

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

RECEIVED

AUG 24 2018

30-015-44369

February 19, 2018

DISTRICT II-ARTESIA O.C.D.

Oxy USA Inc.

Re:

CLIENT: Oxy USA Inc.
WELL: Sunrise MDP1 8-5 Federal Com 1H
FIELD: Cotton Draw Bone Spring

RIG: H&P 617
COUNTY: Eddy
API NO: 30-015-44369
JOB NO: 18MLD2092

8 24 South, 31 East, Eddy NM
-32.22506 -103.80575

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>
Tyler Matthews FET	Sunrise MDP1 8-5 Federal Com 1H Original Wellbore	846.00 Ft to 10425.00 Ft	December 19, 2017 to February 15, 2018	TelePacer SlimPulse

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

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:
8, 24 South, 31 East, Eddy NM
-32.22506 -103.80566

I, Tyler Matthews certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of December 19, 2017 through February 15, 2018, conduct or supervise the taking of the TelePacer & SlimPulse surveys from a depth of 846.00 feet to a depth of 10425.00 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 Sunrise MDP1 8-5 Federal Com 1H Well () API No. 30-015-44369 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
Tyler Matthews
FET

Tyler Matthews

Subscribed and Sworn to before me this 1st day of March (month) 2018 (yr)

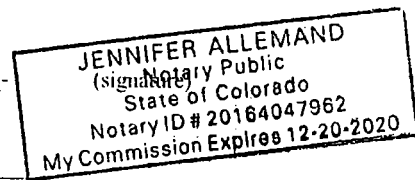
My Commission expires:

12-20-2020

J. Allemand

Notary Public

Adams County Colorado
(County State)

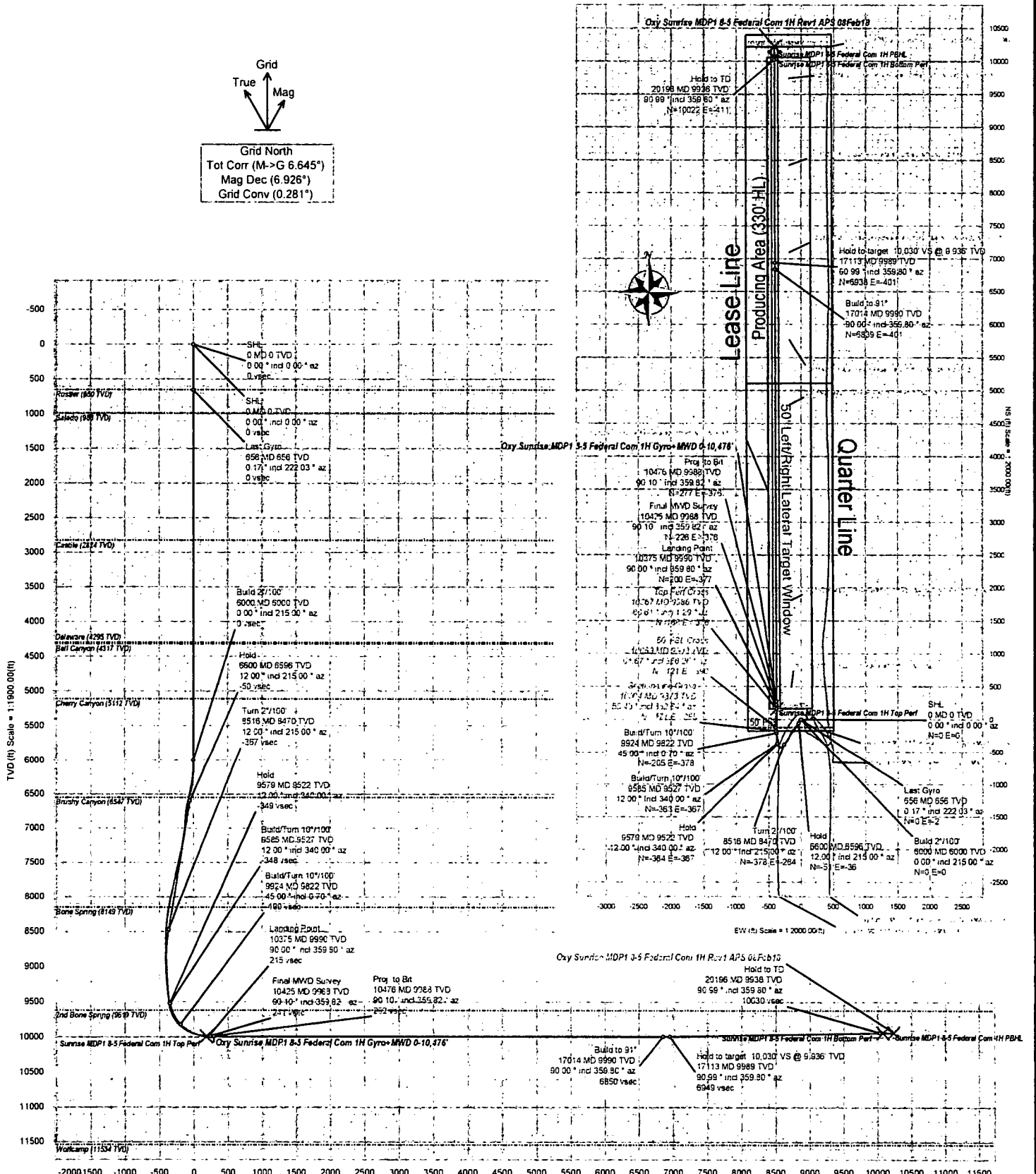




OXY



Borehole:		Well:		Field:		Structure:	
Original Borehole		Oxy Sunrise MDP1 8-5 Federal Com 1H		NM Eddy County (NAD 83)		Oxy Sunrise MDP1 8-5 Federal Com 1H	
Gravity & Magnetic Parameters				Surface Location		Miscellaneous	
Model	HGM 2017	Dip	59.98°	Date	08-Feb-2018	NAD83 New Mexico State Plane, Eastern Zone, US Feet	
MagDec	9.92°	FS	48047 658N	Gravity FS	998 429mg (8 80665 Based)	Lat	N 32 13 30.22
						Long	W 101 43 20.71
						Easting	740481 881105
						Scale Factor	0.99993957
						Spot	Oxy Sunrise 8-5 Federal Com 1H
						Plan	Oxy Sunrise MDP1 8-5 Federal Com 1H Rv1 APS 08Feb18



Vertical Section (ft) Azim = 357.69° Scale = 1:1900.00(ft) Origin = 0N/-S, 0E/-W

Oxy Sunrise MDP1 8-5 Federal Com 1H Gyro+MWD 0-10,476' Survey Geodetic Report (Def Survey)



Report Date: February 23 2018 - 01 16 PM
 Client: OXY
 Field: NM Eddy County (NAD 83)
 Structure / Slot: Oxy Sunrise MDP1 8-5 Federal Com 1H / Oxy Sunrise 8-5 Federal Com 1H
 Well: Oxy Sunrise MDP1 8-5 Federal Com 1H
 Borehole: Original Borehole
 UWI / API#: Unknown / 30-015-44369
 Survey Name: Oxy Sunrise MDP1 8-5 Federal Com 1H Gyro+MWD 0-10 476'
 Survey Date: February 16, 2018
 Tort / AHD / DDI / ERD Ratio: 161.402' / 1268.979 ft / 5.332 / 0.127
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone US Feet
 Location Lat / Long: N 32° 13' 30.21751" W 103° 48' 20.70502"
 Location Grid N/E Y/X: N 446011 320 HUS E 704481 860 HUS
 CRS Grid Convergence Angle: 0.2813°
 Grid Scale Factor: 0.99993957
 Version / Patch: 2 10 706 0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 357.690° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB=26.5'
 TVD Reference Elevation: 3555.900 ft above MSL
 Seabed / Ground Elevation: 3529.400 ft above MSL
 Magnetic Declination: 6.924°
 Total Gravity Field Strength: 998.4287mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 48045.153 nT
 Magnetic Dip Angle: 59.979°
 Declination Date: February 16, 2018
 Magnetic Declination Model: HDGM 2017
 North Reference: Grid North
 Grid Convergence Used: 0.2813°
 Total Corr Mag North->Grid North: 6.6425°
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	446011.32	704481.86	N 32 13 30.22 W 103 48 20.71	
	86.10	0.25	298.03	86.10	0.09	0.09	-0.17	0.29	446011.41	704481.69	N 32 13 30.22 W 103 48 20.71	
	176.40	0.29	307.10	176.40	0.34	0.32	-0.52	0.06	446011.64	704481.34	N 32 13 30.22 W 103 48 20.71	
	263.20	0.27	323.63	263.20	0.65	0.62	-0.82	0.10	446011.94	704481.04	N 32 13 30.22 W 103 48 20.71	
	358.20	0.09	283.90	358.20	0.85	0.81	-1.02	0.22	446012.13	704480.84	N 32 13 30.23 W 103 48 20.72	
	450.70	0.08	229.70	450.70	0.84	0.79	-1.14	0.08	446012.11	704480.72	N 32 13 30.23 W 103 48 20.72	
	545.70	0.21	214.44	545.70	0.65	0.60	-1.29	0.14	446011.92	704480.57	N 32 13 30.22 W 103 48 20.72	
	640.40	0.40	204.00	640.40	0.22	0.16	-1.53	0.21	446011.48	704480.34	N 32 13 30.22 W 103 48 20.72	
	655.60	0.17	222.03	655.60	0.16	0.09	-1.56	1.61	446011.41	704480.30	N 32 13 30.22 W 103 48 20.72	
	846.00	0.29	98.06	846.00	-0.13	-0.18	-1.27	0.22	446011.14	704480.59	N 32 13 30.22 W 103 48 20.72	
	937.00	0.23	279.48	937.00	-0.14	-0.19	-1.23	0.57	446011.13	704480.63	N 32 13 30.22 W 103 48 20.72	
	1029.00	0.18	75.24	1029.00	-0.07	-0.12	-1.27	0.44	446011.20	704480.59	N 32 13 30.22 W 103 48 20.72	
	1121.00	0.13	241.89	1121.00	-0.08	-0.13	-1.22	0.33	446011.19	704480.64	N 32 13 30.22 W 103 48 20.72	
	1212.00	0.23	88.62	1212.00	-0.13	-0.18	-1.13	0.39	446011.14	704480.73	N 32 13 30.22 W 103 48 20.72	
	1305.00	0.17	245.00	1305.00	-0.19	-0.23	-1.07	0.42	446011.09	704480.79	N 32 13 30.22 W 103 48 20.72	
	1397.00	0.17	63.72	1397.00	-0.18	-0.23	-1.07	0.37	446011.09	704480.79	N 32 13 30.22 W 103 48 20.72	
	1488.00	0.17	245.32	1488.00	-0.18	-0.22	-1.07	0.37	446011.09	704480.79	N 32 13 30.22 W 103 48 20.72	
	1580.00	0.11	56.97	1580.00	-0.19	-0.23	-1.12	0.30	446011.09	704480.79	N 32 13 30.22 W 103 48 20.72	
	1671.00	0.24	280.73	1671.00	-0.10	-0.15	-1.23	0.36	446011.17	704480.64	N 32 13 30.22 W 103 48 20.72	
	1766.00	0.13	87.86	1766.00	-0.05	-0.11	-1.32	0.39	446011.21	704480.55	N 32 13 30.22 W 103 48 20.72	
	1861.00	0.11	266.02	1861.00	-0.06	-0.11	-1.31	0.25	446011.21	704480.55	N 32 13 30.22 W 103 48 20.72	
	2050.00	0.11	7.48	2050.00	0.12	0.06	-1.46	0.09	446011.38	704480.40	N 32 13 30.22 W 103 48 20.72	
	2239.00	0.11	4.21	2239.00	0.47	0.42	-1.43	0.00	446011.74	704480.43	N 32 13 30.22 W 103 48 20.72	
	2334.00	0.13	284.11	2334.00	0.60	0.53	-1.52	0.16	446011.85	704480.34	N 32 13 30.22 W 103 48 20.72	
	2428.00	0.06	212.18	2428.00	0.59	0.52	-1.65	0.13	446011.84	704480.21	N 32 13 30.22 W 103 48 20.72	
	2523.00	0.06	191.41	2523.00	0.50	0.43	-1.69	0.02	446011.75	704480.17	N 32 13 30.22 W 103 48 20.72	
	2618.00	0.08	15.75	2618.00	0.51	0.44	-1.68	0.15	446011.76	704480.18	N 32 13 30.22 W 103 48 20.72	
	2712.00	0.06	206.01	2712.00	0.53	0.46	-1.69	0.15	446011.78	704480.17	N 32 13 30.22 W 103 48 20.72	
	2807.00	0.08	118.07	2807.00	0.45	0.39	-1.65	0.10	446011.71	704480.21	N 32 13 30.22 W 103 48 20.72	
	2996.00	0.06	2.35	2996.00	0.48	0.42	-1.53	0.06	446011.74	704480.33	N 32 13 30.22 W 103 48 20.72	
	3090.00	0.06	3.63	3090.00	0.58	0.52	-1.52	0.00	446011.84	704480.34	N 32 13 30.22 W 103 48 20.72	
	3185.00	0.08	5.38	3185.00	0.68	0.62	-1.52	0.00	446011.94	704480.34	N 32 13 30.22 W 103 48 20.72	
	3280.00	0.06	28.23	3279.99	0.77	0.71	-1.49	0.03	446012.03	704480.34	N 32 13 30.22 W 103 48 20.72	
	3375.00	0.11	317.59	3374.99	0.89	0.82	-1.52	0.11	446012.14	704480.34	N 32 13 30.23 W 103 48 20.72	
	3469.00	0.08	93.89	3468.99	0.95	0.89	-1.52	0.19	446012.21	704480.34	N 32 13 30.23 W 103 48 20.72	
	3658.00	0.28	199.05	3657.99	0.50	0.44	-1.54	0.16	446011.76	704480.32	N 32 13 30.22 W 103 48 20.72	
	3753.00	0.13	6.50	3752.99	0.39	0.33	-1.60	0.43	446011.65	704480.26	N 32 13 30.22 W 103 48 20.72	
	3847.00	0.08	156.33	3846.99	0.44	0.38	-1.56	0.22	446011.70	704480.30	N 32 13 30.22 W 103 48 20.72	
	3942.00	0.08	178.83	3941.99	0.31	0.25	-1.54	0.03	446011.57	704480.32	N 32 13 30.22 W 103 48 20.72	
	4036.00	0.20	267.35	4035.99	0.24	0.17	-1.70	0.23	446011.49	704480.16	N 32 13 30.22 W 103 48 20.72	
	4131.00	0.16	44.92	4130.99	0.33	0.26	-1.77	0.35	446011.58	704480.09	N 32 13 30.22 W 103 48 20.72	
	4226.00	0.11	18.82	4225.99	0.51	0.44	-1.65	0.08	446011.76	704480.21	N 32 13 30.22 W 103 48 20.72	
	4320.00	0.13	281.26	4319.99	0.62	0.55	-1.72	0.19	446011.87	704480.14	N 32 13 30.22 W 103 48 20.72	
	4483.00	0.16	33.89	4482.99	0.84	0.77	-1.78	0.15	446012.09	704480.08	N 32 13 30.22 W 103 48 20.73	
	4578.00	0.08	256.44	4577.99	0.94	0.87	-1.77	0.24	446012.19	704480.09	N 32 13 30.23 W 103 48 20.73	
	4672.00	0.08	266.16	4671.99	0.92	0.85	-1.90	0.01	446012.17	704479.96	N 32 13 30.23 W 103 48 20.73	
	4767.00	0.13	323.99	4766.99	1.01	0.93	-2.03	0.12	446012.25	704479.83	N 32 13 30.23 W 103 48 20.73	
	4957.00	0.08	329.12	4956.99	1.31	1.22	-2.22	0.03	446012.54	704479.64	N 32 13 30.23 W 103 48 20.73	
	5052.00	0.16	295.62	5051.99	1.43	1.33	-2.38	0.11	446012.65	704479.48	N 32 13 30.23 W 103 48 20.73	
	5241.00	0.08	223.35	5240.99	1.46	1.35	-2.70	0.08	446012.67	704479.16	N 32 13 30.23 W 103 48 20.74	
	5430.00	0.06	188.29	5429.99	1.27	1.16	-2.81	0.02	446012.48	704479.05	N 32 13 30.23 W 103 48 20.74	
	5524.00	0.06	108.12	5523.99	1.20	1.09	-2.77	0.08	446012.41	704479.09	N 32 13 30.23 W 103 48 20.74	
	5713.00	0.08	176.97	5712.99	1.04	0.93	-2.67	0.04	446012.25	704479.19	N 32 13 30.23 W 103 48 20.74	
	5808.00	0.08	348.90	5807.99	1.04	0.93	-2.68	0.17	446012.25	704479.18	N 32 13 30.23 W 103 48 20.74	
	5903.00	0.08	62.88	5902.99	1.13	1.02	-2.63	0.10	446012.34	704479.23	N 32 13 30.23 W 103 48 20.74	
	5997.00	0.48	10.71	5996.99	1.54	1.44	-2.50	0.46	446012.76	704479.36	N 32 13 30.23 W 103 48 20.73	
	6092.00	1.46	206.27	6091.98	0.87	0.75	-2.96	2.03	446012.07	704478.90	N 32 13 30.23 W 103 48 20.74	
	6186.00	4.82	201.48	6185.82	-3.80	-4.00	-4.94	3.58	446007.32	704476.92	N 32 13 30.18 W 103 48 20.76	
	6281.00	8.35	201.68	6280.18	-13.76	-14.13	-8.95	3.72	445997.19	704472.91	N 32 13 30.08 W 103 48 20.81	
	6375.00	11.29	200.54	6372.79	-28.48	-29.09	-14.70	3.13	445982.23	704467.16	N 32 13 29.93 W 103 48 20.88	
	6470.00	14.09	202.95	6465.47	-47.51	-48.45	-22.47	3.00	445962.87	704459.39	N 32 13 29.74 W 103 48 20.97	
	6659.00	14.25	215.27	6648.76	-86.76	-88.64	-44.88	1.60	445922.69	704436.98	N 32 13 29.34 W 103 48 21.23	
	6753.00	11.89	227.30	6740.33	-102.21	-104.66	-58.68	3.82	445906.67	704423.18	N 32 13 29.18 W 103 48 21.39	
	6848.00	10.77	240.49	6833.50	-112.61	-115.67	-73.60	2.96	445895.66	704408.26	N 32 13 29.08 W 103 48 21.57	
	6943.00	10.43	240.30	6926.87	-120.62	-124.30	-88.80	0.36	445887.03	704393.07	N 32 13 28.99 W 103 48 21.75	
	7037.00	11.58	234.67	7019.15	-129.68	-133.97	-103.89	1.67	445877.36	704377.98	N 32 13 28.90 W 103 48 21.92	
	7132.00	12.52	227.97	7112.06	-141.45	-146.38	-119.31	1.77	445864.95	704362.55	N 32 13 28.77 W 103 48 22.10	
	7226.00	12.41	216.78	7203.85	-155.81	-161.30	-132.93	2.57	445850.04	704348.94	N 32 13 28.63 W 103 48 22.26	
	7321.00	13.43	206.33	7296.46	-173.41	-179.36	-143.94	2.68	445831.97	704337.93	N 32 13 28.45 W 103 48 22.39	
	7415.00	14.30	203.17	7387.72	-193.48	-199.82	-153.35	1.23	445811.51	704328.52	N 32 13 28.25 W 103 48 22.50	
	7510.00	14.43	205.02	7479.75	-214.58	-221.33	-162.97	0.50	445790.00	704318.90	N 32 13 28.04 W 103 48 22.61	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7604.00	15.20	206.82	7570.63	-235.75	-242.94	-173.49	0.95	445768.39	704308.39	N 32 13 27.82	W 103 48 22.74
	7699.00	15.22	206.83	7662.30	-257.52	-265.18	-184.73	0.02	445746.15	704297.14	N 32 13 27.60	W 103 48 22.87
	7794.00	15.31	208.85	7753.95	-279.15	-287.30	-196.41	0.57	445724.04	704285.46	N 32 13 27.38	W 103 48 23.01
	7888.00	15.84	209.58	7844.50	-300.66	-309.32	-208.73	0.60	445702.02	704273.14	N 32 13 27.17	W 103 48 23.15
	7983.00	15.34	210.92	7936.00	-322.18	-331.38	-221.59	0.65	445679.96	704260.28	N 32 13 26.95	W 103 48 23.30
	8078.00	14.65	212.75	8027.77	-342.52	-352.26	-234.55	0.88	445659.08	704247.33	N 32 13 26.74	W 103 48 23.46
	8172.00	13.14	215.71	8119.01	-360.67	-370.94	-247.21	1.77	445640.41	704234.66	N 32 13 26.56	W 103 48 23.60
	8267.00	10.74	218.20	8211.95	-375.91	-386.66	-258.99	2.58	445624.68	704222.88	N 32 13 26.40	W 103 48 23.74
	8362.00	8.14	221.62	8305.66	-387.49	-398.65	-268.94	2.80	445612.69	704212.94	N 32 13 26.29	W 103 48 23.86
	8457.00	6.21	225.85	8399.91	-395.76	-407.26	-277.09	2.10	445604.09	704204.79	N 32 13 26.20	W 103 48 23.95
	8551.00	5.36	231.27	8493.43	-401.76	-413.55	-284.16	1.07	445597.80	704197.71	N 32 13 26.14	W 103 48 24.04
	8646.00	5.28	245.04	8588.03	-406.07	-418.17	-291.59	1.34	445593.18	704190.29	N 32 13 26.09	W 103 48 24.12
	8740.00	4.24	260.43	8681.71	-408.18	-420.57	-298.94	1.74	445590.78	704182.94	N 32 13 26.07	W 103 48 24.21
	8930.00	3.61	296.27	8871.29	-406.21	-419.09	-311.23	1.31	445592.26	704170.65	N 32 13 26.09	W 103 48 24.35
	9024.00	5.27	300.41	8965.00	-402.46	-415.60	-317.61	1.80	445595.75	704164.27	N 32 13 26.12	W 103 48 24.43
	9119.00	5.33	306.73	9059.60	-397.32	-410.75	-324.90	0.62	445600.60	704156.98	N 32 13 26.17	W 103 48 24.51
	9213.00	5.35	308.04	9153.19	-391.73	-405.44	-331.86	0.13	445605.91	704150.03	N 32 13 26.22	W 103 48 24.59
	9307.00	5.85	315.68	9246.74	-385.33	-399.31	-338.65	0.95	445612.04	704143.23	N 32 13 26.28	W 103 48 24.67
	9402.00	5.81	329.79	9341.25	-377.49	-391.69	-344.46	1.51	445619.66	704137.43	N 32 13 26.36	W 103 48 24.74
	9497.00	5.38	338.72	9435.80	-369.03	-383.38	-348.49	1.02	445627.96	704133.39	N 32 13 26.44	W 103 48 24.78
	9574.00	5.47	351.10	9512.46	-361.97	-376.39	-350.37	1.52	445634.95	704131.51	N 32 13 26.51	W 103 48 24.81
	9668.00	15.88	1.82	9604.71	-344.64	-359.06	-350.66	11.23	445652.28	704131.23	N 32 13 26.68	W 103 48 24.81
	9762.00	26.39	348.35	9692.32	-311.09	-325.84	-354.48	12.25	445685.70	704127.40	N 32 13 27.01	W 103 48 24.85
	9857.00	38.04	346.14	9772.56	-261.40	-276.37	-365.79	12.32	445734.97	704116.09	N 32 13 27.50	W 103 48 24.98
	9952.00	49.62	350.12	9840.99	-196.62	-212.07	-379.06	12.53	445799.26	704102.82	N 32 13 28.14	W 103 48 25.13
	10046.00	60.19	354.43	9894.97	-120.18	-135.97	-389.19	11.85	445875.35	704092.69	N 32 13 28.89	W 103 48 25.24
	10141.00	68.71	4.05	9935.98	-34.72	-50.49	-390.07	12.79	445960.64	704091.81	N 32 13 29.74	W 103 48 25.25
	10236.00	74.57	4.97	9965.90	54.76	39.36	-382.97	6.24	446050.68	704098.91	N 32 13 30.63	W 103 48 25.16
	10330.00	84.39	2.24	9983.04	146.57	131.47	-377.20	10.83	446142.79	704104.68	N 32 13 31.54	W 103 48 25.09
Final MWD	10425.00	90.10	359.82	9987.61	241.25	226.30	-375.50	6.53	446237.61	704106.38	N 32 13 32.48	W 103 48 25.06
Survey	10476.00	90.10	359.82	9987.52	292.22	277.30	-375.66	0.00	446288.61	704106.22	N 32 13 32.98	W 103 48 25.06
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	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/98.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Sunrise MDP1 8-5 Federal Com 1H Gyro+MWD 0-10,476'
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Sunrise MDP1 8-5 Federal Com 1H Gyro+MWD 0-10,476'
	1	26.500	655.600	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Sunrise MDP1 8-5 Federal Com 1H
	1	655.600	10476.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Sunrise MDP1 8-5 Federal Com 1H