

HOBBSOCD

JAN 20 2015

RECEIVED

OCCIDENTAL PERMIAN LTD.

Red Tank

Lea County, NM (Grid North)

Red Tank 28 Federal #5H

DH - Job #320914-MPH-1145

Survey: Survey #1

Regulatory Survey Report (Grid Nort

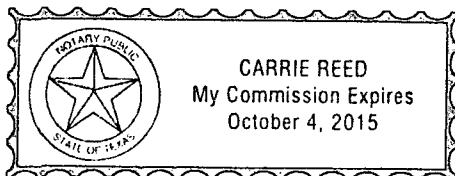
This survey is correct to the best of my knowledge and is supported by actual field data.

Jami Thutbauer

Notarized this date 13th of November, 2014.

Carrie Reed

Notary Signature
County of Midland
State of Texas



FEB 26 2015

Regulatory Survey Report (Grid North)

Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Red Tank 28 Federal #5H
Project:	Red Tank	TVD Reference:	Mean Sea Level (System)
Site:	Lea County, NM (Grid North)	MD Reference:	Mean Sea Level (System)
Well:	Red Tank 28 Federal #5H	North Reference:	Grid
Wellbore:	DH - Job #320914-MPH-1145	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320914-MPH-1145	Database:	MID_Regulatory

Project	Red Tank		
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:	Lea County, NM (Grid North)				
Site Position:		Northing:	495,362.79 usft	Latitude:	32° 21' 36.000 N
From:	Lat/Long	Easting:	711,926.41 usft	Longitude:	103° 38' 49.200 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.37 °

Well	Red Tank 28 Federal #5H, Horizontal					
Well Position	+N/-S	0.0 usft	Northing:	498,572.37 usft	Latitude:	32° 22' 8.270 N
	+E/-W	0.0 usft	Easting:	703,730.53 usft	Longitude:	103° 40' 24.518 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	0.0 usft

Wellbore	DH - Job #320914-MPH-1145				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/24/2014	7.24	60.22	48,390

Design	DH - Job #320914-MPH-1145				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	20.51	

Survey Program	Date	11/20/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
200.0	13,270.0	Survey #1 (DH - Job #320914-MPH-1145)	MWD	MWD	

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0
200.0	0.53	36.08	200.0	0.7	0.5	36.08	0.9
297.0	0.62	23.02	297.0	1.6	1.0	32.48	1.9
390.0	0.64	357.62	390.0	2.6	1.2	24.79	2.8
482.0	0.67	21.62	482.0	3.6	1.4	20.84	3.8
575.0	0.54	14.09	575.0	4.5	1.7	20.32	4.8
667.0	0.61	14.23	667.0	5.4	1.9	19.33	5.7
759.0	0.62	29.35	759.0	6.3	2.3	19.70	6.7
865.0	0.51	21.45	865.0	7.3	2.7	20.51	7.8
971.0	0.27	7.89	971.0	7.9	2.9	20.20	8.5
1,066.0	0.15	270.13	1,066.0	8.2	2.8	19.11	8.6
1,160.0	0.03	320.90	1,160.0	8.2	2.7	18.19	8.6

Regulatory Survey Report (Grid North)

Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Red Tank 28 Federal #5H
Project:	Red Tank	TVD Reference:	Mean Sea Level (System)
Site:	Lea County, NM (Grid North)	MD Reference:	Mean Sea Level (System)
Well:	Red Tank 28 Federal #5H	North Reference:	Grid
Wellbore:	DH - Job #320914-MPH-1145	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320914-MPH-1145	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,255.0	0.27	248.90	1,255.0	8.1	2.5	16.88	8.5	
1,349.0	0.10	239.11	1,349.0	8.0	2.2	15.30	8.3	
1,444.0	0.25	301.81	1,444.0	8.1	1.9	13.53	8.3	
1,539.0	0.28	305.87	1,539.0	8.3	1.6	10.75	8.5	
1,633.0	0.23	248.36	1,633.0	8.4	1.2	8.26	8.5	
1,727.0	0.23	199.59	1,727.0	8.1	1.0	6.86	8.2	
1,822.0	0.14	218.40	1,821.9	7.9	0.8	6.11	7.9	
1,916.0	0.24	195.49	1,915.9	7.6	0.7	5.41	7.6	
2,011.0	0.14	109.42	2,010.9	7.4	0.8	6.01	7.4	
2,106.0	0.47	120.45	2,105.9	7.1	1.2	9.73	7.2	
2,200.0	0.57	113.82	2,199.9	6.7	2.0	16.39	7.0	
2,295.0	0.51	102.89	2,294.9	6.5	2.8	23.65	7.0	
2,389.0	0.63	103.08	2,388.9	6.2	3.7	30.91	7.3	
2,484.0	0.47	116.54	2,483.9	5.9	4.6	37.68	7.5	
2,578.0	0.38	104.78	2,577.9	5.7	5.2	42.61	7.7	
2,673.0	0.46	63.90	2,672.9	5.8	5.9	45.51	8.3	
2,768.0	0.34	55.57	2,767.9	6.1	6.5	46.60	8.9	
2,862.0	0.39	61.32	2,861.9	6.4	7.0	47.35	9.5	
2,957.0	0.45	86.04	2,956.9	6.6	7.6	49.12	10.1	
3,051.0	0.63	74.33	3,050.9	6.8	8.5	51.45	10.9	
3,146.0	0.51	58.68	3,145.9	7.1	9.4	52.70	11.8	
3,241.0	0.62	46.66	3,240.9	7.7	10.1	52.66	12.7	
3,335.0	0.65	48.54	3,334.9	8.4	10.9	52.28	13.7	
3,430.0	0.71	32.58	3,429.9	9.3	11.6	51.37	14.8	
3,525.0	0.51	49.35	3,524.9	10.0	12.2	50.63	15.8	
3,619.0	0.42	46.97	3,618.9	10.5	12.8	50.52	16.6	
3,714.0	0.61	116.77	3,713.9	10.5	13.5	52.00	17.1	
3,808.0	1.00	120.15	3,807.9	9.9	14.7	55.94	17.7	
3,903.0	1.43	111.77	3,902.8	9.1	16.5	61.21	18.8	
3,998.0	1.35	111.80	3,997.8	8.2	18.6	66.23	20.3	
4,092.0	1.73	112.89	4,091.8	7.2	20.9	70.95	22.2	
4,187.0	1.99	118.61	4,186.7	5.9	23.7	76.06	24.4	
4,281.0	1.67	104.56	4,280.7	4.8	26.5	79.81	26.9	
4,376.0	1.85	108.89	4,375.6	3.9	29.3	82.38	29.5	
4,471.0	1.95	102.59	4,470.6	3.1	32.3	84.58	32.4	
4,565.0	1.89	104.12	4,564.5	2.3	35.4	86.21	35.4	
4,691.0	1.95	105.61	4,690.5	1.3	39.4	88.18	39.5	
4,754.0	1.60	89.41	4,753.4	1.0	41.3	88.65	41.4	
4,849.0	1.14	36.91	4,848.4	1.7	43.2	87.69	43.3	
4,943.0	1.95	346.25	4,942.4	4.0	43.4	84.68	43.6	
5,038.0	1.93	344.17	5,037.3	7.2	42.6	80.46	43.2	
5,132.0	1.85	343.88	5,131.3	10.1	41.7	76.35	43.0	
5,227.0	1.88	340.41	5,226.2	13.1	40.8	72.23	42.8	
5,321.0	2.00	338.31	5,320.2	16.1	39.7	67.97	42.8	

Regulatory Survey Report (Grid North)

Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Red Tank 28 Federal #5H
Project:	Red Tank	TVD Reference:	Mean Sea Level (System)
Site:	Lea County, NM.(Grid North)	MD Reference:	Mean Sea Level (System)
Well:	Red Tank 28 Federal #5H	North Reference:	Grid
Wellbore:	DH - Job #320914-MPH-1145	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320914-MPH-1145	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
5,415.0	1.93	339.77	5,414.1	19.1	38.5	63.67	43.0	
5,510.0	1.87	329.12	5,509.1	21.9	37.2	59.50	43.1	
5,604.0	1.74	321.86	5,603.0	24.3	35.5	55.58	43.0	
5,699.0	1.78	318.12	5,698.0	26.6	33.6	51.69	42.9	
5,793.0	3.00	340.91	5,791.9	30.0	31.9	46.74	43.7	
5,887.0	4.92	352.25	5,885.7	36.3	30.5	40.04	47.4	
5,982.0	7.10	349.25	5,980.1	46.1	28.9	32.05	54.4	
6,076.0	7.73	352.10	6,073.3	58.1	26.9	24.86	64.0	
6,171.0	7.60	351.91	6,167.5	70.6	25.1	19.60	75.0	
6,265.0	8.58	350.47	6,260.6	83.7	23.1	15.44	86.8	
6,360.0	8.09	349.50	6,354.6	97.3	20.7	12.03	99.4	
6,454.0	7.68	348.97	6,447.7	109.9	18.3	9.46	111.4	
6,549.0	7.91	352.78	6,541.8	122.6	16.3	7.56	123.7	
6,643.0	8.98	355.02	6,634.8	136.4	14.8	6.20	137.2	
6,738.0	8.63	355.17	6,728.6	150.9	13.6	5.14	151.5	
6,832.0	8.29	354.02	6,821.6	164.6	12.3	4.27	165.1	
6,927.0	7.54	352.49	6,915.7	177.6	10.8	3.46	177.9	
7,022.0	7.22	352.91	7,009.9	189.7	9.2	2.78	189.9	
7,116.0	6.73	353.17	7,103.2	201.0	7.8	2.23	201.2	
7,210.0	6.42	352.87	7,196.6	211.7	6.5	1.76	211.8	
7,305.0	6.08	351.49	7,291.1	222.0	5.1	1.32	222.0	
7,399.0	5.76	351.49	7,384.6	231.6	3.7	0.91	231.6	
7,494.0	6.16	1.63	7,479.0	241.4	3.1	0.74	241.4	
7,588.0	6.08	3.21	7,572.5	251.4	3.5	0.81	251.4	
7,683.0	5.58	4.40	7,667.0	261.0	4.2	0.92	261.0	
7,782.0	4.67	9.33	7,765.6	269.8	5.2	1.10	269.8	
7,813.0	4.46	9.55	7,796.5	272.2	5.6	1.18	272.3	
7,845.0	2.01	2.72	7,828.5	274.0	5.8	1.22	274.1	
7,876.0	2.81	259.05	7,859.4	274.4	5.1	1.07	274.5	
7,908.0	6.08	237.76	7,891.3	273.4	2.9	0.61	273.4	
7,939.0	8.16	227.89	7,922.1	271.0	-0.1	359.98	271.0	
7,971.0	11.82	228.91	7,953.6	267.3	-4.3	359.08	267.4	
8,002.0	16.70	222.59	7,983.7	262.0	-9.7	357.88	262.1	
8,034.0	19.49	214.93	8,014.1	254.2	-15.9	356.43	254.7	
8,065.0	21.75	206.22	8,043.1	244.8	-21.4	355.01	245.7	
8,097.0	24.05	197.83	8,072.6	233.3	-26.0	353.65	234.7	
8,128.0	26.84	190.24	8,100.6	220.4	-29.2	352.46	222.3	
8,160.0	29.65	186.37	8,128.8	205.4	-31.3	351.33	207.8	
8,191.0	32.92	182.25	8,155.3	189.3	-32.5	350.26	192.1	
8,223.0	36.87	180.43	8,181.5	171.0	-32.9	349.11	174.2	
8,254.0	38.59	180.49	8,206.0	152.1	-33.1	347.73	155.6	
8,286.0	41.46	180.07	8,230.5	131.5	-33.2	345.85	135.6	
8,317.0	44.74	179.31	8,253.1	110.3	-33.0	343.33	115.2	
8,349.0	47.98	178.44	8,275.2	87.2	-32.6	339.50	93.1	

Regulatory Survey Report (Grid North)

Company: OCCIDENTAL PERMIAN LTD.
 Project: Red Tank
 Site: Lea County, NM (Grid North)
 Well: Red Tank 28 Federal #5H
 Wellbore: DH - Job #320914-MPH-1145
 Design: DH - Job #320914-MPH-1145

Local Co-ordinate Reference: Well Red Tank 28 Federal #5H
 TVD Reference: Mean Sea Level (System)
 MD Reference: Mean Sea Level (System)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: MID_Regulatory

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
8,443.0	58.32	177.85	8,331.5	12.1	-30.1	291.86	32.5
8,537.0	70.18	178.46	8,372.3	-72.4	-27.4	200.75	77.4
8,569.0	75.07	177.84	8,381.8	-102.9	-26.4	194.41	106.2
8,600.0	77.56	177.98	8,389.2	-133.0	-25.3	190.79	135.4
8,632.0	79.46	178.19	8,395.6	-164.3	-24.3	188.41	166.1
8,721.0	86.44	180.49	8,406.5	-252.6	-23.3	185.27	253.7
8,815.0	89.73	181.80	8,409.6	-346.5	-25.2	184.15	347.4
8,910.0	90.44	182.41	8,409.5	-441.4	-28.7	183.71	442.4
9,004.0	89.06	180.82	8,409.9	-535.4	-31.3	183.35	536.3
9,058.9	88.55	179.67	8,411.0	-590.3	-31.5	183.06	591.1
9,099.0	88.18	178.83	8,412.2	-630.4	-31.0	182.82	631.1
9,193.0	88.09	178.59	8,415.2	-724.3	-28.9	182.29	724.9
9,288.0	87.88	179.16	8,418.6	-819.2	-27.0	181.89	819.7
9,382.0	89.36	178.75	8,420.8	-913.2	-25.3	181.59	913.5
9,476.0	89.16	176.79	8,422.0	-1,007.1	-21.7	181.23	1,007.3
9,571.0	90.17	178.67	8,422.6	-1,102.0	-17.9	180.93	1,102.1
9,665.0	90.00	177.69	8,422.5	-1,196.0	-14.9	180.71	1,196.0
9,760.0	88.82	175.96	8,423.4	-1,290.8	-9.7	180.43	1,290.8
9,854.0	90.30	179.38	8,424.2	-1,384.7	-5.8	180.24	1,384.7
9,949.0	89.36	177.99	8,424.4	-1,479.7	-3.7	180.14	1,479.7
10,043.0	89.93	179.04	8,425.0	-1,573.6	-1.2	180.04	1,573.6
10,138.0	91.31	180.29	8,424.0	-1,668.6	-0.7	180.02	1,668.6
10,232.0	90.54	179.82	8,422.5	-1,762.6	-0.8	180.02	1,762.6
10,327.0	88.56	177.74	8,423.2	-1,857.6	1.3	179.96	1,857.6
10,421.0	87.68	179.21	8,426.3	-1,951.5	3.8	179.89	1,951.5
10,515.0	90.30	180.13	8,428.0	-2,045.5	4.3	179.88	2,045.5
10,609.0	90.20	179.54	8,427.6	-2,139.5	4.6	179.88	2,139.5
10,704.0	89.80	179.48	8,427.6	-2,234.5	5.4	179.86	2,234.5
10,798.0	90.34	179.58	8,427.4	-2,328.5	6.2	179.85	2,328.5
10,892.0	91.08	179.88	8,426.3	-2,422.4	6.6	179.84	2,422.5
10,987.0	89.33	178.14	8,425.9	-2,517.4	8.2	179.81	2,517.4
11,081.0	92.29	180.67	8,424.6	-2,611.4	9.2	179.80	2,611.4
11,175.0	90.47	178.65	8,422.3	-2,705.4	9.8	179.79	2,705.4
11,270.0	91.65	181.09	8,420.6	-2,800.3	10.0	179.80	2,800.3
11,364.0	91.34	178.92	8,418.1	-2,894.3	10.0	179.80	2,894.3
11,459.0	90.54	176.98	8,416.6	-2,989.2	13.4	179.74	2,989.2
11,553.0	89.90	181.10	8,416.2	-3,083.2	15.0	179.72	3,083.2
11,648.0	90.10	181.61	8,416.2	-3,178.1	12.7	179.77	3,178.2
11,742.0	90.20	180.45	8,416.0	-3,272.1	11.0	179.81	3,272.1
11,837.0	89.83	178.93	8,415.9	-3,367.1	11.5	179.80	3,367.1
11,931.0	88.66	178.73	8,417.2	-3,461.1	13.5	179.78	3,461.1
12,026.0	89.09	179.77	8,419.1	-3,556.1	14.7	179.76	3,556.1
12,120.0	91.28	180.89	8,418.7	-3,650.1	14.2	179.78	3,650.1
12,214.0	91.48	179.76	8,416.5	-3,744.0	13.6	179.79	3,744.1
12,309.0	92.55	180.22	8,413.1	-3,839.0	13.6	179.80	3,839.0

Regulatory Survey Report (Grid North)

Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Red Tank 28 Federal #5H
Project:	Red Tank	TVD Reference:	Mean Sea Level (System)
Site:	Lea County, NM (Grid North)	MD Reference:	Mean Sea Level (System)
Well:	Red Tank 28 Federal #5H	North Reference:	Grid
Wellbore:	DH - Job #320914-MPH-1145	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320914-MPH-1145	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
12,403.0	92.65	179.39	8,408.9	-3,932.9	14.0	179.80	3,932.9	
12,498.0	93.20	179.09	8,404.0	-4,027.7	15.2	179.78	4,027.8	
12,592.0	90.20	177.97	8,401.2	-4,121.7	17.6	179.75	4,121.7	
12,687.0	88.22	178.19	8,402.6	-4,216.6	20.8	179.72	4,216.6	
12,781.0	89.50	178.94	8,404.4	-4,310.5	23.2	179.69	4,310.6	
12,875.0	90.47	180.80	8,404.4	-4,404.5	23.4	179.70	4,404.6	
12,970.0	89.77	180.39	8,404.2	-4,499.5	22.4	179.71	4,499.6	
13,064.0	89.09	179.01	8,405.2	-4,593.5	22.9	179.71	4,593.6	
13,117.4	89.99	180.08	8,405.6	-4,646.9	23.3	179.71	4,647.0	
13,159.0	90.70	180.92	8,405.4	-4,688.5	22.9	179.72	4,688.6	
13,219.0	89.39	179.89	8,405.3	-4,748.5	22.5	179.73	4,748.6	
13,270.0	89.39	179.89	8,405.9	-4,799.5	22.6	179.73	4,799.6	

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
13,219.0	8,405.3	-4,748.5	22.5	Last MWD Survey	
13,270.0	8,405.9	-4,799.5	22.6	Projection to Bit	



KB= 25 @ 3648.7usft (H&P 621)
Gr @ 3623.7

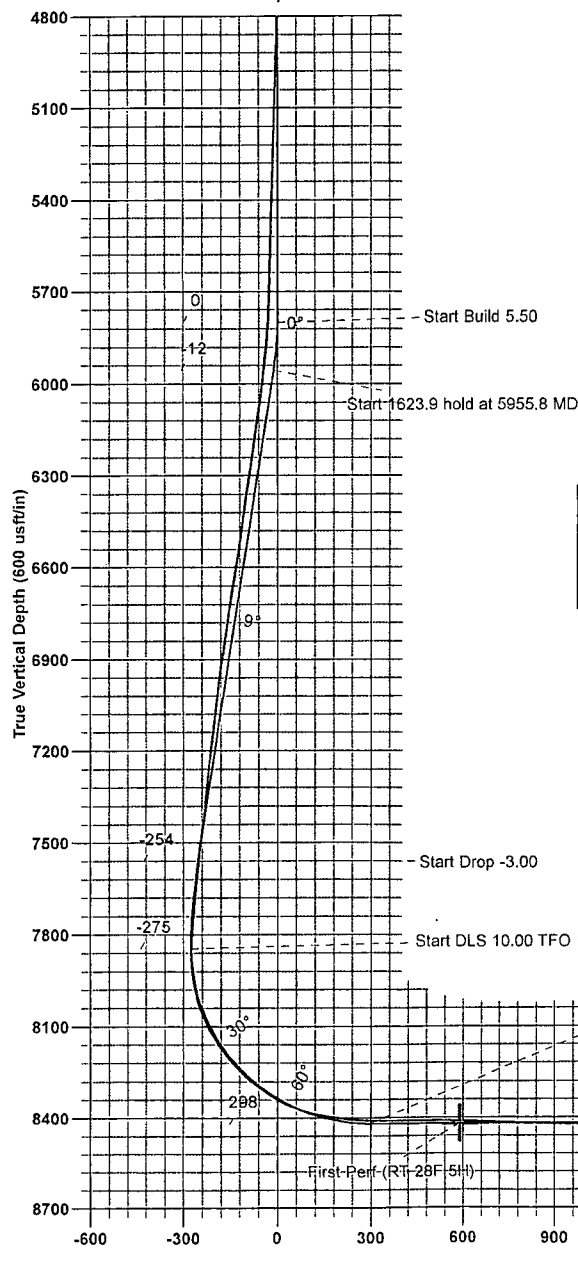
#5H
Lea County, New Mexico
Northing: 498572.40
Easting: 703730.50
Plan #2



Azimuths to Grid North
True North: -0.35°
Magnetic North: 7.06°

Magnetic Field
Strength: 48328.9nT
Dip Angle: 60.22°
Date: 9/6/2014
Model: BGGM2014

To convert Magnetic North to Grid, Add 7.06°
To convert True North to Grid, Subtract 0.35°



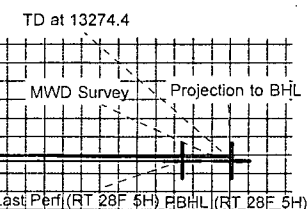
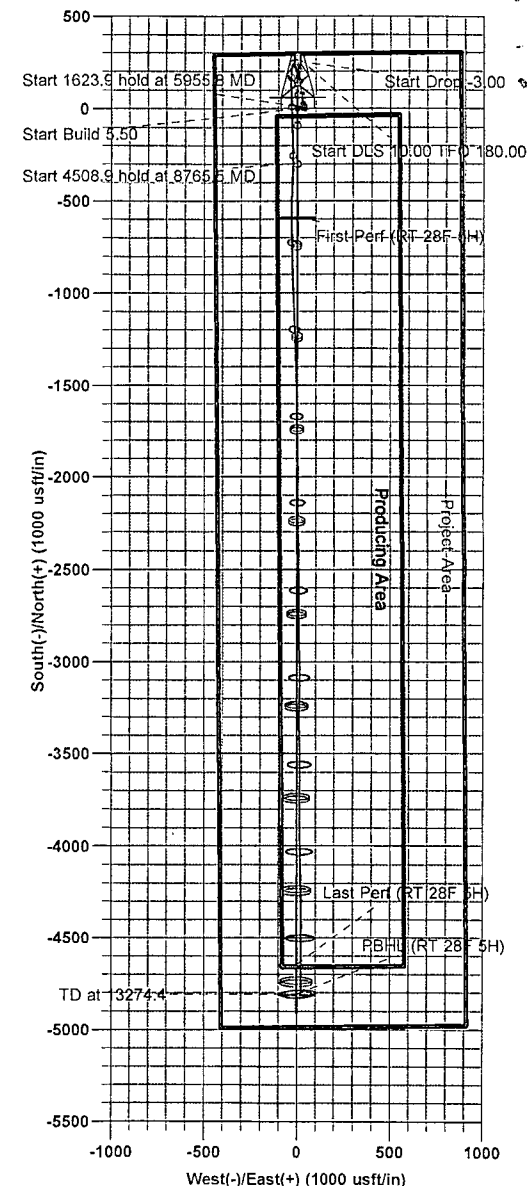
WELL DETAILS #5H						
Ground Level: 3623.7						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.0	0.0	498572.40	703730.50	32° 22' 8.271 N	103° 40' 24.518 W	

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
5800.0	0.00	0.00	5800.0	0.0	0.0	0.00	0.00	0.0	
5955.8	8.57	0.00	5955.3	11.6	0.0	5.50	0.00	-11.6	
7579.8	8.57	0.00	7561.1	253.7	0.0	0.00	0.00	-253.7	
7865.5	0.00	0.00	7845.7	275.0	0.0	3.00	180.00	-275.0	
8765.5	90.00	180.00	8418.7	-298.0	0.0	10.00	180.00	298.0	
13274.4	90.00	180.00	8418.7	-4806.9	-0.1	0.00	0.00	4806.9	PBHL (RT 28F 5H)

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
First Perf (RT 28F 5H)	8418.7	-590.0	0.0	497982.40	703730.50
Last Perf (RT 28F 5H)	8418.7	-4646.9	-0.1	493925.50	703730.40
PBHL (RT 28F 5H)	8418.7	-4806.9	-0.1	493765.50	703730.40

SITE DETAILS:	
Red Tank 28 Federal 5H	
Site Centre Northing: 498572.40	
Easting: 703730.50	
Positional Uncertainty: 0.0	
Convergence: 0.35	
Local North: Grid	

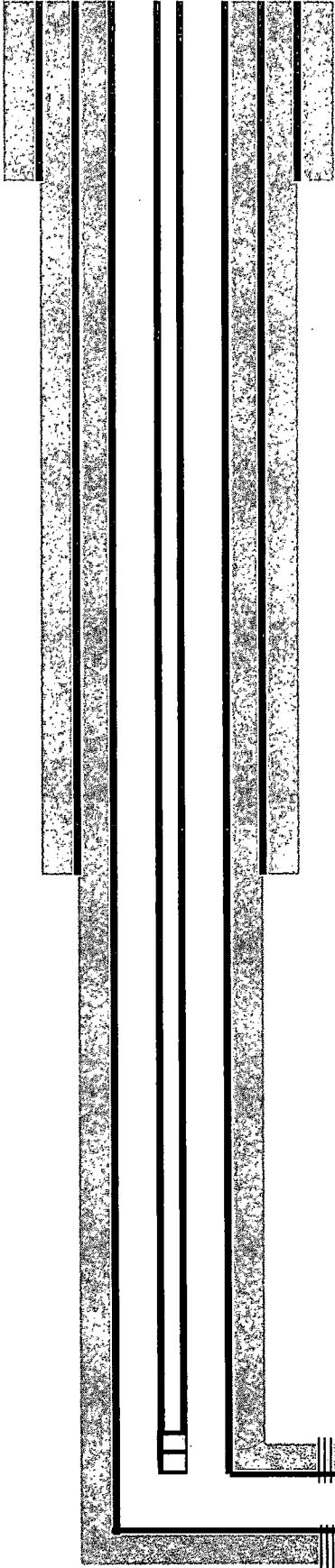
PROJECT DETAILS:	
Lea County, New Mexico	
Geodetic System: US State Plane 1927 (Exact solution)	
Datum: NAD 1927 (NADCON CONUS)	
Ellipsoid: Clarke 1866	
Zone: New Mexico East 3001	
System Datum: Mean Sea Level	



Vertical Section at 180.00° (600 usft/in)

OXY USA INC.
Red Tank 28 Federal 5H
API No. 30-025-41189

2-7/8" tbg w/ESP @ 7783'



14-3/4" hole @ 927'
11-3/4" csg @ 927'
w/ 690sx-TOC-Surf-Circ.

10-5/8" hole @ 4660'
8-5/8" csg @ 4650'
w/ 1120sx-TOC-Surf-Circ.

7-7/8" hole @ 13270'
5-1/2" csg @ 13270'
w/ 1590sx-TOC-Surf-Circ.

Perfs @ 8602-13122'

TD- 13270'M 8405'V