

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

November 14, 2019

OXY USA INC
P.O. BOX 4294
HOUSTON, TX 77210-4294

HOBBS OCD
DEC 30 2019
RECEIVED

Re:

S30, T22S, R33E, LEA, NM
N 32.36964 W -103.60680

CLIENT: OXY USA INC
WELL: AVOGATO 30 31 STATE COM 74H
FIELD: Red Tank; Bone Spring, East

RIG: H&P 636
COUNTY: LEA
API NO: 30-025-45964
JOB NO: 19MLH0363

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>
Devon Kurtz FS	AVOGATO 30 31 STATE COM 074H Original Hole	1113.00 Ft to 21609.00 Ft	October 4, 2019 to November 6, 2019	Extreme, TelePacer Third Party Corrected

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Well Reference:

S30, T22S, R33E, LEA, NM
N 32.36964 W -103.60680

I, Devon Kurtz certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of October 04, 2019 through November 06, 2019, conduct or supervise the taking of the TelePacer & Extreme surveys from a depth of 1113.00 feet to a depth of 21609.00 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 AVOGATO 30 31 STATE COM 74H Well (Original Hole) API No. 30-025-45964 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
Devon Kurtz
FS



Subscribed and Sworn to before me this 14 day of November (month) 2019 (yr)

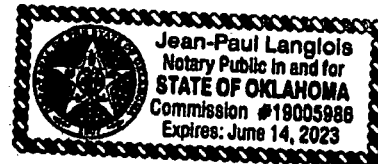
My Commission expires:

6/14/2023

Notary Public

(County State)

(signature)



Schlumberger

OXY

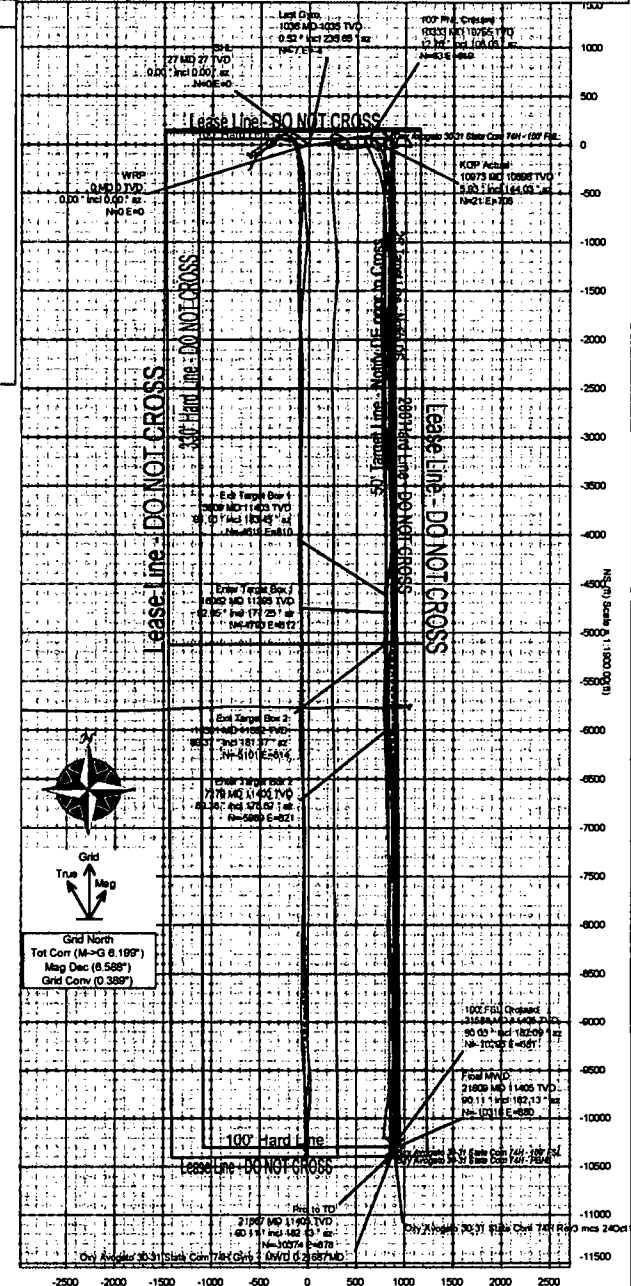
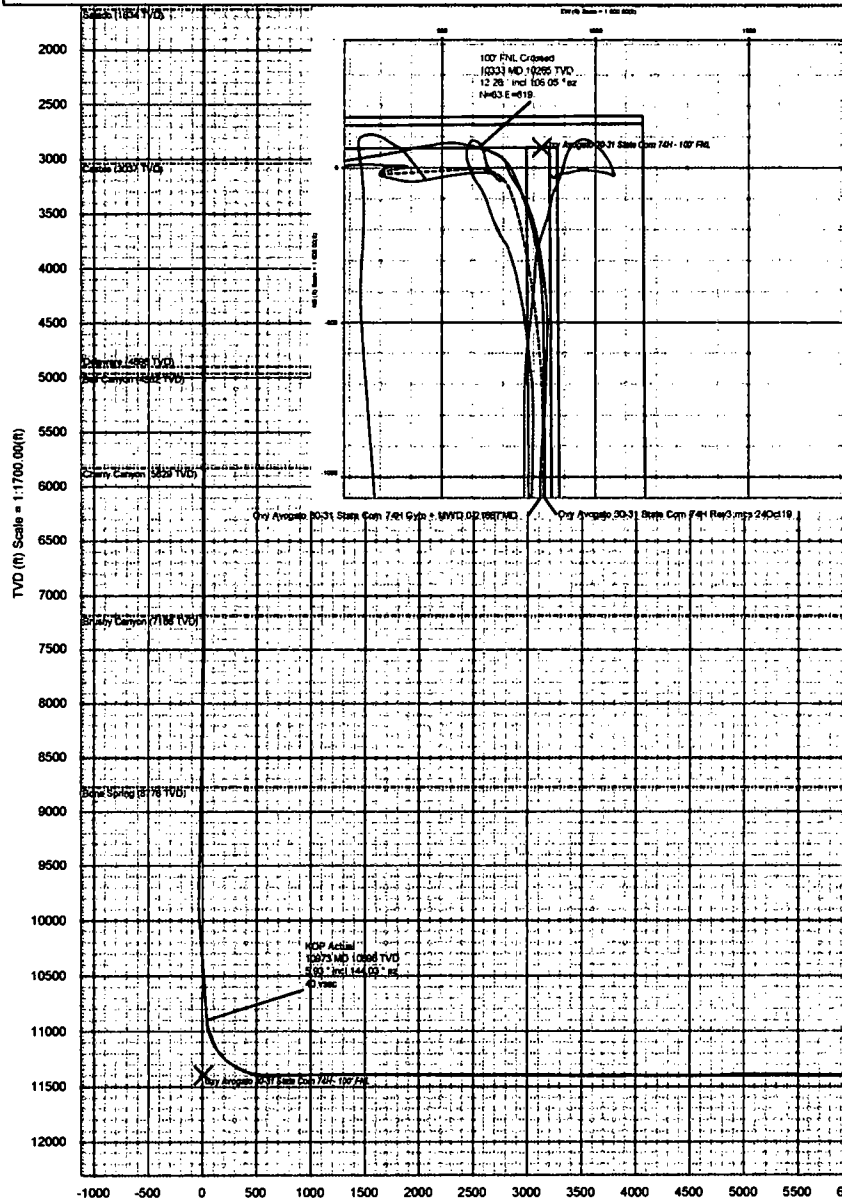


Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Avogato 30-31 State Com 74H	NM Lea County (NAD 83)	Oxy Avogato 30-31 State Com 74H

Gravity & Magnetic Parameters				Surface Location				Miscellaneous			
Model:	IPR1	Dip:	60.081°	Date:	25-Oct-2019	Lat:	N 32 22 10.71	North:	489983.67US	Grid Conv:	0.389°
MagDec:	6.588°	FS:	48039.2mT	Gravity FS:	898.452mg (8.80665 Based)	Lon:	W 102 38 34.47	East:	765649.77US	Scale Fact:	0.9899672
								Slat: Oxy Avogato 30-31 State Com 74H			
								TVD Ref: RKB=26.5' (3296.81' above MSL)			
								Plan: Oxy Avogato 30-31 State Com 74H Gyro + MWD 0-21687MD			

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
WRP	0.00	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	0.00
Last Gyro	1035.50	0.52	235.65	1035.46	6.93	-7.28	-3.78	1.03
100' FNL Crossed	10333.00	12.26	106.05	10264.56	-9.49	83.46	618.59	0.49
KOP Actual	10973.00	5.93	144.03	10896.35	39.91	21.45	705.56	1.67
Exit Target Box 1	15908.50	91.10	183.45	11402.60	4672.36	-4619.42	810.46	3.55
Enter Target Box 1	16082.00	92.95	177.25	11395.17	4844.99	-4792.59	811.78	2.54
Exit Target Box 2	16390.50	89.37	181.37	11391.60	5152.37	-5100.94	814.15	0.76
Enter Target Box 2	17276.50	89.38	178.67	11399.57	6037.38	-5988.71	820.98	0.81
100' FSL Crossed	21588.00	90.03	182.09	11404.93	10332.82	-10295.22	880.82	0.44
Final MWD	21609.00	90.11	182.13	11404.91	10353.66	-10316.21	880.04	0.44
Proj to TD	21667.00	90.11	182.13	11404.79	10411.21	-10374.17	877.89	0.00



Vertical Section (ft) Azim = 175.02° Scale = 1:1700.00(ft) Origin = ON-S, OE-W

Oxy Avogato 30-31 State Com 74H Gyro + MWD 0-21667' MD Survey

Geodetic Report

(Def Survey)



Report Date: November 08, 2019 - 11:29 AM
 Client: OXY
 Field: NM Lea County (NAD 83)
 Structure / Slot: Oxy Avogato 30-31 State Com 74H / Oxy Avogato 30-31 State Com 74H
 Well: Oxy Avogato 30-31 State Com 74H
 Borehole: Original Borehole
 UWI / API#: Unknown / 30-025-45964
 Survey Name: Oxy Avogato 30-31 State Com 74H Gyro + MWD 0-21667MD
 Survey Date: September 27, 2019
 Tor / AHD / DDI / ERD Ratio: 303.755' / 11181.802 ft / 6.810 / 0.980
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 22' 10.70868", W 103° 36' 24.46628"
 Location Grid N/E Y/X: N 488968.600 RUS, E 785649.700 RUS
 CRS Grid Convergence Angle: 0.3890°
 Grid Scale Factor: 0.99996872
 Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 175.017° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB=26.5'
 TVD Reference Elevation: 3695,900 ft above MSL
 Seabed / Ground Elevation: 3669,400 ft above MSL
 Magnetic Declination: 6.588°
 Total Gravity Field Strength: 988,4516mg (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 48039,200 nT
 Magnetic Dip Angle: 60.081°
 Declination Date: October 25, 2019
 Magnetic Declination Model: IFR1
 North Reference: Grid North
 Grid Convergence Used: 0.3890°
 Total Corr Mag North->Grid North: 6.1990°
 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 ° ' ")
WRP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	488968.60	785649.70	N 32 22 10.71	W 103 36 24.47
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	488968.60	785649.70	N 32 22 10.71	W 103 36 24.47
	85.20	0.34	203.84	85.20	0.15	-0.16	-0.07	0.58	488968.44	785649.63	N 32 22 10.71	W 103 36 24.47
	121.80	0.37	199.48	121.80	0.36	-0.37	-0.15	0.11	488968.23	785649.55	N 32 22 10.71	W 103 36 24.47
	154.90	0.35	198.02	154.90	0.55	-0.57	-0.22	0.07	488968.03	785649.48	N 32 22 10.70	W 103 36 24.47
	182.10	0.35	201.21	182.10	0.70	-0.72	-0.28	0.07	488967.88	785649.42	N 32 22 10.70	W 103 36 24.47
	208.60	0.37	202.87	208.60	0.84	-0.88	-0.34	0.09	488967.72	785649.36	N 32 22 10.70	W 103 36 24.47
	235.70	0.39	206.48	235.70	1.00	-1.04	-0.41	0.12	488967.56	785649.29	N 32 22 10.70	W 103 36 24.47
	266.20	0.37	205.55	266.20	1.17	-1.22	-0.50	0.07	488967.38	785649.20	N 32 22 10.70	W 103 36 24.47
	296.60	0.38	203.25	296.60	1.35	-1.40	-0.58	0.08	488967.20	785649.12	N 32 22 10.69	W 103 36 24.47
	328.10	0.37	204.74	328.09	1.53	-1.59	-0.67	0.04	488967.01	785649.03	N 32 22 10.69	W 103 36 24.47
	359.70	0.36	204.63	359.69	1.70	-1.78	-0.75	0.03	488966.83	785648.95	N 32 22 10.69	W 103 36 24.48
	391.20	0.40	200.87	391.19	1.89	-1.97	-0.83	0.15	488966.63	785648.87	N 32 22 10.69	W 103 36 24.48
	422.70	0.40	207.35	422.69	2.08	-2.17	-0.92	0.15	488966.43	785648.78	N 32 22 10.69	W 103 36 24.48
	454.20	0.41	209.95	454.19	2.27	-2.36	-1.03	0.07	488966.24	785648.67	N 32 22 10.69	W 103 36 24.48
	485.80	0.42	214.15	485.79	2.45	-2.56	-1.15	0.10	488966.04	785648.55	N 32 22 10.68	W 103 36 24.48
	517.30	0.44	208.02	517.29	2.64	-2.76	-1.27	0.16	488965.84	785648.43	N 32 22 10.68	W 103 36 24.48
	548.80	0.44	208.68	548.79	2.84	-2.97	-1.39	0.02	488965.63	785648.31	N 32 22 10.68	W 103 36 24.48
	580.30	0.85	208.41	580.29	3.09	-3.24	-1.53	0.87	488965.36	785648.17	N 32 22 10.68	W 103 36 24.48
	611.80	0.87	209.37	611.79	3.39	-3.55	-1.71	0.07	488965.05	785647.99	N 32 22 10.67	W 103 36 24.49
	643.30	0.86	208.61	643.28	3.70	-3.87	-1.88	0.04	488964.73	785647.82	N 32 22 10.67	W 103 36 24.49
	674.90	0.86	208.58	674.88	4.00	-4.19	-2.06	0.00	488964.41	785647.64	N 32 22 10.67	W 103 36 24.49
	706.40	0.88	209.22	706.38	4.30	-4.51	-2.23	0.02	488964.09	785647.47	N 32 22 10.66	W 103 36 24.49
	737.90	0.84	208.33	737.88	4.60	-4.82	-2.40	0.07	488963.78	785647.30	N 32 22 10.66	W 103 36 24.49
	769.40	0.81	206.65	769.38	4.89	-5.13	-2.56	0.11	488963.47	785647.14	N 32 22 10.66	W 103 36 24.50
	800.90	0.60	205.32	800.87	5.17	-5.43	-2.71	0.05	488963.17	785646.99	N 32 22 10.66	W 103 36 24.50
	832.40	0.58	204.27	832.37	5.45	-5.72	-2.84	0.07	488962.88	785646.86	N 32 22 10.65	W 103 36 24.50
	863.90	0.58	192.33	863.87	5.74	-6.02	-2.94	0.38	488962.58	785646.76	N 32 22 10.65	W 103 36 24.50
	895.50	0.58	210.71	895.47	6.03	-6.32	-3.06	0.59	488962.28	785646.64	N 32 22 10.65	W 103 36 24.50
	927.00	0.53	213.25	926.97	6.27	-6.58	-3.22	0.18	488962.02	785646.48	N 32 22 10.64	W 103 36 24.50
	958.60	0.49	212.73	958.57	6.49	-6.81	-3.37	0.13	488961.79	785646.33	N 32 22 10.64	W 103 36 24.51
	990.00	0.44	215.84	989.97	6.69	-7.02	-3.52	0.16	488961.58	785646.18	N 32 22 10.64	W 103 36 24.51
	1021.50	0.43	222.05	1021.46	6.86	-7.21	-3.67	0.15	488961.39	785646.03	N 32 22 10.64	W 103 36 24.51
	1035.50	0.52	235.65	1035.46	6.93	-7.28	-3.76	1.03	488961.32	785646.03	N 32 22 10.64	W 103 36 24.51
	1113.00	0.38	254.06	1112.96	7.15	-7.55	-4.28	0.27	488961.05	785645.42	N 32 22 10.63	W 103 36 24.52
	1204.00	0.04	48.27	1203.96	7.18	-7.61	-4.53	0.44	488960.99	785645.17	N 32 22 10.63	W 103 36 24.52
	1285.00	0.17	273.55	1284.96	7.14	-7.58	-4.64	0.22	488961.02	785645.06	N 32 22 10.63	W 103 36 24.52
	1366.00	0.15	294.16	1365.96	7.07	-7.52	-4.89	0.07	488961.08	785644.81	N 32 22 10.63	W 103 36 24.52
	1480.00	0.21	209.93	1479.96	7.15	-7.62	-5.08	0.26	488960.98	785644.62	N 32 22 10.63	W 103 36 24.53
	1670.00	0.17	150.40	1669.96	7.69	-8.16	-5.12	0.10	488960.44	785644.58	N 32 22 10.63	W 103 36 24.53
	1764.00	0.17	3.02	1763.96	7.68	-8.15	-5.04	0.35	488960.45	785644.66	N 32 22 10.63	W 103 36 24.53
	1859.00	0.12	311.22	1858.96	7.47	-7.94	-5.11	0.14	488960.66	785644.59	N 32 22 10.63	W 103 36 24.53
	1954.00	0.17	211.60	1953.96	7.51	-8.00	-5.26	0.24	488960.61	785644.44	N 32 22 10.63	W 103 36 24.53
	2048.00	0.12	30.50	2047.96	7.54	-8.03	-5.28	0.31	488960.57	785644.42	N 32 22 10.63	W 103 36 24.53
	2143.00	0.10	91.97	2142.96	7.47	-7.95	-5.15	0.12	488960.65	785644.55	N 32 22 10.63	W 103 36 24.53
	2238.00	0.12	201.03	2237.96	7.57	-8.04	-5.10	0.19	488960.56	785644.60	N 32 22 10.63	W 103 36 24.53
	2333.00	0.12	82.06	2332.96	7.65	-8.12	-5.04	0.22	488960.48	785644.66	N 32 22 10.63	W 103 36 24.53
	2427.00	0.12	164.98	2426.96	7.74	-8.20	-4.91	0.17	488960.40	785644.79	N 32 22 10.63	W 103 36 24.52
	2522.00	0.12	47.39	2521.96	7.78	-8.23	-4.82	0.22	488960.37	785644.88	N 32 22 10.63	W 103 36 24.52
	2617.00	0.12	308.42	2616.96	7.85	-8.10	-4.82	0.19	488960.50	785644.88	N 32 22 10.63	W 103 36 24.52
	2712.00	0.17	120.35	2711.96	7.87	-8.11	-4.78	0.30	488960.49	785644.92	N 32 22 10.63	W 103 36 24.52
	2806.00	0.12	20.28	2805.96	7.68	-8.09	-4.62	0.24	488960.51	785645.08	N 32 22 10.63	W 103 36 24.52
	2995.00	0.12	170.08	2994.96	7.68	-8.10	-4.52	0.12	488960.50	785645.18	N 32 22 10.63	W 103 36 24.52
	3185.00	0.10	350.83	3184.96	7.71	-8.13	-4.51	0.12	488960.47	785645.19	N 32 22 10.63	W 103 36 24.52
	3374.00	0.09	250.37	3373.96	7.58	-8.02	-4.68	0.08	488960.58	785645.02	N 32 22 10.63	W 103 36 24.52
	3469.00	0.04	69.89	3468.96	7.59	-8.03	-4.72	0.14	488960.57	785644.88	N 32 22 10.63	W 103 36 24.52
	3564.00	0.10	200.90	3563.96	7.66	-8.10	-4.72	0.14	488960.50	785644.98	N 32 22 10.63	W 103 36 24.52
	3694.00	0.16	179.81	3693.96	7.94	-8.39	-4.78	0.08	488960.21	785644.94	N 32 22 10.63	W 103 36 24.52
	3753.00	0.16	153.88	3752.96	8.10	-8.54	-4.72	0.12	488960.06	785644.98	N 32 22 10.62	W 103 36 24.52
	3848.00	0.31	87.51	3847.96	8.28	-8.69	-4.41	0.27	488959.81	785645.29	N 32 22 10.62	W 103 36 24.52
	3942.00	0.32	36.98	3941.96	8.14	-8.52	-4.00	0.34	488960.08	785645.70	N 32 22 10.62	W 103 36 24.51
	4037.00	0.56	81.90	4036.95	7.92	-8.24	-3.38	0.42	488960.36	785646.32	N 32 22 10.63	W 103 36 24.51
	4132.00	0.77	89.97	4131.95	7.95	-8.17	-2.28	0.24	488960.43	785647.42	N 32 22 10.63	W 103 36 24.49
	4226.00	0.57	122.63	4225.94	8.29	-8.43	-1.25	0.45	488960.17	785648.45	N 32 22 10.63	W 103 36 24.48
	4321.00	0.37	123.56	4320.94	8.77	-8.85	-0.60	0.21	488959.75	785649.10	N 32 22 10.62	W 103 36 24.47
	4416.00	0.30	118.82	4415.93	9.09	-9.14	-0.13	0.08	488959.46	785649.57	N 32 22 10.62	W 103 36 24.47
	4605.00	0.17	242.82	4604.93	9.48	-9.51	0.06	0.22	488959.09	785649.76	N 32 22 10.61	W 103 36 24.47
	4700.00	0.04	189.56	4699.93	9.56	-9.60	-0.07	0.18	488959.00	785649.63	N 32 22 10.61	W 103 36 24.47
	4794.00	0.17	24.80	4793.93	9.47	-9.51	-0.02	0.22	488959.08	785649.68	N 32 22 10.61	W 103 36 24.47
	4889.00	0.10	256.96	4888.93	9.36	-9.40	-0.04	0.26	488959.20	785649.58	N 32 22 10.62	W 103 36 24.47
	4983.00	0.12	21.43	4982.93	9.28	-9.33	-0.09	0.21	488959.27	785649.61	N 32 22 10.62	W 103 36 24.47
	5078.00	0.12	3.09	5077.93	9.10	-9.14	-0.04	0.04	488959.46	785649.66	N 32 22 10.62	W 103 36 24.47
	5173.00	0.12	13.60	5172.93	8.90	-8.94	-0.01	0.02	488959.66	785649.69	N 32 22 10.62	W 103 36 24.47
	5267.00	0.04	90.05	5266.93	8.81	-8.84	0.04	0.12	488959.76	785649.74	N 32 22 10.62	W 103 36 24.47
	5357.00	0.10	176.96	5356.93	8.99	-9.01	0.12	0.08	488959.59	785649.82	N 32 22 10.62	W 103 36 24.47

Comments	MD (ft)	Incl (°)	Azin Grid (°)	TVD (ft)	VSEC (ft)	N8 (ft)	EW (ft)	DLS (ft)	Northing (ft)	Easting (ft)	Latitude (N)	Longitude (W)
	5835.00	0.16	239.91	5834.93	9.26	-9.31	-0.20	0.07	488958.29	765649.50	N 32 22 10.62	W 103 36 24.47
	5930.00	0.10	321.34	5928.93	9.25	-9.31	-0.37	0.18	488958.29	765649.33	N 32 22 10.62	W 103 36 24.47
	6119.00	0.15	336.04	6118.93	8.87	-8.86	-0.57	0.03	488958.84	765649.13	N 32 22 10.62	W 103 36 24.47
	6214.00	0.05	293.67	6213.93	8.74	-8.83	-0.68	0.12	488958.77	765649.04	N 32 22 10.62	W 103 36 24.47
	6309.00	0.12	54.42	6308.93	8.67	-8.75	-0.62	0.16	488958.85	765649.08	N 32 22 10.62	W 103 36 24.47
	6403.00	0.09	336.40	6402.93	8.55	-8.63	-0.57	0.14	488958.97	765649.13	N 32 22 10.62	W 103 36 24.47
	6498.00	0.12	353.50	6497.93	8.38	-8.46	-0.61	0.05	488960.14	765649.09	N 32 22 10.62	W 103 36 24.47
	6593.00	0.12	10.23	6592.93	8.18	-8.28	-0.80	0.04	488960.34	765649.10	N 32 22 10.62	W 103 36 24.47
	6687.00	0.17	169.87	6686.93	8.23	-8.31	-0.56	0.30	488960.30	765649.14	N 32 22 10.63	W 103 36 24.47
	6782.00	0.09	39.35	6781.93	8.31	-8.39	-0.49	0.25	488960.21	765649.21	N 32 22 10.63	W 103 36 24.47
	6877.00	0.28	239.41	6876.93	8.36	-8.45	-0.84	0.39	488960.15	765649.06	N 32 22 10.63	W 103 36 24.47
	6971.00	0.21	222.74	6970.93	8.57	-8.69	-0.96	0.11	488959.91	765648.74	N 32 22 10.62	W 103 36 24.48
	7066.00	0.38	236.85	7065.93	8.84	-8.99	-1.34	0.19	488959.61	765648.36	N 32 22 10.62	W 103 36 24.48
	7161.00	0.81	92.48	7160.93	9.08	-9.19	-0.93	1.20	488959.41	765648.77	N 32 22 10.62	W 103 36 24.48
	7361.00	3.43	88.00	7360.77	9.57	-9.04	6.46	1.31	488959.56	765656.16	N 32 22 10.62	W 103 36 24.39
	7410.00	3.92	88.16	7409.67	9.74	-8.94	9.60	1.00	488959.68	765659.30	N 32 22 10.62	W 103 36 24.36
	7505.00	6.37	84.52	7504.28	9.87	-8.33	18.09	2.60	488960.27	765667.79	N 32 22 10.63	W 103 36 24.26
	7599.00	8.91	81.12	7597.44	9.33	-8.71	30.48	2.74	488961.89	765660.18	N 32 22 10.64	W 103 36 24.11
	7694.00	11.25	79.25	7690.97	7.90	-3.84	46.86	2.49	488964.76	765696.55	N 32 22 10.67	W 103 36 23.92
	7789.00	11.79	78.07	7784.05	5.79	-0.11	65.46	0.62	488968.49	765715.15	N 32 22 10.70	W 103 36 23.70
	7884.00	11.52	78.55	7877.09	3.55	3.78	84.25	0.30	488972.38	765733.95	N 32 22 10.74	W 103 36 23.48
	7977.00	11.78	79.90	7968.18	1.66	7.29	102.70	0.41	488975.89	765752.39	N 32 22 10.77	W 103 36 23.27
	8072.00	11.49	79.21	8061.23	-0.16	10.76	121.54	0.34	488979.38	765771.23	N 32 22 10.81	W 103 36 23.05
	8167.00	11.69	79.44	8154.29	-2.05	14.29	140.29	0.22	488982.89	765789.99	N 32 22 10.84	W 103 36 22.83
	8261.00	11.27	79.23	8246.41	-3.91	17.16	158.68	0.45	488986.38	765808.37	N 32 22 10.87	W 103 36 22.61
	8356.00	11.79	80.28	8339.49	-5.64	21.73	177.36	0.59	488989.73	765827.06	N 32 22 10.91	W 103 36 22.40
	8451.00	11.84	81.32	8432.48	-7.07	24.24	196.57	0.23	488992.84	765846.26	N 32 22 10.94	W 103 36 22.17
	8545.00	12.13	80.30	8524.43	-8.51	27.36	215.83	0.38	488995.96	765865.53	N 32 22 10.96	W 103 36 21.95
	8640.00	12.73	80.21	8617.20	-10.21	30.82	235.99	0.63	488999.42	765885.68	N 32 22 11.00	W 103 36 21.71
	8707.00	13.55	81.18	8682.45	-11.35	33.28	251.02	1.27	489001.88	765900.71	N 32 22 11.02	W 103 36 21.54
	8802.00	12.55	82.72	8774.89	-12.51	36.29	272.25	1.11	489004.89	765921.94	N 32 22 11.05	W 103 36 21.29
	8896.00	11.87	79.85	8868.87	-13.79	39.29	291.90	0.97	489007.89	765941.59	N 32 22 11.08	W 103 36 21.06
	8991.00	11.22	81.11	8959.94	-15.30	42.44	310.65	0.73	489011.04	765960.34	N 32 22 11.11	W 103 36 20.84
	9086.00	10.82	81.30	9053.19	-16.51	45.22	328.60	0.42	489013.82	765978.28	N 32 22 11.13	W 103 36 20.63
	9181.00	11.01	78.72	9148.47	-18.39	48.65	348.24	0.93	489017.25	765995.93	N 32 22 11.17	W 103 36 20.43
	9275.00	13.71	78.18	9238.29	-21.01	53.00	365.88	2.89	489021.59	766015.57	N 32 22 11.21	W 103 36 20.20
	9370.00	13.46	75.99	9330.63	-24.09	57.96	387.63	0.60	489026.58	766037.32	N 32 22 11.26	W 103 36 19.94
	9464.00	14.04	79.65	9421.94	-26.87	62.68	409.48	1.11	489031.27	766059.15	N 32 22 11.30	W 103 36 19.69
	9559.00	15.49	80.60	9513.80	-28.88	66.77	433.32	1.56	489035.37	766083.01	N 32 22 11.34	W 103 36 19.41
	9654.00	13.82	81.48	9605.71	-30.52	70.49	457.07	1.77	489039.09	766106.75	N 32 22 11.38	W 103 36 19.13
	9749.00	14.05	79.89	9697.91	-32.23	74.18	479.64	0.44	489042.77	766129.33	N 32 22 11.41	W 103 36 18.87
	9843.00	15.53	81.04	9788.79	-34.11	78.12	503.31	1.60	489046.72	766152.09	N 32 22 11.45	W 103 36 18.59
	9938.00	14.27	90.35	9880.61	-33.90	80.03	527.59	2.84	489048.63	766177.27	N 32 22 11.47	W 103 36 18.31
	10032.00	13.58	99.67	9971.86	-30.03	78.11	550.05	2.49	489046.70	766199.73	N 32 22 11.44	W 103 36 18.05
	10127.00	14.08	101.68	10064.10	-23.90	73.89	572.36	0.73	489042.49	766222.04	N 32 22 11.40	W 103 36 17.79
	10221.00	13.65	101.00	10155.37	-17.56	69.46	594.45	0.49	489038.06	766244.13	N 32 22 11.36	W 103 36 17.53
	10316.00	12.25	106.44	10247.95	-10.80	64.47	615.12	1.95	489033.07	766264.80	N 32 22 11.31	W 103 36 17.29
100' FNL Crossed	10333.00	12.26	106.05	10264.56	-9.49	63.48	618.59	0.49	489032.06	766268.26	N 32 22 11.29	W 103 36 17.25
	10411.00	12.34	104.28	10340.77	-3.77	59.11	634.82	0.49	489027.71	766284.30	N 32 22 11.25	W 103 36 17.06
	10505.00	11.55	109.96	10432.74	3.52	53.42	653.21	1.51	489022.02	766302.88	N 32 22 11.19	W 103 36 16.85
	10600.00	9.58	113.00	10526.12	11.24	47.09	669.42	2.15	489015.69	766319.10	N 32 22 11.13	W 103 36 16.66
	10695.00	7.64	119.62	10620.05	18.53	40.88	682.19	2.29	489009.47	766331.87	N 32 22 11.07	W 103 36 16.51
	10789.00	6.27	127.31	10713.38	25.54	34.68	691.71	1.76	489003.28	766341.38	N 32 22 11.01	W 103 36 16.40
	10884.00	6.03	133.33	10807.81	32.75	28.11	699.46	0.72	488996.71	766349.14	N 32 22 10.94	W 103 36 16.31
	10913.00	5.72	134.38	10836.68	34.99	26.05	701.60	1.13	488994.65	766351.28	N 32 22 10.92	W 103 36 16.28
KOP Actual	10973.00	5.93	144.03	10896.35	39.91	21.45	705.56	1.67	488990.05	766355.24	N 32 22 10.87	W 103 36 16.24
	11068.00	20.19	164.75	10988.69	60.37	1.55	712.80	15.57	488970.15	766362.47	N 32 22 10.68	W 103 36 16.16
	11163.00	24.85	147.90	11076.52	94.32	-31.23	727.74	8.33	488937.38	766377.41	N 32 22 10.35	W 103 36 15.98
	11257.00	31.69	147.18	11159.26	133.78	-68.75	751.65	7.29	488899.85	766401.32	N 32 22 9.98	W 103 36 15.71
	11352.00	44.47	157.14	11233.95	187.79	-120.65	776.23	14.69	488847.96	766427.90	N 32 22 9.48	W 103 36 15.40
	11447.00	61.08	164.88	11291.27	260.97	-192.01	802.19	18.63	488776.59	766451.87	N 32 22 8.75	W 103 36 15.13
	11542.00	62.50	171.24	11336.22	344.01	-273.86	819.47	6.09	488694.75	766469.14	N 32 22 7.94	W 103 36 14.93
	11637.00	67.44	172.23	11376.40	429.92	-359.02	831.83	5.28	488609.59	766481.50	N 32 22 7.10	W 103 36 14.80
	11732.00	80.55	175.59	11402.54	521.00	-449.62	841.40	14.21	488519.00	766491.07	N 32 22 6.20	W 103 36 14.69
	11826.00	92.66	181.93	11408.10	614.42	-543.21	843.40	14.53	488425.41	766493.07	N 32 22 5.28	W 103 36 14.68
	11921.00	93.31	181.94	11403.16	708.60	-638.03	840.19	0.68	488330.60	766489.86	N 32 22 4.34	W 103 36 14.72
	11986.00	94.09	181.75	11398.96	773.00	-702.86	838.10	1.23	488265.77	766487.78	N 32 22 3.70	W 103 36 14.75
	12079.00	93.09	182.99	11393.14	865.05	-795.59	834.27	1.71	488173.04	766483.94	N 32 22 2.78	W 103 36 14.80
	12172.00	90.65	184.68	11390.10	956.89	-888.32	828.05	3.19	488080.31	766477.72	N 32 22 1.86	W 103 36 14.88
	12265.00	88.85	182.50	11390.67	1048.84	-981.13	822.23	3.18	487987.50	766471.90	N 32 22 0.95	W 103 36 14.96
	12359.00	89.81	177.81	11391.85	1142.43	-1075.09	821.87	5.17	487893.54	766471.84	N 32 22 0.02	W 103 36 14.97
	12452.00	90.05	178.76	11391.89	1235.28	-1168.05	824.76	1.03	487800.59	766474.43	N 32 21 59.10	W 103 36 14.94
	12545.00	89.48	180.65	11392.27	1327.96	-1261.04	825.23	2.12	487707.60	766474.91	N 32 21 58.18	W 103 36 14.95
	12638.00	89.74	179.48	11392.90	1420.59	-1354.04	825.13	1.29	487614.61	766474.80	N 32 21 57.26	W 103 36 14.95
	12732.00	89.61	179.22	11393.43	1514.32	-1448.03	826.20	0.31	487520.62	766475.97	N 32 21 56.33	W 103 36 14.95
	12825.00	89.63	180.74	11394.05	1608.97	-1541.03	826.23	1.63	487427.63	766475.87	N 32 21 55.41	W 103 36 14.96
	12918.00	90.13	183.45	11394.25	1699.25	-1633.96	822.63	2.98	487334.70	766472.50	N 32 21 54.49	W 103 36 15.00
	13012.00	89.65	181.98	11394.43	1792.40	-1727.85	8					

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 + ° ' ")
Enter Target	16043.00	93.62	176.52	11397.41	4806.08	-4753.71	809.68	6.28	494215.05	766459.33	N 32 21 23.62	W 103 36 15.40
Box 1	16082.00	92.95	177.25	11395.17	4844.99	-4792.59	811.78	2.54	494176.18	766461.45	N 32 21 23.23	W 103 36 15.38
	16137.00	92.01	178.29	11392.79	4899.87	-4847.50	813.91	2.54	494121.27	766463.58	N 32 21 22.69	W 103 36 15.38
	16232.00	90.36	179.50	11390.83	4994.63	-4942.48	815.74	2.15	494028.32	766465.41	N 32 21 21.75	W 103 36 15.35
	16327.00	89.48	180.90	11390.98	5089.24	-5037.45	815.41	1.74	493931.33	766465.08	N 32 21 20.81	W 103 36 15.38
Exit Target Box 2	16390.50	89.37	181.37	11391.60	5152.37	-5100.94	814.15	0.78	493887.84	766463.83	N 32 21 20.18	W 103 36 15.38
	16422.00	89.31	181.60	11391.98	5183.67	-5132.42	813.34	0.76	493836.38	766463.01	N 32 21 19.87	W 103 36 15.39
	16516.00	89.64	181.13	11392.82	5277.09	-5226.39	811.10	0.61	493742.39	766460.77	N 32 21 18.94	W 103 36 15.42
	16611.00	89.51	180.64	11393.53	5371.59	-5321.38	809.63	0.53	493647.41	766459.30	N 32 21 18.00	W 103 36 15.45
	16705.00	89.34	179.78	11394.47	5465.20	-5415.37	809.29	0.93	493553.42	766458.98	N 32 21 17.07	W 103 36 15.48
	16800.00	89.35	178.98	11395.56	5559.92	-5510.36	810.32	0.84	493458.44	766459.99	N 32 21 16.13	W 103 36 15.46
	16895.00	89.71	178.09	11396.34	5654.73	-5605.32	812.74	1.01	493363.47	766462.42	N 32 21 15.19	W 103 36 15.44
	16989.00	89.44	178.22	11397.03	5748.59	-5699.27	815.77	0.32	493269.53	766465.44	N 32 21 14.26	W 103 36 15.41
	17084.00	89.64	178.95	11397.80	5843.40	-5794.24	818.12	0.80	493174.57	766467.79	N 32 21 13.32	W 103 36 15.39
	17179.00	89.46	179.51	11398.54	5938.14	-5889.23	819.39	0.62	493079.58	766469.06	N 32 21 12.38	W 103 36 15.38
	17273.00	89.36	178.71	11399.51	6031.90	-5983.21	820.85	0.86	492985.60	766470.52	N 32 21 11.45	W 103 36 15.37
Enter Target Box 2	17278.50	89.38	178.67	11399.57	6037.38	-5988.71	820.98	0.81	492980.10	766470.85	N 32 21 11.40	W 103 36 15.37
	17368.00	89.78	178.07	11400.22	6126.73	-6078.17	823.52	0.81	492890.65	766473.19	N 32 21 10.51	W 103 36 15.35
	17463.00	89.41	177.10	11400.90	6221.63	-6173.08	827.53	1.09	492795.74	766477.20	N 32 21 9.57	W 103 36 15.31
	17558.00	89.37	175.79	11401.91	6316.59	-6267.89	833.42	1.38	492700.93	766483.09	N 32 21 8.63	W 103 36 15.25
	17652.00	89.80	174.68	11402.44	6390.59	-6341.63	839.58	1.63	492627.19	766489.25	N 32 21 7.90	W 103 36 15.18
	17822.00	89.94	176.86	11402.87	6580.56	-6531.10	853.62	1.16	492437.73	766503.29	N 32 21 6.03	W 103 36 15.03
	17917.00	89.77	178.97	11403.11	6675.43	-6626.03	857.08	2.23	492342.80	766506.75	N 32 21 5.09	W 103 36 15.00
	18011.00	89.46	179.43	11403.75	6769.18	-6720.02	858.39	0.59	492248.82	766508.06	N 32 21 4.18	W 103 36 14.99
	18106.00	90.01	179.27	11404.19	6863.91	-6815.01	859.47	0.60	492153.83	766509.14	N 32 21 3.22	W 103 36 14.99
	18201.00	89.91	178.27	11404.25	6958.70	-6909.99	861.51	1.08	492058.86	766511.18	N 32 21 2.28	W 103 36 14.97
	18296.00	90.04	178.45	11404.29	7053.54	-7004.95	864.23	0.23	491963.90	766513.90	N 32 21 1.34	W 103 36 14.95
	18390.00	90.08	179.54	11404.20	7147.31	-7098.93	865.87	1.16	491869.92	766515.54	N 32 21 0.41	W 103 36 14.93
	18484.00	90.15	180.81	11404.01	7240.93	-7192.93	865.59	1.35	491775.92	766515.28	N 32 20 59.48	W 103 36 14.95
	18579.00	89.53	181.90	11404.27	7335.35	-7287.90	863.34	1.32	491680.96	766513.01	N 32 20 58.54	W 103 36 14.98
	18674.00	89.73	182.32	11404.89	7429.62	-7382.83	859.84	0.49	491586.03	766509.51	N 32 20 57.60	W 103 36 15.03
	18768.00	90.63	182.06	11404.59	7522.88	-7478.76	856.25	1.00	491492.10	766505.92	N 32 20 56.67	W 103 36 15.08
	18863.00	90.90	182.20	11403.32	7617.14	-7571.69	852.72	0.32	491397.18	766502.39	N 32 20 55.73	W 103 36 15.13
	19053.00	90.25	182.27	11401.41	7805.62	-7761.54	845.31	0.34	491207.34	766494.98	N 32 20 53.85	W 103 36 15.23
	19148.00	89.70	180.78	11401.46	7900.01	-7856.50	842.78	1.67	491112.38	766492.45	N 32 20 52.91	W 103 36 15.28
	19243.00	89.73	178.48	11401.93	7994.69	-7951.49	843.40	2.42	491017.39	766493.07	N 32 20 51.97	W 103 36 15.26
	19337.00	90.83	177.71	11401.47	8088.56	-8045.43	848.52	1.43	490923.45	766496.19	N 32 20 51.04	W 103 36 15.24
	19432.00	89.56	176.32	11401.15	8183.49	-8140.30	851.47	1.98	490828.59	766501.14	N 32 20 50.11	W 103 36 15.19
	19526.00	90.15	176.85	11401.38	8277.48	-8234.13	857.07	0.84	490734.76	766506.74	N 32 20 49.18	W 103 36 15.13
	19621.00	89.60	177.58	11401.59	8372.39	-8329.02	861.68	0.96	490639.88	766511.35	N 32 20 48.24	W 103 36 15.08
	19810.00	89.39	177.28	11403.26	8561.21	-8517.82	870.16	0.19	490451.08	766518.63	N 32 20 46.37	W 103 36 15.00
	19905.00	89.97	177.93	11403.79	8656.11	-8612.74	874.13	0.92	490356.17	766523.60	N 32 20 45.43	W 103 36 14.96
	19999.00	90.04	178.06	11403.78	8749.98	-8706.68	877.42	0.16	490262.23	766527.09	N 32 20 44.50	W 103 36 14.93
	20094.00	90.49	179.30	11403.34	8844.79	-8801.65	879.61	1.39	490167.26	766528.27	N 32 20 43.56	W 103 36 14.91
	20189.00	89.97	180.00	11402.96	8939.47	-8896.65	880.19	0.92	490072.27	766529.65	N 32 20 42.62	W 103 36 14.91
	20284.00	89.08	180.20	11403.75	9034.10	-8991.64	880.02	0.96	489977.26	766529.69	N 32 20 41.68	W 103 36 14.92
	20378.00	90.22	180.51	11404.32	9127.69	-9085.64	879.44	1.26	489883.28	766529.11	N 32 20 40.75	W 103 36 14.93
	20473.00	89.66	179.73	11404.42	9222.31	-9180.64	879.24	1.01	489788.29	766528.91	N 32 20 39.81	W 103 36 14.94
	20567.00	90.21	179.68	11404.53	9315.99	-9274.63	879.72	0.59	489694.29	766528.39	N 32 20 38.88	W 103 36 14.95
	20662.00	89.49	177.97	11404.78	9410.78	-9369.61	881.67	1.95	489599.32	766531.34	N 32 20 37.94	W 103 36 14.93
	20757.00	89.94	177.34	11405.25	9505.68	-9464.53	885.56	0.81	489504.41	766535.23	N 32 20 37.00	W 103 36 14.89
	20851.00	89.63	177.84	11405.60	9599.58	-9558.44	889.51	0.63	489410.49	766539.18	N 32 20 36.07	W 103 36 14.85
	20946.00	90.48	179.04	11405.53	9694.41	-9653.41	892.10	1.54	489315.54	766541.76	N 32 20 35.13	W 103 36 14.83
	21041.00	90.25	180.05	11404.94	9789.11	-9748.40	892.85	1.09	489220.54	766542.52	N 32 20 34.19	W 103 36 14.83
	21136.00	89.70	180.48	11404.98	9883.71	-9843.40	892.41	0.73	489125.55	766542.08	N 32 20 33.25	W 103 36 14.84
	21230.00	90.15	180.65	11405.10	9977.27	-9937.39	891.48	0.51	489031.56	766541.15	N 32 20 32.32	W 103 36 14.86
	21325.00	89.70	181.90	11404.40	10071.70	-10032.38	889.37	1.44	488936.59	766539.04	N 32 20 31.38	W 103 36 14.89
	21419.00	89.56	181.67	11404.18	10165.04	-10126.32	886.44	1.24	488842.64	766536.11	N 32 20 30.45	W 103 36 14.94
	21514.00	89.73	181.86	11404.77	10259.37	-10221.27	883.43	0.35	488747.69	766533.10	N 32 20 29.51	W 103 36 14.98
100' FSL	21588.00	90.03	182.09	11404.93	10332.82	-10295.22	880.82	0.44	488673.74	766530.49	N 32 20 28.78	W 103 36 15.01
Crossed	21609.00	90.11	182.13	11404.91	10353.66	-10316.21	880.04	0.44	488652.76	766529.71	N 32 20 28.57	W 103 36 15.03
Final MWD	21667.00	90.11	182.13	11404.79	10411.21	-10374.17	877.89	0.00	488594.80	766527.56	N 32 20 28.00	W 103 36 15.05
Proj to TD												

Survey Type: Def Survey

Survey Error Model: ICSWSA Rev 3 *** 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	1/68.425	30.000	30.000	GVD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Avogato 30-31 State Com 74H Gyro + MWD 0-21667MD
	1	26.500	26.500	Act Stns	30.000	30.000	GVD_GC+DROP+OH-Depth Only	Original Borehole / Oxy Avogato 30-31 State Com 74H Gyro + MWD 0-21667MD
	1	26.500	1035.500	Act Stns	30.000	30.000	GVD_GC+DROP+OH	Original Borehole / Oxy Avogato 30-31 State Com 74H Gyro + Original Borehole / Oxy Avogato
	1	1035.500	7161.000	Act Stns	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	30-31 State Com 74H Gyro + MWD 0-21667MD
	1	7161.000	7884.000	Act Stns	30.000	30.000	B001Mb_MWD+HRGM	Original Borehole / Oxy Avogato 30-31 State Com 74H Gyro + Original Borehole / Oxy Avogato
	1	7884.000	21667.000	Act Stns	30.000	30.000	A010Mb_MWD+IFR1+SAG+MS	30-31 State Com 74H Gyro + MWD 0-21667MD

...Original Borehole/Oxy Avogato 30-31 State Com 74H Gyro + MWD 0-21667MD