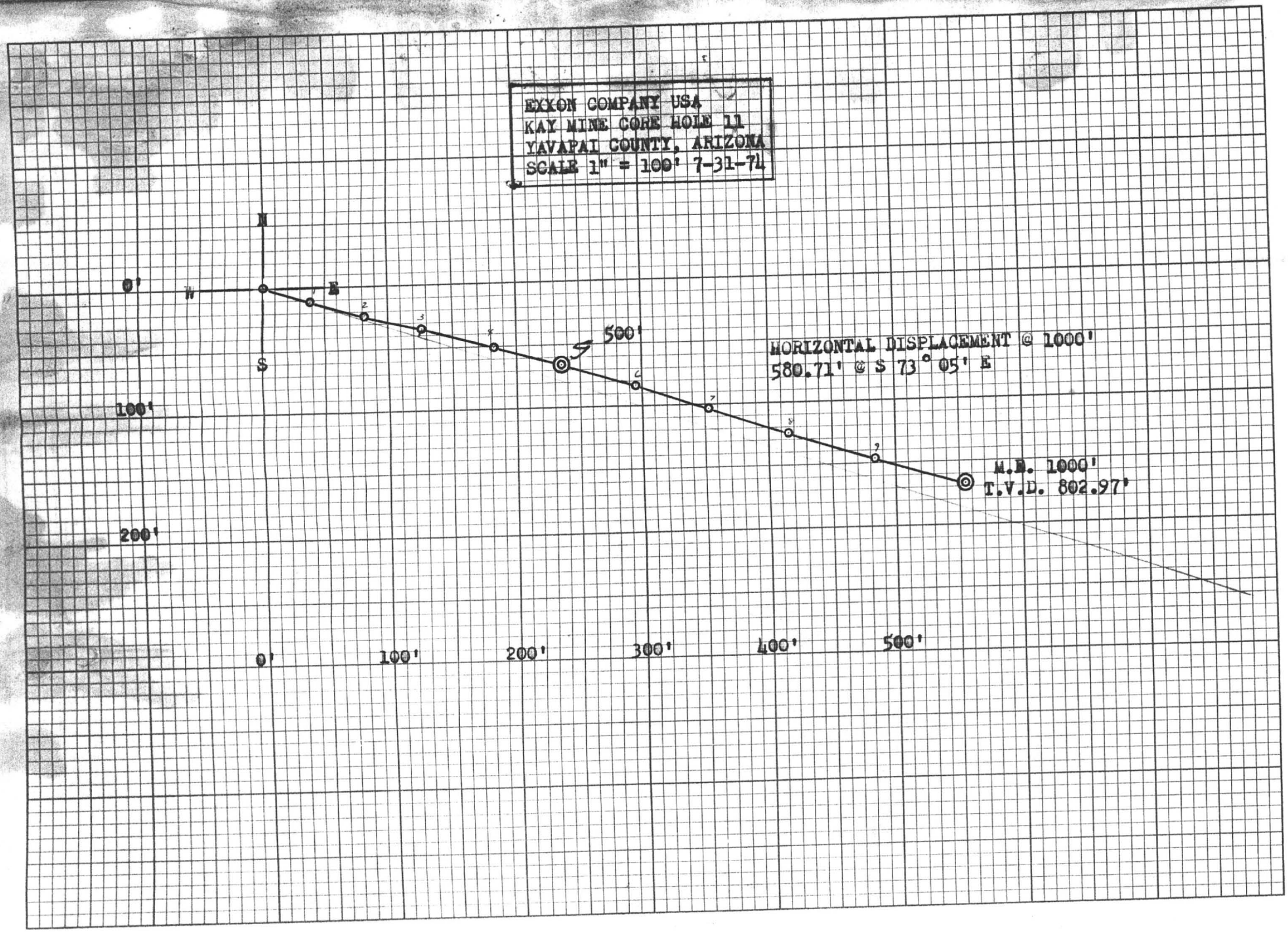

EXXON COMPANY USA
KAY MINE CORE HOLE 11
YAVAPAI COUNTY, ARIZONA
SCALE 1" = 100' 7-31-74
N
W
E
S
0'
100'
200'
0'
100'
200'
300'
400'
500'
500'
HORIZONTAL DISPLACEMENT @ 1000'
580.71' @ S 73° 05' E
M.D. 1000'
T.V.D. 802.97'

MOLLEN-HAUER SURVEYING COMPANY

COMPANY EXXON COMPANY USA JOB NO.

PROSPECT NO. KM 11 LOCATION BLACK CANYON City DATE 7-31-74

STATION NO.	MEASURED DEPTH	COURSE LENGTH	DRIFT ANGLE	VERTICAL DEPTH	TRUE VERTICAL DEPTH	SECTION	COURSE DEVIATION	DRIFT DIRECTION	COORDINATE DIFFERENCES NORTH	SOUTH	EAST	WEST	RECTANGULAR COORDINATES NORTH	SOUTH	EAST	WEST
	100		24	91 35	91 35		40 67	S 75 E		10 53	39 29			10 53	39 29	
	200		25 1/4	96 45	181 80		42 66	S 75 E		11 04	41 20			21 57	80 49	
	300		28 3/4	87 67	269 47		48 10	S 74 E		13 26	46 24			34 83	126 73	
	400		34 1/2	82 41	351 88		56 69	S 74 E		15 61	54 45			50 44	181 18	
	500		35	81 92	433 80		57 36	S 75 E		14 85	55 40			65 29	236 58	
	600		37	79 86	513 66		60 18	S 73 E		17 60	57 55			82 89	294 13	
	700		39 1/2	77 16	590 82		63 61	S 71 E		20 71	60 14			103 60	354 27	
	800		41 3/4	74 61	665 43		66 59	S 72 E		20 58	63 33			124 18	417 60	
	900		44	71 93	737 36		69 47	S 71 E		22 62	65 68			146 80	483 28	
	1000		49	65 61	802 97		75 47	S 73 E		22 07	72 17			168 87	555 45	

HORIZONTAL DISPLACEMENT @ 1000 FT = 580.71 FT @ S 73°05' E

580.55 FT @ S 73.08° E

Coding checked
A-30-82
M. L. Fellows

PROJECT KAY MINE #3293 HOLE No. K-12

Co-ord. 1,113,477 N 425,684 E

Collar elev. 2109' By R. Rowe Scale 1" = 20' Date 6-76 P. 1

Depth	Recovery	Base Metal Mineralizat'n	Pyrite Limonite		Color	Foliation	Rock Type	Description	INTERVAL	Cu	PPM Au	Pb	Zn	PPM Ag
0								0-10' CASING BEARING 105° DIP ~62° SPUD 7/23/74						
20					med grn gry		f	Meta andesite (chloritized Andesite) - med grained - v. stg. chloritized - UNIFORM TEXTURE - locally minor calcite wisps						
					wkt									
40					med grn	35° 43°	c	Chlorite calcite schist (tuffaceous metasediment) - stg fol - semi massive to mod laminated w/ calcite rich bands + wisps 1/32 - 1/8"		200		65	200	1
60			3% py		dk gry	35°	k	Siliceous, graphitic, pyritic schist (Euxinic metaseds) - primary bedding = foliation - pyrite dissem'd throughout + in X-cutting fx's		180		40	.13	1
										315		40	635	1
			-		med grn		d	Chlorite schist (andesitic tuffs)		111		35	132	1
80			3% py 10% py 5% py		dk gry - blk	40-60°	k	Siliceous, graphitic, pyritic schist (Euxinic metaseds) - primary bedding = foliation banding 1/16-2" ϕ carbonaceous shale / qtz sltst - pyrite dissem'd + in bands + X-cutting fx's		240		30	380	1
										325		30	405	1
										515		40	660	1
						43°	d	Chlorite calcite schist (andesitic tuffs) - stg. fol - uniform - wk calcite in matrix, loc in noncomspicuous bands or wisps - 5-10% .5-1 mm irregular lt tan fsp XTALS? (lithic chips?)		99		35	118	1
100	98%		5% py 10% py		blk blk	30°		ϕ, graphite pyrite		215		46	405	1
										208	-.02	34	205	1
120					dk gry grn	43°	h	stg qtz flooding; v. massive cse grained w/ weak C in matrix; qtz flooding — Siliceous chlorite schist (tuffaceous metaseds) - weakly foliate - relatively massive - m-cse grained (.25-1mm) - 5-75% f.g. tuff matrix - Locally wk lam w/ calcite bands 1/32-1/16" - Locally andesitic tuffs						
140														
160														
180					dk grn	48° 51°	d	Chlorite schist (andesitic tuffs) - well foliated - wk-mod laminated 1/64-1/16" : color banded minor calcite bands - Locally calcite in matrix - relatively ϕ above 180'						
						40°								
200														

PROJECT KAY MINE #3293 HOLE No. K-12

Co-ord. 1,113,477 N 425,684 E

Collar elev. 2109' By R. Rowe Scale 1" = 20' Date 6-76 P. 2

Recovery	Base Metal Mineralizat'n	Pyrite Limonite		Color	Foliation	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
200							as above					
220				med grn grn	43° 35°	c	mod. gr. + ϕ Chlorite calcite schist (limy metasediments tuffaceous metasedis) - mod to well foliated. flat to locally slightly undulating - poor to well laminated 1/64-1/8" bands — color banding of f.g. matl — calcite bands					
240		[py] [g]			40°		- Locally andesitic tuff - very local pyrite in laminae or pods					
260				med grn grn			- calcite sparse to locally mod abun (10%?) in bands + matrix - Locally quite siliceous					
280	98+%				47°	c	← graded bedding? tops down					
300					46°							
320		[py]		dk grn	39 42° 43°	c? g?	Chlorite calcite [-] blk ϕ schist (limy metasediments) - stg foliated, smooth - fine grained - well laminated 1/64-1/8" — color — calcite rich bands - black ϕ weak but v. locally abun					
340												
360	60% 85% 85% 85% 95%			med grn	42°	g	Fault 347-357 Chlorite calcite schist (Limy metasedis / calcite bands) - stg foliated, smooth to loc wk undulating - fine grained - well laminated 1/64-1/8" dom from calcite laminae + calcite rich bands					
380	98+%				42°							
400												

PROJECT KAY MINE #3293 HOLE No. K-12

Co-ord. 1,113,477N 425,684 E

Collar elev. 2109' By R. Rowe Scale 1" = 20' Date 6-76 P. 3

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Foliation	Rock Type	Description	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
400							as above					
420		[by]		med grn	40°	d	Chlorite schist (andesitic tuff) - wk to mod fol. - locally mottled - sparce to common agglomeratic clasts up to several inches - sparce to common felsic lithic(?) lapilli frags 2-15 mm "gte eyes" - v. locally wk-mod laminated - very patchy, podda texture - fine to med gr.					
440					23°							
460					38°							
480	98+%											
500				med grn	36°	c	Chlorite calcite⁻ schist (metasediments) - mod foliated, smooth to slightly undulating - fine to med gr. - wk to mod laminated: v. fine laminae defined dominantly by grainsize + lesser by calcite					
520					28° 25°							
540				med grn	35	c	below has a relatively uniform fine mottled(?) texture and contains blk ¢⁻ Chlorite calcite blk ¢⁻ schist (metasediment) - med grained w/ a v fine calcite + blk ¢ matrix					
560					30°							
580				dk grn		f	Chlorite schist (meta andesite) - wk fol - relatively massive - locally flattened lapilli frags					
600					40°							

PROJECT KAY MINE #3293 HOLE No. K-12

Co-ord. 1,113,477 N 425,684 E

Collar elev. 2109' By R. Rowe Scale 1" = 20' Date 6-76 P. 4

Recovery	Base Metal Mineralizatn	Pyrite Limonite		Color	Foliation	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
600												
				dk grn	35		} stg qtz, calcite / blk chert bands — Chlorite blk ± schist - wk to mod foliated andesitic tuff - very irregular texture: patchy, mottled, streaked - locally v wk to mod albite blkt - locally prob metasediments - locally appears finely laminated: calcite rich bands - locally appears agglomerate					
620												
640	98+%			dk grn	25 35		Chlorite calcite ± schist - stg foliated: smooth to slightly undulating (lumy metasediments) - fine, m.g. mixture - finely laminated, grainy texture - calcite in matrix + occurring as lamination / lenticular 3-20% [40%] - v locally qtz bands up to 1"					
660			py=			c						
680				dk grn	32							
					28							
700					30							
	40%											
720					28		gradational contact					
740	98+%			mod gry grn tan	30 24	h	Siliceous Chlorite schist (tuffaceous metasediments greywacke?) - mod foliated: smooth - 60% m.g. sandstone - v. uniform texture 40% tuff laminae, commonly wispy + discontinuous					
760				Lt gry		a	- poor fol Quartz sericite schist - 80% ghosty 3-10mm ϕ frags (Lapilli qtz eye tuff) 20% wispy sericite tuff matrix					
				mod gry tan	20	h	- mod fol Siliceous Chlorite schist (tuffaceous metasediments) - 45% m.g. sandstone 55% tuff lam, commonly wispy + discontinuous					
780				Lt gry	25	a	- poor fol Quartz sericite schist 60° sharp contact - 80% 3-10mm ϕ frags (Lapilli qtz eye tuff) 20% wispy sericite tuff matrix					
				dk gry olive grn			} ϕ ϕ schist inclusion — post mineral andesite? dacite? dike					
800												

PROJECT KAY MINE #3293 HOLE No. K-12

Co-ord. 1,113,477 N. 425,684 E

Collar elev. 2109' By R. Rowe Scale 1" = 20' Date 6-76 P. 5

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Foliation	Rock Type	Description	Interval	Cu	Au (ppm)	Pb	Zn	Ag (ppm)
800				dk gry-olive grn	-		postmineral andesite? dacite? dike - aphanitic - massive - ~5% 1mm mafic phenocrysts - relatively unaltered compared to premineral andesite						
820					-		} φd schist inclusion						
							80° sharp contact w/ hmt						
840		3% py		med gry			Quartz, sericite, graphite schist (carbonaceous euxinic metasediment) - mod fol: smooth to slightly undulating - intensely sheared + recrystal - boudinage texture: lenzoidal φ lens surrounded by graphitic matl. 70% φ mats 25% graphitic seds 5% tuff wisps + laminae - pyrite occurs as blotches		132		29	123	1
	98+%								134	-.02	31	139	1
860		1-2% py			20°								
					25°								
					20°								
880		hmt frs	Argillized	pale grn-brn	-		Sharp, slightly irreg 30° contact (conformable) Andesitic? dacitic? sill						
				lt grn tan	27°		Qtz, Z(?) metased. incln? bedded? sharp conform. contacts very stg argillized beg. intensely argillized below 905'						
900				buff w/v. pale grn tinge	~	△	some brecciation 904.6 - 923 prob fault zone						
	5%	hmt frs	v. stg Argillized		~	△							
920	98+%				~	△							
	75%							-	90		40	150	1
	98+								3.40	.67	500	.24	20
	98+	5% cpy	20% py	lt gry	16°		Quartz sericite schist (felsic crystal tuff) - mod fol - 50% f.g. tuff 50% felsic frag .5-2mm						
940	98+								77	-.02	74	170	1
	98+	cpy	1% py [3%]						0.62		244	388	14
	98+							NX CORE → BX CORE	302		34	115	1
	30%	-	py	med gry grn	22°		Sericite quartz schist (felsic tuff) - mod fol - v.f.g. sericitic tuff sprice to loc common frags .5-1mm		52		87	220	1
960									92		48	406	1
		-	py				Quartz sericite schist (felsic crystal tuff) - mod fol - m. grained (1.5-2mm) 5-30% f.g. tuff wisps + bands - relatively massive		189		119	938	1
	98+%	5% sil gold? strongyrite?				} φ zone			13		96	302	1
		5 strip 2.5 gm 2mm fr?	25% py	lt-med gry					0.34	.27	42	745	6
									.61	.82	.39	2.24	42
980					26°				44	-.02	49	257	1
									93		107	167	1
					22°				690		19	125	1
1000									343	.16	22	69	<1

PROJECT KAY MINE #3293 HOLE No. K-12

Co-ord. 1,113,477 N 425,684 E

Collar elev. 2109' By R. Rowe Scale 1" = 20' Date 6-76 P. 6

Depth	Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Foliation	Rock Type	Description	INTERVAL	Cu	Mo	Pb	Zn	
1000						20°		Quartz sericite schist (felsic Xtal tuff)		47		17	217	<1
	98+					18°				56		51	100	<1
1020	10, 50, 80, 98+, 98+, 20, 98+				Lt-med gry	19°		- stg fol - dominantly m.g. Xtal tuff with 10-60% f.g. tuff matrix - sparse felsic lapilli frags - slightly variable in texture every few feet - pyrite occurs disem'd		40		60	89	1
	90	[stromatolitic ?]	py-							42		30	111	<1
1040			py 90% [py]			18°				104		30	148	1
						16°				47		33	80	1
1060	98+									331		54	252	1
						18°				800		63	630	1
1080			py-		Lt. med grp			Quartz sericite schist (felsic lapilli tuff) - mod fol - 50% ghosty clasts 3-10mm 50% f.g. sericitic matrix		86		35	131	<1
	10, 80, 98+, 98+, 40		[py]			24°	△△	1089-1092 Fault zone		30		40	151	<1
1100					Lt. med gry			Quartz sericite schist (felsic Xtal tuff) qtz rich bands, + pods		25		51	395	<1
		py= stromatolite py=	py= py-			21°		qtz rich bands, pods, pyroclasts(?) some △ rehealing - mod fol - 30-90% m.g. Xtal tuff 70-10% f.g. tuff matrix as lam or wisps - sparse lapilli clasts	1124.6 1125.0 1121	101 263 0.39 840 76	 -.02 .07 .15 -.02	28 39 70 29 22	84 93 408 195 84	<1 1 5 1 <1
1120			py-			25°								
			py= [py-]		med gry	18°		stg blk ¢ Quartz sericite blk ¢ schist (felsic Xtal tuff) - mod fol - 60-90% m.g. Xtal tuff 30-10% f.g. tuff matrix - sparse lapilli clasts - v. weak blk ¢ common locally stg blk ¢ zones - fairly uniform texture		24 20		31 27	105 50	1 <1
1140								stg blk ¢		21		24	73	1
						23°		stg blk ¢						
1160	98+					23°				17	-.02	24	82	<1
1180						23°								
1200								stg blk ¢						

PROJECT KAY MINE #3293 HOLE No. K-12

Co-ord. 1,113,477 N 425,684 E

Collar elev. 2109.' By R. Rowe Scale 1" = 20' Date 6-76 P. 7

Depth	Recovery	Base Metal Mineralizatn	Pyrite Limonite		Color	Foliation	Rock Type	Description	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn	
1200														
						10-20°		] qtz rich zone clo above						
1220														
1240	98+		[py]		mod grg	10°		Quartz sericite blk ∓ schist (felsic xtal lithic tuff) - mod fol - mod to cse xtal lithic tuff - wl blk ∓ in matrix, locally absent - uniform texture - perhaps 80-90% pyroclastic clasts 20-10% f.g. tuff + blk ∓ matrix						
						5-10°		] qtz rich zone, Δ?						
1260			py			5°		cse tuff + lapilli lithic clasts blg more common, blk ∓ decreasing. Only very locally minor amounts		28		28	93	<1
			15%							147	.07	54	118	1
			15% py			8°				0.13		45	202	2
1280	60%													
	98+		py											
	98+													
	30%													
	98+													
	98+					5-7°								
1300	98+													
	98+							Quartz Sericite schist (felsic xtal lithic lapilli tuff) - mod fol - mod to cse xtal lithic tuff w/ 5-50% lapilli size clasts. Locally lapilli absent - has a coarse irregular texture, quite variable - still has a significant quantity of f.g. sericitic tuff matrix occurring as matrix & wispy bands + streaks						
	98+					10°								
	60%													
1320	98+		py											
	98+					15°								
	50%													
	50%													
	60%													
	98+													
	98+				mod grg									
1340	98+					8-12°								
	98+									55		75	646	1
	98+		2% py					← 1" Δ rehealed		60	.22	782	0.16	1
						9°				390		66	0.47	2
	98+													
1360	50%				m grg buff									
	80%													
	50%				med grg tan	5-8°		Sericite quartz schist (felsic tuff) - stg fol - f. grained, locally sparse to mod abun m.g. clasts - highly variable in color - at least locally there is a significant amnt. of clay which causes recovery problems						
	98+													
	80%				buff									
	60%													
	98+				m grg tan									
	98+		py											
1380	98+				buff wht.									
	98+					5-8°								
	98+													
	98+				m grg tan									
					lt tan			← contains a little grn chlorite						
	80%				m grg tan									
					lt grg wht			fault gouge						
1400														

PROJECT KAY MINE #3293 HOLE No. K-12

Co-ord. 1,113,477 N 425,684 E

Collar elev. 2109' By R. Rowe Scale 1"=20' Date -76 P. 8

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Foliation	Rock Type	Description	INTERVAL	Cu	Mo	Pb	Zn	
1400													
25%				Lt gry									
80%													
70%													
10%													
30%													
90%				Lt gry tan	5-10°		Sericite quartz [blk ¢] schist (felsic-intermed Xtal tuff)						
80%		8%											
1420							gtz horizon						
50		3% py		med gry	15-20°		- stg fol						
40							wk blk ¢						
30							- fine to m.g. tuff						
0							- massive uniform units						
20							-v. occasionally a few lapilli clasts						
0													
10													
0							Almost NO recovery						
1440 0					?								
0													
0													
0													
80													
90													
90													
95				med gry	18°		wk blk ¢						
98+													
95					22°				0.28		43	132	1
1460 95				Lt gry	20°								
98+									285	-.02	31	146	1

T.D. 1464' TERM. 9/24/74

80

00

20

40

60

80

00

PROJECT NAME - No. KAY MINE-3293 Location T8N, R2E, S4 County Yavapai State Arizona

Date Started _____ HOLE No. K-12

Date Completed _____ DIAMOND DRILL ASSAY LOG Sheet No. 1

Coordinates _____, _____ Collar Elevation _____ Bedrock Elevation _____

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	SG %	SAMPLE No.	COPPER ppm	COPPER %	LEAD ppm	LEAD %	ZINC ppm	ZINC %	SILVER ppm	SILVER oz/ton	GOLD ppm	GOLD oz/ton		Cu/Zn
45	52.8	7.8						200		65		200		1					
52.8	60	7.2						180		40			.13	1					
60	65	5.0						315		40		635		1					
65	71	6.0						111		35		132		1					
71	75	4.0						240		30		380		1					
75	80	5.0						325		30		405		1					
80	87.5	7.5						515		40		660		1					
87.5	95	7.5						89		35		118		1					
95	100	5.0						215		46		405		1					
100	105	5.0						208		34		205		1		-.02			
830	840	10.0						132		29		123		1					
840	850	10.0						134		31		139		1		-.02			
920	928.4	8.4						90		40		150		1					
928.4	937	8.6							3.40	500			.24	20		.67			14.2
937	940	3.0						77		74		170		1		-.02			
940	945	5.0							0.62	244		388		14					15.5
945	950	5.0						302		34		115		1					
950	955	5.0						52		87		220		1					
955	960	5.0						92		48		406		1					
960	965	5.0						189		119		938		1					
965	968	3.0						13		96		302		1					
968	973.1	5.1							0.34	42		745		6		.27			4.53
973.1	978.3	5.2							.61		.39		2.24	42		.82			0.27
978.3	985	6.7						44		49		251		1		-.02			
985	990	5.0						93		107		167		1					
990	995	5.0						690		19		125		1					
995	1000	5.0						343		22		69		<1		.16			
1000	1010	10.0						47		17		217		<1					
1010	1020	10.0						56		51		100		<1					
1020	1030	10.0						40		60		89		1					
1030	1040	10.0						42		30		111		<1					
1040	1050	10.0						104		30		148		1					
1050	1060	10.0						47		33		80		1					
1060	1070	10.0						331		54		252		1					
1070	1080	100						800		63		630		1					1.27
1080	1090	10.0						86		35		131		<1					
1090	1100	10.0						30		40		151		<1					
1100	1105	5.0						25		51		395		<1					
1105	1110	5.0						101		28		84		<1					
1110	1113.6	3.6						263		39		93		1		-.02			
1113.6	1115.8	2.2							0.39	70		408		5		.07			9.75
1115.8	1121	5.2						840		29		195		1		.15			
1121	1125	4.0						76		22		84		<1		-.02			
1125	1130	5.0						24		31		105		1					

PROJECT NAME - No. KAY MINE-3293 Location T8N, R2E, S4 County Yavapai State Arizona

Date Started _____ HOLE No. K-12

Date Completed _____ DIAMOND DRILL ASSAY LOG Sheet No. 2

Coordinates _____, _____ Collar Elevation 2109' Bedrock Elevation 2109'

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	SG %	SAMPLE No.	COPPER ppm	COPPER %	LEAD ppm	LEAD %	ZINC ppm	ZINC %	SILVER ppm	SILVER oz/ton	GOLD ppm	GOLD oz/ton		Cu/Zn
1130	1140	10.0						20		27		50		<1					
1140	1150	10.0						21		24		73		1					
1150	1160	10.0						17		24		82		<1		-.02			
1265	1269	4.0						28		28		93		<1					
1269	1275	6.0						147		54		118		1		.07			
1275	1280	5.0							0.13	45		202		2					6.5
1340	1345	5.0						55		75		646		1					
1345	1350	5.0						60		782			0.16	1		.22			
1350	1355	5.0						390		66			0.47	2					
1455	1460	5.0							0.28	43		132		1					21.2
1460	1464.6	4.6						285		31		146		1		-.02			

PROJECT NAME - No. KAY MINE-3293 Location T8N, R2E, S4 County Yavapai State Arizona

Date Started _____ HOLE No. K-12

Date Completed _____ DIAMOND DRILL ASSAY LOG Sheet No. 1

Coordinates _____, _____ Collar Elevation _____ Bedrock Elevation _____

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	SG %	SAMPLE No.	COPPER ppm	COPPER %	LEAD ppm	LEAD %	ZINC ppm	ZINC %	SILVER ppm	SILVER oz/ton	GOLD ppm	GOLD oz/ton
45	52.8	7.8						200		65		200		1			
52.8	60	7.2						180		40			.13	1			
60	65	5.0						315		40		635		1			
65	71	6.0						111		35		132		1			
71	75	4.0						240		30		380		1			
X 75	80	5.0						325		30		405		1			
80	87.5	7.5						515		40		660		1			
87.5	95	7.5						89		35		118		1			
95	100	5.0						215		46		405		1			
100	105	5.0						208		34		205		1		-.02	
710	830																
830	840	10.0						132		29		123		1			
840	850	10.0						134		31		139		1		-.02	
850	920																
920	928.4	8.4						90		40		150		1			
X 928.4	937	8.6							3.40	500			.24	20		.67	
937	940	3.0						77		74		170		1		-.02	
940	945	5.0							0.62	244		388		14			
945	950	5.0						302		34		115		1			
950	955	5.0						52		87		220		1			
955	960	5.0						92		48		406		1			
960	965	5.0						189		119		938		1			
965	968	3.0						13		96		302		1			
968	973.1	5.1							0.34	42		745		6		.27	
973.1	978.3	5.2							.61		.39		2.24	42		.82	
978.3	985	6.7						44		49		251		1		-.02	
985	990	5.0						93		107		167		1			
990	995	5.0						690		19		125		1			
995	1000	5.0						343		22		69		<1		.16	
1000	1010	10.0						47		17		217		<1			
X 1010	1020	10.0						56		51		100		<1			
1020	1030	10.0						40		60		89		1			
1030	1040	10.0						42		30		111		<1			
1040	1050	10.0						104		30		148		1			
1050	1060	10.0						47		33		80		1			
1060	1070	10.0						331		54		252		1			
1070	1080	10.0						800		63		630		1			
1080	1090	10.0						86		35		131		<1			
1090	1100	10.0						30		40		151		<1			
1100	1105	5.0						25		51		395		<1			
1105	1110	5.0						101		28		84		<1			
1110	1113.6	3.6						263		39		93		1		-.02	
1113.6	1115.8	2.2							0.39	70		408		5		.07	
1115.8	1121	5.2						340		29		195		1		.15	
1121	1125	4.0						76		22		84		<1		-.02	
X 1125	1130	5.0						24		31		105		1			

PROJECT NAME - No. KAY MINE-3293 Location T8N, R2E, S4 County Yavapai State Arizona

Date Started _____ HOLE No. K-12

Date Completed _____ DIAMOND DRILL ASSAY LOG Sheet No. 2

Coordinates _____, _____ Collar Elevation 2109' Bedrock Elevation 2109'

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	SG %	SAMPLE No.	COPPER ppm	COPPER %	LEAD ppm	LEAD %	ZINC ppm	ZINC %	SILVER ppm	SILVER oz/ton	GOLD ppm	GOLD oz/ton		
1130	1140	10.0						20		27		50		<1					
1140	1150	10.0						21		24		73		1					
1150	1160	10.0						17		24		82		<1		-.02			
1265	1269	4.0						28		28		93		<1					
1269	1275	6.0						147		54		118		1		.07			
1275	1280	5.0							0.13	45		202		2					
1340	1345	5.0						55		75		646		1					
1345	1350	5.0						60		782			0.16	1		.22			
1350	1355	5.0						390		66			0.47	2					
1455	1460	5.0							0.28	43		132		1					
1460	1464.6	4.6						285		31		146		1		-.02			

PROJECT KAY MINE (K-I2) (Ariz) SUBMITTAL No. ~~77-44-II~~

SAMPLE TYPE NX Drill Core No. OF SAMPLES 48 SUBMITTED BY R.G. Rowe DATE I/7/

REMARKS Au * PROJECT No. 3293-I2

STORAGE BOX No. PAGE I OF 2 PAGES

SAMPLE CONCENTRATION

SAMPLE No.	PPM Cu	% Cu	PPM Pb	% Pb	PPM Zn	% Zn	PPM Ag
45-52.8	200		65		200		1
65-7I	111		35		132		1
87.5-95	89		35		118		1
95-I00	215		46		405		1
* I00-I05	208		34		205		1
830-840	132		29		123		1
* 840-850	134		31		139		1
							1
920-928.4	90		40		150		1
* 937-940	77		74		170		1
940-945		0.62	244		388		14
945-950	302		34		115		1
950-955	52		87		220		1
955-960	92		48		406		1
960-965	189		119		938		1
965-968	13		96		302		1
* 968-973.I		0.34	42		745		6
* 978.3-985	44		49		251		1
985-990	93		107		167		1
990-995	690		19		125		1
*995-I000	343		22		69		<1
I000-I0I0	47		17		217		<1
I0I0-I020	56		51		100		<1
I02I-I030	40		60		89		1
I030-I040	42		30		111		<1
I040-I050	109		30		148		1
I050-I060	47		33		80		1
I060-I070	331		54		252		1
I070-I080	800		63		630		1
I080-I090	86		35		131		<1
I090-II00	30		40		151		<1
II00-II05	25		51		395		<1
II05-III0	101		28		84		<1
*III0-III36	263		39		93		1
*III3.6-III5.8		0.39	70		408		5
*III5.8-II2I	840		29		195		1
*II2I-II25	76		22		84		<1
II25-II30	24		31		105		1
II30-II40	20		27		50		<1
II40-II50	21		24		73		1
*II50-II60	17		24		82		<1
I265-I269	28		28		93		<1
*I269-I275	147		54		118		1

Marlin H. Hibbetts 1/18/77

PROJECT KAY MINE (K-I2) (Ariz) SUBMITTAL No. 77-44-II

SAMPLE TYPE NX Core No. OF SAMPLES 48 SUBMITTED BY R.G. Rowe DATE 1/7/

REMARKS PROJECT N 3293-I2

STORAGE BOX No. PAGE 2 OF 2 PAGES

SAMPLE CONCENTRATION

SAMPLE No.	PPM Cu	% Cu	PPM Pb	% Pb	PPM Zn	% Zn	PPM Ag
I275-I280		0.13	45		202		2
I340-I345	55		75		646		1
*I345-I350	60		782			0.16	1
I350-I355	390		66			0.47	2
I455-I460		0.28	43		132		1
*I460-I464.6	285		31		196		1

1/18/77

PROJECT KAY MINE (K-I2) (Ariz) SUBMITTAL No. ~~77-44-II~~

SAMPLE TYPE NX Drill Core No. OF SAMPLES 48 SUBMITTED BY R.G. Rowe DATE I/7/

REMARKS Au * PROJECT No. 3293-I2

STORAGE BOX No. PAGE I OF 2 PAGES

SAMPLE CONCENTRATION

SAMPLE No.	PPM Cu	% Cu	PPM Pb	% Pb	PPM Zn	% Zn	PPM Ag
45-52.8	200		65		200		1
65-7I	111		35		132		1
87.5-95	89		35		118		1
95-I00	215		46		405		1
* I00-I05	208		34		205		1
830-840	132		29		123		1
* 840-850	134		31		139		1
							1
920-928.4	90		40		150		1
* 937-940	77		74		170		1
940-945		0.62	244		388		14
945-950	302		34		115		1
950-955	52		87		220		1
955-960	92		48		406		1
960-965	189		119		938		1
965-968	13		96		302		1
* 968-973.I		0.34	42		745		6
* 978.3-985	44		49		251		1
985-990	93		107		167		1
990-995	690		19		125		1
*995-I000	343		22		69		<1
I000-I0I0	47		17		217		<1
I0I0-I020	56		51		100		<1
I02I-I030	40		60		89		1
I030-I040	42		30		111		<1
I040-I050	104		30		148		1
I050-I060	47		33		80		1
I060-I070	331		54		252		1
I070-I080	800		63		630		1
I080-I090	86		35		131		<1
I090-II00	30		40		151		<1
II00-II05	25		51		395		<1
II05-III0	101		28		84		<1
*III0-III36	263		39		93		1
*III3.6-III5.8		0.39	70		408		5
*III5.8-II2I	840		29		195		1
*II2I-II25	76		22		84		<1
II25-II30	24		31		105		1
II30-II40	20		27		50		<1
II40-II50	21		24		73		1
*II50-II60	17		24		82		<1
I265-I269	28		28		93		<1
*I269-I275	147		54		118		1

Marlin H. Tibbetts
1/18/77

PROJECT KAY MINE (K-I2) (Ariz) SUBMITTAL No. 77-44-II

SAMPLE TYPE NX Core No. OF SAMPLES 48 SUBMITTED BY R.G. Rowe DATE 1/7/

REMARKS PROJECT No 3293-I2

STORAGE BOX No. PAGE 2 OF 2 PAGES

SAMPLE CONCENTRATION

SAMPLE No.	PPM Cu	% Cu	PPM Pb	% Pb	PPM Zn	% Zn	PPM Ag
I275-I280		0.13	45		202		2
I340-I345	55		75		646		1
*I345-I350	60		782			0.16	1
I350-I355	390		66			0.47	2
I455-I460		0.28	43		132		1
*I460-I464.6	285		31		146		1

Martin H. Hubbell
1/18/77

PROJECT Kay Mine HOLE No. 12

Co-ord. _____ Collar elev. _____ By _____ Scale 1"=100 Date _____ R. _____

Recovery	Base Metal Mineralization	Pyrite Limonite	Gaugue	Alteration	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
							0 Casing Dip -62° Bearing 105°					
						f	Pillowed? mgr mgn					
						c						
		Py	Sgl.			ex	graphite					
		Pf	dl			ex	Si. Cos ex					
						f	100					
						f						
					50	d						
							200					
					45	c						
							300					
						d						
					mgn fgn 40		400					
		1% Py				f	aggl.					
						f						
						d	500					
						c						
		Tr Pb				c	fgr ~~plgn~~ dk gn plgn dk gn					
						f						
						f	fgr					
					mn	c	600					
					70°	d + c						
						d	700					
					70	c						
		1% py			75	b a						
						T	800					
							Flaser bedded.					
							900					
							1000					

PROJECT Kay Mine **HOLE No.** 12

Co-ord. 1,113,477 / 425,648

Collar elev. 2109 By GP Scale 1"=100 Date ____ R. ____

Recovery	Base Metal Mineralization	Pyrite Limonite	Gougue	Alteration	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
0							Casing Bearing 105° ∠ -62					
							mgr m to dk gn					
95+						f	Pillowed					
"					45	c	mgr mgn th bd					
		2-5	graph		55	ex	SiO_2 Graph py contorted					
		2-5	dk		55	ex	SiO_3CO_3 Py ex contorted					
						f	100					
						f						
							mgr gn to gy gn th bd					
					50	d	plag phenos					
		Tr										
							200 mgr gn to gy gn th bd					
					45	c						
						d	Si gy gn m to cgr dacitic 10-20% chl					
							300 graph on S,					
					40	d						
							400					
		1% py				f	Agg flow bottom ?? m to cgr dk to mgn					
							500					
							600					
							700					
							800					

BAT TAKE DDH- 12

12

SAMPLE TYPE Nx Core

NO. OF SAMPLES 5

REMARKS

STORAGE BOX NO.

SUBMITTAL NO. 74- 30- 23

DATE SUBMITTED 7-29-74

SUBMITTED BY G. Parsons

PROJECT NO. 3293- 12

PAGE 1 OF 1 PAGES

SAMPLE CONCENTRATION

Sample No.	PPM Cu	% Cu	PPM Pb	% Pb	PPM Zn	% Zn	PPM Ag	Oz.s Ag
52.8- 60	190		40			0.13	1	
60- 65	315		40		635		1	
71- 75	240		30		380		1	
75- 80	325		30		405		1	
80- 87.5	515		40		660		1	

12

PROJECT KAY MINE DDH-12 12

SAMPLE TYPE Drill Core NO. OF SAMPLES 2

REMARKS

STORAGE BOX NO.

SUBMITTAL NO. 74-30-36

DATE SUBMITTED 9/3/74

SUBMITTED BY G. Parsons

PROJECT NO. 3293

PAGE 1 OF 1 PAGES

SAMPLE CONCENTRATION

Sample No.	% Cu	% Pb	% Zn	ppm Ag	Oz. Ag	ppm Au	Oz Au
928.4-937.0	3.40	0.05	0.24	20	0.58	.67	.019
973.1-978.3	0.61	0.39	2.24	42	1.22	.82	.024

12

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

CERTIFICATE OF ANALYSIS

ITEM NO.	SAMPLE IDENTIFICATION	Au ppm
	KAY MINE Project: 3293-12:	
1	100-105	<0.02
2	840-850	<0.02
3	937-940	<0.02
4	968-973.1	0.27
5	978.3-985	<0.02
6	995-1000	0.16
7	1110-1113.6	<0.02
8	1113.6-1115.8	0.07
9	1115.8-1121	0.15
10	1121-1125	<0.02
11	1150-1160	<0.02
12	1269-1275	0.07
13	1345-1350	0.22
14	1460-1464.6	<0.02

TO: EXXON COMPANY, U.S.A.
2425 North Huachuca Drive
Tucson, Arizona 85705
Attn: R. Rowe

REMARKS: Trace analysis

CERTIFIED BY:

DATE REC'D:	DATE COMPL.:	JOB NUMBER:
1/24/77	1/27/77	770182

PROJECT KAY MINE (KM-I2) (Ariz) SUBMITTAL No. 77-7-42

SAMPLE TYPE NX Core No. OF SAMPLES 44 SUBMITTED BY G. Westra DATE 11/10/7

REMARKS PROJECT No. 3293-I2

STORAGE BOX No. PAGE I OF I PAGES

SAMPLE CONCENTRATION

SAMPLE No.	PPM Cu	% Cu	PPM Pb	% Pb	PPM Zn	% Zn	Cu	Pb	Zn	Zn/Cu	
750-760	53		17		64						
760-770	61		13		98						
770-780	92		18		67						
780-790	22		11		78						
790-800	117		14		110						
800-810	36		12		79						
810-820	32		13		78						
820-830	95		11		91						
840-850	118		20		131		64	13	83	1.3	.77
X 850-860	104		18		156						
860-870	101		18		151						
870-880	85		13		122						
880-890	89		16		99						
890-900	60		18		76						
900-910	92		15		79		80	16	114	1.4	.71
I160-I170	46		18		65						
I170-I180	32		7		49						
I180-I190	19		12		36						
I190-I200	61		21		76						
I200-I210	336		24		165						
I210-I220	152		25		267						
I220-I230	567		91		103						
I230-I240	16		11		81						
I240-I250	47		18		130						
X I250-I260	97		129		127		137	31	110		
- I260-I265	103		66		141						
I280-I290	147		61		95						
I290-I300		0.23	81			0.10					
I300-I310		0.14	56			0.19					
I310-I320	345		102		850						
X I320-I330	52		43		303						
I330-I340	176		101			0.10					
- I355-I360	116		30			0.29	453	68	1023	2.3	.43
I360-I370	85		32			0.27					
I370-I380	20		14		108						
I380-I390	13		11		65						
I390-I400	11		17		79						
I400-I410	88		40		126						
I410-I420	277		21		199						
I420-I430	232		22		237						
X I430-I440	113		20		135						
I440-I450	250		21			0.29					
- I450-I455		0.15	26		191		184	22	628	3.4	0.29
I460-I464	47		18		169						

[illegible]
12/1/77

PROJECT Kay Mine

Co-ord. _____ HOLE No. K-12

Collar elev. _____ By GW Scale 1" = 100' Date _____ P.

Recovery	Base Metal Mineralizat'n	Pyrite Limonite		Color	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn	

0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000

N/c

Cu Pb Zn

130 <2 28 Lovey mottoned

20 Lovey

F

148 Cu 5.5 41 Zn Lovey

F

57 Cu 2.5 45 Zn Lovey

69 16 60 Zn Exam

N/c

PROJECT Kay Mine HOLE No. K-12

Co-ord. _____ _____

Collar elev. _____ By GW Scale 1"=100' Date _____ P. 2

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn	

1000

1100

1200

1300

1400

1464

real distinction??

F

F

F

F

F

F

1410-1464

688
+970

25 Pb
±8

613 Zn
±965

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	PROJECT Kay Mine Co-ord. Collar elev. By GW Scale 1"-20' Date P.1	HOLE No. K-12	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn

0

0-10 Casing' No core

10

10-36 green andesite lapilli(?) tuff
chlorite - feldspar. minor calcite - epidote
fld? white 1/10" stringers ||s,
angular frags 2" flow breccia
trace diss pyrite <<1%
weak goethite on fractures

36

36-52.8 green chlorite phyllite in part sediment in
part fine grained tuff accum
+ calcite + lap

lapilli tuff
andesite
1-2% diss py

50

52.8-65 black laminated graphitic chert trace calcite
1-3% pyrite in crosscutting 1/10" veinlets
laminae 1/10-2/10" separated by graphite
wk oxidation

65

65-71 fine grained chlorite phyllite meta argillite? minor calcite
fine tuff'' calcite veins

71

71-87.5
black banded graphitic chert + pyrite veins crosscutting
1-3% pyrite
Some cross cutting calcite veins

87.5

87.5-95 fine grained chlorite rich rock probably andesite
OR fine andesite tuff?

95

95-97 black graphitic - pyritic chert

97

97-100 andesitic lime tuff = chlorite - phyllite

100

100-102 chert black

101

100-106 fine med andesite lapilli - feldspathic tuff

105

coarse bx andesite + black chert + 6" frags

108-122 massive metaandesite flow
Some fragment

122

bx silicified
122-174 } laminated chl. phyllite

schistose green (dark) meta andesite (flow bx tuff??)
massive Some q veins + epidote selvages
crosscutting irregular dark green chlorite "veins"
locally pillows? (163) (146)

150

definitely Coarse tuff quartz 1/10-2/10" rounded aggregates

174

1" chert layers laminae + calcite
174-307 fine grained laminated highly fissile
Chlorite phyllite good calcite
lenses of quartz, albite, calcite
coarser chlorite locally good epidote

200

Recovery	Base Metal Mineralizat'n	Pyrite Limonite		Color	Structure	Rock Type	PROJECT Kay Mine Co-ord. ____ Collar elev. ____ By GW	HOLE No. 12 Scale 1"=20' Date ____ P.2	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn

200

banded black & white chert

chlorite phyllite laminated "striped + white" calcite layers 1/20 - 2/10" 5-15%

striped more calcite layers //s, also quartz lenses //s,

250

pale green massive andesite breccia
typical rock also found in other holes and at surface

chert 1"

300

chert 1"

gradational

307 - 405

Same as above but darker coarser
Chlorite more volcanic material
fine feldspathic tuffs andesitic?
tactite veins crosscutting; common epidote
more variable grain size between laminae

350

Fault zone
crumbly gouge

400

PROJECT Kay Mine HOLE No. K-12

Co-ord. _____ Collar elev. _____ By GW Scale 1" = 20' Date _____ P. 3

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	Description	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
400												
							Black chert					
493							493–493 green non-laminated chloritic rock gradational andesitic lapilli tuff flow bx?? layers with abundant 2/50' round quartz nodules (?) could be pillowed amygdaloidal volcanic?					
			x				fine basic tuff (wrong colour) or tuffaceous sediment ?					
450							well layered but irregular sediment fragmental lapilli size 1"–2" basic lithic tuff					
493							feldspathic sandstone tuff					
							493–540 green fine grained chloritic phyllite (laminated but not striped) locally fine (sand size) feldspathic tuff and/or andesite. (coarser grained than chloritic phyllite higher up, more feldspar) gradual					
500												
540							540–576 green feldspathic fine tuff – granular chl.-feldspar – meta tuff. meta andesite? locally fine lapilli locally fine metasediment gradual					
550												
576							576–590 darker green coarse tuff? Same as 493–493 gradual					
590							590–600 green laminated fissile chloritic phyllite gradual					
600												

PROJECT Kay Mine HOLE No. K-12

Co-ord. _____ Collar elev. _____ By GW Scale 1"=20' Date _____ P. 4

Recovery	Base Metal Mineralizat'n	Pyrite Limonite		Color	Structure	Rock Type	Description	Interval	Analyses Element Cu	Mo	Pb	Zn
600												
605							chert bx 608-627 same as 576-596 green massive fine grained andesitic tuff ?? fine grained but fragmental					
627	? and											
							608-742 fine grained fine laminated chlorite phyllite, fine white calcite layers					
650							F					
							lapilli tuff flattened //s, striped + calcite					
							striped lapilli tuff? or just alternating mica and quartz layers 1/10-3/10" wide					
688 12	864 (11)						} sandstone feldspath rich tuff chlorite phyllite					
700							very fine grained chlorite phyllite 1" chert lens					
							very fine grained chlorite phyllite + calcite 2" chert Some calcite-quartz layers lenses //s, metaargillite					
?			×									
717	✓ ✓						gradual over 6"					
							742-755 pale brown meta argillite q-sc phyllite no calcite carbonate-rich siltstone + pale brown streaks //s, sharp					
750			×									
755							755-768 coarse granular q-sc fibrite + alternant q-dolomite veins minor chlorite q 2/10-4/10" augen q-py augen //s,					
768							768-770 brown + gray fine sc phyllite sc-q-brown mineral					
770												
771					C ∧ 35		770-701 coarse q-sc rock 701-841 Dike + some rock inclusions chilled borders pale green andesite dike nos, hbl-feldspar phenos					
							lapilli tuff					
800												

PROJECT Kay Mine
Co-ord. _____
Collar elev. _____ By GW Scale 1" = 20' Date _____ P.5
HOLE No. K-12

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	Description	Interval	Analyses Element Cu	Mo	Pb	Zn
800							contact cuts S_1					
							lapilli tuff					
841					C1		841-876 highly graphitic-pyritic lapilli tuff Coarse Felsite < 1/2" frags; frags chert gray and brown + gray phyllite; in places mainly gray + pale brown q-x phyllite					
850												
876							876-887 dike clay altered diabase - diorite pale green; chilled border; sharp					
887							887-893 hornfelsed sc-q-lapilli tuff + abundant vein quartz					
893							893-928.4 Dike argillized as above; poor recovery; no S_1 cuts S_1					
900												
928.4					C ∧ 20		928.4-937 sc-q meta lapilli tuff in part silicified; common pyrite, some chalcopyrite layers 1/4 - 2" wide; some dol. veins; no chlorite; some hem after py; gradual					
937							937-1356 highly silicic greenish gray Sericite meta tuff (?) locally dolomitized; → trace graphite in q veins					
MX							dol-cp; q-dol ± cp veins; pale green due to minor chlorite?					
950 BX							very fine grained talc phyllite? minor chlorite; silica-sc rock					
							dolomite blasts; q-dol veins; chlorite present, common dolomite and dol-qtz veins ± graphite					
	cp	py			MS		↓ dol-cp-py → high pyrite; dolomite vein; pale green chloritic! med. lapilli tuff; fine grained siliceous tuff.					
		1.2 py	×				quartz crystal tuff; ↓ gray highly siliceous q-sc rock granular lapilli tuff ?? Felsite same as "fish meat split"; dolomite veins; overcropping					
1000		1 py										

PROJECT Kay Mine
Co-ord. _____ HOLE No. K-12
Collar elev. _____ By GW Scale 1"=20' Date _____ P. 6

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	Description	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
1000							wavy platy (1/10-2/10") split					
							↓ decrease frag size?					
							sc. q. phyllite fine granular feldspar rich?					
			×				dolomite-rich fine tuff (rhyolitic??)					
							lapilli tuff					
		1-2 py					↓ fine grained (sand size) gritty sericite phyllite fine diss pyrite					
1050												
							q-vein gray dolomite?? + quartz minor py-cp					
							q-dol vein					
							some cp weak pale green chlorite felsite tuff med lapilli (1/2" or less)					
							poor recovery + vein qtz Fltzone?					
1100												
							} dolomite veins tiny quartz eyes					
			×				pale green silica rich med lapilli tuff 1/2" frags a lens rhyolite + lapilli fragments					
							coarse white dolomite vein good lapilli texture chlorite shards					
1150							1/50" tiny clear quartz xls common rhyodacite tuff some frags chloritized					
							→ q-dol vein					
							good lapilli + chlorite shards					
			×				rhyolite lapilli tuff					
							} pale brown fine meta argillite					
							→ q-dol vein					
							→ dol vein					
							beautiful lapilli tuff good textures coarse 1-2" frags // S1					
							sandy size tuffaceous? laminated					
1200												

PROJECT Kay Mine HOLE No. K-12

Co-ord. _____ Collar elev. _____ By GW Scale 1"=20' Date _____ P.7

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	Depth	Description	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
							1200	q-dol; strongly chloritized lapilli tuff + q-dol veins + albite?					
								gouge Fault					
								strong black chlorite					
								chl + dol					
								F; common 1/50" tiny quartz; rhyolitic lapilli tuff frags upto 1"/s, flattened					
								F					
							1250						
								fine grained + fragments white blasts 1/10" (feldspar or dolomite)					
								high fine grained pyrite //s,					
								pyrite; q-dol					
								tuffs pale green weak chl + sc + q-ele ? 2/10-1" frags					
12 1300 DDH 11	G						1300	minor cp; cp					
								chl					
								chl shards //s,					
								dolomite + py ↓ finer grained. metasediment gray greenish sand. silt size					
							1350						
							1356	1356 - 1388 Thin platy highly siliceous rhyolite? lapilli tuff? (also exposed)					
								↓ start bleaching thin platy highly siliceous bleaches					
								bleached - faultzone sc. clay					
							1388	F11 1388 - 1414					
								Chloritized lapilli tuff some qeyes rhyolitic lapilli tuff					
							1400	F11 zone					

PROJECT Kay Mine HOLE No. K-12

Co-ord. _____ Collar elev. _____ By GW Scale 1" = 20' Date _____ P. 8

Recovery	Base Metal Mineralizat'n	Pyrite Limonite		Color	Structure	Rock Type	Description	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
1400							frgs up to 2"					
							q vein					
							Fault					
1414												
							meta argillite - 1414 - 1445					
							quartzite chert? } strong chlorite					
							& vein chert?					
						N/a						
1445												
							1445 - 1464 brownish gray sc phyllite locally chloritized					
	cp						q-cp meta argillite some tuffaceous material					
							T.D 1464'					

file loc. ____

PROJECT KAY MINE #3293 **STATE** ARIZONA **COUNTY** YAVAPAI **DRILL HOLE** K-13

LOCATION Black Canyon City **EXXON COORN.** ~ 1,113,200 N. ~ 425,100 E. **ELEVATION: COLLAR** ~2140' **GROUND** ~2140'

HOLE DIRECTION Vertical **HOLE COMM.(date)** 8-20-76 **INTERVALS OF INTEREST:**

CASING DEPTH:

FT.	SIZE
0-20'	10 3/4"
0-1000'	6 3/8"
0-1355'	4"

Inclination Survey: 60' - 3/4°; 170' - 1 1/2°; 285' - 1 3/4°; 400' - 2°; 500' - 2°; 600' - 2 5/8°; 700' - 1 3/4°; 800' - 2 3/8°; 900' - 1 7/8°; 1000' - 1 7/8°; 1100' - 1 3/4°; 1200' - 1 3/4; 1300 - 2 1/4; 1355 - 2°

HOLE TERMINATED (date) 8-31-76 1000' FT. 8-18-77 1355' **ASSAYS**

TOTAL DEPTH ____

HOLE SIZES W/DEPTH

0 - 20'	12 3/4" cased to 10 3/4"
20 - 1000	9 5/16" cased to 6 3/8"
1000 - 1355	5 3/4" cased to 4"

DRILLED BY Whatley Drilling Co. **LOGS - SURVEYS RUN** YES: DOTCO Double shot **LOGGED BY** R. Rowe

---

pЄ YAVAPAI SCHIST

LITHOLOGY

- Intermediate tuff
- Andesite tuff
- andesite
- tuffaceous Andesite
- siliceous breccia
- Gabbro
- metasediment
- chlorite phyllite silt
- chlorite phyllite sand
- chert
- felsite

ALTERATION

- ¢ GRN. Chlorite
- # BLK. Chlorite
- z sericite
- ϕ silica
- Ep epidote
- ca calcite

STRUCTURE

- (Chip samples: No structure)
- % Percentage of quartz chips in sample, indicating abundance of narrow quartz lens, bands, stringers etc.

MINERALIZATION

- % go goethite
- % py pyrite
- % po pyrrhotite
- Relative Abundances
- X= trace
- X- sparce
- X moderate
- X+ abundant
- X++ V. abundant

DATE - FOOTAGE	LITHOLOGY	ALTERATION	STRUCTURE	MINERALIZATION	ASSAY / GEOCHEM
	50	¢	<2	2 goe	
			5		
			16	6 goe	
			10	10 goe	
	100'	ϕ	100		
8/20/76 107' →		¢z		2 goe	
		¢	5	goe⁻ py⁻	
		¢z	10		
				1 py	
	200'		<2	py⁻	
		¢			
			5	py⁻	
8/21/76 290' →			<2	.5 py	
	300'		5		
			<2	py⁻	
			7	.5 py	
	400'			py⁻	
8/23/76 414' →		¢	<2		
8/24/76 447' →		Ep		py⁻	
8/25/76 450' →				[py]	
	500'				

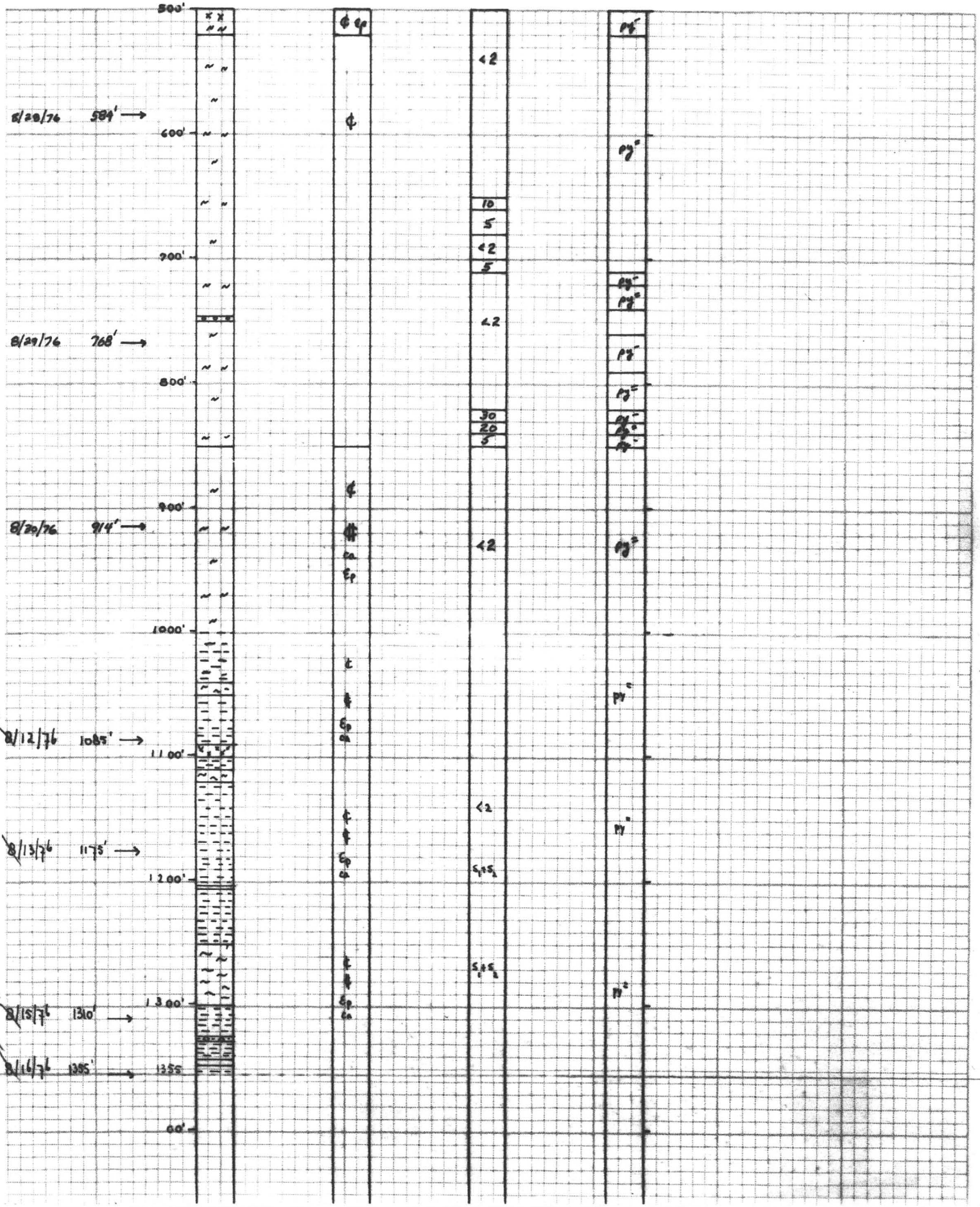
file loc. ____

SUMMARY DRILL LOG

PROJECT KAY MINE #3293 STATE ARIZONA COUNTY YAVAPAI DRILL HOLE K-13

DATE-FOOTAGE

ASSAY/GEOCHEM



PROJECT Kay Mine

Co-ord: ≈ 1,113,200 N 425,100 E

Collar elev. ≈ 2140 By G. Westra Scale 1" = 20' Date 9-12-77 P. 1

HOLE No. K-13

Depth	Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	Description	INTERVAL	Cu	Mo	Pb	Zn
1000					dark green			1000 – [illegible] dark green chlorite phyllite, calcareous – calcite and quartz veins; trace pyrite, minor epidote; [illegible] minor sediment; "flux" [illegible]		189		48	160
1050					dark green			1050 – [illegible] dark green chlorite phyllite [illegible] texture; less calcite than above. <[illegible] pyrite; [illegible]		150		22	88
					green			[illegible] 1050 – 1090 green [illegible] chlorite phyllite [illegible] calcite veinlets					
1090					dark green			1090 – 1100 dark green meta andesite flow? minor epidote – calcite massive "blocky" chips					
1100					dark green			1100 – 1110 chlorite phyllite calcareous		182		13	80
1120			1/2 pyrite					1110 – 1120 green meta andesite [illegible] chlorite calcite [illegible] pyrite massive [illegible] "blocky" chips					
								1120 – 1250 dark green chlorite phyllite + calcite + epidote trace pyrite; chlorite green – black – some sericite? fine grained meta sediment					
1150										177		19	93
1200						S_1+ S_2							

PROJECT Kay Mine HOLE No. K-13

Co-ord: ~1,113,200 N 425,100 E

Collar elev. ~2140' By G Westra Scale 1" = 20' Date 9-12-77 P. 2

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	Description	INTERVAL	Cu	Mo	Pb	Zn
1200							[illegible]		160		23	90
1250							[illegible]		196		29	98
							[illegible]		224		14	100
1300				dark green			1300 – 1355 dark green chlorite phyllite [illegible] pyrite – quartz [illegible]		190		23	114
							[illegible] pale brown [illegible] fragments [illegible]					
							[illegible] [illegible] fine crystalline chert [illegible]					
1355							T.D 1355 8/16/77		159		24	109

PROJECT NAME - No. KAY MINE-3293 Location T8N, R2E, S4 County Yavapai State Arizona

Date Started [illegible] HOLE No. [illegible]

Date Completed [illegible] DIAMOND DRILL ASSAY LOG Sheet No. 1

Coordinates ~1,[illegible] N, ~425,100 E. Collar Elevation ~2140' Bedrock Elevation [illegible]

Footage From	Footage To	Interval	Measured Core Recovery	% Recovery	Hole Size	SG %	SAMPLE No.	COPPER ppm	COPPER %	LEAD ppm	LEAD %	ZINC ppm	ZINC %	SILVER ppm	SILVER oz/ton	GOLD ppm	GOLD oz/ton
[illegible]	[illegible]							95		44		201		1			
[illegible]	[illegible]							92		24		140		1			
[illegible]	[illegible]							93		22		100		1			
[illegible]	[illegible]							85		20		85		1			
[illegible]	[illegible]							132		25		82		1			
[illegible]	[illegible]							109		28		105		1			
[illegible]	[illegible]							137		26		103		1			
[illegible]	[illegible]							158		25		93		1			
[illegible]	[illegible]							149		24		133		1			
[illegible]	[illegible]							176		20		80		1			
[illegible]	[illegible]							147		16		147		1			
[illegible]	[illegible]							152		25		85		1			
[illegible]	[illegible]							144		16		91		1			
[illegible]	[illegible]							141		20		94		1			
[illegible]	[illegible]							130		17		95		1			
[illegible]	[illegible]							121		16		92		1			
[illegible]	[illegible]							160		22		98		1			
[illegible]	[illegible]							157		17		104		1			
[illegible]	[illegible]							115		15		85		-1			
[illegible]	[illegible]							141		18		98		1			
[illegible]	[illegible]							106		20		82		1			
[illegible]	[illegible]							135		20		94		-1			
[illegible]	[illegible]							150		22		80		-1			
[illegible]	[illegible]							152		24		90		-1			
[illegible]	[illegible]							141		18		85		1			
[illegible]	[illegible]							130		22		80		1			
[illegible]	[illegible]							162		20		78		1			
[illegible]	[illegible]							172		19		98		1			
[illegible]	[illegible]							167		47		165		1			
[illegible]	[illegible]							187		30		115		1			
[illegible]	[illegible]							188		27		100		1			
[illegible]	[illegible]							124		19		72		1			
[illegible]	[illegible]							165		22		74		1			
[illegible]	[illegible]							197		25		94		1			
1000	1010							189		48		160					
1050	1060							150		22		88					
1100	1110							182		13		80					
1150	1160							177		19		93					
1200	1210							160		23		90					
1250	1260							196		29		98					
1290	1300							224		14		100					
1300	1310							190		23		114					
1350	1360							159		24		109					

PROJECT KAY MINE #3293 HOLE No. K-13

Co-ord. 1,113, N 425, E

Collar elev. 2' By R. Rowe Scale 1" = 20' Date -76

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Foliation	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
0							chlorite schist meta sediment					
	–	9		med grn	– stg							
100	–	10% py					← 70% ¢ schist 20% Qtz 10% limonite					
	–	–		white	NIL		← Quartz and recrystal qtz breccia w/ ¢ blk cement					
		4% py		lt grn			10% above unit					
		5% py 1% py		grey	stg		chlorite limonite schist meta sediment					
							5% qtz 10% qtz 15% qtz					
		–		dk grey	mod		20% qtz					
200		py – [1% py] [10%]		dk grey grn	stg		chlorite schist meta andesite ? [C bearing gne] 10% ¢ 3NS + ¢ Δ					
							chlorite calcite = schist meta sediment 5% ¢ gns 5% qtz 40% ¢ andesite ?					
				↓			10% qtz 15% qtz 5% qtz 3% py					
		–		med grn								
		1% py			stg		30% ¢ + ¢ Δ					
300		–					40% andesite flow 30% andesite flow 50% metaandesite 5% qtz					
		3% py			mod		chlorite schist - andesite metatuff tuffaceous and. metased					
		15% py					5% qtz 10% qtz 10% qtz 2 qtz 5 2 2 2					
400												
500												
600												
700												
800												
900												
1000												

PROJECT KAY MINE (K-13) (Ariz)

SAMPLE TYPE Cuttings

NO. OF SAMPLES 8

REMARKS

STORAGE BOX NO.

SUBMITTAL NO. 77-6-35

DATE SUBMITTED 9/6/77

SUBMITTED BY G. Westra

PROJECT NO. 3293

PAGE I OF I PAGES

SAMPLE CONCENTRATION

Sample No. K-13	PPM Cu	% Cu	PPM Pb	% Pb	PPM Zn	% Zn
I000-I010	189		48		160	
I050-I060	150		22		88	
II00-III0	182		13		80	
II50-II60	177		19		93	
I200-I210	160		23		90	
I250-I260	196		29		98	
I300-I310	190		23		114	
I350-I360	159		24		109	

Charles H. Hightette
9/16/77

PROJECT KAY MINE (K-I3) (Ariz)

SUBMITTAL NO. 77-6-35

SAMPLE TYPE Cuttings

NO. OF SAMPLES I

DATE SUBMITTED 9/20/77

SUBMITTED BY G. Westra

REMARKS

PROJECT NO. 3293

STORAGE BOX NO.

PAGE I OF I PAGES

SAMPLE CONCENTRATION

Sample No.	PPM Cu	PPM Pb	PPM Zn
I290-I300	224	14	100

Marlin H. Hibbitts
9/22/77

SAMPLE SUBMITTAL SHEET

PROJECT NAME: Kay Mine PROJECT NO: 3293

SUBMITTED BY: G. Westra DATE: 8-16-77 SHIPPED VIA: hand

SAMPLE TYPE: Cuttings NO. OF SAMPLES: 30 PRIORITY: 2

ANALYSIS REQUESTED: (Ag)(Au)(Cu)(Mo)(Pb)(Zn) Other: Assay or Trace
(Indicate by check mark) (Circle One)

The sample numbers are:

~~1000~~ 1000 - 1010 thru ~~1250~~ - 1300 - 1310

thru

thru

thru

thru

thru

Mail Copy
Of Report To: Westra

Remarks or
Special Instructions: ~~Split~~ 1) Dry samples 2) Split samples
3) one part of split to be washed: make chip sample
4) one part of split to be crushed
5) rest to be discarded
6) Assay every 5th sample:

1000 - 1010
1050 - 1060
1100 - 1110
1150 - 1160
1200 - 1210
1250 - 1260
1300 - 1310

PULP & REJECT DISPOSITION

PULP
( ) Discard
(X) Store
( ) Return Collect To:

REJECTS
Rejects will be discarded unless otherwise noted !

NOTE:
Copy of submittal sheet must
accompany samples !

G. Westra

(Signature)

KAY MINE (K-13) (Ariz)

Cuttings NO. OF SAMPLES 8

STORAGE BOX NO.

SUBMITTAL NO. 77-6-35

DATE SUBMITTED 9/6/77

SUBMITTED BY G. Westra

PROJECT NO. 3293

PAGE I OF I PAGES

CONCENTRATION

Sample	PPM Cu	% Cu	PPM Pb	% Pb	PPM Zn	% Zn
K-13						
1000-1010	189		48		160	
1050-1060	150		22		88	
1100-1110	182		13		80	
1150-1160	177		19		93	
1200-1210	160		23		90	
1250-1260	196		29		98	
1300-1310	190		23		114	
1350-1360	159		24		109	

Marlin H. Hightower

OJECT KAY MINE (K-13) (Ariz)

MPLE TYPE Cuttings NO. OF SAMPLES I

MARKS

STORAGE BOX NO.

SUBMITTAL NO. 77-0-35

DATE SUBMITTED 9 2 77

SUBMITTED BY G.Westra

PROJECT NO. 3293

PAGE I OF I PAGES

PLE CONCENTRATION

ple	PPM Cu	PPM Pb	PPM Zn
2.			
1290-1300	224	14	100

Martin T. Abbitt
9/22/77

PROJECT Kay Mine DDH-13 (Ariz.)

SAMPLE TYPE Drill chips NO. OF SAMPLES 34

REMARKS

STORAGE BOX NO.

SUBMITTAL NO. 76-40-A0

DATE SUBMITTED 9-22-76

SUBMITTED BY R. G. Rowe

PROJECT NO. 3293-13

PAGE 1 OF 2 PAGES

Fire-Ba-Kay [illegible]

SAMPLE CONCENTRATION

Sample No.				PPM Cu	% Cu		PPM Pb	% Pb		PPM Zn	% Zn		PPM Ag			
20-30				95			44			201			1			
50-60				92			24			140			1			
80-90				93			22			100			1			
110-120				85			20			85			1			
140-150				132			25			82			1			
170-180-A				109			28			105			1			
170-180-B				137			26			103			1			
200-210				158			25			93			1			
230-240				149			24			133			1			
260-270				176			20			80			1			
290-300				147			16			147			1			
320-330				152			25			85			1			
350-360				149			16			91			1			
380-390				141			20			94			1			
410-420				130			17			95			1			
440-450				121			16			92			1			
470-480				160			22			98			1			
500-510				157			17			104			1			
530-540				115			15			95			<1			
560-570				141			18			98			1			
590-600				106			20			82			1			
620-630				135			20			94			<1			
650-660				150			22			80			<1			
680-690				152			24			90			<1			
710-720				141			18			75			1			
740-750				130			22			70			1			

[illegible]
9-27-76

PROJECT Kay Mine DDH-13 (Ariz.)

SAMPLE TYPE Drill chips NO. OF SAMPLES 34

REMARKS

STORAGE BOX NO.

SUBMITTAL NO. 76-40-40

DATE SUBMITTED 9-22-76

SUBMITTED BY R.G. Rowe

PROJECT NO. 3293-15

PAGE 2 OF 2 PAGES

SAMPLE CONCENTRATION

Sample No.	PPM Cu	% Cu	PPM Pb	% Pb	PPM Zn	% Zn	PPM Ag
770-780	162		20		78		1
800-810	172		19		93		1
830-840	167		47		165		1
860-870	187		30		115		1
890-900	188		27		100		1
920-930	124		19		72		1
950-960	165		22		74		1
980-990	197		25		99		1

Marlin H. Hatlette
9-22-76

file loc. ____

PROJECT KAY MINE #3293 STATE ARIZONA COUNTY YAVAPAI DRILL HOLE K-13

LOCATION Black Canyon City EXXON COORN. ~ 1,113,200 N ~ 425,100 E ELEVATION: COLLAR ~214' GROUND ~214'

HOLE DIRECTION Vertical HOLE COMM.(date) 8-20-76 INTERVALS OF INTEREST:

CASING DEPTH:

FT.	SIZE
0-20'	10 3/4"
0-1000'	6 3/8"

Inclination Survey:
60' - 3/4°
170' - 1 1/2°
285' - 1 3/4°
400' - 2°
500' - 2°
600' - 2 1/8°
700' - 1 3/8°
800' - 2 3/8°
900' - 1 7/8°
1000' - 1 7/8°

HOLE TERMINATED (date) 8-31-76 1000' FT. ASSAYS

TOTAL DEPTH ____

HOLE SIZES W/DEPTH
0 - 20' 12 3/4" cased to 10 3/4"
20 - 1000 9 5/16" cased to 6 3/8"

DRILLED BY Whatley Drilling Co. LOGS - SURVEYS RUN YES: DOTCO Double shot LOGGED BY R. Rowe

pЄ YAVAPAI SCHIST

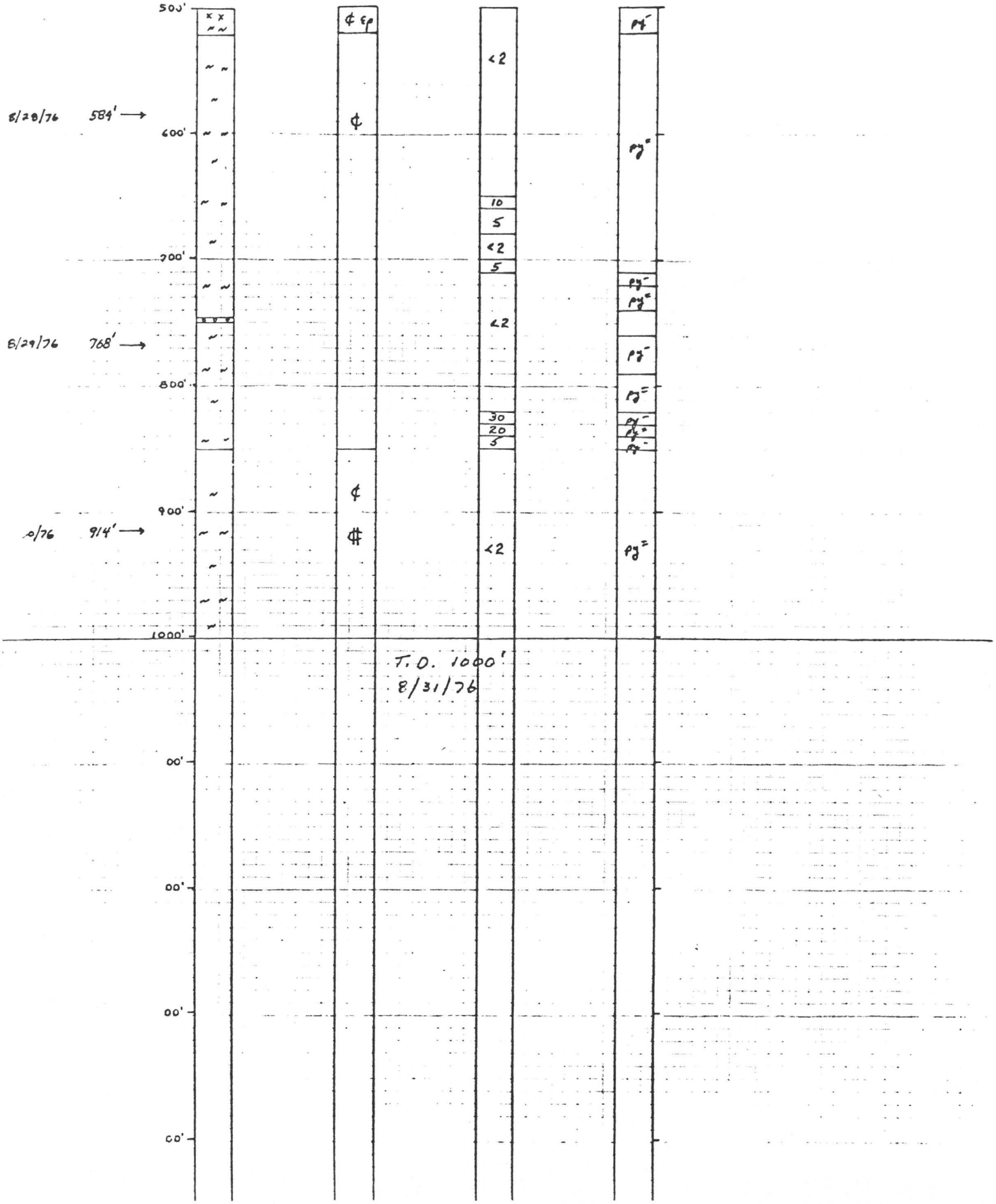
LITHOLOGY		ALTERATION		STRUCTURE		MINERALIZATION	
Intermediate tuff		¢ GRN Chlorite		(Chip samples: No structure)		% goe goethite	
Andesitic tuff		# BLK Chlorite		% Percentage of quartz chips in sample, indicating abundance of narrow quartz lens, bands, stringers etc.		% py pyrite	
andesite		z sericite				% po pyrrhotite	
tuffaceous Andesite		ϕ silica					Relative Abundances
siliceous breccia		Ep epidote					X= trace; X- sparce; X moderate; X+ abundant; X++ V. abundan
Gabbro							
metasediment							

DATE - FOOTAGE	LITHOLOGY	ALTERATION	STRUCTURE	MINERALIZATION	ASSAY / GEOCHEM
	00	¢	<2	2 goe	
			5		
			15	6 goe	
			10	10 goe	
8/20/76 107' →	100'	ϕ	100	2 goe	
		¢ z			
		¢	5	goe⁻ py⁻	
		¢ z			
			10	1 py	
	200'		<2	py⁻	
		¢			
			5	py⁻	
8/21/76 290' →			<2	.5 py	
	300'		5		
			<2		
				py⁻ po= py=	
			7	.5 py	
	400'			py⁻	
8/23/76 414' →		¢ Ep=	<2		
8/24/76 447' →				py=	
8/25/76 458' →				[py⁻]	
	500'				

SUMMARY DRILL LOG

PROJECT KAY MINE #3293 STATE ARIZONA COUNTY YAVAPAI DRILL HOLE K-13

DATE-FOOTAGE | ASSAY/GEOCHEM



MOLLEN-HAUER
SURVEYING COMPANY

Directional Survey Report
for

CUSTOMER EXXON COMPANY USA

AREA BLACK CANYON CITY PROSPECT NO. KAY MINE # 13

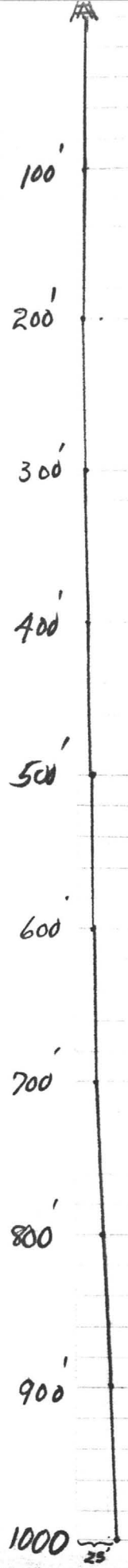
COUNTY YAVAPAI STATE ARIZONA

P. O. Box 17376
Tucson, Arizona 85731
Phone [602] 298-2779

K-13

E/W Section through DH

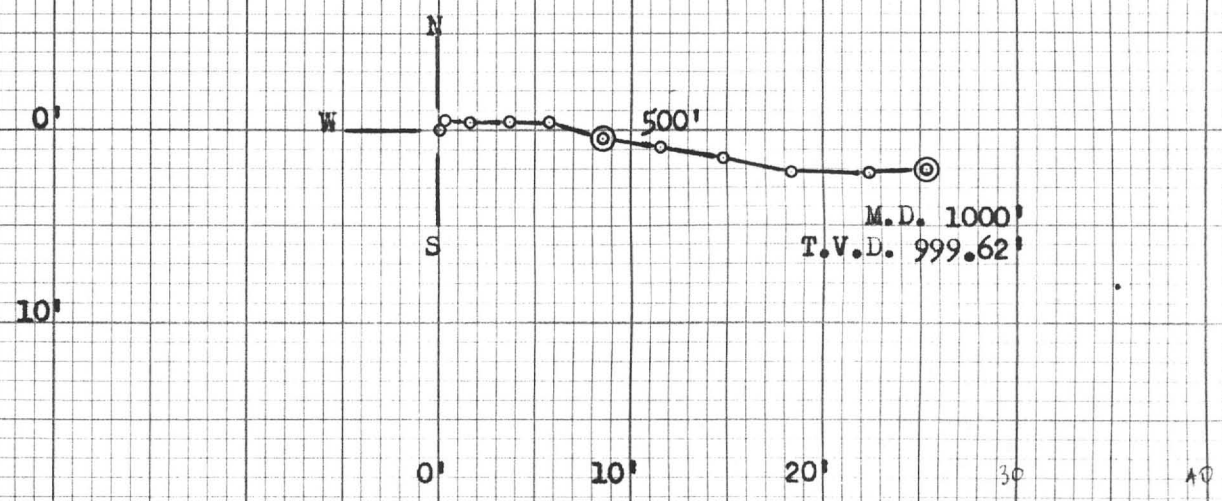
1" = 100' V & H



K+E 10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 0780

EXXON COMPANY USA
KAY MINE HOLE #13
YAVAPAI COUNTY, ARIZONA
SCALE 1"= 10' 9-9-76



MOLLEN-HAUER SURVEYING COMPANY

COMPANY Exxon Co. USA JOB NO. 61288 PAGE 1 OF 1

PROSPECT NO. Kay Mine #3 LOCATION Black Canyon City DATE 9-9-76

STATION NO.	MEASURED DEPTH	COURSE LENGTH	DRIFT ANGLE	VERTICAL DEPTH	TRUE VERTICAL DEPTH	SECTION	COURSE DEVIATION	DRIFT DIRECTION	COORDINATE DIFFERENCES NORTH	SOUTH	EAST	WEST	RECTANGULAR COORDINATES NORTH	SOUTH	EAST	WEST
	100	100	1/4	100 00	100 00		44	N 48 E	29		32		29		32	
	200		3/4	99 99	199 99		1 31	N 86 E	09		1 31		38		1 63	
	300		1 1/4	99 98	299 97		2 18	S 89 E		04	2 18		34		3 81	
	400		1 1/4	99 98	399 95		2 18	S 87 E		11	2 18		23		5 99	
	500		1 1/2	99 97	499 92		2 62	S 74 E		72	2 52			49	8 51	
	600		1 3/4	99 95	599 87		3 05	S 81 E		48	3 02			97	11 53	
	700		2	99 94	699 81		3 49	S 79 E		67	3 43			1 84	14 95	
	800		2	99 94	799 75		3 49	S 82 E		49	3 46			2 63	18 41	
	900		2 1/4	99 92	899 67		3 93	S 89 E		07	3 93			2 10	22 34	
	1000	100	1 3/4	99 95	999 62		3 05	N 89 E	05		3 05			2 05	25 39	
	1050	50	1 1/2	49 98	1049 60		1 31	S 82 E		.18	1 30			2 33	26 69	
	1100		1 3/4	49 98	1099 58		1 53	S 71 E		50	1 45			2 83	28 14	
	1150		2	49 97	1149 55		1 74	S 59 E		90	1 49			3 73	29 63	
	1200		1 3/4	49 98	1199 53		1 53	S 65 E		65	1 39			4 38	31 02	
	1250		2	49 97	1249 50		1 74	S 58 E		92	1 48			5 30	32 50	
	1300	50	2 1/4	49 96	1299 46		1 96	S 47 E		1 34	1 43			6 64	33 93	
	1355	55	2	54 97	1354 43		1 92	S 40 E		1 47	1 23			8 11	35 16	

Horizontal Displacement @ 1355' S 77.01° E 36.08'

INC 4-29-82

DATA SHEET NO._____ OF_____

COMPANY Exxon JOB NO._____ DATE_____

LEASE_____ WELL NO.____ FIELD_____

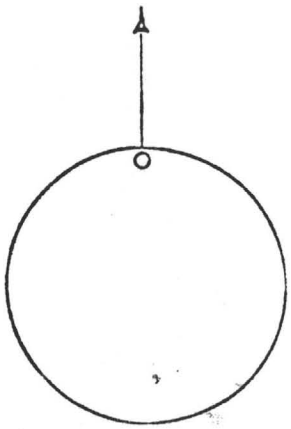
COUNTY_____ STATE_____ TOTAL DEPTH_____

STABILIZER TYPE_____ SIZE____" NO. OF STAB._____ TOTAL DIST. BETWEEN STAB._____

REF. PT._____ BEARING N3E HOW OBTAINED_____ ____°E/W DECL.

RUN NO.____ FILM CODE_____ SURVEY DEPTHS_____' TO_____' "O" PT._____

GYRO NO._____ A.U. NO.____ ___° INST. NO.____



FIRST FLASH_____ LAST FLASH_____

VOLT. W/LOAD DC_____ DC_____

START GYRO AZ. N2E FINISH AZ N11E DRIFT____ TILT____

TIME, ORIENT. 01-00 TIME FINAL ORIENT. 56 00

CASE ORIENT. 05-00 TO 08-30 FROM 48-35 TO 52-05

REMARKS_____

IN RUN SURFACE TIME	MEASURED DEPTH	OUT RUN SURFACE TIME	IN RUN SURFACE TIME	MEASURED DEPTH	OUT RUN SURFACE TIME	IN RUN SURFACE TIME	MEASURED DEPTH	OUT RUN SURFACE TIME
07-00	0							
09-00								
09-30								
10-45	1							
11-20	2 x	45-45						
12-20		44-45						
12-50	3							
14-15								
14-50	4 x	43-15						
15-20		42-00						
19-55	5							
20-15								
21-55	6 x	40-45						
23-15		39-25						
23-55	7							
25-15								
26-00	8 x	38-15						
28-05		37-00						
28-00	9							
32-30								
33-30	10							
35-20								

MOLLEN-HAUER SURVEYING COMPANY

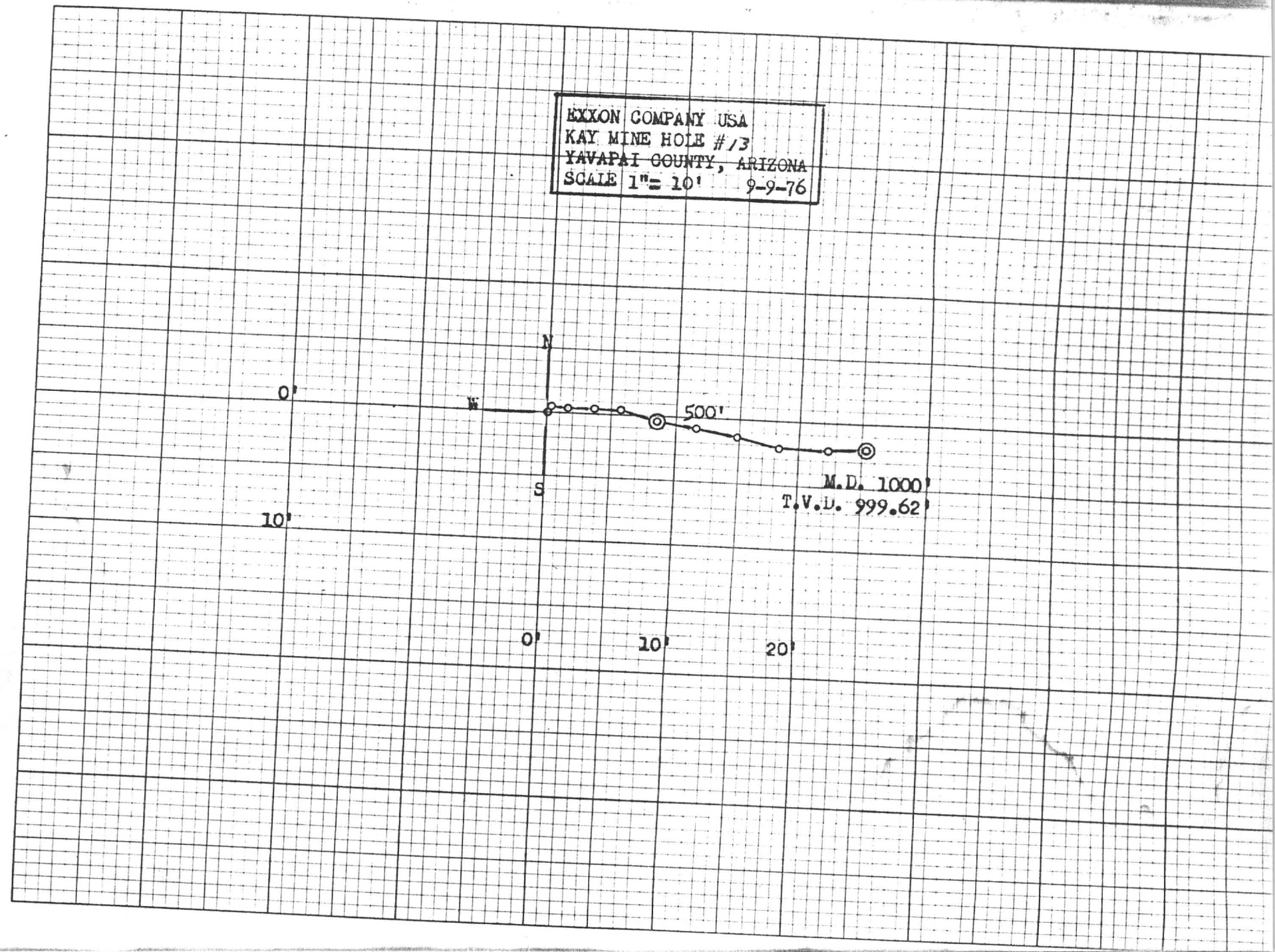
Directional Survey Report for

CUSTOMER EXXON COMPANY USA

AREA BLACK CANYON CITY PROSPECT NO. KAY MINE # 13

COUNTY YAVAPAI STATE ARIZONA

P. O. Box 17376
Tucson, Arizona 85731
Phone [602] 298-2779


EXXON COMPANY USA
KAY MINE HOLE #13
YAVAPAI COUNTY, ARIZONA
SCALE 1"= 10' 9-9-76
N
W
S
0'
10'
500'
M.D. 1000'
T.V.D. 999.62'
0'
10'
20'

MOLLEN-HAUER SURVEYING COMPANY

COMPANY Union Co. USA JOB NO. 61288 PAGE 1 OF 1

PROSPECT NO. Kay Mine #3 LOCATION Black Canyon City DATE 9-9-76

STATION NO.	MEASURED DEPTH	COURSE LENGTH	DRIFT ANGLE	VERTICAL DEPTH	TRUE VERTICAL DEPTH	SECTION	COURSE DEVIATION	DRIFT DIRECTION	COORDINATE DIFFERENCES NORTH	SOUTH	EAST	WEST	RECTANGULAR COORDINATES NORTH	SOUTH	EAST	WEST
	100	100	1/4	100 00	100 00			N 48 E	29		32		29		32	
	200		3/4	99 99	199 99			N 86 E	09		131		38		163	
	300		1 1/4	99 98	299 97			S 89 E		04	218		34		381	
	400		1 1/4	99 98	399 95			S 87 E		11	218		23		599	
	500		1 1/2	99 97	499 92			S 74 E		72	252			49	851	
	600		1 3/4	99 95	599 87			S 81 E		48	302			97	1153	
	700		2	99 94	699 81			S 79 E		67	343			154	1495	
	800		2	99 94	799 75			S 82 E		49	346			203	1841	
	900		2 1/4	99 92	899 67			S 89 E		07	393			210	2234	
	1000	100	1 3/4	99 95	999 62			N 89 E	05	S	305			205	2539	

MOLLEN-HAUER SURVEYING COMPANY

Directional Survey Report for

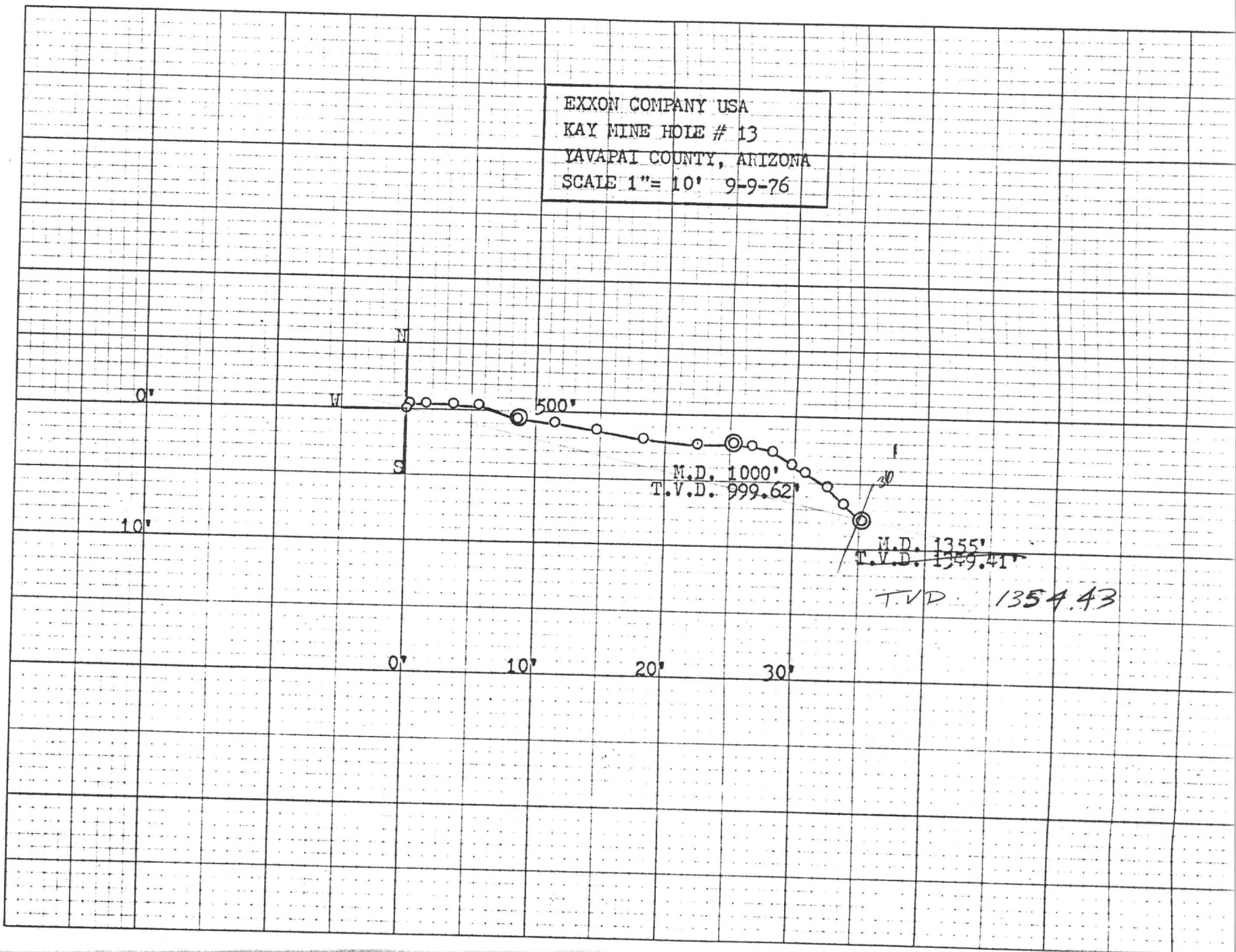
CUSTOMER EXXON COMPANY USA

AREA KAY MINE PROSPECT NO. 13

COUNTY YAVAPAI STATE ARIZONA

P. O. Box 17376
Tucson, Arizona 85731
Phone [602] 298-2779

EXXON COMPANY USA
KAY MINE HOLE # 13
YAVAPAI COUNTY, ARIZONA
SCALE 1"= 10' 9-9-76



MOLLEN-HAUER SURVEYING COMPANY COMPANY [illegible] JOB NO. 61200 PAGE 1 OF 1

PROSPECT NO. Kay Mine #3 LOCATION Black Canyon City DATE 9-9-76

STATION NO.	MEASURED DEPTH	COURSE LENGTH	DRIFT ANGLE	VERTICAL DEPTH	TRUE VERTICAL DEPTH	SECTION	COURSE DEVIATION	DRIFT DIRECTION	COORDINATE DIFFERENCES NORTH	SOUTH	EAST	WEST	RECTANGULAR COORDINATES NORTH	SOUTH	EAST	WEST
	100	100	1/4	100 00	100 00			N 48 E	29		32		29		32	
	200		3/4	99 99	199 99			N 86 E	09		1 31		38		1 63	
	300		1 1/4	99 98	299 97			S 89 E		04	2 18		34		3 81	
	400		1 1/4	99 98	399 95			S 87 E		11	2 18		23		5 99	
	500		1 1/2	99 97	499 92			S 74 E		72	2 52			49	8 51	
	600		1 3/4	99 95	599 87			S 81 E		48	3 02			97	11 53	
	700		2	99 94	699 81			S 79 E		67	3 43			1 54	14 95	
	800		2	99 94	799 75			S 82 E		49	3 46			2 03	18 41	
	900		2 1/4	99 92	899 67			S 89 E		07	3 93			2 10	22 34	
	1000	100	1 3/4	99 95	999 62			N 89 E	05	5	3 05			2 05	25 39	
CHECK SHOT	1000		1 1/2					N 88 E								
	1050	50	1 1/2	49 9[illegible]	1049 [illegible]			S 82 E		18	1 29			2 23	26 68	
	1100	[illegible]	1 3/4	49 99	1099 51			S 71 E		49	1 44			2 72	28 12	
	1150		2	[illegible]	1149 51			S 59 E		90	1 49			3 62	29 61	
	1200		1 3/4	49 97	1199 51			S 65 E		64	1 38			4 26	30 99	
	1250		2	[illegible]	1249 48			S 58 E		92	1 48			5 18	32 47	
	1300	50	2 1/4	49 [illegible]	1299 44			S 47 E		1 34	1 43			6 52	33 90	
	1355	55	2	~~49 97~~	~~1349 41~~			S 40 E		1 33	1 12			7 85	35 02	
				54 97												

MOLLEN-HAUER SURVEYING COMPANY

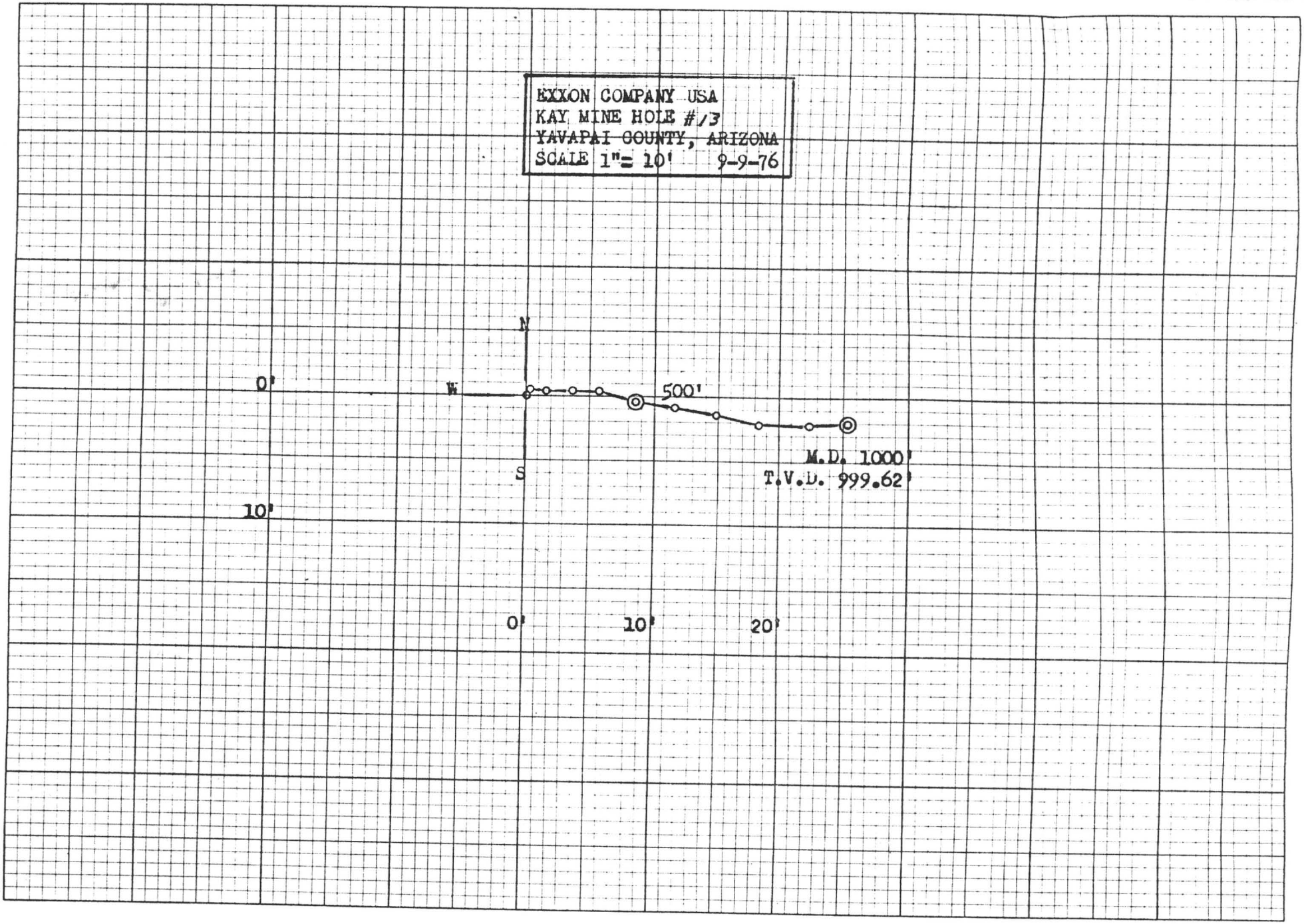
Directional Survey Report for

CUSTOMER EXXON COMPANY USA

AREA BLACK CANYON CITY PROSPECT NO. KAY MINE # 13

COUNTY YAVAPAI STATE ARIZONA

P. O. Box 17376
Tucson, Arizona 85731
Phone [602] 298-2779


EXXON COMPANY USA
KAY MINE HOLE #13
YAVAPAI COUNTY, ARIZONA
SCALE 1"= 10' 9-9-76
N
W
S
0'
10'
500'
M.D. 1000'
T.V.D. 999.62'
0'
10'
20'

MOLLEN-HAUER SURVEYING COMPANY

COMPANY Nixon Co. USA JOB NO. 61288 PAGE 1 OF 1

PROSPECT NO. Kay Mine #13 LOCATION Black Canyon City DATE 9-9-76

STATION NO.	MEASURED DEPTH	COURSE LENGTH	DRIFT ANGLE	VERTICAL DEPTH	TRUE VERTICAL DEPTH	SECTION	COURSE DEVIATION	DRIFT DIRECTION	COORDINATE DIFFERENCES NORTH	SOUTH	EAST	WEST	RECTANGULAR COORDINATES NORTH	SOUTH	EAST	WEST
	100	100	1/4	100 00	100 00			N 48 E	29		32		29		32	
	200		3/4	99 99	199 99			N 86 E	09		131		38		163	
	300		1 1/4	99 98	299 97			S 89 E		04	218		34		381	
	400		1 1/4	99 98	399 95			S 87 E		11	218		23		599	
	500		1 1/2	99 97	499 92			S 74 E		72	252			49	851	
	600		1 3/4	99 95	599 87			S 81 E		48	302			97	1153	
	700		2	99 94	699 81			S 79 E		67	343			154	1495	
	800		2	99 94	799 75			S 82 E		49	346			203	1841	
	900		2 1/4	99 92	899 67			S 89 E		07	393			210	2234	
	1000	100	1 3/4	99 95	999 62			N 89 E	05	S	305			205	2539	

AUTHORITY NUMBER

PROJECT NUMBER 3293

EXPLORATION DRILLING AUTHORITY

Minerals Department

BLOCK KAY MINE PRINCIPAL MINERAL CU TYPE TARGET Massive Sulfide

STATE ARIZONA COUNTY YAVAPAI TOTAL AUTHORITY $32,000

APPROXIMATE NO. HOLES Two (2) FEET 1600

HOLE LOCATION(S) AS PER ATTACHED PLAT:

K-14 - T8N R2E, NE¼ Sec. 9

K-15 - T8N R2E SW¼ Sec. 16

REASON FOR RECOMMENDATION:

K-14,an 800-foot angle hole, will test the shallow southern extension of the main Kay Mine ore horizon.

K-15,an 800-foot angle hole, will test the C.R. anomaly in Horseshoe Bar. These two diamond drill holes will assess our 196 claims for 1978.

Approval is granted for exploration drilling and related drill hole costs within the above total money limit.

RECOMMENDED BY: G. Westra T. C. Patton DATE: May 30, 1978

ENDORSED BY: DATE:

ENDORSED BY: DATE:

AUTHORIZED BY:

DATE:

Noted:

Date :

MINERALS DEPT.: Drill Request and Project Specifications

Date May 30, 1978

Project Name, No. and Geologist Kay Mine #3293 AZ Westra/Fellows

1 to 2 Miles SW (direction) From Black Canyon City (town)

County Yavapai State Arizona Sec., T&R(s) T8N, R2E, Sections 9 and 16

Starting Date 8-1-78 Approx. Completion Date 9-1-78

Possibility oil/gas sands (flow) penetrated? Nil

Artesian flow? No

Type of Drill Core No. of Drills 1 Shifts/Day 2

No. of Holes 2 Est. Total Footage 1200

Max. Hole Depth 750 Sample Requirements Core

Vertical and/or Angle Angle Min. Degrees from Hor. 60

Core Size (Bedrock) NX Hole Size (T.D.) NX

Overburden Lithology Boulders & gravel Est. Thickness 0-30 feet

Bedrock Lithology and Depths phyllites steep westerly dips

Accessibility to Drill Sites Three (3) miles from I-17 over good dirt roads

Water Source Water tank

Water available within 1000 ft - 2 mi. (feet) (miles) from drill area

Max. elev. diff. between water source and drill sites 100 feet

Est. drilling contractor money that must be spent: $ 20,000 by 9/1/78

Project on Indian lands or on US Gov't land that is not claims. Yes ___ No X

Contractor required to comply with permits (USFS etc) issued to Exxon: Yes ___ No

Contractor Preference

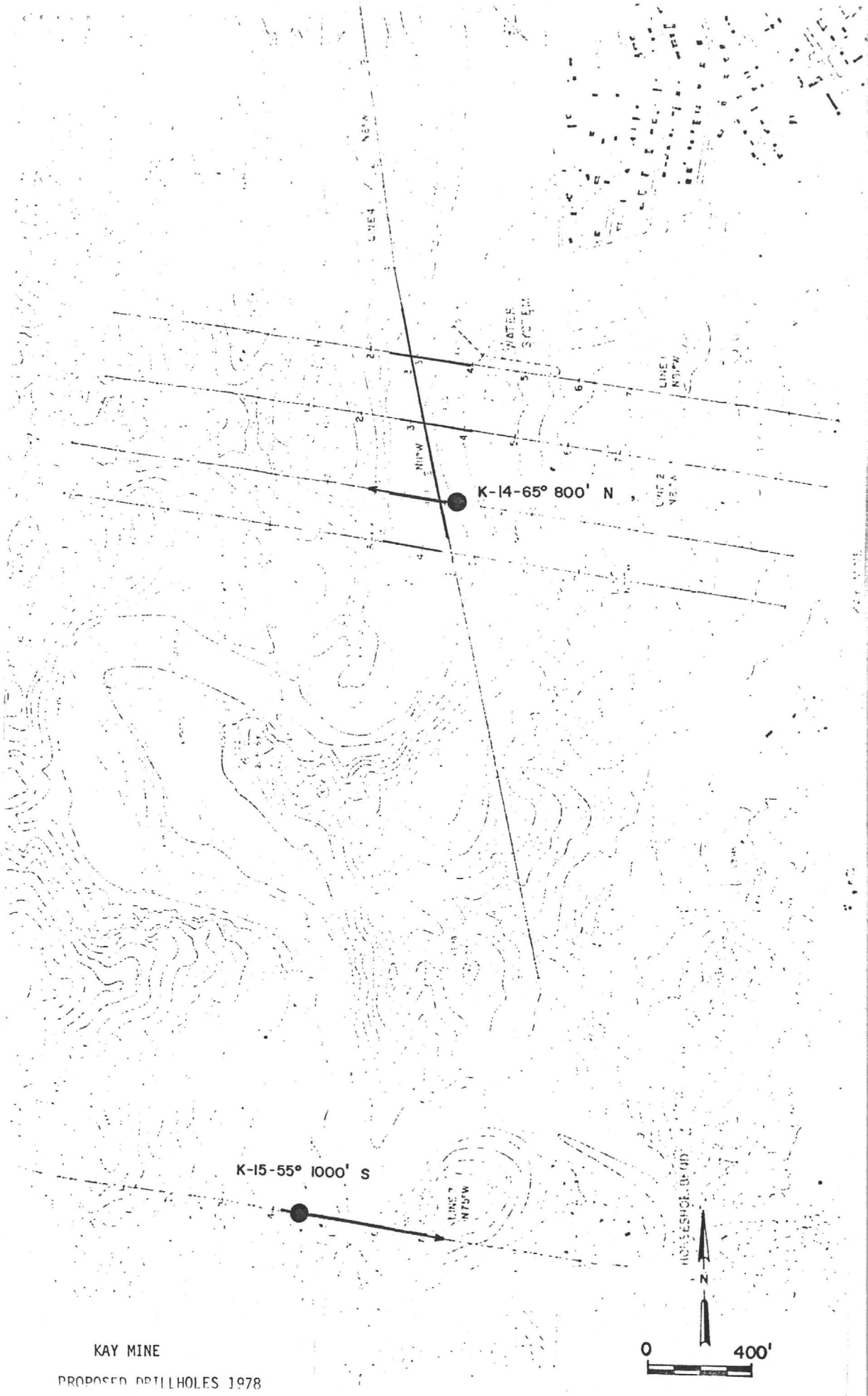
Special Problems - Note on back of this page

NOTE: Access roads, drill sites, pits, core boxes and sample sacks to be furnished by Exxon unless otherwise noted.

9/77

Steeply dipping phyllites may cause large hold deviations.

Past experience shows difficulty in recovering massive sulfide intercepts.

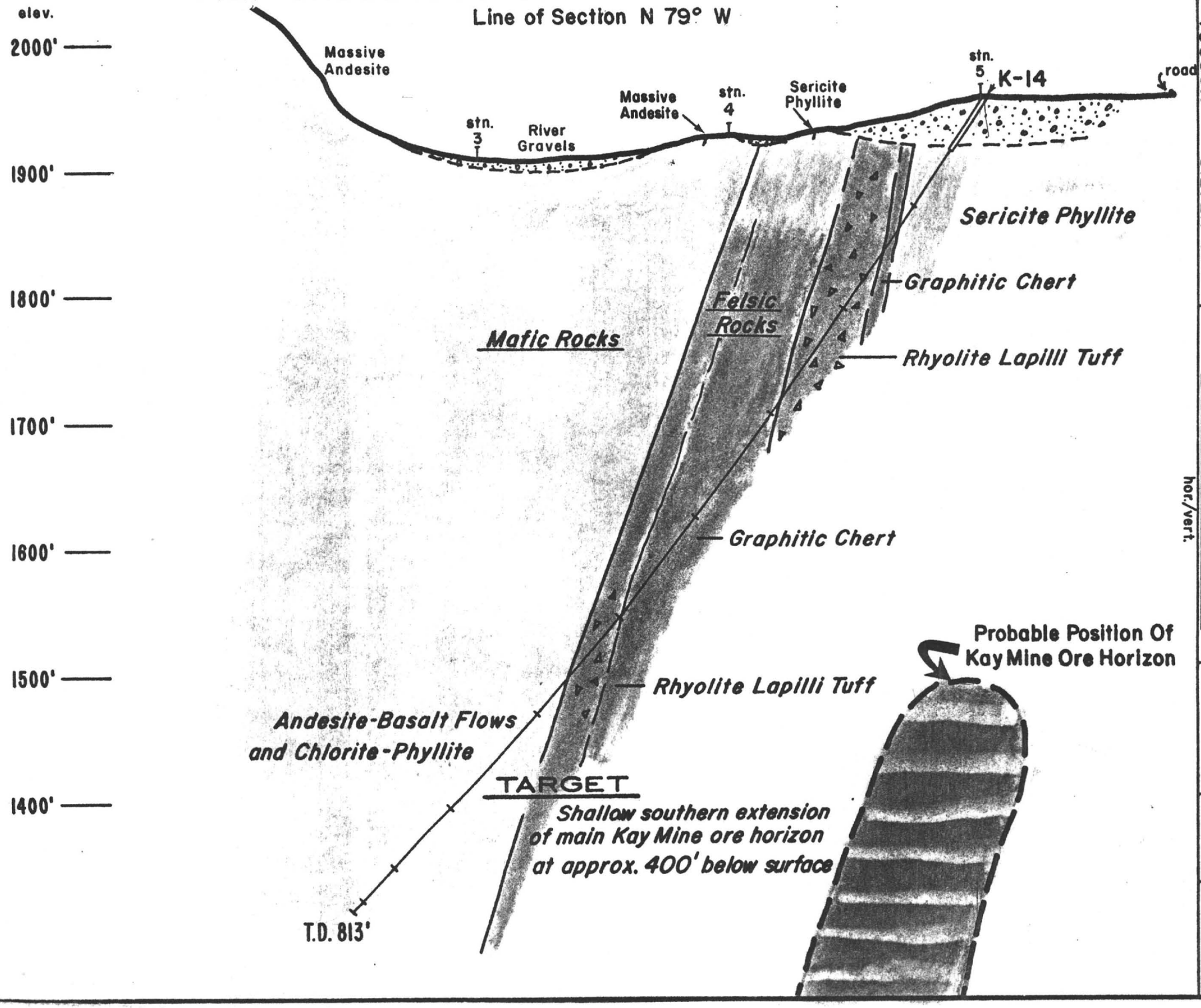


KAY MINE

PROPOSED DRILLHOLES 1978

FIG.1 CROSS SECTION THROUGH DRILL HOLE K-14

Line of Section N 79° W



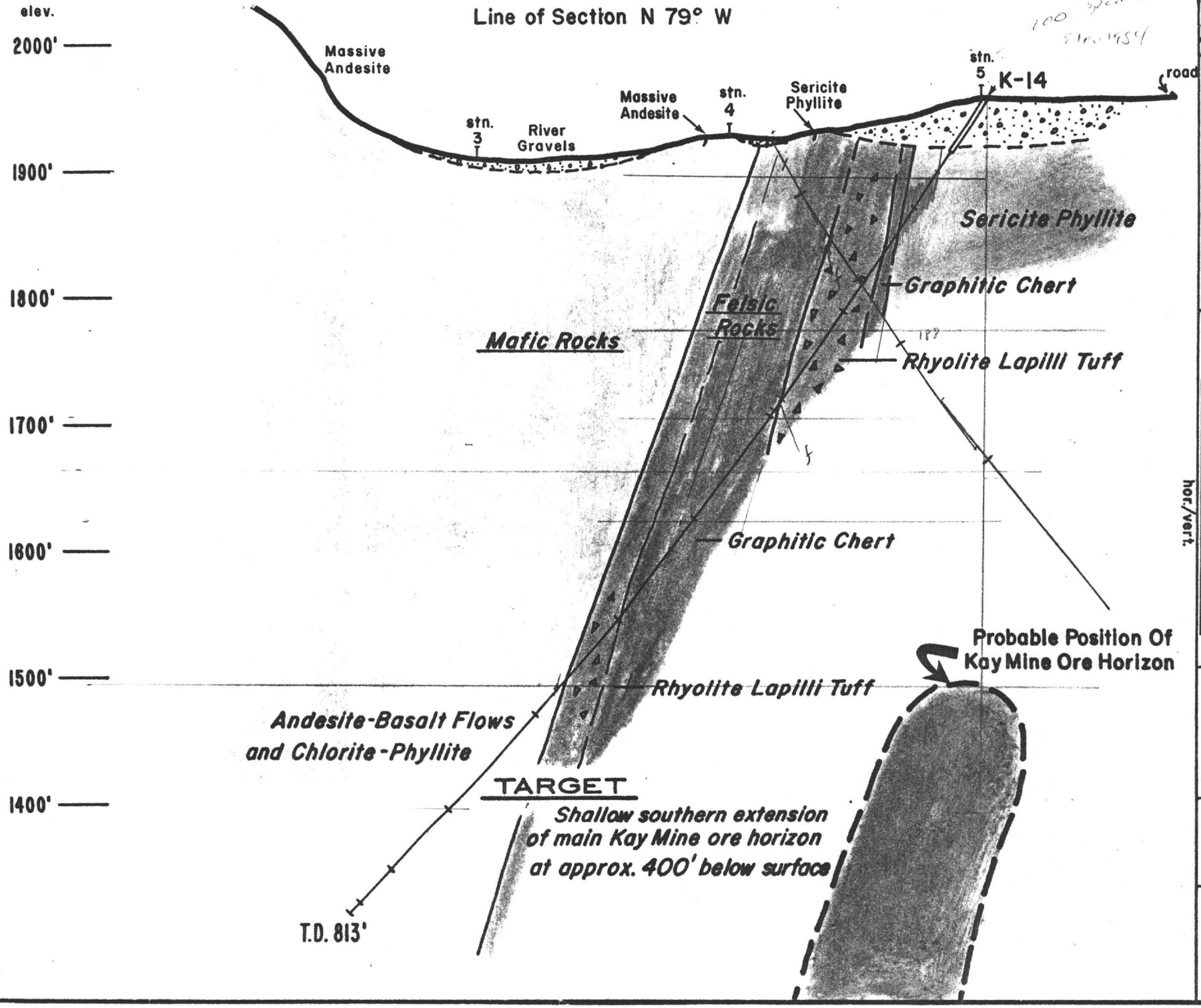
EXXON MINERALS CO. U.S.A.
Southwest Office
TUCSON SILVER CITY

AREA: KAY MINE
CO. & ST.: YAVAPAI Co., ARIZONA
SCALE
PROJ. NO. 3293
DATE 8-78
FILE NO.

TITLE: K-14 CROSS SECTION
BY M.L. Fellows
surface geology by G. Westra

FIG.1 CROSS SECTION THROUGH DRILL HOLE K-14

Line of Section N 79° W



EXXON MINERALS CO. U.S.A.
Southwest Office
TUCSON SILVER CITY

AREA: KAY MINE
CO. & ST.: YAVAPAI Co., ARIZONA
SCALE: 0 100' 200' hor./vert.
PROJ. NO.: 3293
DATE: 8-78
FILE NO.:

TITLE: K-14 CROSS SECTION
BY M.L. Fellows
surface geology by G. Westra

file idc. ____

PROJECT Kay Mine **STATE** Arizona **COUNTY** Yavapai **DRILL HOLE** K-14

LOCATION T8N, R2E, NE¼, Sec 9 **EXXON COORN.** _____ **ELEVATION: COLLAR** 1950 **GROUND** _____

HOLE DIRECTION 56°, N80W **HOLE COMM.(date)** 8/3/78 **INTERVALS OF INTEREST:**

CASING DEPTH:

FT.	SIZE
50	NX

Inclination Survey

40' - 56°
65' - 56°
115' - 56°
165 55.5°
215 55.5°
265 55.0°
294 55.0°

HOLE TERMINATED (date) _____ **FT.** **ASSAYS**

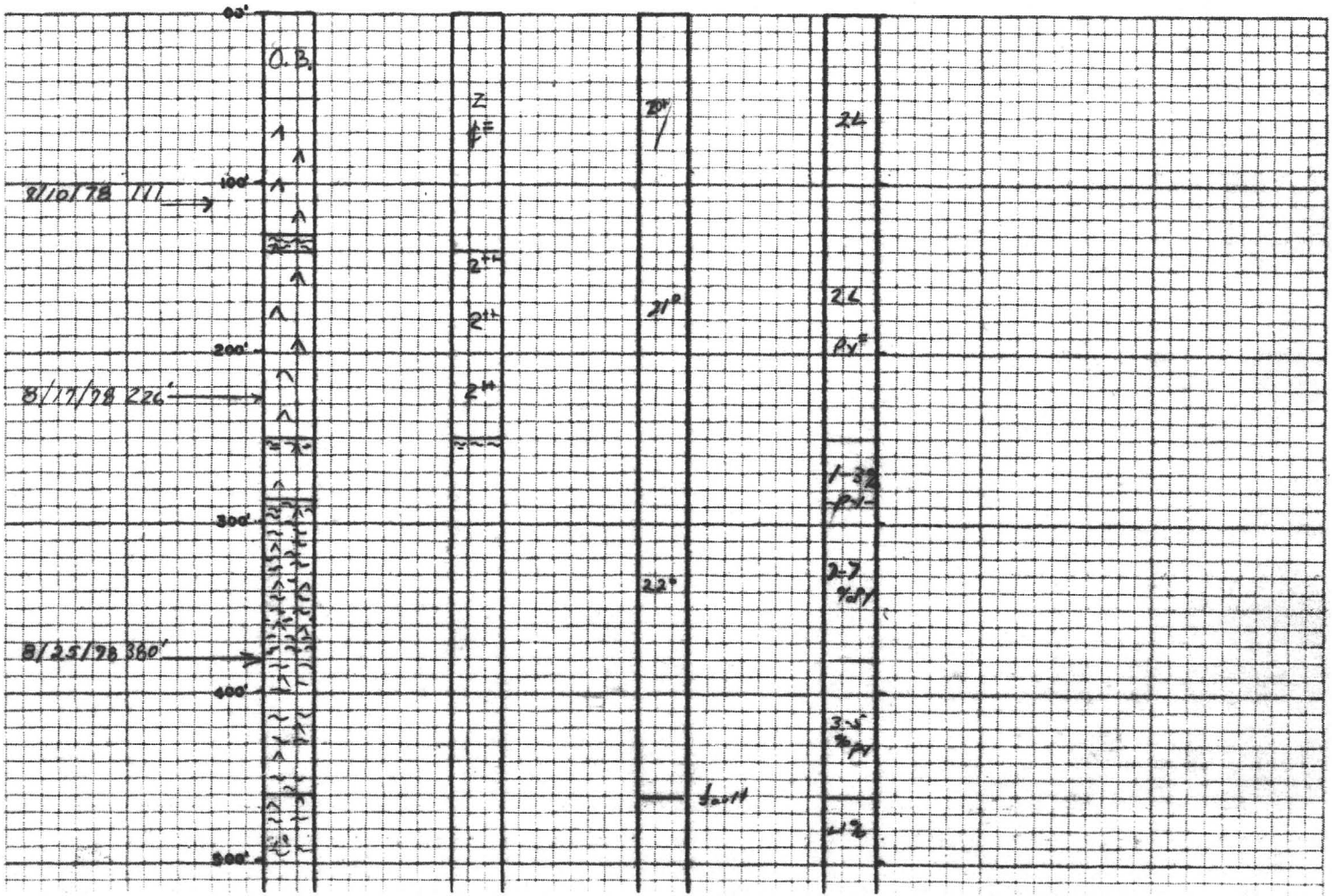
TOTAL DEPTH _____

HOLE SIZES W/DEPTH
344 54.5°
380 53.5°

DRILLED BY Longyear **LOGS - SURVEYS RUN** _____ **LOGGED BY** EMS / MLE

LITHOLOGY	ALTERATION	STRUCTURE	MINERALIZATION
sericite phyllite	Z sericite	20w approx dip schistosity (∡ core axis)	%L limonite
graphite	⊄ chlorite		Py Pyrite
chlorite phyllite & andesite	c calcite		
	ep epidote		
			= trace

DATE-FOOTAGE **LITHOLOGY** **ALTERATION** **STRUCTURE** **MINERALIZATION** **ASSAY/GEOCHEM**



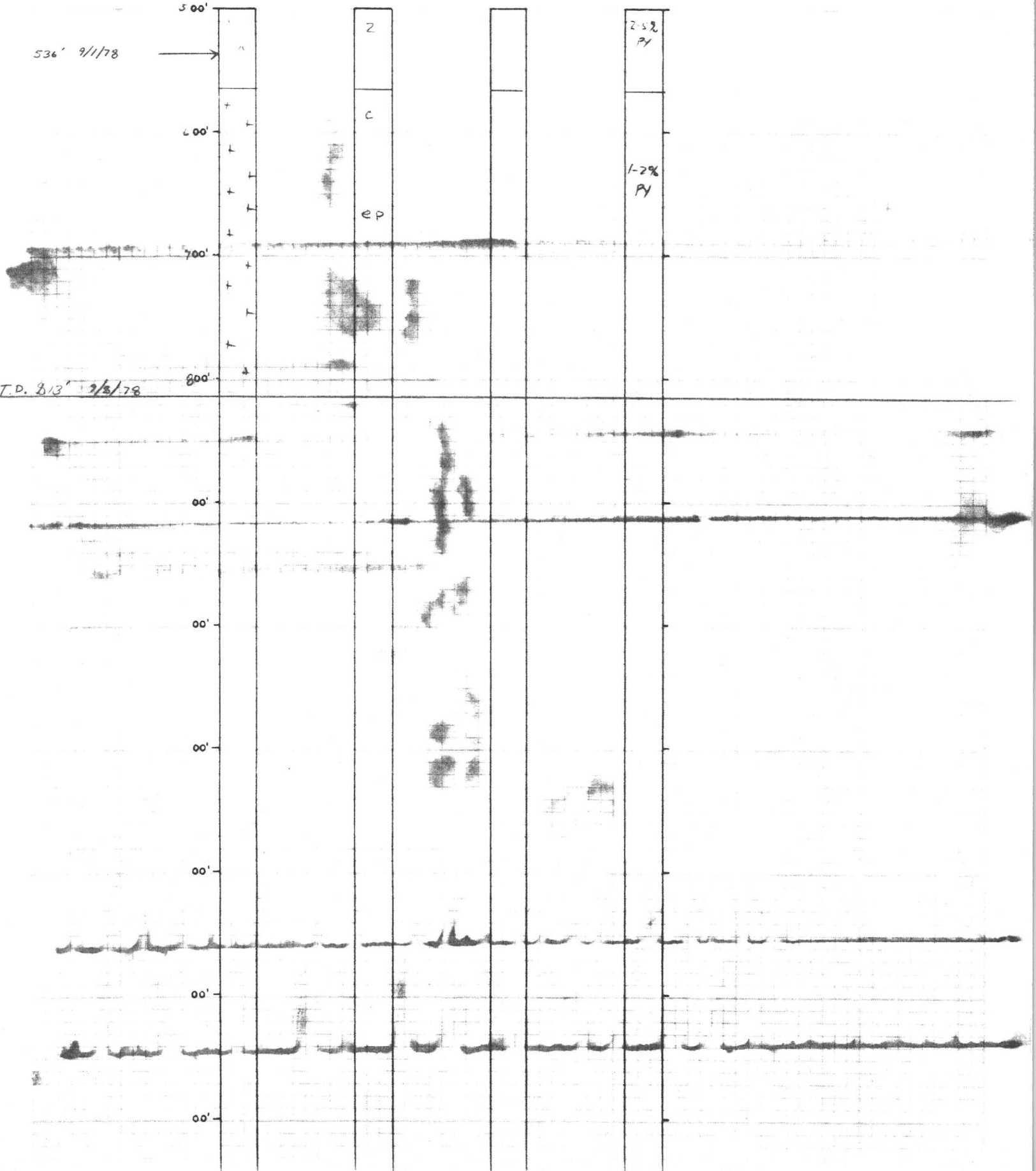
file loc. ____

SUMMARY DRILL LOG

PROJECT Kay Mine STATE Arizona COUNTY Yavapai DRILL HOLE K-14

DATE-FOOTAGE

ASSAY/GEOCHEM



SOUTHWESTERN ASSAYERS & CHEMISTS, INC.

REGISTERED ASSAYERS
P. O. BOX 7517
TUCSON, ARIZONA 85725

710 E. EVANS BLVD.
PHONE 602-884-5811
884-5812

WIL WRIGHT
ARIZONA REG. NO. 5875

DNYANENDRA A. SHAH
ARIZONA REG. NO. 8888

Project 3293

Exxon Company
Mr. Martin H. Hibbetts
2425 N. Huachuca Drive
Tucson, Arizona 85705

K-14

JOB # 023906
RECEIVED 1-24-80
REPORTED 2-11-80

SAMPLE NUMBER		Arsenic PPM
80-90		13
110-120		2
140-150		9
170-180		9
200-210		9
240-250		10
270-280		5
300-310		131
330-340		208
360-370		252
390-400		227
420-430		.033%
450-460		< 2
480-490		58
500-504	4	4
504-506	2	28
506-510	4	14
513.6-520	6.4	9
550-560	10	44
570-573.4	3.4	.55%
573.4-575.5	2.1	.14%
575.5-580		276
590-600		47
610-617.3		48
640-650		28
670-680		52
700-710		26
730-740		< 2
760-770		28
790-800		30

FEB 1980 RECEIVED TUCSON MINERALS

REGISTERED ASSAYER CERTIFICATE NO. 8888 Dhyanendra Amrutlal Shah DATE SIGNED 2-11-80 Arizona U. S. A.

1 ppm = 0.0001% 1 troy oz./ton = 34.286 ppm 1 ppm = 0.0292 troy oz./ton

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

PROJECT Ray Mine (K-14) PROJECT NO. 3293 SUBMITTAL NO. 80-22-20

STATE Az COUNTY _____ QUAD _____ DATE SUBMITTED 1-18-80

SAMPLE NO. 81 Core GEOLOGIST M. Fellows

STORAGE BOX NO. _____ PAGE 1 OF 2

REMARKS Au, As, + Hg will follow later.

SAMPLE	CU/Zn	ppm Cu	ppm Mo	ppm Pb	% Zn	ppm Ag	ppm Co	ppm Ni		ppm Mn
K-14-50-60	.56	96	20	12	128	< 1	27	39		0.19
60-70	.52	51	12	14	99	< 1	19	26		0.14
70-80	.41	47	12	18	116	< 1	24	25		0.17
80-90 *	.72	87	6	20	120	< 1	27	14		0.16
90-100	.22	22	5	20	102	< 1	22	12		0.14
100-110	.65	51	11	22	85	< 1	19	24		0.17
110-120 *	.51	41	< 1	14	81	< 1	17	< 5	900	
120-130	.49	38	< 1	8	78	< 1	15	< 5	820	
130-140	.40	27	8	18	67	< 1	21	20		0.11
140-150 *	.21	9	3	16	43	< 1	10	< 5	310	
150-160		< 5	3	18	35	< 1	10	< 5	395	
160-170	.17	7	1	12	40	< 1	8	< 5	415	
170-180 *	.22	12	8	16	55	< 1	14	21		0.10
180-189	.27	15	9	12	56	< 1	13	22	775	
189-200	.89	49	11	14	55	< 1	8	25	680	
200-210 *	.29	25	3	16	87	< 1	12	7	340	
210-220	.40	38	5	24	94	< 1	19	10	755	
220-230	.60	30	3	16	50	< 1	11	6	530	
230-240	.54	26	4	20	48	< 1	8	5	370	
240-250 *	.70	40	3	16	57	< 1	7	8	460	
250-260	1.62	143	6	32	88	< 1	44	41		0.11
260-270	1.74	151	5	28	87	< 1	49	51		0.13
270-280 *	1.64	115	3	22	70	< 1	41	39		0.13
280-290	.77	98	6	28	128	< 1	53	112		0.17
290-300	1.11	156	5	34	141	< 1	49	75		0.16
300-310 *	2.11	245	11	34	116	< 1	47	78		0.15
310-320	.98	121	2	30	123	< 1	50	120		0.18
320-330	.86	108	6	30	126	< 1	46	111		0.15
330-340 *	.86	110	6	30	114	< 1	42	68		0.18
340-350	.94	125	9	28	133	< 1	48	100		0.20
350-360	.79	115	5	24	145	< 1	49	112		0.20
360-370 *	.93	143	6	28	153	< 1	56	97		0.23
370-380	.80	107	5	26	134	< 1	58	168		0.19
380-390	1.02	123	3	32	121	< 1	52	143		0.20
390-400 *	1.08	132	9	38	122	< 1	60	141		0.23
400-410	1.43	176	6	40	123	< 1	56	186		0.21
410-420	.83	91	3	22	110	< 1	48	107		0.20
420-430 *	.97	138	5	44	141	< 1	59	130		0.19
430-440	1.45	149	6	30	103	< 1	50	106		0.12
440-450	1.89	184	4	10	97	< 1	34	21	870	
450-460 *	.82	67	6	10	76	< 1	17	12	680	
460-470	.70	76	3	14	108	< 1	39	25		0.15
470-480	.75	94	3	20	126	< 1	49	32		0.14
480-490 *	.65	87	4	18	134	< 1	55	36		0.14
490-500	.63	90	6	18	142	< 1	50	32		0.14
500-5041 *	.44	72	6	114	164	< 1	23	12	870	
504-5062 *	.60	65	5	188	108	< 1	30	10	740	
506-5101 *	.38	35	4	42	92	< 1	11	9	675	
513.6-520 *	.45	43	2	26	95	< 1	14	9	790	
520-530	.28	19	3	18	67	< 1	9	8	735	
		97	2	47	116	1	16	23		

3.6 >
6.4

EXXON MINERALS CO., USA

DATE 1/21/80

PROJECT Kay Mine (K-14) PROJECT NO. 3293 SUBMITTAL NO. 80-22-20

STATE Az COUNTY _____ QUAD _____ DATE SUBMITTED 1-18-80

SAMPLE NO. 81 TYPE Core GEOLOGIST M. Fellows

STORAGE BOX NO. _____ PAGE 2 OF 2

REMARKS Au, As, + Hg will follow later.

SAMPLE	Cu/Zn	ppm Cu	ppm Mo	ppm Pb	% Zn	ppm Ag	ppm Co	ppm Ni		ppm Mn
K-14		-	—	-	—	—	—	—		—
530-540	.15	63	3	320	415	1	10	8	690	1
540-550	.04	107	6	554	— 0.30	1	17	10	900	
500-560 *	.59	72	17	22	122	<1	20	11	840	
560-570	1.06	108	5	28	102	<1	22	12	950	
570-573.4 *	.60	24	3	36	40	<1	21	12	875	
573.4-575.5 *	.29	115	8	200	402	<1	45	66		0.12
575.5-580 *	.64	87	6	28	135	<1	50	37		0.12
580-590	.82	108	3	28	132	<1	58	36		0.13
590-600 *	.88	113	3	24	129	<1	61	48		0.11
600-610	.85	112	5	28	118	<1	60	71		0.11
610-617.3 *	1.41	116	5	30	82	<1	66	198		0.12
617.3-620	.81	75	3	24	93	<1	64	42		0.12
620-630	1.09	105	3	26	96	<1	71	107		0.12
630-640	.83	94	4	28	86	<1	66	85		0.16
640-650 *	.63	80	3	26	128	<1	59	42		0.12
650-660	1.40	127	3	34	92	1	73	147		0.15
660-670	1.93	135	6	24	70	<1	71	220		0.13
670-680 *	1.93	112	1	20	58	<1	64	151	960	
680-690	1.57	99	5	18	63	<1	62	105	880	
690-700	.88	67	3	12	76	<1	60	17	790	
700-710 *	1.32	75	2	8	57	<1	46	22	650	
710-720	1.83	88	3	8	48	<1	49	33	530	
720-730	2.07	87	12	6	42	<1	48	37	430	
730-740 *	2.74	96	6	6	35	<1	44	36	390	
740-750	2.20	97	6	10	44	<1	50	42	570	
750-760	2.27	102	3	10	45	<1	45	41	530	
760-770 *	2.36	106	6	10	46	<1	44	43	620	
770-780	2.08	102	9	14	49	<1	52	50	660	
780-790	1.71	94	2	12	55	<1	47	49	740	
790-800 *	1.88	90	6	14	48	<1	50	47	700	
800-813	1.57	96	3	14	61	<1	56	57	930	

EXXON MINERALS CO., USA

SIGNED [signature] DATE 1/31/80

CT KAY MINE (ARIZ.)

E TYPE Core NO. OF SAMPLES 1

KS As, Sr, + Ba to follow from SWAC

STORAGE BOX NO.

SUBMITTAL NO. 78-14-16

DATE SUBMITTED 9-5-78

SUBMITTED BY M. Fellows

PROJECT NO. 32,3

PAGE 1 OF 1 PAGES

E CONCENTRATION

e			PPM Cu	% Cu		PPM Mo	PPM Pb	% Pb	PPM Zn	% Zn	PPM Ag	PPM Au	% Fe	PPM Co	PPM Ni
K-14															
10-513.6			97			2	47		111		1	.05	0.84	16	23

Martin H. Hollister
9/7/78

PROJECT Key Mine (K-14) PROJECT NO. 3293 SUBMITTAL NO. 80-22-20

STATE Az COUNTY _____ CLAIM _____ DATE SUBMITTED 1-18-80

SAMPLE NO. 81 TYPE Core GEOLOGIST M. Fellows

STORAGE BOX NO. _____ PAGE 1 OF 1

REMARKS _____

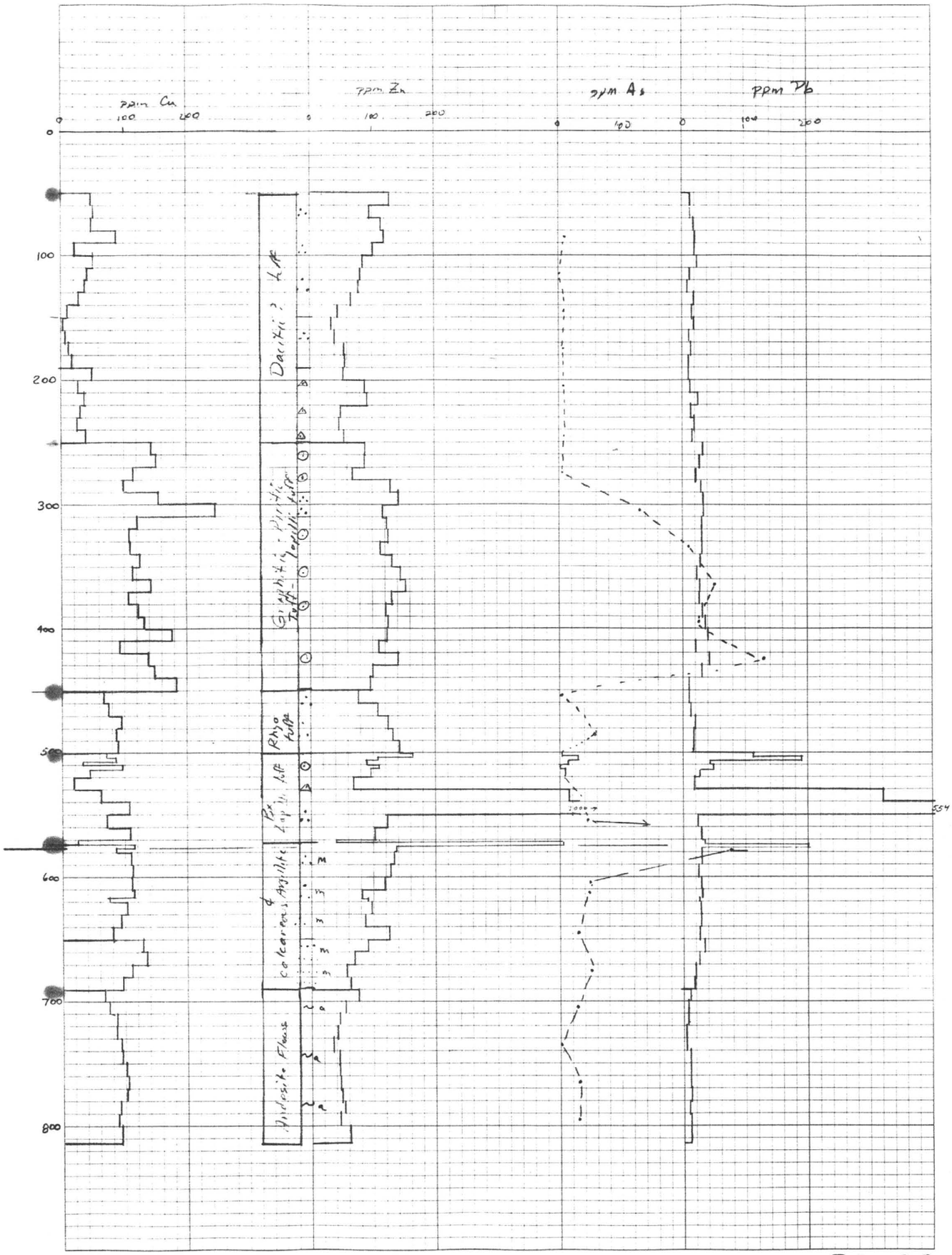
SAMPLE		ppb Hg
K-14		
80-90		459
110-120		100
140-150		139
170-180		33
200-210		72
240-250		19
270-280		234
300-310		253
330-340		139
360-370		148
390-400		91
420-430		129
450-460		76
480-490		33
500-504	4	48
504-506	2	43
506-510	4	48
513.6-520	6.3	53
550-560	10	72
570-573.4	3.4	29
573.4-575.5	2.1	282
575.5-580		76
590-600		43
610-617.3		19
640-650		5
670-680		5
700-710		10
730-740		5
760-770		10
790-800		5

EXXON MINERALS CO., USA

SIGNED [illegible] DATE 2/22/80

K+E 10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

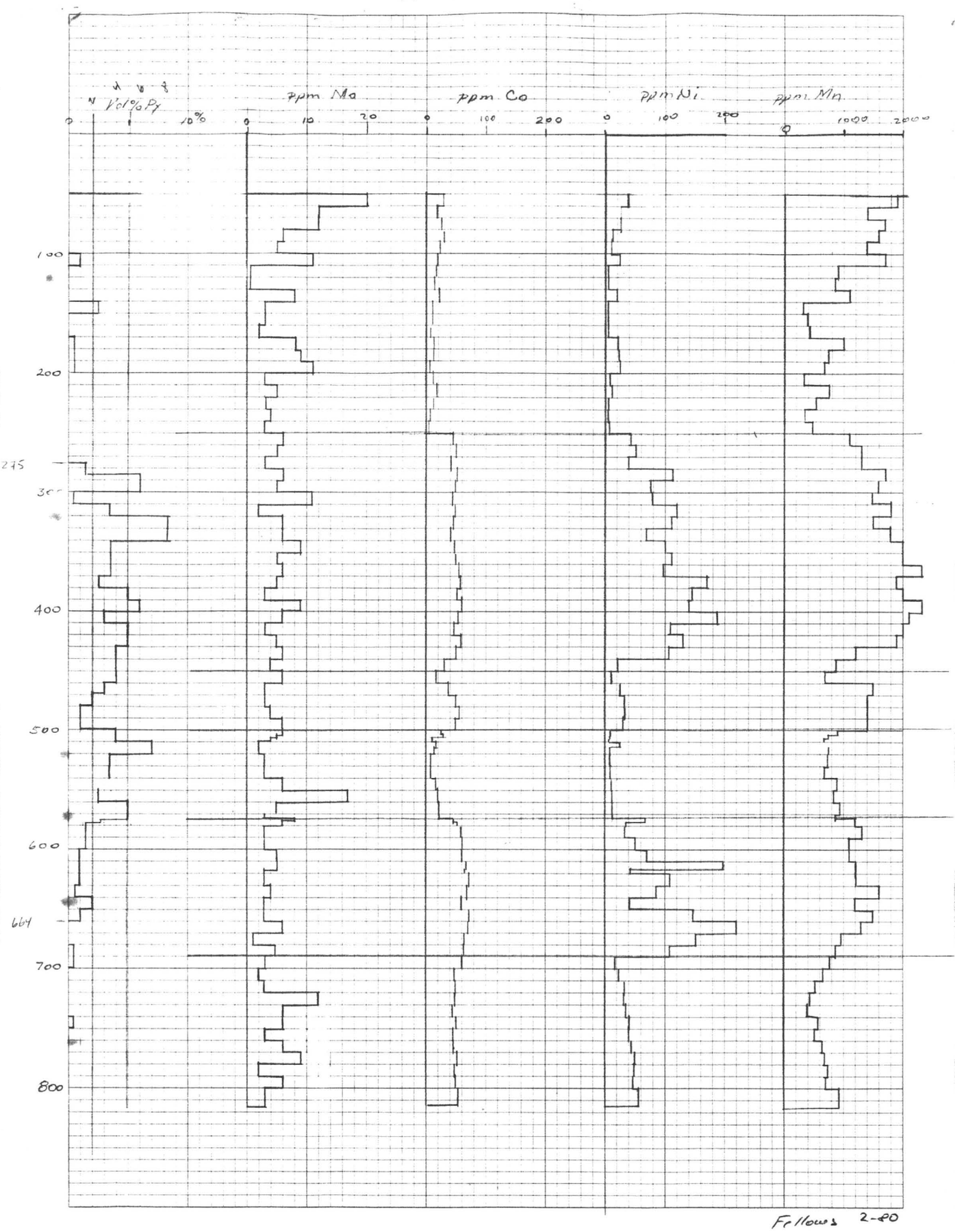
46 0703



Follows 2-80

46 0700
K+E 10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

K-14



Follows 2-20

46 0700
K+E 10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

K+E 10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 0703

EASTMAN OIL WELL SURVEY COMPANY

Declination

COMPANY _____ FIELD _____ JOB NO. _____

LEASE Single Shot WELL NO. K-14 DISTRICT _____

TYPE OF SURVEY _____ COMPUTATIONS M.C. Fellows DATE 5-3-82

ENGINEER ELEVATION 1954 OBJECTIVE _____ SHEET 1 OF 1

STAT'N NO.	MEASURED DEPTH	COURSE LENGTH	DRIFT ANGLE	VERTICAL DEPTH	TRUE VERTICAL DEPTH	VERTICAL SECTION	SECT'N DIFF.	COURSE DEVIAT'N	DRIFT DIRECTION	DIRECT'L DIFF.	COORDINATE DIFFERENCES NORTH	SOUTH	EAST	WEST	RECTANGULAR COORDINATES NORTH	SOUTH	EAST	WEST
	40	40	34	33 16	33 16			22 37	N 78 W		4 65			21 88	4 65			21 88
	65	25	34	20 73	53 89			13 98	N 78 W		2 91			13 67	7 56			35 55
	115	50	34½	41 21	95 10			28 32	N 78½ W		5 65			27 75	13 21			63 30
	165	50	34½	41 21	136 31			28 32	N 78½ W		5 65			27 75	18 86			91 05
	215	50	34½	41 21	177 52			28 32	N 78½ W		5 65			27 75	24 51			118 80
	216 265	1.8 50	35	1. 40 48 96	1 79 218 48	← 200 LEVEL		1 28 02 68	N 79 W		5 47			28 15	29 98			119 80 146 95
	294	29	35	23 76	242 24			16 63	N 79 W		3 17			16 32	33 15			163 27
	301 344	7.32 50	35½	6 40 71	248 282 95	- 250 LEVEL		4. 29 20 04	N 78 W		6 .87 04			28 41	34 39 02 19			167 84 191 68
	395	7 51 43	36	6 41 05 26	289 324 21	- 300 level		4 29 31 98	N 77 W		6 19 74			29 21	40 45 09 93			195 76 220 89
	400.67 445	5.67 50	36.5	4 40 79 19	329.00 364 40			3 29 04 74	N 77 W		6 69			2 29 84 98	97 52 00 62			223 73 249 87
	495	50	37.5	39 07	404 07			30 44	N 76½ W		7 11			29 60	59 73			279 47
	591	94.74 96	40.5	54 73 93	459 477 07			42 25 62 35	N 75½ W		15 61			60 36	75 34	69.95		320 46 339 83
	665	74	42.5	54 56	531 63			49 99	N 75 W		12 94			48 29	88 28			388 12
	715	59 58	43	22 36 37 57	554 568 20			.20 34 86 10	N 75 W		5 8 40 83			20 32 15 94	93 97 68 11			408 421 27 06
	763	48	43.5	34 82	603 02			33 04	N 75 W		8 55			31 91	105 66			452 97
EST	"813"	"50"	"43.5"	36 27	639 29			34 42	N 75 W		8 91			33 25	114 57			486 22

Horizontal Displacement N 76.74° W 499.53'

PROJECT K-MINE HOLE No. K-14

Co-ord. _____ Collar elev. _____ By M. Fellows Scale 1"=10' Date 11-15-70 P. 1

Recovery	Base Metal Mineralization	Pyrite Limonite	Gaugue	Alteration	Structure	Rock Type	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
5/5		wk gth			C.a ∧ S_1 = 90°		10	46	20	12	128
2/9		wk gth			strg brkn						
3/3					9°		10	51	12	14	99
2/2											
4/5											
2/2		wk gth			10°		10	47	12	18	116
2/2					sltd	qtz					
4/4						qtz					
4/4		wk gth									
1.5/2					10°		10	87	6	20	120
3/3		wk gth									
3/3											
2/2		Py along qtz. lamina			10°		10	22	5	20	102
5/5						qtz pod					
					strg brkn						

10 20 30 40 50 60 70 80 90 100

-55° Inclination N81°W

OVER BURDEN

NO CORE

Δ Ca ∧ S_1 = +20°/700'

CaO2 vsted dol

A dol.

SERICITE PHYLLITE : LAMINATED

WHITE to OCHRE LOCALLY 1-2 cm beds with QTZ EYES 2/mm

← narrow zone of goethitic limonite partings

} Light grey Laminae common

Laminated & bedded appearance suggest tuff sed. scattered 1-2 mm qtz eyes also 2-.5 cm qtz beds

← trace graphite

← 1cm qtz band cuts S_1

qtz

} Narrow zone with thin graphite ? laminae

Laminated

fault ∥ to C.a

massive - Sericitic tuff.

qtz pod

Laminated

PROJECT _____ HOLE No. K-14

Co-ord. _____ Collar elev. _____ By _____ Scale _____ Date _____ P. _____

Recovery	Base Metal Mineralization	Pyrite Limonite	Gaugue	Alteration	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
100												
3/3		wk gth					3cm bed qtz-ser-graphite laminated between more massive thick bedded ser tuff					
					9°							
3/3		1% py					grey laminin material w qtz-sericite 6cm white-buff tuff	10	51	11	22	85
2/2		wk gth										
3/3							trans ctct					
110							WHITE MASSIVE SERICITE-QTZ SCATTERED QUARTZ 1-5mm in fine ser matrix.					
4/4							← 2cmbed qtz-sericite tracepy fault lapilli like texture moreside	10	41	<1	14	81
2/2							← qtz-py-graph laminated material					
4/4												
120												
4.6/4.6												
							laminated near base	10	38	<1	8	78
2/3					vstg bkn							
1/2							130.6					
130												
2/2					vstg bkn		Light Grey Sericite Graphite ?- Qtz laminated tuff - sltstone ~~yellow~~ beds with 5-10% ~1-2mm red ~~[illegible]~~ ? common					
0/4.4								10	27	8	18	67
2/2					10°							
140												
4/4							atn fin spec hematite -					
1/1					stg bkn							
3/3		2-3% dipy					THINLY LAMINATED QTZ-SERICITE PHYLLITE TUFF Gray streaks decrease downward	10	9	3	16	43
3/3												
150												
3/3							WHITE QUARTZ-SERICITE TUFF					
2/2							Essentially pyrite free. exception	10	<5	3	18	35
3/3							occassional 0.5 cm qtz bands where it is still wk <1%					
160												
5/5							SERICITE DOMINATE NEAR TOP. QTZ-PY increases with depth					
2/2							Greenish band	10	7	1	12	40
3.6/3.6												
1/1												
170							QTZ-SERICITE TUFF: ALT WHITE GREEN BANDS					
3.4/3.4												
1/2					11°			10	12	8	16	55
3/5							BRK QTZ FRAGS.					
							?-?					
180												
6/9		gth trace Trace py					2cm qtzose silty bed? SILICEOUS Q-2 TUFF AS ABOVE	9	15	9	12	56
							189					
190												
3/3							Mottled lapilli tuff - Bx DACITE? qtz & qtz ser aggregates in greenish 2 matrix frag size & green/white ser decreases with depth					
3/3		trac py			16°	grain or frag size decreases	2cm qtz bed w graphite mottled sides	11	49	11	14	55
2.5/2.5							1cm qtz bed w graphite ctct SOME FRAGS - 5cm long - most 1-2cm max. dim.					
1.5/1.5												
200												
1/2							bedding 70-80° to core axis					

PROJECT _____ HOLE No. K-14

Co-ord. _____ Collar elev. _____ By _____ Scale _____ Date _____ P.3

Recovery	Base Metal Mineralizatn	Pyrite Limonite	Gauge	Alteration	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
200					gouge							
2/1.4					22°							
							CONTACT UNCERTAIN	10	25	3	16	87
2.5/2.5							3cm qtz-bnd w graphite; Lam greenish sty - sericite Tuff					
4.5/4.5												
210					15°							
							QTZ bed with sericite stringers at top -					
2/3		QTZ			gouge		3cm green z bed w 1-2 mm py xtals - 2-3%					
2/2					# broken		Greenish Lappill tuff	10	38	5	24	94
							1-4 cm x .5mm white g-z in greenish f-z matrix					
5/5					17°		} lam Greenish white ~~laminated~~					
2/2							Sericite - Qtz tuff - lappill. tuff - by					
2/2							lam - g-z nontopw thin qtz parting -	10	30	3	16	50
3/3.5							transito blotchy - qtz - ser. alt'd					
230					16°		} abnd large qtz blobs with intst. ser.					
4/4.5												
							transitional					
4/4							lam greenish qtz-z tuff	10	26	4	20	48
							Transitional					
2/2					15°		≤3cm qtz pod					
240							Breccia - Lapilli tuff					
6/6							Sericite > Qtz	10	40	3	16	57
4/4							Qtz aggregate sum by ser-qtz eye?					
							matrix					
250					25 gouge							
2.5/2.5												
2.5/2.5							graphite chert - 3-5% py dk gray Tuffac.	10	143	6	32	88
3/3		st & std					transitional					
							Sericite - qtz wk graphitic & py along flm.					
260												
4/4												
3/3							lappill. tuff - tuff wk graphitic component	10	151	5	28	87
4.5/4.5		wk qtz st										
270												
3.5/3.5												
2/3							gray chert					
							qtz decreases qtz boudins .5 x 3cm in brn g-z matrix	10	115	3	22	70
3.5/3.5		1-2% cubic py					@ wk diss py also tr graphite					
280												
2.5/2.5							qtz boudins consist of a mosaic of qtz grains					
3/3		wk brt strip alteration					#283 Dolomite mottled -	10	98	6	28	128
5/		qtz-brecc			10°		Fault zone					
							chiefly by qtz-brecc to 2-3cm angular-subang					
290							in gouge micro by matrix. locally strong but staining					
4/4		5-7%					laminated qtz-graphite-pyrite					
1/1							qtz. & qtz-z tuff boudins in graphitic	10	156	5	34	141
1/2		py					Py matrix ≤5 25-7% wk carb response in laterals					
4/4		wk brt stain			clot (30)							
300							300.5 sharp clot marked by 1cm chert band					

PROJECT B-Mine HOLE No. K-14

Co-ord. _____ Collar elev. _____ By _____ Scale _____ Date _____ P. _____

Recovery	Base Metal Mineralization	Pyrite Limonite	Gaugue	Alteration	Structure	Rock Type	Description	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
300					20° chert							
9/9		5th stained matrix Trace py			30°		q - z tuff? laminated appearance qtz mosaic boudins 2 x 10mm (augen) w/in z-q matrix foliated and stained brn - no carbonate	10	245	11	34	116
310												
5/5							Graphitic tuff Grey - streaks of qtz and qtz ± sericite at various sizes in graphite-pyritic matrix ter vary from lam at top to brec at bottom					
6/0			3.5%					10	121	2	30	123
320		py			20°							
4/4							← chert 3cm chiffich with minor graphite					
3/3								10	108	6	30	126
2/2		7-10% py										
330												
1/2												
0/1												
2/2								10	110	6	30	114
3/3							More obvious rhyolitic frags - qtz z setin graphite - py matrix					
2.5/2.5												
340					10°							
4/4		3.5% py										
4/4								10	125	9	28	133
350												
4/4												
							strong chert some remobilized					
4.4/4.4								10	115	5	24	145
4.4/4.4					## 15°		~ broken Narrow sunge zone					
360												
1.5/1.5												
1/2		3.5%						10	143	6	28	153
5.5/5.5												
370												
1.5/1.5					20°							
8/9		3% py 2% py					Tabasco banded appearance qtz > graphite > sericite stratiform tuff	10	107	5	26	134
380												
2/2												
2/2		5-7% py										
2/3							beige sericite, qtz wkly dolomite	10	123	3	32	121
9/5		1-7% py			10°		3 - cm fine qtz z tuff stained cream separated by qtz-graphite bands					
390					10°		Lapilli - size frags q-z in q - graphite matrix					
3/3		5-7% py cubes						10	132	9	38	122
8/8												
400					15°							

PROJECT _____ HOLE No. _____

Co-ord. _____ Collar elev. _____ By _____ Scale _____ Date _____ P. _____

Recovery	Base Metal Mineralizatn	Pyrite Limonite	Gaugue	Alteration	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
500												
3/3							Gray white (cream pale green) mottled lapilli tuff - tuff					
3/3		3-5%					pyrrhotite flattened qtz - qtz-sericite mosaic in sericite	4	72	6	114	164
5/5							qtz matrix locally bands richer in py (to 10%)	2	65	5	188	108
								4	35	4	42	92
510					25°		510.0					
5/5		7-10 % py					laminated py beds	3.6	NA	-	-	-
							513.6					
				sericite veins			blotchy pale green sericite surround qtz					
10/10							Tuffaceous feel to 2	64	43	2	26	95
520					23		strong 2 blotches					
							lapilli tuff - tuff	10	19	3	18	67
7/7					20							
5/5		2-5% py					laminated appearance	10	63	3	320	415
4/4					22		chert qtz w py bands					
540												
4/4								10	107	6	554	30
3/3				inc qtz			check for sphl					
550					20°							
4/4		2-3 % py		qtz inc				10	72	17	22	122
5/5							banded appearance developing					
560					20°							
5/5					flat qtz veins		py bands 1cm					
		5%py					transition zone	10	108	5	28	102
							chert rich with med graphite					
7/7		5-7 % py		tr qtz			blotches & thin laminae of qtz - (mosaic) (w)					
570					22°		chert 6cm Pyrite graphic graphite matrix	3.4	24	3	36	40
							573.4 massive dk gray chert rich graphitic zone laminated top - broken bottom					
		2-3%					25.5	2.1	115	8	200	402
10/10		1-2%					& graphitic tuff only locally trans laminated	4.5	87	6	28	135
580					25°		Sulfur non obvious & tuffs					
5/5		1-2% py po					gray green - laminated appearance w strata [illegible] rock carb throughout [shown] & c veins & blebs & 1.5cm thin	10	108	3	28	132
					flat qtz veins		1cm qtz					
4/4					22°		1cm strata gray-green & with spots & flattened wisps of white - c or fspar py-po rt disc occ. surround qtz pods					
590												
4/4							1cm qtz					
							1cm strata vic 590 down - tuff has small c 1mm bolt chromy spots	10	113	3	24	129
4.5/4.5							gen strata					
600					22°							

PROJECT _____ HOLE No. K-14

Co-ord. _____ Collar elev. _____ By _____ Scale _____ Date _____ P. _____

Recovery	Base Metal Mineralization	Pyrite Limonite	Gougue	Alteration	Structure	Rock Type	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
400											
4/4		1%					10	176	6	40	123
4/4		5% Py			13°						
2/3							10	91	3	22	110
2/3				2	18°						
3/5							10	138	5	44	141
4/4					18°						
5/6		3-5%					10	149	6	30	103
1/8					13°						
2/2							10	184	4	10	97
2/5											
4/5					15°						
4/4		3-5% py					10	67	6	10	76
5/5					10°						
6/6							10	76	3	14	108
5/5					22°						
9/9		1% py			18°		10	94	3	20	126
7/7					18°		10	87	4	18	134
4/4					18°		10	80	6	18	142
					20°						

400 — grade lower, at least high – tgs microbx.
Alt sericite wisps flattened in chem
sericitic matrix @ minor graphite – laminated appearance
graphitic – rhyolite tuff qtz-; qtz-sericite boudins .5 x 30 cm in chemg sericite & or graphitic matrix

graphite laminations

← string white sericite alter
elongate fgs in graph matrix
chert pod
more banded appearance 1/2 – 2cm qtz-2 bands alternating @ graphite or mixed graphite-sericite ~~matrix~~ bands
1/2-1cm thick minor qtz veins/vnls

Mottled gray/white lapilli tuff
elongate gray qtz boudins max 1cm thick set in white qtz-sericite matrix @ wispy gray qtz. Py as isolated grains & aggregates to 4mm

Fault zone
strong gouge & bleaching with brn wk qtz staining

qtz stringers

sericite increase

string qtz white staining on some flattened qtz eyes 1-2mm

very white @ talcose sericite

qtz stringers

Fault zone + clay bleaching and wk qtz alteration

wk graphitic

Laminated qtz sericite tuff
characteristically bands of lami wisp-cream colored matrix sometimes more qtz rich bands & pods
3' zone at 475 has gray bands – cut by fine qtz laminae & vlgy qtz < 2mm gray bands have fine ~.5mm

gray

spots of cream-buff
ch-graphite
ch-graphitic bands

creamy

gray

ch graphite w py

chert contact

PROJECT _____ HOLE No. _____

Co-ord. _____ Collar elev. _____ By _____ Scale _____ Date _____ P. _____

Recovery	Base Metal Mineralizatn	Pyrite Limonite	Gaugue	Alteration	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
600												
6/6							remnants chert pod					
							remnants clast of phyllite					
		1% mrlrs			23°			10	112	5	28	118
6/6												
610					below		fault? Zone mod sheared					
3/3					broken			7.3	116	5	30	82
4/4					25°		fault clot?					
							Dark green andesitic - foliated tuff	2.7	75	3	24	93
620 4/4			c		30°		sharp Blotchy dk green, wispy pale green andesite carb splotches					
6/6		c 1%					sharp spotted mod carb response Hemshaw prom. not 1-2 1m bulk from spots - not garnets prob carb	10	105	3	26	96
630 6/6					0°		sharp Pyrite w ≤ 5 < 1%					
					45° ctct		sharp	10	94	4	28	86
			c				spotted Andesite tuff					
10/10		py=			25° 35°		10m patchily spotted spotted					
640		2%					not spotted material ie. foliation lam? - has strong carb response					
			c					10	80	3	26	128
10/10		5% py-po	c✓		20°		1m Brec Andesite bx - dk green frags (w) spots set in pale gray green matrix (w) pale spots carb content somewhat less high Py content than above or below					
650							sharp					
			c✓				gray-green argillite well lam, mixed with and. tuff dk green. Abn small isoclinal folds strong carb response Possibly bx frags in arg matrix	10	127	3	34	92
10/10 660			c+		25°							
							sharp					
							Obs bx fabric argillite frgs to 40mm in Pale gren - dk green tuff matrix c varil stringers ple - irregvns arg content increases downward	10	135	6	24	70
10/10 670			c✓ c+/42				Pale green arg.					
							Pale gray-green arg. frags 3.6mm to 20mm in Porphyritic pale gren tuffaceous matrix + carb matrix and rdrs	10	112	1	20	58
10/10 680		mi	c+									
							m-f grained massive and. ok carb	10	99	5	18	63
		[illegible]	c-									
							broken					
10/10 690							Arg tuff Arg. tuff sharp possible stress					
							Andesite flow					
10/10 700		[illegible]		Almost no cryptocrystalline			Blotchy Bx? 6699 massive/plus massive gabbroic appearance gneissoid dk gray blotches 3.6mm rounded aligned by pale green white matrix	10	67	3	12	76

PROJECT _____ HOLE No. _____

Co-ord. _____ _____

Collar elev. _____ By _____ Scale _____ Date _____ P. _____

Depth	Recovery	Base Metal Mineralizatn	Pyrite Limonite	Gaugue	Alteration	Structure	Rock Type	Description	INTERVAL	Cu	Mo	Pb	Zn
700	10/10			irr. epd				Andesite - massive dk green m-f grained wk c-drlse @ occ pale green arg. Tlc areas	10	75	2	8	57
710	10/10							by ?	10	88	3	8	48
				cvlse vns		wk fabric @ 30°							
720	10/10			c⁻ to wi				Massive andesite f-m grained	10	87	12	6	42
730	10/10								10	96	6	6	35
740	5/5			irr. orth / epd @ 20°				wk brecciation					
	5/5				Mfb ?		40° clit	stacy 3' 1' gmet & qtz-carb vlets vns @ 75° to CA					
750	8/8							Andesite by - transition to massive flow or - flow by obscuring c in matrix	10	97	6	10	44
			coarse py 40.5 mm										
			py	cvlse 2-3% ct.					10	102	3	10	45
760	10/10								10	106	6	10	46
770	10/10								10	102	9	14	49
780	10/10								10	94	2	12	55
790	10/10								10	90	6	14	48
800	10/10												

ANALYSES — ELEMENT

Recovery	Base Metal Mineralization	Pyrite Limonite	Gauge	Alteration	Structure	Rock Type	PROJECT / Co-ord. / Collar elev. / By / Scale / Date / P. / HOLE No.	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
800												
								13	96	3	14	61
810												
							813' Total Depth					
820							Terminated:					

Project Kay Mine HOLE No. K-14
Co-ord _____ Date 8/16/78
Collar elev _____ By EMS Scale 1=10 P. ____

	Recovery	Base Metal Mineralization	Fe Sulfide Oxide	Limonite		Fracture Filling	Fractures /ft.	Secondary Structure	Alteration	Original Rock Type	Color	Grain or Crystal Size	Primary Structure	Rock Type	REMARKS
100			PY =	1-2 G>H		Q⁻, C⁻	2	f ~ 75	Z, ¢⁻	meta rhyo tuff	wht-lt. gy	f			f. gn. sericite phyllite w/ ¢⁻ and finely diss. py
110															
120															
130						Q⁻, C⁻	0	f ~ 75	Z, ¢, G	meta tuff	m. gy	f-m			f gn sericite-chlorite qz garnet schist (meta tuff mixed lithology - and + rhyo) - pinhead qz eyes + pink garnets?
140															
			PY =	1 G>H		Q⁻, C⁻	2	f ~ 75	Z, ¢⁻	meta rhyo tuff	gn-wht	f			f. gn., sericite phyllite as above - has ¢⁻ or Z is green. - contains flattened rhyo (pumice?) clasts w/ pinhead qz eyes.
150															
160															
170															
180															
190															
200															

Project Kay Mine HOLE No. K-14
Co-ord _____ Date 8/16/78
Collar elev _____ By EHS Scale 1" = 10' P. ____

Depth	Recovery	Base Metal Mineralization	Fe Sulfide Oxide	Limonite		Fracture Filling	Fractures /ft.	Secondary Structure	Alteration	Original Rock Type	Color	Grain or Crystal Size	Primary Structure	Rock Type	REMARKS
0									meta rhyo tuff						
10															
20															OVERBURDEN
30															
40															
50				3-5 G=J		Q, C	2	f ~ 60°	Z, f-		wht-Hgy	f			f. gn., sericite phyllite w/ ϕ⁻ - strong foliation ~ 60° from horiz. - 3-5% limonite G=J @ py w/ qz vl. - occassional qz and calcite vl. - ϕ⁻ as occass. thin layers // fol. - occass. pinhead qz. eyes. + rhyo. frags (probable meta rhyolite tuff)
60				1-2 G>J >4											less limonite, but H added on fol. planes
70								f ~ 75							fol. dip steepens
80															
90															
100															

56
56
112
58
58
16

89 boxes-

average 114 for 763'

KM-14

time constant - 1 sec, meter scale = 2

50-59 = 120	268-275 = 116	475-484.5 = 100	690-699 = 114
59-68 = 116	275-282 = 118	484.5-492 = 104	699-709 = 116
68-78 = 112	282-289 = 120	492-502 = 110	709-718 = 110
11 78-87 = 116	289-298 = 120	502-510 = 112	718-729 = 108
87-93 = 118	298-307 = 118	510-519 = 110	729-738 = 108
93-100 = 120	307-315 = 120	519-527 = 112	738-747 = 110
100-107 = 114	315-323 = 120	527-535 = 100	747-756 = 108
107-116 = 114	323-329 = 118	535-544 = 110	756-763 = 100
116-123.6 = 116	329-339 = 118	544-553 = 110	763-773 = 106
123.6-131.6 = 120	339-347.5 = 120	553-562 = 120	773-781 = 112
131.6-146 = 120	347.5-356 = 118	562-570 = 118	781-791 = 110
146-156 = 120	356-363 = 116	570-577 = 116	791-799 = 110
156-164 = 100	363-370.5 = 116	577-587 = 122	799-808 = 116
164-169.6 = 110	370.5-378 = 114	587-596 = 120	808-813 = 120
169.6-185 = 114	378-386 = 110	596-604 = 118	TD
185-196 = 120	386-394 = 110	604-612 = 122	
196-202 = 100	394-403 = 110	612-621 = 122	
202-210 = 100	403-413 = 108	621-629 = 122	
210-219 = 116	413-421 = 110	629-638 = 120	
219-226 = 116	421-428 = 100	638-647 = 122	
226-235 = 120	428-438 = 100	647-656 = 118	
235-243 = 120	438-446 = 112	656-665 = 118	
243-251 = 114	446-458 = 112	665-674.5 = 116	
251-258 = 116	458-467 = 114	674.5-684 = 118	
258-268 = 116	467-475 = 116	684-690 = 120	

KM-14

50 - 59 = 116
59 - 68 = 115
68 - 78 = 115
78 - 87 = 118
87 - 93 = 117
93 - 100 = 116
100 - 107 = 115
107 - 116 = 117
116 - 123.6 = 119
123.6 - 131.6 = 120
131.6 - 146 = 113
146 - 156 = 110
156 - 164 = 108
164 - 169.6 = 115
169.6 - 185 = 111
185 - 196 = 107
196 - 202 = 105
202 - 210 = 111
210 - 219 = 117
219 - 226 = 119
226 - 235 = 118
235 - 243 = 117
243 - 251 = 115
251 - 258 = 116
258 - 268 = 117

268 - 275 = 118
275 - 282 = 119
282 - 289 = 119
289 - 298 = 119
298 - 307 = 119
307 - 315 = 119
315 - 323 = 119
323 - 329 = 119
329 - 337 = 119
337 - 347.5 = 118
347.5 - 356 = 117
356 - 363 = 115
363 - 370.5 = 113
370.5 - 378 = 111
378 - 386 = 110
386 - 394 = 109
394 - 403 = 109
403 - 413 = 106
413 - 421 = 103
421 - 428 = 104
428 - 438 = 108
438 - 446 = 113
446 - 458 = 114
458 - 467 = 110
467 - 475 = 107

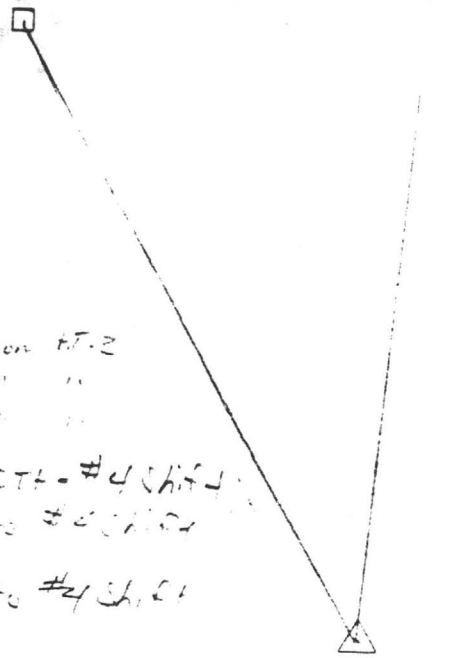
475 - 484.5 = 106
484.5 - 492 = 109
492 - 502 = 111
502 - 510 = 111
510 - 519 = 107
519 - 527 = 107
527 - 535 = 107
535 - 544 = 113
544 - 553 = 116
553 - 562 = 115
562 - 570 = 119
570 - 577 = 119
577 - 587 = 120
587 - 596 = 120
596 - 604 = 121
604 - 612 = 122
612 - 621 = 121
621 - 629 = 121
629 - 638 = 120
638 - 647 = 119
647 - 656 = 117
656 - 665 = 117
665 - 674.5 = 119
674.5 - 684 = 117
684 - 690 = 117

690 - 699 = 113
699 - 709 = 111
709 - 718 = 109
718 - 729 = 109
729 - 738 = 109
738 - 747 = 10[illegible]
747 - 756 = [illegible]
756 - 763 = 106
763 - 773 = 10[illegible]
773 - 781 = 11[illegible]
781 - 791 = 112
791 - 799 = 115
799 - 804 = 116
804 - 813 = 120

K-14 = 1112039.427
426,739.928
1954.17

N.

STA 1,110,502.473
427,954.936
2162.70



K-1 Bearing to STA from HT-2
K-2 Dist N. to STA " "
K-3 Dist W to STA " "

K-4 Bearing Between STA - #4 Shift
K-5 Dist N or S from STA to #4 Shift
K-6 Dist E from STA to #4 Shift
K-7

K-9 - Dist between STA + #4 Shift

222.7629567

K-14

1112082.729
426,796.793
1954.17

K-14

Dacite (tuffs)

Cu $\bar{x}$	Mo	Pb
33.25 ± 20.00	6.35 ± 5	16.3 ± 4

Zn	Ag	Co	Ni
74.8 ± 28	<1	16 ± 6	14 ± 10

Mn	As
928 ppm ± 521 ppm	8.67 ± 3.61

Hg +
137 ± 163

noticable gradient

Graphitic pyritic tuff

Cu	Mo	Pb
136 ± 35	5.55 ± 2.19	29.5 ± 7.2

Zn	Ag	Co	Ni
119 ± 21	<1	50 ± 6	100 ± 13

Mn	As	Hg
1800 ppm ± 358	192 ± 112	166 ± 64

Rhyolite tuff

450 – 500

Cu	Mo	Pb
83 ± 11	4.4 ± 1.52	16 ± 4

Zn	Ag	Co	Ni
117 ± 26	<1	42 ± 15	27.4 ± 9

Mn	As	Hg
1276 ± 336	29 ± 40	54.5 ppb ± 30

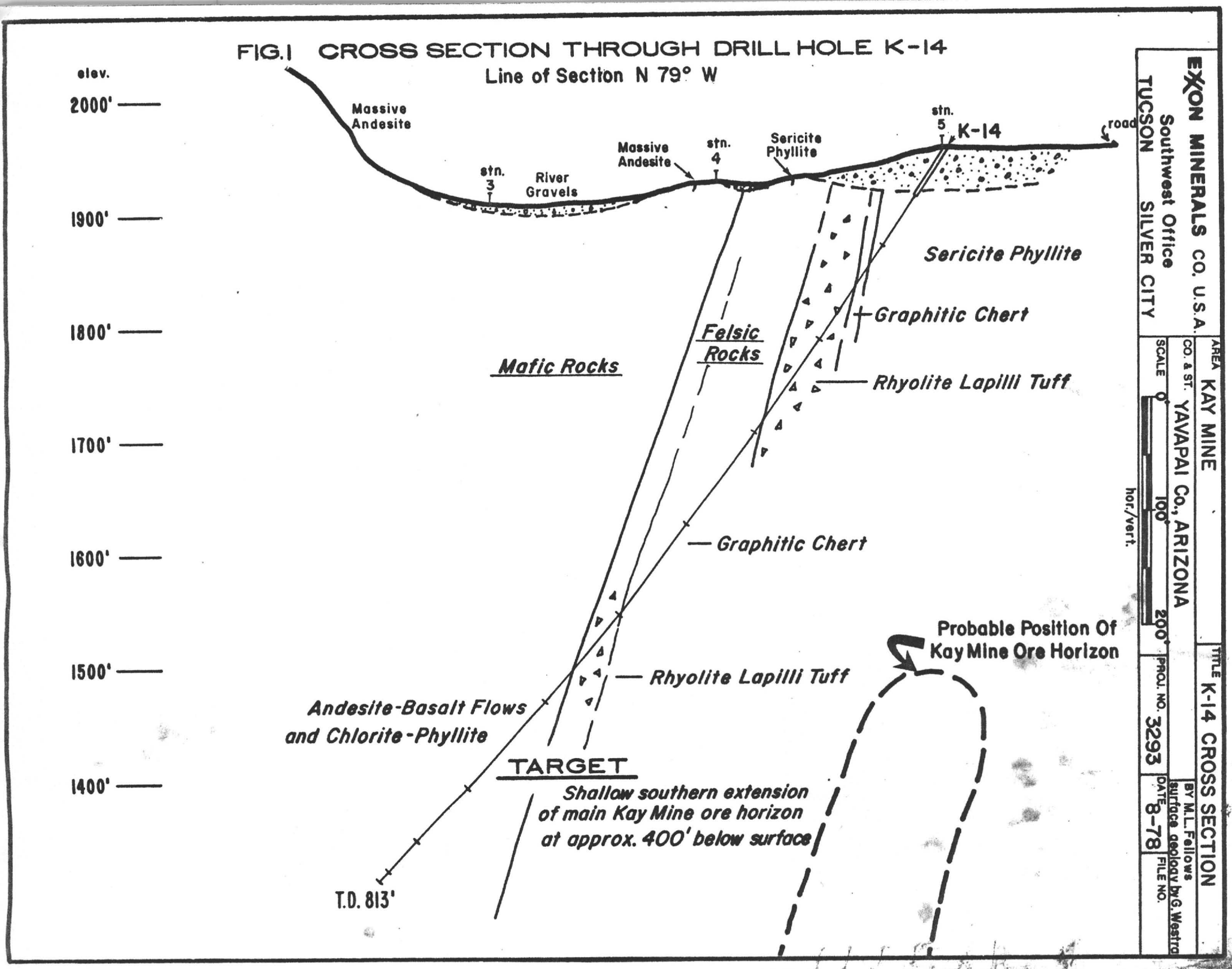
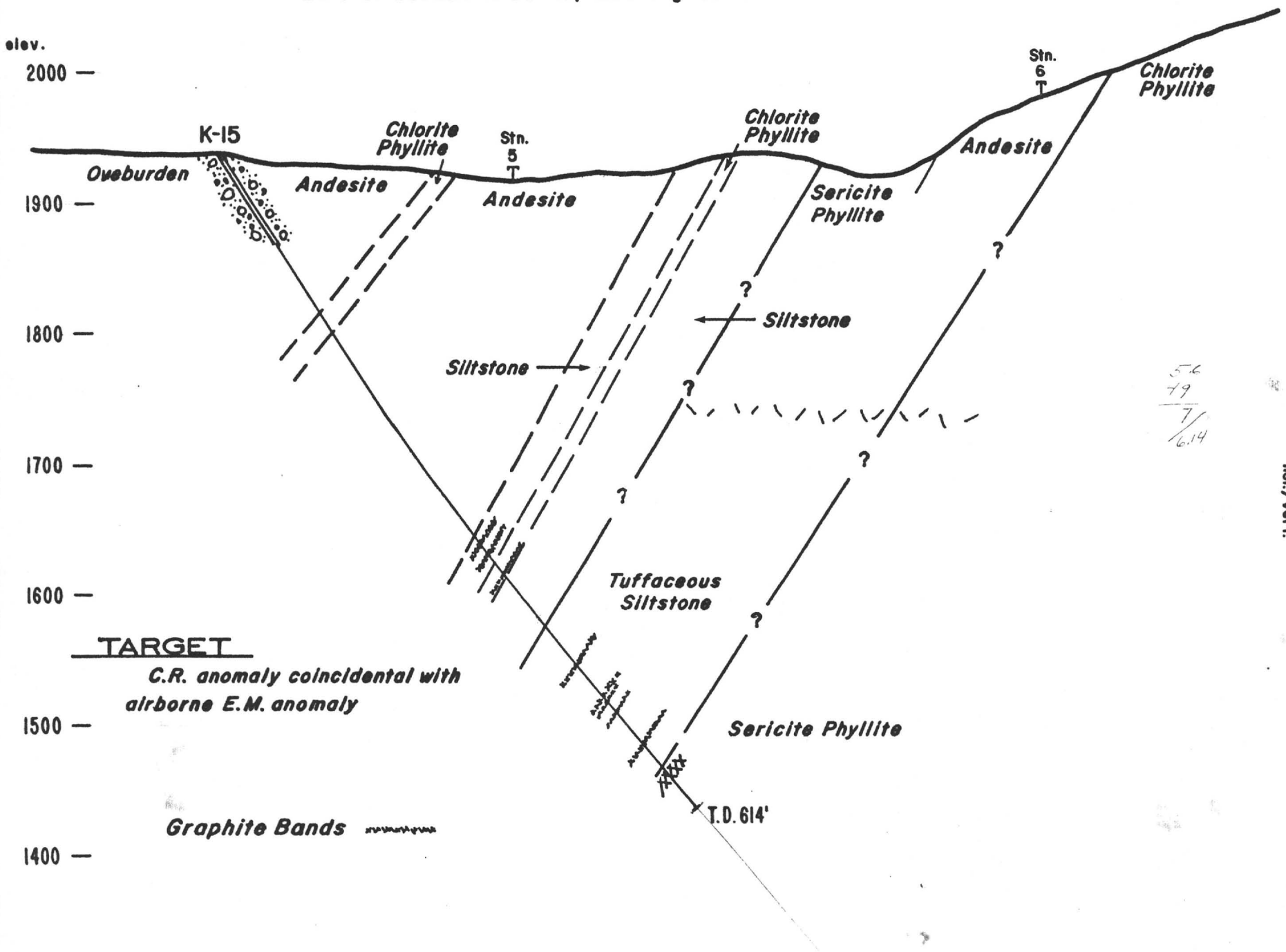


FIG.1 CROSS SECTION THROUGH DRILL HOLE K-14
Line of Section N 79° W
elev.
2000'
1900'
1800'
1700'
1600'
1500'
1400'
Massive Andesite
stn. 3
River Gravels
Massive Andesite
stn. 4
Sericite Phyllite
stn. 5
K-14
road
Sericite Phyllite
Graphitic Chert
Felsic Rocks
Mafic Rocks
Rhyolite Lapilli Tuff
Graphitic Chert
Rhyolite Lapilli Tuff
Andesite-Basalt Flows and Chlorite-Phyllite
TARGET
Shallow southern extension of main Kay Mine ore horizon at approx. 400' below surface
Probable Position Of Kay Mine Ore Horizon
T.D. 813'
hor./vert.
0
100
200
EXXON MINERALS CO. U.S.A.
Southwest Office
TUCSON SILVER CITY
AREA KAY MINE
CO. & ST. YAVAPAI Co., ARIZONA
SCALE
PROJ. NO. 3293
DATE 8-78
FILE NO.
TITLE K-14 CROSS SECTION
BY M.L. Fellows
surface geology by G. Westra

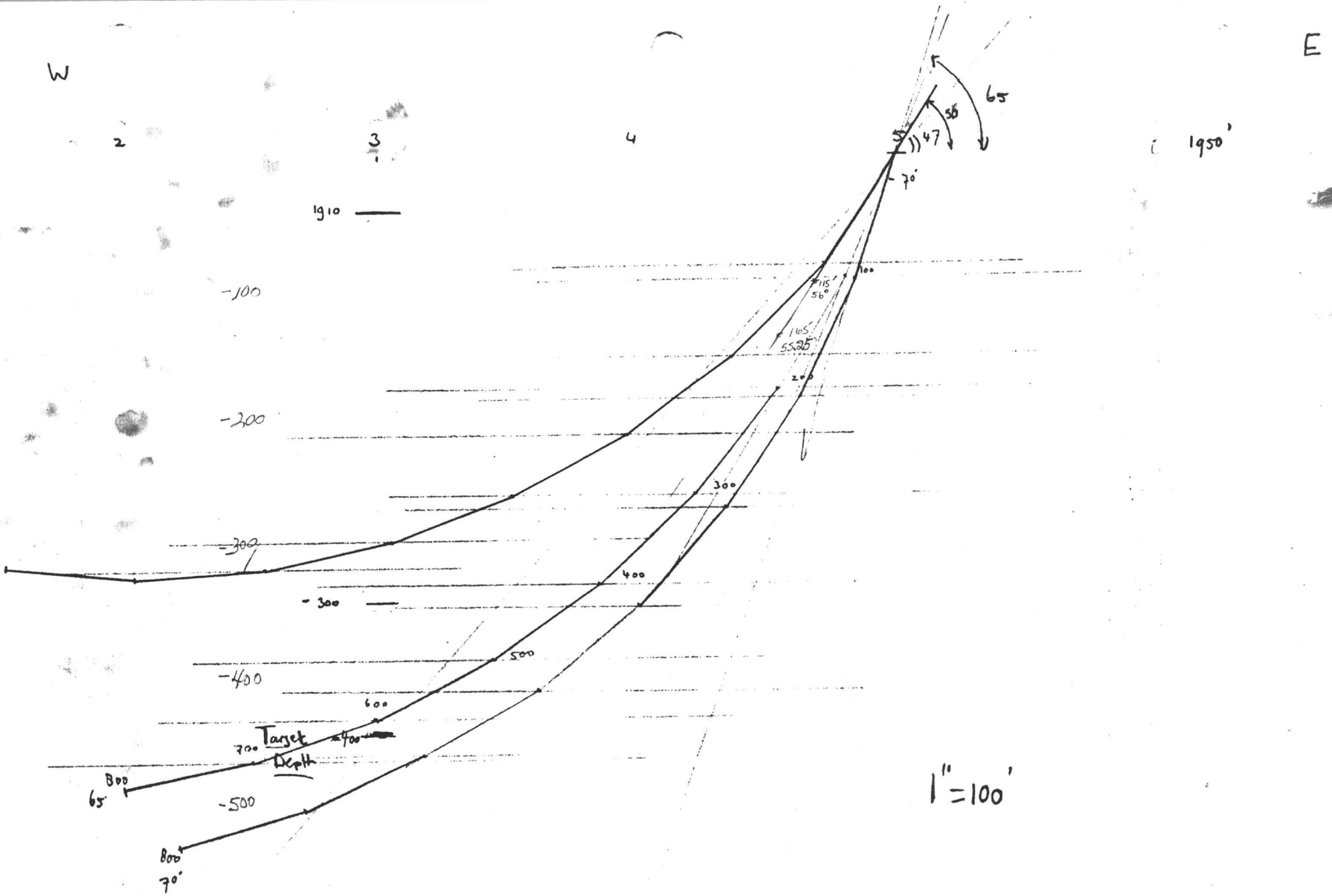
FIG. 2 CROSS SECTION THROUGH DRILL HOLE K-15 (HORSESHOE BAR)

Line of Section N 60° W, Looking North East



EXXON MINERALS CO. U.S.A.
Southwest Office
TUCSON SILVER CITY

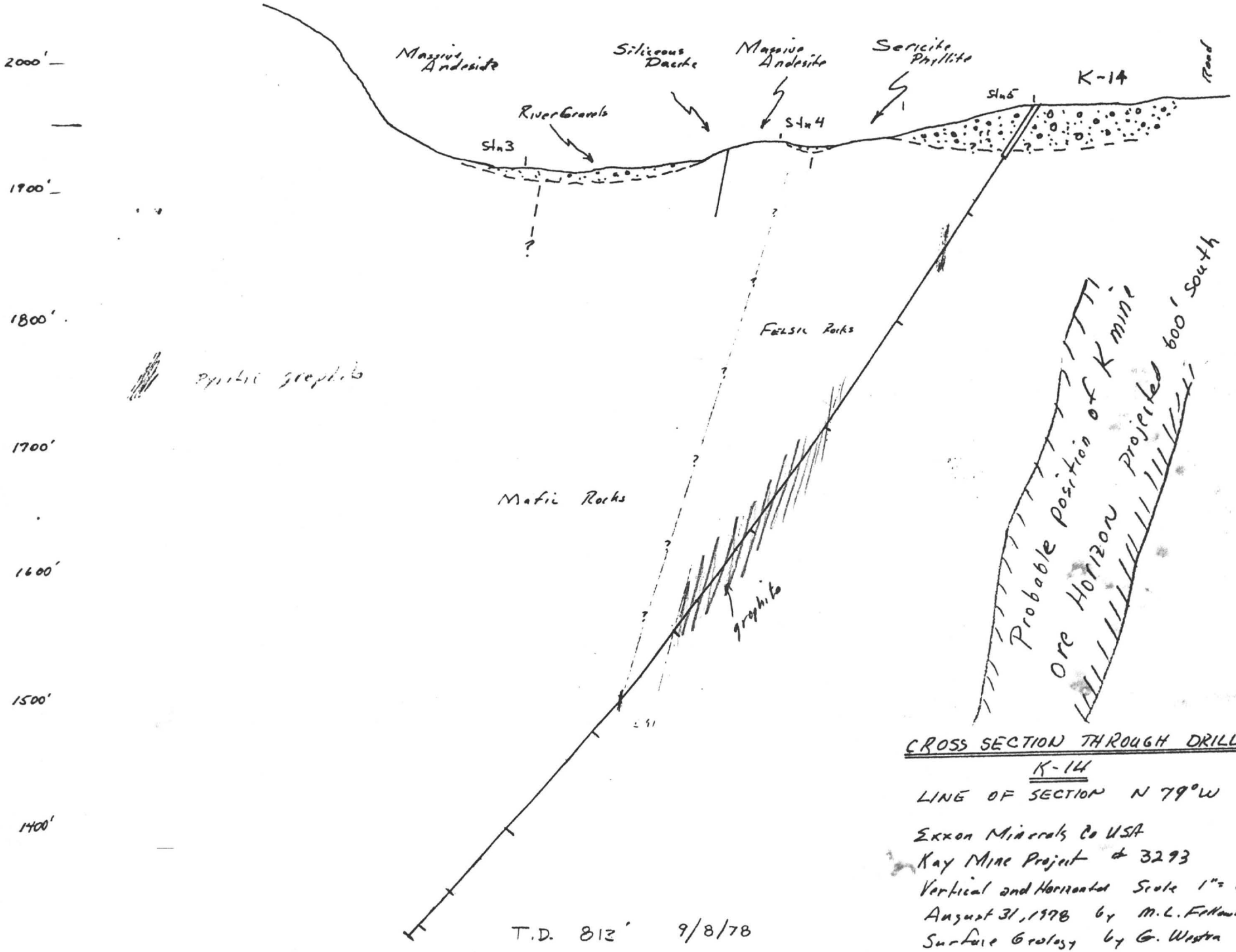
AREA KAY MINE
CO. & ST. YAVAPAI Co., ARIZONA
SCALE 0' 100' 200' hor./vert.
TITLE K-15 CROSS SECTION
PROJ. NO. 3293
BY M.L. Fellows
surface geology by G. Westra
DATE 8-78
FILE NO.



Expected Drill hole Deviation Assuming 8° / 100 feet flattening

K14 Kay Mine

angle 55°



CROSS SECTION THROUGH DRILL HOLE K-14

LINE OF SECTION N 79°W

Exxon Minerals Co USA
Kay Mine Project # 3293
Vertical and Horizontal Scale 1" = 100'
August 31, 1978 by M.L. Fellows
Surface Geology by G. Wasta
Target: Shallow southern extension of Main Kay Mine ore horizon at approx 400' below surface

8-27-78

K-14

COST EST FOR- Sept 1st, 1978
12:00 NOON.

bilization	300.00
tabilized adaptor & Set-up cost	341.95
bilized Rods	300.00
mera Rental	666.66
	1608.61

Mud Cost.

5	LoLoss	125.60	628.00
7	Dextrid	58.26	407.82
6	Calcium Chloride	26.84	161.04
4	Peladow (Calcium Chloride)	26.84	107.36
6	Pot Ash.	20.75	124.50
6	Walnut flour	15.66	93.96
1	Hy Seal	15.93	15.93
			$1538.61
		15 Tax	230.79
			$1769.40

3 hrs.	Lost circulation	/ 43.50	565.50
hr.	Survey hole	/ 31.50	222.95
hr.	Changing Core barrel	/ 43.50	130.50
			918.95
-40'		10.00 per ft.	400.00
- 500'		15.00 per ft.	6900.00
00-513		15.60	202.80
			7502.80
		TOTAL.	$11599.76

K-14 Initial Angle 34° Direction: ~N80W

Directional Surveys

Mag Declin 14°

Depth		Inclination	mag. Direction	true
40'		34° (56°)		In Casing
65'		34° (56°)	(S88W)	N 78°W
115'		34.5 (55.5°)	(S87.5W	N78.5°W
165'		34.5° (55.5°)	(S87.5°)	N78.5°W
215'		34.5 (55.5°)	S 87.5°W	N78.5°W
265'		35°(55)	S 87 W	(N 78 W)
294'		35° (55)	S 87 W	N 79°W
344'		35.5 (54.5)	in drill stem	
395'		36.0°(54°)	S 89W	N77°W
445'		36.5(53.5°)	S 89W	N 77°W
495'		37.5(52.5)	S 89.5 W	N76.5°W
591'		40.5 (49.5)	N 89.5W	N75.5W
665		42.5(47.5	N 89 W	N 75 W
715		43.0 (47)		
763		43.5 (46.5)		

$\frac{\Delta 9.5°}{763}$ = 1.25°/100' Holding

T.C.

DRILL HOLE STARTING REPORT

PROJECT KAY MINE PROJ. NO. 3293 HOLE NO. K-14

LOCATION: STATE ARIZONA COUNTY YAVAPAI

CLAIM NO./LEASE Harriet/L-553870 T 8 N R 2 E SEC NE¼9 ELEV 1950 est.

COORDINATES (if surveyed) N.A. (to be completed later)

DISTANCE FROM N AND W SECTION LINES 1700's 3280 E

PROPOSED DEPTH 800' BEARING N8°W INCLINATION 55°

TARGET OBJECTIVE Shallow southern extension of the main Kay Mine ore horizon

CONTRACTOR E. J. Longyear

DATE SPUDDED 8-3-78

MISC. REMARKS: Prepared by M. Fellows

DRILLING REPORTS
Weekly

Week ending 8/3, page ____

Mineral	Project & No.	Location	Hole No.	Angle	Propsd. Depth	Depth	Progress From	Progress Footage	No. Drills
Cu	KAY MINES 3293	County YAVAPAI State ARIZONA Coords: N ____ E ____ Elev. 1950 est	K-14	55°, N84°W	800'	15	0	15	-

Formation	Lithology From	Lithology To	Mineralization From	Mineralization To	%Cu	%Zn	%Py	%	Additional Notes	Week ending
O.B.	0	15								8/3
O.B	15	50								8/10
sericite phyllite	50	107							schistosity dips ~ 70°	
Sericite phyllite	107	130							schistosity 20° c/a	
graphitic argillite	130	143								
Strongly Sericitized tuff - lapilli tuff	143 (226)	252								tozzi 8/1/78
Qtz - Sericite phyllite - tuff	252	285					1-3%			
Graphitic Qtz - sericite tuff	285	380					2-7%	3-10% graphite		
Graphitic Qtz - sericite tuff [Carbonate]	380	462					1-2%	3-5% graphite		8/25/78
Fault Zone strong limonite staining	462	464						—		
Quartz - Sericite phyllite with weak graphite	464	500					<1%	1-5% graphite	Schistosity ~20° ∠ core axis	
Quartz Sericite Augen Schist - Sericitized lapilli Tuff	500	536	510.0	513.6			2-5% 10-15%			9/1/78
Same as above	536	564					25%			
Chlorite phyllite and massive andesite flows	564	813'					to 1%			9/8/78

T. Clarks Field Notes

T
STAT
PT-3

BS. P.T. #5

HI 4.6

STA

H.Δ
312-30-41
+25 sec.

H.Dist
[illegible]

Vert Dist
-15.95

T
STA
HI-4.6

BS #STAT T

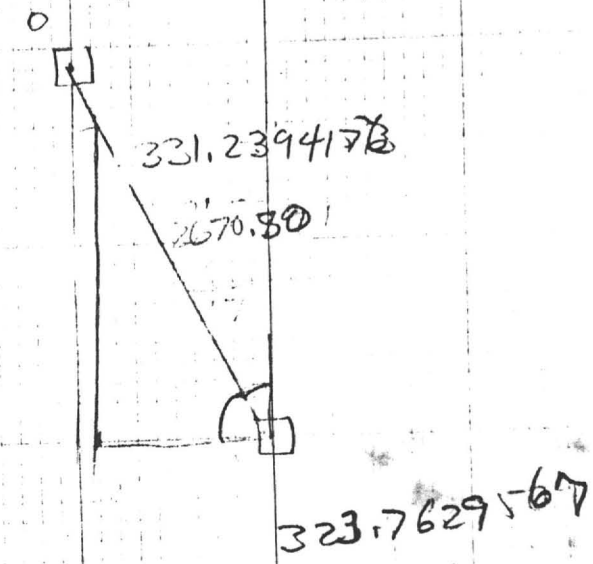
DIST. 2670.80

-190.99
DDD-K-14
H DIST

H Δ
352-31-25

1959.21

Vert-Dis
-209.70



STA = N. 1,110,502.473
E 427,954.936

K-14 N 1,112,082.729
E -426,796.793

PROJECT Kay Mine (K-14) PROJECT NO. 3293 SUBMITTAL NO. 80-22-20

STATE Az COUNTY _____ QUAD _____ DATE SUBMITTED 1-18-80

SAMPLE NO. 81 TYPE Core GEOLOGIST M. Fellows

STORAGE BOX NO. _____ PAGE 1 OF 2

REMARKS Au, As, + Hg will follow later.

SAMPLE	Cu/Zn	ppm Cu	ppm Mo	ppm Pb	% Zn	ppm Ag	ppm Co	ppm Ni		ppm Mn
K-14-50-60	.36	46	20	12	128	<1	27	39		0.19
60-70	.52	51	12	14	99	<1	19	26		0.14
70-80	.41	47	12	18	116	<1	24	25		0.17
80-90 *	.72	87	6	20	120	<1	27	14		0.16
90-100	.22	22	5	20	102	<1	22	12		0.14
100-110	.65	51	11	22	85	<1	19	24		0.17
110-120 *	.51	41	<1	14	81	<1	17	<5	900	
120-130	.49	38	<1	8	78	<1	15	<5	820	
130-140	.40	27	8	18	67	<1	21	20		0.11
140-150 *	.21	9	3	16	43	<1	10	<5	310	
150-160		<5	3	18	35	<1	10	<5	395	
160-170	.17	7	1	12	40	<1	8	<5	415	
170-180 *	.22	12	8	16	55	<1	14	21		0.10
180-189	.27	15	9	12	56	<1	13	22	775	
189-200	.89	49	11	14	55	<1	8	25	680	
200-210 *	.29	25	3	16	87	<1	12	7	340	
210-220	.40	38	5	24	94	<1	19	10	755	
220-230	.60	30	3	16	50	<1	11	6	530	
230-240	.54	26	4	20	48	<1	8	5	370	
240-250 *	.70	40	3	16	57	<1	7	8	460	
250-260	1.62	143	6	32	88	<1	44	41		0.11
260-270	1.74	151	5	28	87	<1	49	51		0.13
270-280 *	1.64	115	3	22	70	<1	41	39		0.13
280-290	.77	98	6	28	128	<1	53	112		0.17
290-300	1.11	156	5	34	141	<1	49	75		0.16
300-310 *	2.11	245	11	34	116	<1	47	78		0.15
310-320	.98	121	2	30	123	<1	50	120		0.18
320-330	.86	108	6	30	126	<1	46	111		0.15
330-340 *	.96	110	6	30	114	<1	42	68		0.18
340-350	.94	125	9	28	133	<1	48	100		0.20
350-360	.79	115	5	24	145	<1	49	112		0.20
360-370 *	.93	143	6	28	153	<1	56	97		0.23
370-380	.80	107	5	26	134	<1	58	168		0.19
380-390	1.02	123	3	32	121	<1	52	143		0.20
390-400 *	1.08	132	9	38	122	<1	60	141		0.23
400-410	1.43	176	6	40	123	<1	56	186		0.21
410-420	.83	97	3	22	110	<1	48	107		0.20
420-430 *	.97	138	5	44	141	<1	59	130		0.19
430-440	1.45	149	6	30	103	<1	50	106		0.12
440-450	1.89	184	4	10	97	<1	34	21	870	
450-460 *	.82	67	6	10	76	<1	17	12	680	
460-470	.70	76	3	14	108	<1	39	25		0.15
470-480	.75	94	3	20	126	<1	49	32		0.14
480-490 *	.65	87	4	18	134	<1	55	36		0.14
490-500	.63	90	6	18	142	<1	50	32		0.14
500-504 *	.41	72	6	114	164	<1	23	12	870	
504-506 *	.60	65	5	188	108	<1	30	10	740	
506-510 *	.38	35	4	42	92	<1	11	9	675	
513.6-520 *	.45	43	2	26	95	<1	14	9	790	
520-530	.28	19	3	18	67	<1	9	8	735	

EXXON MINERALS CO., USA

SIGNED [signature] DATE 1/31/80

PROJECT Kay Mine (K-14) PROJECT NO. 3293 SUBMITTAL NO. 80-22-20

STATE Az COUNTY _____ QUAD _____ DATE SUBMITTED 1-18-80

SAMPLE NO. 81 TYPE Core GEOLOGIST M. Fellows

STORAGE BOX NO. _____ PAGE 2 OF 2

REMARKS Au, As, + Hg will follow later.

SAMPLE	Cu/Zn	ppm Cu	ppm Mo	ppm Pb	% Zn	ppm Ag	ppm Co	ppm Ni		ppm Mn
K-14		—	—	—	—	—	—	—		—
530-540	.15	63	3	320	415	1	10	8	690	?
540-550	.04	107	6	554	0.30	1	17	10	900	
500-560 *	.59	72	17	22	122	<1	20	11	840	
560-570	1.06	108	5	28	102	<1	22	12	950	
570-573.4 *	.60	24	3	36	40	<1	21	12	875	
573.4-575.5 *	.29	115	8	200	402	<1	45	66		0.12
575.5-580 *	.64	87	6	28	135	<1	50	37		0.12
580-590	.82	108	3	28	132	<1	58	36		0.13
590-600 *	.88	113	3	24	129	<1	61	48		0.11
600-610	.85	112	5	28	118	<1	60	71		0.11
610-617.3 *	1.41	116	5	30	82	<1	66	198		0.12
617.3-620	.81	75	3	24	93	<1	64	42		0.12
620-630	1.09	105	3	26	96	<1	71	107		0.12
630-640	.93	94	4	28	86	<1	66	85		0.16
640-650 *	.63	80	3	26	128	<1	59	42		0.12
650-660	1.40	127	3	34	92	1	73	147		0.15
660-670	1.93	135	6	24	70	<1	71	220		0.13
670-680 *	1.93	112	1	20	58	<1	64	151	960	
680-690	1.57	99	5	18	63	<1	62	105	880	
690-700	.88	67	3	12	76	<1	60	17	790	
700-710 *	1.32	75	2	8	57	<1	46	22	650	
710-720	1.83	88	3	8	48	<1	49	33	530	
720-730	2.07	87	12	6	42	<1	48	37	430	
730-740 *	2.74	96	6	6	35	<1	44	36	390	
740-750	2.20	97	6	10	44	<1	50	42	570	
750-760	2.27	102	3	10	45	<1	45	41	530	
760-770 *	2.36	106	6	10	46	<1	44	43	620	
770-780	2.08	102	9	14	49	<1	52	50	660	
780-790	1.71	94	2	12	55	<1	47	49	740	
790-800 *	1.88	90	6	14	48	<1	50	47	700	
800-813	1.57	96	3	14	61	<1	56	57	930	

EXXON MINERALS CO., USA

SIGNED [signature] DATE 1/31/80

ECT KAY MINE (ARIZ.)

SUBMITTAL NO. 78-14-16

LE TYPE Core NO. OF SAMPLES 1

DATE SUBMITTED 9-5-78

SUBMITTED BY M. Fellows

RKS As, Sn, + Ba to follow from SWAC

PROJECT NO. 3213

STORAGE BOX NO.

PAGE 1 OF 1 PAGES

LE CONCENTRATION

le			PPM Cu	% Cu		PPM Mo	PPM Pb	% Pb	PPM Zn	% Zn	PPM Ag	PPM Au	% Fe	PPM Co	PPM Ni
K-14															
510-513.6			97			2	47		111		1	.05	0.84	16	23

Martin H. Mobberley
9/7/78

SOUTHWESTERN ASSAYERS & CHEMISTS, INC.

WIL WRIGHT
ARIZONA REG. NO. 5875

DNYANENDRA A. SHAH
ARIZONA REG. NO. 8888

REGISTERED ASSAYERS
P. O. BOX 7517
TUCSON, ARIZONA 85725

710 E. EVANS BLVD.
PHONE 602—884-5811
884-5812

Project 3293

Exxon Company
Mr. Martin H. Hibbetts
2425 N. Huachuca Drive
Tucson, Arizona 85705

K-14

JOB # 023906
RECEIVED 1-24-80
REPORTED 2-11-80

SAMPLE NUMBER		Arsenic PPM					
80-90		13					
110-120		2					
140-150		9					
170-180		9					
200-210		9					
240-250		10					
270-280		5					
300-310		131					
330-340		208					
360-370		252					
390-400		227					
420-430		.033%					
450-460		< 2					
480-490		58					
500-504		4					
504-506		28					
506-510		14					
513.6-520		9					
550-560		44					
570-573.4		.55%					
573.4-575.5		.14%					
575.5-580		276					
590-600		47					
610-617.3		48					
640-650		28					
670-680		52					
700-710		26					
730-740		< 2					
760-770		28					
790-800		30					

FEB 1980 RECEIVED TUCSON MINERALS

REGISTERED ASSAYER CERTIFICATE NO. 8888 Dnyanendra Amrutlal Shah DATE SIGNED 2-11-80 Arizona U. S. A.

1 ppm = 0.0001% 1 troy oz./ton = 34.286 ppm 1 ppm = 0.0292 troy oz./ton

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

PROJECT Key Mine (K-14) PROJECT NO. 3293 SUBMITTAL NO. 80-22-20

STATE Az COUNTY _____ CLAIM _____ DATE SUBMITTED 1-18-80

SAMPLE NO. 81 TYPE Core GEOLOGIST M. Fellows

STORAGE BOX NO. _____ PAGE 1 OF 1

REMARKS _____

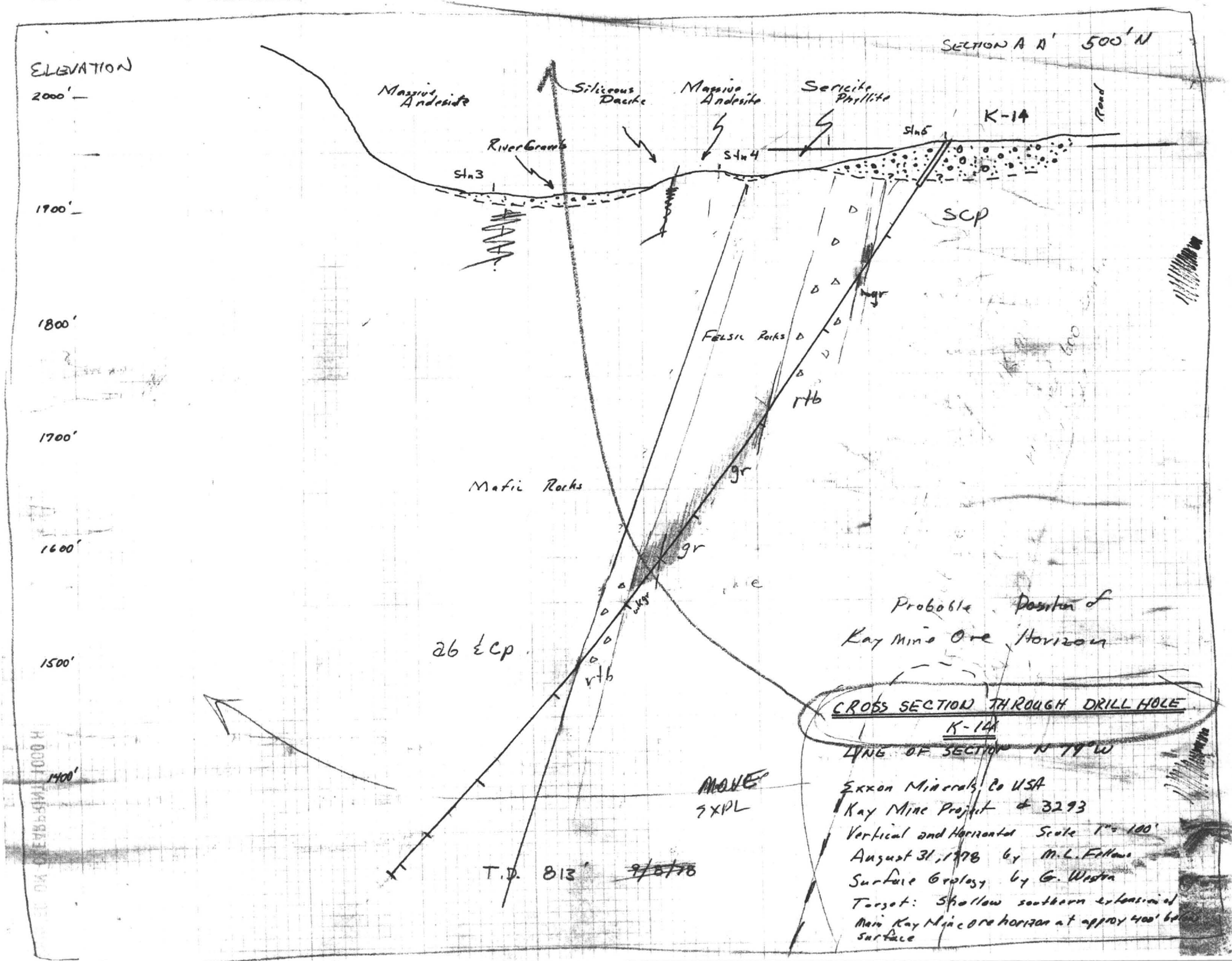
SAMPLE		ppb Hg
K-14		
80-90		459
110-120		100
140-150		139
170-180		33
200-210		72
240-250		19
270-280		234
300-310		253
330-340		139
360-370		148
390-400		91
420-430		129
450-460		76
480-490		33
500-504		48
504-506		43
506-510		48
513.6-520		53
550-560		72
570-573.4		29
573.4-575.5		282
575.5-580		76
590-600		43
610-617.3		19
640-650		5
670-680		5
700-710		10
730-740		5
760-770		10
790-800		5

EXXON MINERALS CO., USA

SIGNED [signature] DATE 2/22/80

K+E 10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 0703


SECTION A A' 500' N
ELEVATION
2000'
1900'
1800'
1700'
1600'
1500'
1400'
Massive Andesite
Siliceous Dacite
Massive Andesite
Sericite Phyllite
K-14
Road
River Gravels
Stn 3
Stn 4
Stn 5
SCP
Felsic Rocks
rtb
gr
Mafic Rocks
ab & Cp
Probable Position of Kay Mine Ore Horizon
CROSS SECTION THROUGH DRILL HOLE K-14
LINE OF SECTION N 79° W
Exxon Minerals Co USA
Kay Mine Project # 3293
Vertical and Horizontal Scale 1" = 100'
August 31, 1978 by M.L. Fellows
Surface Geology by G. Westra
Target: Shallow southern extension of Main Kay Mine ore horizon at approx 400' below surface
MOVE EXPL
T.D. 813'

PROJECT Kay Mine (K-14) PROJECT NO. 3293 SUBMITTAL NO. 80-22-20

STATE Az COUNTY QUAD DATE SUBMITTED 1-18-80

DRILL HOLE NO. 81 TYPE Core GEOLOGIST M. Fellows

STORAGE BOX NO. PAGE 1 OF 2

REMARKS Au, As, + Hg will follow later.

SAMPLE	ppm Cu	ppm Mo	ppm Pb	% Zn	ppm Ag	ppm Co	ppm Ni		ppm Mn
K-14-50-60	46	20	12	128	<1	27	39		0.19
60-70	51	12	14	99	<1	19	26		0.14
70-80	47	12	18	116	<1	24	25		0.17
80-90 *	87	6	20	120	<1	27	14		0.16
90-100	22	5	20	102	<1	22	12		0.14
100-110	51	11	22	85	<1	19	24		0.17
110-120 *	41	<1	14	81	<1	17	<5	900	
120-130	38	<1	8	78	<1	15	<5	820	
130-140	27	8	18	67	<1	21	20		0.11
140-150 *	9	3	16	43	<1	10	<5	310	
150-160	<5	3	18	35	<1	10	<5	395	
160-170	7	1	12	40	<1	8	<5	415	
170-180 *	12	8	16	55	<1	14	21		0.10
180-189	15	9	12	56	<1	13	22	775	
189-200	49	11	14	55	<1	8	25	680	
200-210 *	25	3	16	87	<1	12	7	340	
210-220	38	5	24	94	<1	19	10	755	
220-230	30	3	16	50	<1	11	6	530	
230-240	26	4	20	48	<1	8	5	370	
240-250 *	40	3	16	57	<1	7	8	460	
250-260	143	6	32	88	<1	44	41		0.11
260-270	151	5	28	87	<1	49	51		0.13
270-280 *	115	3	22	70	<1	41	39		0.13
280-290	98	6	28	128	<1	53	112		0.17
290-300	156	5	34	141	<1	49	75		0.16
300-310 *	245	11	34	116	<1	47	78		0.15
310-320	121	2	30	123	<1	50	120		0.18
320-330	108	6	30	126	<1	46	111		0.15
330-340 *	110	6	30	114	<1	42	68		0.18
340-350	125	9	28	133	<1	48	100		0.20
350-360	115	5	24	145	<1	49	112		0.20
360-370 *	143	6	28	153	<1	56	97		0.23
370-380	107	5	26	134	<1	58	168		0.19
380-390	123	3	32	121	<1	52	143		0.20
390-400 *	132	9	38	122	<1	60	141		0.23
400-410	176	6	40	123	<1	56	186		0.21
410-420	91	3	22	110	<1	48	107		0.20
420-430 *	138	5	44	141	<1	59	130		0.19
430-440	149	6	30	103	<1	50	106		0.12
440-450	184	4	10	97	<1	34	21	870	
450-460 *	67	6	10	76	<1	17	12	680	
460-470	76	3	14	108	<1	39	25		0.15
470-480	94	3	20	126	<1	49	32		0.14
480-490 *	87	4	18	134	<1	55	36		0.14
490-500	90	6	18	142	<1	50	32		0.14
500-504 *	72	6	114	164	<1	23	12	870	
504-506 *	65	5	188	108	<1	30	10	740	
506-510 *	35	4	42	92	<1	11	9	675	
513.6-520*	43	2	26	95	<1	14	9	790	
520-530	19	3	18	67	<1	9	8	735	

EXXON MINERALS CO., USA

SIGNED [illegible] DATE 1/31/80

PROJECT Kay Mine (K-14) PROJECT NO. 3293 SUBMITTAL NO. 80-22-20

STATE Az COUNTY _____ QUAD _____ DATE SUBMITTED 1-18-80

SAMPLE NO. 81 TYPE Core GEOLOGIST M. Fellows

STORAGE BOX NO. _____ PAGE 2 OF 2

REMARKS Au, As, + Hg will follow later.

SAMPLE	ppm Cu	ppm Mo	ppm Pb	% Zn	ppm Ag	ppm Co	ppm Ni		ppm Mn
K-14									
530-540	63	3	320	415	1	10	8	690	1
540-550	107	6	554	0.30	1	17	10	900	
500-560 *	72	17	22	122	<1	20	11	840	
560-570	108	5	28	102	<1	22	12	950	
570-5573.4 *	24	3	36	40	<1	21	12	875	
573.4-575.5*	115	8	200	402	<1	45	66		0.12
575.5-580 *	87	6	28	135	<1	50	37		0.12
580-590	108	3	28	132	<1	58	36		0.13
590-600 *	113	3	24	129	<1	61	48		0.11
600-610	112	5	28	118	<1	60	71		0.11
610-617.3 *	116	5	30	82	<1	66	198		0.12
617.3-620	75	3	24	93	<1	64	42		0.12
620-630	105	3	26	96	<1	71	107		0.12
630-640	94	4	28	86	<1	66	85		0.16
640-650 *	80	3	26	128	<1	59	42		0.12
650-660	127	3	34	92	1	73	147		0.15
660-670	135	6	24	70	<1	71	220		0.13
670-680 *	112	1	20	58	<1	64	151	960	
680-690	99	5	18	63	<1	62	105	880	
690-700	67	3	12	76	<1	60	17	790	
700-710 *	75	2	8	57	<1	46	22	650	
710-720	88	3	8	48	<1	49	33	530	
720-730	87	12	6	42	<1	48	37	430	
730-740 *	96	6	6	35	<1	44	36	390	
740-750	97	6	10	44	<1	50	42	570	
750-760	102	3	10	45	<1	45	41	530	
760-770 *	106	6	10	46	<1	44	43	620	
770-780	102	9	14	49	<1	52	50	660	
780-790	94	2	12	55	<1	47	49	740	
790-800 *	90	6	14	48	<1	50	47	700	
800-813	96	3	14	61	<1	56	57	930	

EXXON MINERALS CO., USA

SIGNED [signature] DATE 1/31/80

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	PROJECT Kay Mine Co-ord. Collar elev. 2200 By ML Fellows Scale 1"=10' Date 10-5-78	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn	
							HOLE No. K-15						

0

— 59° Inclination

1.5
2.5
4.5
1.5
10.0

Casing to 80'

10

20

NO CORE

OVER BURDEN

30

40

50

OVER BURDEN

GRAVEL - Conglomerate

10/14 — —

Weakly to poorly cemented, poorly sorted conglomerate. Clasts are rounded vary from 5 to 20 cm in dia. Composed of qtz-monz-1 gneiss, T basalt, and PC andesite. Matrix is sand-gravel. Where matrix is cemented, clay and minor calcite are chief agents.

60

OVER BURDEN

70

NO CORE

80

6.0/6.0

Meta andesite: Greenish Gray

fine to medium grained composed chiefly of amphibole/chlorite and plagioclase. a weak but obvious fabric is developed by alignment of minerals. Trace pyrite +po is disseminated and also found along fractures with dark chlorite and calcite. Irregular veins and veinlets of quartz and calcite are common.

60°, 70°, 30° are common fracture orientations

90

9.0/9.0 — Trace Py Po

5.0/5.0

100

PROJECT KAY MINE HOLE No. K-15

Co-ord. _____ Collar elev. _____ By M L Fellow Scale 1"=10' Date 10-5-78 P. 2

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
6.0/6.0											
10/10		trace po py									
10/10					f, ∡ c.a = 40°						
8.0/8.0					f, ∡ c.a ≈ 40°						
7.0/7.0											
5.0/5.0		po⁻ Tr. Py			f, ∡ c.a = 65°						
5.0/5.0											
6.0/6.0					broken						
8.0/8.0											
10.0/10.0		Trace py≡ po= cp≡		Greenish Gray							
6.0/6.0											
10/10					f, ∡ ca = 55°						
10/10											

Metaandesite as above

Two thin zones with well developed foliation and thin quartz-carbonate partings are noted

— f, ∡ c.a = 40°

— f, ∡ c.a ≈ 40° of white spots

Narrow zone at 125' resembles filled amydales

139.7 contact 35° c.a.

CHLORITIC PHYLLITE Greenish gray thinly laminated chlorite - sericite with abundant calcite in matrix and as veinlets

trace to weak 1% po? along laminae → gth. Weak graphite throughout

Especially strong graphite - chert zone @ 148' 0.2' thick with trace py → gth and at 151.2-152.2 Siltstone character

~ calcite vein 65°

164.1

Metaandesite with quite abundant irreg quartz and calcite veinlets: later regular (planar) vnls of chlorite and calcite with pyrite films. Weakly developed foliation

Trace cp in margins of qtz vns locally visible

magnetite locally abundant, disseminated in 1mm a less xtals

← chert or qtz veins

PROJECT KAY MINE HOLE No. K-15

Co-ord. _____ _____

Collar elev. _____ By M L Fellows Scale 1"=10' Date 10-9-78 P. 3

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	Description	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
200												
10/10		Trace py po cp					Meta-Andesite Greenish Gray Composed chiefly of chlorite In some places foliation is well developed					
210												
10/10												
220												
10/10												
230												
						235.6	well developed foliation - chloritic phyllite					
10/10												
240												
							Massive - fine to medium grained					
7/7												
250							well developed foliation with much carbonate and quartz laminae (vnlts) and minor carbonate in matrix					
5/45												
8.0/8.0		Trace dis po py cp										
260							Qtz - Carbonate vns-vlts irregularly distributed throughout					
10/10												
270						folidate						
9/9							Well foliated with common small white spots 1-2m - elongate					
280					oxidized							
10/10												
290							prominent irreg. qtz vns (w) minor calcite also po cp adjacent					
10/10												
300												

PROJECT Kay Mine HOLE No. K-15

Co-ord. _____ _____

Collar elev. _____ By M L Fellows Scale 1" = 10' Date 10-9-78 P. 4

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	Description	Interval	Cu	Mo	Pb	Zn
300							Meta Andesite					
10/10							thinly laminated chloritic phyllite					
310							Greenish gray dom. chlorite with					
							1-3 mm laminae with white-(plagioclase)					
10/10					Si ∧ ca = 60°		spots - <1mm long dim. Locally dk chl.					
		Tr py po					wisps and qtz laminae veins					
320							Carbonate content weak but assoc. w. qtz					
							laminae - Overall qtz content 5%					
10/10												
							Trace po-py along laminae & chl-carb					
330							fractures					
1/1												
10/10												
					Si ∧ ca = 65°		Unit prob- Andesite tuff.					
340												
							gradual buildup of qtz laminae					
10/10												
350					Si ∧ ca = 60°		SILTSTONE Light olive gray					
		1-2 % dip					Dom. Chloritic w common qtz - carbonate					
6/6							partings brown color mostly produced by biotite					
		2-7% py					Graphite - chert - carbonate 2-7% disp py					
360												
6/6							chert					
							graphite					
							chert					
							chert rich					
7/7					Si ∧ ca = 65°		SERICITE PHYLLITE Yellow gray					
							V. thinly laminated with trace					
		2-5% py					celadonite along ∧ (alternating laminae					
							graphite - silica					
370							highly intrusive ~1mm of qtz and sericite) Locally kink folds					
1/1					highclay		Si introduced +					
							py in laminae					
7/7							graphite					
							vocarb vik ch					
							carb chl	Transitional contact				
380							CHLORITE - QUARTZ - CARB. PHYLLITE					
7/7							Greenish gray prominently laminated					
							dk-light chl., qtz - 1-3 mm laminae					
							carb content: mod (occurs with qtz laminae)					
							trace diss. py & mgt.?					
		79025					chert-graphite					
		79051					graphite chert					
390							TUFFACEOUS SILTSTONE Light Gray					
10/10							chl.					
		1% py disp										
							Chiefly sericite - qtz with flattened flakes of chl.					
10/10							thinly laminated and bedded white w/mm grains?					
400							prominent translucent					

PROJECT KAY MINE HOLE No. K-15

Co-ord. _____ Collar elev. _____ By ML Fellows Scale 1"=10' Date 10-9-77 R.S.

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type	Description	INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
400							TUFFACEOUS SILTSTONE med Dk Gray					
10/10					S,Δ Ca 35		Chlorite predominates Sericite minor biotite? minor					
						CARB	well laminated carbonate-qtz partings					
5/5							gritty common bio-cht beds-a lamine present					
410												
5/5		trace dis py					Sericite increases					
4/4						NO CARB	↓ chlorite predominant					
420												
7/7						CARB						
							sericite bed					
430 10/10							white spots common					
							trans.					
							TUFFACEOUS SILTSTONE similar to 390-400' Light gray					
440 10/10					S,Δ Ca 60%		nil carbonate well banded chiefly Sericite-qtz with dk chl clots 1-4mm long thin chert lamine uncommon near top but increase towards bottom					
450 7/7												
					Jnt S,Δ Ca 70							
7/7												
460					gouge		salmon colored wisps 1-2mm long common					
4/4												
4/4					S,Δ Ca 60%							
470							↓ carb. picks up					
6/6		10° dis py										
							graphite-py chert					
5/5							graphitic phyllite					
480							chlorite > sericite white spots					
7/7					S,Δ Ca. 70%		fault ctct @ 75-80°-C.a					
							Tuffaceous Biotite SILTSTONE - SAND. Pale yellow brown - characterized by brown wisps prob. bio. well laminated & fole-but not bedded minor carb. ok COARSE GRAINED					
490 10/10					S,Δ Ca 65							
							wk graphite lon throughout TUFFACEOUS SILTSTONE Light Gray					
		70% py 1%			S,Δ Ca 70	qtz vn	Laminated, qtz-sericite: trace pyrite-graphite					
6/8							wk carbonate					
500					gouge							

PROJECT KAY MINE HOLE No. K-15

Co-ord. _____ _____

Collar elev. _____ By M.L. Fellows Scale 1"=10' Date 10-9-78 P. 6

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn
					Jouge		TUFFACEOUS SILTSTONE Light Gray Sericite - quartz					
		1% py				graphite						
		5% py					wk to tr. graphite laminae					
10/10		py	increasing graphite		S, K ca 55°							
		2-5%				ch-graphite	carbonate increases					
7/7												
		10%				graphite						
5/5					S, K ca 55°		Tuffaceous SILTSTONE Thinly lam. dom. sericite - qtz with dark laminae. chlorite &/or graphite occ. qtz lamina					
8/8			Wood core.			dk bed	Light Gray					
						coarse serice rich bed	chert pods - beds (w) graphite & po, py increasing					
7/7												
5/5							Tuff S. Ltstone - chloritic carb rich & carb vls common. dk gray					
10/10						distinct lamination	v. thinly lam. dark siltstone high carb. content					
		3% py				chert - graphite	mottled - dk gray lam siltstone					
					S, K ca 55°		locally thin ch-graphite seam					
							1-3mm white vlets common chert - lamination					
							chl increases TUFFACEOUS SILTSTONE					
10/10						ch - bio graphite bed	Green Gray Chloritic? greenish sericite? carb only locally ~~[illegible]~~ present (w) chert beds					
6/6							chert locally common - thin laminae					
							~~coarse~~ lapilli - frag mon bottom					
2/10		5% py					Graphite - py - Chert Poor recovery					
8/8					S, K ca 50°	fine phyllite	TUFFACEOUS SILTSTONE - SERICITE PHYLLITE Green Sericite Greenish Gray					
10/10							bedded & laminated occas. 1-3cm biotitic ch-py po beds locally fine lapilli too					

PROJECT KAY MINE HOLE No. K-15

Co-ord. _____ _____

Collar elev. _____ By M.L Fellows Scale 1"=10' Date 10-9-70 P. 7

Recovery	Base Metal Mineralization	Pyrite Limonite		Color	Structure	Rock Type		INTERVAL	ANALYSES ELEMENT Cu	Mo	Pb	Zn	
610 10/10		1/4" Trace wch					SERICITE PHYLLITE Greenish Gray						
							T.D. 614'						

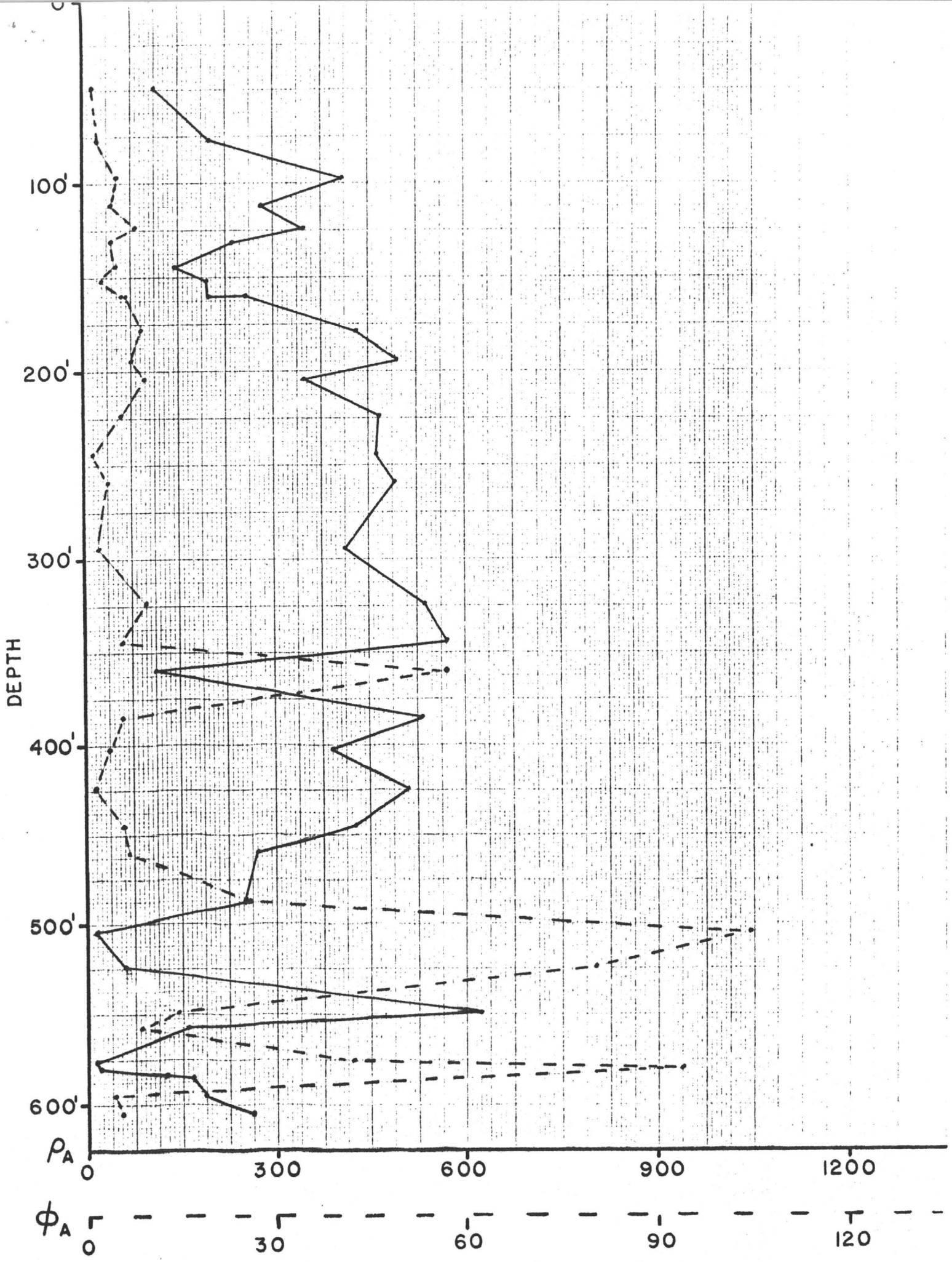
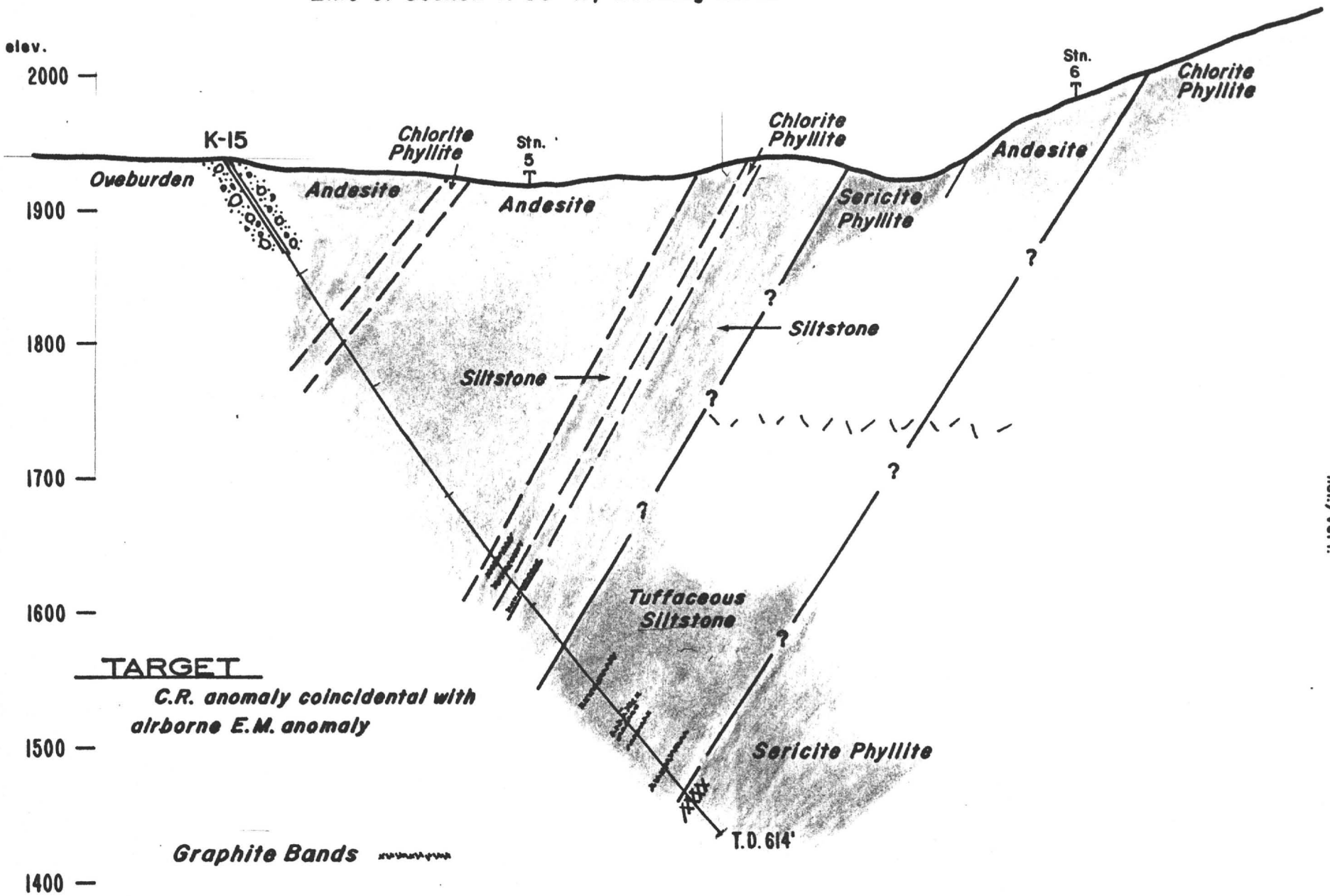

DEPTH
100'
200'
300'
400'
500'
600'
ρ_A
0
300
600
900
1200
ϕ_A
0
30
60
90
120

FIG. 2 CROSS SECTION THROUGH DRILL HOLE K-15 (HORSESHOE BAR)

Line of Section N 60° W, Looking North



EXXON MINERALS CO. U.S.A.
Southwest Office
TUCSON SILVER CITY

AREA: KAY MINE
CO. & ST.: YAVAPAI Co., ARIZONA
SCALE: 0 100' 200' hor./vert.
PROJ. NO. 3293
DATE 8-78
FILE NO.

TITLE: K-15 CROSS SECTION
BY M.L. Fellows
surface geology by G. Westra

file loc. ____

PROJECT Kay Mine STATE Arizona COUNTY Yavapai DRILL HOLE K-15

LOCATION Horseshoe Bar EXXON COORN. ____ ELEVATION: COLLAR ____ GROUND ~ 1900'

HOLE DIRECTION S 80° E -59° HOLE COMM.(date) 9/ INTERVALS OF INTEREST:

CASING DEPTH: 80' HOLE TERMINATED (date) ____ FT. ASSAYS

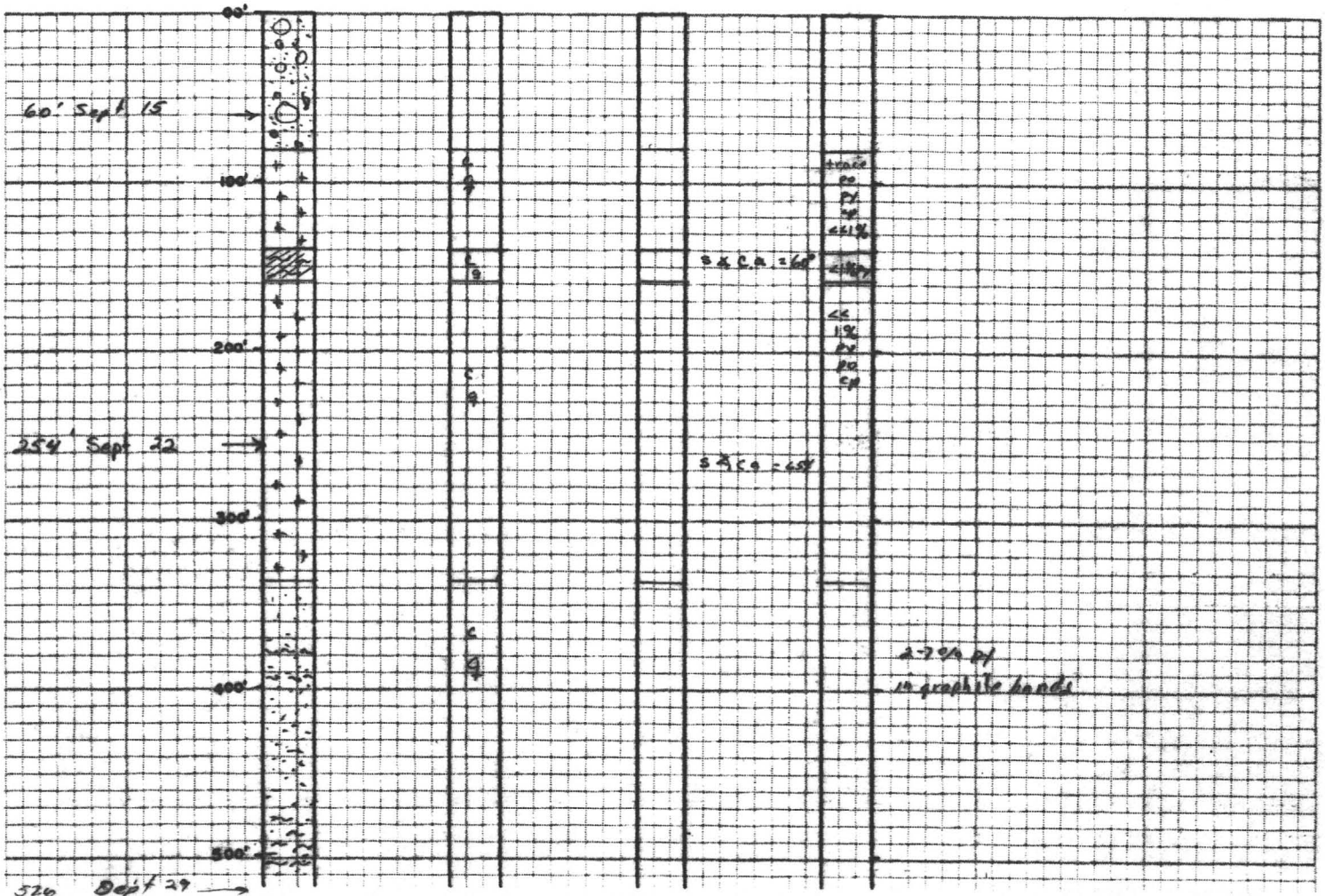
FT. SIZE TOTAL DEPTH ____

HOLE SIZES W/DEPTH

DRILLED BY Longyear LOGS - SURVEYS RUN ____ LOGGED BY M L Fellows

LITHOLOGY	ALTERATION	STRUCTURE	MINERALIZATION
+ + + Andesite	c calcite vls		Py pyrite
Chlorite phyllite	q qtz vls		cp chalcopyrite
~ graphite			po pyrrhotite
Q Gravel			
Tuffaceous siltstone			

DATE-FOOTAGE | LITHOLOGY | ALTERATION | STRUCTURE | MINERALIZATION | ASSAY/GEOCHEM



file loc. ____

SUMMARY DRILL LOG

PROJECT KAY MINE STATE ARIZONA COUNTY YAVAPAI DRILL HOLE K-15

DATE-FOOTAGE

ASSAY/GEOCHEM

600'

600'

TD 614' 10-3-78

00'

00'

00'

00'

00'

00'

00'

00'

00'

PROJECT Kay Mine (K-15) PROJECT NO. 3293 SUBMITTAL NO. 80-22-25

STATE Az COUNTY _____ QUAD _____ DATE SUBMITTED 7-18-79

SAMPLE NO. 65 TYPE Core GEOLOGIST M. Fellows

STORAGE BOX NO. _____ PAGE 1 OF 2

REMARKS Hg to follow later.

SAMPLE		ppm Cu	ppm Pb	ppm Zn	ppm Ag	ppm Co	ppm Ni	ppm Mn	% Mn				ppb Hg			
K-15		—														
80-90		151	12	84	<1	47	32	805								
90-100		115	10	69	<1	41	30	729								
100-110		123	12	69	<1	38	32	683								
110-120		126	8	70	<1	39	31	788								
120-130		140	14	90	<1	48	37	922								
130-138		123	12	73	1	49	32	854								
138-150		149	22	110	1	60	43		0.12							
150-160		116	24	115	1	57	42		0.14							
160-170		121	16	77	1	46	35	886								
170-180		127	16	74	<1	43	34		0.14							
180-190		158	18	76	<1	47	35	984								
190-200		208	18	81	1	50	36	938								
200-210		174	20	86	1	50	42		0.12							
210-220		123	18	75	<1	44	36	834								
220-230		113	16	83	1	46	39		0.10							
230-240		150	14	72	<1	45	41	913								
240-250		111	14	60	<1	41	38	781								
250-260		126	18	75	<1	44	41	979								
260-270		130	16	76	<1	44	45	881								
270-280		158	20	85	<1	45	33	849								
280-290		129	8	74	<1	40	30	926								
290-300		117	10	78	<1	44	34	944								
300-310		190	18	211	1	68	62		0.19							
310-320		144	6	81	<1	45	38	934								
320-330		103	8	68	<1	43	34	897								
330-340		137	10	76	<1	49	38	929								
340-349		131	8	80	<1	49	40	998								
349-357		109	20	109	1	61	45		0.15				<5			
357-360		151	20	95	1	60	64		0.18				14			
360-370		92	14	60	<1	50	77		0.17				10			
370-377		152	16	78	<1	43	61	867					38			
377-387		162	16	62	1	41	52		0.10				5			
387-389		104	10	107	<1	37	41		0.15				<5			
389-400		93	22	55	1	73	464		0.12				<5			
400-410		130	22	80	1	80	298		0.11							
410-420		119	24	81	<1	77	285		0.11							
420-430		108	20	69	1	68	239		0.11							
430-435		133	20	72	1	67	210		0.12							
435-440		102	24	57	1	75	364		0.12							
440-450		96	22	74	1	82	407		0.10							
450-460		112	34	90	1	85	383		0.13							
460-470		67	30	89	1	88	396		0.14							
470-474		65	22	132	1	73	302		0.16							
474-475		143	26	147	1	59	129		0.20				5			
475-485		123	28	81	1	79	320		0.12				<5			
485-492		160	30	89	1	74	260		0.14				5			
492-504		92	20	88	<1	83	309		0.11				<5			
504-507		290	24	109	1	64	145		0.19				5			
507-510		91	36	398	1	75	186		0.14				19			

EXXON MINERALS CO., USA

SIGNED [signature] DATE 2/7/80