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

December 23, 2018

Oxy USA INC
P.O. Box 4294
Huston, Tx 77210

Re:

S27, T22S, R32E, 260FNL 820FWL
N 31.369206 W 103.66846

CLIENT: Oxy USA INC
WELL: Taco Cat 28-34 Federal Com 31H
FIELD: Bone Spring

RIG: H&P 656
COUNTY: Eddy
API NO: 30-025-44935
JOB NO: 18MLD3586

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
Juan Estrada FS	Taco Cat 28-34 Federal Com 31H Side Track	11141.00 Ft to 22123.00 Ft	December 10, 2018 to December 20, 2018	TelePacer SlimPulse

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

Dustin Barlow
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)
Fax : (432) 742-5606 (Shared)

Schlumberger

Well Reference:
S27, T22S, R32E, 260FNL 820FWL
N 31.369206 W 103.66846

I, Juan Estrada certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of December 10, 2018 through December 20, 2018, conduct or supervise the taking of the TelePacer & SlimPulse surveys from a depth of 11141.00 feet to a depth of 22123.00 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 Taco Cat 28-34 Federal Com 31H Well (Side Track) API No. 30-025-44935 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
Juan Estrada
FS

Subscribed and Sworn to before me this _____ day of _____ (month) _____(yr)

My Commission expires:

_____

_____ (signature)
Notary Public

_____
(County State)

Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
ST01	Taco Cat 27-34 Federal Com 31H	NM Lea County (NAD 83)	Oxy Taco Cat 27-34 Federal Com 31H

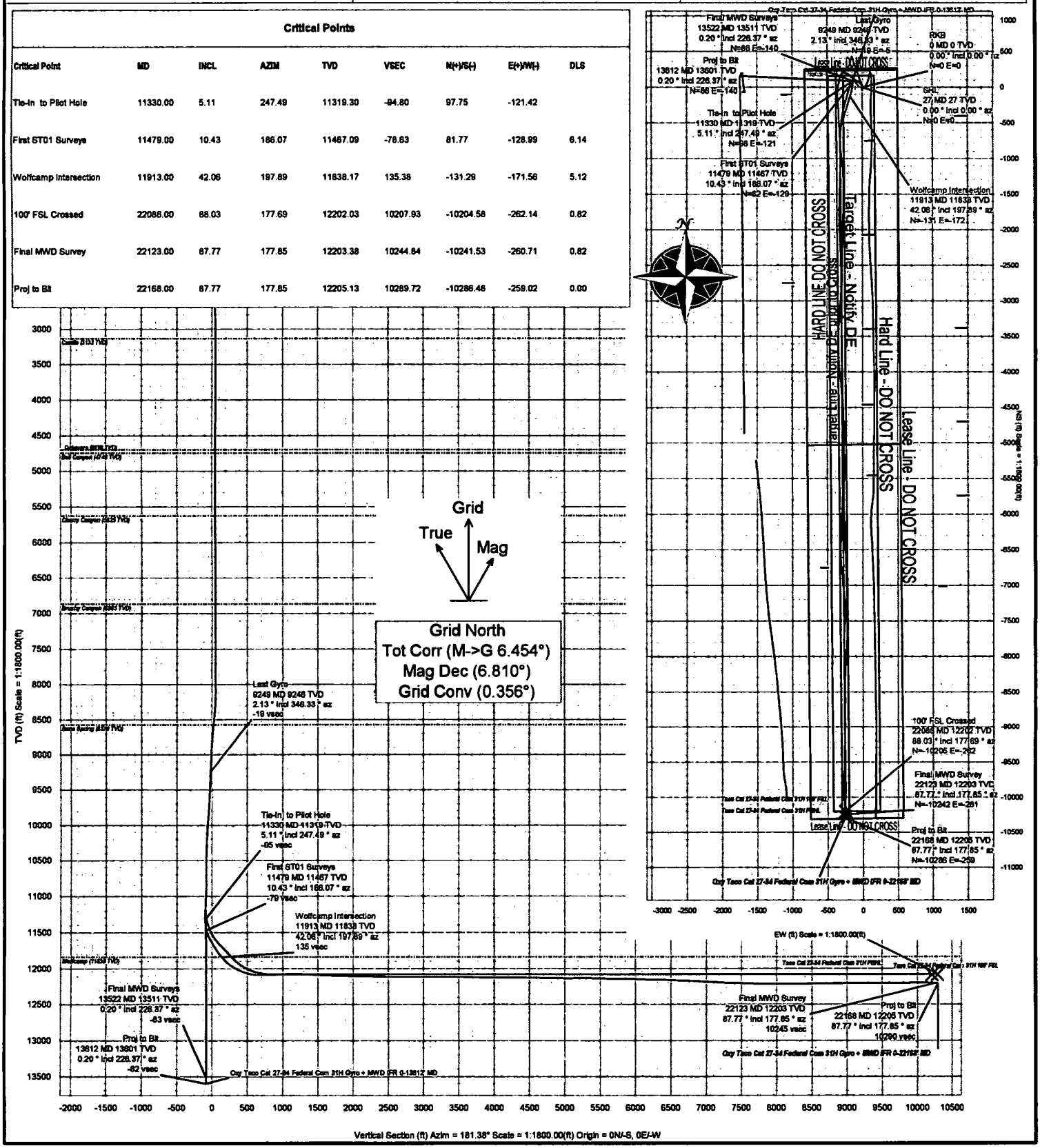
Gravity & Magnetic Parameters
Model: IFR1 Dip: 60.159° Date: 06-Dec-2019
MagDec: 6.81° FB: 48181nT Gravity FB: 998.454mgn (9.80665 Based)

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet
Lat: N 32 22 5.14 Northing: 439868.328US Grid Conv: 0.356°
Lon: W 103 49 6.46 Easting: 745812.782US Scale Fact: 0.99996736

Miscellaneous
Slot: Oxy Taco Cat 27-34 Federal Com 31H TVD Ref: RKB(3661.78 above MSL)
Plan: Oxy Taco Cat 27-34 Federal Com 31H ST01 Gyro + MWD IFR 0-22168' MD

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
Tie-In to Pilot Hole	11330.00	5.11	247.49	11319.30	-94.80	97.75	-121.42	
First ST01 Surveye	11479.00	10.43	186.07	11467.09	-78.63	81.77	-128.99	6.14
Wolfcamp Intersection	11913.00	42.06	197.89	11838.17	135.38	-131.29	-171.56	5.12
100' FSL Crossed	22088.00	88.03	177.69	12202.03	10207.93	-10204.58	-262.14	0.82
Final MWD Survey	22123.00	87.77	177.85	12203.38	10244.84	-10241.53	-260.71	0.82
Proj to Bit	22168.00	87.77	177.85	12205.13	10289.72	-10286.46	-259.02	0.00



Schlumberger

Oxy Taco Cat 27-34 Federal Com 31H ST01 Gyro + MWD IFR 0-22168' MD
Survey Geodetic Report
(Def Survey)

Report Date:	December 23, 2018 - 10:02 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	181.380 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Taco Cat 27-34 Federal Com 31H / Oxy Taco Cat 27-34 Federal Com 31H	**TVD Reference Datum:**	RKB
Well:	Taco Cat 27-34 Federal Com 31H	**TVD Reference Elevation:**	3681.700 ft above MSL
Borehole:	ST01	**Seabed / Ground Elevation:**	3635.200 ft above MSL
UWI / API#:	H&P 656 / 30-025-44935	**Magnetic Declination:**	6.810 °
Survey Name:	Oxy Taco Cat 27-34 Federal Com 31H ST01 Gyro + MWD IFR 0-22168' MD	**Total Gravity Field Strength:**	998.4543mgn (9.80665 Based)
Survey Date:	October 30, 2018	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	274.865 ° / 10709.944 ft / 6.728 / 0.877	**Total Magnetic Field Strength:**	48151.000 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	60.155 °
Location Lat / Long:	N 32° 22' 9.14072", W 103° 40' 6.44830"	**Declination Date:**	December 06, 2018
Location Grid N/E Y/X:	N 498686.382 ftUS, E 746812.780 ftUS	**Magnetic Declination Model:**	IFR1
CRS Grid Convergence Angle:	0.3560 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99995735	**Grid Convergence Used:**	0.3560 °
Version / Patch:	2.10.753.0	**Total Corr Mag North->Grid North:**	6.4540 °
		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	0.00	0.00	0.00	0.00	0.00	N/A	498686.38	746812.78	N 32 22 9.14	W 103 40 6.45
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	498686.38	746812.78	N 32 22 9.14	W 103 40 6.45
	84.00	0.62	295.89	84.00	-0.13	0.13	-0.28	1.08	498686.52	746812.50	N 32 22 9.14	W 103 40 6.45
	176.00	0.65	293.70	175.99	-0.53	0.56	-1.21	0.04	498686.94	746811.57	N 32 22 9.15	W 103 40 6.46
	268.00	0.84	297.93	267.99	-0.96	1.01	-2.14	0.05	498687.39	746810.64	N 32 22 9.15	W 103 40 6.47
	360.00	0.53	303.42	359.98	-1.41	1.49	-2.95	0.13	498687.87	746809.83	N 32 22 9.16	W 103 40 6.48
	452.00	0.36	307.42	451.98	-1.81	1.90	-3.53	0.19	498688.28	746809.25	N 32 22 9.16	W 103 40 6.49
	544.00	0.07	318.57	543.98	-2.02	2.11	-3.80	0.32	498688.50	746808.98	N 32 22 9.16	W 103 40 6.49
	637.00	0.05	330.88	636.98	-2.10	2.19	-3.88	0.03	498688.57	746808.92	N 32 22 9.16	W 103 40 6.49
	729.00	0.06	95.68	728.98	-2.13	2.22	-3.83	0.11	498688.60	746808.95	N 32 22 9.16	W 103 40 6.49
	820.00	0.09	160.99	819.98	-2.06	2.15	-3.76	0.09	498688.53	746809.02	N 32 22 9.16	W 103 40 6.49
	911.00	0.37	221.64	910.98	-1.77	1.86	-3.93	0.37	498688.24	746808.85	N 32 22 9.16	W 103 40 6.49
	1002.00	0.74	202.77	1001.97	-1.00	1.10	-4.35	0.45	498687.48	746808.43	N 32 22 9.15	W 103 40 6.50
	1093.00	1.10	193.76	1092.96	0.40	-0.29	-4.79	0.43	498686.09	746807.99	N 32 22 9.14	W 103 40 6.50
	1185.00	1.19	190.73	1184.94	2.21	-2.09	-5.18	0.12	498684.30	746807.61	N 32 22 9.12	W 103 40 6.51
	1278.00	1.07	189.26	1275.93	3.98	-3.85	-5.49	0.14	498682.53	746807.29	N 32 22 9.10	W 103 40 6.51
	1367.00	0.98	183.78	1368.91	5.60	-5.47	-5.68	0.15	498680.91	746807.10	N 32 22 9.09	W 103 40 6.51
	1457.00	1.00	178.24	1458.90	7.16	-7.02	-5.70	0.11	498679.36	746807.08	N 32 22 9.07	W 103 40 6.52
	1549.00	1.04	172.77	1548.88	8.78	-8.65	-5.57	0.11	498677.73	746807.21	N 32 22 9.06	W 103 40 6.51
	1644.00	1.09	168.80	1643.87	10.52	-10.39	-5.29	0.09	498675.99	746807.49	N 32 22 9.04	W 103 40 6.51
	1738.00	1.19	165.05	1737.85	12.33	-12.21	-4.86	0.13	498674.17	746807.92	N 32 22 9.02	W 103 40 6.51
	1833.00	1.28	164.00	1832.83	14.29	-14.19	-4.32	0.10	498672.20	746808.46	N 32 22 9.00	W 103 40 6.50
	1927.00	1.39	164.46	1926.80	16.38	-16.29	-3.72	0.12	498670.09	746809.06	N 32 22 8.98	W 103 40 6.49
	2021.00	1.51	164.74	2020.77	18.66	-18.59	-3.09	0.13	498667.80	746809.69	N 32 22 8.96	W 103 40 6.49
	2116.00	1.55	164.51	2115.74	21.08	-21.03	-2.42	0.04	498665.35	746810.36	N 32 22 8.93	W 103 40 6.48
	2210.00	1.70	161.90	2209.70	23.62	-23.58	-1.64	0.18	498662.80	746811.14	N 32 22 8.91	W 103 40 6.47
	2305.00	1.92	158.58	2304.65	26.41	-26.40	-0.63	0.26	498659.98	746812.15	N 32 22 8.88	W 103 40 6.46
	2399.00	2.07	157.49	2398.59	29.42	-29.44	0.60	0.16	498656.94	746813.38	N 32 22 8.85	W 103 40 6.44
	2494.00	2.15	157.02	2493.53	32.61	-32.66	1.95	0.09	498653.72	746814.73	N 32 22 8.82	W 103 40 6.43
	2589.00	2.21	155.98	2588.46	35.89	-35.98	3.39	0.08	498650.41	746816.17	N 32 22 8.78	W 103 40 6.41
	2683.00	2.25	155.34	2682.39	39.18	-39.31	4.90	0.05	498647.07	746817.68	N 32 22 8.75	W 103 40 6.39
	2778.00	2.22	153.88	2777.32	42.49	-42.66	6.49	0.07	498643.73	746819.27	N 32 22 8.72	W 103 40 6.38
	2873.00	2.19	152.44	2872.25	45.71	-45.92	8.14	0.07	498640.47	746820.92	N 32 22 8.69	W 103 40 6.36
	2967.00	1.16	143.20	2966.21	48.03	-48.27	9.54	1.13	498638.11	746822.32	N 32 22 8.66	W 103 40 6.34
	3062.00	0.06	74.14	3061.20	48.77	-49.03	10.16	1.20	498637.36	746822.94	N 32 22 8.65	W 103 40 6.33
	3156.00	0.03	309.83	3155.20	48.74	-49.00	10.19	0.09	498637.39	746822.97	N 32 22 8.66	W 103 40 6.33
	3251.00	0.03	293.59	3250.20	48.71	-48.97	10.15	0.01	498637.41	746822.93	N 32 22 8.66	W 103 40 6.33
	3345.00	0.07	281.56	3344.20	48.70	-48.95	10.07	0.04	498637.43	746822.85	N 32 22 8.66	W 103 40 6.33
	3440.00	0.08	270.30	3439.20	48.69	-48.94	9.95	0.02	498637.44	746822.73	N 32 22 8.66	W 103 40 6.34
	3535.00	0.06	285.78	3534.20	48.67	-48.93	9.84	0.03	498637.46	746822.61	N 32 22 8.66	W 103 40 6.34
	3629.00	0.07	280.29	3628.20	48.65	-48.90	9.73	0.01	498637.48	746822.51	N 32 22 8.66	W 103 40 6.34
	3724.00	0.03	280.84	3723.20	48.64	-48.89	9.65	0.04	498637.50	746822.43	N 32 22 8.66	W 103 40 6.34
	3819.00	0.05	273.98	3818.20	48.63	-48.88	9.58	0.02	498637.50	746822.36	N 32 22 8.66	W 103 40 6.34
	3913.00	0.07	268.26	3912.20	48.64	-48.88	9.49	0.02	498637.51	746822.27	N 32 22 8.66	W 103 40 6.34
	4008.00	0.05	317.53	4007.20	48.61	-48.85	9.40	0.06	498637.53	746822.18	N 32 22 8.66	W 103 40 6.34
	4102.00	0.05	304.50	4101.20	48.56	-48.80	9.34	0.01	498637.59	746822.12	N 32 22 8.66	W 103 40 6.34
	4197.00	0.05	312.78	4196.20	48.51	-48.74	9.27	0.01	498637.64	746822.05	N 32 22 8.66	W 103 40 6.34
	4292.00	0.06	325.99	4291.20	48.44	-48.68	9.22	0.02	498637.71	746822.00	N 32 22 8.66	W 103 40 6.34
	4386.00	0.07	287.52	4385.20	48.38	-48.62	9.13	0.05	498637.77	746821.91	N 32 22 8.66	W 103 40 6.35
	4480.00	0.11	305.05	4479.20	48.32	-48.55	9.00	0.05	498637.84	746821.78	N 32 22 8.66	W 103 40 6.35
	4575.00	0.14	313.54	4574.20	48.19	-48.42	8.85	0.04	498637.97	746821.63	N 32 22 8.66	W 103 40 6.35
	4669.00	0.12	295.54	4668.20	48.07	-48.29	8.67	0.05	498638.09	746821.45	N 32 22 8.66	W 103 40 6.35
	4763.00	0.09	299.53	4762.20	48.00	-48.22	8.52	0.03	498638.17	746821.30	N 32 22 8.66	W 103 40 6.35
	4858.00	0.10	290.11	4857.20	47.93	-48.15	8.38	0.02	498638.23	746821.16	N 32 22 8.66	W 103 40 6.35
	4952.00	0.09	272.74	4951.20	47.91	-48.12	8.23	0.03	498638.27	746821.01	N 32 22 8.66	W 103 40 6.36
	5047.00	0.08	308.10	5046.20	47.87	-48.08	8.10	0.05	498638.31	746820.88	N 32 22 8.66	W 103 40 6.36
	5142.00	0.09	298.21	5141.20	47.80	-48.00	7.98	0.02	498638.38	746820.76	N 32 22 8.67	W 103 40 6.36
	5236.00	0.09	298.91	5235.20	47.73	-47.93	7.85	0.00	498638.45	746820.63	N 32 22 8.67	W 103 40 6.36
	5331.00	0.09	296.32	5330.20	47.66	-47.86	7.72	0.00	498638.52	746820.50	N 32 22 8.67	W 103 40 6.36
	5426.00	0.07	301.78	5425.20	47.60	-47.80	7.60	0.02	498638.59	746820.38	N 32 22 8.67	W 103 40 6.36
	5520.00	0.09	283.91	5519.20	47.56	-47.75	7.48	0.03	498638.63	746820.26	N 32 22 8.67	W 103 40 6.36
	5615.00	0.12	299.97	5614.20	47.49	-47.68	7.32	0.04	498638.70	746820.10	N 32 22 8.67	W 103 40 6.37
	5709.00	0.07	301.88	5708.20	47.42	-47.60	7.19	0.05	498638.78	746819.97	N 32 22 8.67	W 103 40 6.37
	5804.00	0.09	314.09	5803.20	47.34	-47.52	7.09	0.03	498638.86	746819.87	N 32 22 8.67	W 103 40 6.37
	5899.00	0.09	302.83	5898.20	47.25	-47.43	6.97	0.02	498638.96	746819.75	N 32 22 8.67	W 103 40 6.37
	5993.00	0.10	312.31	5992.20	47.15	-47.33	6.85	0.02	498639.05	746819.63	N 32 22 8.67	W 103 40 6.37
	6088.00	0.10	239.35	6087.20	47.14	-47.32	6.71	0.13	498639.06	746819.49	N 32 22 8.67	W 103 40 6.37
	6182.00	0.08	237.09	6181.20	47.22	-47.40	6.59	0.02	498638.99	746819.37	N 32 22 8.67	W 103 40 6.37
	6276.00	0.08	235.16	6275.20	47.30	-47.47	6.48	0.00	498638.91	746819.26	N 32 22 8.67	W 103 40 6.38
	6371.00	0.10	240.46	6370.20	47.38	-47.55	6.35	0.02	498638.84	746819.13	N 32 22 8.67	W 103 40 6.38
	6465.00	0.10	239.11	6464.20	47.47	-47.63	6.21	0.00	498638.75	746818.99	N 32 22 8.67	W 103 40 6.38
	6560.00	0.09	240.66	6559.20	47.55	-47.71	6.07	0.01	498638.67	746818.85	N 32 22 8.67	W 103 40 6.38
	6654.00	0.10	244.96	6653.20	47.62	-47.78	5.94	0.01	498638.60	746818.72	N 32 22 8.67	W 103 40 6.38
	6749.00	0.10	249.37	6748.20	47.69	-47.85	5.78	0.01	498638.54	746818.56	N 32 22 8.67	W 103 40 6.38
	6843.00	0.10	225.67	6842.20	47.78	-47.93	5.65	0.04	498638.45	746818.43	N 32 22 8.67	W 103 40 6.39
	6938.00	0.11	230.15	6937.20	47.90	-48.05	5.52	0.01	498638.34	746818.30	N 32 22 8.66	W 103 40 6.39
	7032.00	0.11	218.84	7031.20	48.03	-48.18	5.39	0.02	498638.21	746818.17	N 32 22 8.66	W 103 40 6.39

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 ° ' ")
	7127.00	0.11	233.43	7126.20	48.16	-48.30	5.26	0.03	498638.08	746618.04	N 32 22 8.66	W 103 40 6.39
	7222.00	0.14	244.85	7221.19	48.27	-48.41	5.08	0.04	498637.98	746617.86	N 32 22 8.66	W 103 40 6.39
	7316.00	0.15	237.05	7315.19	48.39	-48.52	4.88	0.02	498637.88	746617.66	N 32 22 8.66	W 103 40 6.39
	7411.00	0.22	237.86	7410.19	48.56	-48.69	4.62	0.07	498637.70	746617.40	N 32 22 8.66	W 103 40 6.40
	7506.00	0.32	245.10	7505.19	48.78	-48.89	4.22	0.11	498637.49	746617.00	N 32 22 8.66	W 103 40 6.40
	7601.00	0.36	246.54	7600.19	49.02	-49.13	3.71	0.04	498637.28	746616.49	N 32 22 8.65	W 103 40 6.41
	7695.00	0.41	242.87	7694.19	49.31	-49.40	3.14	0.06	498636.99	746615.92	N 32 22 8.65	W 103 40 6.42
	7790.00	0.38	238.38	7789.19	49.64	-49.72	2.57	0.04	498636.67	746615.35	N 32 22 8.65	W 103 40 6.42
	7884.00	0.44	214.46	7883.18	50.11	-50.18	2.10	0.19	498636.20	746614.88	N 32 22 8.64	W 103 40 6.43
	7978.00	0.56	198.45	7978.18	50.87	-50.93	1.76	0.21	498635.46	746614.54	N 32 22 8.64	W 103 40 6.43
	8073.00	0.33	198.69	8072.18	51.57	-51.62	1.54	0.25	498634.78	746614.32	N 32 22 8.63	W 103 40 6.43
	8168.00	1.23	355.84	8167.17	50.82	-50.86	1.38	1.62	498635.52	746614.16	N 32 22 8.64	W 103 40 6.44
	8262.00	2.65	357.23	8261.12	47.64	-47.69	1.21	1.51	498638.70	746613.99	N 32 22 8.67	W 103 40 6.44
	8357.00	3.81	357.94	8355.86	42.30	-42.34	0.99	1.22	498644.04	746613.77	N 32 22 8.72	W 103 40 6.44
	8451.00	5.03	356.16	8449.68	35.08	-35.11	0.60	1.31	498651.28	746613.38	N 32 22 8.79	W 103 40 6.44
	8545.00	5.84	354.12	8543.26	26.23	-26.24	-0.17	0.89	498660.15	746612.61	N 32 22 8.88	W 103 40 6.45
	8640.00	5.42	352.65	8637.80	17.01	-16.98	-1.24	0.47	498669.40	746611.54	N 32 22 8.97	W 103 40 6.46
	8734.00	4.74	354.41	8731.43	8.76	-8.71	-2.18	0.74	498677.67	746610.60	N 32 22 9.05	W 103 40 6.47
	8829.00	4.11	357.62	8826.15	1.47	-1.40	-2.71	0.71	498684.98	746610.07	N 32 22 9.13	W 103 40 6.48
	8923.00	2.97	359.79	8919.97	-4.33	4.40	-2.86	1.22	498690.78	746609.92	N 32 22 9.18	W 103 40 6.48
	9018.00	2.80	351.72	9014.85	-9.07	9.15	-3.20	0.46	498695.54	746609.58	N 32 22 9.23	W 103 40 6.48
	9112.00	2.81	354.16	9108.74	-13.46	13.56	-3.75	0.24	498699.94	746609.03	N 32 22 9.28	W 103 40 6.49
	9207.00	2.26	350.94	9203.66	-17.45	17.56	-4.26	0.40	498703.94	746608.52	N 32 22 9.31	W 103 40 6.50
Last Gyro	9249.00	2.13	346.33	9245.62	-19.02	19.13	-4.58	0.52	498705.51	746608.20	N 32 22 9.33	W 103 40 6.50
	9416.00	1.94	346.70	9412.52	-24.75	24.90	-5.96	0.11	498711.28	746606.82	N 32 22 9.39	W 103 40 6.52
	9605.00	3.32	323.43	9601.32	-32.16	32.41	-9.96	0.91	498718.79	746602.82	N 32 22 9.46	W 103 40 6.56
	9699.00	3.51	317.09	9695.15	-36.37	36.70	-13.54	0.45	498723.08	746599.24	N 32 22 9.50	W 103 40 6.60
	9794.00	5.61	321.25	9789.85	-42.00	42.45	-18.43	2.24	498728.83	746594.35	N 32 22 9.56	W 103 40 6.66
	9888.00	6.34	322.10	9883.34	-49.53	50.13	-24.49	0.78	498736.51	746588.29	N 32 22 9.64	W 103 40 6.73
	9983.00	5.91	321.39	9977.79	-57.34	58.09	-30.76	0.46	498744.47	746582.02	N 32 22 9.72	W 103 40 6.80
	10077.00	5.24	316.95	10071.35	-64.11	65.01	-36.71	0.85	498751.39	746576.07	N 32 22 9.79	W 103 40 6.87
	10172.00	4.54	313.06	10166.00	-69.71	70.75	-42.42	0.81	498757.13	746570.36	N 32 22 9.84	W 103 40 6.94
	10267.00	2.87	307.64	10260.80	-73.61	74.77	-47.05	1.79	498761.15	746565.73	N 32 22 9.88	W 103 40 6.99
	10361.00	1.84	314.43	10354.72	-76.04	77.26	-50.00	1.13	498763.64	746562.79	N 32 22 9.91	W 103 40 7.03
	10456.00	1.29	301.33	10449.69	-77.61	78.89	-52.00	0.69	498765.27	746560.78	N 32 22 9.92	W 103 40 7.05
	10551.00	1.25	295.16	10544.68	-78.58	79.88	-53.85	0.15	498766.26	746558.93	N 32 22 9.93	W 103 40 7.07
	10682.00	1.85	259.61	10675.62	-78.71	80.11	-57.22	0.84	498766.49	746555.56	N 32 22 9.94	W 103 40 7.11
	10777.00	1.95	264.50	10770.57	-78.20	79.88	-60.34	0.20	498766.06	746552.44	N 32 22 9.93	W 103 40 7.15
	10872.00	4.42	287.57	10865.41	-79.03	80.83	-65.44	2.88	498767.01	746547.34	N 32 22 9.94	W 103 40 7.21
	10967.00	6.92	293.92	10959.94	-82.24	84.05	-74.16	2.71	498770.43	746538.62	N 32 22 9.98	W 103 40 7.31
	11141.00	10.45	294.41	11131.92	-92.44	94.83	-98.12	2.03	498781.21	746514.66	N 32 22 10.09	W 103 40 7.59
	11235.00	7.09	275.00	11224.83	-96.14	98.86	-111.67	4.72	498785.24	746501.12	N 32 22 10.13	W 103 40 7.74
Tie-In to Pilot Hole First ST01 Surveys	11330.00	5.11	247.49	11319.30	-94.80	97.75	-121.42	3.66	498784.13	746491.36	N 32 22 10.12	W 103 40 7.86
	11479.00	10.43	186.07	11467.09	-78.53	81.77	-128.99	6.14	498768.14	746483.79	N 32 22 9.96	W 103 40 7.95
	11573.00	27.87	185.93	11555.55	-48.02	51.21	-132.19	18.55	498737.59	746480.60	N 32 22 9.66	W 103 40 7.99
	11668.00	29.13	189.00	11639.04	-2.96	6.29	-138.10	2.03	498692.67	746474.69	N 32 22 9.21	W 103 40 8.06
	11763.00	33.63	191.47	11720.13	45.89	-42.38	-146.95	4.93	498644.02	746465.83	N 32 22 8.73	W 103 40 8.16
	11857.00	39.30	196.70	11795.71	100.28	-96.44	-160.70	6.87	498589.95	746452.09	N 32 22 8.20	W 103 40 8.33
Wolfcamp Intersection	*11913.00*	*42.06*	*197.89*	*11838.17*	*135.38*	*-131.29*	*-171.56*	*5.12*	*498555.10*	*746441.23*	*N 32 22 7.85*	*W 103 40 8.46*
	11952.00	43.99	198.64	11866.68	160.84	-156.55	-179.90	5.12	498529.84	746432.89	N 32 22 7.60	W 103 40 8.56
	12046.00	52.95	197.85	11928.94	228.12	-223.33	-201.88	9.55	498463.07	746410.91	N 32 22 6.94	W 103 40 8.82
	12141.00	60.22	196.72	11981.23	304.34	-299.00	-225.39	7.72	498387.40	746387.40	N 32 22 6.20	W 103 40 9.10
	12235.00	66.54	196.82	12023.32	385.32	-379.42	-249.63	6.72	498306.98	746363.16	N 32 22 5.40	W 103 40 9.39
	12330.00	72.95	197.37	12056.20	471.07	-464.56	-275.82	6.77	498221.84	746336.97	N 32 22 4.56	W 103 40 9.70
	12424.00	80.58	193.78	12077.71	559.71	-552.83	-300.32	8.93	498133.77	746312.47	N 32 22 3.69	W 103 40 9.99
	12519.00	90.46	182.12	12085.14	653.52	-646.16	-313.32	16.05	498040.25	746299.48	N 32 22 2.77	W 103 40 10.15
	12594.00	89.70	178.87	12085.04	728.50	-721.15	-313.84	4.71	497965.28	746298.96	N 32 22 2.02	W 103 40 10.16
	12853.00	90.61	178.84	12084.88	787.44	-780.13	-312.55	1.57	497906.28	746300.24	N 32 22 1.44	W 103 40 10.15
	12839.00	93.09	171.92	12078.87	972.19	-965.31	-297.60	3.95	497721.12	746315.20	N 32 21 59.61	W 103 40 9.99
	12933.00	93.06	172.84	12073.83	1064.90	-1058.34	-285.15	0.98	497628.09	746327.64	N 32 21 58.69	W 103 40 9.85
	13028.00	90.89	175.16	12070.55	1159.05	-1152.75	-275.23	3.34	497533.68	746337.56	N 32 21 57.75	W 103 40 9.74
	13125.00	85.57	177.18	12073.55	1255.56	-1249.45	-268.75	5.87	497436.99	746344.04	N 32 21 56.79	W 103 40 9.67
	13220.00	87.40	180.62	12079.37	1350.27	-1344.24	-268.94	4.10	497342.21	746345.86	N 32 21 55.86	W 103 40 9.66
	13314.00	88.99	179.27	12083.97	1444.13	-1438.12	-268.65	1.50	497248.33	746345.95	N 32 21 54.93	W 103 40 9.66
	13409.00	87.12	179.60	12088.85	1538.95	-1532.99	-265.91	0.37	497153.46	746346.88	N 32 21 53.99	W 103 40 9.66
	13503.00	88.22	181.37	12092.68	1632.86	-1626.90	-266.71	2.22	497059.55	746346.09	N 32 21 53.06	W 103 40 9.68
	13599.00	88.29	182.35	12095.60	1728.81	-1722.81	-269.82	1.02	496963.65	746342.97	N 32 21 52.11	W 103 40 9.72
	13692.00	88.26	181.72	12098.40	1821.78	-1815.71	-273.12	0.68	496870.76	746339.67	N 32 21 51.19	W 103 40 9.76
	13787.00	88.53	182.00	12101.06	1916.72	-1910.62	-276.20	0.41	496775.85	746336.59	N 32 21 50.25	W 103 40 9.81
	13881.00	89.15	181.99	12102.96	2010.69	-2004.54	-279.48	0.66	496681.93	746333.32	N 32 21 49.32	W 103 40 9.85
	13976.00	88.91	180.96	12104.57	2105.68	-2099.50	-281.92	1.11	496586.98	746330.87	N 32 21 48.38	W 103 40 9.89
	14070.00	89.39	180.98	12105.97	2199.68	-2193.47	-283.51	0.51	496493.01	746329.28	N 32 21 47.45	W 103 40 9.91
	14165.00	88.74	181.00	12107.52	2294.65	-2288.44	-285.15	0.68	496398.04	746327.64	N 32 21 46.51	W 103 40 9.94
	14260.00	89.22	181.46	12109.21	2389.63	-2383.41	-287.19	0.70	496303.08	746325.60	N 32 21 45.58	W 103 40 9.97
	14354.00	89.01	180.84	12110.68	2483.62	-2477.38	-288.91	0.90	496209.11	746323.88	N 32 21 44.65	N 103 40 10.00
	14449.00	89.81	180.56	12111.84	2578.60	-2572.37	-289.91	0.85	496114.13	746322.88	N 32 21 43.71	W 103 40 10.01
	14544.00	89.56	180.46	12112.16	2673.59	-2667.36	-290.75	0.28	496019.14	746322.04	N 32 21 42.77	W 103 40 10.03
	14639.00	89.98	181.56	12112.54	2768.59	-2762.35	-292.43	1.24	495924.16	746320.36	N 32 21 41.83	W 103 40 10.06
	14733.00	90.36	181.59	12112.26	2862.59	-2856.31	-295.01	0.41	495830.20	746317.78	N 32 21 40.90	W 103 40 10.09
	14828.00	89.84	181.05	12112.10	2957.59	-2951.28	-297.20	0.79	495735.23	746315.59	N 32 21 39.96	W 103 40 10.13
	14923.00	90.01	181.56	12112.22	3052.58	-3046.26	-299.38	0.59	495640.26	746313.41	N 32 21 39.02	W 103 40 10.16
	15017.00	89.98	180.74	12112.23	3146.58	-3140.24	-301.28	0.89	495546.28	746311.51	N 32 21 38.09	W 103 40 10.19
	15112.00	90.08	179.66	12112.18	3241.56	-3235.24	-301.62	1.14	495451.29	746311.18	N 32 21 37.15	W 103 40 10.20
	15207.00	89.94	179.02	12112.16	3336.50	-3330.23	-300.52	0.69	495356.30	746312.27	N 32 21 36.21	W 103 40 10.19
	15301.00	89.05	178.41	12112.99	3430.39	-3424.20	-298.41	1.15	495262.33	746314.38	N 32 21 35.28	W 103 40 10.18
	15396.00	88.46	177.88	12115.06	3525.22	-3519.13	-295.34	0.83	495167.41	746317.45	N 32 21 34.34	W 103 40 10.15
	15490.00	88.57	178.85	12117.49	3619.06	-3613.06	-292.68	1.04	495073.49	746320.14	N 32 21 33.41	W 103 40 10.12
	15584.00	88.29	178.43	12120.07	3712.91	-3706.99	-290.43	0.54	494979.55	746322.37	N 32 21 32.48	W 103 40 10.10
	15679.00	88.57	179.46	12122.67	3807.79	-3801.94	-288.68	1.12	494884.61	746324.11	N 32 21 31.54	W 103 40 10.09
	15774.00	90.00	179.87	12123.86	3902.70	-3896.92	-287.13	1.72	494789.64	746325.68	N 32 21 30.60	W 103 40 10.08
	15963.00	90.48	180.11	12123.06	4091.58	-4085.90	-285.12	0.80	494600.66	746327.68	N 32 21 28.73	W 103 40 10.07
	16056.00	89.21	178.92	12123.32	4186.53	-4180.89	-284.31	1.83	494505.68	746328.48	N 32 21 27.79	W 103 40 10.07
	16153.00	90.10	180.23	12123.89	4281.48	-4275.89	-283.61	1.67	494410.69	746329.18	N 32 21 26.85	W 103 40 10.06
	16247.00	89.14	177.42	12124.52	4375.37	-4369.85	-281.68	3.16	494316.72	746331.11	N 32 21 25.92	W 103 40 10.05
	16341.00	89.14	177.57	12125.93	4469.14	-4463.75	-277.57	0.16	494222.83	746335.22	N 32 21 24.99	W 103 40 10.01
	16531.00	89.27	180.85	12128.56	4658.95	-4653.69	-274.62	1.62	494032.90	746338.17	N 32 21 23.11	W 103 40 9.99
	16626.00	89.41	180.77	12129.88	4753.94	-4748.68	-275.80	0.19	493937.92	746336.99	N 32 21 22.17	W 103 40 10.01
	16720.00	88.14	180.71	12131.67	4847.91	-4842.64	-277.01	1.35	493843.95	746335.78	N 32 21 21.24	W 103 40 10.03
	16910.00	89.76	180.09	12135.15	5037.84	-5032.60	-278.34	0.91	493654.01	746334.45	N 32 21 19.38	W 103 40 10.06
	17004.00	91.13	180.56	12134.42	5131.82	-5126.59	-278.87	1.54	493560.02	746333.92	N 32 21 18.43	W 103 40 10.07
	17099.00	89.58	179.48	12133.83	5226.79	-5221.59	-278.91	1.99	493465.03	746333.89	N 32 21 17.49	W 103 40 10.08
	17193.00	90.10	179.11	12134.09	5320.73	-5315.58	-277.75	0.68	493371.04	746335.04	N 32 21 16.56	W 103 40 10.07
	17288.00	88.55	179.43	12135.21	5415.65	-5410.56	-276.54	1.67	493276.06	746336.25	N 32 21 15.62	W 103 40 10.06
	17383.00	87.59	176.87	12138.41	5510.44	-5505.45	-273.47	2.88	493181.18	746339.32	N 32 21 14.68	W 103 40 10.03
	17478.00	89.76	179.88	12140.61	5605.27	-5600.37	-270.87	3.99	493086.26	746341.93	N 32 21 13.74	W 103 40 10.01
	17572.00	88.55	179.99	12142.00	5699.23	-5694.36	-270.84	1.29	492992.28	746341.95	N 32 21 12.81	W 103 40 10.02

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 ° ' ")
	17687.00	90.55	180.74	12142.74	5794.21	-5789.35	-271.45	2.25	492897.29	746341.35	N 32 21 11.87	W 103 40 10.03
	17782.00	88.11	177.18	12143.85	5889.09	-5884.30	-269.72	4.54	492802.34	746343.07	N 32 21 10.93	W 103 40 10.02
	17952.00	87.88	176.96	12150.53	6078.44	-6073.94	-260.02	0.18	492612.72	746352.77	N 32 21 9.06	W 103 40 9.92
	18047.00	88.90	177.78	12153.22	6173.17	-6168.80	-255.68	1.39	492517.86	746357.13	N 32 21 8.12	W 103 40 9.88
	18141.00	89.78	178.49	12154.32	6267.01	-6262.74	-252.80	1.19	492423.92	746360.19	N 32 21 7.19	W 103 40 9.85
	18238.00	88.45	177.52	12155.80	6361.83	-6357.67	-249.29	1.72	492328.00	746363.50	N 32 21 6.25	W 103 40 9.81
	18331.00	88.55	178.78	12159.95	6456.58	-6452.52	-246.21	2.39	492234.15	746366.58	N 32 21 5.31	W 103 40 9.79
	18520.00	88.69	178.83	12167.79	6645.20	-6641.30	-241.91	1.13	492045.38	746370.88	N 32 21 3.44	W 103 40 9.75
	18615.00	88.82	177.54	12170.02	6740.01	-6736.22	-238.74	1.15	491950.47	746374.05	N 32 21 2.50	W 103 40 9.72
	18710.00	88.25	178.69	12174.28	6834.76	-6831.06	-235.62	2.77	491855.62	746377.17	N 32 21 1.56	W 103 40 9.69
	18805.00	88.90	177.15	12178.95	6929.41	-6925.83	-232.17	1.76	491760.86	746380.62	N 32 21 0.63	W 103 40 9.66
	18899.00	88.69	177.31	12185.21	7023.02	-7019.57	-227.84	0.28	491667.13	746385.15	N 32 20 59.70	W 103 40 9.61
	18993.00	87.45	180.42	12190.01	7116.79	-7113.42	-225.78	3.40	491573.28	746387.01	N 32 20 58.77	W 103 40 9.60
	19088.00	86.87	180.19	12194.72	7211.66	-7208.30	-226.29	0.66	491478.41	746386.50	N 32 20 57.83	W 103 40 9.61
	19183.00	87.90	180.01	12199.05	7306.53	-7303.20	-226.45	1.10	491383.51	746386.34	N 32 20 56.89	W 103 40 9.62
	19277.00	88.62	180.00	12201.91	7400.46	-7397.15	-226.48	0.77	491289.56	746386.33	N 32 20 55.96	W 103 40 9.62
	19372.00	88.88	179.17	12204.00	7495.39	-7492.13	-225.77	0.91	491194.59	746387.02	N 32 20 55.02	W 103 40 9.62
	19561.00	87.38	180.44	12210.20	7684.21	-7681.02	-225.13	1.03	491005.71	746387.66	N 32 20 53.15	W 103 40 9.63
	19680.00	88.84	181.20	12214.12	7803.13	-7799.93	-226.83	1.38	490886.80	746385.96	N 32 20 51.98	W 103 40 9.66
	19775.00	90.25	183.34	12214.88	7898.11	-7894.85	-230.59	2.70	490791.89	746382.20	N 32 20 51.04	W 103 40 9.71
	19870.00	90.18	183.58	12214.52	7993.05	-7989.68	-236.33	0.26	490697.06	746376.46	N 32 20 50.10	W 103 40 9.78
	19964.00	90.32	183.76	12214.11	8086.97	-8083.48	-242.34	0.24	490603.26	746370.45	N 32 20 49.17	W 103 40 9.86
	20058.00	89.22	182.08	12214.49	8180.93	-8177.35	-247.13	2.14	490509.39	746365.66	N 32 20 48.24	W 103 40 9.92
	20153.00	90.83	181.09	12214.45	8275.93	-8272.31	-249.76	1.99	490414.44	746363.03	N 32 20 47.30	W 103 40 9.96
	20247.00	91.04	180.37	12212.91	8369.91	-8366.29	-250.96	0.80	490320.46	746361.83	N 32 20 46.37	W 103 40 9.98
	20437.00	91.04	180.46	12209.46	8559.85	-8556.26	-252.33	0.05	490130.51	746360.46	N 32 20 44.49	W 103 40 10.01
	20532.00	90.83	180.36	12207.91	8654.82	-8651.24	-253.01	0.24	490035.53	746359.78	N 32 20 43.55	W 103 40 10.02
	20626.00	90.83	180.56	12206.55	8748.80	-8745.23	-253.77	0.21	489941.54	746359.02	N 32 20 42.62	W 103 40 10.04
	20815.00	90.93	180.59	12203.85	8937.76	-8934.20	-255.66	0.06	489752.58	746357.13	N 32 20 40.75	W 103 40 10.08
	20910.00	90.62	180.38	12202.38	9032.74	-9029.18	-256.45	0.41	489657.60	746356.34	N 32 20 39.81	W 103 40 10.09
	21004.00	90.62	180.36	12201.35	9126.72	-9123.18	-257.04	0.00	489563.61	746355.75	N 32 20 38.88	W 103 40 10.10
	21099.00	89.87	181.18	12200.94	9221.71	-9218.17	-258.32	1.17	489468.63	746354.47	N 32 20 37.95	W 103 40 10.13
	21193.00	90.04	181.76	12201.01	9315.71	-9312.13	-260.73	0.64	489374.68	746352.06	N 32 20 37.02	W 103 40 10.16
	21288.00	90.14	181.52	12200.87	9410.71	-9407.10	-263.45	0.27	489279.71	746349.34	N 32 20 36.08	W 103 40 10.20
	21383.00	90.01	180.98	12200.74	9505.71	-9502.07	-265.52	0.58	489184.73	746347.27	N 32 20 35.14	W 103 40 10.23
	21571.00	89.49	182.24	12201.56	9693.70	-9689.99	-270.80	0.73	488996.82	746341.99	N 32 20 33.28	W 103 40 10.31
	21666.00	90.59	182.41	12201.49	9788.69	-9784.91	-274.66	1.17	488901.91	746338.14	N 32 20 32.34	W 103 40 10.36
	21760.00	90.45	178.43	12200.84	9882.65	-9878.89	-275.35	4.24	488807.94	746337.45	N 32 20 31.41	W 103 40 10.37
	21855.00	90.07	177.17	12200.21	9977.46	-9973.81	-271.70	1.39	488713.01	746341.09	N 32 20 30.47	W 103 40 10.34
	21949.00	90.52	177.93	12199.73	10071.25	-10067.73	-267.88	0.94	488619.11	746345.11	N 32 20 29.54	W 103 40 10.30
	22044.00	88.32	177.51	12200.69	10166.05	-10162.64	-263.90	2.36	488524.20	746348.89	N 32 20 28.60	W 103 40 10.26
100' FSL Crossed	*22086.00*	*88.03*	*177.69*	*12202.03*	*10207.93*	*-10204.58*	*-262.14*	*0.82*	*488482.26*	*746350.65*	*N 32 20 28.19*	*W 103 40 10.24*
Final MWD Survey	22123.00	87.77	177.85	12203.38	10244.84	-10241.53	-260.71	0.82	488445.31	746352.09	N 32 20 27.82	W 103 40 10.23
Proj to Bit	22168.00	87.77	177.85	12205.13	10289.72	-10286.46	-259.02	0.00	488400.38	746353.77	N 32 20 27.37	W 103 40 10.21

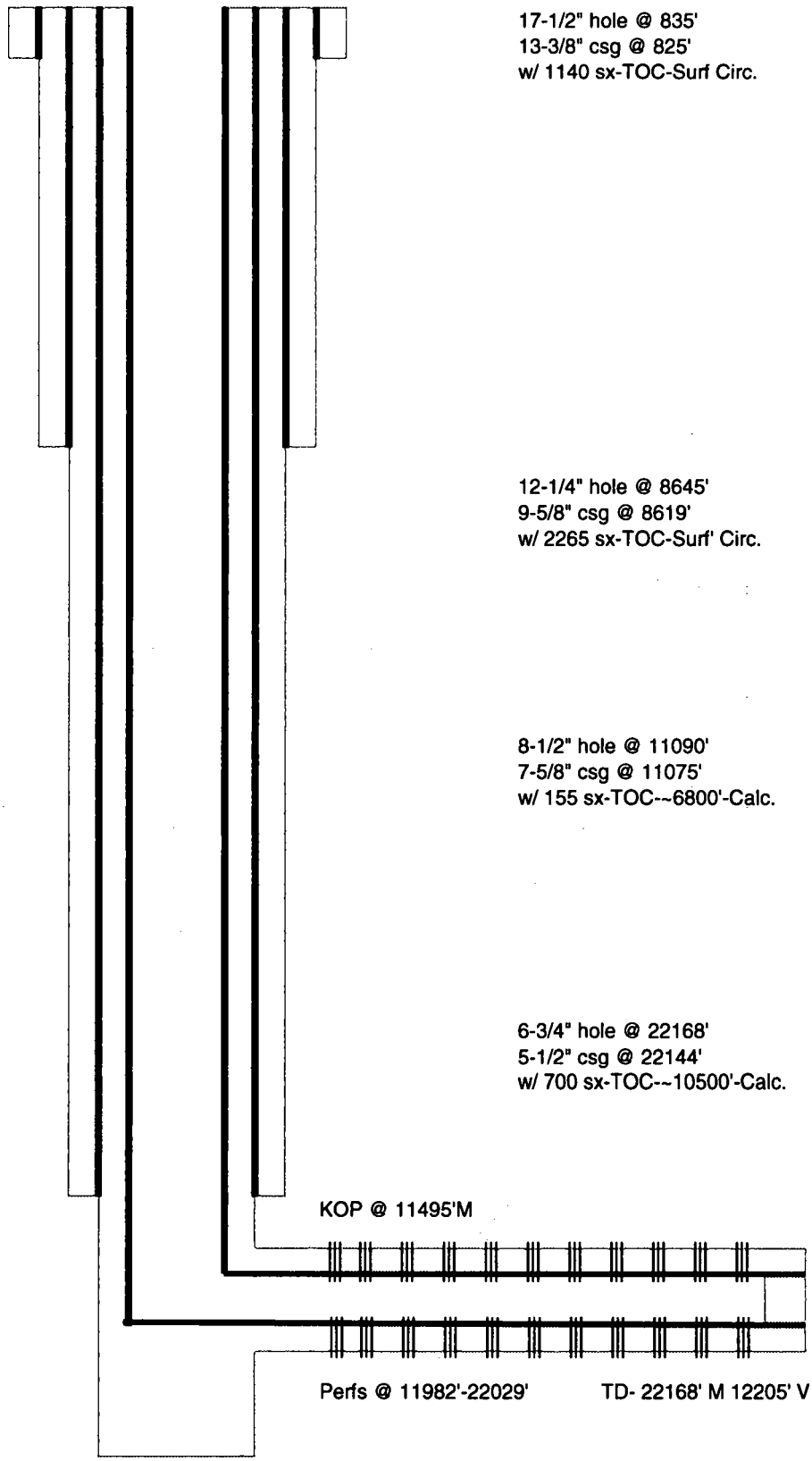
Survey Type: Def Survey

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	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD IFR 0-13812' MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD IFR 0-13812' MD
	1	26.500	9249.000	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD
	1	9249.000	10551.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD
	1	10551.000	10967.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD
	1	10967.000	11330.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Pilot / Oxy Taco Cat 27-34 Federal Com 31H Gyro + MWD
	1	11330.000	22168.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	ST01 / Oxy Taco Cat 27-34 Federal Com 31H ST01 Gyro +

OXY USA INC
Taco Cat 27-34 Federal Com 31H
API No. 30-025-44935



Pilot Hole 6-3/4" hole @ 13612'V
Plug 1@ 13611', 150sx
Plug 2 @12960', 150sx
Plug 3 @ 12300', 150sx
Plug 4 @ 11650', 170sx; tagged cmt @ 10886'