

Reservoir Development

Drilling & Measurements (Extreme Engineering)

6724 Corporation Pkwy Suite 100

Fort Worth, TX 76126

Phone: (817) 717-1820

Fax: (817) 546-7551

September 14, 2012

Occidental Permian Ltd

5 Greenway Plaza Suite 110

Houston, Texas 77046

Attention: Luis Tarazona

Re:

CLIENT: OXY Permian
WELL: Federal 23 #11H
FIELD: Permian Basin
RIG: H&P 474
COUNTY: Eddy
API NO: 30-015-39437
JOB NO: NM-OXY-0014

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements (formerly Extreme), a division of Schlumberger Technology Corporation (P-5 No. 754900).
Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Dillon Ash FST-1	Federal 23 #11H Original Hole	144.00 Ft to 762.00 Ft	August 27, 2012 to August 28, 2012	SlimPulse

A plat of the bottom hole location is oriented both to the surface location and to the lease lines (or until line in case of pooling), is attached to the survey report.

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Scott Haymond
Field Service Manager

CC: OXY Permian
Enclosures: [2]
County of Eddy
State of New Mexico

Reservoir Development

Drilling & Measurements (Extreme Engineering)

6724 Corporation Pkwy Suite 100

Fort Worth, TX 76126

Phone: (817) 717-1820

Fax: (817) 546-7551

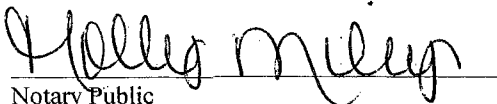
I, Dillon Ash certify that; I am employed by Drilling & Measurements (formerly Extreme), a division of Schlumberger Technology Corporation; that I did on the day(s) of August 27, 2012 through August 28, 2012, conduct or supervise the taking of the SlimPulse surveys from a depth of 144.00 feet to a depth of 762.00 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY Permain for the Federal 23 #11H Well (Original Hole) API No. 30-015-39437 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.



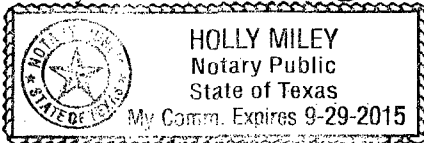
Dillon Ash
FST-1

Before me, Dillon Ash, on this day personally appeared Dillon Ash, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this 17 day of Sep, (year) 2012



Notary Public



Federal 23 #11H MWD 0' to 762' Survey Report

(Def Survey)

Report Date:	August 28, 2012 - 07:28 PM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Oxy Permian	Vertical Section Azimuth:	0.000 ° (Grid North)
Field:	Eddy (NAD27) 2011	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Federal 23 #11H MWD 0' to 762' / Federal 23 #11H	TVD Reference Datum:	RKB
Well:	Federal 23 #11H	TVD Reference Elevation:	3570.500 ft above Unknown
Borehole:	Original Hole	Seabed / Ground Elevation:	3545.500 ft above Unknown
UWI / API#:	NM-OXY-0014 / 30-015-39437	Magnetic Declination:	7.549 °
Survey Name:	Federal 23 #11H MWD 0' to 762'	Total Field Strength:	48552.945 nT
Survey Date:	August 28, 2012	Magnetic Dip Angle:	60.222 °
Tort / AHD / DDI / ERD Ratio:	1.767 ° / 2.495 ft / 0.644 / 0.003	Declination Date:	August 28, 2012
Coordinate Reference System:	NAD27 Universal Transverse Mercator, Zone 13 North, US Feet	Magnetic Declination Model:	BGGM 2012
Location Lat / Long:	N 32° 22' 4.78848", W 103° 45' 19.55988"	North Reference:	Grid North
Location Grid N/E Y/X:	N 11751021.408 ftUS, E 2024571.133 ftUS	Grid Convergence Used:	0.309 °
CRS Grid Convergence Angle:	0.66636099 °	Total Corr Mag North->Grid North:	7.240 °
Grid Scale Factor:	0.99976907	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	11751021.41	2024571.13	N 32 22 4.79	W 103 45 19.56
Assumed Vertical	142.00	0.00	0.00	142.00	0.00	0.00	0.00	0.00	11751021.41	2024571.13	N 32 22 4.79	W 103 45 19.56
Begin MWD Survey	144.00	0.31	269.86	144.00	0.00	0.00	-0.01	15.50	11751021.41	2024571.13	N 32 22 4.79	W 103 45 19.56
	204.00	0.09	352.79	204.00	0.05	0.05	-0.17	0.52	11751021.45	2024570.96	N 32 22 4.79	W 103 45 19.56
	327.00	0.22	312.66	327.00	0.30	0.30	-0.36	0.13	11751021.71	2024570.77	N 32 22 4.79	W 103 45 19.56
	393.00	0.22	266.34	393.00	0.38	0.38	-0.58	0.28	11751021.79	2024570.55	N 32 22 4.79	W 103 45 19.57
	483.00	0.31	254.32	483.00	0.34	0.34	-0.99	0.10	11751021.75	2024570.14	N 32 22 4.79	W 103 45 19.57
	573.00	0.31	235.14	573.00	0.18	0.18	-1.44	0.17	11751021.59	2024569.70	N 32 22 4.79	W 103 45 19.58
	666.00	0.31	269.86	666.00	0.04	0.04	-1.89	0.20	11751021.45	2024569.24	N 32 22 4.79	W 103 45 19.58
End MED Survey	762.00	0.22	180.43	761.99	-0.15	-0.15	-2.15	0.39	11751021.26	2024568.98	N 32 22 4.79	W 103 45 19.59

Survey Type: Def Survey

Survey Error Model: ISCWSA 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	Act Stns	SLB_BLIND+TREND-Depth Only	Original Hole / Federal 23 #11H MWD 0' to 762'
	25.000	25.000	Act Stns	SLB_BLIND+TREND-Depth Only	Original Hole / Federal 23 #11H MWD 0' to 762'
	25.000	142.000	Act Stns	SLB_BLIND+TREND	Original Hole / Federal 23 #11H MWD 0' to 762'
	142.000	762.000	Act Stns	SLB_MWD-STD	Original Hole / Federal 23 #11H MWD 0' to 762'

2105 MARKET STREET
MIDLAND, TX 79703
24 HR (432) 694-9517

STATE OF NEW MEXICO

COUNTY OF Eddy

I, Dominic Tenney, Directional Driller certify that I am employed by Baker Hughes INTEQ; did conduct

or supervise on the day(s) of Aug 29, 2012 through Sep 29, 2012 the

taking of MWD surveys from a depth of 142 to a depth of 13,450 that

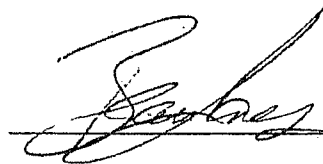
the data is true, correct, complete and within the limitations of the tool as set forth by Baker Hughes INTEQ; that I am

authorized and qualified to make this report; that this survey was conducted at the request of Oxy Permian

for the Federal 23 No. 11H in Eddy

County, NM; and that I have reviewed this report and find that it conforms to

the principles and procedures as set forth by INTEQ.



Field Service Engineer: Dominic Tenney



OXY Permian

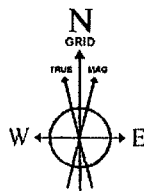
Location: Eddy County, NM
Field: (Federal) Sand Dunes Delaware, West
Facility: Federal 23 No.11H

Slot: No.11H SHL
Well: No.11H
Wellbore: No.11H PWB

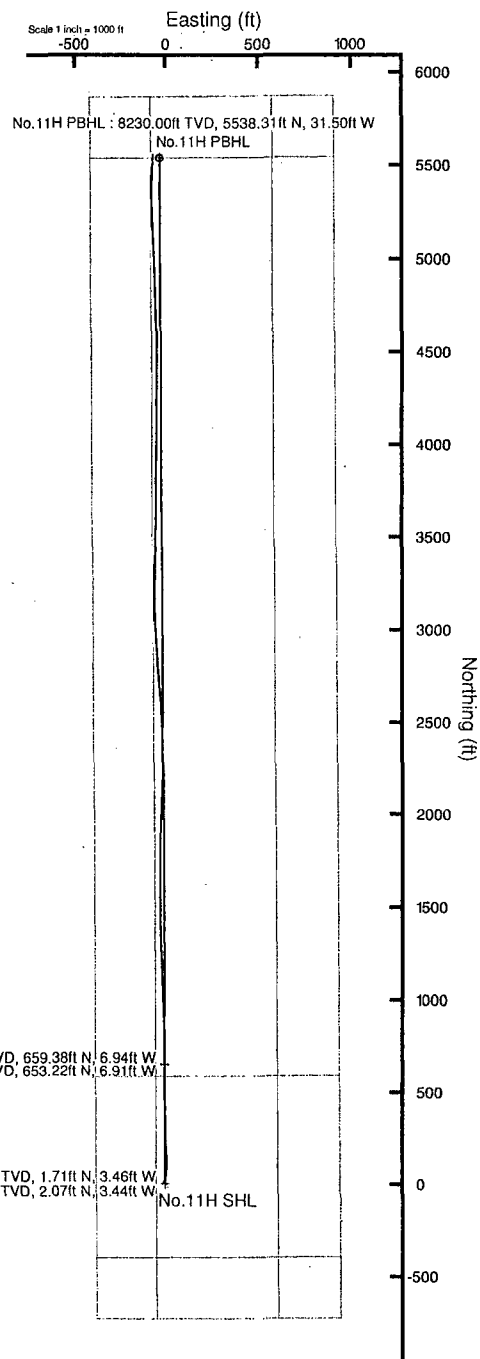
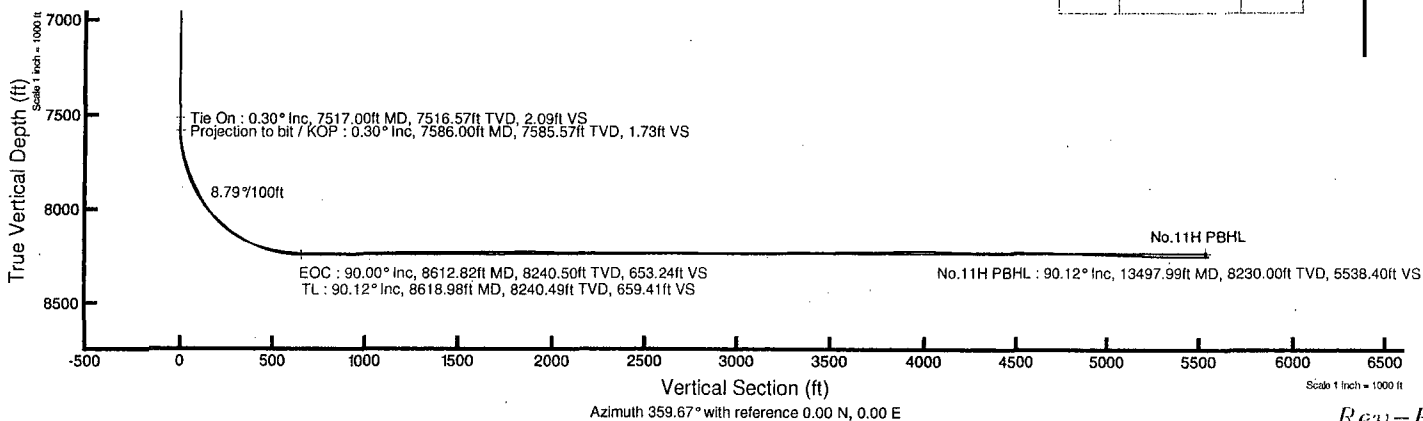


Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	7517.00	0.300	182.700	7516.57	2.07	-3.44	0.00	2.09
Projection to bit / KOP	7586.00	0.300	182.700	7585.57	1.71	-3.46	0.00	1.73
EOC	8612.82	90.000	359.712	8240.50	653.22	-6.91	8.79	653.24
TL	8618.98	90.123	359.712	8240.49	659.38	-6.94	2.00	659.41
No.11H PBHL	13497.99	90.123	359.712	8230.00	5538.31	-31.50	0.00	5538.40

Plot reference wellpath is Rev-B.0	
True vertical depths are referenced to Rig on No.11H SHL (KB)	Grid System: NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No.11H SHL (KB)	North Reference: Grid north
Rig on No.11H SHL (KB) to Mean Sea Level: 3570.5 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: No.11H SHL): -3545.5 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: harrkof on 9/7/2012



BGGM (1945.0 to 2014.0) Dip: 60.22° Field: 48561.7 nT
Magnetic North is 7.84 degrees East of True North (at 8/3/2012)
Grid North is 0.31 degrees East of True North
To correct azimuth from True to Grid subtract 0.31 degrees
To correct azimuth from Magnetic to Grid add 7.33 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.33 = 97.33





Actual Wellpath Report

No.11H AWP

Page 1 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.11H SHL
Area	Eddy County, NM	Well	No.11H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No.11H AWB
Facility	Federal 23 No.11H		

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	Gentbry
Scale	0.999946	Report Generated	09/30/2012 at 10:19:20 PM
Convergence at slot	0.31° East	Database/Source file	WA Midland/No.11H_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	678428.10	498074.20	32°22'04.789"N	103°45'19.560"W
Facility Reference Pt			678428.10	498074.20	32°22'04.789"N	103°45'19.560"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.11H SHL (KB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Rig on No.11H SHL (KB) to Mean Sea Level	3570.50ft
Vertical Reference Pt	Rig on No.11H SHL (KB)	Rig on No.11H SHL (KB) to Mud Line at Slot (No.11H SHL)	25.00ft
MD Reference Pt	Rig on No.11H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	359.67°



Actual Wellpath Report

No.11H AWP

Page 2 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	OXY Permian	Slot	No.11H SHL
Area	Eddy County, NM	Well	No.11H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No.11H AWB
Facility	Federal 23 No.11H		

WELLPATH DATA (171 stations) ± = interpolated/extrapolated station

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	269.860	0.00	0.00	0.00	0.00	678428.10	498074.20	32°22'04.789"N	103°45'19.560"W	0.00	
25.00	0.000	269.860	25.00	0.00	0.00	0.00	678428.10	498074.20	32°22'04.789"N	103°45'19.560"W	0.00	
142.00	0.000	0.000	142.00	0.00	0.00	0.00	678428.10	498074.20	32°22'04.789"N	103°45'19.560"W	0.00	
144.00	0.310	269.860	144.00	0.00	0.00	-0.01	678428.09	498074.20	32°22'04.789"N	103°45'19.560"W	15.50	
204.00	0.090	352.790	204.00	0.05	0.05	-0.17	678427.93	498074.25	32°22'04.789"N	103°45'19.562"W	0.52	
327.00	0.220	312.660	327.00	0.30	0.30	-0.36	678427.74	498074.50	32°22'04.792"N	103°45'19.564"W	0.13	
393.00	0.220	266.340	393.00	0.38	0.38	-0.58	678427.52	498074.58	32°22'04.792"N	103°45'19.566"W	0.26	
483.00	0.310	264.320	483.00	0.35	0.34	-0.99	678427.11	498074.54	32°22'04.792"N	103°45'19.571"W	0.10	
573.00	0.310	235.140	573.00	0.19	0.18	-1.44	678426.66	498074.38	32°22'04.791"N	103°45'19.576"W	0.17	
666.00	0.310	269.860	666.00	0.05	0.04	-1.89	678426.21	498074.24	32°22'04.789"N	103°45'19.582"W	0.20	
762.00	0.220	180.530	761.99	-0.14	-0.15	-2.16	678425.94	498074.05	32°22'04.787"N	103°45'19.585"W	0.39	
867.00	0.400	344.100	866.99	0.02	0.00	-2.26	678425.84	498074.20	32°22'04.789"N	103°45'19.586"W	0.58	
959.00	0.300	347.500	958.99	0.56	0.55	-2.40	678425.70	498074.75	32°22'04.794"N	103°45'19.587"W	0.11	
1052.00	0.300	322.700	1051.99	0.99	0.98	-2.60	678425.50	498075.18	32°22'04.798"N	103°45'19.590"W	0.14	
1144.00	0.500	313.400	1143.99	1.46	1.45	-3.04	678425.06	498075.65	32°22'04.803"N	103°45'19.595"W	0.23	
1239.00	0.400	308.500	1238.99	1.96	1.94	-3.60	678424.50	498076.14	32°22'04.808"N	103°45'19.601"W	0.11	
1333.00	0.300	308.700	1332.98	2.32	2.30	-4.05	678424.06	498076.50	32°22'04.812"N	103°45'19.607"W	0.11	
1428.00	0.400	310.300	1427.98	2.69	2.67	-4.49	678423.61	498076.87	32°22'04.815"N	103°45'19.612"W	0.11	
1523.00	0.500	304.000	1522.98	3.14	3.11	-5.09	678423.01	498077.31	32°22'04.820"N	103°45'19.619"W	0.12	
1617.00	0.400	289.600	1616.98	3.48	3.45	-5.74	678422.56	498077.65	32°22'04.823"N	103°45'19.626"W	0.16	
1712.00	0.500	310.800	1711.97	3.87	3.83	-6.36	678421.74	498078.03	32°22'04.827"N	103°45'19.633"W	0.20	
1806.00	0.400	300.400	1805.97	4.31	4.27	-6.96	678421.14	498078.47	32°22'04.831"N	103°45'19.640"W	0.14	
1901.00	0.500	304.000	1900.97	4.71	4.67	-7.59	678420.51	498078.87	32°22'04.835"N	103°45'19.648"W	0.11	
1996.00	0.600	303.700	1995.96	5.22	5.17	-8.34	678419.76	498079.37	32°22'04.840"N	103°45'19.656"W	0.11	
2090.00	0.600	315.400	2089.96	5.85	5.80	-9.10	678419.00	498080.00	32°22'04.847"N	103°45'19.665"W	0.19	
2185.00	0.700	324.400	2184.95	6.68	6.62	-9.79	678418.31	498080.82	32°22'04.855"N	103°45'19.673"W	0.15	
2280.00	0.500	60.120	2279.95	7.36	7.30	-9.77	678418.34	498081.50	32°22'04.861"N	103°45'19.673"W	0.95	
2374.00	0.500	81.700	2273.95	7.62	7.57	-9.00	678419.10	498081.77	32°22'04.864"N	103°45'19.664"W	0.20	
2469.00	0.600	77.900	2468.94	7.78	7.73	-8.11	678419.99	498081.93	32°22'04.866"N	103°45'19.654"W	0.11	
2563.00	0.800	67.100	2562.93	8.13	8.09	-7.02	678421.08	498082.29	32°22'04.869"N	103°45'19.641"W	0.25	
2658.00	0.700	66.800	2657.93	8.61	8.58	-5.88	678422.22	498082.77	32°22'04.874"N	103°45'19.627"W	0.11	
2752.00	0.900	70.000	2751.92	9.08	9.05	-4.66	678423.44	498083.25	32°22'04.879"N	103°45'19.613"W	0.22	
2847.00	0.700	124.900	2846.91	9.00	8.98	-3.48	678424.62	498083.18	32°22'04.878"N	103°45'19.600"W	0.80	
2942.00	0.700	140.100	2941.90	8.21	8.20	-2.63	678425.47	498082.40	32°22'04.870"N	103°45'19.590"W	0.19	
3036.00	0.800	123.600	3035.89	7.41	7.40	-1.72	678426.38	498081.60	32°22'04.862"N	103°45'19.579"W	0.25	
3131.00	0.800	138.200	3130.88	6.54	6.53	-0.72	678427.38	498080.73	32°22'04.853"N	103°45'19.568"W	0.21	
3225.00	0.700	156.600	3224.88	5.52	5.52	-0.06	678428.04	498079.72	32°22'04.843"N	103°45'19.560"W	0.28	
3320.00	0.900	147.400	3319.87	4.35	4.36	0.58	678428.68	498078.56	32°22'04.832"N	103°45'19.553"W	0.25	
3414.00	1.000	152.200	3413.85	3.00	3.01	1.36	678429.46	498077.21	32°22'04.818"N	103°45'19.543"W	0.14	
3509.00	1.400	139.200	3508.83	1.38	1.40	2.50	678430.60	498075.60	32°22'04.802"N	103°45'19.530"W	0.51	
3604.00	1.100	120.600	3603.81	0.03	0.06	4.05	678432.15	498074.26	32°22'04.789"N	103°45'19.512"W	0.53	
3698.00	1.500	105.700	3697.79	-0.77	-0.74	6.01	678434.11	498073.46	32°22'04.781"N	103°45'19.490"W	0.55	
3793.00	1.000	43.400	3792.77	-0.52	-0.47	7.77	678435.87	498073.73	32°22'04.784"N	103°45'19.469"W	1.43	
3888.00	1.600	51.800	3887.74	0.90	0.95	9.39	678437.48	498075.15	32°22'04.798"N	103°45'19.450"W	0.66	
3982.00	0.900	34.400	3981.72	2.31	2.37	10.83	678438.93	498076.57	32°22'04.812"N	103°45'19.433"W	0.84	



Actual Wellpath Report

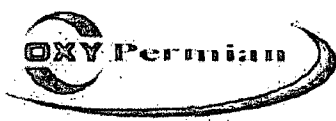
No.11H AWP

Page 3 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.11H SHL
Area	Eddy County, NM	Well	No.11H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No.11H AWP
Facility	Federal 23 No.11H		

WELLPATH DATA (171 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
4077.00	0.500	282.700	4076.72	3.02	3.08	10.85	678438.95	498077.28	32°22'04.819"N	103°45'19.433"W	1.24	
4171.00	1.000	255.100	4170.71	2.90	2.96	9.66	678437.76	498077.16	32°22'04.817"N	103°45'19.447"W	0.64	
4266.00	0.800	275.100	4265.70	2.76	2.80	8.20	678436.30	498077.00	32°22'04.816"N	103°45'19.464"W	0.39	
4360.00	0.900	281.300	4359.69	2.97	3.01	6.82	678434.92	498077.21	32°22'04.818"N	103°45'19.480"W	0.14	
4382.00	0.800	275.600	4381.68	3.02	3.06	6.50	678434.60	498077.26	32°22'04.819"N	103°45'19.484"W	0.59	
4522.00	0.700	275.300	4521.67	3.20	3.23	4.67	678432.77	498077.43	32°22'04.820"N	103°45'19.505"W	0.07	
4617.00	1.000	281.500	4616.66	3.43	3.45	3.28	678431.38	498077.65	32°22'04.823"N	103°45'19.521"W	0.33	
4711.00	0.900	282.900	4710.65	3.77	3.78	1.76	678429.86	498077.98	32°22'04.826"N	103°45'19.539"W	0.11	
4806.00	1.100	280.700	4805.63	4.11	4.11	0.14	678428.24	498078.31	32°22'04.829"N	103°45'19.558"W	0.21	
4900.00	0.500	302.900	4899.62	4.51	4.50	-1.10	678427.00	498078.70	32°22'04.833"N	103°45'19.572"W	0.71	
4995.00	0.200	16.100	4994.62	4.90	4.89	-1.40	678426.70	498079.09	32°22'04.837"N	103°45'19.576"W	0.51	
5090.00	0.200	12.500	5089.62	5.22	5.21	-1.32	678426.78	498079.41	32°22'04.840"N	103°45'19.575"W	0.01	
5185.00	0.300	352.200	5184.62	5.63	5.62	-1.31	678426.79	498079.82	32°22'04.844"N	103°45'19.574"W	0.14	
5279.00	0.200	343.600	5278.62	6.03	6.02	-1.39	678426.71	498080.22	32°22'04.848"N	103°45'19.575"W	0.11	
5374.00	0.100	62.400	5373.62	6.22	6.22	-1.37	678426.73	498080.42	32°22'04.850"N	103°45'19.575"W	0.22	
5468.00	0.100	5.000	5467.62	6.34	6.34	-1.29	678426.81	498080.54	32°22'04.851"N	103°45'19.574"W	0.10	
5563.00	0.300	13.900	5562.62	6.67	6.66	-1.22	678426.88	498080.86	32°22'04.855"N	103°45'19.573"W	0.21	
5657.00	0.200	39.500	5656.62	7.03	7.03	-1.06	678427.04	498081.23	32°22'04.858"N	103°45'19.571"W	0.16	
5752.00	0.300	8.100	5751.62	7.40	7.40	-0.92	678427.18	498081.60	32°22'04.862"N	103°45'19.570"W	0.17	
5846.00	0.300	51.900	5845.62	7.80	7.80	-0.69	678427.41	498081.99	32°22'04.866"N	103°45'19.567"W	0.24	
5941.00	0.300	52.000	5940.62	8.10	8.10	-0.30	678427.80	498082.30	32°22'04.869"N	103°45'19.562"W	0.00	
6035.00	0.100	113.400	6034.61	8.22	8.22	-0.03	678428.07	498082.42	32°22'04.870"N	103°45'19.559"W	0.28	
6130.00	0.200	59.100	6129.61	8.27	8.27	0.19	678428.29	498082.47	32°22'04.871"N	103°45'19.557"W	0.17	
6225.00	0.200	215.400	6224.61	8.22	8.22	0.24	678428.34	498082.42	32°22'04.870"N	103°45'19.556"W	0.41	
6319.00	0.200	212.400	6318.61	7.95	7.95	0.05	678428.15	498082.15	32°22'04.867"N	103°45'19.558"W	0.01	
6413.00	0.100	37.100	6412.61	7.88	7.88	0.02	678428.12	498082.08	32°22'04.867"N	103°45'19.559"W	0.32	
6508.00	0.300	320.300	6507.61	8.14	8.14	-0.09	678428.01	498082.33	32°22'04.869"N	103°45'19.560"W	0.31	
6603.00	0.600	257.100	6602.61	8.22	8.22	-0.74	678427.36	498082.41	32°22'04.870"N	103°45'19.568"W	0.56	
6697.00	0.400	205.300	6696.61	7.82	7.81	-1.36	678426.74	498082.01	32°22'04.866"N	103°45'19.575"W	0.50	
6792.00	0.900	210.600	6791.60	6.88	6.87	-1.88	678426.22	498081.07	32°22'04.857"N	103°45'19.581"W	0.53	
6882.00	1.000	208.900	6881.59	5.59	5.57	-2.62	678425.48	498079.77	32°22'04.844"N	103°45'19.590"W	0.12	
6978.00	0.500	213.500	6977.58	4.51	4.49	-3.25	678424.85	498078.69	32°22'04.833"N	103°45'19.597"W	0.52	
7075.00	0.200	103.900	7074.58	4.11	4.09	-3.32	678424.78	498078.29	32°22'04.829"N	103°45'19.598"W	0.62	
7170.00	0.200	144.900	7169.58	3.94	3.92	-3.07	678425.03	498078.12	32°22'04.828"N	103°45'19.595"W	0.15	
7265.00	0.200	215.200	7264.58	3.67	3.65	-3.07	678425.03	498077.85	32°22'04.825"N	103°45'19.595"W	0.24	
7359.00	0.500	177.000	7358.58	3.12	3.10	-3.14	678424.96	498077.30	32°22'04.820"N	103°45'19.596"W	0.39	
7454.00	0.400	214.700	7453.57	2.44	2.42	-3.31	678424.79	498076.62	32°22'04.813"N	103°45'19.598"W	0.32	
7517.00	0.300	182.700	7516.57	2.09	2.07	-3.44	678424.66	498076.27	32°22'04.809"N	103°45'19.599"W	0.34	
7608.00	3.000	11.000	7607.53	4.19	4.17	-3.00	678425.10	498078.37	32°22'04.830"N	103°45'19.594"W	3.62	
7640.00	7.100	10.300	7639.40	6.96	6.94	-2.48	678425.62	498081.14	32°22'04.857"N	103°45'19.588"W	12.81	
7672.00	11.200	8.700	7670.99	11.97	11.96	-1.66	678426.44	498086.16	32°22'04.907"N	103°45'19.578"W	12.84	
7703.00	13.600	6.700	7701.26	18.56	18.56	-0.78	678427.32	498092.76	32°22'04.972"N	103°45'19.567"W	7.86	
7735.00	16.000	8.000	7732.20	26.66	26.66	0.28	678428.38	498100.86	32°22'05.052"N	103°45'19.555"W	7.57	
7766.00	18.600	8.300	7761.80	35.78	35.79	1.58	678429.68	498109.99	32°22'05.143"N	103°45'19.539"W	8.39	
7798.00	20.700	8.800	7791.93	46.41	46.43	3.19	678431.29	498120.62	32°22'05.248"N	103°45'19.519"W	6.58	



Actual Wellpath Report

No.11H AWP

Page 4 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.11H SHL
Area	Eddy County, NM	Well	No.11H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No.11H AWP
Facility	Federal 23 No.11H		

WELLPATH DATA (171 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
7829.00	22.400	6.800	7820.76	57.68	57.71	4.72	678432.82	498131.90	32°22'05.359"N	103°45'19.501"W	5.97	
7861.00	23.700	5.200	7850.21	70.13	70.17	6.03	678434.13	498144.36	32°22'05.483"N	103°45'19.485"W	4.51	
7892.00	24.900	4.400	7878.46	82.84	82.88	7.09	678435.19	498157.07	32°22'05.608"N	103°45'19.472"W	4.01	
7924.00	26.400	2.300	7907.31	96.66	96.71	7.90	678436.00	498170.90	32°22'05.745"N	103°45'19.461"W	5.48	
7955.00	28.300	0.100	7934.84	110.89	110.94	8.19	678436.28	498185.14	32°22'05.886"N	103°45'19.457"W	6.94	
7990.00	31.200	357.900	7965.23	128.26	128.30	7.87	678435.97	498202.49	32°22'06.058"N	103°45'19.460"W	8.85	
8022.00	34.200	356.600	7992.15	145.52	145.57	7.03	678435.13	498219.76	32°22'06.229"N	103°45'19.468"W	9.63	
8053.00	37.300	355.500	8017.31	163.60	163.63	5.78	678433.88	498237.82	32°22'06.408"N	103°45'19.482"W	10.21	
8085.00	40.300	355.600	8042.24	183.59	183.62	4.22	678432.32	498257.81	32°22'06.605"N	103°45'19.499"W	9.38	
8117.00	44.400	356.800	8065.89	205.11	205.13	2.80	678430.90	498279.31	32°22'06.818"N	103°45'19.514"W	13.06	
8148.00	48.400	357.900	8087.26	227.53	227.55	1.77	678429.87	498301.73	32°22'07.040"N	103°45'19.525"W	13.16	
8180.00	52.300	357.900	8107.68	252.15	252.16	0.87	678428.97	498326.35	32°22'07.284"N	103°45'19.534"W	12.19	
8212.00	56.100	358.300	8126.39	278.09	278.10	0.01	678428.11	498352.28	32°22'07.540"N	103°45'19.542"W	11.92	
8243.00	59.700	358.400	8142.86	304.34	304.34	-0.75	678427.35	498378.53	32°22'07.800"N	103°45'19.549"W	11.62	
8260.00	61.500	359.200	8151.21	319.15	319.15	-1.05	678427.05	498393.33	32°22'07.947"N	103°45'19.552"W	11.35	
8294.00	64.800	359.100	8166.56	349.48	349.48	-1.50	678426.60	498423.66	32°22'08.247"N	103°45'19.555"W	9.71	
8326.00	66.800	359.000	8179.68	378.66	378.66	-1.99	678426.11	498452.84	32°22'08.536"N	103°45'19.559"W	6.26	
8358.00	69.300	358.700	8191.64	408.34	408.33	-2.59	678425.52	498482.51	32°22'08.829"N	103°45'19.564"W	7.86	
8389.00	72.600	358.100	8201.76	437.63	437.62	-3.40	678424.70	498511.79	32°22'09.119"N	103°45'19.572"W	10.80	
8421.00	76.100	358.300	8210.39	468.43	468.41	-4.37	678423.73	498542.59	32°22'09.424"N	103°45'19.581"W	10.95	
8452.00	79.200	359.000	8217.02	498.70	498.68	-5.08	678423.02	498572.85	32°22'09.723"N	103°45'19.587"W	10.24	
8484.00	80.600	359.900	8222.63	530.21	530.18	-5.39	678422.71	498604.35	32°22'10.035"N	103°45'19.589"W	5.18	
8515.00	82.800	0.300	8227.10	560.88	560.86	-5.33	678422.77	498635.03	32°22'10.339"N	103°45'19.586"W	7.21	
8547.00	84.600	0.000	8230.62	592.68	592.66	-5.25	678422.85	498666.83	32°22'10.653"N	103°45'19.583"W	5.70	
8578.00	85.400	359.700	8233.32	623.56	623.54	-5.33	678422.77	498697.71	32°22'10.959"N	103°45'19.582"W	2.75	
8610.00	86.700	0.000	8235.52	655.49	655.47	-5.41	678422.69	498729.63	32°22'11.275"N	103°45'19.581"W	4.17	
8641.00	88.600	0.200	8236.79	686.46	686.44	-5.36	678422.74	498760.60	32°22'11.581"N	103°45'19.579"W	6.16	
8673.00	89.900	359.800	8237.21	718.46	718.44	-5.36	678422.74	498792.60	32°22'11.898"N	103°45'19.577"W	4.25	
8704.00	89.700	359.600	8237.32	749.45	749.44	-5.52	678422.58	498823.59	32°22'12.205"N	103°45'19.577"W	0.91	
8736.00	89.800	359.400	8237.46	781.45	781.43	-5.80	678422.30	498855.59	32°22'12.521"N	103°45'19.578"W	0.70	
8830.00	90.400	358.500	8237.29	875.45	875.42	-7.52	678420.58	498949.57	32°22'13.451"N	103°45'19.592"W	1.15	
8925.00	90.800	357.800	8236.30	970.41	970.36	-10.59	678417.51	499044.51	32°22'14.391"N	103°45'19.622"W	0.85	
9031.00	91.900	357.300	8233.80	1076.30	1076.23	-15.12	678412.98	499150.37	32°22'15.439"N	103°45'19.668"W	1.14	
9125.00	90.900	358.400	8231.51	1170.22	1170.14	-18.65	678409.46	499244.27	32°22'16.368"N	103°45'19.703"W	1.58	
9207.00	89.500	357.300	8231.22	1252.18	1252.07	-21.72	678406.38	499326.20	32°22'17.179"N	103°45'19.734"W	2.17	
9302.00	90.400	357.900	8231.30	1347.11	1346.99	-25.70	678402.40	499421.11	32°22'18.119"N	103°45'19.774"W	1.14	
9396.00	91.300	359.700	8229.91	1441.09	1440.95	-27.67	678400.43	499515.07	32°22'19.049"N	103°45'19.791"W	2.14	
9491.00	90.000	359.200	8228.83	1536.08	1535.94	-28.58	678399.52	499610.05	32°22'19.988"N	103°45'19.796"W	1.47	
9586.00	91.100	0.000	8227.92	1631.07	1630.93	-29.24	678398.86	499705.04	32°22'20.928"N	103°45'19.798"W	1.43	
9680.00	89.800	0.100	8227.18	1725.07	1724.93	-29.16	678398.94	499799.03	32°22'21.859"N	103°45'19.791"W	1.39	
9775.00	91.400	0.700	8226.19	1820.05	1819.92	-28.50	678399.60	499894.01	32°22'22.798"N	103°45'19.777"W	1.80	
9870.00	88.500	2.000	8226.27	1915.00	1914.88	-26.26	678401.84	499988.97	32°22'23.738"N	103°45'19.745"W	3.35	
9964.00	89.300	1.700	8228.07	2008.91	2008.81	-23.23	678404.88	500082.90	32°22'24.667"N	103°45'19.704"W	0.91	
10059.00	88.900	2.700	8229.57	2103.80	2103.73	-19.58	678408.52	500177.81	32°22'25.606"N	103°45'19.655"W	1.13	
10153.00	89.300	1.400	8231.04	2197.71	2197.65	-16.22	678411.88	500271.73	32°22'26.536"N	103°45'19.610"W	1.45	



Actual Wellpath Report

No.11H AWP

Page 5 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.11H SHL
Area	Eddy County, NM	Well	No.11H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No.11H AWP
Facility	Federal 23 No.11H		

WELLPATH DATA (171 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
10248.00	89.500	0.300	8232.04	2292.68	2292.64	-14.81	678413.29	500366.71	32°22'27.475"N	103°45'19.588"W	1.18	
10343.00	90.800	359.700	8231.79	2387.68	2387.63	-14.81	678413.29	500461.70	32°22'28.415"N	103°45'19.582"W	1.51	
10437.00	90.200	357.600	8230.97	2481.65	2481.60	-17.02	678411.08	500555.66	32°22'29.345"N	103°45'19.602"W	2.32	
10532.00	89.900	356.000	8230.88	2576.53	2576.45	-22.33	678405.78	500650.50	32°22'30.284"N	103°45'19.658"W	1.71	
10626.00	90.800	355.300	8230.31	2670.30	2670.17	-29.46	678398.65	500744.22	32°22'31.212"N	103°45'19.735"W	1.21	
10721.00	88.500	355.500	8230.89	2765.02	2764.86	-37.07	678391.03	500838.90	32°22'32.149"N	103°45'19.818"W	2.43	
10816.00	89.600	355.600	8232.47	2859.76	2859.56	-44.44	678383.66	500933.60	32°22'33.087"N	103°45'19.898"W	1.16	
10911.00	89.900	356.000	8232.88	2954.55	2954.30	-51.40	678376.70	501028.33	32°22'34.024"N	103°45'19.973"W	0.53	
11005.00	90.200	357.700	8232.80	3048.43	3048.16	-56.57	678371.54	501122.18	32°22'34.953"N	103°45'20.027"W	1.84	
11100.00	89.900	358.400	8232.72	3143.39	3143.10	-59.80	678368.30	501217.12	32°22'35.893"N	103°45'20.059"W	0.80	
11195.00	92.200	0.600	8230.97	3238.36	3238.07	-60.63	678367.48	501312.09	32°22'36.833"N	103°45'20.063"W	3.35	
11289.00	90.500	1.100	8228.76	3332.31	3332.03	-59.23	678368.87	501406.04	32°22'37.763"N	103°45'20.040"W	1.89	
11384.00	89.700	2.500	8228.59	3427.24	3426.98	-56.25	678371.85	501500.98	32°22'38.702"N	103°45'20.000"W	1.70	
11478.00	90.700	2.000	8228.27	3521.15	3520.90	-52.56	678375.54	501594.90	32°22'39.631"N	103°45'19.951"W	1.19	
11573.00	89.800	0.000	8227.85	3616.11	3615.88	-50.90	678377.20	501689.88	32°22'40.571"N	103°45'19.925"W	2.31	
11668.00	90.500	0.600	8227.60	3711.11	3710.88	-50.40	678377.70	501784.87	32°22'41.511"N	103°45'19.914"W	0.97	
11762.00	91.700	0.900	8225.80	3805.07	3804.85	-49.17	678378.93	501878.84	32°22'42.441"N	103°45'19.893"W	1.32	
11856.00	91.800	0.900	8222.93	3899.01	3898.80	-47.70	678380.40	501972.78	32°22'43.370"N	103°45'19.870"W	0.11	
11951.00	89.900	0.800	8221.52	3993.97	3993.77	-46.29	678381.81	502067.75	32°22'44.310"N	103°45'19.848"W	2.00	
12046.00	87.600	359.400	8223.59	4088.94	4088.74	-46.12	678381.98	502162.71	32°22'45.250"N	103°45'19.840"W	2.83	
12140.00	88.300	359.600	8226.95	4182.88	4182.68	-46.94	678381.16	502256.64	32°22'46.179"N	103°45'19.843"W	0.77	
12235.00	89.900	0.400	8228.45	4277.86	4277.66	-46.94	678381.16	502351.62	32°22'47.119"N	103°45'19.837"W	1.88	
12330.00	89.800	0.400	8228.69	4372.85	4372.66	-46.28	678381.82	502446.61	32°22'48.059"N	103°45'19.824"W	0.11	
12424.00	90.700	0.400	8228.28	4466.84	4466.65	-45.62	678382.48	502540.60	32°22'48.989"N	103°45'19.810"W	0.96	
12519.00	89.300	359.300	8228.28	4561.84	4561.65	-45.87	678382.23	502635.59	32°22'49.929"N	103°45'19.807"W	1.87	
12613.00	88.800	357.400	8229.84	4655.79	4655.59	-48.58	678379.52	502729.53	32°22'50.859"N	103°45'19.833"W	2.09	
12708.00	88.600	358.100	8232.00	4750.72	4750.49	-52.31	678375.80	502824.43	32°22'51.798"N	103°45'19.870"W	0.77	
12802.00	88.700	358.300	8234.21	4844.66	4844.42	-55.26	678372.84	502918.35	32°22'52.728"N	103°45'19.899"W	0.24	
12897.00	88.500	357.500	8236.53	4939.58	4939.33	-58.74	678369.36	503013.25	32°22'53.667"N	103°45'19.933"W	0.87	
12992.00	88.400	357.300	8239.10	5034.47	5034.20	-63.05	678365.06	503108.11	32°22'54.606"N	103°45'19.978"W	0.24	
13086.00	88.700	357.200	8241.48	5128.36	5128.06	-67.56	678360.55	503201.97	32°22'55.535"N	103°45'20.024"W	0.34	
13181.00	88.100	357.700	8244.13	5223.25	5222.93	-71.78	678356.32	503296.83	32°22'56.474"N	103°45'20.068"W	0.82	
13275.00	88.400	358.900	8247.01	5317.18	5316.84	-74.57	678353.54	503390.74	32°22'57.403"N	103°45'20.094"W	1.32	
13370.00	90.400	1.700	8248.00	5412.15	5411.82	-74.07	678354.03	503485.71	32°22'58.343"N	103°45'20.082"W	3.62	
13450.00	91.100	2.700	8246.95	5492.07	5491.75	-71.00	678357.11	503565.64	32°22'59.134"N	103°45'20.042"W	1.53	
13514.00	91.100	2.700	8245.72	5555.96	5555.67	-67.98	678360.12	503629.55	32°22'59.766"N	103°45'20.002"W	0.00	Proj to Bit



Actual Wellpath Report

No.11H AWP

Page 6 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	OXY Permian	Slot	No.11H SHL
Area	Eddy County, NM	Well	No.11H
Field	(Federal) Sand Dunes Delaware, West	Wellbore	No.11H AWB
Facility	Federal 23 No.11H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
No.11H PBHL		8230.00	5538.31	-31.50	678396.60	503612.20	32°22'59.592"N	103°45'19.578"W	point

WELLPATH COMPOSITION - Ref Wellbore: No.11H AWB					Ref Wellpath: No.11H AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment			Wellbore	
25.00	13450.00	NaviTrak (Standard)			BHI MWD NaviTrak <142-XXXX>			No.11H AWB	
13450.00	13514.00	Blind Drilling (std)			Projection to bit			No.11H AWB	

OXY USA Inc.
Federal 23 #11H
API No. 30-015-39437

17-1/2" hole @ 814'
13-3/8" csg @ 814'
w/ 940sx-TOC-Surf-Circ

12-1/4" hole @ 4446'
9-5/8" csg @ 4446'
w/ 1520sx-TOC-Surf-Circ

8-1/2" hole @ 13514'
5-1/2" csg @ 13514'
DVT-5986' POST-4470'
w/ 3290sx-TOC-Surf-Circ

Perfs @ 9000-13050'

TD - 13514'M 8252'V