OCCIDENTAL PERMIAN LTD.

Pierce Crossing Bone Spring, East
Eddy County, NM (Grid North)
Cedar Canyon 15 Federal Com #5H
DH - Job #321014-MPH-1192

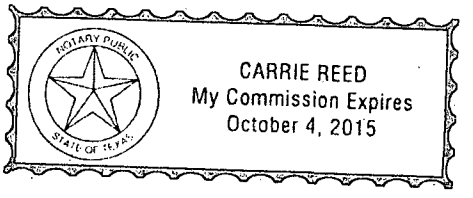
Survey: MWD 30-015-42421

Regulatory Report (Grid North)

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

Notarized this date 23rd of December, 2014.

Notary Signature
County of Midland
State of Texas



Regulatory Report (Grid North)

Company:	OCCIDENTAL PERMIAN LTD.	**Local Co-ordinate Reference:**	Well Cedar Canyon 15 Federal Com #5H
Project:	Pierce Crossing Bone Spring, East	**TVD Reference:**	Mean Sea Level (System)
Site:	Eddy County, NM (Grid North)	**MD Reference:**	Mean Sea Level (System)
Well:	Cedar Canyon 15 Federal Com #5H	**North Reference:**	Grid
Wellbore:	DH - Job #321014-MPH-1192	**Survey Calculation Method:**	Minimum Curvature
Design:	DH - Job #321014-MPH-1192	**Database:**	MID_Regulatory

Project Pierce Crossing Bone Spring, East

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 (Grid North)

Site Position:		**Northing:**	445,863.68 usft	**Latitude:**	32° 13' 31.114 N
From:	Lat/Long	**Easting:**	608,483.24 usft	**Longitude:**	103° 58' 57.079 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.19 °

Well Cedar Canyon 15 Federal Com #5H, Horizontal

Well Position	**+N/-S**	0.0 usft	**Northing:**	444,572.27 usft	**Latitude:**	32° 13' 18.304 N
	+E/-W	0.0 usft	**Easting:**	609,425.67 usft	**Longitude:**	103° 58' 46.157 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	0.0 usft

Wellbore DH - Job #321014-MPH-1192

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/16/2014	7.37	60.03	48,263

Design DH - Job #321014-MPH-1192

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	33.58

Survey Program **Date** 12/22/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
493.0	13,508.0	MWD (DH - Job #321014-MPH-1192)	MWD	MWD

Survey

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
493.0	1.57	40.29	492.9	5.2	4.4	40.29	6.8
583.0	1.44	39.00	582.9	7.0	5.9	40.13	9.1
673.0	1.31	42.79	672.9	8.6	7.3	40.26	11.3
762.0	1.18	51.24	761.9	9.9	8.7	41.21	13.2
851.0	1.06	44.63	850.8	11.1	10.0	42.01	14.9
942.0	0.91	36.78	941.8	12.3	11.0	41.92	16.5
1,036.0	1.05	30.48	1,035.8	13.6	11.9	41.16	18.1
1,130.0	0.72	9.03	1,129.8	14.9	12.4	39.77	19.4
1,224.0	0.74	0.59	1,223.8	16.1	12.5	37.84	20.4
1,318.0	0.98	350.98	1,317.8	17.5	12.4	35.30	21.5
1,412.0	0.60	333.27	1,411.8	18.8	12.1	32.73	22.3

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Survey

MD (usft)	Inc (°)	Azi (grid north azim	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,506.0	0.42	340.28	1,505.8	19.5	11.7	30.98	22.8
1,600.0	0.46	351.12	1,599.8	20.2	11.5	29.73	23.3
1,694.0	0.55	16.21	1,693.8	21.0	11.6	28.91	24.0
1,789.0	0.54	53.40	1,788.8	21.7	12.1	29.11	24.9
1,883.0	0.78	39.47	1,882.8	22.5	12.9	29.77	25.9
1,977.0	0.72	51.11	1,976.7	23.3	13.7	30.45	27.1
2,072.0	0.64	56.94	2,071.7	24.0	14.6	31.36	28.1
2,166.0	0.81	47.63	2,165.7	24.7	15.6	32.17	29.2
2,260.0	0.97	77.91	2,259.7	25.4	16.8	33.58	30.4
2,354.0	1.22	92.35	2,353.7	25.5	18.6	36.14	31.6
2,448.0	1.17	91.87	2,447.7	25.4	20.6	38.99	32.7
2,542.0	1.47	105.98	2,541.7	25.1	22.7	42.17	33.8
2,637.0	1.60	131.87	2,636.6	23.8	24.8	46.20	34.4
2,731.0	1.82	134.78	2,730.6	21.9	26.9	50.83	34.7
2,825.0	1.78	140.73	2,824.5	19.7	28.9	55.66	35.0
2,875.0	1.69	139.85	2,874.5	18.6	29.8	58.12	35.1
3,026.0	2.23	137.62	3,025.4	14.7	33.3	66.17	36.4
3,121.0	2.18	133.02	3,120.4	12.1	35.8	71.36	37.8
3,215.0	2.46	321.40	3,214.3	12.4	35.9	70.87	38.0
3,309.0	4.62	298.99	3,308.1	15.9	31.3	63.13	35.1
3,403.0	4.54	296.00	3,401.8	19.3	24.6	51.90	31.3
3,497.0	4.85	297.69	3,495.5	22.8	17.8	37.95	28.9
3,591.0	4.69	298.77	3,589.2	26.5	10.9	22.35	28.6
3,685.0	4.70	275.49	3,682.9	28.7	3.7	7.32	28.9
3,780.0	4.66	276.26	3,777.6	29.5	-4.0	352.24	29.8
3,874.0	4.54	275.18	3,871.3	30.3	-11.5	339.15	32.4
3,968.0	4.22	275.75	3,965.0	30.9	-18.7	328.90	36.1
4,062.0	4.02	295.67	4,058.8	32.7	-25.1	322.53	41.2
4,156.0	4.26	298.48	4,152.5	35.8	-31.1	319.01	47.4
4,251.0	4.57	302.16	4,247.2	39.5	-37.4	316.55	54.4
4,345.0	4.50	305.53	4,340.9	43.6	-43.6	315.03	61.7
4,440.0	4.37	287.19	4,435.7	46.9	-50.1	313.10	68.6
4,534.0	4.28	287.68	4,529.4	49.0	-56.8	310.76	75.1
4,629.0	4.14	284.98	4,624.1	51.0	-63.5	308.73	81.5
4,723.0	3.90	293.93	4,717.9	53.1	-69.7	307.30	87.7
4,818.0	3.76	297.10	4,812.7	55.9	-75.5	306.51	93.9
4,912.0	4.62	297.05	4,906.4	59.0	-81.6	305.87	100.7
5,007.0	4.97	296.93	5,001.1	62.6	-88.7	305.22	108.5
5,101.0	4.67	294.17	5,094.8	66.0	-95.8	304.57	116.3
5,196.0	4.78	295.33	5,189.5	69.3	-102.9	303.96	124.0
5,290.0	4.64	294.19	5,283.1	72.5	-109.9	303.42	131.7
5,385.0	4.54	292.34	5,377.8	75.5	-116.9	302.87	139.1
5,479.0	4.16	289.69	5,471.6	78.1	-123.5	302.30	146.1
5,573.0	4.14	288.69	5,565.3	80.3	-129.9	301.72	152.8

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Wellbore:	DH - Job #321014-MPH-1192	**Survey Calculation Method:**	Minimum Curvature
Design:	DH - Job #321014-MPH-1192	**Database:**	MID_Regulatory

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,668.0	4.57	294.02	5,660.0	83.0	-136.7	301.26	159.9
5,763.0	4.09	292.43	5,754.8	85.8	-143.2	300.92	167.0
5,857.0	4.79	301.46	5,848.5	89.1	-149.7	300.77	174.2
5,952.0	4.69	297.97	5,943.2	93.0	-156.5	300.72	182.1
6,046.0	4.35	296.56	6,036.9	96.4	-163.1	300.59	189.4
6,140.0	4.74	300.95	6,130.6	100.0	-169.6	300.52	196.9
6,235.0	4.48	304.41	6,225.3	104.1	-176.0	300.60	204.5
6,329.0	4.14	297.69	6,319.0	107.8	-182.1	300.62	211.6
6,424.0	3.82	297.86	6,413.8	110.8	-187.9	300.54	218.2
6,518.0	4.19	303.73	6,507.5	114.2	-193.5	300.55	224.7
6,613.0	4.23	299.55	6,602.3	117.9	-199.5	300.58	231.7
6,707.0	3.43	296.27	6,696.1	120.8	-205.0	300.51	237.9
6,802.0	3.48	310.35	6,790.9	123.9	-209.7	300.58	243.6
6,896.0	3.89	301.58	6,884.7	127.5	-214.6	300.70	249.6
6,991.0	4.03	299.47	6,979.5	130.8	-220.3	300.70	256.2
7,085.0	3.29	304.92	7,073.3	134.0	-225.4	300.73	262.2
7,180.0	4.74	296.61	7,168.1	137.3	-231.1	300.71	268.8
7,274.0	4.22	289.00	7,261.8	140.1	-237.9	300.51	276.1
7,369.0	4.18	277.57	7,356.5	141.7	-244.6	300.09	282.7
7,463.0	5.03	295.36	7,450.2	144.0	-251.7	299.76	290.0
7,558.0	4.75	287.58	7,544.9	146.9	-259.2	299.54	298.0
7,652.0	4.30	299.39	7,638.6	149.8	-266.0	299.39	305.3
7,746.0	2.84	277.35	7,732.4	151.9	-271.4	299.23	311.0
7,841.0	1.20	219.05	7,827.3	151.4	-274.4	298.89	313.3
7,935.0	1.37	192.78	7,921.3	149.5	-275.2	298.51	313.2
7,967.0	1.35	195.99	7,953.3	148.8	-275.4	298.38	313.0
7,998.0	1.85	135.62	7,984.3	148.1	-275.2	298.29	312.5
8,030.0	4.66	107.63	8,016.2	147.3	-273.6	298.30	310.7
8,061.0	8.43	92.80	8,047.0	146.8	-270.1	298.53	307.4
8,093.0	11.49	86.25	8,078.6	146.9	-264.6	299.04	302.6
8,124.0	14.28	83.30	8,108.8	147.6	-257.7	299.80	296.9
8,155.0	17.16	84.55	8,138.6	148.4	-249.3	300.77	290.2
8,187.0	19.88	86.30	8,169.0	149.2	-239.2	301.96	281.9
8,218.0	22.17	88.62	8,197.9	149.7	-228.1	303.28	272.8
8,250.0	24.20	89.32	8,227.3	150.0	-215.5	304.83	262.5
8,281.0	26.77	89.21	8,255.3	150.1	-202.2	306.60	251.8
8,313.0	28.89	86.06	8,283.6	150.8	-187.2	308.84	240.4
8,344.0	30.32	85.32	8,310.5	151.9	-172.0	311.45	229.5
8,407.0	32.96	85.14	8,364.2	154.7	-139.0	318.04	208.0
8,502.0	41.34	78.13	8,439.8	163.3	-82.5	333.21	183.0
8,596.0	51.63	77.69	8,504.5	177.6	-15.9	354.88	178.3
8,690.0	55.08	81.66	8,560.6	191.1	58.3	16.96	199.7
8,700.1	55.59	82.00	8,566.4	192.2	66.5	19.09	203.4
8,785.0	59.89	84.67	8,611.7	200.5	137.8	34.49	243.3

Regulatory Report (Grid North)

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Site:	Eddy County, NM (Grid North)	**MD Reference:**	Mean Sea Level (System)
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Wellbore:	DH - Job #321014-MPH-1192	**Survey Calculation Method:**	Minimum Curvature
Design:	DH - Job #321014-MPH-1192	**Database:**	MID_Regulatory

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
8,879.0	70.20	85.70	8,651.3	207.6	222.6	46.99	304.4
8,973.0	79.59	87.52	8,675.7	213.0	313.1	55.78	378.6
9,068.0	82.36	84.86	8,690.6	219.2	406.7	61.67	462.0
9,162.0	84.65	86.63	8,701.3	226.1	499.8	65.66	548.6
9,257.0	86.00	85.25	8,709.0	232.8	594.3	68.60	638.2
9,351.0	85.74	84.56	8,715.8	241.2	687.6	70.67	728.7
9,446.0	88.02	85.12	8,720.9	249.7	782.1	72.29	821.0
9,532.0	88.39	84.88	8,723.6	257.2	867.7	73.49	905.0
9,626.0	88.18	85.08	8,726.5	265.4	961.3	74.57	997.3
9,721.0	88.82	85.87	8,728.9	272.9	1,056.0	75.51	1,090.7
9,815.0	88.76	86.20	8,730.9	279.4	1,149.8	76.34	1,183.2
9,910.0	90.10	87.05	8,731.9	285.0	1,244.6	77.10	1,276.8
10,004.0	90.13	86.83	8,731.7	290.0	1,338.4	77.77	1,369.5
10,099.0	88.86	86.26	8,732.5	295.7	1,433.3	78.34	1,463.5
10,193.0	87.11	84.95	8,735.8	302.9	1,526.9	78.78	1,556.7
10,287.0	87.07	85.79	8,740.6	310.5	1,620.5	79.15	1,650.0
10,382.0	86.77	85.57	8,745.7	317.7	1,715.1	79.51	1,744.3
10,476.0	86.87	86.40	8,750.9	324.2	1,808.7	79.84	1,837.5
10,571.0	88.12	86.23	8,755.1	330.3	1,903.4	80.15	1,931.9
10,665.0	88.32	86.13	8,758.0	336.6	1,997.2	80.43	2,025.3
10,760.0	89.73	87.12	8,759.6	342.2	2,092.0	80.71	2,119.8
10,854.0	89.90	87.60	8,759.9	346.5	2,185.9	80.99	2,213.2
10,949.0	90.13	88.16	8,759.9	350.0	2,280.8	81.28	2,307.5
11,043.0	90.13	88.24	8,759.7	353.0	2,374.8	81.55	2,400.9
11,138.0	90.24	88.53	8,759.4	355.6	2,469.7	81.81	2,495.2
11,232.0	89.73	87.75	8,759.4	358.7	2,563.7	82.04	2,588.7
11,327.0	89.70	87.30	8,759.9	362.8	2,658.6	82.23	2,683.2
11,421.0	89.97	88.01	8,760.1	366.6	2,752.5	82.41	2,776.8
11,516.0	88.56	88.01	8,761.4	369.9	2,847.5	82.60	2,871.4
11,610.0	89.06	89.11	8,763.3	372.3	2,941.4	82.79	2,964.9
11,705.0	88.96	89.75	8,764.9	373.3	3,036.4	82.99	3,059.2
11,800.0	88.25	89.82	8,767.3	373.6	3,131.4	83.20	3,153.6
11,894.0	87.78	89.84	8,770.5	373.9	3,225.3	83.39	3,246.9
11,988.0	87.89	89.39	8,774.1	374.5	3,319.2	83.56	3,340.3
12,083.0	86.61	87.99	8,778.6	376.7	3,414.1	83.70	3,434.8
12,177.0	87.78	88.00	8,783.2	380.0	3,507.9	83.82	3,528.4
12,272.0	86.94	86.29	8,787.6	384.7	3,602.7	83.91	3,623.2
12,366.0	86.61	86.46	8,792.9	390.6	3,696.4	83.97	3,716.9
12,461.0	87.72	86.57	8,797.6	396.4	3,791.1	84.03	3,811.7
12,555.0	87.92	85.77	8,801.2	402.7	3,884.8	84.08	3,905.6
12,650.0	88.52	85.81	8,804.1	409.6	3,979.5	84.12	4,000.5
12,744.0	89.16	86.72	8,806.0	415.8	4,073.3	84.17	4,094.4
12,839.0	89.73	88.87	8,806.9	419.4	4,168.2	84.25	4,189.2
12,933.0	89.43	88.31	8,807.6	421.7	4,262.1	84.35	4,283.0
13,028.0	89.33	88.34	8,808.7	424.5	4,357.1	84.44	4,377.7

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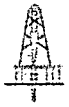
13,122.0	89.63	87.95	8,809.5	427.6	4,451.0	84.51	4,471.5
13,217.0	90.13	88.35	8,809.7	430.6	4,546.0	84.59	4,566.3
13,311.0	89.83	88.00	8,809.7	433.6	4,639.9	84.66	4,660.2
13,357.3	89.91	87.81	8,809.8	435.3	4,686.3	84.69	4,706.4
13,406.0	90.00	87.61	8,809.9	437.3	4,734.9	84.72	4,755.0
13,442.0	90.24	88.01	8,809.8	438.6	4,770.9	84.75	4,791.0
Last MWD Survey							
13,508.0	90.24	88.01	8,809.5	440.9	4,836.8	84.79	4,856.9
Projection to Bit							

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
13,442.0	8,809.8	438.6	4,770.9	Last MWD Survey
13,508.0	8,809.5	440.9	4,836.8	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

Cedar Canyon 15 Federal Com 5H
Eddy County, NM (NAD 27 NME)
Northing: 444572.20
Easting: 609425.60
Design #4



To convert Magnetic North to Grid, Add 7.24°
To convert True North to Grid, Subtract 0.19°

Azimuths to Grid North
True North: -0.19°
Magnetic North: 7.24°

Magnetic Field
Strength: 48293.2snT
Dip Angle: 60.05°
Date: 4/7/2014
Model: IGRF2010

WELL DETAILS CC 15 FC 5H
Ground Level: 2927.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	444572.20	609425.60	32° 13' 18.303 N	103° 58' 46.158 W

SECTION DETAILS

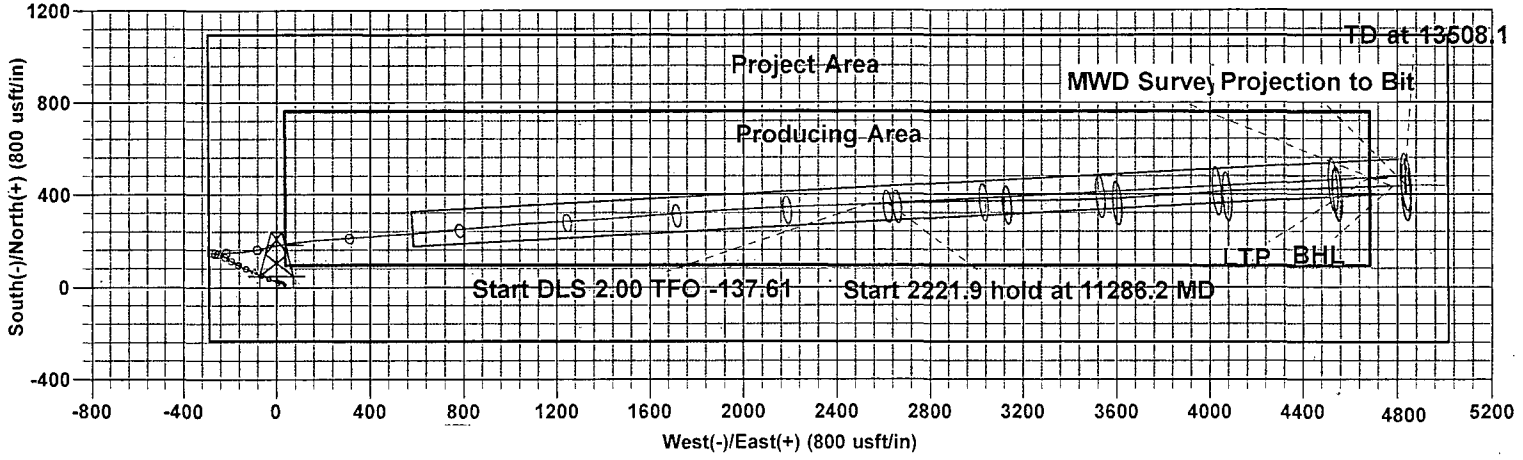
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
11204.0	89.88	87.98	8759.3	357.7	2535.7	0.00	0.00	2558.7
11286.2	88.67	86.87	8760.4	361.3	2617.8	2.00	-137.61	2640.7
13508.1	88.67	86.87	8812.0	482.5	4835.8	0.00	0.00	4859.8

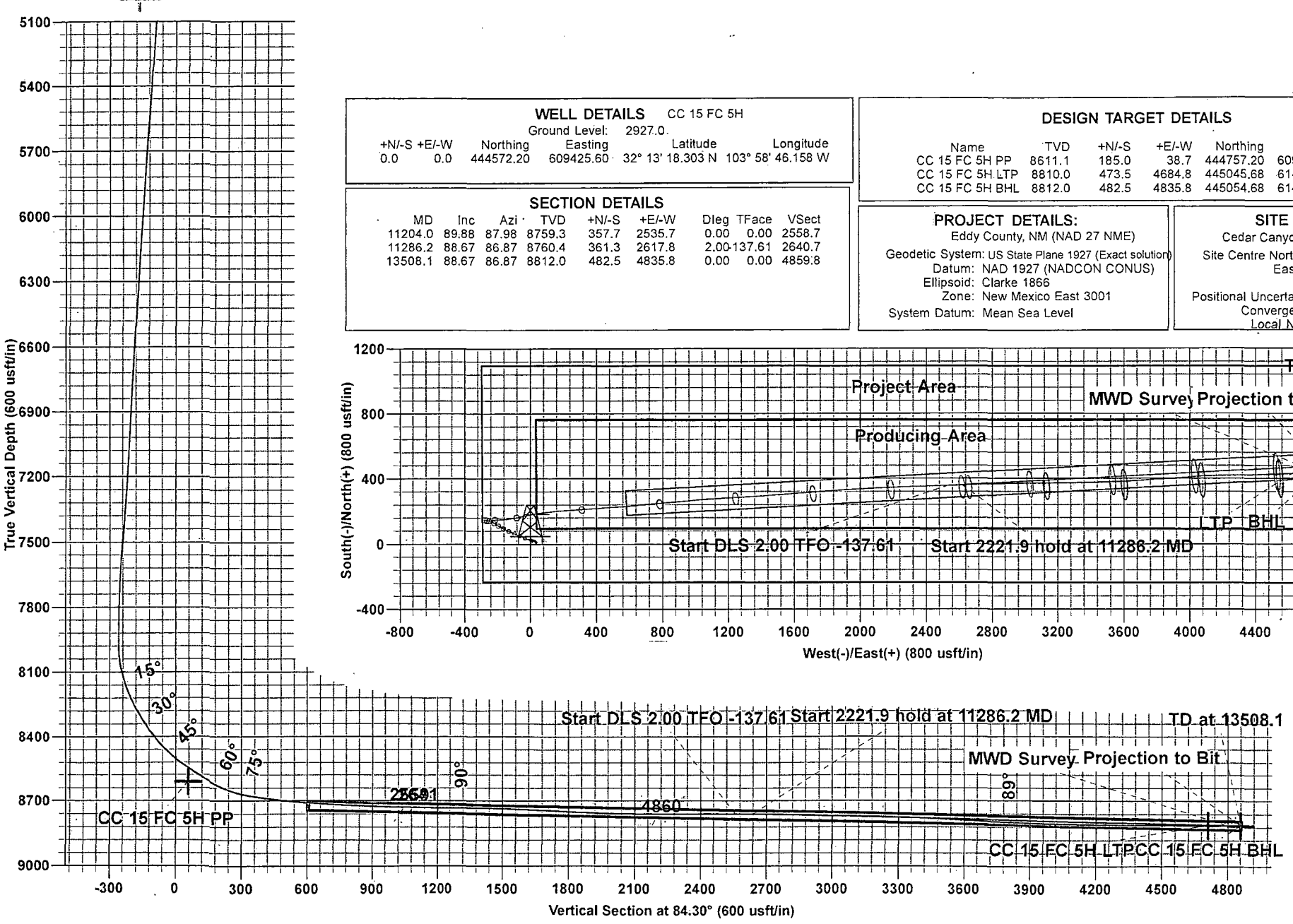
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
CC 15 FC 5H PP	8611.1	185.0	38.7	444757.20	609464.30
CC 15 FC 5H LTP	8810.0	473.5	4684.8	445045.68	614110.40
CC 15 FC 5H BHL	8812.0	482.5	4835.8	445054.68	614261.38

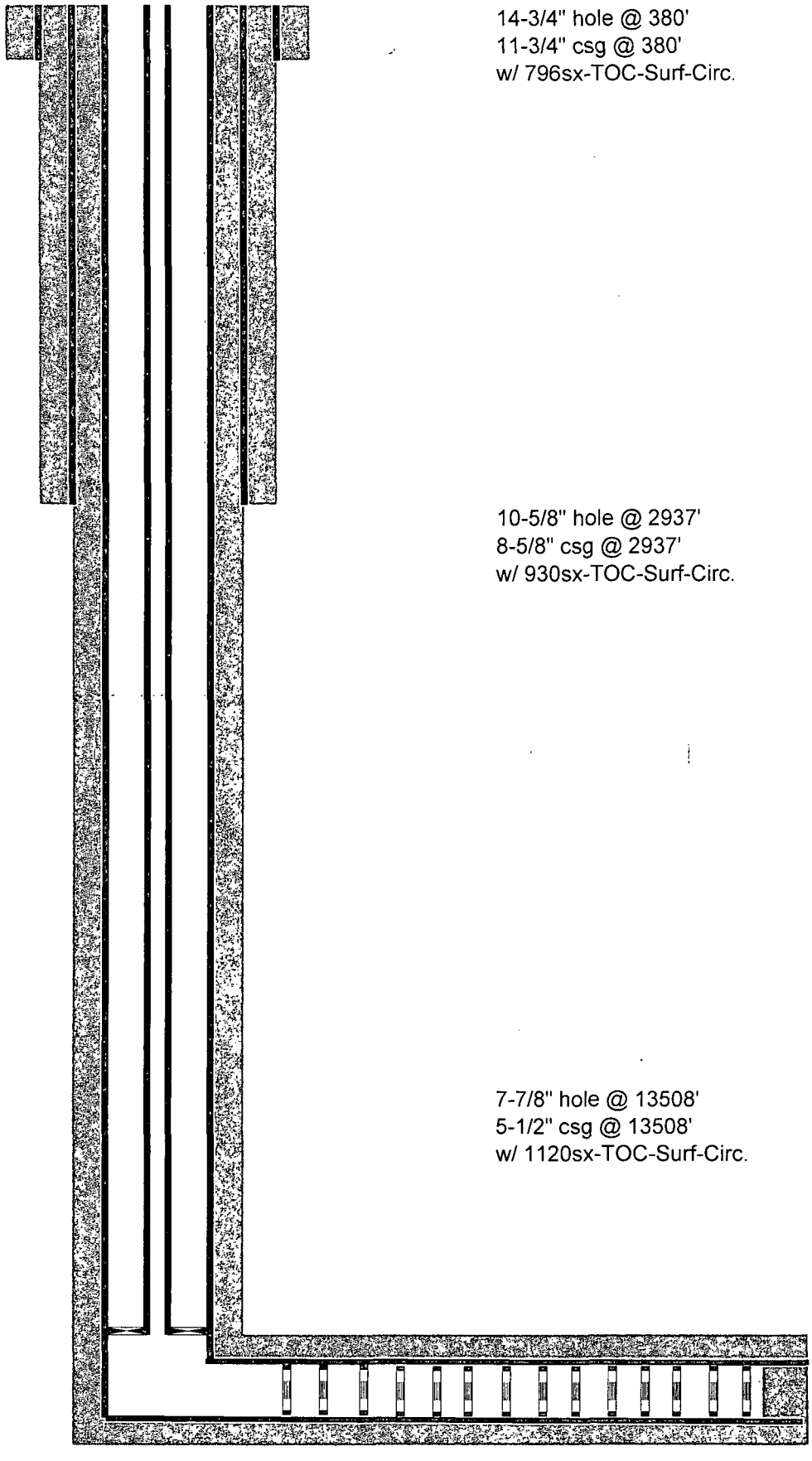
PROJECT DETAILS:
Eddy County, NM (NAD 27 NME)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS:
Cedar Canyon 15 Federal Com 5H
Site Centre Northing: 444572.20
Easting: 609425.60
Positional Uncertainity: 0.0
Convergence: 0.19
Local North: Grid





OXY USA INC.
Cedar Canyon 15 Federal Com 5H
API No. 30-015-42421



14-3/4" hole @ 380'
11-3/4" csg @ 380'
w/ 796sx-TOC-Surf-Circ.

10-5/8" hole @ 2937'
8-5/8" csg @ 2937'
w/ 930sx-TOC-Surf-Circ.

7-7/8" hole @ 13508'
5-1/2" csg @ 13508'
w/ 1120sx-TOC-Surf-Circ.

2-7/8" tbg & pkr @ 7948'

Sliding Sleeves @ 9563-13319'

TD- 13508'M 8809'V