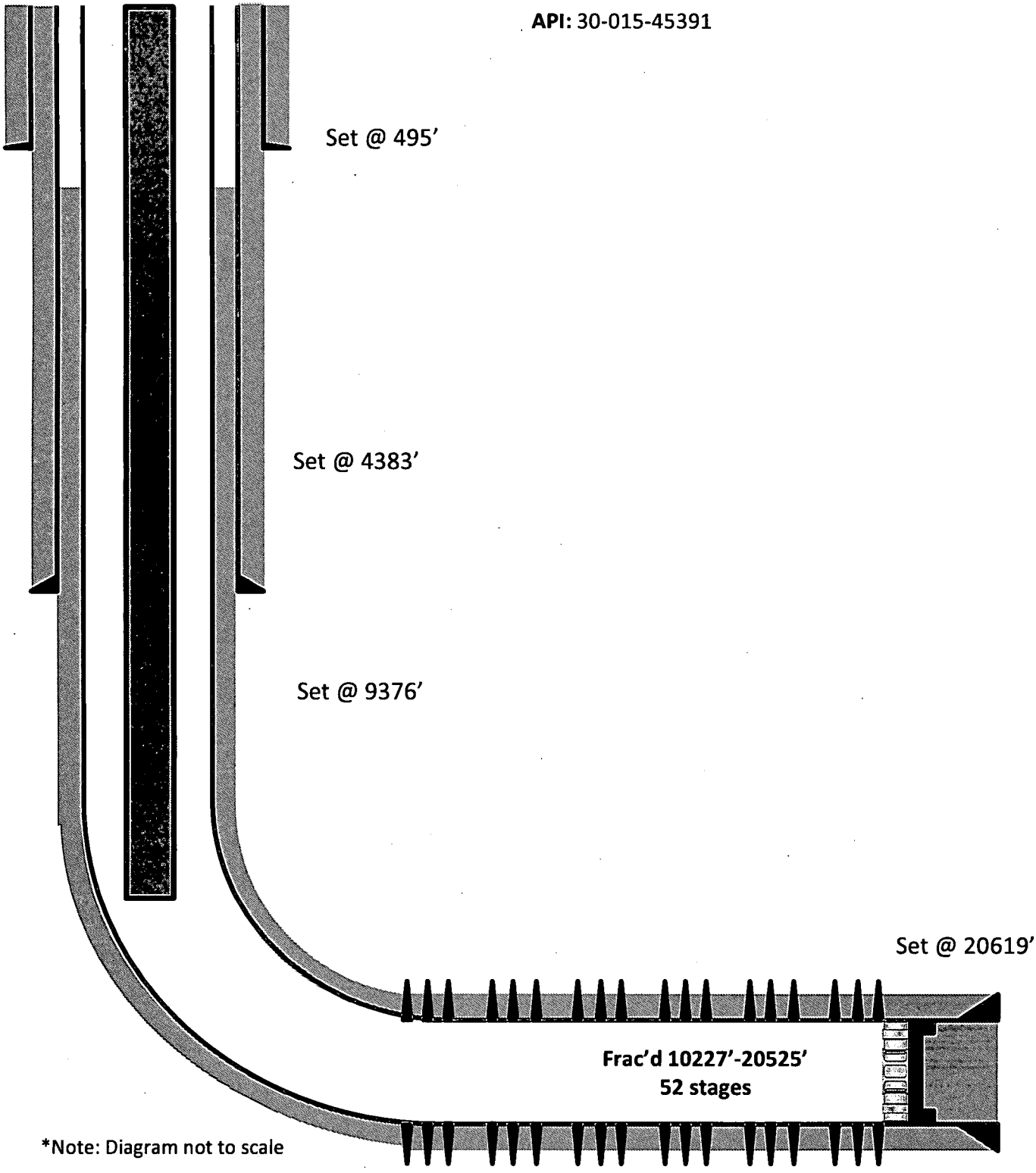
Sterling Silver MDP1 33-4 Federal Com 3H Wellbore Diagram

Elevation: GL 3386'
API: 30-015-45391



*Note: Diagram not to scale

PBTD – 20575' MD
TD – 20630' MD/9938'TVD

Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
Original Hole	Sterling Silver MDP1 33-4 Federal Com 3H	NM Eddy County (NAD 83)	Oxy Sterling Silver MDP1 33-4 Federal Com 3H

Gravity & Magnetic Parameters

Model: IFR1 Dip: 59.998° Date: 23-Jan-2019
MagDec: 6.854° FS: 48009.4nT Gravity FS: 998.45mgn (9.80665 Based)

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

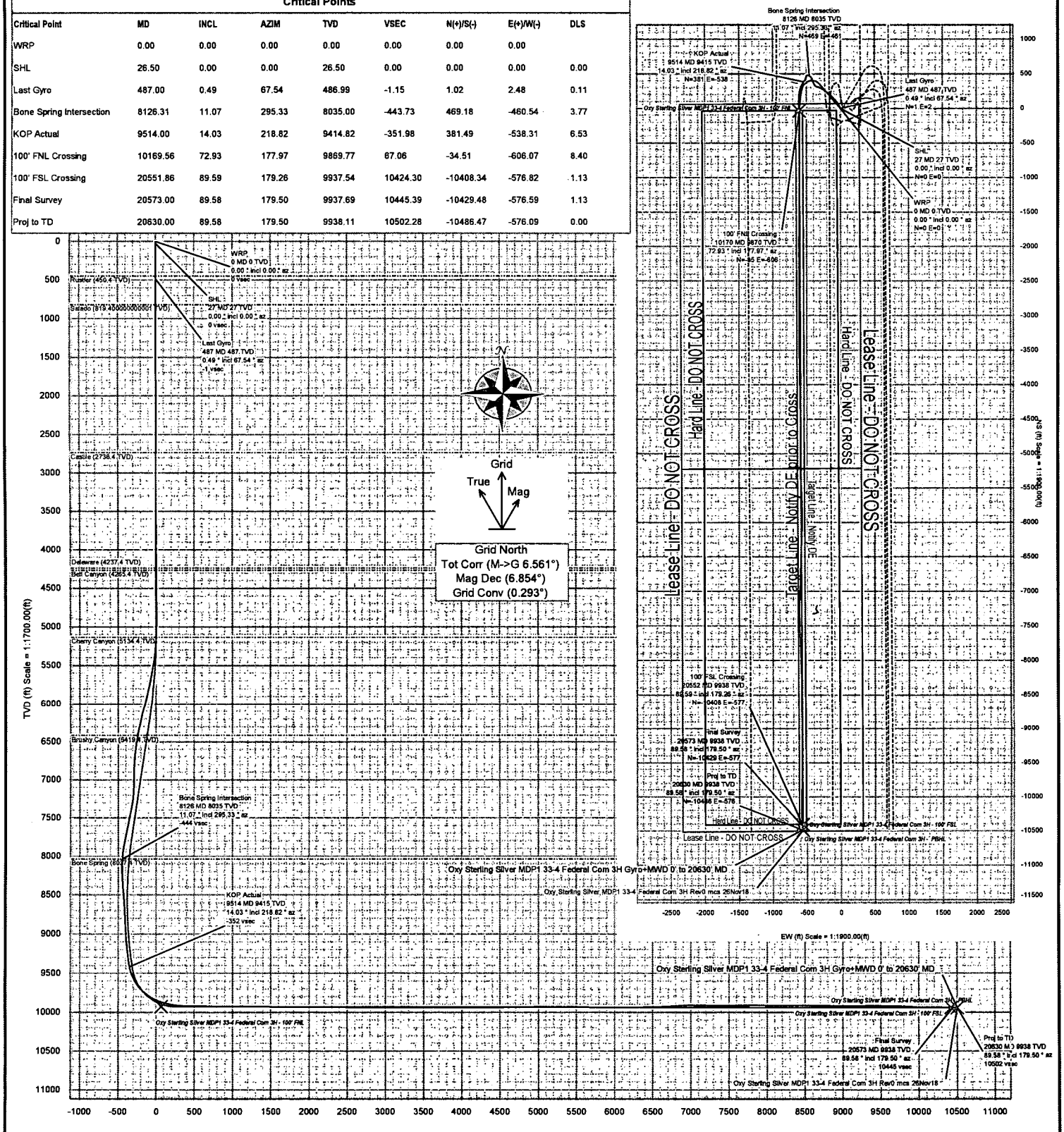
Lat: N 32 16 4.77 Northing: 461663.89ftUS Grid Conv: 0.2935°
Lon: W 103 47 1.06 Easting: 711243.89ftUS Scale Fact: 0.99994215

Miscellaneous

Slot: Oxy Sterling Silver MDP1 33-4 Federal Com 3H TVD Ref: RKB(3412.4ft above MSL)
Plan: Oxy Sterling Silver MDP1 33-4 Federal Com 3H Gyro+MWD 0' to 20630' MD

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	
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00
Last Gyro	487.00	0.49	67.54	486.99	-1.15	1.02	2.48	0.11
Bone Spring Intersection	8126.31	11.07	295.33	8035.00	-443.73	469.18	-460.54	3.77
KOP Actual	9514.00	14.03	218.82	9414.82	-351.98	381.49	-538.31	6.53
100' FNL Crossing	10169.56	72.93	177.97	9869.77	67.06	-34.51	-606.07	8.40
100' FSL Crossing	20551.86	89.59	179.26	9937.54	10424.30	-10408.34	-576.82	1.13
Final Survey	20573.00	89.58	179.50	9937.69	10445.39	-10429.48	-576.59	1.13
Proj to TD	20630.00	89.58	179.50	9938.11	10502.28	-10486.47	-576.09	0.00



Schlumberger

Oxy Sterling Silver MDP1 33-4 Federal Com 3H Gyro+MWD 0' to 20630' MD
Survey Geodetic Report
(Def Survey)

Report Date:	February 04, 2019 - 03:06 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	183.083 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Sterling Silver MDP1 33-4 Federal Com 3H / Oxy Sterling Silver MDP1 33-4 Federal Com 3H	**TVD Reference Datum:**	RKB
Well:	Sterling Silver MDP1 33-4 Federal Com 3H	**TVD Reference Elevation:**	3412.400 ft above MSL
Borehole:	Original Hole	**Seabed / Ground Elevation:**	3385.900 ft above MSL
UWI / API#:	H&P 656 / 30-015-45391	**Magnetic Declination:**	6.854 °
Survey Name:	Oxy Sterling Silver MDP1 33-4 Federal Com 3H Gyro+MWD 0' to 20630' MD	**Total Gravity Field Strength:**	998.4500mgn (9.80665 Based)
Survey Date:	December 20, 2018	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	258.942 ° / 11737.949 ft / 6.800 / 1.181	**Total Magnetic Field Strength:**	48009.400 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.996 °
Location Lat / Long:	N 32° 16' 4.77328", W 103° 47' 1.05301"	**Declination Date:**	January 23, 2019
Location Grid N/E Y/X:	N 461663.890 ftUS, E 711243.890 ftUS	**Magnetic Declination Model:**	IFR1
CRS Grid Convergence Angle:	0.2935 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99994215	**Grid Convergence Used:**	0.2935 °
Version / Patch:	2.10.753.0	**Total Corr Mag North->Grid North:**	6.5605 °
		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 ° ' ")
WRP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	461663.89	711243.89	N 32 16 4.77	W 103 47 1.05
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	461663.89	711243.89	N 32 16 4.77	W 103 47 1.05
	122.00	0.21	49.02	122.00	-0.12	0.11	0.13	0.22	461664.00	711244.02	N 32 16 4.77	W 103 47 1.05
	206.00	0.31	33.86	206.00	-0.42	0.40	0.37	0.14	461664.29	711244.26	N 32 16 4.78	W 103 47 1.05
	296.00	0.48	82.46	296.00	-0.70	0.66	0.88	0.40	461664.55	711244.77	N 32 16 4.78	W 103 47 1.04
	390.00	0.50	79.33	389.99	-0.87	0.78	1.68	0.04	461664.67	711245.57	N 32 16 4.78	W 103 47 1.03
Last Gyro	487.00	0.49	67.54	486.99	-1.15	1.02	2.48	0.11	461664.91	711246.37	N 32 16 4.78	W 103 47 1.02
	603.00	0.59	50.28	602.98	-1.77	1.59	3.39	0.16	461665.48	711247.28	N 32 16 4.79	W 103 47 1.01
	795.00	0.47	86.81	794.98	-2.53	2.27	4.94	0.18	461666.16	711248.83	N 32 16 4.80	W 103 47 1.00
	983.00	0.19	96.29	982.97	-2.60	2.28	6.02	0.15	461666.17	711249.91	N 32 16 4.80	W 103 47 0.98
	1080.00	0.02	176.09	1079.97	-2.57	2.24	6.18	0.19	461666.13	711250.07	N 32 16 4.80	W 103 47 0.98
	1268.00	0.23	214.94	1267.97	-2.22	1.90	5.97	0.11	461665.79	711249.86	N 32 16 4.79	W 103 47 0.98
	1456.00	0.46	187.67	1455.97	-1.14	0.84	5.65	0.15	461664.73	711249.54	N 32 16 4.78	W 103 47 0.99
	1652.00	0.43	158.09	1651.96	0.31	-0.62	5.82	0.12	461663.27	711249.71	N 32 16 4.77	W 103 47 0.99
	1841.00	0.39	143.29	1840.96	1.44	-1.79	6.47	0.06	461662.10	711250.36	N 32 16 4.76	W 103 47 0.98
	1939.00	0.39	160.43	1938.96	2.01	-2.38	6.78	0.12	461661.51	711250.67	N 32 16 4.75	W 103 47 0.97
	2034.00	0.36	132.01	2033.96	2.49	-2.88	7.11	0.20	461661.01	711251.00	N 32 16 4.74	W 103 47 0.97
	2222.00	0.34	99.05	2221.95	2.92	-3.36	8.10	0.11	461660.53	711251.99	N 32 16 4.74	W 103 47 0.96
	2411.00	0.19	65.14	2410.95	2.83	-3.32	8.94	0.11	461660.57	711252.83	N 32 16 4.74	W 103 47 0.95
	2506.00	0.29	12.14	2505.95	2.52	-3.02	9.13	0.24	461660.87	711253.02	N 32 16 4.74	W 103 47 0.95
	2701.00	0.44	38.13	2700.95	1.42	-1.95	9.70	0.11	461661.94	711253.59	N 32 16 4.75	W 103 47 0.94
	2795.00	0.41	24.90	2794.94	0.81	-1.36	10.06	0.11	461662.53	711253.95	N 32 16 4.76	W 103 47 0.94
	2889.00	0.41	346.84	2888.94	0.18	-0.72	10.13	0.28	461663.17	711254.02	N 32 16 4.77	W 103 47 0.94
	2984.00	0.26	318.63	2983.94	-0.30	-0.23	9.91	0.23	461663.66	711253.80	N 32 16 4.77	W 103 47 0.94
	3078.00	0.34	297.41	3077.94	-0.57	0.06	9.52	0.14	461663.95	711253.41	N 32 16 4.77	W 103 47 0.94
	3173.00	0.39	277.17	3172.94	-0.71	0.23	8.95	0.14	461664.12	711252.84	N 32 16 4.78	W 103 47 0.95
	3267.00	0.52	269.10	3266.93	-0.70	0.26	8.20	0.15	461664.15	711252.09	N 32 16 4.78	W 103 47 0.96
	3362.00	0.45	259.36	3361.93	-0.58	0.18	7.41	0.11	461664.07	711251.30	N 32 16 4.77	W 103 47 0.97
	3456.00	0.39	174.01	3455.93	-0.18	-0.20	7.08	0.61	461663.69	711250.97	N 32 16 4.77	W 103 47 0.97
	3550.00	0.44	175.95	3549.92	0.50	-0.88	7.14	0.06	461663.01	711251.03	N 32 16 4.76	W 103 47 0.97
	3645.00	0.45	217.82	3644.92	1.16	-1.54	6.93	0.33	461662.35	711250.82	N 32 16 4.76	W 103 47 0.97
	3739.00	0.43	192.99	3738.92	1.81	-2.17	6.63	0.20	461661.72	711250.52	N 32 16 4.75	W 103 47 0.98
	3834.00	0.48	184.81	3833.92	2.56	-2.92	6.51	0.09	461660.97	711250.40	N 32 16 4.74	W 103 47 0.98
	3928.00	0.41	205.31	3927.91	3.27	-3.61	6.34	0.18	461660.28	711250.23	N 32 16 4.74	W 103 47 0.98
	4022.00	0.49	182.38	4021.91	3.98	-4.32	6.18	0.21	461659.57	711250.07	N 32 16 4.73	W 103 47 0.98
	4211.00	0.54	233.25	4210.90	5.36	-5.66	5.43	0.24	461658.23	711249.32	N 32 16 4.72	W 103 47 0.99
	4263.00	0.45	244.40	4262.90	5.62	-5.90	5.05	0.25	461657.99	711248.94	N 32 16 4.71	W 103 47 0.99
	4463.00	0.26	260.33	4462.90	6.09	-6.31	3.89	0.11	461657.58	711247.78	N 32 16 4.71	W 103 47 1.01
	4565.00	0.09	250.82	4564.90	6.17	-6.38	3.59	0.17	461657.51	711247.48	N 32 16 4.71	W 103 47 1.01
	4659.00	0.04	329.11	4658.90	6.17	-6.37	3.50	0.10	461657.52	711247.39	N 32 16 4.71	W 103 47 1.01
	4753.00	0.12	292.48	4752.90	6.11	-6.31	3.40	0.10	461657.58	711247.29	N 32 16 4.71	W 103 47 1.01
	4848.00	0.46	345.75	4847.90	5.72	-5.90	3.21	0.42	461657.99	711247.10	N 32 16 4.71	W 103 47 1.02
	4942.00	0.72	348.00	4941.89	4.79	-4.96	2.99	0.28	461658.93	711246.88	N 32 16 4.72	W 103 47 1.02
	5037.00	1.14	342.58	5036.88	3.33	-3.47	2.59	0.45	461660.42	711246.48	N 32 16 4.74	W 103 47 1.02
	5131.00	2.12	342.08	5130.84	0.83	-0.92	1.77	1.04	461662.97	711245.66	N 32 16 4.76	W 103 47 1.03
	5226.00	4.18	338.02	5225.69	-3.95	3.96	-0.06	2.18	461667.85	711243.83	N 32 16 4.81	W 103 47 1.05
	5320.00	6.61	335.93	5319.27	-11.87	12.08	-3.55	2.59	461675.97	711240.34	N 32 16 4.89	W 103 47 1.09
	5415.00	8.80	334.70	5413.40	-23.13	23.64	-8.89	2.31	461687.53	711235.00	N 32 16 5.01	W 103 47 1.16
	5509.00	11.52	330.75	5505.92	-37.39	38.33	-16.55	2.99	461702.22	711227.34	N 32 16 5.15	W 103 47 1.24
	5603.00	13.26	326.81	5597.73	-54.01	55.55	-27.04	2.06	461719.43	711216.85	N 32 16 5.32	W 103 47 1.36
	5698.00	14.46	323.71	5689.97	-71.97	74.23	-40.02	1.49	461738.11	711203.87	N 32 16 5.51	W 103 47 1.51
	5792.00	16.34	320.96	5780.59	-90.85	93.96	-55.30	2.15	461757.84	711188.59	N 32 16 5.71	W 103 47 1.69
	5887.00	18.48	318.89	5871.23	-111.56	115.68	-73.62	2.34	461779.57	711170.27	N 32 16 5.92	W 103 47 1.90
	5981.00	20.89	316.60	5959.73	-133.78	139.09	-94.93	2.69	461802.97	711148.96	N 32 16 6.15	W 103 47 2.15
	6075.00	22.27	314.63	6047.14	-157.14	163.78	-119.13	1.66	461827.66	711124.77	N 32 16 6.40	W 103 47 2.43
	6170.00	21.23	312.76	6135.38	-180.06	188.11	-144.57	1.32	461851.98	711099.33	N 32 16 6.64	W 103 47 2.73
	6264.00	20.40	310.11	6223.25	-200.79	210.22	-169.59	1.34	461874.09	711074.31	N 32 16 6.86	W 103 47 3.02
	6358.00	19.98	307.79	6311.47	-219.80	230.61	-194.81	0.96	461894.49	711049.09	N 32 16 7.07	W 103 47 3.31
	6453.00	19.37	305.08	6400.93	-237.39	249.61	-220.53	1.16	461913.49	711023.37	N 32 16 7.25	W 103 47 3.61
	6547.00	18.79	302.29	6489.76	-253.04	266.66	-246.09	1.15	461930.53	710997.82	N 32 16 7.42	W 103 47 3.90
	6641.00	16.84	298.88	6579.25	-266.35	281.32	-270.81	2.35	461945.20	710973.09	N 32 16 7.57	W 103 47 4.19
	6736.00	14.91	294.74	6670.63	-276.85	293.09	-293.96	2.35	461956.96	710949.94	N 32 16 7.69	W 103 47 4.46
	6830.00	11.27	290.89	6762.17	-284.13	301.43	-313.54	3.98	461965.30	710930.37	N 32 16 7.77	W 103 47 4.69
	6925.00	7.91	286.18	6855.83	-288.45	306.56	-328.49	3.63	461970.43	710915.42	N 32 16 7.82	W 103 47 4.86
	7019.00	5.96	282.01	6949.14	-290.67	309.38	-339.48	2.14	461973.25	710904.43	N 32 16 7.85	W 103 47 4.99
	7114.00	4.02	276.31	7043.78	-291.62	310.77	-347.61	2.11	461974.64	710896.30	N 32 16 7.87	W 103 47 5.08
	7208.00	6.73	298.05	7137.36	-294.14	313.72	-355.75	3.56	461977.59	710888.16	N 32 16 7.90	W 103 47 5.18
	7302.00	9.71	315.28	7230.40	-301.79	321.95	-366.19	4.08	461985.82	710877.72	N 32 16 7.98	W 103 47 5.30
	7397.00	12.22	327.82	7323.67	-315.38	336.16	-377.19	3.63	462000.03	710866.72	N 32 16 8.12	W 103 47 5.43
	7491.00	13.22	329.60	7415.37	-332.47	353.85	-387.93	1.14	462017.72	710855.99	N 32 16 8.29	W 103 47 5.55
	7585.00	13.12	332.73	7506.89	-350.64	372.60	-398.25	0.77	462036.47	710845.66	N 32 16 8.48	W 103 47 5.67
	7775.00	12.71	344.52	7692.12	-389.07	411.92	-413.72	1.40	462075.78	710830.20	N 32 16 8.87	W 103 47 5.85
	7869.00	12.46	333.82	7783.87	-407.72	430.99	-420.95	2.49	462094.85	710822.96	N 32 16 9.06	W 103 47 5.93
	7963.00	13.06	318.77	7875.58	-424.17	448.08	-432.43	3.58	462111.94	710811.49	N 32 16 9.23	W 103 47 6.06
	8058.00	12.90	304.08	7968.18	-437.32	462.10	-448.29	3.47	462125.96	710795.63	N 32 16 9.37	W 103 47 6.25
Bone Spring Intersection	*8123.25*	*11.15*	*295.78*	*8032.00*	*-443.51*	*468.92*	*-460.00*	*3.77*	*462132.79*	*710783.91*	*N 32 16 9.44*	*W 103 47 6.38*

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 ° ' ")
	8164.00	10.20	289.26	8072.04	-446.03	471.83	-466.96	3.77	462135.69	710776.96	N 32 16 9.47	W 103 47 6.46
	8247.00	7.41	271.88	8154.07	-447.97	474.43	-479.25	4.61	462138.29	710764.67	N 32 16 9.49	W 103 47 6.61
	8341.00	5.47	249.10	8247.49	-446.02	473.03	-489.50	3.37	462136.89	710754.42	N 32 16 9.48	W 103 47 6.73
	8437.00	5.44	217.19	8343.08	-440.39	467.77	-496.52	3.12	462131.63	710747.40	N 32 16 9.43	W 103 47 6.81
	8531.00	5.06	206.90	8436.68	-432.91	460.52	-501.09	1.08	462124.39	710742.83	N 32 16 9.36	W 103 47 6.86
	8626.00	4.26	193.91	8531.37	-425.61	453.36	-503.83	1.39	462117.23	710740.09	N 32 16 9.28	W 103 47 6.89
	8720.00	3.39	179.95	8625.16	-419.40	447.19	-504.67	1.35	462111.06	710739.25	N 32 16 9.22	W 103 47 6.90
	8815.00	3.05	189.46	8720.01	-414.09	441.89	-505.08	0.67	462105.76	710738.84	N 32 16 9.17	W 103 47 6.91
	8909.00	3.16	192.10	8813.88	-409.04	436.89	-506.04	0.19	462100.76	710737.88	N 32 16 9.12	W 103 47 6.92
	9004.00	3.52	205.06	8908.71	-403.75	431.69	-507.82	0.88	462095.55	710736.10	N 32 16 9.07	W 103 47 6.94
	9098.00	4.57	206.90	9002.48	-397.65	425.74	-510.74	1.13	462089.60	710733.18	N 32 16 9.01	W 103 47 6.98
	9192.00	5.19	204.57	9096.14	-390.27	418.53	-514.20	0.69	462082.39	710729.72	N 32 16 8.94	W 103 47 7.02
	9268.00	6.36	207.40	9171.75	-383.23	411.67	-517.57	1.58	462075.53	710726.35	N 32 16 8.87	W 103 47 7.06
	9419.00	7.86	215.07	9321.59	-366.85	395.79	-527.35	1.17	462059.66	710716.57	N 32 16 8.72	W 103 47 7.17
KOP Actual	9514.00	14.03	218.82	9414.82	-351.98	381.49	-538.31	6.53	462045.35	710705.61	N 32 16 8.58	W 103 47 7.30
	9609.00	23.88	210.44	9504.57	-325.49	355.87	-555.32	10.73	462019.74	710688.61	N 32 16 8.32	W 103 47 7.50
	9704.00	28.72	203.12	9589.73	-286.93	318.27	-574.04	6.12	461982.14	710669.89	N 32 16 7.95	W 103 47 7.72
	9799.00	39.49	196.10	9668.31	-235.89	268.08	-591.44	12.05	461931.96	710652.49	N 32 16 7.46	W 103 47 7.93
	9894.00	49.60	190.50	9735.96	-170.39	203.30	-606.45	11.41	461867.18	710637.48	N 32 16 6.82	W 103 47 8.10
	9989.00	55.78	180.21	9793.61	-95.09	128.26	-613.20	10.78	461792.14	710630.72	N 32 16 6.07	W 103 47 8.19
	10084.00	66.00	175.96	9839.78	-12.56	45.45	-610.28	11.44	461709.33	710633.64	N 32 16 5.25	W 103 47 8.16
100' FNL Crossing	*10169.56*	*72.93*	*177.97*	*9869.77*	*67.06*	*-34.51*	*-606.07*	*8.40*	*461629.38*	*710637.85*	*N 32 16 4.46*	*W 103 47 8.11*
	10179.00	73.70	178.18	9872.48	76.07	-43.55	-605.77	8.40	461620.34	710638.16	N 32 16 4.37	W 103 47 8.11
	10274.00	77.74	179.05	9895.91	167.83	-135.57	-603.55	4.34	461528.33	710640.38	N 32 16 3.46	W 103 47 8.09
	10369.00	81.94	179.18	9912.67	261.10	-229.05	-602.11	4.42	461434.86	710641.82	N 32 16 2.54	W 103 47 8.08
	10464.00	89.05	180.21	9920.12	355.58	-323.69	-601.61	7.56	461340.22	710642.32	N 32 16 1.60	W 103 47 8.08
	10514.00	89.53	180.00	9920.74	405.51	-373.69	-601.70	1.05	461290.23	710642.23	N 32 16 1.11	W 103 47 8.08
	10599.00	89.44	180.06	9921.51	490.38	-458.68	-601.74	0.13	461205.23	710642.18	N 32 16 0.27	W 103 47 8.09
	10789.00	89.72	180.31	9922.90	680.13	-648.68	-602.36	0.20	461015.25	710641.57	N 32 15 58.39	W 103 47 8.11
	10978.00	89.75	180.31	9923.77	868.91	-837.67	-603.38	0.02	460826.27	710640.55	N 32 15 56.52	W 103 47 8.13
	11164.00	89.61	180.32	9924.81	1054.69	-1023.67	-604.40	0.08	460640.29	710639.52	N 32 15 54.67	W 103 47 8.15
	11351.00	89.44	180.39	9926.36	1241.47	-1210.66	-605.56	0.10	460453.31	710638.37	N 32 15 52.82	W 103 47 8.18
	11538.00	89.58	180.14	9927.96	1428.24	-1397.65	-606.43	0.15	460266.33	710637.50	N 32 15 50.97	W 103 47 8.20
	11725.00	89.48	180.04	9929.50	1614.98	-1584.64	-606.72	0.08	460079.34	710637.21	N 32 15 49.12	W 103 47 8.21
	11818.00	89.72	180.81	9930.14	1707.87	-1677.63	-607.41	0.87	459986.36	710636.52	N 32 15 48.20	W 103 47 8.23
	12005.00	89.72	180.91	9931.06	1894.73	-1864.61	-610.22	0.05	459799.39	710633.71	N 32 15 46.35	W 103 47 8.27
	12192.00	89.65	179.70	9932.09	2081.51	-2051.60	-611.21	0.65	459612.41	710632.71	N 32 15 44.50	W 103 47 8.29
	12285.00	89.79	180.02	9932.54	2174.36	-2144.60	-610.98	0.38	459519.42	710632.94	N 32 15 43.58	W 103 47 8.30
	12379.00	89.72	180.36	9932.94	2268.24	-2238.60	-611.30	0.37	459425.42	710632.63	N 32 15 42.65	W 103 47 8.31
	12472.00	89.68	179.95	9933.43	2361.11	-2331.60	-611.55	0.44	459332.43	710632.38	N 32 15 41.73	W 103 47 8.31
	12659.00	89.61	180.43	9934.59	2547.87	-2518.59	-612.17	0.26	459145.45	710631.76	N 32 15 39.88	W 103 47 8.33
	12754.00	89.55	180.11	9935.29	2642.75	-2613.59	-612.62	0.34	459050.46	710631.31	N 32 15 38.94	W 103 47 8.34
	12944.00	89.58	179.71	9936.73	2832.46	-2803.58	-612.32	0.21	458860.48	710631.61	N 32 15 37.06	W 103 47 8.35
	13134.00	89.99	179.91	9937.44	3022.14	-2993.58	-611.69	0.24	458670.49	710632.24	N 32 15 35.18	W 103 47 8.35
	13229.00	89.82	179.84	9937.60	3117.00	-3088.58	-611.48	0.19	458575.50	710632.45	N 32 15 34.24	W 103 47 8.36
	13419.00	90.23	179.80	9937.52	3306.69	-3278.58	-610.88	0.22	458385.51	710633.04	N 32 15 32.36	W 103 47 8.36
	13609.00	90.13	179.44	9936.92	3496.34	-3468.57	-609.62	0.20	458195.53	710634.30	N 32 15 30.48	W 103 47 8.36
	13799.00	90.06	178.96	9936.60	3685.90	-3658.55	-606.97	0.26	458005.56	710636.96	N 32 15 28.60	W 103 47 8.34
	13894.00	90.23	179.08	9936.36	3780.66	-3753.54	-605.35	0.22	457910.58	710638.58	N 32 15 27.66	W 103 47 8.33
	13989.00	89.99	179.08	9936.18	3875.43	-3848.53	-603.82	0.25	457815.59	710640.11	N 32 15 26.72	W 103 47 8.31
	14179.00	89.61	178.47	9936.84	4064.89	-4038.48	-599.76	0.38	457625.65	710644.17	N 32 15 24.84	W 103 47 8.28
	14369.00	90.20	179.31	9937.16	4254.38	-4228.44	-596.08	0.54	457435.70	710647.85	N 32 15 22.96	W 103 47 8.25
	14559.00	89.68	178.76	9937.36	4443.90	-4418.41	-592.88	0.40	457245.74	710651.05	N 32 15 21.08	W 103 47 8.22
	14654.00	90.68	179.15	9937.06	4538.66	-4513.40	-591.14	1.13	457150.76	710652.78	N 32 15 20.14	W 103 47 8.21
	14748.00	90.27	180.10	9936.28	4632.48	-4607.39	-590.53	1.10	457056.78	710653.40	N 32 15 19.21	W 103 47 8.20
	14938.00	91.44	180.73	9933.44	4822.25	-4797.36	-591.91	0.70	456866.82	710652.02	N 32 15 17.33	W 103 47 8.23
	15128.00	90.54	179.84	9930.16	5011.99	-4987.32	-592.85	0.67	456676.86	710651.08	N 32 15 15.45	W 103 47 8.25
	15318.00	89.82	180.20	9929.57	5201.72	-5177.32	-592.92	0.42	456486.88	710651.01	N 32 15 13.57	W 103 47 8.27
	15413.00	90.30	178.39	9929.47	5296.51	-5272.31	-591.75	1.97	456391.90	710652.18	N 32 15 12.63	W 103 47 8.26
	15603.00	88.72	177.05	9931.09	5485.66	-5462.14	-584.19	1.09	456202.07	710659.73	N 32 15 10.76	W 103 47 8.18
	15793.00	89.17	177.99	9934.59	5674.73	-5651.93	-575.97	0.55	456012.30	710667.95	N 32 15 8.88	W 103 47 8.10
	15983.00	89.96	179.96	9936.03	5864.22	-5841.88	-572.57	1.12	455822.36	710671.35	N 32 15 7.00	W 103 47 8.07
	16078.00	88.55	180.10	9937.27	5959.08	-5936.87	-572.62	1.49	455727.37	710671.30	N 32 15 6.06	W 103 47 8.07
	16267.00	91.02	181.41	9937.98	6147.90	-6125.84	-575.11	1.48	455538.42	710668.81	N 32 15 4.19	W 103 47 8.11
	16362.00	91.23	181.65	9936.11	6242.85	-6220.78	-577.65	0.34	455443.48	710666.28	N 32 15 3.25	W 103 47 8.15
	16552.00	91.13	181.60	9932.20	6432.75	-6410.67	-583.03	0.06	455253.61	710660.89	N 32 15 1.37	W 103 47 8.22
	16647.00	90.92	182.01	9930.50	6527.71	-6505.60	-586.03	0.48	455158.67	710657.90	N 32 15 0.43	W 103 47 8.26
	16837.00	93.02	181.80	9923.97	6717.54	-6695.38	-592.34	1.11	454968.91	710651.59	N 32 14 58.55	W 103 47 8.35
	17026.00	93.47	182.57	9913.27	6906.22	-6883.93	-599.53	0.47	454780.37	710644.39	N 32 14 56.69	W 103 47 8.44
	17121.00	89.27	181.60	9911.00	7001.15	-6978.82	-602.99	4.54	454685.49	710640.94	N 32 14 55.75	W 103 47 8.49
	17311.00	88.93	181.93	9913.98	7191.08	-7168.71	-608.84	0.25	454495.61	710635.09	N 32 14 53.87	W 103 47 8.57
	17407.00	90.10	181.10	9914.79	7287.04	-7264.67	-611.38	1.49	454399.66	710632.55	N 32 14 52.92	W 103 47 8.60
	17501.00	89.96	177.94	9914.75	7380.84	-7358.65	-610.59	3.36	454305.68	710633.34	N 32 14 51.99	W 103 47 8.60
	17691.00	90.34	178.67	9914.25	7570.18	-7548.57	-604.97	0.43	454115.77	710638.96	N 32 14 50.11	W 103 47 8.55
	17786.00	90.30	178.20	9913.72	7664.86	-7643.53	-602.37	0.50	454020.82	710641.55	N 32 14 49.17	W 103 47 8.52
	17976.00	89.75	178.13	9913.63	7854.16	-7833.43	-596.29	0.29	453830.93	710647.64	N 32 14 47.29	W 103 47 8.46
	18166.00	89.72	177.22	9914.51	8043.31	-8023.27	-588.58	0.48	453641.10	710655.34	N 32 14 45.41	W 103 47 8.38
	18355.00	89.99	178.12	9914.99	8231.47	-8212.11	-580.90	0.50	453452.27	710663.03	N 32 14 43.54	W 103 47 8.31
	18450.00	89.58	178.26	9915.35	8326.12	-8307.06	-577.90	0.46	453357.32	710666.03	N 32 14 42.60	W 103 47 8.28
	18545.00	89.58	179.77	9916.04	8420.88	-8402.05	-576.26	1.59	453262.35	710667.66	N 32 14 41.66	W 103 47 8.26
	18735.00	89.75	180.32	9917.16	8610.61	-8592.04	-576.41	0.30	453072.36	710667.51	N 32 14 39.78	W 103 47 8.28
	18830.00	89.24	180.06	9917.99	8705.48	-8687.04	-576.73	0.60	452977.37	710667.20	N 32 14 38.84	W 103 47 8.29
	18925.00	89.27	178.98	9919.23	8800.29	-8782.02	-575.93	1.14	452882.39	710667.99	N 32 14 37.90	W 103 47 8.28
	19020.00	89.27	180.39	9920.44	8895.11	-8877.01	-575.41	1.48	452787.41	710668.51	N 32 14 36.96	W 103 47 8.28
	19115.00	89.65	179.91	9921.33	8989.98	-8972.01	-575.66	0.64	452692.42	710668.26	N 32 14 36.02	W 103 47 8.29
	19210.00	89.65	180.21	9921.91	9084.85	-9067.01	-575.76	0.32	452597.43	710668.17	N 32 14 35.08	W 103 47 8.30
	19305.00	90.96	179.07	9921.41	9179.67	-9162.00	-575.16	1.83	452502.44	710668.76	N 32 14 34.14	W 103 47 8.30
	19400.00	90.89	180.41	9919.87	9274.50	-9256.98	-574.73	1.41	452407.46	710669.19	N 32 14 33.20	W 103 47 8.30
	19494.00	90.06	180.64	9919.10	9368.40	-9350.97	-575.59	0.92	452313.47	710668.33	N 32 14 32.27	W 103 47 8.31
	19589.00	89.55	180.33	9919.42	9463.30	-9445.97	-576.40	0.63	452218.48	710667.53	N 32 14 31.33	W 103 47 8.33
	19684.00	89.44	180.06	9920.26	9558.17	-9540.97	-576.72	0.31	452123.49	710667.20	N 32 14 30.39	W 103 47 8.34
	19779.00	89.86	180.18	9920.84	9653.05	-9635.96	-576.92	0.46	452028.50	710667.01	N 32 14 29.45	W 103 47 8.34
	19874.00	88.58	179.79	9922.13	9747.90	-9730.95	-576.89	1.41	451933.52	710667.03	N 32 14 28.51	W 103 47 8.35
	20064.00	85.69	181.60	9931.63	9937.47	-9920.67	-579.19	1.79	451743.81	710664.73	N 32 14 26.64	W 103 47 8.39
	20159.00	89.58	180.81	9935.55	10032.31	-10015.55	-581.19	4.18	451648.94	710662.74	N 32 14 25.70	W 103 47 8.42
	20254.00	89.86	180.29	9936.01	10127.22	-10110.55	-582.10	0.62	451553.95	710661.83	N 32 14 24.76	W 103 47 8.43
	20444.00	89.65	178.05	9936.82	10316.76	-10300.51	-579.35	1.18	451363.99	710664.58	N 32 14 22.88	W 103 47 8.41
100' FSL Crossing	*20552.86*	*89.59*	*179.27*	*9937.54*	*10425.29*	*-10409.34*	*-576.80*	*1.13*	*451255.17*	*710667.12*	*N 32 14 21.80*	*W 103 47 8.39*
Final Survey	20573.00	89.58	179.50	9937.69	10445.39	-10429.48	-576.59	1.13	451235.04	710667.34	N 32 14 21.60	W 103 47 8.39
Proj to TD	20630.00	89.58	179.50	9938.11	10502.28	-10486.47	-576.09	0.00	451178.04	710667.83	N 32 14 21.04	W 103 47 8.39

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

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 ° ' ")

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 Hole / Oxy Sterling Silver MDP1 33-4 Federal Com 3H Gyro+MWD 0' to 20630' MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Hole / Oxy Sterling Silver MDP1 33-4 Federal Com 3H Gyro+MWD 0' to 20630' MD
	1	26.500	603.000	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Hole / Oxy Sterling Silver MDP1 33-4 Federal Com 3H
	1	603.000	20630.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Hole / Oxy Sterling Silver MDP1 33-4 Federal Com 3H