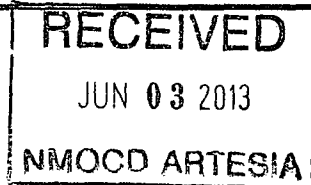


Reservoir Development
Drilling & Measurements (Extreme Engineering)
6724 Corporation Pkwy Suite 100
Fort Worth, TX 76126
Phone: (817) 717-1820
Fax: (817) 546-7551

January 10, 2013

Occidental Permian Ltd
5 Greenway Plaza Suite 110
Houston, Texas 77046



Attention: Anthony T Tschacher

Re:

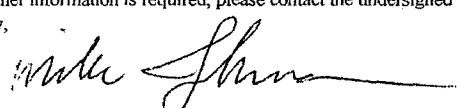
CLIENT: OXY
WELL: Federal 12 #14H
FIELD: YESO
RIG: HP 216
COUNTY: EDDY
API NO: 30-015-40821
JOB NO: NM-OXY-0035

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>
TY MCFARLIN FST-T	Federal 12 #14H Original Hole	179.00 Ft to 4421.00 Ft	January 3, 2013 to January 10, 2013	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.

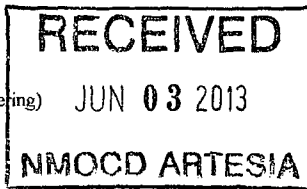
If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,


MIKE JOHNS
Field Service Manager

CC: OXY
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



Schlumberger

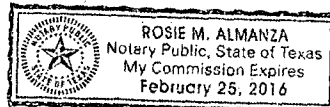
I, TY MCFARLIN certify that; I am employed by Drilling & Measurements (formerly Extreme), a division of Schlumberger Technology Corporation; that I did on the day(s) of January 03, 2013 through January 10, 2013, conduct or supervise the taking of the SlimPulse surveys from a depth of 179.00 feet to a depth of 4421.00 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 for the Federal 12 #14H Well (Original Hole) API No. 30-015-40821 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.

TY MCFARLIN
FST-T

Before me, Rosie Almanza
Ty McFarlin, on this day personally appeared Ty McFarlin, 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 16th day of JAN., 2013 (year).

Rosie Almanza
Notary Public



Federal 12 #14H MWD 0' to 4421' Survey Report (Def Survey)

Report Date: January 10, 2013 - 05:49 PM
Client: OXY
Field: NM, Eddy (NAD27) 2011
Structure / Slot: OXY (Federal 12 #14H) HP216 / Federal 12 #14H
Well: Federal 12 #14H
Borehole: Original Hole
UWI / API#: Unknown / 30015-40821
Survey Name: Federal 12 #14H MWD 0' to 4421'
Survey Date: January 10, 2013
Tort / AHD / DDI / ERD Ratio: 7.905 * / 63.761 ft / 2.870 / 0.021
Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 14' 0.88000", W 103° 25' 57.36000"
Location Grid N/E Y/X: N 450870.498 NUS, E 778510.801 tUS
GRS Grid Convergence Angle: 0.48048431 *
Grid Scale Factor: 0.99999793

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: 3645.000 ft above MSL
Seabed / Ground Elevation: 3620.000 ft above MSL
Magnetic Declination: 7.487 *
Total Field Strength: 48464.482 nT
Magnetic Dip Angle: 80.143 *
Declination Date: January 10, 2013
North Reference: BGGM 2012
Grid North: 0.327 *
Total Corr Mag North -> Grid North: 7.160 *
Local Coord Referenced To: Structure Reference Point

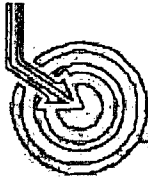
Comments	MD (ft)	Iscl (%)	Azimuth (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northings (ft)	Eastings (ft)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	450670.90	778510.93	N 32 14 8.88	W 103 25 57.36
Begin MWD Surveys	179.00	0.45	205.27	179.00	-0.68	-0.68	-0.32	0.27	450669.82	778510.28	N 32 14 8.87	W 103 25 57.38
	337.00	0.31	234.67	336.99	-1.52	-1.52	-0.95	0.19	450668.97	778509.65	N 32 14 8.87	W 103 25 57.37
	483.00	0.48	251.67	482.99	-1.94	-1.94	-1.85	0.14	450668.55	778508.75	N 32 14 8.86	W 103 25 57.38
	661.00	0.09	152.84	660.99	-2.30	-2.30	-2.50	0.28	450668.19	778508.10	N 32 14 8.86	W 103 25 57.38
	836.00	0.31	204.74	835.99	-2.82	-2.82	-2.63	0.18	450667.67	778507.98	N 32 14 8.85	W 103 25 57.39
	972.00	0.40	192.77	971.99	-3.67	-3.67	-2.64	0.18	450666.83	778507.56	N 32 14 8.84	W 103 25 57.39
	1198.00	0.42	152.18	1197.98	-4.85	-4.85	-2.15	0.04	450665.65	778506.45	N 32 14 8.83	W 103 25 57.36
	1345.00	0.48	161.98	1344.98	-6.19	-6.19	-1.60	0.06	450664.31	778506.00	N 32 14 8.82	W 103 25 57.38
	1534.00	0.40	108.24	1533.97	-7.58	-7.58	-1.20	0.05	450662.32	778505.41	N 32 14 8.81	W 103 25 57.37
	1723.00	0.40	149.54	1722.98	-8.79	-8.79	-0.70	0.08	450661.71	778505.90	N 32 14 8.79	W 103 25 57.37
	1912.00	0.70	174.07	1911.98	-10.51	-10.51	-0.25	0.20	450659.99	778510.35	N 32 14 8.78	W 103 25 57.36
	2101.00	0.70	163.47	2100.94	-12.78	-12.78	0.20	0.07	450657.73	778510.80	N 32 14 8.75	W 103 25 57.36
	2290.00	0.79	105.07	2289.93	-15.08	-15.08	1.08	0.07	450655.44	778511.68	N 32 14 8.75	W 103 25 57.35
	2478.00	0.88	135.26	2477.91	-17.27	-17.27	2.60	0.17	450653.23	778513.21	N 32 14 8.71	W 103 25 57.38
	2667.00	0.70	127.88	2666.89	-19.01	-19.01	4.54	0.11	450651.49	778515.14	N 32 14 8.69	W 103 25 57.31
	2856.00	0.88	101.54	2855.87	-20.51	-20.51	9.87	0.21	450650.49	778517.47	N 32 14 8.68	W 103 25 57.28
	3043.00	1.10	93.04	3042.84	-20.30	-20.30	10.07	0.16	450650.20	778520.67	N 32 14 8.68	W 103 25 57.24
	3232.00	1.10	93.65	3231.81	-20.42	-20.42	13.70	0.04	450650.08	778524.30	N 32 14 8.68	W 103 25 57.20
	3421.00	1.32	89.67	3420.77	-20.53	-20.53	17.68	0.12	450648.97	778528.28	N 32 14 8.69	W 103 25 57.16
	3610.00	2.59	104.54	3609.95	-21.59	-21.59	23.99	0.72	450648.90	778534.80	N 32 14 8.89	W 103 25 57.08
	3800.00	3.21	106.17	3799.41	-24.15	-24.15	33.28	0.83	450646.34	778543.98	N 32 14 8.94	W 103 25 56.98
	3989.00	3.78	108.28	3988.05	-27.58	-27.58	44.28	0.31	450642.62	778554.89	N 32 14 8.00	W 103 25 56.85
	4178.00	4.09	109.25	4178.61	-31.78	-31.78	58.54	0.17	450638.74	778567.14	N 32 14 8.59	W 103 25 56.70
	4273.00	4.22	107.18	4271.39	-33.91	-33.91	63.07	0.21	450638.59	778573.07	N 32 14 8.54	W 103 25 56.63
End MWD Surveys	4385.00	4.69	107.58	4383.12	-35.00	-35.00	68.44	0.14	450634.80	778580.04	N 32 14 8.52	W 103 25 56.58
	4421.00	4.00	109.70	4418.98	-37.16	-37.16	73.18	0.31	450633.34	778583.78	N 32 14 8.51	W 103 25 56.51

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7655 sigma

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Survey Tool Type	Borehole / Survey
	0.000	25.000	Act Sigs	SLB_MWD-STD-Depth Only	Original Hole / Federal 12 #14H MWD 0' to 4421'
	25.000	25.000	Act Sigs	SLB_MWD-STD-Depth Only	Original Hole / Federal 12 #14H MWD 0' to 4421'
	25.000	4421.000	Act Sigs	SLB_MWD-STD	Original Hole / Federal 12 #14H MWD 0' to 4421'



Scientific Drilling

RECEIVED

JUN 03 2013

NMOCD ARTESIA

OXY Permian

Federal (New Mexico)

Federal 12 #14H

Fed 12 #14H

Pilot Wellpath

Design: Pilot Wellpath

SDI Standard Survey Report

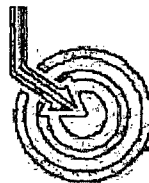
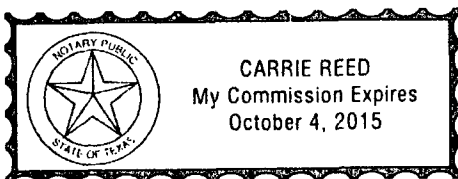
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 18th of February, 2013.

[Signature]

Notary Signature
County of Midland
State of Texas



Scientific Drilling

Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12 #14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Pilot Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Wellpath	Database:	EDM-Regulatory

Project:	Federal (New Mexico), New Mexico		
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:	Federal 12 #14H		
Site Position:		Northing:	509,602.90 usft
From:	Map	Easting:	688,140.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 23' 58.339 N
		Longitude:	103° 43' 25.556 W
		Grid Convergence:	0.33 °

Well:	Fed 12 #14H		
Well Position	+N/-S	0.00 usft	Northing: 509,602.90 usft
	+E/-W	0.00 usft	Easting: 688,140.30 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 23' 58.339 N
		Longitude:	103° 43' 25.556 W
		Ground Level:	3,620.30 usft

Wellbore:	Pilot Wellpath		
Magnetics:	Model Name	Sample Date	Declination
	IGRF2010	12/11/12	(°)
			7.49
			60.29
			48,555

Design:	Pilot Wellpath		
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
		Direction:	(°)
			273.97

Survey Program	Date	01/15/13		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
179.00	4,421.00	Survey #1 (Pilot Wellpath)	MWD	Generic MWD
4,500.01	7,279.00	Survey #2 (Pilot Wellpath)	SDI MWD	SDI MWD - Standard ver 1.0.1

Survey:								
Measured Depth	Inclination	Azimuth	True Vertical	North/South	East/West	Closure Azimuth	Closure Distance	
(usft)	(°)	(°)	Depth	(usft)	(usft)	(°)	(usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179.00	0.48	205.27	179.00	-0.68	-0.32	205.27	0.75	
337.00	0.31	234.67	336.99	-1.52	-0.95	211.98	1.80	
483.00	0.48	251.67	482.99	-1.94	-1.85	223.64	2.69	
661.00	0.09	152.84	660.99	-2.30	-2.50	227.32	3.40	
826.00	0.31	204.74	825.99	-2.82	-2.63	222.92	3.86	
972.00	0.40	162.77	971.99	-3.67	-2.64	215.73	4.52	
1,156.00	0.40	152.18	1,155.98	-4.85	-2.15	203.90	5.31	
1,345.00	0.48	161.98	1,344.98	-6.19	-1.60	194.47	6.39	
1,534.00	0.40	166.24	1,533.97	-7.58	-1.20	188.96	7.67	
1,723.00	0.40	149.54	1,722.96	-8.79	-0.70	184.58	8.82	

Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12 #14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Pilot Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Wellpath	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,912.00	0.70	174.07	1,911.96	-10.51	-0.25	181.36	10.51
2,101.00	0.70	163.47	2,100.94	-12.76	0.20	179.11	12.76
2,290.00	0.79	155.87	2,289.93	-15.06	1.06	175.98	15.10
2,478.00	0.88	135.26	2,477.91	-17.27	2.60	171.42	17.46
2,667.00	0.70	127.88	2,666.89	-19.01	4.54	166.57	19.54
2,856.00	0.88	101.64	2,855.87	-20.01	6.87	161.05	21.15
3,043.00	1.10	90.04	3,042.84	-20.30	10.07	153.61	22.66
3,232.00	1.10	93.65	3,231.81	-20.42	13.70	146.14	24.58
3,421.00	1.32	89.87	3,420.77	-20.53	17.68	139.25	27.09
3,610.00	2.59	104.54	3,609.65	-21.59	23.99	131.99	32.28
3,800.00	3.21	106.17	3,799.41	-24.15	33.26	125.99	41.10
3,989.00	3.78	108.28	3,988.06	-27.58	44.26	121.93	52.15
4,178.00	4.09	109.25	4,176.61	-31.76	56.54	119.32	64.84
4,273.00	4.22	107.18	4,271.36	-33.91	63.07	118.26	71.61
4,365.00	4.09	107.58	4,363.12	-35.90	69.44	117.34	78.17
4,421.00	4.00	109.70	4,418.98	-37.16	73.18	116.92	82.07
4,522.26	3.85	108.28	4,520.00	-39.42	79.73	116.31	88.94
Base Anhydrite - Base Anhydrite							
4,573.00	3.78	107.52	4,570.63	-40.45	82.95	116.00	92.29
4,668.00	3.08	105.67	4,665.46	-42.09	88.39	115.46	97.90
4,762.00	2.29	108.22	4,759.36	-43.36	92.61	115.09	102.25
4,857.00	2.20	107.32	4,854.28	-44.49	96.15	114.83	105.94
4,951.00	1.41	107.43	4,948.24	-45.38	98.98	114.63	108.88
5,046.00	0.35	195.67	5,043.23	-46.00	100.01	114.70	110.09
5,235.00	2.37	281.54	5,232.17	-45.78	96.03	115.49	106.38
5,329.00	3.25	285.41	5,326.06	-44.68	91.55	116.01	101.88
5,424.00	2.90	284.26	5,420.92	-43.37	86.63	116.60	96.88
5,519.00	2.55	293.67	5,515.81	-41.93	82.36	116.98	92.42
5,613.00	4.04	301.76	5,609.65	-39.35	77.63	116.88	87.04
5,708.00	3.87	300.52	5,704.43	-35.96	72.03	116.53	80.50
5,802.00	3.87	301.14	5,798.21	-32.71	66.58	116.17	74.18
5,897.00	3.96	298.85	5,892.99	-29.47	60.96	115.80	67.71
5,991.00	3.96	294.37	5,986.77	-26.56	55.16	115.71	61.22
6,086.00	3.87	301.40	6,081.55	-23.54	49.44	115.46	54.76
6,180.00	3.69	300.00	6,175.34	-20.38	44.11	114.79	48.59
6,275.00	4.57	319.33	6,270.10	-15.98	39.00	112.28	42.14
6,369.00	4.40	319.68	6,363.81	-10.39	34.22	106.88	35.76
6,407.04	4.47	319.00	6,401.73	-8.16	32.31	104.17	33.32
VTG							
6,464.00	4.57	318.01	6,458.52	-4.79	29.33	99.28	29.72
6,558.00	3.17	317.75	6,552.30	-0.09	25.08	90.20	25.08
6,653.00	3.17	316.52	6,647.16	3.76	21.51	80.08	21.83
6,748.00	2.73	323.38	6,742.03	7.48	18.35	67.81	19.82
6,842.00	1.58	325.75	6,835.96	10.35	16.28	57.55	19.30
6,936.00	1.23	327.51	6,929.94	12.27	15.01	50.73	19.39

Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12 #14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Pilot Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Pilot Wellpath	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
7,031.00	0.97	315.38	7,024.92	13.71	13.90	45.40	19.52
7,125.00	0.97	314.50	7,118.90	14.83	12.77	40.74	19.57
7,220.00	0.97	317.22	7,213.89	15.99	11.65	36.09	19.78
MWD Survey							
7,279.00	0.97	317.22	7,272.88	16.72	10.98	33.28	20.00
Bit Projection - KOP TGT 50' R - Fed 12 #14H PBHL							

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,645.30	10,425.00	BSPG 2 Target Sand		0.00	
4,522.26	4,520.00	Base Anhydrite		0.00	
2,645.30	8,465.00	Bone Spring Limestone		0.00	
2,645.30	9,655.00	BSPG 2 Limestone		0.00	
2,645.30	10,025.00	BSPG 2 Sand		0.00	
4,522.26	4,520.00	Base Anhydrite		0.00	
2,645.30	9,385.00	BSPG 1 Sand		0.00	

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,220.00	7,213.89	15.99	11.65	MWD Survey
7,279.00	7,272.88	16.72	10.98	Bit Projection



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12 #14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellbore	Database:	EDM-Regulatory

Project	Federal (New Mexico), New Mexico		
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	Federal 12 #14H		
Site Position:		Northing:	509,602.90 usft
From:	Map	Easting:	688,140.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 23' 58.339 N
		Longitude:	103° 43' 25.556 W
		Grid Convergence:	0.33 °

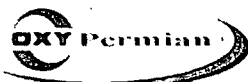
Well	Fed 12 #14H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 23' 58.339 N
		Longitude:	103° 43' 25.556 W
		Ground Level:	3,620.30 usft

Wellbore	Original Wellbore		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	01/10/13	7.48
			Dip Angle
			60.28
			Field Strength
			48,547

Design	Original Wellbore		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	9,488.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			273.97

Survey Program	Date 02/15/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		Description
179.00	4,421.00	Survey #1 (Pilot Wellpath)	MWD
4,573.00	9,488.00	Survey #1 (Side Track #1)	SDI MWD
9,527.00	14,704.00	SDI MWD (Original Wellbore)	SDI MWD
			Generic MWD
			SDI MWD - Standard ver 1.0.1
			SDI MWD - Standard ver 1.0.1

Survey			
Measured Depth	Inclination	Azimuth	True Vertical
(usft)	(°)	(°)	Depth
9,488.00	2.29	269.50	9,480.10
9,527.00	6.24	265.72	9,518.98
9,621.00	7.91	268.62	9,612.27
9,716.00	7.12	266.16	9,706.45
9,718.06	7.10	266.14	9,708.49
KOP TGT 50' R			
9,747.00	6.77	265.81	9,737.22
9,779.00	6.51	265.98	9,769.01
9,810.00	8.09	268.62	9,799.75
9,842.00	11.78	276.44	9,831.27
			North/South
			(usft)
			17.93
			17.77
			17.23
			16.68
			16.66
			16.41
			16.15
			15.97
			16.29
			East/West
			(usft)
			22.08
			19.18
			7.62
			-4.79
			-5.04
			-8.53
			-12.22
			-16.15
			-21.65
			Closure Azimuth
			(°)
			50.91
			47.19
			23.86
			343.98
			343.16
			332.54
			322.89
			314.68
			306.95
			Closure Distance
			(usft)
			28.44
			26.14
			18.84
			17.35
			17.41
			18.50
			20.25
			22.72
			27.09



Scientific Drilling International, Inc.
SDI Standard Survey Report

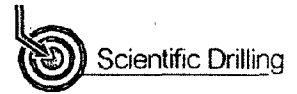


Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12 #14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellbore	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
9,873.00	14.86	278.82	9,861.43	17.25	-28.73	300.99	33.51
9,905.00	16.18	278.82	9,892.27	18.56	-37.19	296.53	41.56
9,936.00	18.38	276.79	9,921.86	19.80	-46.31	293.15	50.37
9,968.00	19.70	277.23	9,952.11	21.08	-56.67	290.40	60.46
9,999.00	20.93	275.56	9,981.18	22.27	-67.37	288.30	70.95
10,031.00	22.51	274.16	10,010.91	23.27	-79.16	286.38	82.51
10,062.00	25.06	272.58	10,039.28	24.00	-91.64	284.67	94.73
10,093.00	27.61	271.70	10,067.06	24.51	-105.39	283.09	108.20
10,125.00	29.99	270.03	10,095.10	24.73	-120.80	281.57	123.30
10,156.00	31.66	269.15	10,121.72	24.61	-136.68	280.21	138.88
10,188.00	33.85	269.32	10,148.63	24.38	-153.99	279.00	155.91
10,219.00	37.72	270.29	10,173.77	24.33	-172.11	278.05	173.83
10,251.00	40.10	271.96	10,198.67	24.73	-192.21	277.33	193.79
10,282.00	41.06	271.70	10,222.21	25.38	-212.36	276.81	213.87
10,314.00	43.09	272.14	10,245.97	26.10	-233.79	276.37	235.24
10,345.00	44.85	272.93	10,268.28	27.05	-255.29	276.05	256.72
10,377.00	47.66	274.25	10,290.40	28.50	-278.36	275.85	279.82
10,408.00	51.00	273.89	10,310.60	30.17	-301.81	275.71	303.32
10,440.00	53.29	274.33	10,330.24	31.98	-327.01	275.59	328.57
10,471.00	55.31	274.60	10,348.33	33.94	-352.11	275.51	353.74
10,503.00	57.24	274.07	10,366.09	35.95	-378.64	275.42	380.35
10,534.00	59.79	273.45	10,382.28	37.68	-405.02	275.32	406.77
10,566.00	61.82	273.28	10,397.89	39.32	-432.91	275.19	434.69
10,597.00	64.54	273.01	10,411.87	40.84	-460.53	275.07	462.34
10,629.00	67.45	273.45	10,424.89	42.49	-489.71	274.96	491.55
10,660.00	70.35	273.37	10,436.05	44.21	-518.58	274.87	520.46
10,692.00	73.78	273.98	10,445.90	46.16	-548.96	274.81	550.89
10,723.00	76.06	274.33	10,453.97	48.33	-578.81	274.77	580.82
10,755.00	77.65	275.12	10,461.24	50.90	-609.86	274.77	611.98
10,786.00	79.49	275.92	10,467.39	53.82	-640.10	274.81	642.36
10,818.00	81.60	276.35	10,472.64	57.19	-671.49	274.87	673.92
10,849.00	83.01	276.00	10,476.80	60.50	-702.03	274.93	704.63
10,881.00	84.50	276.00	10,480.28	63.82	-733.66	274.97	736.43
10,944.00	88.11	273.89	10,484.34	69.24	-796.28	274.97	799.29
10,950.00	88.37	273.90	10,484.52	69.65	-802.27	274.96	805.29
LP 10950.0' MD							
11,038.00	92.15	274.07	10,484.12	75.76	-890.04	274.87	893.26
11,133.00	90.22	274.16	10,482.16	82.58	-984.77	274.79	988.22
11,227.00	89.25	273.81	10,482.59	89.11	-1,078.54	274.72	1,082.21
11,321.00	88.99	273.89	10,484.04	95.42	-1,172.32	274.65	1,176.19
11,416.00	90.60	274.66	10,484.38	102.50	-1,267.05	274.63	1,271.19
11,539.00	90.40	271.78	10,483.30	109.41	-1,389.84	274.50	1,394.14
11,634.00	91.36	272.22	10,481.84	112.73	-1,484.76	274.34	1,489.04
11,728.00	92.24	273.54	10,478.89	117.45	-1,578.60	274.25	1,582.96



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12 #14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellbore	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
11,822.00	92.51	273.01	10,475.00	122.81	-1,672.36	274.20	1,676.87
11,917.00	91.45	272.93	10,471.71	127.73	-1,767.18	274.13	1,771.79
12,011.00	91.89	272.66	10,468.97	132.31	-1,861.02	274.07	1,865.72
12,106.00	91.36	273.63	10,466.28	137.52	-1,955.84	274.02	1,960.67
12,200.00	91.71	272.84	10,463.76	142.82	-2,049.66	273.99	2,054.63
12,295.00	91.19	274.16	10,461.36	148.62	-2,144.45	273.96	2,149.59
12,389.00	91.45	273.54	10,459.19	154.93	-2,238.21	273.96	2,243.57
12,484.00	90.84	274.25	10,457.29	161.38	-2,332.97	273.96	2,338.55
12,578.00	91.36	274.60	10,455.49	168.64	-2,426.67	273.98	2,432.52
12,674.00	91.80	274.07	10,452.84	175.89	-2,522.36	273.99	2,528.49
12,768.00	92.86	273.63	10,449.02	182.20	-2,616.07	273.98	2,622.41
12,862.00	92.15	274.33	10,444.91	188.71	-2,709.75	273.98	2,716.32
12,957.00	90.66	274.16	10,442.58	195.74	-2,804.46	273.99	2,811.28
13,051.00	90.22	272.84	10,441.86	201.48	-2,898.28	273.98	2,905.27
13,146.00	90.22	271.61	10,441.50	205.17	-2,993.21	273.92	3,000.23
13,240.00	89.60	273.19	10,441.64	209.11	-3,087.12	273.88	3,094.19
13,335.00	89.96	272.75	10,442.01	214.03	-3,181.99	273.85	3,189.18
13,429.00	89.60	274.51	10,442.37	219.98	-3,275.80	273.84	3,283.18
13,523.00	90.57	275.48	10,442.23	228.16	-3,369.44	273.87	3,377.16
13,618.00	91.45	275.21	10,440.56	237.01	-3,464.01	273.91	3,472.11
13,712.00	91.80	274.33	10,437.89	244.82	-3,557.65	273.94	3,566.06
13,807.00	92.33	274.07	10,434.47	251.78	-3,652.33	273.94	3,661.00
13,901.00	90.57	273.45	10,432.09	257.94	-3,746.09	273.94	3,754.96
13,996.00	90.57	272.49	10,431.14	262.86	-3,840.96	273.92	3,849.94
14,090.00	90.48	271.78	10,430.28	266.36	-3,934.89	273.87	3,943.89
14,185.00	91.36	274.95	10,428.76	271.94	-4,029.70	273.86	4,038.87
14,279.00	91.54	274.86	10,426.38	279.97	-4,123.33	273.88	4,132.82
14,374.00	91.98	274.07	10,423.46	287.36	-4,217.99	273.90	4,227.77
14,469.00	90.92	273.72	10,421.06	293.82	-4,312.74	273.90	4,322.74
14,563.00	91.71	273.37	10,418.90	299.63	-4,406.53	273.89	4,416.71
14,656.00	92.42	272.84	10,415.55	304.66	-4,499.34	273.87	4,509.64
SDI MWD							
14,704.00	92.42	272.84	10,413.52	307.04	-4,547.24	273.86	4,557.59
Bit Projection - Fed 12 #14H PBHL - PBHL 14H							

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,950.00	10,484.52	69.65	-802.27	LP 10950.0' MD
14,656.00	10,415.55	304.66	-4,499.34	SDI MWD
14,704.00	10,413.52	307.04	-4,547.24	Bit Projection



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12 #14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Side Track #1	Survey Calculation Method:	Minimum Curvature
Design:	Side Track #1	Database:	EDM-Regulatory

Project	Federal (New Mexico), New Mexico		
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	Federal 12 #14H		
Site Position:		Northing:	509,602.90 usft
From:	Map	Easting:	688,140.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 23' 58.339 N
		Longitude:	103° 43' 25.556 W
		Grid Convergence:	0.33 °

Well	Fed 12 #14H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 23' 58.339 N
		Longitude:	103° 43' 25.556 W
		Ground Level:	3,620.30 usft

Wellbore	Side Track #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	01/19/13	(°)
			7.47
			Dip Angle
			(°)
			60.28
			Field Strength
			(nT)
			48,544

Design	Side Track #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	4,421.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			273.85

Survey Program	Date 01/30/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
179.00	4,421.00	Survey #1 (Pilot Wellpath)	MWD
4,573.00	11,675.00	Survey #1 (Side Track #1)	SDI MWD
			Description
			Generic MWD
			SDI MWD - Standard ver 1.0.1

Survey:							
Measured Depth	Inclination	Azimuth	True Vertical	North/South	East/West	Closure Azimuth	Closure Distance
(usft)	(°)	(°)	Depth	(usft)	(usft)	(°)	(usft)
4,421.00	4.00	109.70	4,418.98	-37.16	73.18	116.92	82.07
4,522.26	3.85	106.29	4,520.00	-39.30	79.77	116.23	88.92
Base Anhydrite							
4,573.00	3.78	104.48	4,570.63	-40.20	83.02	115.84	92.24
4,668.00	2.99	101.54	4,665.46	-41.48	88.48	115.12	97.72
4,763.00	4.04	97.23	4,760.28	-42.39	94.23	114.22	103.33
4,857.00	4.13	90.82	4,854.05	-42.86	100.90	113.01	109.62
4,951.00	3.87	89.50	4,947.82	-42.88	107.45	111.75	115.69
5,046.00	3.69	88.97	5,042.61	-42.80	113.72	110.62	121.50
5,140.00	3.61	91.08	5,136.42	-42.80	119.70	109.67	127.12
5,235.00	3.33	87.31	5,231.25	-42.73	125.45	108.81	132.52

Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12 #14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Side Track #1	Survey Calculation Method:	Minimum Curvature
Design:	Side Track #1	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,329.00	3.31	93.71	5,325.09	-42.77	130.88	108.10	137.69
5,424.00	2.99	90.38	5,419.94	-42.97	136.10	107.52	142.72
5,519.00	1.41	94.07	5,514.87	-43.07	139.74	107.13	146.22
5,613.00	0.62	17.78	5,608.86	-42.66	141.05	106.83	147.36
5,708.00	1.93	321.18	5,703.84	-40.93	140.20	106.27	146.05
5,802.00	2.90	320.39	5,797.75	-37.86	137.69	105.38	142.80
5,897.00	3.08	323.46	5,892.62	-33.96	134.64	104.16	138.86
5,991.00	2.99	318.63	5,986.49	-30.09	131.52	102.89	134.92
6,086.00	3.87	315.73	6,081.32	-25.94	127.64	101.49	130.25
6,180.00	3.61	313.18	6,175.12	-21.64	123.27	99.96	125.16
6,275.00	3.61	312.74	6,269.93	-17.56	118.89	98.40	120.18
6,369.00	3.52	302.37	6,363.75	-14.01	114.28	96.99	115.14
6,464.00	3.43	302.63	6,458.58	-10.92	109.43	95.70	109.97
6,558.00	3.43	302.02	6,552.41	-7.91	104.67	94.32	104.97
6,653.00	3.69	304.04	6,647.22	-4.69	99.73	92.69	99.84
6,748.00	3.78	302.90	6,742.02	-1.28	94.57	90.78	94.58
6,842.00	3.78	305.62	6,835.82	2.21	89.45	88.59	89.48
6,936.00	3.61	305.71	6,929.62	5.74	84.53	86.12	84.72
7,031.00	3.52	300.61	7,024.44	8.97	79.59	83.57	80.09
7,125.00	3.25	305.36	7,118.27	11.98	74.93	80.91	75.88
7,220.00	3.61	304.57	7,213.10	15.24	70.27	77.77	71.91
7,314.00	3.52	305.09	7,306.92	18.58	65.47	74.16	68.06
7,409.00	3.52	301.67	7,401.74	21.78	60.61	70.23	64.40
7,503.00	3.25	303.78	7,495.58	24.78	55.94	66.11	61.18
7,598.00	1.93	303.78	7,590.48	27.17	52.37	62.58	58.99
7,692.00	1.06	287.96	7,684.45	28.31	50.22	60.59	57.66
7,787.00	1.06	283.83	7,779.43	28.80	48.54	59.32	56.43
7,881.00	1.06	287.08	7,873.41	29.26	46.86	58.02	55.24
7,976.00	0.88	281.80	7,968.40	29.67	45.31	56.78	54.15
8,071.00	0.88	273.01	8,063.39	29.85	43.86	55.76	53.06
8,165.00	0.97	268.36	8,157.38	29.87	42.35	54.80	51.82
8,259.00	1.14	258.69	8,251.36	29.66	40.63	53.87	50.31
8,354.00	1.32	257.37	8,346.34	29.24	38.64	52.89	48.46
8,448.00	1.14	255.79	8,440.32	28.77	36.68	51.89	46.62
8,472.69	1.04	246.37	8,465.00	28.62	36.23	51.69	46.17
Bone Spring Limestone							
8,543.00	0.97	213.16	8,535.30	27.87	35.32	51.73	44.99
8,637.00	0.79	206.13	8,629.29	26.62	34.60	52.43	43.66
8,732.00	0.79	220.90	8,724.28	25.54	33.88	53.00	42.43
8,826.00	0.62	224.32	8,818.28	24.68	33.10	53.29	41.29
8,921.00	0.62	220.98	8,913.27	23.93	32.41	53.56	40.28
9,016.00	0.88	271.08	9,008.26	23.55	31.34	53.08	39.20
9,110.00	0.62	272.75	9,102.26	23.59	30.11	51.92	38.25
9,205.00	1.23	202.72	9,197.25	22.67	29.20	52.17	36.97
9,299.00	1.93	223.88	9,291.21	20.60	27.72	53.38	34.54

Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12.#14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Side Track #1	Survey Calculation Method:	Minimum Curvature
Design:	Side Track #1	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
9,392.84	1.85	240.29	9,385.00	18.71	25.31	53.52	31.47	
BSPG 1 Sand								
9,394.00	1.85	240.50	9,386.16	18.69	25.27	53.51	31.44	
9,488.00	2.29	269.50	9,480.10	17.93	22.08	50.91	28.44	
9,583.00	1.41	260.27	9,575.05	17.72	19.03	47.04	26.00	
9,662.98	1.63	262.57	9,655.00	17.40	16.93	44.20	24.28	
BSPG 2 Limestone								
9,677.00	1.67	262.91	9,669.02	17.35	16.53	43.60	23.96	
9,717.50	1.78	263.60	9,709.50	17.21	15.32	41.67	23.04	
KOP TGT 50' R								
9,772.00	1.93	264.40	9,763.97	17.03	13.56	38.54	21.77	
9,867.00	1.85	253.59	9,858.92	16.44	10.50	32.56	19.50	
9,961.00	1.58	236.72	9,952.88	15.30	7.96	27.49	17.24	
10,033.15	1.25	237.51	10,025.00	14.33	6.47	24.28	15.72	
BSPG 2 Sand								
10,056.00	1.14	237.86	10,047.85	14.07	6.06	23.31	15.33	
10,150.00	1.41	216.59	10,141.83	12.65	4.58	19.91	13.45	
10,245.00	1.06	171.33	10,236.81	10.84	4.02	20.33	11.56	
10,340.00	0.97	254.65	10,331.79	9.76	3.37	19.07	10.33	
10,433.22	1.32	225.02	10,425.00	8.79	1.86	11.92	8.99	
BSPG 2 Target Sand								
10,434.00	1.32	224.85	10,425.78	8.78	1.84	11.86	8.97	
10,529.00	1.23	224.41	10,520.75	7.28	0.36	2.82	7.29	
10,623.00	1.67	226.96	10,614.72	5.62	-1.35	346.51	5.78	
10,718.00	1.93	241.20	10,709.68	3.91	-3.76	316.08	5.42	
10,812.00	0.62	230.04	10,803.65	2.82	-5.54	296.96	6.21	
10,907.00	0.97	222.13	10,898.64	1.89	-6.47	286.29	6.74	
11,001.00	1.58	228.45	10,992.62	0.44	-7.98	273.17	7.99	
11,096.00	1.67	235.05	11,087.58	-1.22	-10.09	263.10	10.16	
11,190.00	1.41	195.23	11,181.55	-3.12	-11.52	254.84	11.93	
11,284.00	1.85	214.22	11,275.51	-5.49	-12.67	246.57	13.81	
11,379.00	1.67	225.73	11,370.47	-7.73	-14.53	242.00	16.45	
11,474.00	2.11	238.12	11,465.42	-9.62	-17.00	240.51	19.54	
11,568.00	2.37	243.04	11,559.34	-11.41	-20.21	240.55	23.21	
11,616.00	2.29	248.41	11,607.30	-12.21	-21.98	240.94	25.15	
SDI MWD								
11,675.00	2.29	248.41	11,666.26	-13.08	-24.17	241.58	27.49	
Bit Projection								

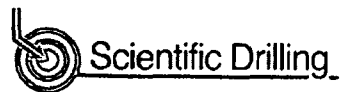
Company:	OXY Permian	Local Co-ordinate Reference:	Well Fed 12 #14H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3644.30usft (H&P 216)
Site:	Federal 12 #14H	MD Reference:	KB @ 3644.30usft (H&P 216)
Well:	Fed 12 #14H	North Reference:	Grid
Wellbore:	Side Track #1	Survey Calculation Method:	Minimum Curvature
Design:	Side Track #1	Database:	EDM-Regulatory

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
10,033.15	10,025.00	BSPG 2 Sand		0.00		
9,662.98	9,655.00	BSPG 2 Limestone		0.00		
4,522.26	4,520.00	Base Anhydrite		0.00		
8,472.69	8,465.00	Bone Spring Limestone		0.00		
9,392.84	9,385.00	BSPG 1 Sand		0.00		
10,433.22	10,425.00	BSPG 2 Target Sand		0.00		

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
11,616.00	11,607.30	-12.21	-21.98	SDI MWD	
11,675.00	11,666.26	-13.08	-24.17	Bit Projection	



Fed 12 #14H
Federal (New Mexico)
Northing: 509602.90
Easting: 688140.30
Design #5



Azimuths to Grid North
True North: -0.33°
Magnetic North: 7.15°

Magnetic Field
Strength: 48546.7snT
Dip Angle: 60.28°
Date: 01/10/2013
Model: IGRF2010

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
4520.00	4522.26	Base Anhydrite
8465.00	8472.69	Bone Spring Limestone
9385.00	9392.84	BSPG 1 Sand
9655.00	9662.98	BSPG 2 Limestone
10025.00	10038.85	BSPG 2 Sand
10425.00	10606.48	BSPG 2 Target Sand

WELL DETAILS: Fed 12 #14H

+N/-S	+E/-W	Northing	Ground Level: 3620.30	Easting	Latitude	Longitude
0.00	0.00	509602.90	688140.30	32.400	-103.724	

SECTION DETAILS:

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	9800.13	1.90	261.30	9792.08	16.91	12.63	0.00	0.00	-11.43	
2	10912.93	90.88	273.81	10485.00	60.13	-712.91	8.00	12.51	715.36	
3	14760.47	90.88	273.81	10426.00	315.60	-4551.50	0.00	0.00	4562.43	PBHL 14H

PROJECT DETAILS: Federal (New Mexico)

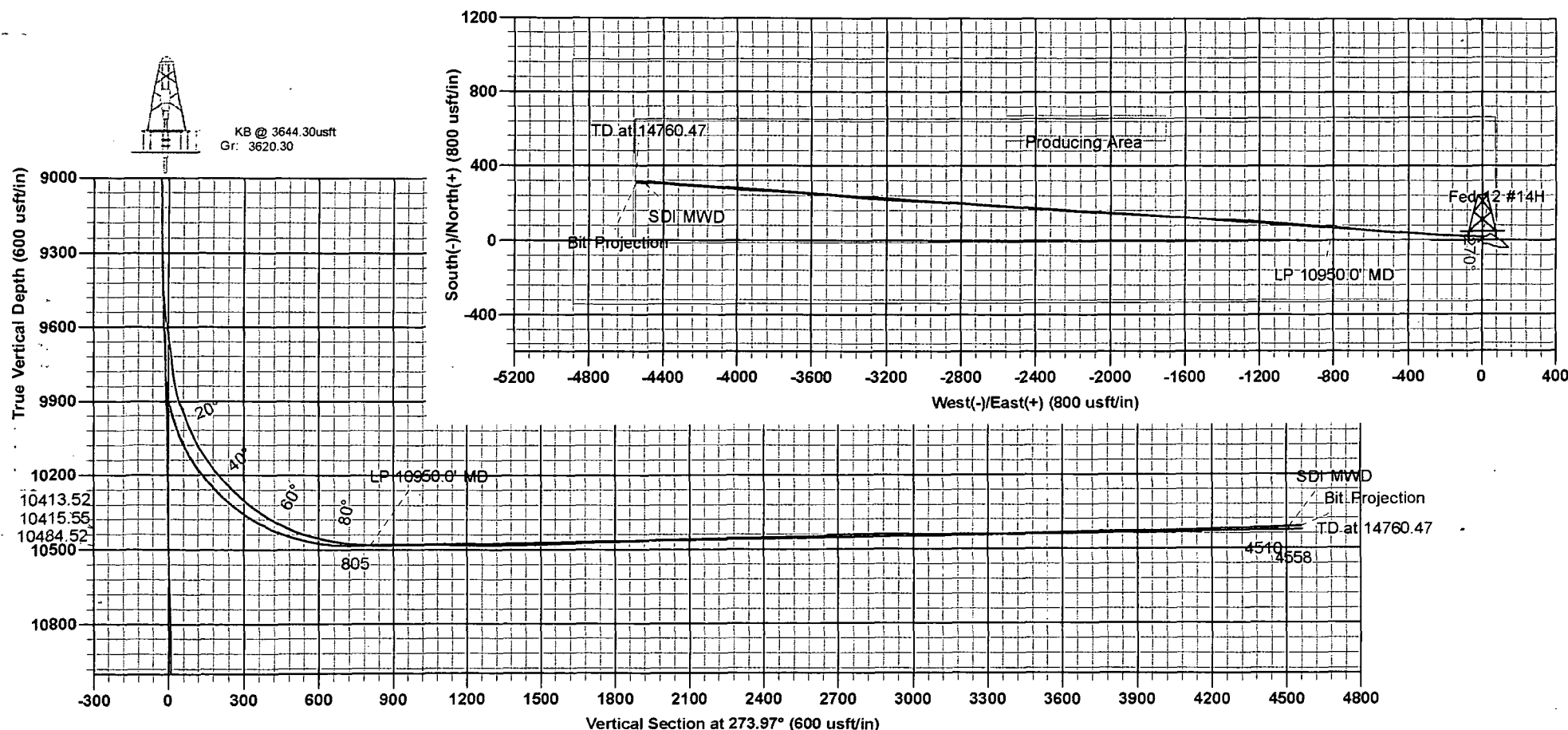
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS: Federal 12 #14H

Site Centre Northing: 509602.90
Easting: 688140.30
Positional Uncertainty: 0.00
Convergence: 0.33
Local North: Grid

DESIGN TARGET DETAILS:

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL 14H	10426.00	315.60	-4551.50	509918.50	683588.80



OXY USA Inc.
Federal 12 #14H
API No. 30-015-40821

