

Oilfield Services, Central U.S. Land
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

April 15, 2019

Oxy USA Inc,

17, 24S, 31E, Eddy NM
N 32.22406 W 103.80340

Re:

CLIENT: Oxy USA Inc.
WELL: Sunrise MDP1 8-5 Federal Com 171H
FIELD: Purple Sage Wolfcamp

RIG: H&P 657
COUNTY: Eddy
API NO: 30-015-44930
JOB NO: 19MLD4351

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>
Maria Zapata FE	Sunrise MDP1 8-5 Federal Com 171H Original Hole	733.00 Ft to 22275.00 Ft	March 22, 2019 to April 3, 2019	SlimPulse Third Party Corrected

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

Field Service Manager

Schlumberger-Private

Oilfield Services, Central U.S. Land
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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Schlumberger

Well Reference:
17, 24S, 31E, Eddy NM
N 32.22406 W 103.80340

I, Maria Zapata certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of March 22, 2019 through April 03, 2019, conduct or supervise the taking of the SlimPulse & Third Party Corrected surveys from a depth of 733.00 feet to a depth of 22275.00 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 171H Well (Original Hole) API No. 30-015-44930 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
Maria Zapata
FE

Subscribed and Sworn to before me this 15th day of April (month) 2019 (yr)

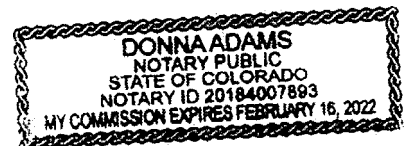
My Commission expires:

2-16-2022

D Adams
Notary Public

Adams County Colorado
(County State)

(signature)



Schlumberger

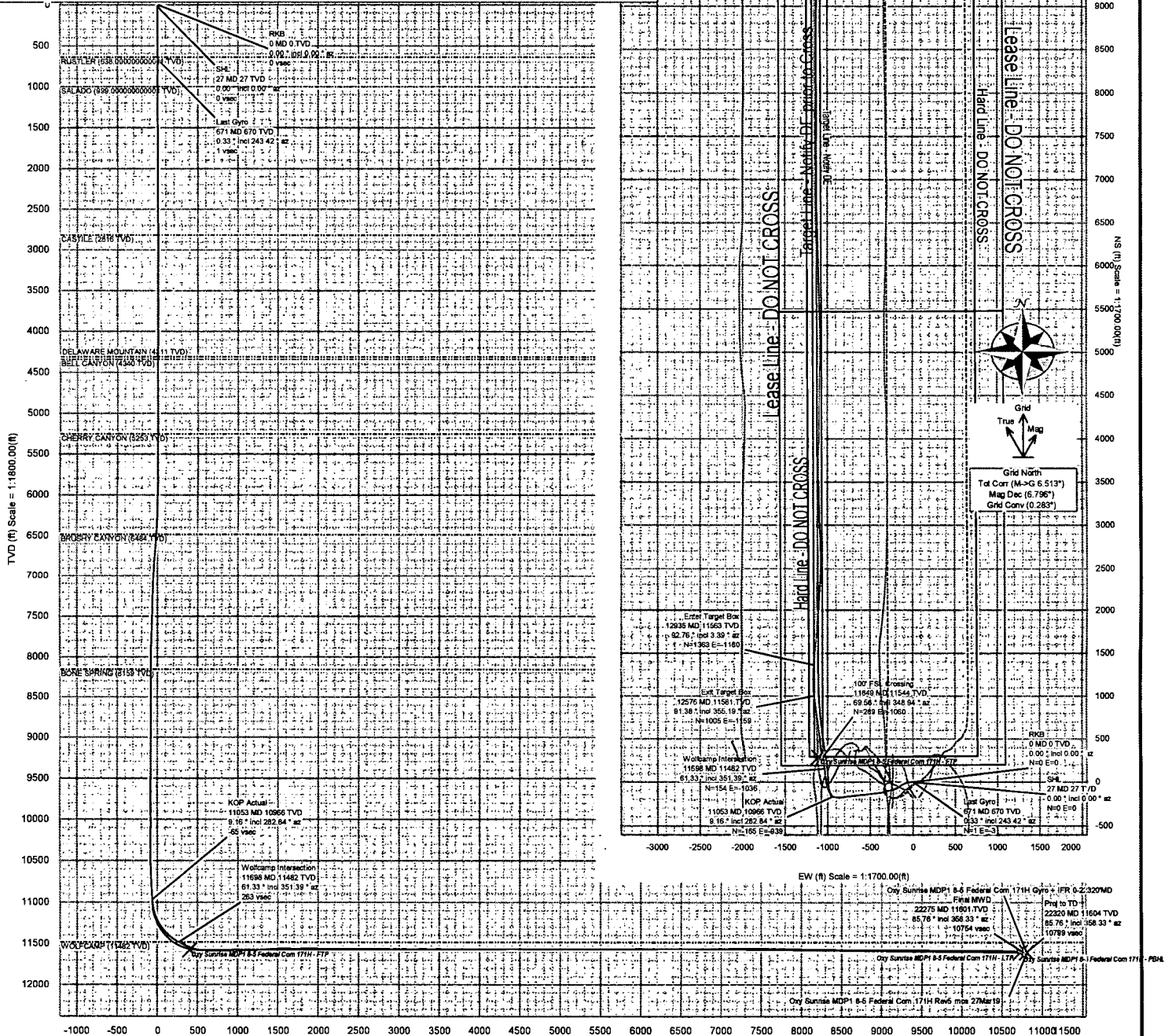
OXY



Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Sunrise MDP1 8-5 Federal Com 171H	NM Eddy County (NAD 83)	Oxy Sunrise MDP1 8-5 Federal Com 171H

Gravity & Magnetic Parameters				Surface Location				Miscellaneous			
Model:	IFR1	Dip:	58.922°	Date:	18-Mar-2019	Lat:	N 32 13 28.82	Northing:	445650.91RUS	Grid Conv:	0.2826°
MagDec:	6.796°	FS:	47945.5nT	Gravity FS:	998.428mgm (8.0685 Based)	Lon:	W 103 48 12.23	Easting:	705211.43RUS	Scale Fact:	0.9993985
								MDP1 8-5 Federal Com 171H			

Critical Points							
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)S(-)	E(+)W(-)
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00
Last Gyro	670.50	0.33	243.42	670.49	1.25	0.90	-3.35
KOP Actual	11053.00	9.16	282.84	10965.56	-64.86	-165.05	-939.20
Wolfcamp Intersection	11697.94	61.33	351.39	11482.00	262.80	154.19	-1035.83
100' FSL Crossing	11848.50	69.56	348.94	11544.37	399.35	288.94	-1059.94
Exit Target Box	12576.00	91.38	355.19	11580.98	1121.40	1004.53	-1158.99
Enter Target Box	12935.00	92.76	3.39	11563.04	1477.74	1362.74	-1160.23
100' FNL Crossing	22241.00	84.70	358.82	11597.80	10719.99	10662.58	-1108.31
Final MWD	22275.00	85.76	358.33	11600.63	10753.76	10696.45	-1109.15
Proj to TD	22320.00	85.76	358.33	11603.95	10798.51	10741.30	-1110.46





Oxy Sunrise MDP1 8-5 Federal Com 171H Gyro + IFR 0-22320'MD Survey **Geodetic Report** (Def Survey)

Report Date: April 04, 2019 - 09:05 AM
Client: OXY
Field: NM Eddy County (NAD 83)
Structure / Slot: Oxy Sunrise MDP1 8-5 Federal Com 171H / Oxy Sunrise MDP1 8-5 Federal Com 171H
Well: Oxy Sunrise MDP1 8-5 Federal Com 171H
Borehole: Original Borehole
UWI / API#: Unknown / 30-015-44930
Survey Name: Oxy Sunrise MDP1 8-5 Federal Com 171H Gyro + IFR 0-22320'MD
Survey Date: February 26, 2019
Tort / AHD / DDI / ERD Ratio: 244.406' / 11925.392 ft / 6.749 / 1.028
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 13' 26.61549", W 103° 48' 12.23252"
Location Grid N/E Y/X: N 445650.910 RUS, E 705211.430 RUS
CRS Grid Convergence Angle: 0.2826°
Grid Scale Factor: 0.99993985
Version / Patch: 2.10.753.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 353.933° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB=26.5'
TVD Reference Elevation: 3560.600 ft above MSL
Seabed / Ground Elevation: 3534.100 ft above MSL
Magnetic Declination: 6.796°
Total Gravity Field Strength: 998.4282mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47945.500 nT
Magnetic Dip Angle: 59.922°
Declination Date: March 19, 2019
Magnetic Declination Model: IFR1
North Reference: Grid North
Grid Convergence Used: 0.2826°
Total Corr Mag North->Grid North: 6.5134°
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 ° ' ")
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	445650.81	705211.43	N 32 13 26.62	W 103 48 12.23
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	445650.91	705211.43	N 32 13 26.62	W 103 48 12.23
	94.30	0.36	318.84	94.30	0.17	0.16	-0.14	0.53	445651.07	705211.29	N 32 13 26.62	W 103 48 12.23
	181.80	0.43	291.66	181.80	0.55	0.49	-0.63	0.23	445651.40	705210.80	N 32 13 26.62	W 103 48 12.24
	302.50	0.40	289.62	302.49	0.95	0.80	-1.44	0.03	445651.71	705209.99	N 32 13 26.62	W 103 48 12.25
	397.30	0.33	274.90	397.29	1.14	0.93	-2.03	0.12	445651.84	705209.40	N 32 13 26.62	W 103 48 12.26
	492.20	0.28	295.28	492.19	1.31	1.05	-2.51	0.12	445651.96	705208.92	N 32 13 26.63	W 103 48 12.26
	587.00	0.28	251.16	586.99	1.38	1.08	-2.94	0.22	445651.99	705208.49	N 32 13 26.63	W 103 48 12.27
	670.50	0.33	243.42	670.49	1.25	0.90	-3.35	0.08	445651.81	705208.08	N 32 13 26.62	W 103 48 12.27
	733.00	0.52	224.35	732.99	1.01	0.62	-3.71	0.38	445651.53	705207.72	N 32 13 26.62	W 103 48 12.28
	826.00	0.68	233.85	825.98	0.46	-0.01	-4.45	0.20	445650.90	705206.98	N 32 13 26.62	W 103 48 12.28
	1010.00	0.01	341.68	1009.98	-0.07	-0.63	-5.33	0.37	445650.28	705206.10	N 32 13 26.61	W 103 48 12.29
	1195.00	0.18	222.49	1194.98	-0.24	-0.83	-5.53	0.10	445650.08	705205.90	N 32 13 26.61	W 103 48 12.30
	1381.00	0.29	327.81	1380.98	-0.01	-0.65	-5.98	0.20	445650.26	705205.45	N 32 13 26.61	W 103 48 12.30
	1570.00	0.24	13.47	1569.97	0.79	0.14	-6.15	0.11	445651.05	705205.29	N 32 13 26.62	W 103 48 12.30
	1665.00	0.23	1.20	1664.97	1.16	0.52	-6.09	0.05	445651.43	705205.34	N 32 13 26.62	W 103 48 12.30
	1854.00	0.23	2.21	1853.97	1.92	1.28	-6.07	0.00	445652.19	705205.36	N 32 13 26.63	W 103 48 12.30
	2043.00	0.20	73.07	2042.97	2.35	1.76	-5.74	0.13	445652.67	705205.69	N 32 13 26.63	W 103 48 12.30
	2138.00	0.12	68.30	2137.97	2.41	1.84	-5.49	0.09	445652.75	705205.94	N 32 13 26.63	W 103 48 12.30
	2327.00	0.40	249.60	2326.97	2.30	1.68	-5.93	0.28	445652.59	705205.50	N 32 13 26.63	W 103 48 12.30
	2421.00	0.31	339.36	2420.97	2.47	1.81	-6.32	0.54	445652.72	705205.11	N 32 13 26.63	W 103 48 12.31
	2516.00	0.30	290.79	2515.97	2.83	2.14	-6.65	0.26	445653.05	705204.78	N 32 13 26.64	W 103 48 12.31
	2611.00	0.28	314.81	2610.97	3.12	2.39	-7.04	0.13	445653.30	705204.39	N 32 13 26.64	W 103 48 12.31
	2705.00	0.39	324.39	2704.96	3.58	2.81	-7.39	0.13	445653.72	705204.04	N 32 13 26.64	W 103 48 12.32
	2800.00	0.23	303.00	2799.96	3.98	3.18	-7.74	0.21	445654.09	705203.69	N 32 13 26.65	W 103 48 12.32
	2894.00	0.05	103.05	2893.96	4.08	3.27	-7.86	0.30	445654.18	705203.57	N 32 13 26.65	W 103 48 12.32
	3083.00	0.33	70.68	3082.96	4.18	3.43	-7.26	0.15	445654.34	705204.17	N 32 13 26.65	W 103 48 12.32
	3178.00	0.11	125.54	3177.96	4.18	3.47	-6.93	0.30	445654.38	705204.50	N 32 13 26.65	W 103 48 12.31
	3273.00	0.27	108.17	3272.96	4.03	3.35	-6.65	0.18	445654.26	705204.78	N 32 13 26.65	W 103 48 12.31
	3367.00	0.16	345.15	3366.96	4.07	3.41	-6.47	0.41	445654.31	705204.96	N 32 13 26.65	W 103 48 12.31
	3462.00	0.34	333.92	3461.96	4.47	3.79	-6.63	0.20	445654.70	705204.80	N 32 13 26.65	W 103 48 12.31
	3556.00	0.41	5.88	3555.96	5.06	4.37	-6.71	0.23	445655.28	705204.72	N 32 13 26.66	W 103 48 12.31
	3651.00	0.37	203.78	3650.96	5.12	4.43	-6.80	0.81	445655.34	705204.63	N 32 13 26.66	W 103 48 12.31
	3745.00	0.19	207.41	3744.96	4.73	4.01	-7.00	0.19	445654.82	705204.43	N 32 13 26.66	W 103 48 12.31
	3839.00	0.36	265.26	3838.95	4.61	3.85	-7.36	0.32	445654.76	705204.07	N 32 13 26.65	W 103 48 12.32
	3934.00	0.38	181.94	3933.95	4.30	3.51	-7.67	0.52	445654.42	705203.76	N 32 13 26.65	W 103 48 12.32
	4028.00	0.23	229.73	4027.95	3.89	3.08	-7.83	0.30	445653.99	705203.61	N 32 13 26.65	W 103 48 12.32
	4122.00	0.36	183.85	4121.95	3.49	2.66	-7.99	0.28	445653.57	705203.44	N 32 13 26.64	W 103 48 12.33
	4311.00	0.39	200.08	4310.95	2.33	1.46	-8.25	0.06	445652.37	705203.18	N 32 13 26.63	W 103 48 12.33
	4405.00	0.16	200.89	4404.95	1.92	1.04	-8.41	0.24	445651.95	705203.02	N 32 13 26.63	W 103 48 12.33
	4593.00	0.28	24.26	4592.94	2.09	1.21	-8.31	0.23	445652.12	705203.12	N 32 13 26.63	W 103 48 12.33
	4688.00	0.06	299.47	4687.94	2.32	1.45	-8.26	0.30	445652.36	705203.17	N 32 13 26.63	W 103 48 12.33
	4782.00	0.13	103.96	4781.94	2.31	1.45	-8.20	0.20	445652.36	705203.23	N 32 13 26.63	W 103 48 12.33
	4877.00	0.06	204.31	4876.94	2.23	1.38	-8.11	0.16	445652.29	705203.32	N 32 13 26.63	W 103 48 12.33
	4971.00	0.08	244.76	4970.94	2.16	1.30	-8.19	0.06	445652.21	705203.24	N 32 13 26.63	W 103 48 12.33
	5065.00	0.08	215.50	5064.94	2.09	1.22	-8.29	0.04	445652.13	705203.14	N 32 13 26.63	W 103 48 12.33
	5159.00	0.21	318.49	5158.94	2.18	1.30	-8.44	0.26	445652.21	705202.99	N 32 13 26.63	W 103 48 12.33
	5254.00	0.28	351.68	5253.94	2.56	1.66	-8.59	0.16	445652.57	705202.84	N 32 13 26.63	W 103 48 12.33
	5348.00	0.19	29.98	5347.94	2.91	2.02	-8.55	0.19	445652.93	705202.88	N 32 13 26.64	W 103 48 12.33
	5442.00	0.16	59.67	5441.94	3.09	2.22	-8.36	0.10	445653.13	705203.07	N 32 13 26.64	W 103 48 12.33
	5537.00	0.18	84.45	5536.94	3.15	2.30	-8.09	0.08	445653.21	705203.34	N 32 13 26.64	W 103 48 12.33
	5631.00	0.85	265.59	5630.94	3.17	2.26	-8.64	1.10	445653.17	705202.79	N 32 13 26.64	W 103 48 12.33
	5725.00	3.51	266.47	5724.86	3.31	2.03	-12.21	2.83	445652.94	705199.22	N 32 13 26.64	W 103 48 12.37
	5820.00	5.91	265.37	5819.53	3.56	1.46	-19.99	2.53	445652.37	705191.44	N 32 13 26.63	W 103 48 12.47
	5914.00	8.23	263.73	5912.81	3.66	0.33	-31.50	2.48	445651.24	705179.93	N 32 13 26.62	W 103 48 12.60
	6009.00	8.55	260.36	6006.80	3.20	-1.59	-45.22	0.62	445649.32	705166.21	N 32 13 26.60	W 103 48 12.76
	6103.00	9.63	258.42	6099.62	2.01	-4.34	-59.81	1.19	445646.57	705151.62	N 32 13 26.58	W 103 48 12.93
	6198.00	10.33	254.27	6193.18	-0.19	-8.24	-75.80	1.06	445642.67	705135.64	N 32 13 26.54	W 103 48 13.12
	6292.00	9.97	250.66	6285.71	-3.47	-13.22	-91.59	0.78	445637.69	705119.85	N 32 13 26.49	W 103 48 13.30
	6482.00	10.09	240.55	6472.82	-13.85	-26.85	-121.60	0.93	445624.06	705089.83	N 32 13 26.36	W 103 48 13.65
	6576.00	10.04	237.89	6565.37	-20.72	-35.26	-135.71	0.50	445615.65	705075.72	N 32 13 26.27	W 103 48 13.81
	6671.00	10.21	235.13	6658.89	-28.41	-44.47	-149.64	0.54	445606.44	705061.80	N 32 13 26.18	W 103 48 13.98
	6765.00	9.99	233.88	6751.44	-36.51	-54.04	-163.06	0.33	445596.87	705048.38	N 32 13 26.09	W 103 48 14.13
	6860.00	11.19	242.94	6844.82	-43.94	-63.09	-177.92	2.16	445587.82	705033.52	N 32 13 26.00	W 103 48 14.31
	6955.00	11.38	250.72	6937.99	-49.38	-70.38	-194.98	1.61	445580.53	705016.46	N 32 13 25.93	W 103 48 14.51
	7049.00	11.08	245.24	7030.20	-54.40	-77.23	-211.94	1.18	445573.69	704999.51	N 32 13 25.86	W 103 48 14.70
	7144.00	10.96	254.26	7123.45	-58.84	-83.50	-228.92	1.82	445567.41	704982.52	N 32 13 25.80	W 103 48 14.90
	7333.00	11.15	256.06	7308.94	-64.36	-92.78	-263.95	0.21	445558.14	704947.50	N 32 13 25.71	W 103 48 15.31
	7427.00	11.10	255.31	7401.18	-66.96	-97.26	-281.52	0.16	445553.65	704929.92	N 32 13 25.67	W 103 48 15.52
	7522.00	11.03	255.16	7494.41	-69.72	-101.91	-299.15	0.08	445549.01	704912.30	N 32 13 25.62	W 103 48 15.72
	7616.00	11.13	255.96	7586.66	-72.35	-106.41	-316.65	0.20	445544.50	704894.80	N 32 13 25.58	W 103 48 15.92
	7805.00	11.04	254.83	7772.13	-77.74	-115.57	-351.81	0.12	445535.34	704859.64	N 32 13 25.49	W 103 48 16.33
	7900.00	10.93	256.62	7865.39	-80.33	-120.04	-369.35	0.38	445530.88	704842.10	N 32 13 25.45	W 103 48 16.54
	7995.00	10.89	264.75	7958.68	-81.35	-122.94	-387.05	1.62	445527.97	704824.40	N 32 13 25.42	W 103 48 16.75
	8184.00	10.71	264.68	81								

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	8750.00	10.10	259.35	8700.87	-82.02	-138.24	-524.64	0.69	445512.68	704686.83	N 32 13 25.27	W 103 48 18.35
	8845.00	10.06	263.53	8794.40	-82.74	-140.71	-541.07	0.77	445510.21	704670.40	N 32 13 25.25	W 103 48 18.54
	8939.00	10.43	264.70	8886.91	-82.68	-142.42	-557.70	0.45	445508.49	704653.77	N 32 13 25.23	W 103 48 18.73
	9128.00	10.80	265.24	9072.67	-82.05	-145.47	-592.38	0.20	445505.44	704619.09	N 32 13 25.20	W 103 48 19.14
	9317.00	10.89	262.85	9258.30	-81.98	-149.17	-627.74	0.24	445501.75	704583.73	N 32 13 25.17	W 103 48 19.55
	9506.00	10.55	262.00	9444.00	-82.90	-153.80	-662.59	0.20	445497.12	704548.88	N 32 13 25.13	W 103 48 19.95
	9600.00	10.50	264.15	9536.42	-83.16	-155.87	-679.63	0.42	445495.05	704531.84	N 32 13 25.11	W 103 48 20.15
	9695.00	10.33	263.15	9629.85	-83.25	-157.77	-696.70	0.26	445493.15	704514.78	N 32 13 25.09	W 103 48 20.35
	9789.00	10.96	262.61	9722.23	-83.57	-159.92	-713.93	0.68	445491.00	704497.55	N 32 13 25.07	W 103 48 20.55
	9883.00	10.82	265.13	9814.54	-83.59	-161.82	-731.58	0.53	445489.10	704479.89	N 32 13 25.05	W 103 48 20.76
	9978.00	10.38	265.71	9907.92	-83.14	-163.22	-749.00	0.48	445487.70	704462.48	N 32 13 25.04	W 103 48 20.96
	10166.00	10.95	262.44	10092.67	-83.08	-166.83	-783.59	0.44	445484.09	704427.89	N 32 13 25.00	W 103 48 21.36
	10261.00	10.43	260.02	10166.02	-83.90	-169.51	-801.00	0.72	445481.41	704410.48	N 32 13 24.98	W 103 48 21.57
	10450.00	10.83	262.43	10371.78	-85.53	-174.81	-835.45	0.32	445476.11	704376.03	N 32 13 24.93	W 103 48 21.97
	10544.00	11.13	268.15	10464.06	-85.10	-176.27	-853.28	1.20	445474.65	704358.21	N 32 13 24.91	W 103 48 22.18
	10639.00	10.21	271.50	10557.42	-83.31	-176.34	-870.66	1.17	445474.58	704340.63	N 32 13 24.91	W 103 48 22.38
	10733.00	9.70	275.33	10650.01	-80.65	-175.39	-887.07	0.89	445475.53	704324.41	N 32 13 24.92	W 103 48 22.57
	10828.00	9.42	282.20	10743.69	-76.63	-173.00	-902.64	1.24	445477.92	704308.85	N 32 13 24.95	W 103 48 22.75
	10922.00	9.97	281.16	10836.35	-71.81	-169.80	-918.14	0.61	445481.12	704293.35	N 32 13 24.98	W 103 48 22.93
	10972.00	9.50	283.27	10885.63	-69.17	-168.02	-926.40	1.18	445482.90	704285.08	N 32 13 25.00	W 103 48 23.03
KOP Actual	11053.00	9.16	282.84	10965.56	-64.86	-165.05	-939.20	0.43	445485.87	704272.29	N 32 13 25.03	W 103 48 23.17
	11243.00	20.08	336.73	11149.82	-28.56	-131.50	-967.02	8.62	445519.42	704244.47	N 32 13 25.36	W 103 48 23.50
	11337.00	29.70	336.04	11234.99	9.11	-95.31	-982.89	10.24	445555.61	704228.61	N 32 13 25.72	W 103 48 23.68
	11432.00	38.34	339.60	11313.67	60.15	-46.09	-1002.75	9.33	445604.82	704208.74	N 32 13 26.21	W 103 48 23.91
	11527.00	47.13	351.07	11393.48	123.69	16.14	-1018.48	12.33	445667.05	704193.01	N 32 13 26.82	W 103 48 24.09
Wolfcamp Intersection	11622.00	55.98	354.39	11442.50	197.99	89.87	-1027.76	9.71	445740.77	704183.74	N 32 13 27.55	W 103 48 24.19
	11697.94	61.33	351.39	11482.00	262.80	154.19	-1035.83	7.81	445805.09	704175.67	N 32 13 28.18	W 103 48 24.28
	11717.00	62.68	350.69	11490.95	279.61	170.81	-1038.45	7.81	445821.71	704173.05	N 32 13 28.36	W 103 48 24.31
100' FSL Crossing	11810.00	67.34	349.23	11530.23	363.67	253.78	-1053.16	5.21	445904.68	704158.34	N 32 13 29.18	W 103 48 24.48
	11846.50	69.56	348.94	11544.37	399.35	288.94	-1059.94	5.81	445939.83	704151.56	N 32 13 29.53	W 103 48 24.55
	11905.00	72.82	346.53	11562.58	452.60	341.39	-1070.39	5.81	445992.27	704141.11	N 32 13 30.05	W 103 48 24.67
	12000.00	86.70	353.44	11579.44	545.71	433.48	-1084.91	15.47	446084.36	704126.59	N 32 13 30.96	W 103 48 24.84
	12095.00	89.18	352.53	11582.85	640.63	527.69	-1096.50	2.78	446178.57	704115.00	N 32 13 31.79	W 103 48 24.97
	12186.00	89.79	352.17	11583.67	731.59	617.88	-1108.61	0.78	446268.75	704102.88	N 32 13 32.78	W 103 48 25.10
	12281.00	89.79	351.96	11584.02	826.54	711.97	-1121.73	0.22	446362.84	704089.77	N 32 13 33.72	W 103 48 25.25
	12376.00	90.41	351.66	11583.85	921.47	806.00	-1135.26	0.73	446456.86	704076.24	N 32 13 34.65	W 103 48 25.40
	12471.00	90.79	352.88	11582.86	1016.43	900.13	-1148.04	1.34	446550.98	704063.46	N 32 13 35.58	W 103 48 25.54
Exit Target Box	12565.00	91.20	354.90	11581.23	1110.41	993.58	-1158.04	2.19	446644.43	704053.46	N 32 13 36.50	W 103 48 25.66
	12576.00	91.38	355.19	11580.98	1212.40	1004.53	-1158.99	3.10	446655.38	704052.51	N 32 13 36.61	W 103 48 25.67
	12661.00	92.75	357.44	11577.92	1206.27	1089.30	-1164.45	3.10	446740.14	704047.05	N 32 13 37.45	W 103 48 25.73
Enter Target Box	12755.00	93.47	0.42	11572.82	1299.76	1183.13	-1168.21	3.26	446833.97	704045.30	N 32 13 38.38	W 103 48 25.74
	12935.00	92.76	3.39	11563.04	1477.74	1362.74	-1180.23	1.70	447013.57	704051.28	N 32 13 40.16	W 103 48 25.66
	12944.00	92.72	3.54	11562.61	1486.60	1371.72	-1159.68	1.70	447022.54	704051.82	N 32 13 40.25	W 103 48 25.65
	13039.00	90.51	4.25	11559.93	1580.13	1466.45	-1152.23	2.44	447117.27	704058.27	N 32 13 41.18	W 103 48 25.57
	13134.00	88.21	4.62	11560.89	1673.52	1561.16	-1145.69	2.45	447211.97	704065.61	N 32 13 42.12	W 103 48 25.48
	13228.00	91.58	5.21	11561.16	1765.79	1654.80	-1137.84	3.64	447305.60	704073.67	N 32 13 43.05	W 103 48 25.38
	13323.00	89.69	4.86	11560.11	1859.00	1749.42	-1129.50	2.02	447400.22	704082.00	N 32 13 43.98	W 103 48 25.28
	13417.00	89.65	5.24	11560.65	1951.23	1843.05	-1121.22	0.41	447493.85	704090.28	N 32 13 44.91	W 103 48 25.18
	13512.00	89.93	4.24	11561.00	2044.55	1937.73	-1113.37	1.09	447588.52	704098.12	N 32 13 45.84	W 103 48 25.08
	13606.00	89.52	2.52	11561.45	2137.27	2031.56	-1107.83	1.88	447682.34	704103.67	N 32 13 46.77	W 103 48 25.01
	13701.00	89.86	3.86	11561.97	2231.03	2126.41	-1102.55	1.46	447777.18	704108.95	N 32 13 47.71	W 103 48 24.95
	13796.00	89.55	5.11	11562.46	2324.42	2221.11	-1095.12	1.36	447871.88	704116.38	N 32 13 48.65	W 103 48 24.85
	13891.00	90.17	4.75	11562.69	2417.67	2315.76	-1086.95	0.75	447966.53	704124.54	N 32 13 49.58	W 103 48 24.75
	13986.00	89.58	2.32	11562.89	2511.33	2410.57	-1081.10	2.63	448061.33	704130.40	N 32 13 50.52	W 103 48 24.68
	14080.00	89.96	1.65	11563.27	2604.40	2504.51	-1077.84	0.82	448155.27	704133.66	N 32 13 51.45	W 103 48 24.64
	14175.00	90.10	0.12	11563.22	2698.70	2599.50	-1076.37	1.62	448250.25	704135.12	N 32 13 52.39	W 103 48 24.61
	14270.00	89.34	358.61	11563.69	2793.27	2694.49	-1077.43	1.78	448345.23	704134.07	N 32 13 53.33	W 103 48 24.62
	14365.00	90.20	358.23	11564.07	2887.98	2789.45	-1080.05	0.99	448440.19	704131.45	N 32 13 54.27	W 103 48 24.65
	14460.00	89.86	356.83	11564.02	2982.79	2884.36	-1084.14	1.52	448535.09	704127.36	N 32 13 55.21	W 103 48 24.69
	14555.00	89.89	356.84	11564.23	3077.67	2979.21	-1089.38	0.03	448629.94	704122.11	N 32 13 56.15	W 103 48 24.74
	14650.00	90.17	357.46	11564.18	3172.52	3074.10	-1094.11	0.72	448724.82	704117.39	N 32 13 57.09	W 103 48 24.79
	14745.00	90.27	358.24	11563.81	3267.29	3169.03	-1097.67	0.83	448819.74	704113.83	N 32 13 58.03	W 103 48 24.83
	14839.00	89.45	358.21	11564.04	3361.03	3262.98	-1100.58	0.87	448913.69	704110.91	N 32 13 58.96	W 103 48 24.86
	14934.00	90.62	358.49	11563.98	3455.74	3357.94	-1103.32	1.27	449008.64	704108.18	N 32 13 59.90	W 103 48 24.88
	15029.00	89.00	357.57	11564.30	3550.50	3452.88	-1106.58	1.96	449103.58	704104.91	N 32 14 0.84	W 103 48 24.92
	15124.00	90.03	358.83	11565.10	3645.23	3547.83	-1109.57	1.71	449198.52	704101.93	N 32 14 1.78	W 103 48 24.95
	15217.00	89.52	359.46	11565.47	3737.84	3640.81	-1110.96	0.87	449291.50	704100.54	N 32 14 2.70	W 103 48 24.96
	15311.00	89.62	0.99	11566.17	3831.27	3734.81	-1110.59	1.63	449385.49	704100.91	N 32 14 3.63	W 103 48 24.95
	15406.00	89.79	1.67	11566.66	3925.48	3829.78	-1110.38	0.74	449480.45	704103.12	N 32 14 4.57	W 103 48 24.92
	15500.00	89.76	1.18	11567.03	4018.67	3923.75	-1108.04	0.52	449574.42	704105.45	N 32 14 5.49	W 103 48 24.88
	15589.00	90.03	0.46	11567.38	4206.31	4112.73	-1103.34	0.41	449763.38	704108.16	N 32 14 7.36	W 103 48 24.84
	15783.00	90.51	0.61	11566.93	4299.69	4206.72	-1102.46	0.53	449957.37	704109.04	N 32 14 8.29	W 103 48 24.83
	15877.00	90.00	0.66	11566.52	4393.04	4300.72	-1101.42	0.55	449951.36	704110.08	N 32 14 9.22	W 103 48 24.81
	15972.00	89.96	0.89	11566.63	4487.36	4395.71	-1100.14	0.28	450046.35	704111.36	N 32 14 10.16	W 103 48 24.79
	16067.00	89.45	1.16	11567.20	4581.63	4490.69	-1098.44	0.52	450141.32	704113.06	N 32 14 11.10	W 103 48 24.76
	16162.00											

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	19667.00	89.24	1.17	11569.19	8165.30	8089.83	-1142.79	0.16	453740.23	704068.71	N 32 14 46.72	W 103 48 25.07
	19761.00	89.27	1.06	11570.41	8258.55	8183.80	-1140.96	0.12	453834.20	704070.54	N 32 14 47.65	W 103 48 25.05
	19856.00	89.17	1.12	11571.70	8352.80	8278.77	-1139.15	0.12	453929.17	704072.35	N 32 14 48.59	W 103 48 25.02
	19950.00	89.24	0.80	11573.01	8446.09	8372.75	-1137.58	0.35	454023.14	704073.92	N 32 14 49.52	W 103 48 25.00
	20045.00	89.24	0.78	11574.27	8540.40	8467.74	-1136.27	0.02	454118.12	704075.23	N 32 14 50.46	W 103 48 24.98
	20139.00	89.31	1.13	11575.46	8633.69	8561.71	-1134.70	0.38	454212.09	704076.80	N 32 14 51.39	W 103 48 24.95
	20234.00	89.24	1.10	11576.66	8727.94	8656.69	-1132.85	0.08	454307.06	704078.65	N 32 14 52.37	W 103 48 24.93
	20329.00	89.76	0.67	11577.49	8822.23	8751.67	-1131.39	0.71	454402.04	704080.11	N 32 14 53.27	W 103 48 24.90
	20423.00	89.38	0.36	11578.19	8915.61	8845.67	-1130.54	0.52	454496.03	704080.96	N 32 14 54.20	W 103 48 24.89
	20518.00	90.20	1.05	11578.54	9009.95	8940.66	-1129.37	1.13	454591.01	704082.13	N 32 14 55.14	W 103 48 24.87
	20613.00	89.93	0.96	11578.43	9104.22	9035.64	-1127.71	0.30	454685.99	704083.79	N 32 14 56.08	W 103 48 24.84
	20707.00	90.93	2.68	11577.73	9197.33	9129.59	-1124.72	2.12	454779.93	704086.78	N 32 14 57.01	W 103 48 24.80
	20802.00	90.38	2.69	11576.64	9291.21	9224.48	-1120.27	0.58	454874.81	704091.23	N 32 14 57.95	W 103 48 24.75
	20896.00	90.34	1.78	11576.05	9384.23	9318.40	-1116.60	0.97	454968.73	704094.89	N 32 14 58.88	W 103 48 24.70
	20991.00	89.03	1.12	11576.57	9478.41	9413.37	-1114.20	1.54	455063.69	704097.30	N 32 14 59.82	W 103 48 24.67
	21086.00	88.76	0.85	11578.41	9572.67	9508.34	-1112.57	0.40	455158.66	704098.93	N 32 15 0.75	W 103 48 24.64
	21180.00	88.41	1.24	11580.73	9665.92	9602.29	-1110.85	0.56	455252.60	704100.64	N 32 15 1.68	W 103 48 24.62
	21275.00	89.21	1.01	11582.70	9760.15	9697.25	-1108.99	0.88	455347.56	704102.51	N 32 15 2.62	W 103 48 24.59
	21369.00	90.38	1.61	11583.04	9853.37	9791.22	-1106.84	1.40	455441.53	704104.66	N 32 15 3.55	W 103 48 24.56
	21464.00	89.89	1.82	11582.81	9947.49	9886.16	-1104.00	0.56	455536.48	704107.50	N 32 15 4.49	W 103 48 24.52
	21558.00	88.72	0.21	11583.95	10040.76	9980.16	-1102.33	2.12	455630.45	704109.17	N 32 15 5.42	W 103 48 24.49
	21653.00	90.48	359.09	11584.62	10135.28	10075.15	-1102.91	2.20	455725.43	704108.59	N 32 15 6.36	W 103 48 24.50
	21748.00	89.76	358.43	11584.42	10229.94	10170.12	-1104.97	1.03	455820.40	704106.53	N 32 15 7.30	W 103 48 24.51
	21843.00	90.55	358.38	11584.16	10324.65	10265.08	-1107.61	0.83	455915.36	704103.89	N 32 15 8.24	W 103 48 24.54
	21937.00	89.93	359.82	11583.77	10418.27	10359.07	-1109.09	1.67	456009.34	704102.41	N 32 15 9.17	W 103 48 24.55
	22032.00	88.72	1.05	11584.89	10512.65	10454.06	-1108.37	1.82	456104.32	704103.13	N 32 15 10.11	W 103 48 24.54
	22126.00	87.00	0.18	11588.40	10605.94	10547.88	-1107.36	2.05	456198.24	704104.14	N 32 15 11.04	W 103 48 24.52
	22220.00	84.04	359.12	11595.74	10699.17	10641.68	-1107.93	3.34	456291.93	704103.57	N 32 15 11.97	W 103 48 24.52
100' FNL Crossing	22241.00	84.70	358.82	11597.80	10719.99	10682.58	-1108.31	3.44	456312.82	704103.19	N 32 15 12.18	W 103 48 24.53
Final MWD	22275.00	85.76	358.33	11600.63	10753.76	10696.45	-1109.15	3.44	456346.69	704102.35	N 32 15 12.51	W 103 48 24.53
Proj to TD	22320.00	85.76	358.33	11603.95	10798.51	10741.30	-1110.46	0.00	456391.55	704101.04	N 32 15 12.95	W 103 48 24.55

Survey Type: Def Survey

Survey Error Model: ISOWSA 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	1/98.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Sunrise MDP1 8-5 Federal Com 171H Gyro + IFR 0-22320'MD
	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 171H Gyro + IFR 0-22320'MD
	1	26.500	670.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Sunrise MDP1 8-5 Federal Com 171H
	1	670.500	22320.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Sunrise MDP1 8-5 Federal Com 171H

...Original Borehole\Oxy Sunrise MDP1 8-5 Federal Com 171H Gyro + IFR 0-22320'MD