

30-025-45920

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

July 18, 2019

OXY USA Incorporated
Greenway Plaza Suite 110
Houston, TX, 77046

HOBBS OCD
DEC 30 2019
RECEIVED Re:

S17, T24S, R32E, Lea NM
N 32.21097 W -103.7012152

CLIENT: OXY USA Incorporated
WELL: Mesa Verde WC Unit 7H
FIELD: Mesa Verde Wolfcamp

RIG: H&P 657
COUNTY: Lea
API NO: 30-025-45920
JOB NO: 19MLH0315

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>
Sarah Almohsen FE	Mesa Verde WC Unit 7H Original Hole	1012.00 Ft to 22414.00 Ft	June 28, 2019 to July 14, 2019	SlimPulse 3rd Party Corrected

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

Andrew Salomon
Field Service Manager

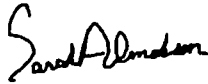
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Well Reference:
S17, T24S, R32E, Lea NM
N 32.21097 W -103.7012152

I, Sarah Almohsen certify that: I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of June 28, 2019 through July 14, 2019, conduct or supervise the taking of the SlimPulse & 3rd Party Corrected surveys from a depth of 1012.00 feet to a depth of 22414.00 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 Incorporated for the Mesa Verde WC Unit 7H Well (Original Hole) API No. 30-025-45920 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
Sarah Almohsen
FE



Subscribed and Sworn to before me this 1 day of August (month) 2019 (yr)

My Commission expires:

6/14/2023

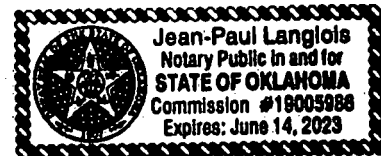
Jean Paul Langlois

(signature)

Notary Public

Comanche Oklahoma

(County State)





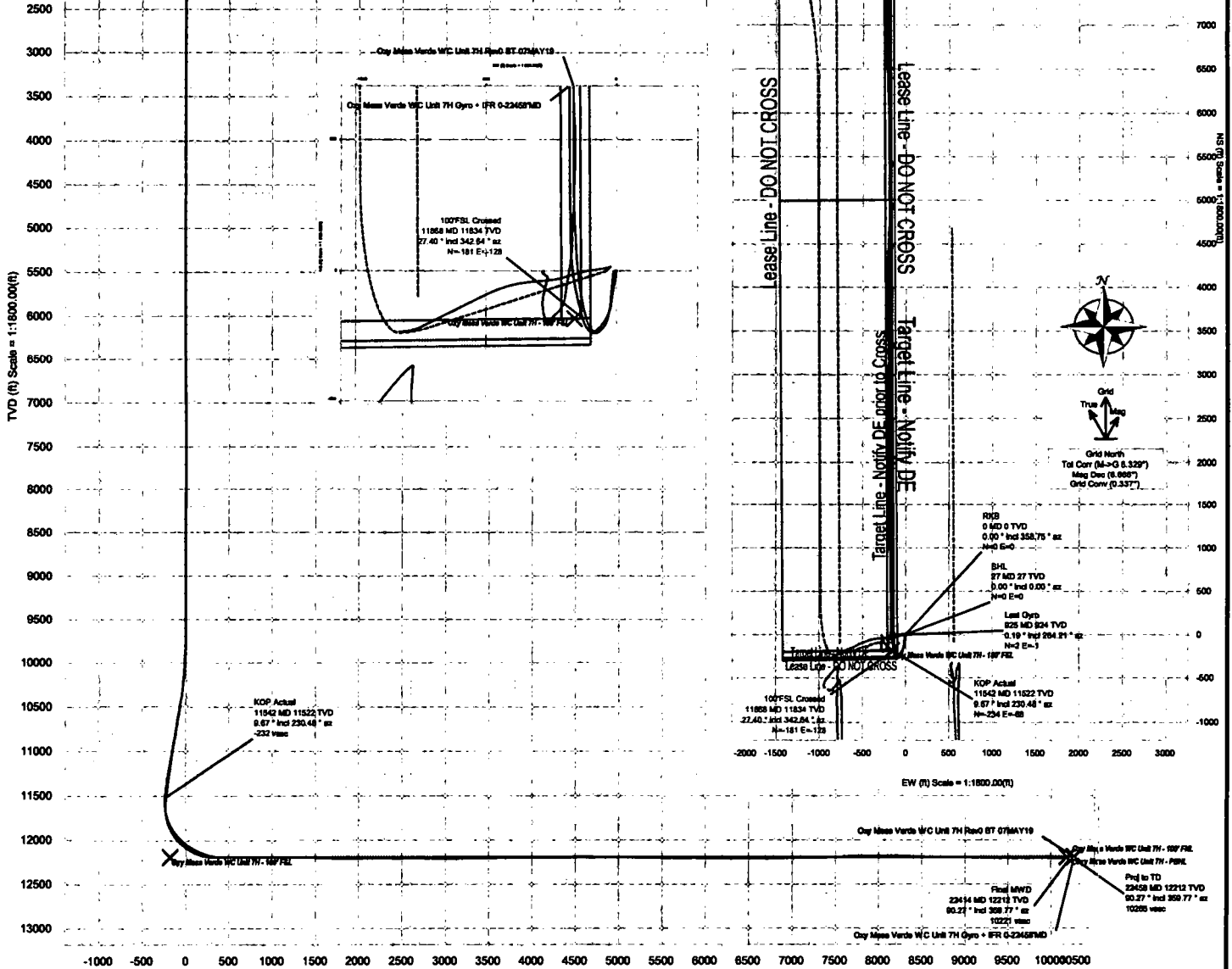
OXY



Borehole: Original Borehole Well: Oxy Mesa Verde WC Unit 7H Field: NM Lea County (NAD 83) Structure: Oxy Mesa Verde WC Unit 7H

Gravity & Magnetic Parameters
 Model: IFR1 Dip: 83.862° Date: 25-Jun-2019 Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet
 MagDec: 6.88° FB: 47883.7hT Gravity FB: 996.431mag (8.00883 Based) Lat: N 32 12 38.48 Northing: 44108.942US Grid Conv: 0.3372° Misc: Oxy Mesa Verde WC Unit 7H TVD Ref: RKB(2658.8) above BSL
 Loc: W 103 43 2.60 Easting: 72898.082US Scale Fact: 0.8898234 Plan: Oxy Mesa Verde WC Unit 7H Gyro + IFR 0-23487MD

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
RKB	0.00	0.00	358.75	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	924.60	0.19	264.21	924.49	2.19	2.17	-1.20	0.37
KOP Actual	11542.00	9.67	230.48	11522.19	-231.97	-233.52	-68.17	1.05
100'FSL Crossed	11868.00	27.40	342.84	11833.84	-178.51	-181.35	-128.15	11.16
100' FNL Crossed	22377.00	90.25	359.89	12212.11	10163.99	10161.39	-230.32	0.33
Final MWD	22414.00	90.27	359.77	12211.94	10220.98	10218.39	-230.43	0.33
Proj to TD	22458.00	90.27	359.77	12211.73	10264.98	10262.39	-230.60	0.00



Vertical Section (ft) Azim = 358.75° Scale = 1:1800.00(ft) Origin = 0N/-S, 0E/-W

Oxy Mesa Verde WC Unit 7H Gyro + IFR 0-22458 MD Survey Geodetic Report (Def Survey)



Report Date: July 15, 2019 - 12:12 AM
Client: OXY
Field: NM Lea County (NAD 83)
Structure / Slot: Oxy Mesa Verde WC Unit 7H / Oxy Mesa Verde WC Unit 7H
Well: Oxy Mesa Verde WC Unit 7H
Borehole: Original Borehole
UWI / API#: Unknown / 30-025-45920
Survey Name: Oxy Mesa Verde WC Unit 7H Gyro + IFR 0-22458 MD
Survey Date: June 17, 2019
Tort / AHD / DDI / ERD Ratio: 306.119 * / 10818.333 ft / 6.785 / 0.888
Coordinate Reference System: NAD83 New Mexico State Plane, Eastem Zone, US Feet
Location Lat / Long: N 32° 12' 39.48084", W 103° 42' 2.50326"
Location Grid N/E Y/X: N 441059.840 NUS, E 738998.090 NUS
CRS Grid Convergence Angle: 0.3372 *
Grid Scale Factor: 0.99995294
Version / Patch: 2.10.760.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 358.748 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3589.500 ft above MSL
Seabed / Ground Elevation: 3583.000 ft above MSL
Magnetic Declination: 6.666 *
Total Gravity Field Strength: 998.4311 mgn (9.80685 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47893.700 nT
Magnetic Dip Angle: 59.862 *
Declination Date: June 25, 2019
Magnetic Declination Model: IFR1
North Reference: Grid North
Grid Convergence Used: 0.3372 *
Total Corr Mag North->Grid North: 6.3288 *
Local Coord Referenced To: Well Head

Table with columns: Comments, MD (ft), Incl (°), Azim Grid (°), TVD (ft), VSEC (ft), NS (ft), EW (ft), DLS (N/S (100ft)), Northing (NUS), Easting (EUS), Latitude (N/S ° ' "), Longitude (E/W ° ' "). Contains data for RKB, SHL, and Last Gyro.

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*1000)	Northing (RUS)	Eastng (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
16783.00	89.97	0.59	12189.87	4595.50	4592.34	-194.49	1.50	445051.75	736804.61	N 32 13 24.93	W 103 42 4.45	
16877.00	88.90	0.54	12190.89	4609.44	4606.33	-193.57	1.14	445745.74	736805.53	N 32 13 25.86	W 103 42 4.44	
16872.00	88.73	0.53	12192.86	4784.38	4781.30	-192.65	0.18	445840.71	736806.42	N 32 13 26.90	W 103 42 4.42	
17067.00	89.14	0.99	12194.82	4879.30	4876.28	-191.42	0.65	445935.68	736807.98	N 32 13 27.74	W 103 42 4.40	
17161.00	89.78	0.34	12196.53	4973.24	4970.27	-190.33	0.96	446029.66	736809.77	N 32 13 28.67	W 103 42 4.38	
17254.00	88.58	0.79	12198.92	5068.18	5065.25	-189.39	1.35	446124.84	736809.71	N 32 13 29.61	W 103 42 4.36	
17350.00	90.14	1.20	12197.99	5162.10	5159.23	-187.78	1.74	446218.61	736811.34	N 32 13 30.54	W 103 42 4.34	
17445.00	89.42	0.51	12198.35	5257.03	5254.21	-186.34	1.05	446313.60	736812.76	N 32 13 31.48	W 103 42 4.31	
17540.00	88.45	359.98	12200.12	5351.88	5349.20	-185.85	1.17	446408.57	736813.15	N 32 13 32.42	W 103 42 4.30	
17729.00	88.52	359.18	12205.11	5540.90	5538.12	-187.37	0.41	446597.49	736811.73	N 32 13 34.29	W 103 42 4.30	
17824.00	88.90	359.38	12207.25	5635.87	5633.09	-188.56	0.45	446692.45	736810.53	N 32 13 35.23	W 103 42 4.31	
17919.00	91.36	358.30	12207.02	5730.88	5728.06	-190.49	2.85	446787.42	736808.61	N 32 13 36.17	W 103 42 4.33	
18014.00	89.97	356.34	12205.90	5825.82	5822.94	-194.93	2.54	446882.30	736804.17	N 32 13 37.11	W 103 42 4.37	
18109.00	89.17	357.29	12206.61	5920.76	5917.79	-200.21	1.31	446977.14	736798.89	N 32 13 38.05	W 103 42 4.43	
18203.00	89.38	358.95	12207.60	6014.74	6011.73	-203.29	1.78	447071.08	736795.81	N 32 13 38.98	W 103 42 4.46	
18298.00	90.17	358.42	12208.16	6109.74	6106.70	-205.47	1.00	447166.05	736793.63	N 32 13 39.92	W 103 42 4.48	
18393.00	88.63	357.08	12209.00	6204.72	6201.62	-209.20	1.99	447260.96	736789.90	N 32 13 40.86	W 103 42 4.51	
18488.00	89.72	358.46	12210.21	6299.69	6296.54	-212.90	1.73	447355.87	736786.20	N 32 13 41.80	W 103 42 4.55	
18582.00	89.42	358.63	12210.91	6393.69	6390.51	-215.12	0.51	447449.84	736783.98	N 32 13 42.73	W 103 42 4.57	
18677.00	89.31	354.29	12211.87	6488.58	6485.31	-220.82	4.78	447544.63	736778.28	N 32 13 43.67	W 103 42 4.63	
18772.00	90.03	356.75	12212.54	6588.42	6584.99	-228.63	2.56	447644.31	736770.47	N 32 13 44.65	W 103 42 4.71	
18867.00	91.82	0.10	12209.31	6778.35	6774.86	-233.85	2.02	447734.17	736765.25	N 32 13 46.53	W 103 42 4.78	
19061.00	90.79	358.57	12207.09	6872.32	6868.82	-234.94	2.02	447828.13	736764.16	N 32 13 47.46	W 103 42 4.77	
19250.00	90.75	358.79	12204.55	7061.30	7057.76	-239.29	0.12	448117.05	736759.81	N 32 13 49.33	W 103 42 4.81	
19440.00	90.51	357.86	12202.46	7251.28	7247.66	-244.85	0.51	448306.94	736754.25	N 32 13 51.21	W 103 42 4.88	
19534.00	90.55	356.78	12201.59	7345.25	7341.55	-249.28	1.17	448400.83	736749.84	N 32 13 52.14	W 103 42 4.90	
19724.00	93.88	5.40	12194.23	7534.74	7531.17	-245.70	4.87	448590.44	736753.40	N 32 13 54.02	W 103 42 4.85	
19819.00	92.65	5.44	12198.88	7627.95	7624.59	-236.64	1.31	448683.88	736752.27	N 32 13 54.94	W 103 42 4.74	
19913.00	91.13	3.73	12185.74	7722.40	7719.23	-229.25	2.41	448778.49	736769.85	N 32 13 55.88	W 103 42 4.84	
20008.00	89.03	1.14	12185.61	7817.19	7814.13	-225.21	3.51	448873.39	736773.89	N 32 13 56.81	W 103 42 4.59	
20102.00	89.86	1.67	12186.52	7911.08	7908.10	-222.91	1.05	448968.25	736776.19	N 32 13 57.74	W 103 42 4.56	
20197.00	92.44	7.24	12184.61	8005.55	8002.75	-215.53	6.48	449062.00	736783.57	N 32 13 58.68	W 103 42 4.46	
20292.00	89.21	0.66	12183.24	8100.08	8097.45	-209.00	7.71	449156.69	736790.10	N 32 13 59.62	W 103 42 4.38	
20387.00	89.17	359.45	12184.59	8195.05	8192.44	-208.91	1.27	449251.68	736790.19	N 32 14 0.56	W 103 42 4.37	
20482.00	88.35	356.88	12186.64	8290.01	8287.38	-211.95	2.84	449346.59	736787.15	N 32 14 1.50	W 103 42 4.40	
20577.00	88.72	356.90	12189.07	8384.93	8382.19	-217.10	0.39	449441.42	736782.00	N 32 14 2.44	W 103 42 4.48	
20672.00	88.45	357.99	12191.42	8479.88	8477.06	-221.33	1.18	449536.29	736777.77	N 32 14 3.37	W 103 42 4.50	
20766.00	88.83	357.58	12193.65	8573.84	8570.98	-224.88	0.61	449630.18	736774.12	N 32 14 4.30	W 103 42 4.53	
20861.00	88.90	357.81	12195.53	8668.80	8665.88	-228.88	0.09	449725.08	736770.12	N 32 14 5.24	W 103 42 4.58	
20956.00	89.24	0.48	12197.07	8763.77	8760.83	-230.58	3.02	449820.04	736766.02	N 32 14 6.18	W 103 42 4.59	
21050.00	89.45	359.87	12198.15	8857.74	8854.82	-230.31	0.67	449914.02	736766.79	N 32 14 7.11	W 103 42 4.58	
21145.00	89.45	359.73	12199.08	8952.72	8949.81	-230.64	0.15	450008.01	736766.48	N 32 14 8.05	W 103 42 4.57	
21240.00	88.48	359.41	12200.78	9047.69	9044.79	-231.36	1.08	450103.99	736767.74	N 32 14 8.99	W 103 42 4.58	
21335.00	88.72	359.01	12203.10	9142.68	9139.78	-232.67	0.49	450198.95	736766.43	N 32 14 9.93	W 103 42 4.59	
21429.00	89.51	0.22	12204.55	9238.63	9233.74	-233.30	1.54	450293.93	736765.80	N 32 14 10.86	W 103 42 4.59	
21524.00	87.18	357.38	12207.29	9331.58	9328.66	-235.29	3.87	450387.85	736763.82	N 32 14 11.80	W 103 42 4.60	
21619.00	90.55	2.60	12209.18	9426.49	9423.60	-235.30	6.54	450482.78	736763.80	N 32 14 12.74	W 103 42 4.60	
21713.00	90.69	2.67	12208.17	9520.26	9517.49	-230.81	0.32	450576.68	736766.29	N 32 14 13.67	W 103 42 4.60	
21808.00	88.68	359.09	12209.71	9615.18	9612.45	-229.19	4.51	450671.62	736769.81	N 32 14 14.61	W 103 42 4.54	
21903.00	90.00	359.70	12209.82	9710.15	9707.43	-230.19	1.55	450766.60	736768.91	N 32 14 15.55	W 103 42 4.52	
21998.00	90.20	0.14	12209.66	9805.13	9802.43	-230.32	0.51	450861.59	736768.78	N 32 14 16.49	W 103 42 4.51	
22093.00	90.27	0.08	12209.27	9900.10	9897.43	-230.14	0.10	450956.59	736768.96	N 32 14 17.43	W 103 42 4.50	
22188.00	87.83	359.72	12210.84	9995.06	9992.41	-230.31	2.60	451051.56	736768.79	N 32 14 18.37	W 103 42 4.50	
22283.00	90.20	0.19	12212.48	10090.02	10087.39	-230.38	2.54	451146.54	736768.72	N 32 14 19.31	W 103 42 4.49	
22377.00	90.25	359.89	12212.11	10183.99	10181.39	-230.32	0.33	451240.53	736768.78	N 32 14 20.24	W 103 42 4.49	
Final MWD	22414.00	90.27	12211.84	10220.98	10218.39	-230.43	0.33	451277.53	736768.87	N 32 14 20.60	W 103 42 4.49	
100' FNL Crossed Proj to TD	22458.00	90.27	12211.73	10264.98	10262.39	-230.60	0.00	451321.52	736768.50	N 32 14 21.04	W 103 42 4.48	

Survey Type: Def Survey

Survey Error Model: ISCWBA Rev 0 *** 3-D 95.000% Confidence 2.7965 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	1/88.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde WC Unit 7H Gyro + IFR 0-22458MD
	1	26.500	26.500	Act Strs	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde WC Unit 7H Gyro + IFR 0-22458MD
	1	26.500	924.500	Act Strs	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Mesa Verde WC Unit 7H Gyro + IFR 0-22458MD
	1	924.500	22458.000	Act Strs	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Mesa Verde WC Unit 7H Gyro + IFR 0-22458MD