

30-015-38520

OCCIDENTAL PERMIAN LTD.

San Dunes Delaware, West
Eddy County, NM
Pure Gold B Federal #15
DH - Job #32D0112001

Survey: MWD

SDI Standard Survey Report

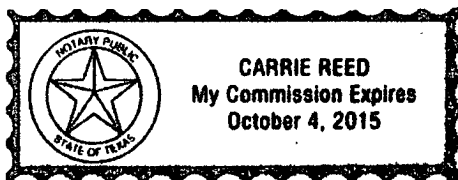
This survey is correct to the best of my knowledge and is supported by actual field data.

K. W. Hart

Notarized this date 17th of February, 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 Pure Gold B Federal #15
Project:	San Dunes Delaware, West	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Pure Gold B Federal #15	North Reference:	Grid
Wellbore:	VH - Job #32K0112004	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0112004	Database:	EDM-Regulatory

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

Site	Eddy County, NM				
Site Position:		Northing:	461,972.78 usft	Latitude:	32° 16' 8.261 N
From:	Lat/Long	Easting:	664,293.31 usft	Longitude:	103° 48' 6.450 W
Position Uncertainty:	0.0 usft	Slot Radius:	0"	Grid Convergence:	0.28 °

Well:	Pure Gold B Federal #15, Directional					
Well Position	+N/-S	0 0 usft	Northing:	468,577 27 usft	Latitude:	32° 17' 13 597 N
	+E/-W	0 0 usft	Easting:	664,737 86 usft	Longitude:	103° 48' 0 890 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	0 0 usft

Wellbore:	VH - Job #32K0112004				
Magnetics:	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/1/2012	7 63	60 19	48,600

Design:	VH - Job #32K0112004			
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	283 16

Survey Program		Date: 2/16/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.2	480.0	Gyro (VH - Job #32K0112004)	Keeper	Keeper Surface Readout

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	0.00	0.0
100.2	0.33	314.64	100.2	0.2	-0.2	314.64	0.3
130.3	0.32	317.51	130.3	0.3	-0.3	315.17	0.5
225.1	0.30	315.62	225.1	0.7	-0.7	315.92	1.0
312.9	0.28	312.58	312.9	1.0	-1.0	315.37	1.4
404.5	0.23	304.54	404.5	1.3	-1.3	313.94	1.8
480.0	0.22	292.72	480.0	1.4	-1.6	311.84	2.1

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Site:	Eddy County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Pure Gold B Federal #15	North Reference:	Grid
Wellbore:	DH - Job #32D0112001	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #32D0112001	Database:	EDM-Regulatory

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

Site		Eddy County, NM			
Site Position:		Northing:	461,972 78 usft	Latitude:	32° 16' 8 261 N
From:	Lat/Long	Easting:	664,293 31 usft	Longitude:	103° 48' 6 450 W
Position Uncertainty:	0 0 usft	Slot Radius:	0"	Grid Convergence:	0.28 °

Well	Pure Gold B Federal #15, Directional					
Well Position	+N/-S	0.0 usft	Northing:	468,577 27 usft	Latitude:	32° 17' 13 597 N
	+E/-W	0 0 usft	Easting:	664,737 86 usft	Longitude:	103° 48' 0.890 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	0 0 usft

Wellbore						DH - Job #32D0112001					
Magnetics		Model Name		Sample Date		Declination		Dip Angle		Field Strength	
						(°)		(°)		(nT)	
		IGRF2010		1/3/2012		7.63		60 19		48,600	

Design:	DH - Job #32D0112001			
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth:
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0 0	0 0	0 0	283 16

From	To	Date	Survey (Wellbore)	Tool Name	Description
()	()				

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
480 0	0 22	292 72	480 0	1 4	-1 6	311.84	2 1
587 0	0 40	287 90	587 0	1 6	-2 1	307.10	2 7
678 0	0 40	287 90	678 0	1 8	-2 7	303 43	3 3
798 0	0 40	287 80	798 0	2 1	-3 5	300.26	4 1
888 0	0 20	283 30	888 0	2 2	-4 0	298.82	4 5
978 0	0 10	268 80	978 0	2 2	-4 2	297.84	4 7
1,068 0	0 10	268 80	1,068 0	2 2	-4 4	296 95	4 9
1,158 0	0 20	236 10	1,158 0	2 1	-4 6	294 96	5 0
1,248 0	0 20	201 10	1,248 0	1 9	-4 8	291 70	5 1
1,338 0	0 30	237 70	1,338 0	1 6	-5 0	287 91	5 3
1,428 0	0 30	237 70	1,428 0	1 4	-5 4	284 19	5 6
1,518 0	0 40	230 90	1,518 0	1 0	-5 8	280 11	5 9

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Well:	Pure Gold B Federal #15	North Reference:	Grid
Wellbore:	DH - Job #32D0112001	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #32D0112001	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,608 0	0 50	232 30	1,608 0	0.6	-6.4	275 40	6 4	
1,698 0	0 50	236 60	1,698 0	0.1	-7 0	271 21	7 0	
1,788 0	0 50	236 60	1,788 0	-0 3	-7.7	267 89	7 7	
1,878 0	0 50	246 40	1,878 0	-0 7	-8.4	265.52	8 4	
1,968 0	0 50	230 00	1,968 0	-1 1	-9 0	263 27	9 1	
2,058 0	0 60	220 00	2,058 0	-1 7	-9 7	260 12	9 8	
2,148 0	0 60	221 70	2,148 0	-2 4	-10.3	256 88	10 5	
2,239 0	0 60	249 70	2,239 0	-2 9	-11 0	255 20	11 4	
2,329 0	0 50	251 20	2,328 9	-3 2	-11 8	254 86	12 3	
2,419 0	0 70	275.00	2,418.9	-3 3	-12 8	255.58	13 2	
2,509 0	0 70	268 70	2,508 9	-3 2	-13 9	256.81	14 2	
2,599 0	0 70	283.00	2,598.9	-3 1	-14.9	258 15	15.3	
2,689 0	0 70	303 40	2,688 9	-2 7	-15 9	260 35	16 2	
2,779 0	0 60	310.30	2,778.9	-2 1	-16 8	262 85	16 9	
2,869 0	0 60	308 80	2,868 9	-1 5	-17 5	265 09	17 6	
2,959 0	0 60	286 00	2,958 9	-1.1	-18 3	266 63	18.3	
3,049 0	0 50	298 10	3,048.9	-0.8	-19 1	267 72	19 1	
3,139 0	0 40	275.70	3,138.9	-0.5	-19 8	268 42	19 8	
3,229 0	0 07	171.22	3,228 9	-0 6	-20 1	268 38	20 1	
3,318 0	0 40	122 50	3,317 9	-0 8	-19 8	267 72	19 8	
3,407 0	1 13	134 40	3,406 9	-1 6	-18 9	265 25	19 0	
3,497 0	1 34	130 30	3,496 9	-2 9	-17 5	260 66	17 7	
3,587 0	1 78	134 40	3,586.8	-4 5	-15 7	253 87	16 3	
3,677 0	2 00	140 20	3,676 8	-6 7	-13 7	243 83	15.2	
3,767 0	2 25	145 50	3,766 7	-9 4	-11 7	231.19	15 0	
3,857 0	2 40	144.00	3,856.7	-12 4	-9 6	217 70	15 6	
3,947 0	2 20	137 40	3,946.6	-15 2	-7 3	205 65	16 8	
4,038 0	1 90	135 90	4,037.5	-17 5	-5 0	196.06	18 2	
4,128 0	1 90	134 90	4,127.5	-19 6	-2 9	188.54	19 9	
4,274 0	1 60	138 50	4,273 4	-22 9	0 1	179.71	22 9	
4,364 0	0 80	51 00	4,363 4	-23 4	1 4	176 49	23 5	
4,454 0	4 22	350 55	4,453 3	-19 8	1 4	176 00	19 8	
4,543 0	6 60	350 55	4,541.9	-11 5	0 0	179 98	11 5	
4,633 0	7 59	338.70	4,631 2	-0 8	-3 0	254 23	3 1	
4,724 0	9 48	325 00	4,721 2	10 9	-9 5	318 94	14.4	
4,814 0	9 47	319 10	4,810 0	22 6	-18 6	320.51	29 2	
4,904 0	11 01	299.34	4,898 6	32 4	-30 9	316 30	44 8	
4,994 0	12 20	289 20	4,986.7	39 7	-47 4	309 95	61 8	
5,084 0	12 20	272.90	5,074 7	43 3	-65 9	303 32	78 9	
5,174 0	13 90	267.30	5,162.4	43.3	-86 2	296 67	96 4	
5,264 0	14 20	277.50	5,249 7	44 2	-107 9	292.28	116.6	
5,354 0	16.30	284 40	5,336.6	48 8	-131 1	290 42	139 9	
5,444 0	18 50	284 40	5,422 4	55 5	-157 2	289.45	166 7	
5,534 0	19 97	282 80	5,507 4	62 5	-186 0	288.56	196 2	

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Wellbore:	DH - Job #32D0112001	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #32D0112001	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,624.0	21.60	286.10	5,591.6	70.5	-216.9	287.99	228.1
5,714.0	23.50	287.90	5,674.7	80.6	-249.9	287.87	262.6
5,804.0	23.73	286.90	5,757.1	91.3	-284.3	287.81	298.6
5,894.0	25.30	284.50	5,839.0	101.4	-320.3	287.57	335.9
5,984.0	25.40	285.30	5,920.4	111.3	-357.5	287.30	374.4
6,074.0	25.07	284.60	6,001.8	121.2	-394.6	287.08	412.8
6,164.0	29.22	283.41	6,081.8	131.1	-434.4	286.80	453.8
6,254.0	30.14	283.80	6,160.0	141.6	-477.7	286.51	498.3
6,345.0	30.60	284.00	6,238.5	152.7	-522.4	286.29	544.2
6,435.0	30.60	284.10	6,316.0	163.8	-566.8	286.12	590.0
6,525.0	28.80	284.70	6,394.2	174.9	-610.0	286.00	634.6
6,615.0	28.30	281.20	6,473.2	184.5	-651.9	285.80	677.5
6,705.0	29.70	281.30	6,552.0	193.0	-694.7	285.53	721.0
6,794.0	28.40	281.30	6,629.8	201.5	-737.1	285.29	764.1
6,884.0	28.30	281.40	6,709.0	209.9	-779.0	285.08	806.8
6,974.0	26.60	282.10	6,788.8	218.4	-819.6	284.92	848.2
7,064.0	27.00	282.00	6,869.2	226.8	-859.3	284.79	888.7
7,154.0	27.30	277.80	6,949.3	233.9	-899.7	284.57	929.6
7,244.0	30.90	279.40	7,027.9	240.5	-943.0	284.31	973.1
7,334.0	30.80	279.60	7,105.1	248.1	-988.5	284.09	1,019.1
7,424.0	33.16	280.10	7,181.5	256.2	-1,035.5	283.90	1,066.7
7,514.0	32.50	280.10	7,257.1	264.8	-1,083.5	283.73	1,115.4
7,604.0	34.01	280.30	7,332.4	273.5	-1,132.1	283.58	1,164.6
7,694.0	32.90	280.80	7,407.5	282.6	-1,180.8	283.46	1,214.2
7,784.0	32.80	281.40	7,483.1	292.0	-1,228.7	283.37	1,263.0
7,874.0	33.00	281.70	7,558.6	301.8	-1,276.6	283.30	1,311.8
7,964.0	33.30	282.90	7,634.0	312.3	-1,324.7	283.26	1,361.0
8,054.0	31.40	283.20	7,710.0	323.2	-1,371.6	283.26	1,409.2
8,144.0	32.50	283.70	7,786.4	334.2	-1,418.0	283.26	1,456.8
8,234.0	30.10	284.30	7,863.3	345.5	-1,463.3	283.29	1,503.6
8,324.0	26.80	285.00	7,942.4	356.4	-1,504.8	283.32	1,546.4
8,414.0	24.60	286.40	8,023.5	366.9	-1,542.4	283.38	1,585.4
8,463.0	24.90	289.30	8,068.0	373.2	-1,561.9	283.44	1,605.9
8,527.0	24.90	289.30	8,126.0	382.1	-1,587.3	283.53	1,632.7



Project: Pure Gold
Site: Pure Gold B Federal #15
Well: PGBF#15
Wellbore: Original Wellbore
Design: Final Design



DESIGN TARGET DETAILS

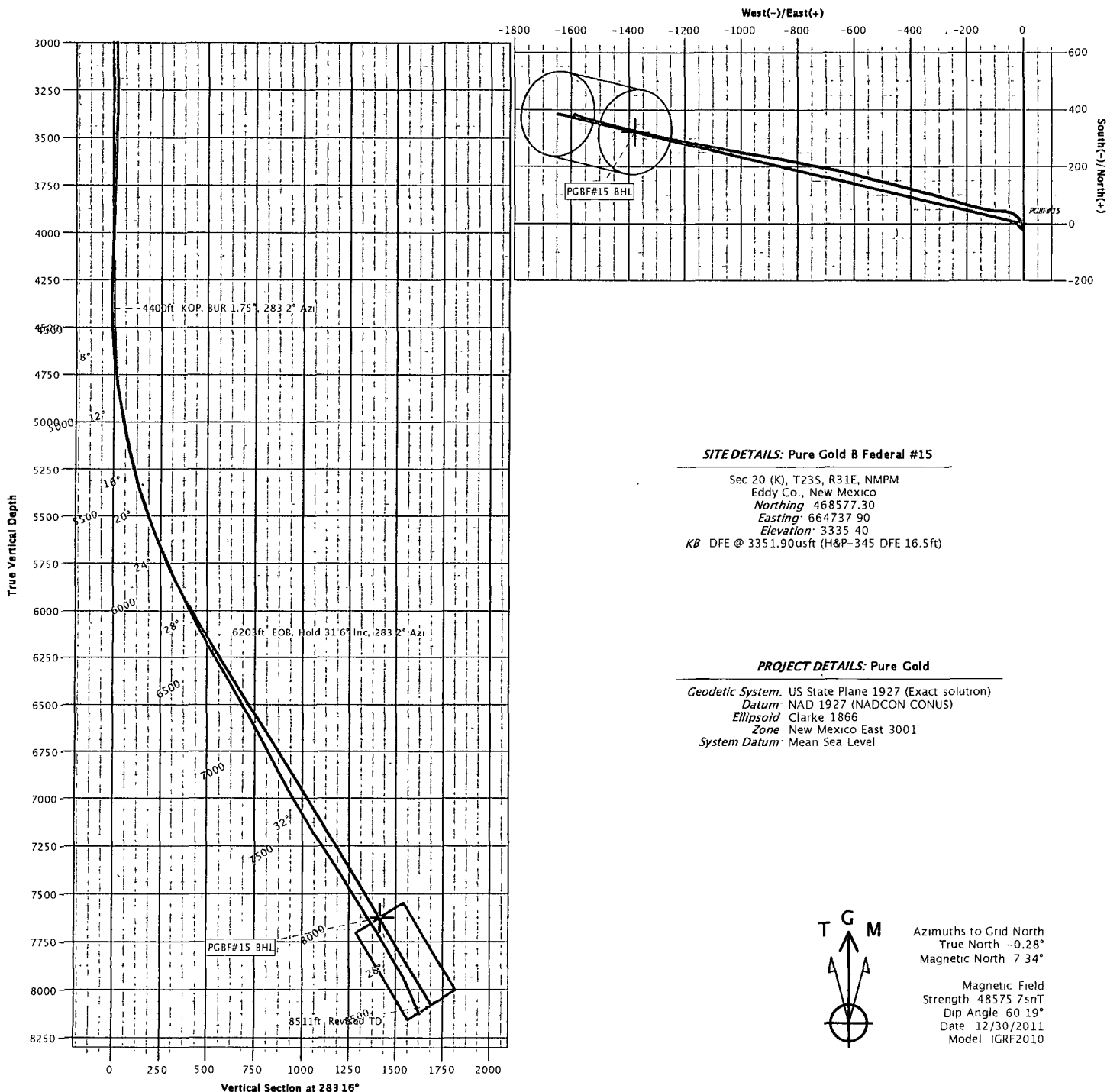
Name	TVD	+N/-S	+E/-W	Northing	Easting	Circle (Radius)	Shape
PGBF#15 BHL	7626.00	321.80	-1375.80	468899.10	663362.10	150.00	
- plan hits target center							

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4400.00	0.00	0.00	4400.00	0.00	0.00	0.00	0.00	
6202.96	31.55	283.16	6113.21	110.23	-471.29	1.75	484.01	
7978.19	31.55	283.16	7626.00	321.80	-1375.80	0.00	1412.93	BHL
8323.19	31.55	283.16	7920.00	362.92	-1551.58	0.00	1593.46	
8510.95	31.55	283.16	8080.00	385.29	-1647.25	0.00	1691.71	

CASING DETAILS

TVD	MD	Size
480.00	480.00	11-3/4
4200.00	4200.00	8-5/8
8080.00	8510.95	5-1/2



SITE DETAILS: Pure Gold B Federal #15

Sec 20 (K), T23S, R31E, NMPM
Eddy Co., New Mexico
Northing 468577.30
Easting 664737.90
Elevation 3335.40
KB DFE @ 3351.90usft (H&P-345 DFE 16.5ft)

PROJECT DETAILS: Pure Gold

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



Azimuths to Grid North
True North -0.28°
Magnetic North 7.34°

Magnetic Field
Strength 48575.7nT
Dip Angle 60.19°
Date 12/30/2011
Model IGRF2010