

Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-11 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

July 11, 2016

OXY USA INC.
5 Greenway Plaza, Suite 110
Houston, TX 77046-052

Re:

Sec 27, T24S, R29E, Eddy NM
N 32.19321 W 103.97780

CLIENT: OXY USA INC.
WELL: Cedar Canyon 27 State Com 10H
FIELD: Wolfcamp

RIG: H&P 636
COUNTY: Eddy
API NO: 30-015-43673
JOB NO: 16MLD0504

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900).
Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Leslie Bullard FS	Cedar Canyon 27 State Com 10H Original Hole	401.00 Ft to 11367.00 Ft	June 6, 2016 to June 17, 2016	TelePacer SlimPulse

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Lindsey Keith
Field Service Manager

Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

Well Reference:
Sec 27, T24S, R29E, Eddy NM
N 32.19321 W 103.97780

I, Leslie Bullard certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of June 06, 2016 through June 17, 2016, conduct or supervise the taking of the TelePacer & SlimPulse surveys from a depth of 401.00 feet to a depth of 11367.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY USA INC. for the Cedar Canyon 27 State Com 10H Well (Original Hole) API No. 30-015-43673 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By
Leslie Bullard
FS

Leslie Bullard

Subscribed and Sworn to before me this 11th day of July (month) 2016 (yr)

My Commission expires:

10/19/17

Heather Munoz

Notary Public

(signature)

Eddy, NM
(County State)



Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
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July 11, 2016

OXY USA INC.
5 Greenway Plaza, Suite 110
Houston, TX 77046-052

Re:

Sec 27, T24S, R29E, Eddy NM
N 32.19321 W 103.97780

CLIENT: OXY USA INC.
WELL: Cedar Canyon 27 State Com 10H ST01
FIELD: Wolfcamp

RIG: H&P 636
COUNTY: Eddy
API NO: 30-015-43673-01
JOB NO: 16MLD0504

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900). Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Leslie Bullard FS	Cedar Canyon 27 State Com 10H ST01 Side Track	401.00 Ft to 14837.00 Ft	June 6, 2016 to July 2, 2016	TelePacer SlimPulse

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Lindsey Keith
Field Service Manager

Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

Well Reference:
Sec 27, T24S, R29E, Eddy NM
N 32.19321 W 103.97780

I, Leslie Bullard certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of June 06, 2016 through July 02, 2016, conduct or supervise the taking of the TelePacer & SlimPulse surveys from a depth of 401.00 feet to a depth of 14837.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY USA INC. for the Cedar Canyon 27 State Com 10H ST01 Well (Side Track) API No. 30-015-43673-01 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By
Leslie Bullard
FS

Leslie Bullard

Subscribed and Sworn to before me this 11th day of July (month) 2016 (yr)

My Commission expires:

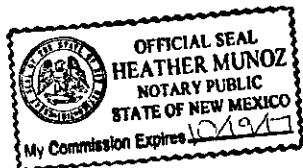
10/19/17

Heather Munoz

Notary Public

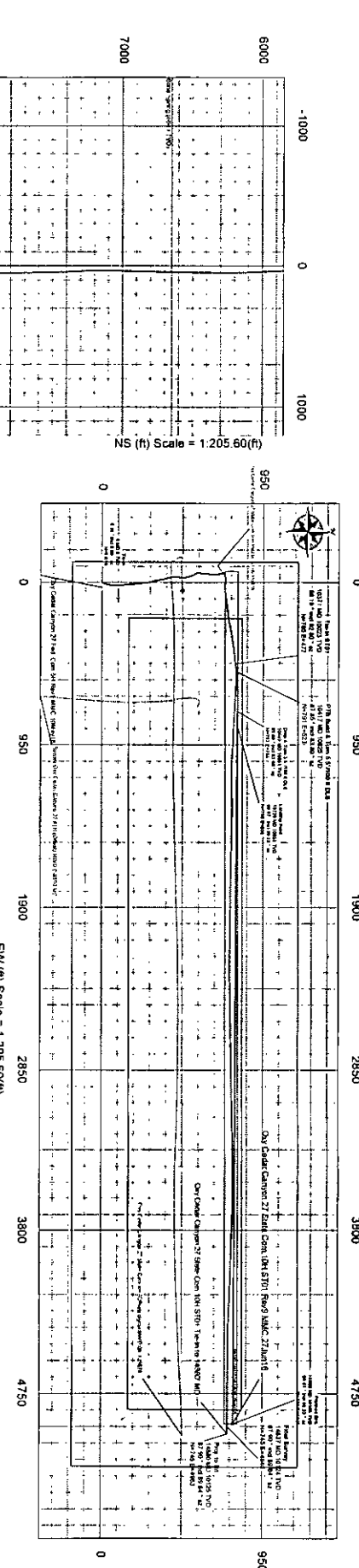
(signature)

Eddy, NM
(County State)

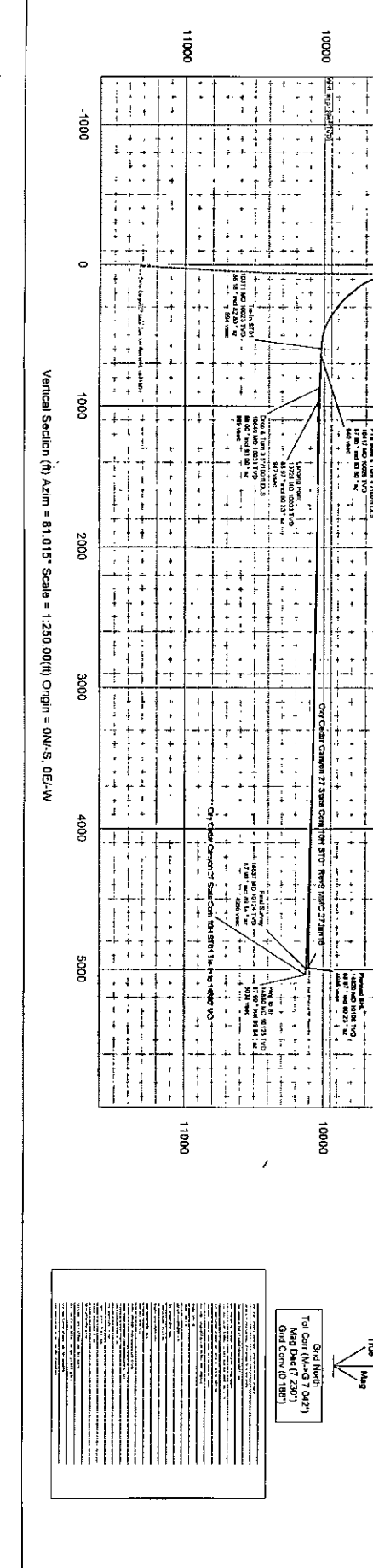




Well: ST01		Field: NM Eddy County (NAD 27)		Structure: Oxy Cedar Canyon 27 State Com 10H	
Company & Acquired Parameters					
Model:	4800A 2018	Dip:	88.643°	Date:	27-Jun-2018
Height:	7.27'	RS:	48224.88061'	Offset Y:	99.4466m (326.841) ft
Point Location					
Lat:	N 32 11 32.27	Heading:	43287.27045	OID Comp:	9.18827
Lon:	W 103 58 48.88	Easting:	60205.27045	Scale Fac:	0.99992277
Point Name					
Site:	Oxy Cedar Canyon 27 NAD 27	NAD 27 X:	60205.27045	NAD 27 Y:	3211.40327
Point:	Oxy Cedar Canyon 27 State Com 10H State Comp 27 27 Jun 18	NAD 83 X:	60205.27045	NAD 83 Y:	3211.40327

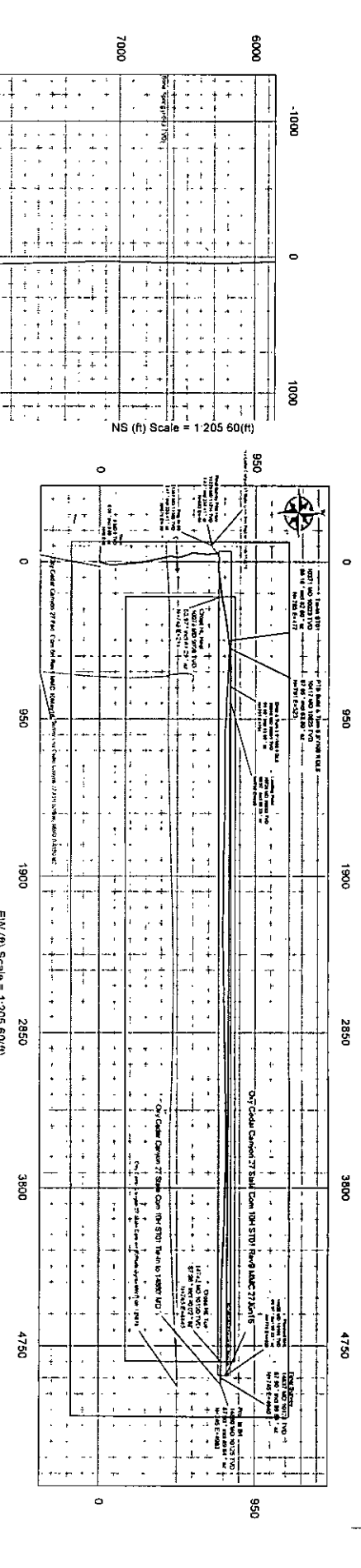


Comments	Survey Method	Inclination(deg)	Azimuth(deg)	TD(ft)	Sub-Sea TD	VS(ft)	NS(ft)	EW(ft)	Latitude(deg)	Longitude(deg)	Easting(ft)	Northing(ft)	Closeure	DLSP70	Tool	
					TD	VS(0)	NS(0)	EW(0)					Azimuth(deg)	0(ft)	Face(ft)	
Tri-h ST01	10271.00	86.18	82.80	10022.53	7077.13	594.00	785.57	477.20	N 32 11 40.327	W 103 58 42.501	609172.36	434673.06	918.98	31.28	3.69	30.91
PTB Build & Turn 47100 ft OLS	10417.00	87.85	83.90	10024.93	7079.53	639.90	790.73	522.82	N 32 11 40.379	W 103 58 41.910	609317.97	434678.42	947.94	33.47	4.23	33.01
Drop & Turn 3 57100 ft OLS	10584.70	89.90	93.60	10031.31	7086.91	689.34	797.18	754.09	N 32 11 40.435	W 103 58 39.279	610049.22	434683.87	1097.34	43.11	4.00	40.56
Landing Point	10727.92	88.97	90.23	10027.71	7087.31	947.19	794.55	833.26	N 32 11 40.411	W 103 58 38.358	610128.38	434682.64	1151.64	46.35	3.50	40.06
Planned BHL	14820.49	89.97	90.23	10106.00	7180.60	4986.32	778.75	4925.13	N 32 11 40.114	W 103 57 50.743	614219.93	434666.44	4986.32	81.01	0.00	



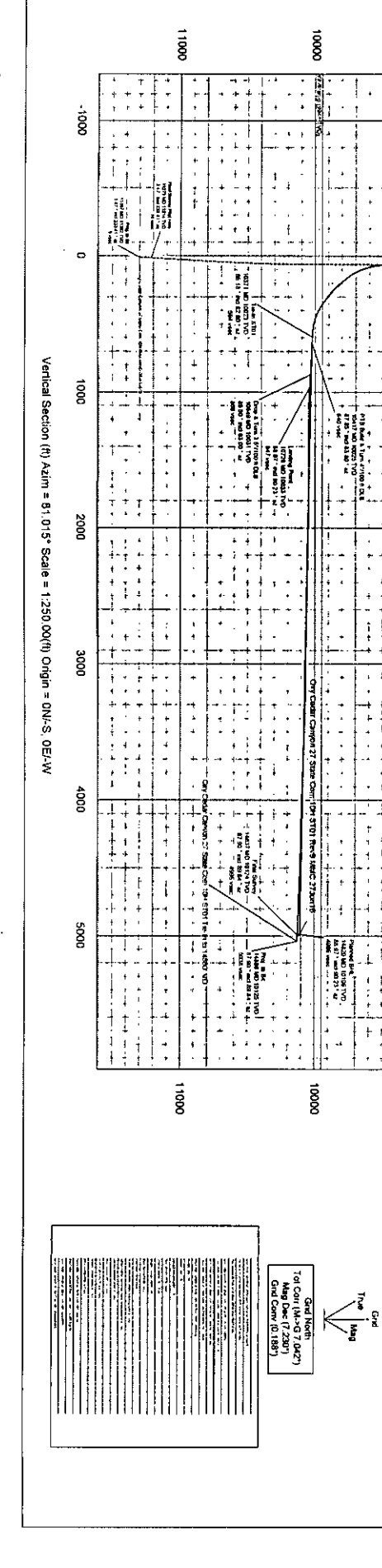


Borehole: ST01		Well: Oxy Cedar Canyon 27 State Com 10H		Field: NM Eddy County (NAD 27)		Structure: Oxy Cedar Canyon 27 State Com 10H							
Company & Well-Point Parameters	Model: HQ028 2710	Dep: 88.647'	Qmty: 22-Jul-2015	Well Location	Lat: N 32 11 32.27	Long: W 103 58 42.28	Survey	423807 250428	Scale Feet: 8.8992377	Map Datum	Oxy Cedar Canyon 27	Tool Bit	NAD83/USGS 83 Feet
Regrd: 1.27	RS: 48224 8881'	Qmty FS: 194.48496 (19.8483 Barrels)		Survey	423807 250428	Scale Feet: 8.8992377	Map Datum	Oxy Cedar Canyon 27	Tool Bit	NAD83/USGS 83 Feet			



Elev. (ft) Scale = 1:205.60 (ft)

Comments	Survey Mark	Inclination(deg)	Azimuth(deg)	TVD(ft)	Sub-Sea TVD	VS(ft)	NS(ft)	EW(ft)	Latitude(deg)	Longitude(deg)	Easting(ft)	Northing(ft)	Closure (ft)	DLSTVD (ft)	Tool Face(deg)
Top of ST01	10271.00	86.18	82.80	10022.53	7077.13	594.00	785.37	477.20	N 32 11 40 397	W 103 58 42 501	609772.35	434572.06	31.28	3.69	30.51
PTB Bldg & Top of 100' & O.S.	10417.00	87.85	83.80	10020.93	7079.53	639.90	790.73	522.82	N 32 11 40 379	W 103 58 41 910	609817.97	434578.42	33.47	4.23	83.01
Drop & Turn 3 57' 00" & O.S.	10649.70	88.00	93.00	10031.31	7086.91	869.34	797.18	754.09	N 32 11 40 435	W 103 58 39 279	610049.22	434684.67	43.41	4.00	-90.56
Landing Point	10727.92	88.97	90.23	10032.71	7097.31	947.19	794.95	833.26	N 32 11 40 411	W 103 58 38 358	610208.38	434682.64	45.35	3.50	0.00
Planned BHL	14820.49	89.97	90.23	10105.00	7161.80	4386.32	778.75	4925.13	N 32 11 40 114	W 103 57 50 143	614279.53	434566.44	49.82	0.00	81.01



Vertical Section (ft) Azim = 81.015° Scale = 1:250.00 (ft) Origin = ONS/S. OE/L-W

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7612.00	5.65	359.75	7555.01	4609.61	45.78	610.77	-50.28	0.69	434496.47	609244.92	N 32 11 38.62	W 103 58 48.55
	7707.00	5.52	5.09	7649.56	4704.16	47.60	620.00	-49.89	0.56	434507.70	609245.30	N 32 11 38.71	W 103 58 48.64
	7801.00	5.82	9.17	7743.10	4797.70	50.19	629.21	-48.73	0.53	434518.91	609245.46	N 32 11 38.80	W 103 58 48.63
	7896.00	5.38	5.55	7837.65	4892.25	52.81	638.39	-47.53	0.59	434529.09	609247.66	N 32 11 38.89	W 103 58 48.61
	7991.00	5.71	3.19	7932.20	4986.80	54.92	647.55	-46.84	0.42	434535.24	609248.36	N 32 11 38.98	W 103 58 48.60
	8086.00	6.42	2.52	8026.67	5081.27	56.98	657.57	-46.34	0.75	434545.27	609248.85	N 32 11 39.08	W 103 58 48.60
	8181.00	7.38	352.82	8120.98	5175.58	58.23	668.93	-46.87	1.59	434556.63	609248.32	N 32 11 39.19	W 103 58 48.60
	8276.00	8.13	352.84	8215.11	5269.71	58.64	681.65	-48.47	0.79	434569.35	609246.72	N 32 11 39.32	W 103 58 48.62
	8370.00	7.87	353.15	8308.20	5362.80	59.09	694.63	-50.07	0.28	434582.33	609245.13	N 32 11 39.45	W 103 58 48.64
	8465.00	6.33	0.28	8402.47	5457.07	60.18	706.33	-50.82	1.86	434594.02	609244.38	N 32 11 39.56	W 103 58 48.65
	8654.00	1.32	321.15	8591.01	5645.61	60.78	718.45	-52.13	2.84	434606.15	609243.06	N 32 11 39.68	W 103 58 48.66
	8749.00	0.24	168.95	8686.00	5740.60	60.24	719.11	-52.78	1.62	434606.80	609242.41	N 32 11 39.69	W 103 58 48.67
	8844.00	0.20	233.99	8781.00	5835.60	60.10	718.82	-52.88	0.25	434606.51	609242.32	N 32 11 39.69	W 103 58 48.67
	8936.00	0.18	13.63	8875.00	5929.60	60.01	718.86	-52.97	0.38	434606.56	609242.22	N 32 11 39.69	W 103 58 48.67
	8953.00	0.24	110.78	8890.00	5944.60	60.04	718.88	-52.94	2.12	434606.57	609242.25	N 32 11 39.69	W 103 58 48.67
	9080.00	0.97	55.41	9016.99	6071.59	61.24	719.39	-51.81	0.67	434607.09	609243.39	N 32 11 39.69	W 103 58 48.66
	9258.00	0.44	54.11	9194.98	6249.58	63.21	720.65	-50.01	0.30	434608.34	609243.06	N 32 11 39.70	W 103 58 48.64
	9352.00	0.31	208.14	9288.88	6343.58	63.38	720.64	-49.84	0.78	434608.33	609243.35	N 32 11 39.70	W 103 58 48.64
	9445.00	0.59	225.65	9381.97	6436.57	62.84	720.08	-50.30	0.33	434607.77	609244.89	N 32 11 39.70	W 103 58 48.64
	9538.00	0.37	221.90	9474.97	6529.57	62.22	719.52	-50.84	0.24	434607.21	609244.35	N 32 11 39.69	W 103 58 48.65
	9609.00	0.31	168.96	9545.97	6600.57	62.04	719.16	-50.96	0.43	434606.85	609244.23	N 32 11 39.69	W 103 58 48.65
	9619.00	0.33	169.19	9555.97	6610.57	62.05	719.11	-50.95	0.20	434606.80	609244.25	N 32 11 39.69	W 103 58 48.65
	9629.00	0.31	203.51	9565.97	6620.57	62.03	719.05	-50.95	1.90	434606.75	609244.24	N 32 11 39.69	W 103 58 48.65
	9639.00	0.57	214.26	9575.97	6630.57	61.96	718.99	-50.99	2.72	434606.68	609244.20	N 32 11 39.69	W 103 58 48.65
	9649.00	0.70	185.95	9585.97	6640.57	61.93	718.99	-51.03	3.95	434606.58	609244.17	N 32 11 39.69	W 103 58 48.65
	9659.00	0.46	209.40	9595.97	6650.57	61.89	718.79	-51.05	3.33	434606.48	609244.14	N 32 11 39.69	W 103 58 48.65
	9719.00	0.09	53.72	9655.97	6710.57	61.79	718.61	-51.13	0.91	434606.30	609244.06	N 32 11 39.68	W 103 58 48.65
	9800.00	0.15	286.17	9736.97	6791.57	61.75	718.68	-51.18	0.27	434606.37	609244.01	N 32 11 39.68	W 103 58 48.65
	10000.00	0.51	211.53	9936.96	6991.56	60.93	717.99	-51.90	0.25	434605.68	609243.29	N 32 11 39.68	W 103 58 48.66
	10098.00	0.73	178.31	10034.96	7089.56	60.57	716.99	-52.11	0.42	434604.69	609243.08	N 32 11 39.67	W 103 58 48.66
	10191.00	0.84	213.05	10127.95	7182.55	60.04	715.83	-52.47	0.52	434603.52	609242.73	N 32 11 39.66	W 103 58 48.67
	10285.00	0.97	207.95	10221.94	7276.54	59.10	714.55	-53.21	0.16	434602.24	609241.98	N 32 11 39.64	W 103 58 48.68
	10378.00	1.63	216.94	10314.91	7369.51	57.67	712.80	-54.38	0.74	434600.49	609240.82	N 32 11 39.63	W 103 58 48.69
	10473.00	2.48	223.95	10409.85	7464.45	55.06	710.24	-56.82	0.93	434597.93	609238.58	N 32 11 39.60	W 103 58 48.72
	10566.00	3.05	228.09	10502.74	7557.34	51.43	707.07	-59.80	0.62	434594.77	609235.40	N 32 11 39.57	W 103 58 48.75
	10593.00	2.70	227.30	10529.71	7584.31	50.31	705.14	-60.78	1.32	434593.84	609234.41	N 32 11 39.56	W 103 58 48.76
	10596.00	2.83	231.12	10596.63	7651.23	47.56	704.04	-63.23	0.34	434591.73	609231.97	N 32 11 39.54	W 103 58 48.79
	10752.00	2.90	229.87	10688.52	7743.12	43.60	701.11	-66.77	0.10	434588.80	609228.42	N 32 11 39.51	W 103 58 48.83
	10846.00	3.74	234.28	10782.36	7836.96	38.83	697.79	-71.08	0.93	434585.48	609224.11	N 32 11 39.48	W 103 58 48.88
	10890.00	3.82	234.14	10826.26	7880.86	35.24	696.09	-73.43	0.18	434583.79	609221.76	N 32 11 39.46	W 103 58 48.91
	10939.00	4.04	236.26	10875.15	7929.75	33.22	694.18	-76.19	0.54	434581.87	609219.00	N 32 11 39.44	W 103 58 48.94
	11032.00	3.85	235.41	10967.93	8022.53	27.43	690.58	-81.49	0.21	434578.28	609213.71	N 32 11 39.41	W 103 58 49.01
	11126.00	3.58	237.04	11061.73	8116.33	21.90	687.20	-86.55	0.31	434574.89	609208.65	N 32 11 39.37	W 103 58 49.07
	11219.00	3.08	240.12	11154.57	8209.17	16.91	684.37	-91.15	0.57	434572.07	609204.05	N 32 11 39.35	W 103 58 49.12
Final Survey	11279.00	3.47	233.41	11214.47	8269.07	13.80	682.49	-94.01	0.91	434570.18	609201.19	N 32 11 39.33	W 103 58 49.15
Pilot Hole	11367.00	3.47	233.41	11302.31	8356.91	9.07	679.31	-98.28	0.00	434567.01	609196.91	N 32 11 39.30	W 103 58 49.20
Proj. to Bit													

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 3-D 95 000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	Act Sins	30.000	30.000	NAL_MWD_PLUS_0_5_DEG-Depth Only	Pilot Hole / Oxy Cedar Canyon 27 State Com 10H Pilot MWD 0ft-11367ft
	1	26.500	401.000	1/98 425	30.000	30.000	NAL_MWD_PLUS_0_5_DEG	Pilot Hole / Oxy Cedar Canyon 27 State Com 10H Pilot MWD 0ft-
	1	401.000	11367.000	Act Sins	30.000	30.000	NAL_MWD_PLUS_0_5_DEG	Pilot Hole / Oxy Cedar Canyon 27 State Com 10H Pilot MWD 0ft-

Oxy Cedar Canyon 27 State Com 10H ST01 Tie-In to 14880' MD Survey
Geodetic Report
(Def Survey)



Report Date: July 07, 2016 - 06:24 PM
Client: OXY
Field: NM Eddy County (NAD 27)
Structure / Slot: Oxy Cedar Canyon 27 State Com 10H / Oxy Cedar Canyon 27 State Com 10H
Well: Oxy Cedar Canyon 27 State Com 10H
Borehole: ST01
UWI / API#: Unknown / Unknown
Survey Name: Oxy Cedar Canyon 27 State Com 10H ST01 Tie-in to 14880' MD
Survey Date: June 04, 2016
Tort / AHD / DDI / ERD Ratio: 235 006' / 5787.470 ft / 6.301 / 0.572
Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 11' 32.57143", W 103° 58' 48.08448"
Location Grid N/E W/Y: N 433887.750 ftUS, E 805295 190 ftUS
CRS Grid Convergence Angle: 0.1882 *
Grid Scale Factor: 0.99992277
Version / Patch: 2.9.365.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 81.015 * (Grid North)
Vertical Section Origin: 0 000 ft, 0 000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 2945 400 ft above MSL
Seabed / Ground Elevation: 2918.900 ft above MSL
Magnetic Declination: 7.230 *
Total Gravity Field Strength: 998 4683mg (9 80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48224 685 nT
Magnetic Dip Angle: 60 043 *
Declination Date: June 22, 2016
Magnetic Declination Model: HDGM 2016
North Reference: Grid North
Grid Convergence Used: 0.1882 *
Total Corr Mag North->Grid North: 7.0417 *
Local Coord Referenced To: Structure Reference Point

Table with columns: Comments, MD (ft), Incl (*), Azim Grid (*), TVD (ft), TVDSS (ft), VSEC (ft), NS (ft), EW (ft), DLS (*/100ft), Northing (ftUS), Easting (ftUS), Latitude (N/S * * *), Longitude (E/W * * *). The table contains a large list of data points for various measurements and coordinates.

