

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

30-015-45074

NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 15 2019

RECEIVED

December 10, 2018

OXY USA INCORPORATED

Re:

28, 23 South, 31 East, Eddy NM
N 32.26986 W -103.78920

CLIENT: OXY USA INCORPORATED
WELL: Iridium MDPI 28-21 Federal Com 21H
FIELD: Ingle Wells Bone Spring

RIG: H&P 617
COUNTY: Eddy
API NO: 30-015-45074
JOB NO: 18MLD3532

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-S 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>
Saraj Aldawiah FE	Iridium MDPI 28-21 Federal Com 21H Original Hole	664.00 Ft to 19012.00 Ft	October 9, 2018 to November 29, 2018	TelePacer/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

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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NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 15 2019

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Well Reference:

28, 23 South, 31 East, Eddy NM
N 32.26986 W -103.78920

I, Saraj Aldawlah certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of October 09, 2018 through November 29, 2018, conduct or supervise the taking of the TelePacer/SlimPulse & Third Party Corrected surveys from a depth of 664.00 feet to a depth of 19012.00 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 Iridium MDP) 28-21 Federal Com 21H Well (Original Hole) API No. 30-015-45074 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
Saraj Aldawlah
FE

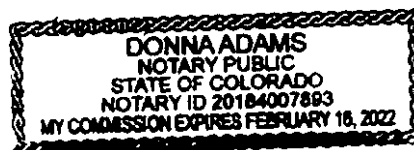
Subscribed and Sworn to before me this 10th day of December (month) 2018 (yr)

My Commission expires:

2-16-2022

D. Adams
Notary Public

Adams County Colorado
(County State)



Survey Geodetic Report

Oxy Indium MDP1 28-21 Federal Com 21H Gyro + MWD 0-19056' MD



Report Date:	Monday 29, 2016 - 12:31 PM
Client:	NOV
Structure / Stock:	Min Eddy County (NAID 83)
Well:	Oilfield MDP1 28-21 Federal Com 21H / Intium MDP1 28-21
Borehole:	Intium MDP1 28-21 Federal Com 21H
UWI / APIS:	MHP 617 / 30-015-45074
Original:	Original
Survey Name:	Oilfield MDP1 28-21 Federal Com 21H
Survey Date:	September 29, 2016
Tool / MWD / DDI / ERD Ratio:	283.035' / 1.1254, 789' / 6.810 / 1.288
Coordinates Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long:	N 32° 16' 11.4837", W 103° 47' 21.10808"
CRS Grid Convergence Angle:	0.2905°
Grid North:	N 463333.250 MWS, E 709518.510 MWS
Version / Patch:	2.10.753.0
North:	Local Coord Referenced To:
Grid North:	6.5945°
Grid Convergence Used:	0.2905°
Total Com Mag North>Grid:	
Well Head:	
Minimum Curvature / Lubrida	
Survey / DLS Compensation:	
Vertical Section Accuracy:	356.100' (Grid North)
Vertical Section Offset:	0.000' h, 0.000' h
TVD Reference Datum:	FCB=26.5
TVD Reference Elevation:	3394.900' h above MSL
Seabed / Drilled Elevation:	3368.400' h above MSL
Magnetic Declination:	6.885°
Total Gravity Field Strength:	988.4515mgn (9.80665 Gauss)
Gravity Model:	GARM
Total Magnetic Field Strength:	440929.800 nT
Magnetic Dip Angle:	80.006°
Declination Date:	November 14, 2016
Magnetic Declination Model:	IR1
North Reference:	Grid North
Grid Convergence Used:	0.2905°
Total Com Mag North>Grid:	
Well Head:	

Year	Month	Day	Time	Location	Activity	Notes
2019	1	1	08:00	Home	Wake up	Good morning
2019	1	1	08:30	Home	Breakfast	Eating cereal
2019	1	1	09:00	Home	Getting ready	Brushing teeth
2019	1	1	09:30	Home	Leaving home	Heading to work
2019	1	1	10:00	Work	Starting work	Checking emails
2019	1	1	10:30	Work	Meeting	Discussing project
2019	1	1	11:00	Work	Working	Completing tasks
2019	1	1	11:30	Work	Break	Getting coffee
2019	1	1	12:00	Work	Working	Continuing tasks
2019	1	1	12:30	Work	Meeting	Reviewing progress
2019	1	1	13:00	Work	Working	Handling inquiries
2019	1	1	13:30	Work	Break	Relaxing
2019	1	1	14:00	Work	Working	Completing reports
2019	1	1	14:30	Work	Meeting	Discussing strategy
2019	1	1	15:00	Work	Working	Finalizing tasks
2019	1	1	15:30	Work	Break	Getting snacks
2019	1	1	16:00	Work	Working	Reviewing day
2019	1	1	16:30	Work	Meeting	Planning for tomorrow
2019	1	1	17:00	Work	Working	Completing tasks
2019	1	1	17:30	Work	Break	Relaxing
2019	1	1	18:00	Home	Arriving home	Changing clothes
2019	1	1	18:30	Home	Dinner	Eating dinner
2019	1	1	19:00	Home	Relaxing	Watching TV
2019	1	1	19:30	Home	Bedtime	Going to sleep

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Eastings (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	7401.00	10.24	219.85	7318.89	-581.35	-590.25	-256.68	0.25	461743.03	709259.85	N 32 16 5.66 W 103 47 24.16	
	7467.00	10.35	219.89	7383.82	-590.15	-599.31	-266.24	0.17	461733.98	709252.28	N 32 16 5.57 W 103 47 24.24	
	7495.00	8.98	223.41	7411.42	-593.56	-602.82	-269.36	5.33	461730.46	709249.17	N 32 16 5.53 W 103 47 24.28	
	7531.00	7.62	227.41	7447.05	-597.09	-606.48	-273.04	4.10	461726.81	709245.48	N 32 16 5.50 W 103 47 24.32	
	7562.00	6.44	244.82	7477.82	-598.12	-608.61	-278.13	7.81	461724.68	709242.40	N 32 16 5.48 W 103 47 24.36	
	7594.00	6.90	271.07	7509.61	-598.73	-609.34	-279.88	9.55	461722.85	709238.85	N 32 16 5.47 W 103 47 24.40	
	7641.00	6.88	292.24	7556.28	-598.43	-608.22	-285.11	5.37	461725.07	709233.42	N 32 16 5.48 W 103 47 24.47	
	7688.00	6.39	308.02	7602.96	-595.80	-606.54	-289.77	4.00	461727.74	709228.75	N 32 16 5.51 W 103 47 24.52	
	7734.00	5.05	323.74	7648.74	-592.29	-602.34	-292.99	4.48	461730.95	709225.54	N 32 16 5.54 W 103 47 24.58	
	7783.00	4.88	342.52	7697.56	-588.50	-608.61	-294.89	3.32	461734.88	709223.84	N 32 16 5.58 W 103 47 24.68	
	7832.00	5.26	354.51	7746.37	-584.25	-604.38	-295.73	2.29	461738.80	709222.80	N 32 16 5.62 W 103 47 24.69	
	7878.00	6.40	358.10	7792.13	-579.58	-589.72	-298.02	2.80	461743.56	709222.51	N 32 16 5.68 W 103 47 24.59	
	7972.00	8.63	3.08	7885.32	-587.32	-577.44	-295.81	2.47	461755.84	709222.72	N 32 16 5.79 W 103 47 24.59	
	8067.00	8.73	19.60	7979.24	-563.51	-583.53	-293.01	2.82	461769.75	709225.52	N 32 16 5.82 W 103 47 24.55	
	8133.00	8.07	21.84	8044.53	-544.60	-564.51	-289.62	1.10	461778.78	709229.91	N 32 16 6.01 W 103 47 24.51	
KOP Actual	8243.00	6.15	19.59	8153.68	-532.04	-541.78	-284.80	1.76	461781.51	709233.73	N 32 16 6.14 W 103 47 24.46	
	8338.00	14.63	6.96	8247.05	-515.42	-525.04	-281.63	9.19	461808.24	709236.89	N 32 16 8.30 W 103 47 24.42	
100' FSL Cross	8384.58	18.56	5.56	8291.68	-502.25	-511.82	-280.20	8.48	461821.46	709238.33	N 32 16 6.43 W 103 47 24.40	
	8432.00	22.57	4.62	8336.07	-485.72	-495.23	-278.74	8.48	461838.05	709239.78	N 32 16 6.80 W 103 47 24.38	
	8527.00	28.29	6.47	8421.83	-445.30	-454.85	-274.73	6.08	461878.62	709243.80	N 32 16 7.00 W 103 47 24.34	
Avaton Shale Avaton Intersection	8559.23	29.88	5.57	8450.00	-429.78	-439.07	-273.09	5.12	461894.20	709245.44	N 32 16 7.15 W 103 47 24.32	
	8621.00	32.94	4.06	8502.71	-397.81	-407.00	-270.41	5.12	461926.27	709248.12	N 32 16 7.47 W 103 47 24.28	
	8715.00	38.02	359.88	8580.20	-344.75	-353.85	-268.85	4.13	461979.42	709249.87	N 32 16 8.00 W 103 47 24.26	
	8810.00	47.97	4.96	8650.70	-281.56	-290.52	-265.85	13.07	462042.75	709252.88	N 32 16 8.62 W 103 47 24.22	
	8904.00	65.74	4.12	8701.89	-203.65	-212.37	-259.50	18.92	462120.89	709259.02	N 32 16 9.40 W 103 47 24.14	
	8996.00	86.06	2.12	8724.91	-112.34	-120.85	-254.59	21.49	462212.41	709263.94	N 32 16 10.30 W 103 47 24.08	
	9093.00	87.71	399.38	8730.02	-18.60	-27.01	-253.36	3.40	462306.24	709265.17	N 32 16 11.23 W 103 47 24.06	
	9156.00	87.51	357.93	8732.65	44.36	35.92	-254.84	2.32	462369.16	709263.69	N 32 16 11.85 W 103 47 24.07	
	9267.00	87.18	356.40	8738.71	175.18	166.61	-261.31	1.19	462490.85	709267.22	N 32 16 13.15 W 103 47 24.14	
	9362.00	88.15	355.51	8742.59	270.04	261.29	-268.01	1.39	462594.53	709269.52	N 32 16 14.08 W 103 47 24.21	
	9476.00	89.15	355.81	8744.80	363.92	354.98	-275.28	1.07	462688.21	709274.25	N 32 16 15.01 W 103 47 24.29	
	9570.00	90.59	356.90	8745.01	457.86	448.78	-281.42	2.06	462782.00	709277.11	N 32 16 15.94 W 103 47 24.38	
	9665.00	94.00	359.09	8741.21	552.77	543.62	-284.74	4.26	462876.84	709283.79	N 32 16 16.88 W 103 47 24.39	
	9760.00	93.86	0.02	8734.70	647.51	638.40	-285.48	0.99	462971.61	709293.05	N 32 16 17.82 W 103 47 24.40	
	9854.00	93.03	358.80	8729.05	741.31	732.22	-288.44	1.57	463065.43	709292.08	N 32 16 18.74 W 103 47 24.40	
	9948.00	93.10	359.87	8724.02	835.15	826.06	-287.45	1.25	463159.28	709293.08	N 32 16 19.67 W 103 47 24.41	
	10043.00	91.58	0.12	8720.14	930.02	921.00	-287.38	1.60	463254.19	709293.15	N 32 16 20.61 W 103 47 24.40	
	10137.00	90.83	359.74	8718.15	1023.95	1014.97	-287.49	0.90	463346.16	709293.03	N 32 16 21.54 W 103 47 24.40	
	10232.00	90.59	0.69	8718.87	1118.87	1109.87	-287.14	1.03	463443.15	709293.39	N 32 16 22.48 W 103 47 24.38	
	10326.00	90.25	359.74	8718.28	1212.81	1203.96	-286.78	1.07	463537.14	709293.74	N 32 16 23.41 W 103 47 24.38	
	10421.00	91.24	0.59	8715.05	1307.74	1298.95	-286.51	1.37	463632.12	709293.02	N 32 16 24.35 W 103 47 24.37	
	10515.00	90.28	0.80	8713.80	1401.63	1382.83	-285.37	1.05	463726.10	709293.16	N 32 16 25.29 W 103 47 24.35	
	10609.00	90.28	0.69	8713.34	1495.53	1486.92	-284.15	0.12	463820.08	709294.38	N 32 16 26.21 W 103 47 24.33	
	10704.00	89.25	359.89	8713.73	1590.48	1581.92	-283.67	1.37	463915.07	709294.86	N 32 16 27.15 W 103 47 24.32	
	10797.00	91.62	1.88	8713.03	1683.33	1674.90	-282.23	3.33	464008.04	709296.30	N 32 16 28.07 W 103 47 24.30	
	10890.00	90.14	0.83	8711.80	1778.17	1767.85	-280.03	1.95	464101.00	709298.49	N 32 16 28.99 W 103 47 24.27	
	10984.00	90.07	0.22	8711.43	1870.08	1861.85	-279.17	0.85	464194.99	709299.36	N 32 16 29.82 W 103 47 24.25	
	11077.00	90.88	1.13	8710.53	1962.89	1954.84	-278.08	1.17	464287.97	709240.45	N 32 16 30.84 W 103 47 24.23	
	11170.00	90.25	0.54	8710.09	2055.88	2047.83	-276.72	0.77	464380.95	709241.81	N 32 16 31.78 W 103 47 24.21	
	11264.00	90.11	0.29	8709.80	2149.80	2141.82	-275.04	0.30	464474.94	709242.49	N 32 16 32.69 W 103 47 24.20	
	11357.00	90.35	0.39	8708.43	2242.73	2234.82	-273.49	0.28	464567.94	709243.04	N 32 16 33.61 W 103 47 24.19	
	11450.00	90.55	1.00	8708.70	2335.63	2327.81	-274.36	0.69	464660.92	709244.17	N 32 16 34.53 W 103 47 24.17	
	11544.00	89.90	0.77	8708.33	2429.52	2421.80	-272.91	0.73	464754.90	709245.62	N 32 16 35.46 W 103 47 24.14	
	11637.00	90.49	358.83	8708.01	2522.47	2514.79	-273.23	2.18	464847.89	709246.29	N 32 16 36.38 W 103 47 24.18	
	11731.00	90.21	359.89	8707.44	2616.46	2608.72	-276.74	2.09	464941.81	709247.78	N 32 16 37.31 W 103 47 24.18	
	11824.00	90.00	358.03	8707.27	2709.42	2701.54	-282.48	0.96	465034.63	709248.04	N 32 16 38.22 W 103 47 24.24	
	11917.00	90.45	357.63	8706.90	2802.40	2794.40	-287.83	1.79	465127.48	709249.30	N 32 16 39.15 W 103 47 24.29	
	12010.00	90.14	357.89	8706.42	2895.39	2887.32	-291.28	0.44	465220.40	709250.52	N 32 16 40.07 W 103 47 24.33	
	12104.00	90.14	359.15	8706.19	2988.39	2981.29	-283.69	1.34	465314.36	709251.74	N 32 16 41.00 W 103 47 24.35	
	12197.00	90.07	0.77	8706.02	3082.34	3074.29	-285.75	1.74	465407.35	709252.77	N 32 16 41.92 W 103 47 24.35	
	12290.00	89.21	0.81	8705.79	3175.23	3167.28	-282.47	0.18	465500.34	709253.80	N 32 16 42.84 W 103 47 24.33	
	12384.00	90.80	0.53	8705.70	3268.14	3261.27	-281.37	0.44	465594.32	709254.75	N 32 16 43.77 W 103 47 24.31	
	12477.00	90.25	0.96	8705.58	3362.05	3354.27	-280.41	0.40	465687.31	709255.72	N 32 16 44.69 W 103 47 24.29	
	12572.00	90.31	0.93	8705.12	3455.94	3448.28	-280.09	0.29	465780.30	709256.44	N 32 16 45.63 W 103 47 24.27	
	12666.00	90.42	0.98	8704.52	3549.83	3542.24	-287.52	0.13	465873.28	709257.10	N 32 16 46.56 W 103 47 24.25	
	12760.00	89.73	0.51	8704.40	3644.72	3637.23	-286.30	0.80	465966.26	709257.78	N 32 16 47.49 W 103 47 24.23	
	12855.00	90.90	359.37	8704.62	3738.67	3732.23	-286.40	1.23	466059.25	709258.33	N 32 16 48.43 W 103 47 24.22	
	12949.00	89.97	0.74	8704.64	3833.62	3826.23	-286.31	1.46	466152.25	709259.22	N 32 16 49.36 W 103 47 24.22	
	13044.00	90.14	0.76	8704.65	3928.61	3921.22	-286.07	0.18	466245.23	709260.13	N 32 16 50.30 W 103 47 24.20	
	13138.00	90.42	0.52	8704.09	4022.42	4015.21	-284.02	0.39	466338.22	709261.01	N 32 16 51.23 W 103 47 24.18	
	13233.00	89.84	0.04	8703.80	4117.35	4110.21	-283.55	0.71	466431.21	709261.96	N 32 16 52.17 W 103 47 24.17	
	13328.00	89.49	0.12	8704.27	4212.29	4205.21	-283.42	0.48	466524.20	709262.81	N 32 16 53.11 W 103 47 24.16	
	13423.00	89.88	0.92	8704.67	4307.20	4300.20	-282.56	0.86	466617.19	709263.59	N 32 16 54.05 W 103 47 24.15	
	13518.00	90.14	0.67	8705.14	4402.10	4395.19	-281.24	0.57	466710.18	709264.37	N 32 16 54.99 W 103 47 24.12	
	13612.00	90.18	359.06	8704.88	4496.05	4489.19	-281.46	1.71	466803.17	709265.17	N 32 16 55.92 W 103 47 24.12	
	13707.00	89.78	357.80	8704.93	4591.05	4584.14	-284.23	1.60	466896.12	709266.00	N 32 16 56.86 W 103 47 24.15	
	13802.00	89.42	357.89	8705.61	4686.04	4679.07	-287.87	0.47	467			

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLB (1/100ft)	Northing (MUS)	Easting (MUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	17204.00	89.88	0.75	8701.29	8085.40	8080.14	-282.57	0.50	470412.50	708225.56	N 32 17 31.45	W 103 47 24.04
	17298.00	89.73	358.67	8701.79	8179.36	8174.13	-293.04	2.21	470506.69	708225.48	N 32 17 32.38	W 103 47 24.04
	17392.00	89.08	357.83	8702.76	8273.35	8268.08	-295.91	1.13	470600.83	708222.81	N 32 17 33.31	W 103 47 24.07
	17487.00	89.90	358.63	8703.61	8368.34	8363.03	-298.85	1.21	470695.78	708219.68	N 32 17 34.25	W 103 47 24.10
	17581.00	89.73	357.75	8703.91	8462.34	8458.99	-301.82	0.95	470788.72	708216.71	N 32 17 35.18	W 103 47 24.12
	17676.00	90.14	358.23	8704.02	8557.34	8551.83	-305.15	0.66	470884.66	708213.38	N 32 17 36.12	W 103 47 24.16
	17770.00	89.07	358.44	8703.93	8651.34	8645.89	-307.88	0.29	470978.51	708210.85	N 32 17 37.05	W 103 47 24.18
	17864.00	92.79	358.10	8701.68	8745.30	8739.81	-310.72	3.02	471072.53	708207.81	N 32 17 37.98	W 103 47 24.21
	17959.00	90.45	359.20	8698.98	8840.25	8834.73	-312.95	2.72	471167.45	708205.57	N 32 17 38.92	W 103 47 24.23
	18053.00	89.76	359.33	8698.61	8934.23	8928.73	-314.18	0.75	471261.44	708203.37	N 32 17 39.85	W 103 47 24.24
	18147.00	89.73	358.40	8699.65	9028.21	9022.63	-315.90	0.49	471355.32	708201.63	N 32 17 40.77	W 103 47 24.27
	18242.00	92.65	359.18	8697.68	9122.17	9117.68	-319.91	3.18	471450.38	708198.62	N 32 17 41.72	W 103 47 24.29
	18337.00	91.88	359.61	8693.98	9216.07	9210.55	-320.74	1.07	471545.32	708197.79	N 32 17 42.66	W 103 47 24.30
	18431.00	91.62	0.78	8691.09	9310.96	9305.41	-320.25	1.05	471639.24	708196.28	N 32 17 43.59	W 103 47 24.30
	18526.00	92.07	0.49	8688.03	9405.81	9400.26	-319.20	0.56	471734.19	708194.33	N 32 17 44.53	W 103 47 24.28
	18621.00	90.80	358.18	8685.60	9500.75	9495.20	-320.29	2.75	471829.13	708192.33	N 32 17 45.47	W 103 47 24.27
	18715.00	88.84	358.17	8685.81	9595.73	9590.18	-324.97	3.03	471923.08	708190.24	N 32 17 46.40	W 103 47 24.27
	18810.00	88.28	355.06	8687.37	9690.73	9685.18	-332.23	1.26	472017.95	708188.30	N 32 17 47.34	W 103 47 24.32
	18905.00	89.09	355.14	8688.41	9785.63	9779.99	-338.48	0.28	472112.85	708186.30	N 32 17 48.27	W 103 47 24.40
100' FNL Cross	18978.13	89.04	355.16	8688.75	9879.49	9873.84	-340.24	0.28	472185.50	708184.05	N 32 17 48.99	W 103 47 24.47
Final MWD	18999.00	89.18	355.12	8688.95	9974.47	9968.82	-341.34	1.12	472206.29	708182.29	N 32 17 49.20	W 103 47 24.49
Proj to Btl	19012.00	89.16	355.12	8689.58	9969.41	9963.86	-345.09	0.00	472219.24	708177.19	N 32 17 49.33	W 103 47 24.50
	19056.00								472263.07	708173.44	N 32 17 49.76	W 103 47 24.54

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	28.500	1/88.425	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 21H Gyro + MWD 0-19056' MD
	1	26.500	28.500	Act Strs	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 21H Gyro + MWD 0-19056' MD
	1	26.500	611.500	Act Strs	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 21H
	1	611.500	19056.000	Act Strs	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 21H

...Original Borehole/Oxy Iridium MDP1 28-21 Federal Com 21H Gyro + MWD 0-19056' MD

Schlumberger

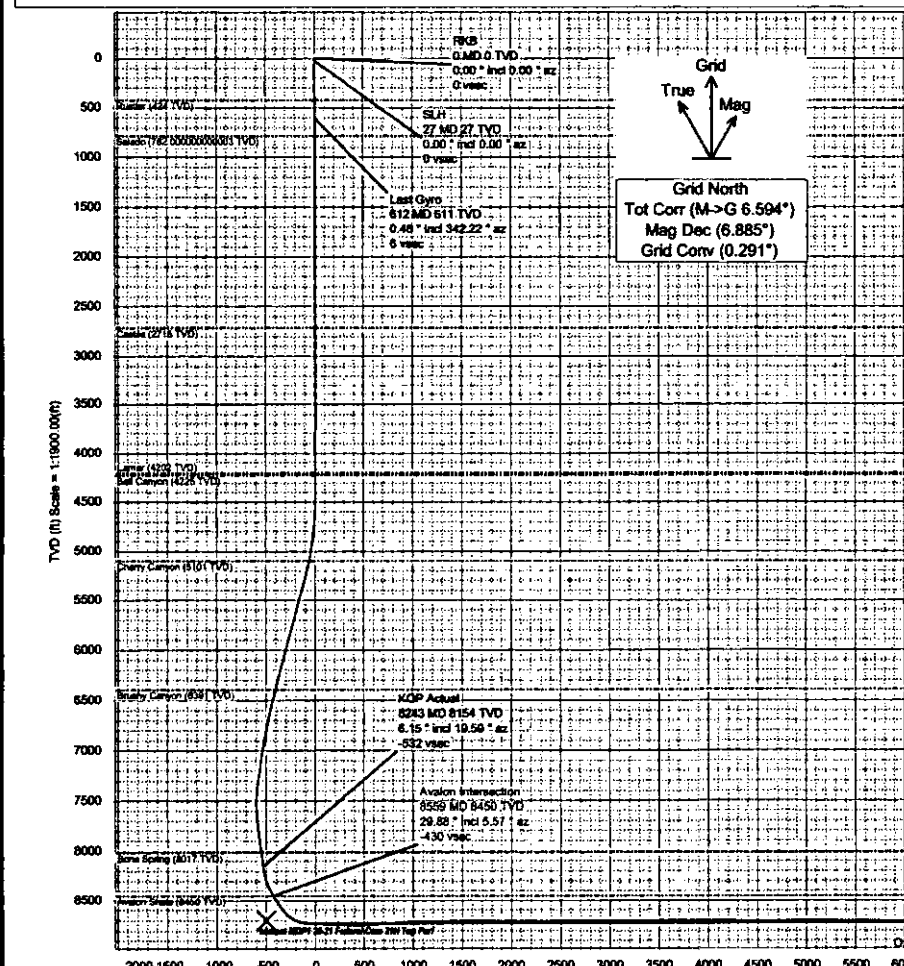
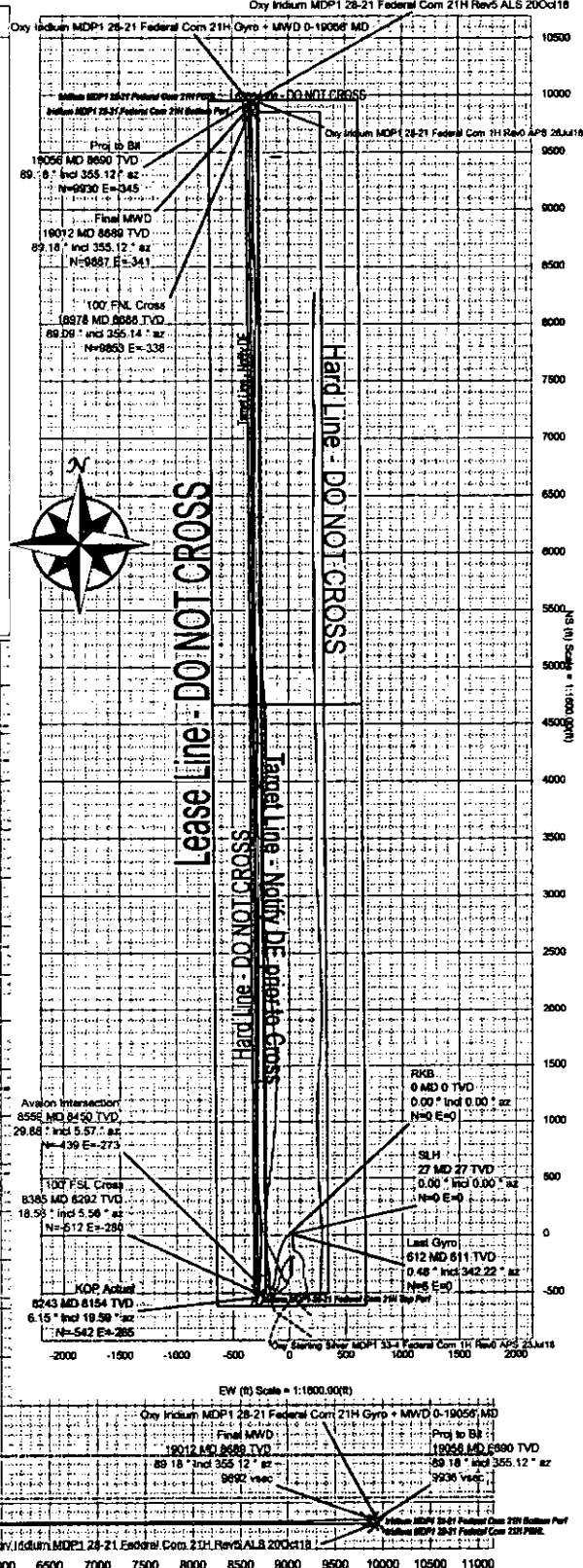
OXY



Borehole:	Well:	Field:	Structure:
Original Borehole	Iridium MDP1 28-21 Federal Com 21H	NM Eddy County (NAD 83)	Oxy Iridium MDP1 28-21 Federal Com 21H

Gravity & Magnetic Parameters				Surface Location				Miscellaneous			
Model:	WFI	Dip:	99.099°	Date:	14-Nov-2016	Lat:	N 32 16 11.46	North:	462333.28825	Grid Corr:	6.2907°
MagDec:	6.885°	FS:	49225.8mT	Gravity FS:	989.452mgals (3.99995 Based)	Lon:	W 103 47 21.11	East:	708518.51915	Scale Fact:	0.99994149
								Iridium MDP1 28-21 Federal Com 21H			
								TVD Ref:			
								RKB-26.5 (3364.98 above MBL)			
								Plan:			
								Oxy Iridium MDP1 28-21 Federal Com 21H Gyro + MWD 0-19056 MD			

Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DL5
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
SLH	26.50	0.00	0.00	26.50	0.00	0.00	0.00	
Rustler	424.02	0.64	356.41	424.00	3.84	3.86	0.72	0.10
Last Gyro	611.50	0.48	342.22	611.47	5.76	5.78	0.35	0.18
Salado	782.04	0.30	344.22	782.00	7.03	7.03	-0.10	0.26
Castle	2716.04	0.02	31.70	2716.00	7.58	7.58	0.24	0.06
Lamar	4202.04	0.16	284.28	4202.00	6.65	6.64	-0.28	0.31
Bell Canyon	4225.04	0.20	265.45	4225.00	6.66	6.65	-0.36	0.31
Cherry Canyon	5107.80	13.01	205.15	5101.00	-61.04	-62.91	-55.35	2.22
Brushy Canyon	6446.54	15.22	195.53	6391.00	-405.70	-410.35	-133.53	0.99
Bone Spring	8105.18	8.35	20.74	8017.00	-548.25	-558.21	-291.06	1.10
KOP Actual	8243.00	6.15	19.59	8153.88	-532.04	-541.78	-284.80	1.76
100' FSL Cross	8384.58	18.58	5.56	8291.68	-502.25	-511.82	-280.20	8.46
Avalon Intersection	8559.23	29.88	5.57	8450.00	-429.78	-439.07	-273.09	5.12
Avalon Shale	8559.23	29.88	5.57	8450.00	-429.78	-439.07	-273.09	5.12
100' FNL Cross	18978.13	89.09	355.14	8688.41	9658.65	9852.84	-338.48	0.28
Final MWD	19012.00	89.18	355.12	8688.95	9692.47	9886.59	-341.34	1.12
Proj to Bit	19056.00	89.18	355.12	8689.56	9936.41	9930.42	-345.09	0.00



Vertical Section (ft) Azim = 358.10° Scale = 1:1900.00(ft) Origin = DN-S, 0E-W