

30-015-39495

OCCIDENTAL PERMIAN LTD.

Empire

Eddy County, NM

Roo "22" State #3

VH - Job #32K0312337

Survey: Gyro

SDI Standard Survey Report

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

Krupar

Notarized this date 2nd of April, 2012.

Carm 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 Roo "22" State #3
Project:	Empire	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Roo "22" State #3	North Reference:	Grid
Wellbore:	VH - Job #32K0312337	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0312337	Database:	EDM-Regulatory

Project		Empire	
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:	661,012 36 usft	Latitude:	32° 49' 1 589 N
From:	Lat/Long	Easting:	549,289 58 usft	Longitude:	104° 10' 22 415 W
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0 09 °

Well	Roo "22" State #3, Vertical					
Well Position	+N/-S	0 0 usft	Northing:	661,702 04 usft	Latitude:	32° 49' 8 400 N
	+E/-W	0 0 usft	Easting:	550,177 28 usft	Longitude:	104° 10' 12 000 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	0 0 usft

Wellbore	VH - Job #32K0312337				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/23/2012	7 81	60 61	48,856

Design		VH - Job #32K0312337		
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth: 0 0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0 0	0 0	0 0	293 19

Survey Program		Date	4/10/2012		
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
99 0	437 0	Gyro (VH - Job #32K0312337)	Keeper	Keeper Surface Readout	

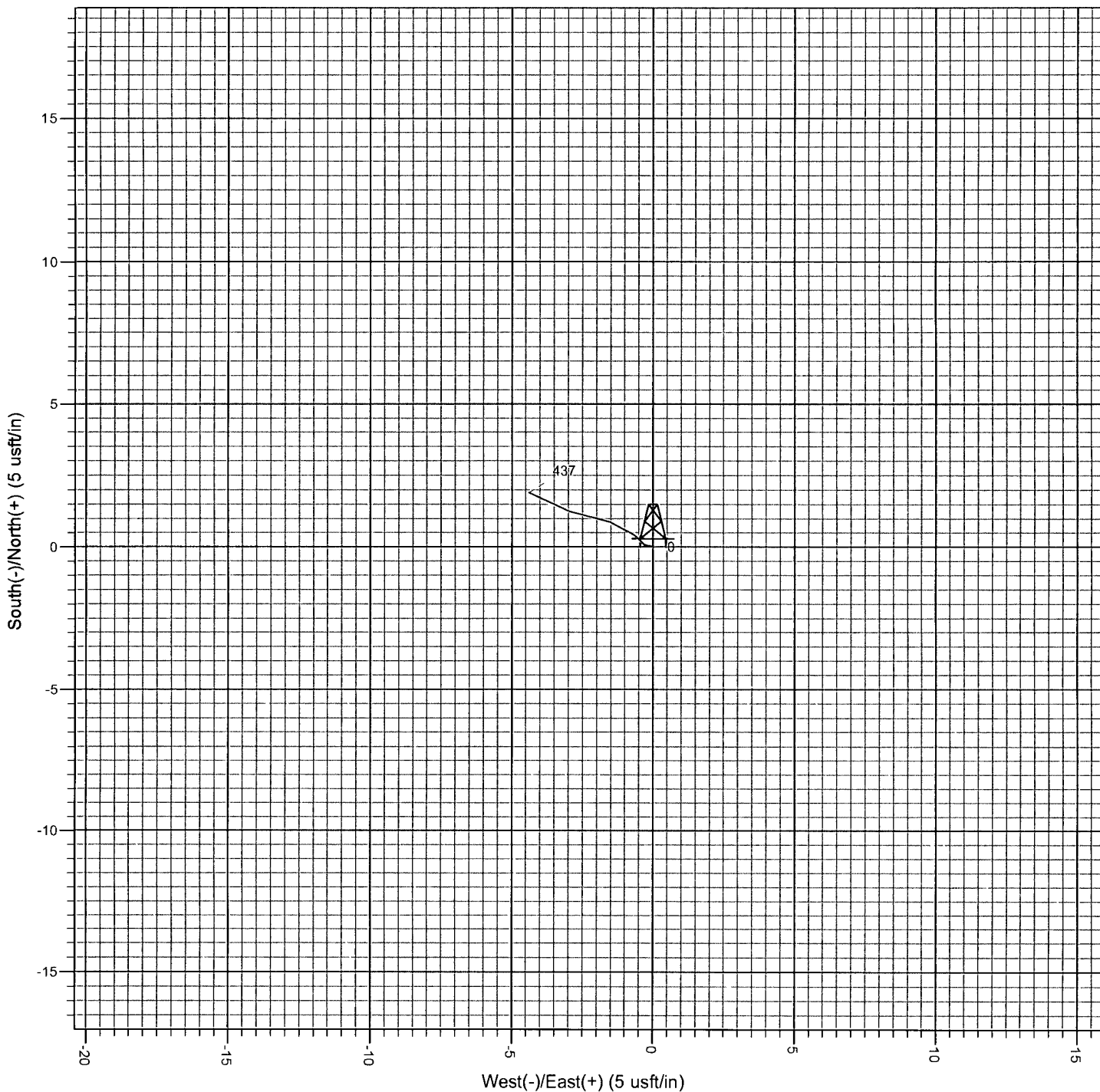
Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
0 0	0 00	0 00	0 0	0 0	0 0	0 0	0 00	0 0
99 0	0 38	282 17	99 0	0 1	-0 3	282 17		0 3
163 0	0 60	333 50	163 0	0 4	-0 7	301 40		0 8
257 0	0 78	270 91	257 0	0 9	-1 5	299 35		1 8
351 0	1 05	294 51	351 0	1 2	-3 0	292 59		3 2
437 0	1 06	294 32	437 0	1 9	-4 4	293 19		4 8



Project: Empire
Eddy County, NM
Well: Roo "22" State #3
Wellbore: VH - Job #32K0312337
Design: VH - Job #32K0312337

WELL DETAILS: Roo "22" State #3
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	661702.04	550177.28	32° 49' 8.400 N	104° 10' 12.000 W	



PROJECT DETAILS: Empire	SITE DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 49' 1.589 N
Datum: NAD 1927 (NADCON CONUS)	Longitude: 104° 10' 22.415 W
Ellipsoid: Clarke 1866	Positional Uncertainty: 0.0
Zone: New Mexico East 3001	Convergence: 0.09
System Datum: Mean Sea Level	Local North: Grid

Depthlog Information

Data File Version: 14

Logfile created with DMT Surface Plotter Rev W2.01g

Legal Subdivision: ROO 22 STATE 3

Well Name: ROO 22 STATE 3

AFE Number: 1140878

Creation Date: 24/03/12 00:00:24

Number of Surveys: 26

Service Order Number: 4025924

CSS Number: ASK 3292

DMT Number: AMS-029

Battery Number: 403158646/DL32

Pulser Number: 4C4E 180

Client Name: OXY

Deepest Entry: 4943

Depth is measured in : FEET

Pulse Range: 5000 PSI

Baseline Pressure: 0 PSI

Full Scale Pressure: 5000 PSI

Client used: PSI

File Size (KBytes): 19968

Survey Comment: "MATT KING"

Transducer Calibration Value: 13111 A/D Counts

Transducer Number: 5K HAMMER UNION

Pump Timeout Delay: 90

System Timeout Delay: 35

Tool Type: DMT 3500

Declination: 7.1

Azimuth Pulse Period: 1500

Azimuth Pulse Width: 500

Histogram Filter Size: 600

Hardware AtoD Rate: 1000 Samples/Sec

Software AtoD Usage Rate: 1000 Samples/Sec

Azimuth Error Codes

Azimuth > 360 is invalid angle or error code.

Error 420 -- MAG FP Number Overrange

Error 421 -- Missing Drift Start Bits

Error 422 -- Missing Drift Angle Bits

Error 423 -- Missing Drift Fraction Bits

Error 424 -- Multiple Drift Angle Bits

Error 425 -- Stuff Bit Error

Error 430 -- Missing Azimuth Stop bit.

Error 431 -- Missing Azimuth Start Bit.

Error 435 -- Parity Error.

Error 440 -- QFLEX Drift Angle too high.

Error 450 -- QFLEX EEROM Parity Error.

Error 460 -- Azimuth Angle too high.

Error 461 -- Temperature Value too high.

Date	Time	Depth	Drift	Azimuth[T]	Temperature	Record#
25/03/12	03:27:25	328	1.00	189.1	24	3
25/03/12	13:27:25	470	0.75	319.1	26	5
25/03/12	15:09:25	623	0.50	250.1	31	8
25/03/12	16:12:25	683	0.50	294.1	32	10
26/03/12	00:21:26	1055	0.75	286.1	39	13
26/03/12	03:38:26	1271	0.75	435.0	151	17
26/03/12	05:03:26	1531	0.75	7.1	0	22
26/03/12	07:39:26	1704	0.75	7.1	0	24
26/03/12	09:33:26	1833	0.50	7.1	0	26
26/03/12	10:21:26	1876	0.75	7.1	0	27
26/03/12	14:18:26	2049	0.50	7.1	0	30
26/03/12	19:27:26	2222	0.50	7.1	0	32
27/03/12	07:28:27	2870	0.50	7.1	0	36
27/03/12	11:01:27	3042	0.75	7.1	0	40
27/03/12	14:00:27	3215	1.25	7.1	0	43
27/03/12	23:49:27	3388	1.25	7.1	0	45
28/03/12	06:38:28	3777	0.50	7.1	0	47
28/03/12	11:44:28	3906	0.75	7.1	0	50
28/03/12	23:23:28	4295	0.75	7.1	0	59
29/03/12	05:44:29	4468	0.50	7.1	0	63
29/03/12	11:12:29	4641	0.25	7.1	0	67
29/03/12	17:14:29	4814	0.75	7.1	0	71
29/03/12	19:37:29	4858	0.75	7.1	0	72
29/03/12	21:22:29	4900	0.50	7.1	0	73
30/03/12	00:04:30	4943	0.75	7.1	0	75
30/03/12	03:14:30	0	0.00	410.0	151	77