00	1.33	314.06	499.92
600.00	1.06	318.01	599.89
700.00	1.07	321.55	699.88
800.00	1.04	314.99	799.86
900.00	0.92	301.97	899.85
1,000.00	0.62	291.52	999.84
1,100.00	0.56	316.24	1,099.83
			10.52
			-14.11
			306.71
			17.60

Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Federal "12" #1H
Project:	Quahada Ridge	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Federal "12" #1H	North Reference:	Grid
Wellbore:	VH - Job #32K11121445	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K11121445	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,200.00	0.62	303.11	1,199.83	11.17	-14.90	306.86	18.62
1,300.00	1.12	302.73	1,299.81	11.99	-16.17	306.56	20.13
1,400.00	0.49	338.91	1,399.80	12.92	-17.15	306.99	21.47
1,500.00	0.45	283.77	1,499.80	13.41	-17.68	307.18	22.20
1,600.00	0.50	327.72	1,599.80	13.87	-18.30	307.17	22.96
1,700.00	0.48	256.50	1,699.80	14.15	-18.94	306.76	23.64
1,800.00	0.25	327.41	1,799.79	14.23	-19.46	306.17	24.11
1,900.00	0.15	220.30	1,899.79	14.32	-19.67	306.05	24.32
2,000.00	0.35	192.33	1,999.79	13.92	-19.82	305.08	24.22
2,100.00	0.81	190.66	2,099.79	12.92	-20.01	302.86	23.82
2,200.00	0.84	209.32	2,199.78	11.59	-20.50	299.48	23.55
2,300.00	0.51	182.03	2,299.77	10.51	-20.88	296.72	23.37
2,400.00	0.64	222.85	2,399.77	9.65	-21.27	294.41	23.36
2,500.00	0.36	194.78	2,499.76	8.94	-21.73	292.36	23.50
2,600.00	0.54	221.87	2,599.76	8.29	-22.13	290.53	23.63
2,700.00	0.83	198.36	2,699.75	7.25	-22.67	287.73	23.80
2,800.00	0.78	210.30	2,799.74	5.97	-23.24	284.41	24.00
2,900.00	1.41	232.98	2,899.72	4.64	-24.57	280.70	25.00
3,000.00	1.32	234.96	2,999.70	3.24	-26.49	276.97	26.69
3,100.00	1.80	197.84	3,099.66	1.08	-27.92	272.23	27.94
3,200.00	2.29	180.71	3,199.60	-2.41	-28.42	265.16	28.52
3,300.00	1.87	186.07	3,299.53	-6.03	-28.62	258.11	29.25
3,400.00	2.13	173.47	3,399.47	-9.50	-28.58	251.62	30.12
3,500.00	2.92	162.42	3,499.37	-13.77	-27.60	243.48	30.84
3,600.00	3.14	162.60	3,599.23	-18.81	-26.01	234.12	32.10
3,700.00	2.87	161.82	3,699.10	-23.81	-24.41	225.72	34.10
3,747.00	2.61	159.70	3,746.04	-25.93	-23.67	222.40	35.11

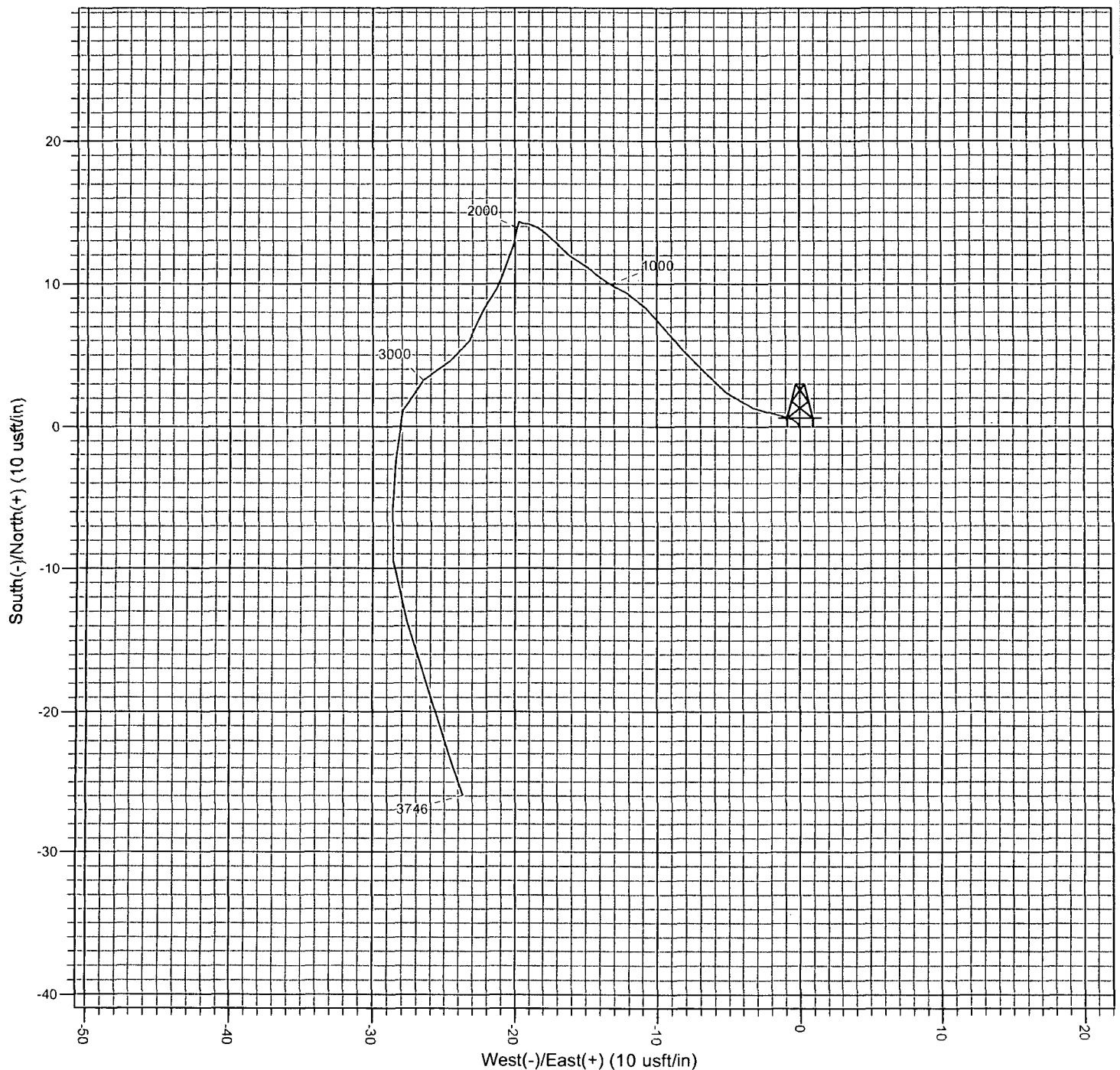


Scientific Drilling

Project: Quahada Ridge
Eddy County, NM
Well: Federal "12" #1H
Wellbore: VH - Job #32K11121445
Design: VH - Job #32K11121445

WELL DETAILS: Federal "12" #1H
WELL @ 0.00usft (Original Well Elev)
Ground Level: 0.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	484079.86	655632.02	32° 19' 47.444 N	103° 49' 46.116 W	



PROJECT DETAILS: Quahada Ridge	SITE DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 19' 47.444 N
Datum: NAD 1927 (NADCON CONUS)	Longitude: 103° 49' 46.116 W
Ellipsoid: Clarke 1866	Positional Uncertainty: 0.00
Zone: New Mexico East 3001	Convergence: 0.27
System Datum: Mean Sea Level	Local North: Grid



Actual Wellpath Report

No. 1H AWP

Page 1 of 7

15-40840



REFERENCE WELLPATH IDENTIFICATION

Operator	OXY Permian	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No. 1H AWB
Facility	Federal 12 No.1H		

REPORT SETUP INFORMATION

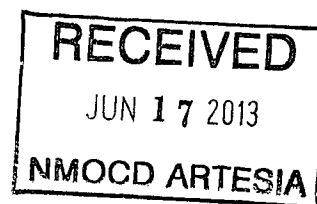
Projection System	NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Gilbjosl
Scale	0.999937	Report Generated	14/Dec/2012 at 9:51:43 AM
Convergence at slot	0.27° East	Database/Source file	WA Midland/No. 1H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	655632.00	484079.90	32°19'47.444"N	103°49'46.116"W
Facility Reference Pt			655632.00	484079.90	32°19'47.444"N	103°49'46.116"W
Field Reference Pt			664293.30	461972.80	32°16'08.262"N	103°48'06.450"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No.1H SHL (KB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Rig on No.1H SHL (KB) to Mean Sea Level	3312.80ft
Vertical Reference Pt	Rig on No.1H SHL (KB)	Rig on No.1H SHL (KB) to Mud Line at Slot (No.1H SHL)	25.00ft
MD Reference Pt	Rig on No.1H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	173.52°





Actual Wellpath Report

No. 1H AWP

Page 2 of 7



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No. 1H AWP
Facility	Federal 12 No.1H		

WELLPATH DATA (135 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	334.100	0.00	0.00	0.00	0.00	655632.00	484079.90	32°19'47.444"N	103°49'46.116"W	0.00	
100.00	0.300	334.100	100.00	-0.25	0.24	-0.11	655631.89	484080.14	32°19'47.447"N	103°49'46.118"W	0.30	
200.00	1.190	285.410	199.99	-0.88	0.75	-1.23	655630.77	484080.65	32°19'47.452"N	103°49'46.131"W	1.02	
300.00	1.230	284.930	299.97	-1.66	1.30	-3.27	655628.73	484081.20	32°19'47.457"N	103°49'46.154"W	0.04	
400.00	1.360	312.700	399.94	-2.95	2.38	-5.18	655626.82	484082.28	32°19'47.468"N	103°49'46.177"W	0.63	
500.00	1.330	314.060	499.92	-4.74	3.99	-6.88	655625.12	484083.89	32°19'47.484"N	103°49'46.196"W	0.04	
600.00	1.060	318.010	599.89	-6.39	5.49	-8.34	655623.66	484085.39	32°19'47.499"N	103°49'46.213"W	0.28	
700.00	1.070	321.550	699.88	-7.94	6.91	-9.54	655622.47	484086.81	32°19'47.513"N	103°49'46.227"W	0.07	
800.00	1.040	314.990	799.86	-9.44	8.28	-10.76	655621.24	484088.18	32°19'47.527"N	103°49'46.241"W	0.12	
900.00	0.920	301.970	899.85	-10.65	9.35	-12.08	655619.92	484089.24	32°19'47.537"N	103°49'46.257"W	0.25	
1000.00	0.620	291.520	999.84	-11.40	9.97	-13.27	655618.74	484089.87	32°19'47.543"N	103°49'46.270"W	0.33	
1100.00	0.560	316.240	1099.83	-12.04	10.52	-14.11	655617.89	484090.42	32°19'47.549"N	103°49'46.280"W	0.26	
1200.00	0.620	303.110	1199.83	-12.78	11.17	-14.90	655617.10	484091.07	32°19'47.555"N	103°49'46.289"W	0.15	
1300.00	1.120	302.730	1299.81	-13.74	11.99	-16.17	655615.83	484091.89	32°19'47.564"N	103°49'46.304"W	0.50	
1400.00	0.490	338.910	1399.80	-14.77	12.92	-17.15	655614.85	484092.82	32°19'47.573"N	103°49'46.315"W	0.78	
1500.00	0.450	283.770	1499.80	-15.32	13.41	-17.68	655614.32	484093.31	32°19'47.578"N	103°49'46.322"W	0.44	
1600.00	0.500	327.720	1599.80	-15.85	13.87	-18.30	655613.70	484093.77	32°19'47.582"N	103°49'46.329"W	0.36	
1700.00	0.480	256.500	1699.80	-16.19	14.15	-18.94	655613.06	484094.05	32°19'47.585"N	103°49'46.336"W	0.57	
1800.00	0.250	327.410	1799.79	-16.34	14.23	-19.46	655612.54	484094.13	32°19'47.586"N	103°49'46.342"W	0.46	
1900.00	0.150	220.300	1899.79	-16.44	14.32	-19.67	655612.34	484094.22	32°19'47.587"N	103°49'46.345"W	0.33	
2000.00	0.350	192.330	1999.79	-16.06	13.92	-19.82	655612.19	484093.82	32°19'47.583"N	103°49'46.347"W	0.23	
2100.00	0.810	190.660	2099.79	-15.10	12.92	-20.01	655611.99	484092.82	32°19'47.573"N	103°49'46.349"W	0.46	
2200.00	0.840	209.320	2199.78	-13.83	11.59	-20.50	655611.50	484091.49	32°19'47.560"N	103°49'46.355"W	0.27	
2300.00	0.510	182.030	2299.77	-12.80	10.51	-20.88	655611.13	484090.41	32°19'47.549"N	103°49'46.359"W	0.45	
2400.00	0.640	222.850	2399.77	-11.99	9.65	-21.27	655610.73	484089.55	32°19'47.541"N	103°49'46.364"W	0.42	
2500.00	0.360	194.780	2499.76	-11.33	8.94	-21.73	655610.27	484088.84	32°19'47.534"N	103°49'46.369"W	0.36	
2600.00	0.540	221.870	2599.76	-10.73	8.29	-22.13	655609.87	484088.18	32°19'47.527"N	103°49'46.374"W	0.27	
2700.00	0.830	198.360	2699.75	-9.76	7.25	-22.67	655609.33	484087.15	32°19'47.517"N	103°49'46.380"W	0.40	
2800.00	0.780	210.300	2799.74	-8.56	5.97	-23.24	655608.76	484085.87	32°19'47.504"N	103°49'46.387"W	0.17	
2900.00	1.410	232.980	2899.72	-7.39	4.64	-24.57	655607.44	484084.54	32°19'47.491"N	103°49'46.402"W	0.75	



Actual Wellpath Report

No. 1H AWP

Page 3 of 7

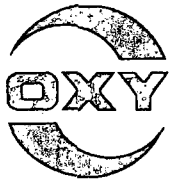


REFERENCE WELLPATH IDENTIFICATION

Operator	OXY Permian	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No. 1H AWP
Facility	Federal 12 No.1H		

WELLPATH DATA (135 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3000.00	1.320	234.960	2999.70	-6.21	3.24	-26.49	655605.51	484083.14	32°19'47.477"N	103°49'46.425"W	0.10	
3100.00	1.800	197.840	3099.66	-4.23	1.08	-27.92	655604.09	484080.98	32°19'47.456"N	103°49'46.442"W	1.09	
3200.00	2.290	180.710	3199.60	-0.81	-2.41	-28.42	655603.58	484077.49	32°19'47.422"N	103°49'46.448"W	0.78	
3300.00	1.870	186.070	3299.53	2.76	-6.03	-28.62	655603.38	484073.87	32°19'47.386"N	103°49'46.450"W	0.46	
3400.00	2.130	173.470	3399.47	-6.21	-9.50	-28.58	655603.42	484070.40	32°19'47.352"N	103°49'46.450"W	0.51	
3500.00	2.920	162.420	3499.37	10.57	-13.77	-27.60	655604.40	484066.13	32°19'47.309"N	103°49'46.439"W	0.92	
3600.00	3.140	162.600	3599.23	15.76	-18.81	-26.01	655605.99	484061.09	32°19'47.259"N	103°49'46.421"W	0.22	
3700.00	2.870	161.820	3699.10	20.90	-23.81	-24.41	655607.59	484056.10	32°19'47.210"N	103°49'46.402"W	0.27	
3747.00	2.610	159.700	3746.04	23.09	-25.93	-23.67	655608.33	484053.97	32°19'47.189"N	103°49'46.394"W	0.59	
4015.00	1.600	164.600	4013.86	32.71	-35.26	-20.56	655611.44	484044.65	32°19'47.096"N	103°49'46.358"W	0.38	
4109.00	1.600	167.400	4107.82	35.31	-37.80	-19.93	655612.07	484042.10	32°19'47.071"N	103°49'46.351"W	0.08	
4204.00	1.700	167.400	4202.78	38.03	-40.47	-19.33	655612.67	484039.43	32°19'47.045"N	103°49'46.344"W	0.11	
4298.00	0.900	113.300	4296.76	39.79	-42.13	-18.35	655613.65	484037.78	32°19'47.028"N	103°49'46.332"W	1.47	
4393.00	1.000	91.400	4391.75	40.27	-42.44	-16.83	655615.17	484037.46	32°19'47.025"N	103°49'46.315"W	0.39	
4488.00	1.000	99.100	4486.73	40.61	-42.59	-15.19	655616.81	484037.31	32°19'47.023"N	103°49'46.296"W	0.14	
4583.00	0.600	21.300	4581.73	40.39	-42.26	-14.19	655617.81	484037.64	32°19'47.027"N	103°49'46.284"W	1.11	
4678.00	0.500	12.100	4676.72	39.56	-41.39	-13.92	655618.08	484038.51	32°19'47.035"N	103°49'46.281"W	0.14	
4773.00	0.700	5.500	4771.72	38.60	-40.41	-13.78	655618.22	484039.49	32°19'47.045"N	103°49'46.279"W	0.22	
4868.00	0.700	3.800	4866.71	37.46	-39.25	-13.68	655618.32	484040.65	32°19'47.056"N	103°49'46.278"W	0.02	
4961.00	0.700	357.700	4959.70	36.33	-38.12	-13.67	655618.33	484041.79	32°19'47.068"N	103°49'46.278"W	0.08	
5056.00	0.800	351.100	5054.69	35.09	-36.88	-13.79	655618.21	484043.02	32°19'47.080"N	103°49'46.279"W	0.14	
5151.00	0.800	357.300	5149.68	33.77	-35.56	-13.93	655618.07	484044.34	32°19'47.093"N	103°49'46.281"W	0.09	
5245.00	0.800	358.900	5243.68	32.46	-34.25	-13.97	655618.03	484045.65	32°19'47.106"N	103°49'46.281"W	0.02	
5339.00	0.700	0.100	5337.67	31.23	-33.02	-13.98	655618.02	484046.88	32°19'47.118"N	103°49'46.281"W	0.11	
5434.00	0.800	358.600	5432.66	30.00	-31.78	-14.00	655618.00	484048.12	32°19'47.130"N	103°49'46.281"W	0.11	
5529.00	0.700	348.800	5527.65	28.76	-30.55	-14.13	655617.87	484049.36	32°19'47.143"N	103°49'46.283"W	0.17	
5623.00	0.600	353.100	5621.65	27.69	-29.49	-14.30	655617.70	484050.41	32°19'47.153"N	103°49'46.285"W	0.12	
5718.00	0.100	354.800	5716.64	27.11	-28.92	-14.37	655617.63	484050.98	32°19'47.159"N	103°49'46.285"W	0.53	
5813.00	4.300	173.500	5811.56	30.59	-32.38	-13.97	655618.03	484047.53	32°19'47.124"N	103°49'46.281"W	4.63	
5907.00	7.000	173.500	5905.09	39.85	-41.57	-12.92	655619.08	484038.33	32°19'47.033"N	103°49'46.269"W	2.87	



Actual Wellpath Report

No. 1H AWP

Page 4 of 7



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No. 1H AWP
Facility	Federal 12 No.1H		

WELLPATH DATA (135 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
6002.00	10.900	173.000	5998.92	54.62	-56.24	-11.17	655620.83	484023.66	32°19'46.888"N	103°49'46.250"W	4.11	
6097.00	13.100	173.500	6091.83	74.37	-75.86	-8.86	655623.14	484004.05	32°19'46.694"N	103°49'46.224"W	2.32	
6191.00	14.700	172.000	6183.08	96.95	-98.25	-5.99	655626.01	483981.65	32°19'46.472"N	103°49'46.192"W	1.74	
6286.00	16.400	171.400	6274.60	122.40	-123.45	-2.31	655629.69	483956.46	32°19'46.223"N	103°49'46.150"W	1.80	
6381.00	18.000	168.500	6365.35	150.43	-151.10	2.62	655634.62	483928.81	32°19'45.949"N	103°49'46.094"W	1.91	
6475.00	19.600	163.600	6454.34	180.43	-180.46	9.97	655641.97	483899.45	32°19'45.658"N	103°49'46.010"W	2.39	
6570.00	22.500	163.000	6542.99	214.01	-213.13	19.79	655651.79	483866.78	32°19'45.334"N	103°49'45.897"W	3.06	
6665.00	26.800	163.400	6629.31	252.98	-251.06	31.23	655663.22	483828.86	32°19'44.958"N	103°49'45.766"W	4.53	
6759.00	30.400	161.900	6711.83	297.15	-293.99	44.67	655676.67	483785.93	32°19'44.533"N	103°49'45.612"W	3.90	
6854.00	33.100	160.900	6792.60	346.02	-341.36	60.63	655692.63	483738.56	32°19'44.064"N	103°49'45.428"W	2.90	
6949.00	36.300	161.300	6870.70	398.83	-392.52	78.14	655710.13	483687.41	32°19'43.557"N	103°49'45.227"W	3.38	
7043.00	39.000	161.300	6945.12	454.94	-446.90	96.55	655728.54	483633.03	32°19'43.018"N	103°49'45.016"W	2.87	
7138.00	42.700	161.100	7016.96	515.64	-505.71	116.57	655748.56	483574.22	32°19'42.435"N	103°49'44.786"W	3.90	
7233.00	45.900	161.500	7084.95	580.47	-568.55	137.84	655769.83	483511.38	32°19'41.812"N	103°49'44.541"W	3.38	
7328.00	48.600	161.600	7149.43	648.71	-634.72	159.91	655791.90	483445.22	32°19'41.156"N	103°49'44.288"W	2.84	
7422.00	48.500	161.400	7211.65	717.62	-701.54	182.27	655814.25	483378.41	32°19'40.494"N	103°49'44.031"W	0.19	
7517.00	48.700	161.600	7274.48	787.32	-769.12	204.88	655836.86	483310.83	32°19'39.824"N	103°49'43.771"W	0.26	
7612.00	48.900	162.000	7337.05	857.31	-837.02	227.20	655859.19	483242.94	32°19'39.151"N	103°49'43.515"W	0.38	
7706.00	50.800	162.700	7397.66	927.79	-905.48	248.98	655880.96	483174.48	32°19'38.473"N	103°49'43.264"W	2.10	
7800.00	57.200	160.300	7452.89	1002.11	-977.53	273.16	655905.14	483102.43	32°19'37.759"N	103°49'42.987"W	7.11	
7895.00	61.700	160.600	7501.16	1081.79	-1054.61	300.52	655932.50	483025.36	32°19'36.995"N	103°49'42.672"W	4.74	
7990.00	66.800	161.300	7542.42	1165.28	-1135.47	328.43	655960.41	482944.50	32°19'36.193"N	103°49'42.351"W	5.41	
8084.00	70.000	163.800	7577.03	1251.06	-1218.83	354.61	655986.59	482861.15	32°19'35.367"N	103°49'42.051"W	4.21	
8179.00	72.800	164.800	7607.33	1339.93	-1305.50	378.97	656010.94	482774.48	32°19'34.508"N	103°49'41.772"W	3.11	
8274.00	77.000	166.400	7632.07	1430.75	-1394.32	401.76	656033.73	482685.67	32°19'33.628"N	103°49'41.511"W	4.71	
8368.00	83.200	166.800	7648.22	1522.63	-1484.36	423.21	656055.18	482595.64	32°19'32.736"N	103°49'41.266"W	6.61	
8463.00	86.200	170.000	7657.00	1616.82	-1577.00	442.22	656074.19	482503.00	32°19'31.819"N	103°49'41.050"W	4.61	
8558.00	90.900	174.500	7659.40	1711.72	-1671.05	455.01	656086.98	482408.96	32°19'30.888"N	103°49'40.906"W	6.85	
8652.00	92.000	177.900	7657.02	1805.57	-1764.80	461.24	656093.21	482315.22	32°19'29.960"N	103°49'40.838"W	3.80	
8747.00	88.600	178.200	7656.53	1900.26	-1859.73	464.47	656096.44	482220.29	32°19'29.020"N	103°49'40.806"W	3.59	



Actual Wellpath Report

No. 1H AWP

Page 5 of 7



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No. 1H AWP
Facility	Federal 12 No.1H		

WELLPATH DATA (135 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8841.00	88.900	178.000	7658.58	1993.94	-1953.65	467.59	656099.56	482126.37	32°19'28.091"N	103°49'40.775"W	0.38	
8936.00	87.900	177.200	7661.23	2088.66	-2048.53	471.56	656103.53	482031.50	32°19'27.152"N	103°49'40.733"W	1.35	
9031.00	88.100	176.700	7664.55	2183.43	-2143.34	476.61	656108.58	481936.70	32°19'26.213"N	103°49'40.680"W	0.57	
9125.00	89.100	176.500	7666.84	2277.26	-2237.14	482.19	656114.16	481842.90	32°19'25.285"N	103°49'40.620"W	1.08	
9220.00	90.300	176.400	7667.34	2372.14	-2331.96	488.07	656120.04	481748.09	32°19'24.346"N	103°49'40.557"W	1.27	
9315.00	89.700	175.900	7667.34	2467.04	-2426.74	494.45	656126.42	481653.31	32°19'23.408"N	103°49'40.488"W	0.82	
9410.00	90.500	177.000	7667.17	2561.91	-2521.56	500.33	656132.30	481558.51	32°19'22.470"N	103°49'40.424"W	1.43	
9505.00	88.500	177.000	7668.00	2656.73	-2616.42	505.30	656137.27	481463.65	32°19'21.531"N	103°49'40.372"W	2.11	
9600.00	89.800	177.200	7669.41	2751.53	-2711.29	510.11	656142.07	481368.79	32°19'20.592"N	103°49'40.321"W	1.38	
9693.00	90.900	177.200	7668.84	2844.33	-2804.17	514.65	656146.62	481275.91	32°19'19.672"N	103°49'40.273"W	1.18	
9788.00	89.000	176.100	7668.93	2939.19	-2899.00	520.20	656152.17	481181.09	32°19'18.734"N	103°49'40.213"W	2.31	
9882.00	91.000	176.100	7668.93	3033.09	-2992.78	526.59	656158.56	481087.31	32°19'17.805"N	103°49'40.144"W	2.13	
9977.00	89.100	176.700	7668.84	3127.96	-3087.59	532.56	656164.52	480992.51	32°19'16.867"N	103°49'40.080"W	2.10	
10071.00	89.300	176.200	7670.16	3221.83	-3181.40	538.38	656170.34	480898.71	32°19'15.939"N	103°49'40.017"W	0.57	
10167.00	89.200	175.600	7671.41	3317.74	-3277.14	545.24	656177.21	480802.97	32°19'14.991"N	103°49'39.942"W	0.63	
10262.00	89.900	177.200	7672.16	3412.61	-3371.95	551.21	656183.17	480708.17	32°19'14.052"N	103°49'39.878"W	1.84	
10356.00	89.400	176.100	7672.73	3506.47	-3465.79	556.70	656188.66	480614.34	32°19'13.124"N	103°49'39.819"W	1.29	
10451.00	89.100	176.100	7673.98	3601.36	-3560.56	563.16	656195.12	480519.57	32°19'12.186"N	103°49'39.749"W	0.32	
10546.00	89.100	176.500	7675.47	3696.24	-3655.35	569.29	656201.25	480424.79	32°19'11.247"N	103°49'39.683"W	0.42	
10640.00	91.900	177.000	7674.65	3790.08	-3749.18	574.62	656206.58	480330.96	32°19'10.318"N	103°49'39.626"W	1.03	
10735.00	90.700	176.700	7672.49	3884.89	-3844.01	579.84	656211.80	480236.14	32°19'09.380"N	103°49'39.570"W	1.30	
10829.00	90.400	175.500	7671.59	3978.79	-3937.79	586.23	656218.19	480142.37	32°19'08.452"N	103°49'39.501"W	1.32	
10924.00	90.900	176.100	7670.51	4073.71	-4032.53	593.19	656225.15	480047.63	32°19'07.514"N	103°49'39.425"W	0.82	
11018.00	90.600	176.700	7669.28	4167.58	-4126.33	599.09	656231.05	479953.83	32°19'06.585"N	103°49'39.362"W	0.71	
11113.00	90.100	175.600	7668.70	4262.48	-4221.12	605.47	656237.43	479859.06	32°19'05.647"N	103°49'39.293"W	1.27	
11207.00	89.700	175.200	7668.87	4356.43	-4314.81	613.01	656244.97	479765.37	32°19'04.720"N	103°49'39.210"W	0.60	
11302.00	89.400	175.000	7669.61	4451.39	-4409.46	621.12	656253.08	479670.72	32°19'03.783"N	103°49'39.120"W	0.38	
11397.00	89.900	175.600	7670.19	4546.34	-4504.14	628.91	656260.86	479576.05	32°19'02.846"N	103°49'39.035"W	0.82	
11491.00	89.500	174.900	7670.69	4640.29	-4597.82	636.69	656268.65	479482.38	32°19'01.918"N	103°49'38.949"W	0.86	
11586.00	89.200	175.800	7671.76	4735.24	-4692.50	644.39	656276.35	479387.71	32°19'00.981"N	103°49'38.865"W	1.00	



Actual Wellpath Report

No. 1H AWP

Page 6 of 7



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No. 1H AWB
Facility	Federal 12 No.1H		

WELLPATH DATA (135 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11681.00	87.700	177.300	7674.33	4830.07	-4787.28	650.10	656282.06	479292.93	32°19'00.043"N	103°49'38.804"W	2.23	
11775.00	89.300	178.900	7676.79	4923.73	-4881.19	653.22	656285.18	479199.02	32°18'59.113"N	103°49'38.772"W	2.41	
11870.00	88.900	178.900	7678.29	5018.30	-4976.16	655.04	656287.00	479104.06	32°18'58.174"N	103°49'38.756"W	0.42	
11964.00	89.500	178.200	7679.60	5111.93	-5070.12	657.42	656289.38	479010.11	32°18'57.244"N	103°49'38.734"W	0.98	
12059.00	89.500	177.400	7680.43	5206.66	-5165.05	661.07	656293.03	478915.19	32°18'56.304"N	103°49'38.697"W	0.84	
12153.00	90.000	177.700	7680.84	5300.42	-5258.96	665.09	656297.04	478821.28	32°18'55.375"N	103°49'38.655"W	0.62	
12248.00	89.400	176.800	7681.33	5395.22	-5353.85	669.64	656301.60	478726.40	32°18'54.436"N	103°49'38.607"W	1.14	
12343.00	89.200	176.000	7682.50	5490.09	-5448.66	675.61	656307.56	478631.60	32°18'53.497"N	103°49'38.543"W	0.87	
12437.00	88.900	178.100	7684.05	5583.89	-5542.51	680.45	656312.40	478537.75	32°18'52.568"N	103°49'38.492"W	2.26	
12532.00	90.300	178.900	7684.72	5678.53	-5637.47	682.93	656314.89	478442.79	32°18'51.628"N	103°49'38.468"W	1.70	
12626.00	89.300	178.100	7685.05	5772.17	-5731.44	685.39	656317.35	478348.83	32°18'50.699"N	103°49'38.444"W	1.36	
12721.00	89.600	176.900	7685.96	5866.94	-5826.34	689.54	656321.49	478253.94	32°18'49.759"N	103°49'38.401"W	1.30	
12816.00	90.500	176.400	7685.87	5961.80	-5921.18	695.09	656327.04	478159.11	32°18'48.821"N	103°49'38.342"W	1.08	
12910.00	90.000	175.000	7685.46	6055.72	-6014.91	702.14	656334.09	478065.38	32°18'47.893"N	103°49'38.265"W	1.58	
12977.00	90.000	175.000	7685.46	6122.70	-6081.66	707.97	656339.93	477998.64	32°18'47.232"N	103°49'38.200"W	0.00	Proj to bit



Actual Wellpath Report

No. 1H AWP

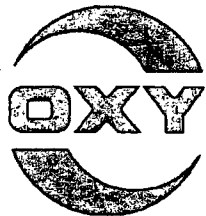
Page 7 of 7



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No. 1H AWB
Facility	Federal 12 No.1H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
No.1H PP		7646.00	-1486.70	391.33	656023.30	482593.30	32°19'32.715"N	103°49'41.638"W	point
No.1H PBHL		7686.00	-6085.30	691.05	656323.00	477995.00	32°18'47.197"N	103°49'38.398"W	point

WELLPATH COMPOSITION - Ref Wellbore: No. 1H AWB Ref Wellpath: No. 1H AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	3747.00	Generic gyro - northseeking (Standard)	Scientific Drilling Gyros <100-3747>	No. 1H AWB
3747.00	12910.00	NaviTrak (Standard)	BHI / Navitrak MWD <4015-xxxx>	No. 1H AWB
12910.00	12977.00	Blind Drilling (std)	Projection to bit	No. 1H AWB



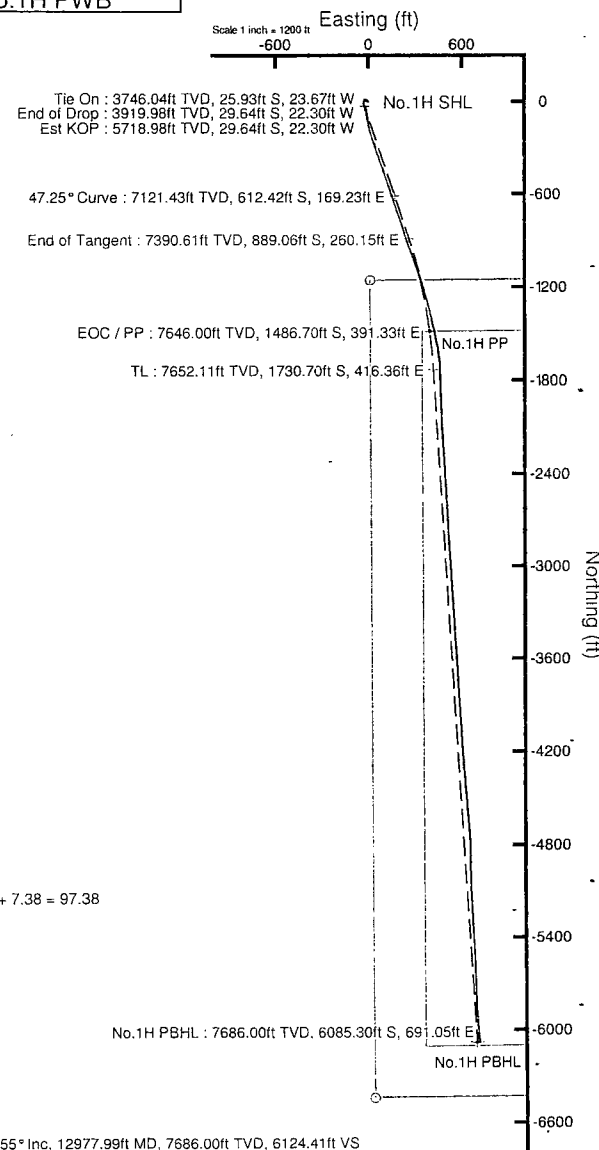
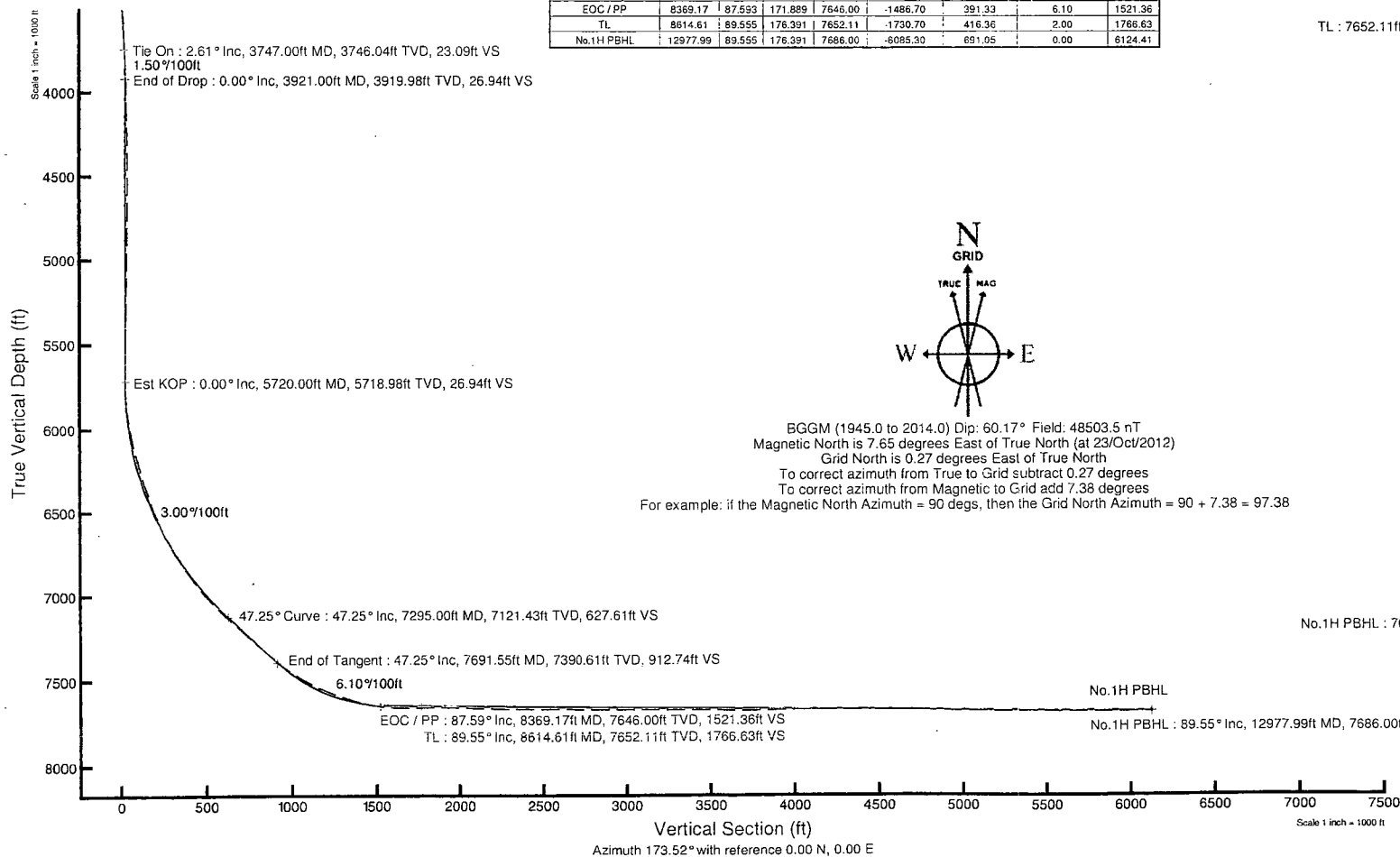
OXY Permian

Location: Eddy County, NM
Field: (Federal) Sand Dunes Delaware, West
Facility: Federal 12 No.1H

Slot: No.1H SHL
Well: No.1H
Wellbore: No.1H PWB



Plot reference wellpath is Rev-B.0								
True vertical depths are referenced to Rig on No.1H SHL (KB)				Grid System: NAD27 / TM New Mexico SP, Eastern Zone (5001), US feet				
Measured depths are referenced to Rig on No.1H SHL (KB)				North Reference: Grid north				
Rig on No.1H SHL (KB) to Mean Sea Level: 3312.8 feet				Scale: True distance				
Mean Sea Level to Mud line (At Slot No.1H SHL): -3257.8 feet				Depths are in feet				
Coordinates are in feet referenced to Slot				Created by: pjs/psl on 30/Nov/2012				
Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°yr Off)	VS (ft)
Tie On	3747.00	2.610	159.709	3746.04	-25.93	-23.57	0.00	23.09
End of Drop	3921.00	0.000	161.807	3919.98	-29.64	-22.30	1.50	26.94
Est KOP	5720.00	0.000	161.807	5718.98	-29.64	-22.30	0.00	26.94
47.25° Curve	7295.00	47.250	161.807	7121.43	-612.42	189.23	0.00	627.61
End of Tangent	7691.55	47.250	161.807	7390.61	-889.06	260.15	0.00	912.74
EOC / PP	8369.17	87.593	171.889	7646.00	-1486.70	391.33	6.10	1521.36
TL	8614.61	89.555	176.391	7652.11	-1730.70	416.36	2.00	1766.63
No.1H PBHL	12977.99	89.555	176.391	7686.00	-6085.30	691.05	0.00	6124.41



Rev-B.0