

15 42012

NM OIL CONSERVATION

ARTESTA DISTRICT

FEB 10 2015

RECEIVED

OCCIDENTAL PERMIAN LTD.

Carlsbad Bone Spring, East
Eddy County, NM (Grid North)
Simpson CDM Com #1H
DH - Job #321014-MPH-1176

Survey: MWD

Regulatory Survey Report (Grid Nort

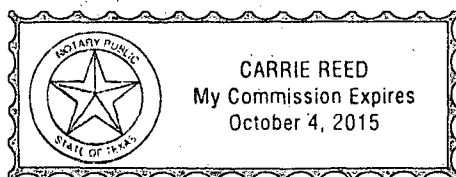
This survey is correct to the best of my knowledge and is supported by actual field data.

Jami Thoma

Notarized this date 13th of November, 2014.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Regulatory Survey Report (Grid North)

Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Simpson CDM Com #1H
Project:	Carlsbad Bone Spring, East	TVD Reference:	Mean Sea Level (System)
Site:	Eddy County, NM (Grid North)	MD Reference:	Mean Sea Level (System)
Well:	Simpson CDM Com #1H	North Reference:	Grid
Wellbore:	DH - Job #321014-MPH-1176	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #321014-MPH-1176	Database:	MID_Regulatory

Project	Carlsbad 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:	529,917.57 usft	Latitude: 32° 27' 24.442 N
From: Lat/Long	Easting:	539,873.13 usft	Longitude: 104° 12' 14.628 W
Position Uncertainty:	0.0 usft	Slot Radius: 13-3/16"	Grid Convergence: 0.07 °

Well	Simpson CDM Com #1H, Horizontal		
Well Position	+N/-S	0.0 usft	Northing: 529,917.57 usft
	+E/-W	0.0 usft	Easting: 539,873.13 usft
Position Uncertainty	0.0 usft	Wellhead Elevation: 0.0 usft	Ground Level: 0.0 usft

Wellbore	DH - Job #321014-MPH-1176		
Magnetics	Model Name	Sample Date	Declination (°)
	BGGM2014	10/6/2014	7.66
			Dip Angle (°)
			60.20
			Field Strength (nT)
			48,333

Design:	DH - Job #321014-MPH-1176		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°)
			270.31

Survey Program	Date 11/20/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
415.0	13,077.0	MWD (DH - Job #321014-MPH-1176)	MWD
			Description
			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
415.0	0.11	254.31	415.0	-0.1	-0.4	254.31	0.4
508.0	0.42	304.64	508.0	0.1	-0.7	274.72	0.8
601.0	0.36	311.61	601.0	0.4	-1.2	289.80	1.3
693.0	0.65	343.10	693.0	1.1	-1.6	305.21	2.0
785.0	0.50	346.60	785.0	2.0	-1.9	317.49	2.8
971.0	0.55	340.29	971.0	3.7	-2.4	327.30	4.4
1,066.0	0.53	337.52	1,066.0	4.5	-2.7	329.27	5.2
1,161.0	0.67	327.51	1,161.0	5.4	-3.1	329.70	6.2
1,256.0	0.68	336.51	1,256.0	6.4	-3.7	330.05	7.3
1,351.0	0.81	344.81	1,351.0	7.5	-4.1	331.62	8.5
1,446.0	0.94	0.50	1,445.9	8.9	-4.2	334.69	9.9

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Design:	DH - Job #321014-MPH-1176	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid north azimuth)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,542.0	0.71	355.69	1,541.9	10.3	-4.3	337.54	11.2	
1,636.0	0.60	3.29	1,635.9	11.4	-4.3	339.40	12.2	
1,732.0	0.85	3.44	1,731.9	12.6	-4.2	341.53	13.3	
1,827.0	0.82	8.79	1,826.9	14.0	-4.1	343.79	14.6	
1,922.0	0.85	6.25	1,921.9	15.4	-3.9	345.80	15.8	
2,017.0	1.04	9.10	2,016.9	16.9	-3.7	347.75	17.3	
2,112.0	1.15	20.75	2,111.9	18.7	-3.2	350.27	18.9	
2,207.0	1.14	10.79	2,206.8	20.5	-2.7	352.53	20.7	
2,302.0	1.26	10.27	2,301.8	22.4	-2.3	354.09	22.6	
2,397.0	1.05	359.31	2,396.8	24.3	-2.1	354.96	24.4	
2,492.0	0.95	2.34	2,491.8	26.0	-2.1	355.33	26.1	
2,587.0	0.87	11.43	2,586.8	27.5	-1.9	355.94	27.5	
2,682.0	0.95	21.74	2,681.8	28.9	-1.5	357.00	29.0	
2,778.0	1.00	8.14	2,777.8	30.5	-1.1	357.93	30.5	
2,963.0	1.04	12.08	2,962.7	33.7	-0.5	359.11	33.7	
3,058.0	0.78	9.21	3,057.7	35.2	-0.2	359.61	35.2	
3,153.0	0.66	11.58	3,152.7	36.4	0.0	359.96	36.4	
3,249.0	0.59	14.64	3,248.7	37.4	0.2	0.32	37.4	
3,344.0	0.56	0.44	3,343.7	38.3	0.3	0.51	38.3	
3,440.0	0.29	3.71	3,439.7	39.1	0.4	0.53	39.1	
3,535.0	0.11	309.81	3,534.7	39.4	0.3	0.44	39.4	
3,630.0	0.14	356.46	3,629.7	39.5	0.2	0.33	39.5	
3,725.0	0.20	324.50	3,724.7	39.8	0.1	0.18	39.8	
3,821.0	0.19	336.95	3,820.7	40.1	0.0	359.95	40.1	
3,916.0	0.24	288.22	3,915.7	40.3	-0.3	359.59	40.3	
4,011.0	0.37	285.08	4,010.7	40.4	-0.8	358.91	40.4	
4,106.0	0.38	262.20	4,105.7	40.4	-1.4	358.05	40.5	
4,201.0	0.47	280.15	4,200.7	40.5	-2.1	357.06	40.5	
4,296.0	0.54	284.36	4,295.7	40.6	-2.9	355.93	40.8	
4,391.0	0.56	280.49	4,390.7	40.8	-3.8	354.71	41.0	
4,486.0	0.73	271.44	4,485.7	40.9	-4.8	353.25	41.2	
4,581.0	0.72	269.91	4,580.7	41.0	-6.0	351.60	41.4	
4,676.0	0.84	269.95	4,675.7	41.0	-7.3	349.84	41.6	
4,772.0	1.01	266.30	4,771.6	40.9	-8.9	347.74	41.9	
4,867.0	1.17	266.07	4,866.6	40.8	-10.7	345.31	42.2	
4,962.0	1.12	271.74	4,961.6	40.7	-12.6	342.83	42.6	
5,057.0	1.25	256.39	5,056.6	40.5	-14.5	340.29	43.1	
5,152.0	1.09	252.93	5,151.6	40.0	-16.4	337.72	43.2	
5,248.0	1.21	246.59	5,247.5	39.3	-18.2	335.18	43.4	
5,343.0	1.31	236.41	5,342.5	38.3	-20.0	332.43	43.3	
5,438.0	1.34	217.25	5,437.5	36.9	-21.6	329.63	42.7	
5,533.0	1.33	210.56	5,532.5	35.0	-22.8	326.91	41.8	
5,628.0	1.35	206.71	5,627.4	33.1	-23.9	324.16	40.8	
5,724.0	1.06	207.04	5,723.4	31.3	-24.8	321.58	39.9	

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MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,819.0	1.21	194.45	5,818.4	29.5	-25.5	319.23	39.0
5,914.0	1.67	182.71	5,913.4	27.2	-25.8	316.52	37.5
6,009.0	1.38	205.56	6,008.3	24.8	-26.3	313.24	36.1
6,104.0	1.58	214.52	6,103.3	22.6	-27.6	309.40	35.7
6,199.0	1.28	214.95	6,198.3	20.7	-28.9	305.59	35.6
6,294.0	2.29	211.77	6,293.2	18.2	-30.5	300.83	35.5
6,389.0	1.21	289.92	6,388.2	16.9	-32.5	297.56	36.6
6,484.0	1.28	312.59	6,483.2	18.0	-34.2	297.77	38.6
6,579.0	1.02	306.51	6,578.2	19.2	-35.7	298.33	40.5
6,674.0	1.29	267.93	6,673.1	19.7	-37.4	297.76	42.3
6,769.0	1.19	254.91	6,768.1	19.4	-39.4	296.19	43.9
6,865.0	0.75	283.54	6,864.1	19.3	-41.0	295.19	45.3
6,960.0	0.20	145.45	6,959.1	19.3	-41.5	294.93	45.8
7,055.0	1.59	152.69	7,054.1	18.0	-40.8	293.78	44.6
7,150.0	1.62	140.92	7,149.0	15.8	-39.4	291.83	42.4
7,245.0	0.93	180.28	7,244.0	14.0	-38.5	289.92	41.0
7,340.0	1.14	180.63	7,339.0	12.2	-38.5	287.62	40.4
7,379.0	2.50	237.25	7,378.0	11.4	-39.2	286.18	40.9
7,472.0	7.71	242.60	7,470.6	7.4	-46.5	279.07	47.1
7,567.0	6.82	235.72	7,564.8	1.3	-56.8	271.32	56.8
7,662.0	4.99	223.40	7,659.3	-4.9	-64.3	265.67	64.5
7,757.0	4.77	216.52	7,754.0	-11.0	-69.5	260.97	70.4
7,852.0	3.58	199.47	7,848.7	-17.0	-72.8	256.85	74.8
7,947.0	3.12	188.17	7,943.6	-22.4	-74.2	253.22	77.5
8,043.0	5.65	234.12	8,039.3	-27.7	-78.4	250.52	83.2
8,138.0	14.94	244.51	8,132.7	-35.8	-93.3	249.02	99.9
8,208.1	22.27	244.20	8,199.1	-45.5	-113.4	248.17	122.2
8,234.0	24.97	244.13	8,222.8	-50.0	-122.8	247.85	132.5
8,329.0	33.40	254.34	8,305.7	-65.8	-166.1	248.38	178.6
8,425.0	38.15	259.34	8,383.6	-78.4	-220.7	250.44	234.2
8,520.0	42.21	266.60	8,456.2	-85.8	-281.5	253.05	294.2
8,615.0	50.53	275.19	8,521.8	-84.3	-350.0	256.45	360.0
8,711.0	57.38	275.74	8,578.2	-76.9	-427.2	259.79	434.1
8,807.0	63.44	275.00	8,625.6	-69.1	-510.3	262.28	515.0
8,901.0	71.05	274.94	8,661.9	-61.6	-596.6	264.10	599.8
8,997.0	75.41	275.94	8,689.6	-52.9	-688.1	265.60	690.1
9,028.0	75.51	275.95	8,697.4	-49.8	-717.9	266.03	719.7
9,060.0	76.44	276.08	8,705.2	-46.6	-748.8	266.44	750.3
9,092.0	77.81	276.80	8,712.3	-43.1	-779.8	266.84	781.0
9,124.0	79.30	276.89	8,718.6	-39.3	-810.9	267.22	811.9
9,155.0	80.72	276.85	8,724.0	-35.7	-841.3	267.57	842.0
9,187.0	81.74	276.29	8,728.9	-32.0	-872.7	267.90	873.3
9,219.0	83.16	275.78	8,733.1	-28.7	-904.2	268.18	904.7
9,251.0	84.38	275.98	8,736.6	-25.5	-935.9	268.44	936.2

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Design:	DH - Job #321014-MPH-1176	Database:	MID_Regulatory

Survey								
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
9,283.0	85.53	276.46	8,739.4	-22.0	-967.5	268.70	967.8	
9,314.0	86.54	276.61	8,741.5	-18.5	-998.3	268.94	998.4	
9,346.0	87.44	275.28	8,743.2	-15.2	-1,030.1	269.16	1,030.2	
9,378.0	87.98	272.88	8,744.5	-12.9	-1,061.9	269.30	1,062.0	
9,409.0	89.36	270.01	8,745.2	-12.1	-1,092.9	269.36	1,093.0	
9,441.0	91.34	268.03	8,745.0	-12.7	-1,124.9	269.36	1,125.0	
9,473.0	92.62	267.42	8,743.9	-13.9	-1,156.9	269.31	1,157.0	
9,568.0	90.64	268.88	8,741.2	-17.0	-1,251.8	269.22	1,251.9	
9,663.0	91.65	268.66	8,739.3	-19.0	-1,346.7	269.19	1,346.9	
9,759.0	90.44	270.53	8,737.6	-19.7	-1,442.7	269.22	1,442.8	
9,854.0	91.78	270.76	8,735.7	-18.6	-1,537.7	269.31	1,537.8	
9,949.0	89.66	271.09	8,734.5	-17.1	-1,632.7	269.40	1,632.7	
10,044.0	90.10	271.48	8,734.7	-15.0	-1,727.6	269.50	1,727.7	
10,100.0	90.57	271.46	8,734.4	-13.5	-1,783.6	269.56	1,783.7	
10,195.0	90.81	271.33	8,733.2	-11.2	-1,878.6	269.66	1,878.6	
10,291.0	91.78	271.79	8,731.1	-8.6	-1,974.5	269.75	1,974.5	
10,386.0	90.00	270.95	8,729.6	-6.3	-2,069.5	269.82	2,069.5	
10,481.0	90.13	271.42	8,729.5	-4.4	-2,164.4	269.88	2,164.5	
10,576.0	90.60	271.01	8,728.9	-2.4	-2,259.4	269.94	2,259.4	
10,671.0	89.43	270.68	8,728.9	1.0	-2,354.4	269.98	2,354.4	
10,766.0	90.34	270.91	8,729.1	0.4	-2,449.4	270.01	2,449.4	
10,862.0	89.50	270.86	8,729.2	1.8	-2,545.4	270.04	2,545.4	
10,957.0	89.93	270.73	8,729.7	3.2	-2,640.4	270.07	2,640.4	
11,051.0	90.91	270.75	8,729.0	4.4	-2,734.4	270.09	2,734.4	
11,147.0	90.07	269.87	8,728.2	4.9	-2,830.4	270.10	2,830.4	
11,240.0	89.90	270.28	8,728.2	5.0	-2,923.4	270.10	2,923.4	
11,336.0	89.83	270.18	8,728.4	5.4	-3,019.4	270.10	3,019.4	
11,431.0	91.07	269.88	8,727.7	5.4	-3,114.4	270.10	3,114.4	
11,526.0	89.56	269.41	8,727.1	4.9	-3,209.3	270.09	3,209.4	
11,622.0	90.37	269.25	8,727.2	3.7	-3,305.3	270.06	3,305.3	
11,717.0	91.04	268.91	8,726.0	2.2	-3,400.3	270.04	3,400.3	
11,811.0	89.46	269.01	8,725.6	0.5	-3,494.3	270.01	3,494.3	
11,908.0	89.19	268.84	8,726.8	-1.3	-3,591.3	269.98	3,591.3	
12,003.0	90.34	269.14	8,727.1	-3.0	-3,686.3	269.95	3,686.3	
12,098.0	89.03	268.61	8,727.7	-4.9	-3,781.2	269.93	3,781.2	
12,193.0	88.99	269.12	8,729.3	-6.7	-3,876.2	269.90	3,876.2	
12,289.0	89.63	268.75	8,730.5	-8.5	-3,972.2	269.88	3,972.2	
12,384.0	90.27	268.91	8,730.5	-10.5	-4,067.2	269.85	4,067.2	
12,480.0	89.70	269.56	8,730.6	-11.7	-4,163.1	269.84	4,163.2	
12,575.0	88.79	270.07	8,731.8	-12.1	-4,258.1	269.84	4,258.2	
12,670.0	88.38	270.14	8,734.2	-11.9	-4,353.1	269.84	4,353.1	
12,765.0	90.47	270.96	8,735.1	-11.0	-4,448.1	269.86	4,448.1	
12,860.0	90.50	270.18	8,734.3	-10.0	-4,543.1	269.87	4,543.1	
12,955.0	90.54	269.93	8,733.5	-9.9	-4,638.1	269.88	4,638.1	
13,012.0	90.03	269.85	8,733.2	-10.0	-4,695.1	269.88	4,695.1	

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13,076.5	90.03	269.85	8,733.1	-10.2	-4,759.6	269.88	4,759.6	
13,077.0	90.03	269.85	8,733.1	-10.2	-4,760.1	269.88	4,760.1	

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/S (usft)	+E/W (usft)		
13,076.5	8,733.1	-10.2	-4,759.6	Last MWD Survey	
13,077.0	8,733.1	-10.2	-4,760.1	Projection to Bit	



Simpson-CDM Com 1H
Eddy County, NM (NAD 27 NME)
Northing: 529917.60
Easting: 539873.10
Design #5

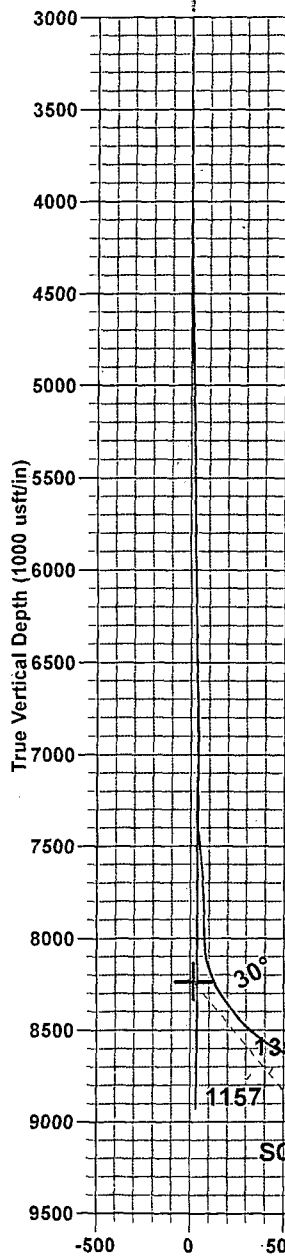


KB @ 3185.9usft
Gr @ 3161.9



To convert Magnetic North to Grid, Add 7.51°
To convert True North to Grid, Subtract 0.07°

Azimuths to Grid North
True North: -0°07°
Magnetic North: 7.51°
Magnetic Field
Strength: 48430.3nT
Dip Angle: 60.23°
Date: 1/15/2014
Model: IGRF2010

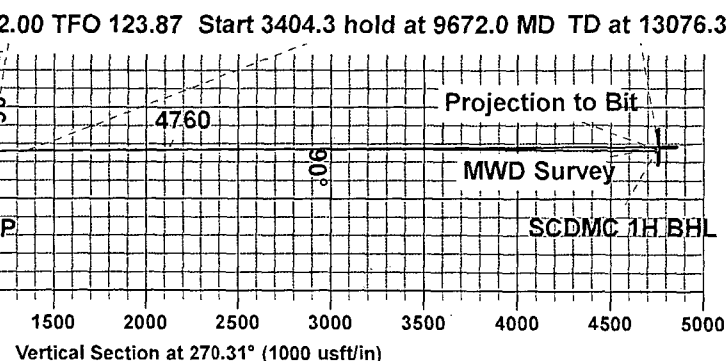
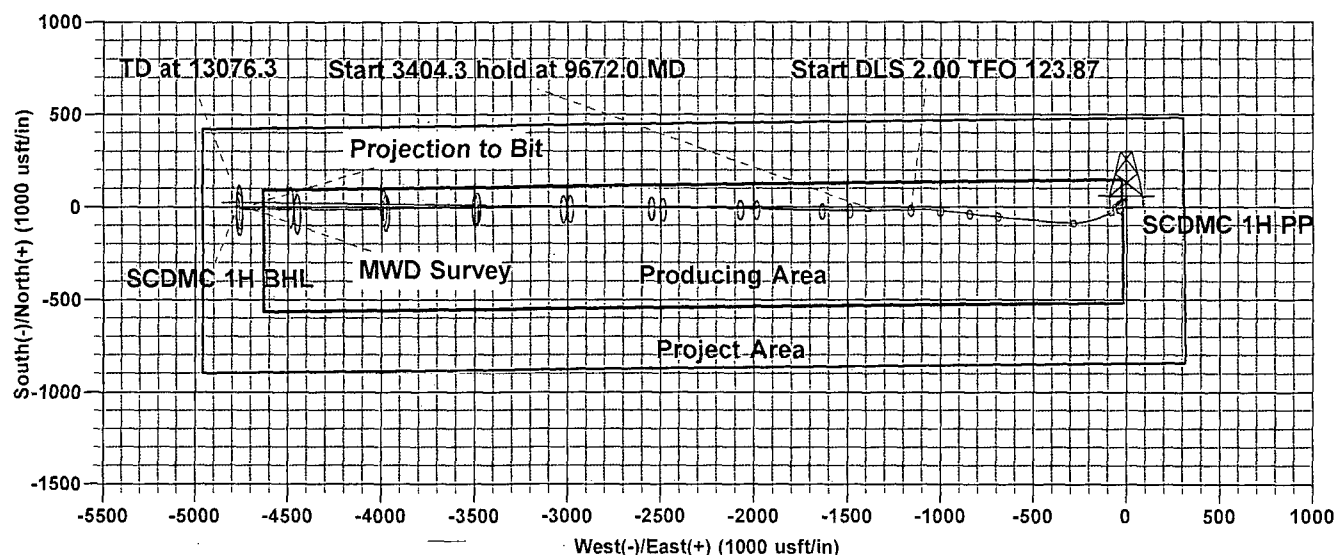


WELL DETAILS SCDMC-1H					
Ground Level: 3161.9					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	529917.60	539873.10	32° 27' 24.442 N	104° 12' 14.628 W

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
9473.0	92.62	267.42	8743.9	-13.9	-1156.9	0.00	0.00	1156.8
9672.0	90.40	270.72	8738.7	-17.1	-1355.8	2.00	123.87	1355.7
13076.3	90.40	270.72	8715.0	25.9	-4759.7	0.00	0.00	4759.8

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
SCDMC 1H PP	8236.8	-0.3	-20.0	529917.30	539853.10
SCDMC 1H BHL	8715.0	25.9	-4759.7	529943.50	535113.40

PROJECT DETAILS:		SITE DETAILS:	
Eddy County, NM (NAD 27 NME)		Simpson-CDM Com 1H	
Geodetic System: US State Plane 1927 (Exact solution)		Site Centre Northing: 529917.60	
Datum: NAD 1927 (NADCON CONUS)		Easting: 539873.10	
Ellipsoid: Clarke 1866		Positional Uncertainty: 0.0	
Zone: New Mexico East 3001		Convergence: 0.07	
System Datum: Mean Sea Level		Local North: Grid	



14-3/4" hole @ 409'
11-3/4" csg @ 409'
w/ 810sx-TOC-Surf-Circ.

10-5/8" hole @ 2862'
8-5/8" csg @ 2850'
w/ 1630sx-TOC-Surf-Circ.

7-7/8" hole @ 13077'
5-1/2" csg @ 13076'
w/ 1620sx-TOC-Surf-Circ.

KO @ 8326'

2-7/8" tbg & ESP @ 7932'

620sx cmt @ 7353-8926'

Perfs @ 9043-12933'

TD- 13077'M 8733'V

TD-8926'

NM OIL CONSERVATION
ARTESTA DISTRICT
FEB 10 2015
RECEIVED