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

June 4, 2019

Oxy

Re:

CLIENT: Oxy USA INC
WELL: Pure Gold MDP1 29-17 Federal Com 5H
FIELD: Ingle Wells Bone Spring

RIG: H&P 657
COUNTY: Eddy
API NO: 30-015-45649
JOB NO: 19MLH0198

S29, T23S, R31E Eddy NM
N 32.26997 W -103.79446

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.

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
Missael Rangel FS	Pure Gold MDP1 29-17 Federal Com 5H Original Hole	796.00 Ft 23196.00 Ft	to	May 8, 2019 June 1, 2019	to	TelePacer SlimPulse

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

Reservoir Development
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:
S29, T23S, R31E Eddy NM
N 32.26997 W -103.79446

I, Missael Rangel certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of May 08, 2019 through June 01, 2019, conduct or supervise the taking of the TelePacer & SlimPulse surveys from a depth of 796.00 feet to a depth of 23196.00 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 Pure Gold MDP1 29-17 Federal Com 5H Well (Original Hole) API No. 30-015-45649 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
Missael Rangel
FS

Subscribed and Sworn to before me this 10 day of June (month) 2019 (yr)

My Commission expires:

05 - 22 - 2023

Notary Public (signature)

Grady, OK
(County State)

JODY LEON BARE
Notary Public, State of Oklahoma
Commission # 19005260
My Commission Expires 05-22-2023

Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Pure Gold MDP1 29-17 Federal Com 5H	NM Eddy County (NAD 83)	Oxy Pure Gold MDP1 29-17 Federal Com 5H

Gravity & Magnetic Parameters

Model:	IFR1	Dip:	59.991°	Date:	07-May-2019
MagDec:	6.845°	FS:	47976.2nT	Gravity FS:	998.452mgn (9.80665 Based)

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet

Lat:	N 32 16 11.88	Northing:	462364.58RUS	Grid Conv:	0.2877°
Lon:	W 103 47 40.07	Easting:	707890.26RUS	Scale Fact:	0.99994086

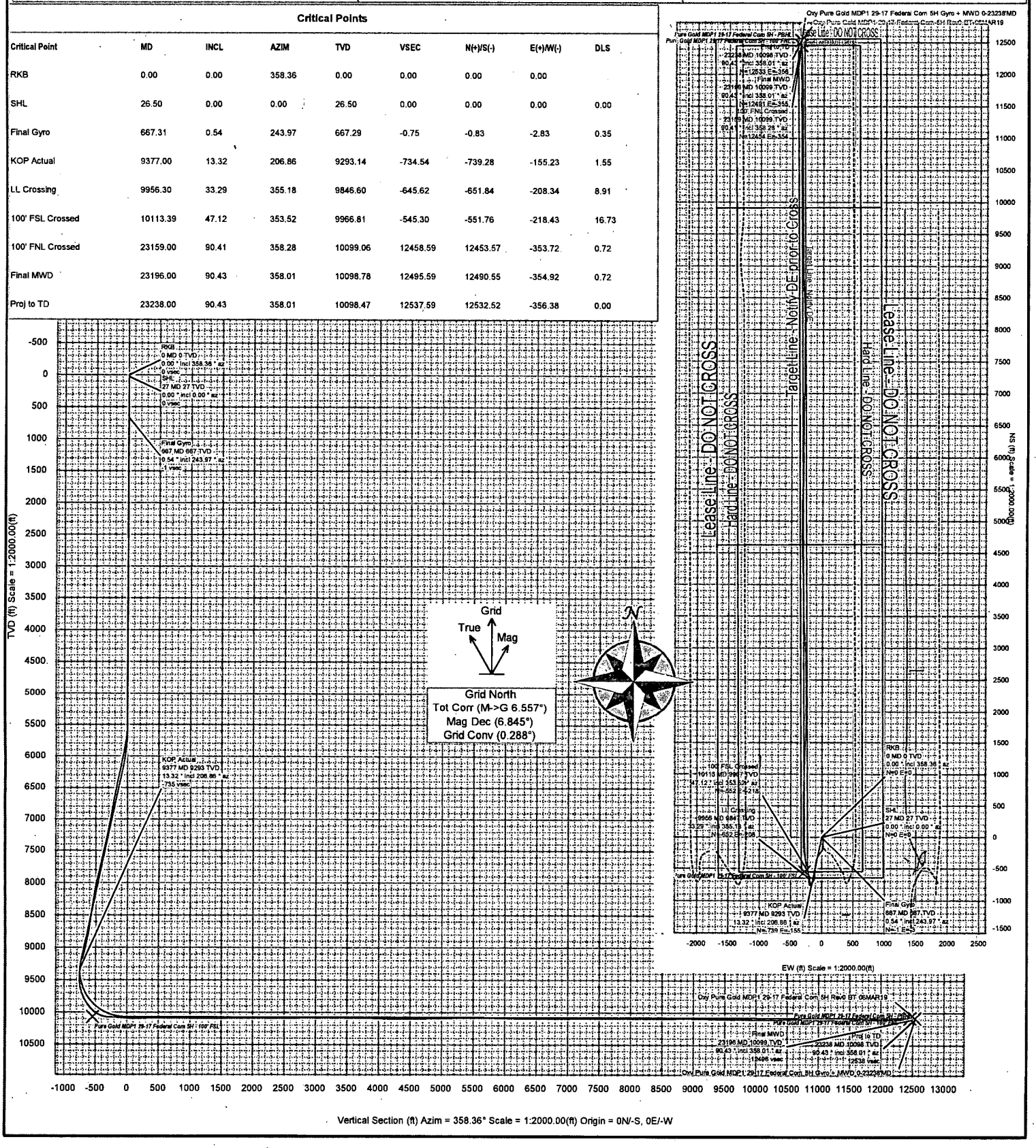
Miscellaneous

Slot: Oxy Pure Gold MDP1 29-17 Federal Com 5H — TVD Ref: RKB(3384.6ft above MSL)

Plan: Oxy Pure Gold MDP1 29-17 Federal Com 5H Gyro + MWD 0-23238'MD

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
RKB	0.00	0.00	358.36	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
Final Gyro	667.31	0.54	243.97	667.29	-0.75	-0.83	-2.83	0.35
KOP Actual	9377.00	13.32	206.86	9293.14	-734.54	-739.28	-155.23	1.55
LL Crossing	9956.30	33.29	355.18	9846.60	-645.62	-651.84	-208.34	8.91
100' FSL Crossed	10113.39	47.12	353.52	9966.81	-545.30	-551.76	-218.43	16.73
100' FNL Crossed	23159.00	90.41	358.28	10099.06	12458.59	12453.57	-353.72	0.72
Final MWD	23196.00	90.43	358.01	10098.78	12495.59	12490.55	-354.92	0.72
Proj to TD	23238.00	90.43	358.01	10098.47	12537.59	12532.52	-356.38	0.00



Schlumberger

Oxy Pure Gold MDP1 29-17 Federal Com 5H Gyro + MWD 0-23238'MD
Survey Geodetic Report
(Def Survey)

Report Date:	June 03, 2019 - 12:55 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	358.364 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Pure Gold MDP1 29-17 Federal Com 5H / Oxy Pure Gold MDP1 29-17 Federal Com 5H	**TVD Reference Datum:**	RKB
Well:	Oxy Pure Gold MDP1 29-17 Federal Com 5H	**TVD Reference Elevation:**	3384.800 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3358.300 ft above MSL
UWI / API#:	Unknown / 30-015-45649	**Magnetic Declination:**	6.845 °
Survey Name:	Oxy Pure Gold MDP1 29-17 Federal Com 5H Gyro + MWD 0-23238'MD	**Total Gravity Field Strength:**	998.4522mgn (9.80665 Based)
Survey Date:	May 02, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	303.220 ° / 14148.121 ft / 6.994 / 1.399	**Total Magnetic Field Strength:**	47976.200 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.991 °
Location Lat / Long:	N 32° 16' 11.87531", W 103° 47' 40.07120"	**Declination Date:**	May 07, 2019
Location Grid N/E Y/X:	N 462364.580 ftUS, E 707890.260 ftUS	**Magnetic Declination Model:**	IFR1
CRS Grid Convergence Angle:	0.2877 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99994086	**Grid Convergence Used:**	0.2877 °
Version / Patch:	2.10.760.0	**Total Corr Mag North->Grid North:**	6.5573 °
		Local Coord Referenced To:	Well Head

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 ° ' ")
RKB	0.00	0.00	358.36	0.00	0.00	0.00	0.00	N/A	462364.58	707890.26	N 32 16 11.88	W 103 47 40.07
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	462364.58	707890.26	N 32 16 11.88	W 103 47 40.07
	119.56	0.34	55.77	119.56	0.15	0.16	0.23	0.37	462364.74	707890.49	N 32 16 11.88	W 103 47 40.07
	204.87	0.01	169.00	204.87	0.28	0.29	0.44	0.40	462364.87	707890.70	N 32 16 11.88	W 103 47 40.07
	295.75	0.28	277.99	295.75	0.31	0.31	0.22	0.31	462364.89	707890.48	N 32 16 11.88	W 103 47 40.07
	390.55	0.34	283.20	390.55	0.42	0.41	-0.28	0.07	462364.99	707889.98	N 32 16 11.88	W 103 47 40.07
	485.21	0.56	247.94	485.20	0.33	0.30	-0.98	0.36	462364.88	707889.28	N 32 16 11.88	W 103 47 40.08
	580.10	0.82	233.40	580.09	-0.22	-0.28	-1.96	0.33	462364.30	707888.30	N 32 16 11.87	W 103 47 40.09
Final Gyro	667.31	0.54	243.97	667.29	-0.75	-0.83	-2.83	0.35	462363.75	707887.43	N 32 16 11.87	W 103 47 40.10
	796.00	0.22	170.89	795.98	-1.25	-1.34	-3.34	0.40	462363.24	707886.92	N 32 16 11.86	W 103 47 40.11
	981.00	0.16	336.98	980.98	-1.36	-1.45	-3.38	0.20	462363.13	707886.88	N 32 16 11.86	W 103 47 40.11
	1073.00	0.02	120.82	1072.98	-1.25	-1.34	-3.42	0.19	462363.24	707886.84	N 32 16 11.86	W 103 47 40.11
	1166.00	0.16	298.34	1165.98	-1.19	-1.29	-3.52	0.19	462363.29	707886.74	N 32 16 11.86	W 103 47 40.11
	1258.00	0.18	334.55	1257.98	-0.99	-1.10	-3.69	0.12	462363.48	707886.57	N 32 16 11.86	W 103 47 40.11
	1350.00	0.08	99.60	1349.98	-0.87	-0.98	-3.69	0.26	462363.60	707886.57	N 32 16 11.87	W 103 47 40.11
	1443.00	0.14	257.31	1442.98	-0.91	-1.02	-3.74	0.23	462363.56	707886.52	N 32 16 11.87	W 103 47 40.11
	1537.00	0.18	180.65	1536.98	-1.08	-1.19	-3.85	0.21	462363.39	707886.41	N 32 16 11.86	W 103 47 40.12
	1632.00	0.19	161.09	1631.98	-1.38	-1.49	-3.80	0.07	462363.09	707886.46	N 32 16 11.86	W 103 47 40.12
	1727.00	0.08	349.49	1726.98	-1.46	-1.57	-3.76	0.28	462363.01	707886.50	N 32 16 11.86	W 103 47 40.12
	1821.00	0.18	95.57	1820.98	-1.42	-1.52	-3.63	0.23	462363.06	707886.63	N 32 16 11.86	W 103 47 40.11
	1915.00	0.18	294.42	1914.98	-1.37	-1.47	-3.62	0.38	462363.11	707886.64	N 32 16 11.86	W 103 47 40.11
	2104.00	0.12	310.99	2103.98	-1.11	-1.22	-4.04	0.04	462363.36	707886.22	N 32 16 11.86	W 103 47 40.12
	2199.00	0.14	287.42	2198.98	-1.00	-1.12	-4.22	0.06	462363.46	707886.04	N 32 16 11.86	W 103 47 40.12
	2293.00	0.18	57.75	2292.98	-0.89	-1.01	-4.21	0.31	462363.57	707886.05	N 32 16 11.87	W 103 47 40.12
	2388.00	0.24	2.08	2387.97	-0.61	-0.73	-4.07	0.21	462363.85	707886.19	N 32 16 11.87	W 103 47 40.12
	2482.00	0.14	96.36	2481.97	-0.43	-0.55	-3.95	0.31	462364.03	707886.31	N 32 16 11.87	W 103 47 40.12
	2577.00	0.25	332.65	2576.97	-0.26	-0.37	-3.93	0.37	462364.21	707886.33	N 32 16 11.87	W 103 47 40.12
	2766.00	0.18	208.20	2765.97	-0.15	-0.27	-4.26	0.20	462364.31	707886.00	N 32 16 11.87	W 103 47 40.12
	2860.00	0.12	283.07	2859.97	-0.25	-0.38	-4.43	0.20	462364.20	707885.83	N 32 16 11.87	W 103 47 40.12
	2954.00	0.24	160.38	2953.97	-0.41	-0.54	-4.46	0.34	462364.04	707885.80	N 32 16 11.87	W 103 47 40.12
	3048.00	0.23	213.10	3047.97	-0.76	-0.88	-4.49	0.22	462363.70	707885.77	N 32 16 11.87	W 103 47 40.12
	3143.00	0.11	175.39	3142.97	-1.00	-1.13	-4.59	0.17	462363.45	707885.67	N 32 16 11.86	W 103 47 40.12
	3331.00	0.29	285.97	3330.97	-1.04	-1.18	-5.03	0.18	462363.40	707885.23	N 32 16 11.86	W 103 47 40.13
	3426.00	0.17	56.32	3425.97	-0.89	-1.04	-5.15	0.44	462363.54	707885.11	N 32 16 11.87	W 103 47 40.13
	3520.00	0.28	66.64	3519.97	-0.73	-0.87	-4.82	0.12	462363.71	707885.44	N 32 16 11.87	W 103 47 40.13
	3709.00	0.32	147.62	3708.97	-1.02	-1.13	-4.11	0.21	462363.45	707886.15	N 32 16 11.86	W 103 47 40.12
	3804.00	0.11	103.66	3803.97	-1.27	-1.38	-3.88	0.27	462363.20	707886.38	N 32 16 11.86	W 103 47 40.12
	3898.00	0.31	81.60	3897.97	-1.26	-1.36	-3.54	0.23	462363.22	707886.72	N 32 16 11.86	W 103 47 40.11
	4087.00	0.12	31.03	4086.97	-1.03	-1.12	-2.94	0.13	462363.46	707887.32	N 32 16 11.86	W 103 47 40.11
	4165.00	0.12	106.82	4164.97	-0.99	-1.07	-2.82	0.19	462363.51	707887.44	N 32 16 11.86	W 103 47 40.10
	4351.00	0.12	334.59	4350.97	-0.88	-0.95	-2.71	0.12	462363.63	707887.55	N 32 16 11.87	W 103 47 40.10
	4477.00	0.08	147.32	4476.97	-0.83	-0.91	-2.72	0.16	462363.67	707887.54	N 32 16 11.87	W 103 47 40.10
	4572.00	0.10	120.03	4571.96	-0.93	-1.01	-2.61	0.05	462363.57	707887.65	N 32 16 11.87	W 103 47 40.10
	4666.00	0.08	355.33	4665.96	-0.91	-0.98	-2.55	0.17	462363.60	707887.71	N 32 16 11.87	W 103 47 40.10
	4761.00	0.10	14.87	4760.96	-0.76	-0.83	-2.53	0.04	462363.75	707887.73	N 32 16 11.87	W 103 47 40.10
	4855.00	0.10	155.48	4854.96	-0.76	-0.83	-2.48	0.20	462363.75	707887.78	N 32 16 11.87	W 103 47 40.10
	4950.00	0.10	108.60	4949.96	-0.86	-0.93	-2.36	0.08	462363.65	707887.90	N 32 16 11.87	W 103 47 40.10
	5044.00	0.08	141.32	5043.96	-0.94	-1.01	-2.25	0.06	462363.57	707888.01	N 32 16 11.87	W 103 47 40.10
	5138.00	0.11	158.21	5137.96	-1.08	-1.14	-2.17	0.04	462363.44	707888.09	N 32 16 11.86	W 103 47 40.10
	5233.00	0.07	114.04	5232.96	-1.19	-1.25	-2.08	0.08	462363.33	707888.18	N 32 16 11.86	W 103 47 40.10
	5327.00	0.08	245.59	5326.96	-1.24	-1.30	-2.09	0.15	462363.28	707888.17	N 32 16 11.86	W 103 47 40.10
	5516.00	0.14	119.58	5515.96	-1.41	-1.47	-2.01	0.10	462363.11	707888.25	N 32 16 11.86	W 103 47 40.09
	5610.00	3.68	148.84	5609.90	-4.10	-4.11	-0.35	3.79	462360.47	707889.91	N 32 16 11.83	W 103 47 40.08
	5705.00	6.50	158.05	5704.51	-11.80	-11.71	3.24	3.08	462352.87	707893.50	N 32 16 11.76	W 103 47 40.03
	5799.00	9.98	160.94	5797.53	-24.56	-24.35	7.89	3.73	462340.24	707898.15	N 32 16 11.63	W 103 47 39.98
	5893.00	11.53	157.78	5889.88	-41.13	-40.74	14.10	1.76	462323.84	707904.36	N 32 16 11.47	W 103 47 39.91
	5987.00	11.68	171.46	5981.97	-59.37	-58.85	19.07	2.93	462305.73	707909.33	N 32 16 11.29	W 103 47 39.85
	6082.00	11.91	180.97	6074.98	-78.71	-78.17	20.33	2.06	462286.42	707910.59	N 32 16 11.10	W 103 47 39.84
	6129.00	11.98	180.72	6120.96	-88.43	-87.89	20.19	0.19	462276.69	707910.45	N 32 16 11.00	W 103 47 39.84
	6168.00	11.74	181.39	6159.13	-96.44	-95.91	20.04	0.71	462268.68	707910.30	N 32 16 10.93	W 103 47 39.84
	6357.00	11.97	181.40	6344.09	-135.21	-134.72	19.09	0.12	462229.87	707909.35	N 32 16 10.54	W 103 47 39.86
	6452.00	11.85	181.63	6437.05	-154.79	-154.32	18.58	0.14	462210.27	707908.84	N 32 16 10.35	W 103 47 39.86
	6546.00	11.53	182.83	6529.10	-173.79	-173.35	17.84	0.43	462191.24	707908.10	N 32 16 10.16	W 103 47 39.87
	6588.00	11.48	183.01	6570.26	-182.14	-181.72	17.41	0.15	462182.87	707907.67	N 32 16 10.08	W 103 47 39.88
	6683.00	12.13	199.24	6663.27	-200.89	-200.59	13.62	3.55	462164.01	707903.88	N 32 16 9.89	W 103 47 39.92
	6777.00	12.47	217.42	6755.15	-218.01	-217.98	4.20	4.12	462146.62	707894.46	N 32 16 9.72	W 103 47 40.04
	6871.00	13.30	217.73	6846.78	-234.25	-234.59	-8.58	0.89	462130.00	707881.68	N 32 16 9.55	W 103 47 40.18
	6966.00	13.48	218.89	6939.20	-251.11	-251.85	-22.22	0.34	462112.74	707868.04	N 32 16 9.38	W 103 47 40.34
	7060.00	13.64	216.52	7030.58	-268.16	-269.29	-35.70	0.62	462095.31	707854.57	N 32 16 9.21	W 103 47 40.50
	7154.00	13.92	213.30	7121.87	-286.14	-287.64	-48.50	0.87	462076.95	707841.76	N 32 16 9.03	W 103 47 40.65
	7249.00	13.98	210.01	7214.07	-305.28	-307.13	-60.51	0.84	462057.47	707829.75	N 32 16 8.84	W 103 47 40.79
	7343.00	13.63	205.42	7305.36	-324.81	-326.97	-70.95	1.22	462037.63	707819.32	N 32 16 8.64	W 103 47 40.92
	7532.00	13.48	195.43	7489.12	-365.70	-368.32	-86.37	1.24	461996.28	707803.90	N 32 16 8.24	W 103 47 41.10
	7626.00	13.76	190.82	7580.48	-387.10	-389.86	-91.38	1.19	461974.74	707798.88	N 32 16 8.02	W 103 47 41.16
	7721.00	13.95	186.61	7672.72	-409.46	-412.34	-94.82	1.08	461952.27	707795.44	N 32 16 7.80	W 103 47 41.20
	7815.00	13.63	186.77	7764.01	-431.63	-434.59	-97.43	0.34	461930.02	707792.83	N 32 16 7.58	W 103 47 41.23
	7909.00	13.51	185.97	7855.39	-453.47	-456.51	-99.88	0.24	461908.10	707790.39	N 32 16 7.36	W 103 47 41.26

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 ° ' ")
	8004.00	13.46	187.84	7947.77	-475.38	-478.50	-102.54	0.46	461886.11	707787.72	N 32 16 7.15	W 103 47 41.29
	8098.00	12.21	186.20	8039.42	-496.01	-499.22	-105.11	1.38	461865.39	707785.16	N 32 16 6.94	W 103 47 41.32
	8192.00	10.08	184.59	8131.64	-514.04	-517.30	-106.84	2.29	461847.31	707783.43	N 32 16 6.76	W 103 47 41.35
	8287.00	9.02	184.22	8225.32	-529.71	-533.02	-108.05	1.12	461831.60	707782.21	N 32 16 6.61	W 103 47 41.36
	8381.00	9.83	189.60	8318.05	-544.92	-548.28	-109.93	1.27	461816.34	707780.33	N 32 16 6.46	W 103 47 41.38
	8476.00	9.62	189.53	8411.69	-560.66	-564.10	-112.60	0.22	461800.51	707777.67	N 32 16 6.30	W 103 47 41.42
	8570.00	9.21	183.85	8504.42	-575.85	-579.35	-114.41	1.08	461785.26	707775.86	N 32 16 6.15	W 103 47 41.44
	8665.00	9.41	179.93	8598.17	-591.18	-594.71	-114.91	0.70	461769.91	707775.36	N 32 16 6.00	W 103 47 41.44
	8759.00	9.25	180.85	8690.93	-606.41	-609.94	-115.01	0.23	461754.67	707775.26	N 32 16 5.85	W 103 47 41.45
	8853.00	9.72	184.77	8783.65	-621.85	-625.41	-115.78	0.85	461739.21	707774.49	N 32 16 5.69	W 103 47 41.46
	8948.00	11.26	188.50	8877.06	-638.95	-642.57	-117.82	1.77	461722.05	707772.45	N 32 16 5.52	W 103 47 41.48
	9042.00	13.13	196.74	8968.94	-658.12	-661.88	-122.25	2.71	461702.74	707768.02	N 32 16 5.33	W 103 47 41.53
	9137.00	14.49	201.27	9061.19	-679.31	-683.29	-129.67	1.83	461681.34	707760.60	N 32 16 5.12	W 103 47 41.62
	9231.00	16.07	204.23	9151.87	-701.85	-706.11	-139.28	1.87	461658.51	707750.99	N 32 16 4.90	W 103 47 41.73
	9325.00	14.12	206.37	9242.62	-723.68	-728.25	-149.71	2.16	461636.37	707740.56	N 32 16 4.68	W 103 47 41.86
KOP Actual	9377.00	13.32	206.86	9293.14	-734.54	-739.28	-155.23	1.55	461625.35	707735.03	N 32 16 4.57	W 103 47 41.92
	9445.00	11.47	213.15	9359.55	-746.98	-751.93	-162.47	3.36	461612.70	707727.80	N 32 16 4.44	W 103 47 42.01
	9539.00	10.08	259.70	9452.06	-755.91	-761.24	-175.70	9.12	461603.39	707714.57	N 32 16 4.35	W 103 47 42.16
	9633.00	10.66	310.24	9544.71	-751.34	-757.09	-190.46	9.39	461607.54	707699.81	N 32 16 4.39	W 103 47 42.33
	9727.00	13.93	343.12	9636.65	-734.60	-740.62	-200.40	8.07	461624.01	707689.88	N 32 16 4.56	W 103 47 42.45
	9822.00	20.72	357.07	9727.32	-706.72	-712.85	-204.58	8.33	461651.77	707685.69	N 32 16 4.83	W 103 47 42.50
	9916.00	29.78	356.61	9812.25	-666.68	-672.86	-206.82	9.64	461691.77	707683.45	N 32 16 5.23	W 103 47 42.52
LL Crossing	*9956.30*	*33.29*	*355.18*	*9846.60*	*-645.62*	*-651.84*	*-208.34*	*8.91*	*461712.78*	*707681.93*	*N 32 16 5.44*	*W 103 47 42.54*
	10010.00	37.99	353.65	9890.23	-614.42	-620.71	-211.41	8.91	461743.91	707678.87	N 32 16 5.74	W 103 47 42.57
	10053.00	41.23	354.37	9923.35	-587.09	-593.45	-214.26	7.61	461771.17	707676.01	N 32 16 6.01	W 103 47 42.60
	10105.00	45.85	354.34	9961.03	-551.36	-557.81	-217.78	8.88	461806.81	707672.49	N 32 16 6.37	W 103 47 42.64
100' FSL Crossed	*10113.39*	*47.12*	*353.52*	*9966.81*	*-545.30*	*-551.76*	*-218.43*	*16.73*	*461812.85*	*707671.85*	*N 32 16 6.43*	*W 103 47 42.65*
	10150.00	52.73	350.30	9990.37	-517.48	-524.05	-222.40	16.73	461840.57	707667.87	N 32 16 6.70	W 103 47 42.69
	10199.00	57.87	347.97	10018.26	-477.74	-484.51	-230.01	11.19	461880.10	707660.26	N 32 16 7.09	W 103 47 42.78
	10294.00	73.26	346.59	10057.44	-393.13	-400.41	-249.06	16.25	461964.20	707641.21	N 32 16 7.93	W 103 47 43.00
	10388.00	87.86	349.57	10072.82	-302.14	-309.93	-268.11	15.84	462054.67	707622.17	N 32 16 8.82	W 103 47 43.21
	10448.00	89.00	350.18	10074.47	-242.83	-250.88	-278.65	2.15	462113.71	707611.62	N 32 16 9.41	W 103 47 43.33
	10514.00	86.10	354.42	10077.29	-177.28	-185.56	-287.49	7.78	462179.03	707602.79	N 32 16 10.05	W 103 47 43.43
	10672.00	85.82	359.92	10088.43	-19.77	-28.21	-295.27	3.48	462336.38	707595.01	N 32 16 11.61	W 103 47 43.51
	10769.00	89.37	0.22	10092.50	77.09	68.69	-295.15	3.67	462433.27	707595.13	N 32 16 12.57	W 103 47 43.50
	10955.00	92.12	0.31	10090.08	262.95	254.66	-294.29	1.48	462619.22	707595.99	N 32 16 14.41	W 103 47 43.48
	11049.00	91.71	1.35	10086.94	356.81	348.59	-292.93	1.19	462713.15	707597.35	N 32 16 15.34	W 103 47 43.46
	11235.00	89.40	359.43	10085.14	542.67	534.56	-291.66	1.61	462899.11	707598.61	N 32 16 17.18	W 103 47 43.44
	11328.00	89.61	0.05	10085.94	635.64	627.55	-292.09	0.70	462992.10	707598.19	N 32 16 18.10	W 103 47 43.44
	11422.00	89.40	1.31	10086.75	729.55	721.54	-290.97	1.36	463086.08	707599.31	N 32 16 19.03	W 103 47 43.42
	11608.00	89.78	1.15	10088.08	915.32	907.49	-286.98	0.22	463272.02	707603.30	N 32 16 20.87	W 103 47 43.36
	11701.00	89.37	0.75	10088.77	1008.22	1000.48	-285.44	0.62	463365.00	707604.84	N 32 16 21.79	W 103 47 43.34
	11795.00	89.54	1.90	10089.67	1102.09	1094.45	-283.26	1.24	463458.96	707607.01	N 32 16 22.72	W 103 47 43.31
	11888.00	89.95	1.68	10090.08	1194.92	1187.40	-280.36	0.50	463551.91	707609.92	N 32 16 23.64	W 103 47 43.27
	11981.00	90.30	1.33	10089.88	1287.78	1280.37	-277.92	0.53	463644.87	707612.36	N 32 16 24.56	W 103 47 43.23
	12074.00	90.23	2.74	10089.45	1380.59	1373.31	-274.61	1.52	463737.80	707615.66	N 32 16 25.48	W 103 47 43.19
	12261.00	90.33	3.68	10088.53	1566.91	1560.01	-264.14	0.51	463924.49	707626.13	N 32 16 27.32	W 103 47 43.06
	12354.00	90.23	3.76	10088.08	1659.51	1652.81	-258.11	0.14	464017.29	707632.17	N 32 16 28.24	W 103 47 42.98
	12447.00	89.61	1.69	10088.21	1752.23	1745.70	-253.69	2.32	464110.17	707636.59	N 32 16 29.16	W 103 47 42.92
	12541.00	90.16	0.12	10088.40	1846.14	1839.69	-252.20	1.77	464204.15	707638.07	N 32 16 30.09	W 103 47 42.90
	12634.00	90.12	359.58	10088.17	1939.10	1932.68	-252.45	0.58	464297.15	707637.83	N 32 16 31.01	W 103 47 42.90
	12820.00	90.16	0.77	10087.72	2125.01	2118.68	-251.88	0.64	464483.13	707638.40	N 32 16 32.85	W 103 47 42.88
	12914.00	90.36	0.09	10087.29	2218.94	2212.68	-251.17	0.75	464577.12	707639.10	N 32 16 33.78	W 103 47 42.87
	13007.00	90.06	359.93	10086.95	2311.90	2305.67	-251.16	0.37	464670.11	707639.12	N 32 16 34.70	W 103 47 42.86
	13100.00	89.99	358.19	10086.91	2404.89	2398.66	-252.68	1.87	464763.09	707637.59	N 32 16 35.62	W 103 47 42.87
	13194.00	89.81	358.69	10087.07	2498.89	2492.62	-255.24	0.57	464857.05	707635.03	N 32 16 36.55	W 103 47 42.90
	13287.00	90.91	358.27	10086.49	2591.89	2585.59	-257.71	1.27	464950.01	707632.57	N 32 16 37.47	W 103 47 42.92
	13380.00	90.33	358.42	10085.48	2684.88	2678.54	-260.39	0.64	465042.96	707629.88	N 32 16 38.39	W 103 47 42.95
	13567.00	91.09	0.13	10083.17	2871.84	2865.50	-262.76	1.00	465229.91	707627.52	N 32 16 40.24	W 103 47 42.96
	13660.00	89.30	356.82	10082.85	2964.82	2958.45	-265.23	4.05	465322.85	707625.04	N 32 16 41.16	W 103 47 42.99
	13753.00	89.95	355.81	10083.46	3057.76	3051.26	-271.21	1.29	465415.65	707619.07	N 32 16 42.08	W 103 47 43.05
	13940.00	90.09	355.45	10083.39	3244.54	3237.71	-285.46	0.21	465602.10	707604.82	N 32 16 43.93	W 103 47 43.21
	14033.00	90.64	356.38	10082.80	3337.46	3330.47	-292.08	1.16	465694.85	707598.19	N 32 16 44.84	W 103 47 43.28
	14219.00	89.85	358.65	10082.00	3523.42	3516.28	-300.15	1.29	465880.65	707590.13	N 32 16 46.68	W 103 47 43.36
	14408.00	90.09	1.07	10082.10	3712.34	3705.27	-300.61	1.29	466069.62	707589.67	N 32 16 48.55	W 103 47 43.36
	14502.00	87.96	359.30	10083.70	3806.27	3799.25	-300.31	2.95	466163.59	707589.97	N 32 16 49.48	W 103 47 43.35
	14691.00	87.86	358.44	10090.60	3995.14	3988.08	-304.03	0.46	466352.42	707586.25	N 32 16 51.35	W 103 47 43.38
	14786.00	87.92	357.95	10094.09	4090.07	4082.97	-307.02	0.52	466447.30	707583.26	N 32 16 52.29	W 103 47 43.41
	14880.00	90.02	357.73	10095.78	4184.05	4176.88	-310.56	2.25	466541.21	707579.72	N 32 16 53.22	W 103 47 43.44
	14975.00	91.22	358.75	10094.75	4279.04	4271.83	-313.48	1.66	466636.15	707576.80	N 32 16 54.16	W 103 47 43.47
	15069.00	89.71	358.12	10093.99	4373.03	4365.79	-316.05	1.74	466730.10	707574.23	N 32 16 55.09	W 103 47 43.50
	15164.00	89.95	358.66	10094.27	4468.03	4460.75	-318.72	0.62	466825.06	707571.56	N 32 16 56.03	W 103 47 43.52
	15259.00	89.71	357.80	10094.56	4563.03	4555.70	-321.65	0.94	466920.01	707568.63	N 32 16 56.97	W 103 47 43.55
	15354.00	90.95	359.41	10094.01	4658.02	4650.67	-323.96	2.14	467014.96	707566.32	N 32 16 57.91	W 103 47 43.57
	15449.00	91.02	359.75	10092.38	4752.99	4745.65	-324.66	0.37	467109.94	707565.62	N 32 16 58.85	W 103 47 43.58
	15543.00	90.98	0.43	10090.73	4846.93	4839.64	-324.51	0.72	467203.92	707565.77	N 32 16 59.78	W 103 47 43.57
	15638.00	90.98	0.14	10089.11	4941.86	4934.62	-324.04	0.31	467298.90	707566.24	N 32 17 0.72	W 103 47 43.56
	15733.00	90.85	0.42	10087.59	5036.80	5029.61	-323.58	0.32	467393.88	707566.70	N 32 17 1.66	W 103 47 43.55
	15828.00	91.26	359.94	10085.84	5131.73	5124.59	-323.28	0.66	467488.86	707567.00	N 32 17 2.60	W 103 47 43.54
	15923.00	90.40	0.49	10084.47	5226.67	5219.58	-322.92	1.07	467583.84	707567.36	N 32 17 3.54	W 103 47 43.53
	16018.00	90.36	1.51	10083.84	5321.57	5314.56	-321.26	1.07	467678.82	707569.02	N 32 17 4.48	W 103 47 43.50
	16112.00	90.71	2.23	10082.96	5415.39	5408.51	-318.20	0.85	467772.76	707572.08	N 32 17 5.41	W 103 47 43.46
	16207.00	90.50	2.74	10081.96	5510.14	5503.41	-314.08	0.58	467867.66	707576.20	N 32 17 6.35	W 103 47 43.41
	16302.00	89.30	0.51	10082.12	5604.97	5598.37	-311.38	2.67	467962.60	707578.90	N 32 17 7.29	W 103 47 43.37
	16397.00	90.06	2.40	10082.65	5699.83	5693.33	-308.97	2.14	468057.56	707581.31	N 32 17 8.23	W 103 47 43.34
	16492.00	88.58	0.35	10083.78	5794.68	5788.29	-306.69	2.66	468152.51	707583.59	N 32 17 9.17	W 103 47 43.31
	16587.00	88.92	359.30	10085.85	5889.63	5883.26	-306.98	1.16	468247.48	707583.30	N 32 17 10.11	W 103 47 43.30
	16681.00	88.78	0.01	10087.74	5983.58	5977.24	-307.55	0.77	468341.46	707582.73	N 32 17 11.04	W 103 47 43.30
	16776.00	88.06	359.88	10090.36	6078.51	6072.20	-307.64	0.77	468436.41	707582.64	N 32 17 11.97	W 103 47 43.30
	16871.00	89.33	0.07	10092.52	6173.45	6167.18	-307.68	1.35	468531.38	707582.60	N 32 17 12.91	W 103 47 43.29
	16966.00	89.81	0.95	10093.24	6268.38	6262.17	-306.84	1.06	468626.37	707583.44	N 32 17 13.85	W 103 47 43.28
	17060.00	90.23	0.63	10093.20	6362.29	6356.16	-305.54	0.56	468720.35	707584.74	N 32 17 14.78	W 103 47 43.26
	17155.00	89.30	1.60	10093.59	6457.18	6451.14	-303.69	1.41	468815.33	707586.59	N 32 17 15.72	W 103 47 43.23
	17250.00	89.92	0.34	10094.24	6552.08	6546.12	-302.08	1.48	468910.30	707588.20	N 32 17 16.66	W 103 47 43.21
	17345.00	89.99	0.80	10094.31	6647.01	6641.12	-301.14	0.49	469005.29	707589.14	N 32 17 17.60	W 103 47 43.19
	17440.00	90.16	0.58	10094.19	6741.93	6736.11	-299.99	0.29	469100.28	707590.29	N 32 17 18.54	W 103 47 43.17
	17534.00	90.54	0.39	10093.62	6835.86	6830.10	-299.20	0.45	469194.27	707591.08	N 32 17 19.47	W 103 47 43.16
	17629.00	90.19	0.72	10093.01	6930.79	6925.10	-298.28	0.51	469289.25	707592.00	N 32 17 20.41	W 103 47 43.14
	17724.00	90.54	0.63	10092.41	7025.71	7020.09	-297.16	0.38	469384.24	707593.12	N 32 17 21.35	W 103 47 43.12
	17818.00	90.61	1.40	10091.46	7119.60	7114.07	-295.49	0.82	469478.21	707594.78	N 32 17 22.28	W 103 47 43.10
	17913.00	90.26	1.16	10090.74	7214.48	7209.04	-293.37	0.45	469573.18	707596.91	N 32 17 23.22	W 103 47 43.07
	18008.00	90.43	0.10	10090.17	7309.40	7304.03	-292.33	1.13	469668.17	707597.95	N 32 17 24.16	W 103 47 43.05
	18102.00	90.06	359.64	10089.77	7403.37	7398.03	-292.54	0.63	469762.16	707597.74	N 32 17 25.09	W 103 47 43.05
	18197.00	90.23	0.45	10089.53	7498.33	7493.03	-292.47	0.87	469857.15	707597.81	N 32 17 26.03	W 103 47 43.04
	18386.00	89.81	0.53	10089.46	7687.20	7682.02	-290.85	0.23	470046.13	707599.43	N 32 17 27.90	W 103 47 43.01
	18481.00	90.06	0.76	10089.57	7782.12	7777.02	-289.78	0.36	470141.12	707600.50	N 32 17 28.84	W 103 47 42.99
	18576.00	90.09	0.06	10089.44	7877.06	7872.01	-289.10	0.74	470236.11	707601.18	N 32 17 29.78	W 103 47 42.98
	18670.00	90.09	0.30	10089.30	7971.01	7966.01	-288.80	0.26	470330.11	707601.47	N 32 17 30.71	W 103 47 42.97

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 ° ' ")
	18765.00	89.95	359.91	10089.26	8065.97	8061.01	-288.63	0.44	470425.10	707601.65	N 32 17 31.65	W 103 47 42.96
	18860.00	90.23	359.32	10089.11	8160.94	8156.01	-289.27	0.69	470520.09	707601.01	N 32 17 32.59	W 103 47 42.96
	18955.00	89.95	358.59	10088.96	8255.94	8250.99	-291.00	0.82	470615.07	707599.28	N 32 17 33.53	W 103 47 42.98
	19049.00	90.02	358.08	10088.99	8349.94	8344.95	-293.73	0.55	470709.02	707596.55	N 32 17 34.46	W 103 47 43.00
	19144.00	89.81	357.07	10089.13	8444.93	8439.87	-297.75	1.09	470803.93	707592.53	N 32 17 35.40	W 103 47 43.05
	19239.00	90.09	356.44	10089.21	8539.89	8534.71	-303.13	0.73	470898.77	707587.15	N 32 17 36.34	W 103 47 43.10
	19333.00	90.19	357.50	10088.98	8633.86	8628.58	-308.10	1.13	470992.63	707582.18	N 32 17 37.27	W 103 47 43.16
	19428.00	90.30	357.45	10088.58	8728.85	8723.49	-312.28	0.13	471087.53	707578.00	N 32 17 38.21	W 103 47 43.20
	19523.00	90.36	359.10	10088.03	8823.84	8818.44	-315.14	1.74	471182.48	707575.14	N 32 17 39.15	W 103 47 43.23
	19618.00	89.54	358.98	10088.11	8918.83	8913.43	-316.73	0.87	471277.46	707573.54	N 32 17 40.09	W 103 47 43.24
	19713.00	89.61	359.80	10088.82	9013.82	9008.42	-317.75	0.87	471372.45	707572.53	N 32 17 41.03	W 103 47 43.25
	19807.00	88.58	359.29	10090.30	9107.78	9102.40	-318.49	1.22	471466.42	707571.79	N 32 17 41.96	W 103 47 43.25
	19902.00	88.82	359.55	10092.46	9202.74	9197.37	-319.45	0.37	471561.39	707570.83	N 32 17 42.90	W 103 47 43.25
	19997.00	88.71	359.29	10094.50	9297.70	9292.34	-320.42	0.30	471656.36	707569.86	N 32 17 43.84	W 103 47 43.26
	20092.00	89.23	359.85	10096.21	9392.67	9387.33	-321.13	0.80	471751.33	707569.15	N 32 17 44.78	W 103 47 43.26
	20187.00	89.09	359.35	10097.61	9487.63	9482.31	-321.79	0.55	471846.31	707568.49	N 32 17 45.72	W 103 47 43.27
	20282.00	89.06	358.85	10099.14	9582.61	9577.29	-323.28	0.53	471941.28	707567.00	N 32 17 46.66	W 103 47 43.28
	20377.00	90.16	359.82	10099.79	9677.60	9672.28	-324.39	1.54	472036.27	707565.89	N 32 17 47.60	W 103 47 43.28
	20567.00	89.02	359.61	10101.14	9867.53	9862.27	-325.33	0.61	472226.24	707564.95	N 32 17 49.48	W 103 47 43.28
	20662.00	89.85	0.21	10102.08	9962.49	9957.26	-325.48	1.08	472321.23	707564.80	N 32 17 50.42	W 103 47 43.28
	20757.00	89.23	359.57	10102.84	10057.46	10052.26	-325.66	0.94	472416.22	707564.62	N 32 17 51.36	W 103 47 43.28
	20852.00	90.36	359.09	10103.18	10152.44	10147.25	-326.77	1.29	472511.21	707563.51	N 32 17 52.30	W 103 47 43.28
	20947.00	89.68	359.46	10103.15	10247.43	10242.24	-327.97	0.81	472606.19	707562.31	N 32 17 53.24	W 103 47 43.29
	21042.00	89.88	359.91	10103.52	10342.40	10337.24	-328.50	0.52	472701.18	707561.78	N 32 17 54.18	W 103 47 43.29
	21137.00	91.46	0.47	10102.41	10437.34	10432.23	-328.18	1.76	472796.17	707562.10	N 32 17 55.12	W 103 47 43.28
	21232.00	90.54	359.84	10100.75	10532.28	10527.21	-327.93	1.17	472891.15	707562.35	N 32 17 56.06	W 103 47 43.28
	21326.00	89.85	359.69	10100.43	10626.25	10621.21	-328.31	0.75	472985.14	707561.97	N 32 17 56.99	W 103 47 43.27
	21421.00	89.02	0.02	10101.36	10721.21	10716.20	-328.55	0.94	473080.13	707561.73	N 32 17 57.93	W 103 47 43.27
	21516.00	88.34	359.85	10103.55	10816.15	10811.18	-328.66	0.74	473175.10	707561.62	N 32 17 58.87	W 103 47 43.27
	21610.00	87.86	358.88	10106.67	10910.09	10905.12	-329.70	1.15	473269.03	707560.58	N 32 17 59.80	W 103 47 43.27
	21705.00	89.09	359.23	10109.20	11005.04	11000.07	-331.27	1.35	473363.98	707559.01	N 32 18 0.74	W 103 47 43.29
	21800.00	89.20	359.54	10110.61	11100.02	11095.05	-332.29	0.35	473458.95	707557.99	N 32 18 1.68	W 103 47 43.29
	21895.00	89.68	359.61	10111.54	11194.99	11190.05	-332.99	0.51	473553.94	707557.29	N 32 18 2.62	W 103 47 43.30
	21990.00	89.16	359.56	10112.51	11289.96	11285.04	-333.68	0.55	473648.93	707556.60	N 32 18 3.56	W 103 47 43.30
	22085.00	92.05	359.99	10111.50	11384.92	11380.02	-334.05	3.08	473743.91	707556.23	N 32 18 4.50	W 103 47 43.30
	22180.00	92.43	0.89	10107.79	11479.78	11474.94	-333.32	1.03	473838.82	707556.96	N 32 18 5.44	W 103 47 43.28
	22370.00	90.02	359.31	10103.73	11669.63	11664.88	-332.99	1.52	474028.75	707557.29	N 32 18 7.31	W 103 47 43.27
	22464.00	90.12	359.22	10103.61	11763.62	11758.87	-334.20	0.14	474122.73	707556.08	N 32 18 8.25	W 103 47 43.28
	22559.00	90.54	358.62	10103.06	11858.61	11853.85	-335.99	0.77	474217.71	707554.29	N 32 18 9.18	W 103 47 43.29
	22654.00	90.26	358.71	10102.40	11953.61	11948.83	-338.20	0.31	474312.68	707552.08	N 32 18 10.12	W 103 47 43.31
	22749.00	90.30	357.91	10101.94	12048.61	12043.78	-341.00	0.84	474407.63	707549.28	N 32 18 11.06	W 103 47 43.34
	22844.00	90.71	358.41	10101.10	12143.60	12138.73	-344.05	0.68	474502.57	707546.23	N 32 18 12.00	W 103 47 43.37
	22939.00	90.36	358.41	10100.21	12238.60	12233.69	-346.69	0.37	474597.52	707543.59	N 32 18 12.94	W 103 47 43.39
	23034.00	90.19	357.82	10099.76	12333.60	12328.64	-349.81	0.65	474692.46	707540.47	N 32 18 13.88	W 103 47 43.43
	23129.00	90.40	358.49	10099.27	12428.59	12423.58	-352.87	0.74	474787.40	707537.41	N 32 18 14.82	W 103 47 43.46
100' FNL Crossed	*23159.00*	*90.41*	*358.28*	*10099.06*	*12458.59*	*12453.57*	*-353.72*	*0.72*	*474817.39*	*707536.56*	*N 32 18 15.12*	*W 103 47 43.46*
Final MWD	23196.00	90.43	358.01	10098.78	12495.59	12490.55	-354.92	0.72	474854.37	707535.36	N 32 18 15.49	W 103 47 43.48
Proj to TD	23238.00	90.43	358.01	10098.47	12537.59	12532.52	-356.38	0.00	474896.34	707533.90	N 32 18 15.90	W 103 47 43.49

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 (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 Pure Gold MDP1 29-17 Federal Com 5H Gyro + MWD 0-23238'MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Pure Gold MDP1 29-17 Federal Com 5H Gyro + MWD 0-23238'MD
	1	26.500	667.310	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Pure Gold MDP1 29-17 Federal Com 5H
	1	667.310	4165.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Pure Gold MDP1 29-17 Federal Com 5H
	1	4165.000	6546.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Pure Gold MDP1 29-17 Federal Com 5H
	1	6546.000	23238.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Pure Gold MDP1 29-17 Federal Com 5H