CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

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Graham County

PRELIMINARY GEOLOGIC REPORT ON THE HWR CLAIM GROUP

FT. THOMAS QUADRANGLE, ARIZONA

Introduction

The HWR Claim Group is a continuous block of 50 claims located 35 miles northwest of Safford, Arizona (8 miles north of Fort Thomas) along the west side of the Gila Mountains. The claims are located at the head of Day Mine Wash where altered andesite to monzonite outcrops at the base of the Gila Mountain volcanics (rhyolite to andesite overlain by basalt flows). The area has undergone alteration which grades in a bulls-eye pattern from phyllic, to argillic, to propylitic alteration over a seven square mile area. Abundant casts and staining of iron sulfide mineralization with trace occurrance of copper oxide are found in the claims area. At present, ground is open on all four sides of the HWR claims.

General Geology

Structure -- The controlling structure in the area of interest is the Butte fault, a high angle, normal, south-westerly-dipping fault which borders the west side of the Gila Mountains and is responsible for uplifting the Gila Mountain volcanics and exposing a window of andesite-monzonite at the base. This same structure is believed to be the fault which controlled the emplacement and limits of the Phelps Dodge Discovery north of Safford, as well as Producers Minerals' Peacock Mine ore body, etc. This fault line has been diagrammed by Wilson, et al. on the geologic cross-section 7-B, state maps -- Arizona Bureau of Mines. Cross-faulting at North 50° East (with minor displacement) has broken the area of interest into a series of irregular blocks with a general size of ¼ to ½ mile square.

Lithology -- Two major rock types are exposed in the area of interest -- a layered sequence of volcanic rocks ranging from quartz latite to porphyritic andesite, and plutonic monzonite plugs and dikes. The coarse-grained intrusive rocks are small injection bodies into layered volcanics which are bleached in the vicinity of the intrusions. The above-mentioned sequence is overlain to the east, northeast, and southeast by the younger volcanic series of andesites and basalts (late tertiary) which post-date the older volcanic andesite series, monzonite intrusions, and mineralization. Altered limestone blocks rafted in the younger

volcanic series are noted in the area with in-place limestone sequences exposed about four miles to the northwest and three miles to the southeast. Alluvium and younger andesite flows overlay the altered volcanic and monzonite sequence to the northwest and south.

Alteration and Mineralization

Three alteration zones are evident in the area of interest and form a bulls-eye pattern roughly centered about the Day Mine Windmill (refer to accompanying alteration map). The highest grade of alteration is phyllic, which covers an area roughly two square miles. Surrounding this alteration zone is a zone of argillic alteration which extends about two miles out from the phyllic zone to the north, south, and southwest, which becomes buried under volcanic cover or alluvium in other directions. Weak propylitic alteration is evident to the south and southwest beyond the argillic zone, the limits of which are also masked by alluvial cover. This bulls-eye pattern is strikingly apparent from the air. In addition to a zonal alteration pattern, hydrothermal bleaching is evident along cross-faults and along the trace of the Butte fault, and casts with strong limonite staining and precipitation are evident at several fault intersections.

Frequent iron oxide casts with hematite-limonite staining and weak shows of crysocolla (?) have been noted within the area. Prospects to the east of the area reportedly have had spotty occurrances of calcocite but this has not been confirmed by the writer.

Land Status

Forty claims have been validated and filed at the Graham County Courthouse, Safford, Arizona, with work proceeding on the remaining ten claims. At present ground is open on all sides of the HWR claim group.

Previous Work

The area in question and adjacent areas to the south, south east, southwest, and west were staked in 1965 by Bear Creek Mining Co., who staked in excess of four hundred claims and did extensive shallow drilling (100' validation holes), geophysical, and geochemical surveys in the area covered by the HWR claims. In addition, a 500' hole was drilled on the edge of the property by a firm reportedly under lease agreement to Phelps Dodge Corporation. Two geophysical crews have run surveys over the HWR claims since

Bear Creek dropped their claims, one survey being run in April, 1971, by an unknown survey party from Salt Lake City, two weeks after the HWR claims were first papered.

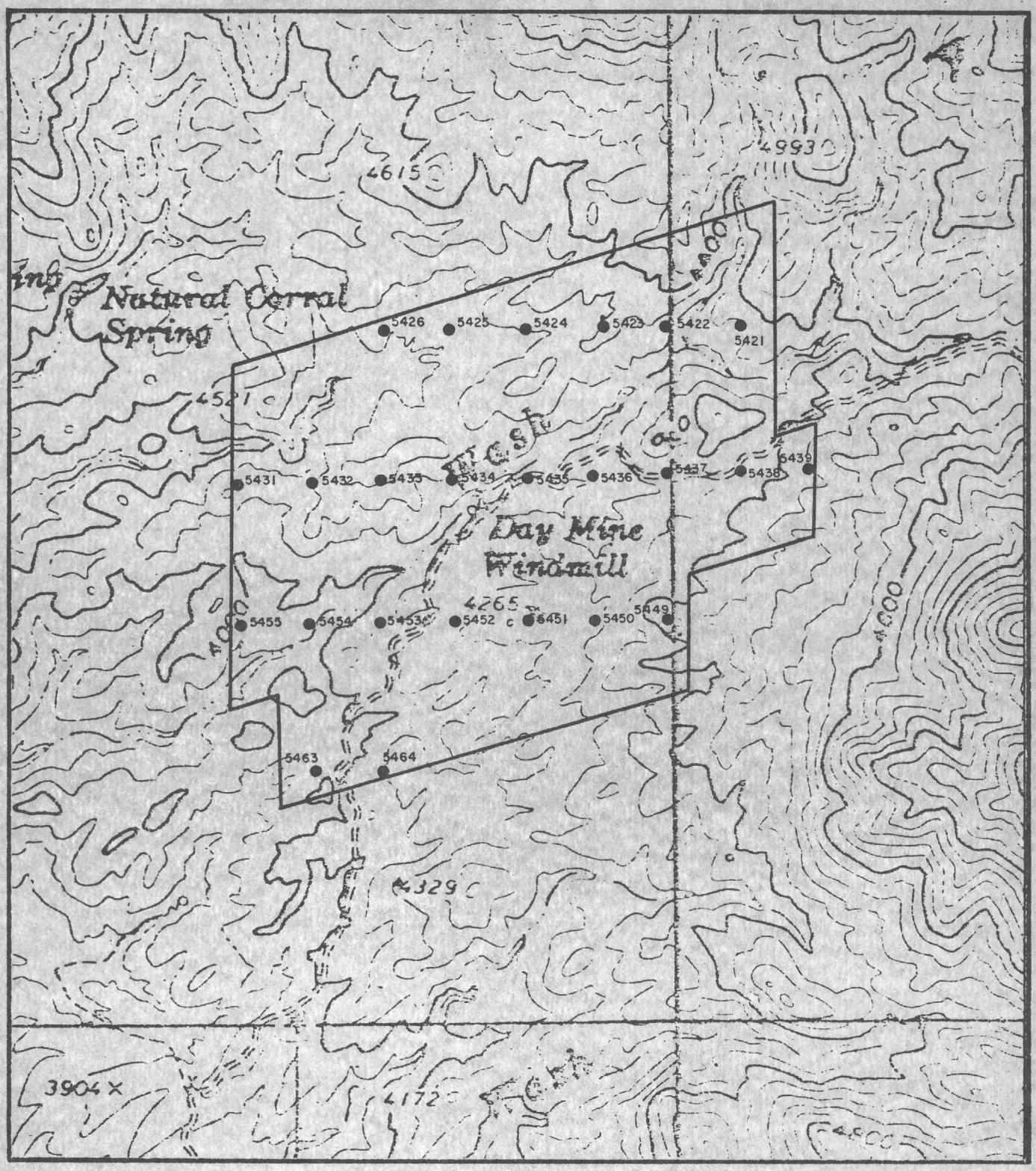
Comparison to Similar Deposits

The HWR claim group has been located in an area where structure, rock types, and alteration zoning indicate an environment occurs which is similar to the environments encountered and presently being developed by Phelps Dodge, Producers Minerals, and Inspiration Consolidated Copper at their respective prospects in the Safford area. Those favorable characteristics include proximity to the Butte fault, on strike with the above-mentioned prospects and mine, monzonite intrusions in latite-andesite host rocks, and phyllic to propylitic alteration zoning. It is believed by the writer that the HWR claim group has the target prerequisite for a potential copper porphyry deposit. The claim group and surrounding land is open for inspection and investigation by your company.

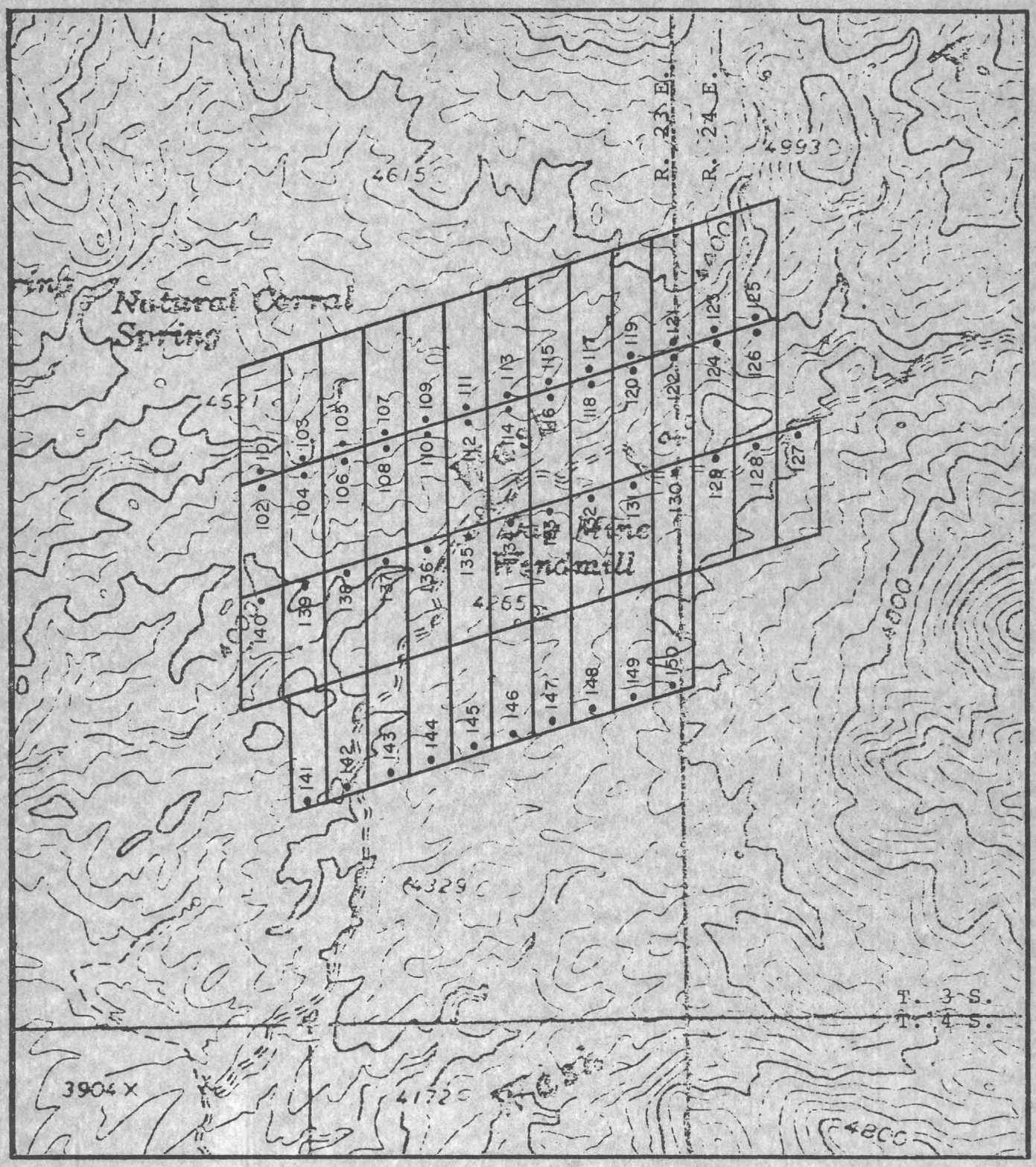
Respectfully submitted,

Lance W. Pape
HWR Claims Group

LWP/dm



AMAX EXPLORATION, INC. TUCSON, ARIZ.	
ROCK CHIP SAMPLE LOCATIONS HWR GROUP	
SCALE: 1" = 2000'	
TO ACCOMPANY REPORT BY:	
DATE:	DRAWN BY:



AMAX EXPLORATION, INC. TUCSON, ARIZ.	
CLAIM MAP HWR GROUP	
SCALE: 1"=2000'	
TO ACCOMPANY REPORT BY:	
DATE:	DRAWN BY:

Form No. 713 Rev. 1-69

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AUG 8 1973

ANALYTICAL REPORT

DATE 8/4/73 AMAX ACCT. NO. 693

ANALYST JHB TUCSON, ARIZONA PROJECT 398

TYPE SAMPLES RX CHIP PULPS REQUESTED BY K.A. LOVSTROM

	Sample	Lab No.	Mo ppm	Cu ppm	Pb ppm	Zn ppm		Fe ~~Sample~~ %	Mn ~~Lab No.~~ ppm	Ni ppm	Co ppm	Ag ppm	
06	21	TV4	<1	17	7	41	36	1.2	700	9	10	.5	
07	22	TV5	<1	4	6	37	37	1.1	400	4	4	.2	
08	23	TV6	1	14	14	28	38	1.9	230	6	5	.3	
09	24	"	<1	7	6	76	39	.71	800	8	7	.4	
10	25	"	<1	9	5	33	40	.79	940	6	7	.5	
11	26	"	<1	11	6	43	41	1.8	680	8	9	.5	
16	31	"	1	25	12	39	46	2.5	430	11	6	.4	
17	32	"	1	14	22	16	47	1.3	250	5	4	.4	
18	33	"	1	14	35	19	48	1.3	240	4	4	.5	
19	34	"	<1	10	20	13	49	.74	200	4	3	<.2	
20	35	"	1	11	20	51	50	2.9	210	5	4	<.2	
21	36	"	1	15	11	56	51	2.4	990	9	9	.2	
22	37	TV4	<1	18	14	59	52	2.0	830	12	13	.3	
23	38	TV5	<1	19	11	59	53	1.9	770	18	14	.3	
24	39	TV6	2	8	12	8	54	1.2	360	5	3	<.2	
04	49	"	1	8	9	29	34	.53	540	5	3	<.2	
05	50	"	1	12	6	45	35	1.4	1000	15	6	<.2	
06	51	"	1	5	18	3	36	.49	310	4	2	<.2	
07	52	"	3	26	18	50	37	2.4	790	19	15	.2	
08	53	"	3	22	28	140	38	2.2	920	9	11	<.2	
09	54	"	1	28	25	110	39	1.9	410	7	6	<.2	
10	55	"	5	14	30	93	40	2.5	550	6	5	.4	
18	63	"	12	14	12	7	48	2.1	400	8	5	<.2	
19	64	"	4	40	16	37	49	1.5	940	13	5	<.2	

METHODS: DIGESTION- $HClO_4 : HNO_3$ SAMPLE WEIGHT- 3.0 gm / 60 ml

DETERMINATION-

REMARKS: Mo -- colorimetric

Cu, Pb, Zn, Fe, Mn, Ni, Co, Ag, high Mo } A.A.

Ken we can't b
out Sr Rb or Cs o
These samples wi
$HClO_4 \cdot HNO_3$ digestio
Wal

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2. R.F. HORSNAIL AT LAKESIDE
3. J.T. AWALD AT LAKESIDE

DFM 012069

2115'- 2116' - 29.0 ± 1.4 m.y.

Supplementary to, section locations, & more concise geologic descriptions.

GEOLOGIC LOG

AMAX EXPLORATION, INC.

TUCSON, ARIZONA

Project Day

Sheet 1 of 26

DRILL HOLE Day #1

COORDINATES _____ N _____ E

DRILL Joy 22 Core Rig

COLLAR ELEVATION ≅4440'

DEPTH OF HOLE ≈2556'

DATE: Started 1/3/74 Completed ____

LOGGED BY: T.A. Schack

1"=20'

DEPTH	CORE REC.	ROCK	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	% ox	METALLIZATION	Estimated Percent qz vns	mo S_2	cpy	py	cc	mag	tot sulf	mo S_2	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS_2	REMARK
0-12	0	No core	Buff to gry dacite porphyry tuff w/ trace FeOx on fracs. and partly disseminated. Mottled sericite texture and 480 flow banding throughout. Eutaxitic fabric quite apparent.	3/10 ft from 0-12' @ 50°-60°		Mod. alt. oxidation, & leaching of Ferromagnesian minerals from	w-m	w	Tr	S			OXIDE ZONE	orange to brn FeOx-MnO_2 on fracs. Possibly some jarosite(?)						Tr							
12-100	99	Dacite porphyry tuff		7/10 ft from 12' to @ 5' 50°-60°		±15% chlor alt of ferromagnesian ... some qtz eyes observed								No sulfides present Tr of magnetite in matrix													
						Weak dusting of plag phenos by sert								FeOx, & MnO_2 decreases on fracs @ 56'													
						on frac (55°) @ 50.2' - Secondary																					
													100														
		Prpl dacite porphyry tuff w/ only Tr FeOx. Sericite-pelitic mottled texture w/ A few small brecciated zones 450 flow banding. Composition on border between dacite and latite. Stubby X-tals of plag imbedded in ... devitrified qtz-kspar matrix. A few tiny very localized Kspar seams are present.	ft. w/ calcite coatings @ 15°, 35°, & 45°			±15% chlor. alt as blebs & segregations. Tr FeOx on fracs only. Scattered partly chloritized Big flakes & hornblende prisms disseminated through matrix.	w	w	Tr	S			w	Tr Tr FeOx & MnO_2 coating fracs N. sulfides. Tr of mag in matrix (?) calc on fracs.	0.5					Tr						10	-1	
						... @ 79' 20° core axis.																					
														Trs of euhedral pyrite scattered along fracs & imbedded in matrix beginning @ 90.0' Trs of calc & (?) jarosite also present.				Tr			Tr							
	95		Weicted dacite tuff-breccia zone from 90 to 100' w/ a few ... inclusion.	1/ft @ 45° & 65°		Calcite on fracs. FeOx coating 20° frac @ 98°																				15	-1	
100'																											

DAY #1

TA5

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	%	% ox	METALLIZATION	Estimated Percent qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	MoS2	REMARKS
100'	100	Dacite Porphyry Tuff (cont.)	Tan dacite porphyry tuff w/ a seriate porphyritic matted texture. Locally a cutaxitic fabric is apparent in groundmass. Composition transitional between dacite & quartz latite. Many x-tals of plag incorporated in lense, devitrified qtz, k-spar matrix. A few tiny recrystallized qtz, k-spar seams present.	1/10'± w/calc coatings @ 35° & 65°		±15% chlorite alt of hornblende & biotite. 2-3% sericite dusting plag phenos. A few scattered qtz & K-spar seams	tr	Tr	tr				tr		FeOx & py content gradually decreasing. Trs of mag observed locally	0.5			Tr		Tr	Tr					
						Calcite amygdules becoming abnt.																				10	1	
169.0			Baked fn grained contact. 60° contact ∠																									
169.0'-200.0'	100	Andesite w/ a 15' latite ppy dike w/ and inclusions. Latite porphyry dike(?)	Dk gry dense, aphanitic, holocrystalline magnetite bearing andesite. Locally includes latite ppy zones w/ andesite inclusions. Flow banding or cutaxitic fabric locally. Up to ½" angular andesite frags found in latite ppy. 45° welded Latite ppy @ contact	1/10' @ 35° & 65° Calc.		10-15% chlorite alt of pyroxene as fine grn, pale green prochlorite 2 to 3% epid. Tr of ser replacing pyroxene phenos. Calcite present along fracs and in amygdules 2 to 5%. 2 to 5% Epid.		Tr		S			W		No sulfides except for scattered traces found in andesitic inclusions. From 5 to 15% magnetite. Magnetite partly oxidized to hematite, primarily along margins of latite ppy.						5-15%							90	2	
200'																												

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Fin	%ox	METALLIZATION	Estimated Percent qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY PPM Cu	MoS2	REMARKS
200'	100	Andesite (cont.)	DK gry dense, aphanitic holocrystalline, magnetite bearing andesite. No flow banding or eutaxitic fabric apparent. Amygdules of calcite-epid abut Fractd zone healed w/ calc filling @ 10' to 20°	1/1 oft -30° calc frac @ 210' 231.2 -calc-epid vn (1/2") @ 45°		5-10% chlor alt of pyroxene as fn grn pale green prochlorite 1-3% epid disseminated throughout the rock. Calcite present along fracs and in amygdules up to 1/4" dia. Calc filled seam @ 10-20° common. Tr of ser dust on partly replaced pyroxene.		Tr		M			W		No sulfides From 5 to 15% magnetite partly oxidized to hematite.						5-15%					50 30	2 2	
			mottled agglomeratic zone w/ complete replacement of mag to hem and pyroxene to prochlorite from 261' to 263'	1/10' @ 45°		15 to 20% chlor 5 to 7% hem. calc filled fract' wdr @ 261'-55°		Tr		S			W		No sulfides 40% mag replaced by hematite						15-20%							
				1/10 ft. -240° calc filled fracs @ 277.8 -45° calc frac -10° frac w/ calc, chlor & hem.		5-10% chlor alt of pyroxene as fn pale green prochlorite 2-5% dissem epid. Abut calcite filled amygdules & along most fracs. Tr of ser. 45° gouge zone w/ chlor & py cubes @ 349.5'		Tr		S			W		Tr of py w/ chlor along fracs. From 5 to 15% magnetite partly oxidized to hematite.				Tr		5-15%	Tr				20 25	1 -1	
300'																												

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Epi	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS_2	REMARKS
300'	100	Andesite (cont.)	Dk gray dense, aphanitic, holocrystalline, magnetite bearing andesite. No flow banding or intersertal fabric apparent. Amygdules of calcite-epid abun.	8/10 ft @ 30°, 55° & 65° w/ calc-epid.		10 to 15% Chlor alt of pyroxene as prochlorite 5 to 7% epid disseminated Hem → mag along fracs	W	Tr		S			W		Pyrite becoming more abun along fracs & gouge zones. 5 to 15% magnetite. Magnetite altered to hematite along fracs.				Tr		5-15%	Tr					
			Faintly agglomeratic textural zone w/ amygdules & frags up to 2" in dia.	1/10 ft of calc filling @ 55° to 65°		Abun gouge-chlor-py in 1" zone. Mag becoming more abun 2 to 5% & wood disseminated as well as along fracs. 2 to 5% Epid in amygdules & disseminated		Tr		S			W		Tr of euhedral pyrite cubes along fracs. Mag as above.				Tr		5-15%	Tr					
				-10° frac @ 263.0 w/ mag & calc.																								
			Aphanitic zone w/ no amygdules. Possibly mixed w/ fusi.																							60	1	
																										55	2	
																										15	1	
400'																										105	1	

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	tr/m	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY Ppm Cu	ASSAY Ppm MoS2	REMARKS
400'	100	Andesite (cont.)	Dk gry dense, aphanitic, holocrystalline, magnetite bearing andesite. No flow banding or eutaxitic fabric apparent.	1/10ft @55°, 75°		5-10% chlorite alt of pyroxene as fn gr, pale grn prochlorite. 1-3% epid. Tr ser flakes on pyroxene phenos.		Tr		5			W		No sulfides observed Alt of mag to hem along fracs.						5-10%							
			Amygdules of calcite-epid. abnt.																									
			Agglomeritic zone w/ lt gry subrounded frags up to 8" dia in dk gry matrix.	1/10ft. @75°																								
						424-430' has secondary K-spar and abnt chlor-epid. Min dy-ser	Tr	Tr		5		W	m		Tr of euhedral py cubes w/ chlor alt. Greatly decreased mag content.				Tr	±2%	Tr						
				40° calc-hem frac @441' 20° frac @443' w/½" calc-epid filling.		2-5% chlor alt of pyroxene as fn gr, pale grn prochlorite ±1% epid. disseminated. Sparse scattered zones of calcite amygdules (1-2%)		Tr		W			W		No sulfides observed Sparse hem as coatings on fracs.					5-15%							
																										95	1	
			Zone of large (up to 7/8") calcite filled amygdules.																							50	2	
				10° frac w/ calc																								
			Brecciated zone w/ lt gry subrounded frags up to 2" dia in dk gry matrix.	1/10ft @10°, & 20°																						105	2	
500'																										450	3	

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	Description	clay	ser	qz	chl	bio	fs	%	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	Mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS_2	REMARKS
						ALTERATION										Estimated Percent												
500'	100	Andesite (cont)	Dk gry, dense, aphanitic, holocrystalline, magnetite bearing andesite. No flow banding or intersitic fabric apparent 10-15% k spar molded around plag crms 40% plag partly altered to sericite. 15% pyroxene as portion of plag matrix No amygdules in this interval	2/10ft 50° frac w/ calc & hem		10-15% chlor as pak gen predominate replacing pyroxene in aphanitic matrix. 1-2% epidote as anhedral disseminated grains. Tr of calc as scattered small patches. Tr of ser replacing pyroxene phenos.		Tr		S			W		No sulfides present ± 5% disseminated hem replacing magnetite.						10-15%							
		Uoggy zone w/ large calc x-tals & hem.		1/10ft @ 30°																								
		TS(1) Andesite																								70	2	
																										45	1	
561.3 C@contact	100	Pebble Conglomerate	Pebble conglomerate w/ subrounded to subangular grs & pbls of perthitic k-spar, qtz, plag, & lithic frags of quartzite, ls., latite, and andesite imbedded in a carbonated & epidotized matrix w/ crude stratification.	1/10ft @ 30° & 50°		15 to 20% epid added to matrix as infilling between grains & disseminated in and, latite, & ls. 7-10% calc w/ epid in matrix 5% chlor as anhedral flakes & disseminated in latite and frags. Tr serdusting plag phenos.		Tr		W			S		No sulfides present 5-10% hem added to matrix						5-10%							
																										10	1	
600'																												

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Fe	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	Mgn	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS2	REMARKS
																Estimated Percent												
600'	100	Pebble Conglomerate (con't)	Pebble conglomerate w/ subrounded to subangular grs & pbls of perthitic K-spar, qtz, plag, & lithic frags of quartzite, ls, latite and andesite imbedded in a carbonated & epidotized matrix w/ crude stratification.	1/10 ft @ 30° ESO°		15 to 20% epid added to matrix as infilling between grains, & disseminated in and, latite, & ls. 7-10% calc w/ epid. in matrix 5% chlor as anhedral flakes & disseminated in latite-andesite frags Tr ser dusting plag phenos.	Tr	Tr		W			S		No sulfides present 5-10% hem added to matrix						5-10%						
		TS(2) Pebble Conglomerate																										
9.5' 50° Recovered 3.5'	100	Andesite	Dense fn grain magnetite bearing andesite.	50° frac w/ epid		10-15% chlor, 5% calc 10% Epid in matrix		Tr		S			M		No sulfides 3-7% weakly hematized magnetite						3-7%							
	100	Rhyolite Tuff breccia	Angular frags of non-porphyritic latite and up to 6" in imbedded in a rhyolitic tuff matrix. 38% devitrified glass intergrown w/ 40% K-spar as bands & fibrous radiating X-tals 15% plag microlites in frags & matrix 40-70% lithic frags	30° frac w/ chlorite 1/20 ft @ 30°		1-4% chlorite as clots in lithic and frags. Tr to 1% epid associated w/ small blebs of calc.		Tr		W			W		1-2% disseminated in lithic frags & admixed w/ calc in matrix Tr of mag-hem as diggen. grs partly assimilated by py.				1-2		Tr	1-2					10	-1
		TS(3) Rhyolite Tuff-Breccia																										
705'																										10	-1	

DAV #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	ALTERATION %	ALTERATION Description	clay	ser	qz	chl	bio	fs	Fe-Mg	% ox	METALLIZATION	Estimated Percent qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sa	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS2	REMARKS
700'	100	Perlitic Rhyolite Tuff-Breccia	Angular frags of aphanitic latite-andesite frags upto 3" dia imbedded in a perlitic rhyolite tuff matrix 40% devitrified glass & K-spar w/ concentric perlitic fractures. 15% plag. intergrown w/ K-spar. Squashed pumice frags becoming evident.	1/30° st. @ 50° & 70°	10%	10% ser replacing plag in perlitic masses 1-4% chlor as clots in lithic and frags Irregular clots of calc in perlitic masses (3%) Tr of fluorite as small sparsely disseminated anhedral grains.		W		W					1-2% euhedral py cubes disseminated throughout rock Tr of mag mostly altered to hem.				1-2		Tr	1-2						
			Faint 40° flow banding @ 750'-754' Glass accumulating into strongly segregated perlitic masses.																							215	5	
		TS(4) Perlitic Rhyolite Tuff																										
																										295	5	
800'																												

DAY #1

TH5

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Fe/O	% ox	METALLIZATION	qz vns	mo ss	cpy	py	cc	mag	tot sulf	mo ss	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS_2	REMARKS
800'	100	Perlitic Rhyolite Tuff-Breccia (cont)	Wh perlitic rhyolite devitrified glass in a mixture of angular glass shards devitrified glass, plag phenos and aphanitic K-spar matrix 40% devitrified glass & glass 45% k-spar intergrown w/ glass 10-15% plag in perlitic intergrowth of glass. Texture is occassionally almost indistinct. Squashed pumice frags 5% of total rock	1/30ft @50°-70°		1-2% pyrite disseminated through rock		Tr		Tr					1-2% euhedral disseminated py cubes Tr of mag-hem grains disseminated through rock				1-2		Tr	1-2						
		TS(5) Perlitic Rhyolite Tuff Breccia																								15	10	
ADDITIONAL FRACT (886')	100	Spherulitic Rhyolite Tuff	60% small anhedral fibrous K-spar X-'s in an aphanitic qtz matrix (20%) 10% very ingrossized plag.	1/10ft w/ calc @30°-30°		1-2% py occasionally replacing mag to completion. Tr calc found in fract & in blebs in matrix Tr of ser on K-spar & QTZ		Tr		Tr					1-2% euhedral py cubes disseminated throughout core Tr of mag grs disseminated in core				1-2		Tr	1-2					15	16	
900'																												

DAY #1

TH5

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Fe	% ox	METALLIZATION	Estimated Percent qz vns	mo qz	cpy	py	cc	mag	tot sulf	mo sa	cu	GRAPHIC LOG	ASSAY Cu	ASSAY MoS_2	REMARKS
900'	100	Spherulitic Rhyolite tuff (cont)	60% small anhedral fibrous K-spar X-tals in an aphanitic qtz matrix (25%) 1-2% very fn grained plag. in matrix	1/10ft @30°-50°		1-2% py occasionally replacing mag to completion. 1% calc found in fracs & in blebs in matrix Tr of ser on K-spar & qtz.		Tr		Tr					1-2% euhedral py cubes disseminated throughout core Tr of mag gra disseminated in core				1-2		Tr	1-2						
				-30° qtz calc filled frac.											microvnlts of qtz cut through frags from 920'-940', & 955'-960'													
		-TS(6) Spherulitic Rhyolite Tuff																										
			welded rhyolite tuff zone w/ eutaxitic texture. Aint rounded to subrounded pumice frags.			±1% chlor blebs w/ abnt py.		Tr		Tr-W																		
1000'																												

DAY #1

TA5

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Fe	% ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY FPM Cu	ASSAY FPM MoS_2	REMARKS
1000'	100	Spherulitic Rhyolite tuff (cont.)	60% small anhedral fibrous K-spar x-tals in an aphanitic qtz matrix (25%) 10% very fn grained plag in matrix.	<1/10 ft @ 20° & 30°		Tr of chlor & ser in sparse widely scattered lithic frags &		Tr		Tr					1-2% euhedral py cubes in frags & disseminated throughout matrix Tr of mag gre disseminated in core				1-2		Tr	1-2						
			Zone of abnt rounded to subrounded pumice frags up to 1" dia.																									
																										15	6	
CARBONAL intrusive (1051')	100	Rhyolite Tuff-Breccia	Microgranular to cryptogranular pumice & glass frags imbedded in a coarse grained microgranular, hematite stained K-spar matrix Flow banding is apparent in the lithic frags. Hylite glassy rims are present on some frags. 20% fn grained plag in groundmass.	<1/10 ft @ 10°-30°		Tr-3% chlor confined mostly to lithic frags. Tr of anhedral flourite grains imbedded in lithic frags. 3% calc in blebs of lithic frags.				W			Tr		2-3% euhedral py cubes disseminated in matrix & lithic frags. Tr of mag left not sulfadized to py. Tr of hem after mag				2-3		Tr	2-3						
		TS(?) Rhyolite Tuff Breccia																								10	12	
1100'																												

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Fe	% ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS2	REMARKS
1100'	100	Rhyolite Tuff-Breccia	Microgranular to cryptogranular pumice & glass frags imbedded in a coarse grained & microgranular, hematite stained K-spar matrix. Flow banding is apparent in lithic frags. Perlitic, glassy rims are present on some frags. 20% fn grained plag in groundmass.	<1/10ft @10°-30°		Tr-3% chlor confined mostly to lithic frags. Tr of anhedral fluorite grains imbedded in lithic frags, 3% calc in webs of lithic frags				w			Tr		2-3% euhedral py cubes disseminated in matrix & lithic frags. Tr of mag left not sulfadized to py. Tr of hem after mag.				2-3		Tr	2-3					
55°∠@ Contact (1109.3)	100	Andesite.	Aphanitic, holocrystalline andesite. 15-25% K-spar groundmass, 30-35% plag, 10-15% pyroxene	<1/10ft.		10-15% chlor as flakes & blebs up to 1" dia. Replaces plag, Bio, & pyroxene. 7% epid replacing pyroxene & plag along w/ calc.			Tr	s			m		Abnt distribution of fn grained unoxidized mag in matrix. 2-3% euhedral py cubes disseminated in matrix and lithic frags.				2-3		10-15	2-3					
		-TS(8) Andesite		-5° calc filled frac																								
8' 25° contact																												
2.5' 25° contact	100	welded Rhyolite -TS(9) tuff (welded?)	Eutaxitic, welded, matrix enclosing aze of K-spar bands & flattened & flaped vesicles	0/10ft.		10-15% epidote, 1-2% chlor. Trs of calc & tourmaline.				w			s		Tr of mag sparsely disseminated. 2-3% py in matrix				2-3		Tr	2-3					
		Andesite-latite breccia	15-20% K-spar around plag, 35-40% plag strongly chloritized, 25-30% hx evenly disseminated. Flow texture absent. Angular frags of latite up to 3" dia. embedded in andesitic matrix. Matrix & frags cut by abnt calc-epid-chlor veins. Plag locally replaced by K-spar.	1/10ft @20° & 40°		10-15% chlor dissem in matrix, replacing pyroxene, & along veins w/ calc & epid. 1-2% blebs of epid along calc-chlor veins. 3% calc along veins.				s			w		Abnt distribution of fn grained mag unoxidized, except along veins. 2-3% euhedral py & tr of cpy disseminated in matrix & lithic frags.			Tr	2-3		7-12	2-3				70	2	
1200'																										35	2	

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Eh	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	Mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS2	REMARKS
1200'	100	Andesite-latite breccia	15-20% K-spar around plag, 35-40% plag, strongly chloritized, 3-5% rutile evenly disseminated. Flow texture absent. Angular frags of latite up to 3" dia. embedded in andesitic matrix. Matrix & frags cut by abnt calc-epid-chlor vnlts. Plag locally replaced by K-spar.	1/10ft @20° & 40°		10-15% chlor dissem in matrix, replacing pyroxene, & along vnlts w/ calc & epid. 1-2% blebs of epid along calc-chlor vnlts. 3% calc along vnlts.				S			W		Abnt distribution of fn grained mag unoxidized, except along vnlts. 2-3% euhedral py & tr of cpy disseminated in matrix & lithic frags.			Tr	2-3		7-12	2-3		Tr			
																										20	2	
		TS(10) Andesite-Latite Breccia				Becoming more flooded with calc vnlts @ 30°. No amygdales.																						
				30° frac w/ abnt calc @ 1283'																						10	1	
1300'																												

DAY #1

TAC

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Eo	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sa	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS_2	REMARKS
																Estimated Percent												
1300'	100	Andesite-latite breccia	Andesitic frags up to 3" dia embedded in a matrix of latitic composition w/ aphanitic texture. Texture is nonautoxitic 40-50% plag phenos in both latite & andesite partly replaced by chlor, epid, & calc. 15-20% fn grained K-spar in latitic matrix. Tr of qtz & rutile X-tals.	<1/10ft.		Abnt chlor (15 to 20%) replacing plag & mafics. 5% epidote & 10% calc flooding & replacing K-spar & plag. Closely associated in time & space.			Tr	S			m		Mod amts of dissem unoxidized mag crystals dissem. throughout. 2-3% euhedral py cubes dissem or concentrated in chlor-calc blebs. Tr of dissem cpy.			Tr	2-3		1-12	2-3		Tr			
						10-15% chlor, 2-4% epid, 6% calc.				S			w												60	1	
		TS(11) Andesite-Latite Breccia																										
						1370'-1372' vuggy zone w/ abnt calc filling vugs																						
						3-7% chlor, ±1% epid, ±3% calc.				m			w												15	3	
400'																												

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	ALTERATION %	Description	clay	ser	qz	chl	bio	fs	E %	METALLIZATION %ox		qz vns	mo qz	cpy	py	cc	mag	tot sulf	mo qz	cu	GRAPHIC LOG	ASSAY ppm Cu	MoS2	REMARKS
																Estimated Percent												
1400.0'-1445.0'	100	Andesite-latite breccia	Andesitic frags up to 3" dia embedded in a matrix of latitic composition w/ an aphanitic texture. is Nonentaxitic. 40-50% plag phenos in both latite & andesite partly replaced by chlor, epid & calc 15-20% fn grained K-spar in latitic matrix Trs of qtz & rutile x-tals.	<1/10ft.		Mod chlor (5-12%) replacing plag & matics <5% epid & calc flooding or replacing K-spar & plag. Closely associated in time & space.			Tr	m			W		Mod amts of small grains unoxidized mag crystals dissem. throughout. 2-3% euhedral py cubes dissem or concentrated in chlor-calc blebs. Tr of dissem cpy			Tr	2-3		7-12	2-3		Tr			
1445.0'-1462.0'	100	Andesite	Dk grey aphanitic andesite. weak entaxitic fabric defined by amygdaloidal elongation. Local fracs filled w/ chlor-calc-epid. 45-55% plag phenos partly replaced by chlor-epid-calc 15-25% K-spar as fn grn intergrowth in matrix 15% partly epidotized pyroxene. Tr of anhedral qtz w/ epid.	<1/10ft.		About epid (7-12%) as blebs or amygdules w/ chlor & calc. 5-10% chlor w/ epid & calc 1-2% calc as frac fillings or w/ chlor-epid Tr. of clay in amygdules.	Tr		Tr	m			S		1-3% mag unoxidized & dissem throughout. 2-3% euhedral py cubes disseminated throughout. No visible cu.				2-3		1-3	2-3				70	3
1462.0'-1473.9'	100	TS(12) Andesite Andesite-latite breccia	Andesitic frags up to 3" dia embedded in a matrix of latitic comp. Aphanitic texture. 40-50% plag, 15-20% K-spar Trs of	2/10ft @ 1468' (35°) & 1473' (20°) w/ calc.		Strong chlor (10-15%) replacing plag & matics ±10% epid-calc flooding or replacing K-spar & plag Close space-time association			Tr	S			m		3-7% disseminated unoxidized mag X-tals throughout. 2-3% euhedral py cubes dissem or concentrated in chlor-calc blebs. No cu visible.				2-3		3-7	2-3					
1473.9'-1639.8'	100	Andesite	Dk grey aphanitic andesite weak entaxitic fabric defined by amygdaloidal elongation Local fracs filled w/ chlor-calc-epid. 45-55% plag phenos partly replaced by chlor-epid-calc 15-25% K-spar as fn grn intergrowth in matrix 15% partly epidotized pyroxene Tr of anhedral qtz w/ epid.	<1/10ft		About epid (7-12%) as blebs or amygdules w/ chlor & calc. 5-10% chlor w/ epid, & calc. 1-2% calc as frac fillings or w/ chlor-epid Tr. of clay in amygdules	Tr		Tr	m			S		About mag-10-15% unoxidized & dissem throughout. 2-3% v. fn. euhedral py cubes dissem. throughout. No visible cu.				2-3		10-15	2-3				50	1
1500'																												

DAY #1

TPS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	% ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	MAG	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS_2	REMARKS
1500'	100	Andesite.	Dk gry, aphanitic to fn. grained andesite w/ portions of the groundmass replaced by chlor-epid-calc. 50-60% plag partly replaced by patches of epid-chlor. 10-20% pyroxene forming an epidotized matrix around plag phenos. Locally bleached & mottled appearance common.	1/10 ft @ 30°		7-10% epid as clots & blebs associated w/ chlor-calc. 5-8% chlor associated w/ calc-epid. Some pyroxene & plag replaced. 1-3% calc either in amygdules or along fracs. All mafic silicates have been replaced.				m			m		Abnt mag (10-15%) unoxidized & disseminated throughout. 2-3% euhedral py cubes dissem throughout. No visible Cu.				2-3		10-15	2-3					
		TS(13) Andesite																							55	2	
						5-8% epid 8-12% chlor ±1% calc.				s			m														
						3-5% epid 2-3% chlor Tr calc.				w			w												15	2	
1600'																											

DAY #1

THS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	FeO_3	%ox	METALLIZATION	Estimated Percent qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS_2	REMARKS
1600'	100	Andesite	Dk gry aphanitic to fn grained andesite w/ portions of the groundmass replaced by chlor-epid-calc 50-60% plag partly replaced by patches of epid-chlor, 10-20% pyroxene forming an epidotized matrix around plag phenos. Locally bleached & mottled appearance common.	3/10 ft. @ 30° w/calc.		3-5% epid 2-3% chlor Tr calc.				w			w		Abut mag (10-15%) unoxidized & disseminated throughout 2-3% euhedral py cubes dissem throughout. No visible Cu.				2-3		10-15	2-3						
						7-10% epid as clots & blebs associated w/ calc-chlor 5-8% chlor associated w/ calc-epid Some pyroxene & plag replaced 1-3% calc either in amygdules or along fracs. All mafic silicates have been replaced.				m			m														
				1639.0' 30° frac, w/ abnt calc																								
9.8'-1663.6'	100	Latite porphyry -TS(14) Latite Porphyry	Lt gry latite porphyry moderately propylitized with chlor, calc, & epid at the expense of pyroxene & plag 25-35% K-spar flooding groundmass. 40-50% plag w/ phenos weakly to moderately propylitized, 5-15% pyroxene strongly altered by calc-epid.	3/10 ft. @ 20° & 30°		5-7% epid as clots & blebs associated w/ calc-chlor 3-5% chlor as clots & blebs replacing pyroxene 3% calc flooding matrix & replacing plag & pyroxene Sunburts of tourmaline scattered throughout				w			m		Wk mag (2-5%) unoxidized & disseminated throughout. Tr of py as widely scattered x-tals. No visible Cu.				Tr		2-5	Tr					20	2	
663.6'-1777.7'	100	Andesite	Dk gry aphanitic to fn grained andesite. Crude indications of flow fabric. Moderately to strongly propylitized. Chlor-epid-cal replace hornblende & plag 35-45% plag weakly altered by cly-ser or calc-epid. 5-15% in K-spar in matrix or replacing plag. 10-20% pyroxene well epidotized.	6/10 ft. Abut microfrac		5-10% epid replacing mafics & plag partly 7-12% chlor as large flakes or in blebs & clots w/ epid 1-3% calc replacing plag. & strongly associated w/ chlor-epid 1-2% clay-ser desting plag phenos	Tr	W		S			m		Abut mag (15-20%) partly oxidized to hematite 3-6% dissem py with no cpy association.				3-6		15-20	3-6					40	7	
				1678.0' 20° frac w/ calc-epid.																								
1700'																												

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Epi	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY Cu	ASSAY MoS2	REMARKS
																Estimated Percent										PPM		
1700'	100	Andesite	Dk gry aphanitic to fn grained. Crude indications of flow fabric. Moderately to strongly propylitized. Chlor-epid-calc replace horneblende & plag. 35-45% plag weakly altered by cly-ser or calc-epid. 5-15% fn K-spar in matrix or replacing plag. 10-20% pyroxene well epidotized.	6/10 ft.		5-10% epid replacing matics & plag partly. 7-12% chlor as large flakes or in blebs & clots w/ epid. 1-3% calc replacing plag & strongly associated w/ chlor-epid. 1-2% clay-ser dusting plag phenos.	Tr	W		S			M		Abnt mag (15-20%) partly oxidized to hematite. 3-6% dissem py with no cpy association.				3-6		15-20	3-6					
				3 30° calc fracs																								
				1" qtz vn @ 30° w/ chlor gouge																								
		TS(15) Andesite																										
				20° frac w/ calc-epid																								
		24.1±1.2 m.y. o age date																								50	3	
				5° frac w/ calc.																								1741-1742 DEL DATE 24.1±1.2 my
7-89.0	100	Feldspathic quartzite	Poly sorted, ang to subrounded qtz grains in a K-spar matrix. Qtz grains up to 1/2" dia in matrix	6/10 ft @ 5° & 35°		5-7% clay-sericite as flakes or works around qtz & K-spar grains. Trs of hematite, calcite, tourmaline, and leucoxene.	W	W							Traces of hematite in matrix after mag. Only tr of mag. 3-6% py between qtz grains & in frags			3-6		Tr	3-6						
.0-00.0' 8.00'	100	Greywacke	Angular to rounded grains of qtz, K-spar, & plag in silty, iron-stained matrix of qtz, plag, K-spar, & mag. Frags of qtz-st, andesite, arkose, latite, & chert are common.	6/10 ft @ 5 & 30°		3-5% chlor fills fracs & replaces plag. 3-5% epid replaces plag. 5-7% calc replaces plag & along vn lts. 1-2% set associated w/ calc & chlor.		W		W		W			W/K plag development (1-2%). 3-6% py between qtz grains & in frags. minor amts of FeOx found coating fracs.			3-6		1-2	3-6				215	8	
		TS(16) Greywacke																										

Dilly #1

TTS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Sp	%ox	METALLIZATION	Estimated Percent qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	MoS2	REMARKS
1800'-1804.0'	100	TS(17) Feldspathic qtzt.	Poorly sorted angulate subrounded qtz grains in a fk-spar matrix. qtz grains up to 1/2" dia in matrix	6/10ft @5° & 30°		5-7% clay - sericite. Trs of hematite, calcite, tourmaline, & leucoxene	W	W							Traces of hematite in matrix attending 3-6% py in qtz grains & in frags.				3-6		Tr	3-6						
1804.0'-1816.0'	100	Greywacke TS(18) Greywacke	Angular to rounded grains of qtz, k-spar, & plag in silty iron-stained matrix of qtz, plag, k-spar, & mag. Frags of qtzt, andesite, arkose, latite, & chert are common.	6/10ft @5° & 30°		1-2% chlor fills fracs & replaces plag. Trs of tourmaline, calcite, biotite, & sericite found along calc-qtz veins or dusting ind grains		Tr		W	Tr				Wk mag development (±1%). 3-6% py between qtz grains & in frags.				3-6		1-2	3-6						
1816.0'-1921.5	100	Latite-Andesite Breccia	Dk gry andesitic frags embedded in matrix of latitic-andesitic composition. Partly collapsed or entaxitic amygdules filled w/ chlor-calc are present locally. Microveinlets common filled w/ calc-sericite-epid. Texture mottled	<4/10ft		5-10% chlor as flakes replacing pyroxene in andesitic frags. 2-6% epid in blebs & clots w/ chlor-calc replacing plag. 5% calc flooding rock & replacing k-spar. Trs of qtz as tiny grains & microfissure fillings.			Tr	M			W		Trs of cpy & 1-3% py concentrated in propylitized and frags. 2-5% disseminated mag. Abnt units of FeOx found along some fracs (? possibly hematite-goethite)			Tr	1-3		2-5	1-3		Tr		10	7	
		TS(19) Latite-Andesite Breccia																								10	3	
1900'																												

DHY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Fe_2	% ox	METALLIZATION	qz vns	mo qz	cpy	py	cc	mag	tot sulf	mo qz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS_2	REMARKS
1900.0' – 1921.5'	100	Latite-andesite breccia	Dk gry andesitic frags embedded in matrix of latitic-andesitic composition. Partly collapsed or euhavitic amygdules filled w/ calc-chlor are present locally. Microvnlts are common & are filled w/ calc-qtz-epid. Texture mottled.	<4/10ft. @ 5°-30°		5-10% chlor as flakes replacing pyroxene in andesitic frags 2-6% epid in blebs & clots w/ chlor-calc replacing plag. 5% calc flooding rock & replacing K-spar. Trs of qtz as tiny grains & microfissure fillings.			Tr	M			W		Tr of cpy & 1-3% py concentrated in propylitized and. frags. 2-5% disseminated mag.			Tr	1-3		2-5	1-3		Tr			
1921.5' – 1974.0'	100	Andesite	Dk gry dense aphanitic andesite. Rock is well propylitized. No flow structure visible. Now calc replaces plag & floods matrix giving rise to mottled texture.	<1/10 ft @ 10°-30°		7-12% chlor flooding entire groundmass 10-15% calc as blebs & clots <1/2" dia replacing much of plag. 1-2% epid associated w/ chlor & calc. No visible tourmaline				S			Tr		Abnt iron sprinkled between plag phenos. No visible hematite. 3-6% pyrite in and frags. Tr of cpy present.			Tr	3-6		5-10	3-6		Tr			
		TS(20) Andesite																								30	3	
1974.0'																												
1976.0'		TS(21) Graywacke	Sam: as for 1787.0-1800.0 & 1804.0-1812.0	<1/10ft		5% chlor. Trs of chl-tourmaline	Tr			M					Tr of mag 3-6% py & Tr of sph			Tr	3-6		Tr	3-6		Tr			
		Andesite agglomerate	Angular and frags embedded in a dense aphanitic plag & K-spar matrix. Mottled texture due to calcite flooding matrix & selectively replacing plag. Also due in part to presence of large sunbursts of tourmaline. microvnlts are filled w/ mag & calc.	3' chlor-gouge zone; <1/10 ft @ 10°-30°		10-15% chlor as flakes & clots in angular frags. Trs of epid replacing plagioclase & dispersed unevenly throughout rock. 10% tourmaline & 15% calcite responsible for mottled texture.				S			Tr		2-5% mag w/ minor amts of hem. Trs of py & cpy.			Tr	Tr		2-5	Tr		Tr			
		TS(22) Andesite agglomerate		3/10ft @ 15° & 30°																						5	1	
2000'																												

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	cht	bio	fs	Fe	% ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sa	cu	GRAPHIC LOG	ASSAY Cu (ppm)	ASSAY MoS2 (ppm)	REMARKS
2000	100	Andesite agglomerate.	Angular to subangular andesite & latite fragments embedded in fg grained dense lt. gry matrix of oligocene andesite X-tals. Faint flow banding is apparent locally. V. large & abnt cumulusts of tourmaline are present throughout. 60-70% plag as mat'lake intergrow ths. w/ latite & andesite frags embedded dk k-spar 15-20% k-spar. No veins were observed. 2-5% rutile is disseminated throughout matrix.	3/10ft @15° & 35° w/calc & gouge zones.		5-10% tourmaline as deuteric(?) large bursts up to ½" dia. 3-7% chlor as flakes, clots, & blebs up to 1" dia w/ minor amts of clay alt & trs of atz. Clay alt appears in form of kaolinite-montmorillonite patches (<10%) replacing plag. All biotite has gone to chlor.	W		Tr	M			Tr		2 to 5% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally.			Tr	Tr		2-5	Tr		Tr		100	10
		TS(23) Andesite Agglomerate																										
		Andesite-Latite Agglomerate.	Lithic and-lat frags w/ strong flow banding & contortions embedded in dk, dense, latitic to andesitic matrix. Chalcedony & plag veinlets are present locally cutting veins of atz & epid.	2-4/10ft @10° & 30°		3-7% chlor as flakes & clots up to 1" dia. w/ replaces plag along w/ trs of clay-sericite & epidote (1-3%). Trs of bio, tourmaline, fatz locally	Tr	Tr	Tr	M	Tr		W		2 to 5% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally.			Tr	Tr		2-5	Tr		Tr		10	5
2100'		TS(24) Andesite-Latite Agglomerate																Tr	Tr		1-2	Tr		Tr				

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Kspar	% ox	METALLIZATION	Estimated Percent qz vns	mo sz	cpy	py	cc	Mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY PPM Cu	MoS2	REMARKS
2100-2141.0	100	Latite porphyry TS(25) Latite porphyry 290±1 A.m.y.o. age TS(26) Latite Porphyry TS(27) Latite Porphyry TS(28) Latite Porphyry	Seriate to porphyritic w/ andesine & plag phenos imbedded in an aphanitic matrix composed of K-spar, chlor, & plag. Flow banding is also present. Trs of tourmaline are present along unaltered microvesicles. Rock averages 40-50% K-spar, 30-40% plag, 3-5% calc intergrown w/ K-spar, 1-2% rutile, & trs of apatite, zircon, & bio.	<1/10 ft @ 10° to 20° w/ calc & chlor fill		10-15% chlor alt of plag as flakes, & clots intergrown w/ K-spar. 1-2% epid as scattered disseminations or as clots in association w/ chlor-calc. 2-3% calc commonly associated w/ bursts of tourmaline. 1-2% tourmaline as clots & bursts w/ calc-chlor. 2-5% ser replacing plag as mat-like masses. Tr of kaolinite-montmorillonite.	Tr	W	W	S	Tr		W		1-2% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally. py:cpy=20:<1			Tr	Tr		1-2	Tr		Tr				2115'-2116' Rock date 290±1.4 my
2141.0'-2150.0'	100	Latite tuff-breccia (Lithic tuff)	Plag & K-spar phenos imbedded in dense aphanitic flow-banded matrix of K-spar & devitrified welded glass. Rock is 55-65% K-spar & glass, 20-30% plag phenos up to 3/8" dia, 3-7% free qtz, & 1-2% rutile	<1/10 ft @ 10° to 20° w/ calc & chlor fill.		2-5% chlor & 1-2% calc replacing bio & plag. 2-3% ser replacing plag Trs of qtz & clay	Tr	W	Tr	W					1-2% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally. py:cpy=10:<1			Tr	Tr		1-2	Tr		Tr		15	8	
2150.0'-2180.0'	100	TS(29) Latite tuff Latite Porphyry TS(30) Latite Porphyry TS(31) Latite Porphyry	Porphyritic plag phenos up to 1/4" dia imbedded in aphanitic, dense K-spar rich, matrix. Pseudomorphs of hornblende are observed locally. No flow banded zone are apparent. Tourmaline confined to clots surrounded by chlor-calc. Rocks averages 40-50% K-spar, 30-40% plag, 3-5% qtz, 1-2% rutile, & trs of apatite & zircon qtz fills scattered microfractures	<1/10 ft @ 10° to 20° w/ calc & chlor fill		10-15% chlor alt of plag as flakes, & clots intergrown w/ K-spar. 1-2% epid as scattered disseminations or as clots in association w/ chlor-calc. 1-2% calc commonly associated w/ clots of tourmaline. Tr to 1% tourmaline as isolated clots. Tr to 1% ser replacing plag phenos. Trs of clays.	Tr	W	W	S			W		1-2% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally. py:cpy=20:<1			Tr	Tr		1-2	Tr		Tr				
2180'-2233.0'	100	Latite tuff-breccia (Lithic tuff)	Plag & K-spar phenos imbedded in dense, aphanitic, flow-banded matrix of K-spar & glass. Eutaxic fabric is apparent in glassy matrix. 55-65% of rock is K-spar & devitrified glass, 20 to 30% is plag phenos up to 3/8" dia, 5-7% free qtz, & 1-2% rutile. No vuggs were observed.	<1/10 ft @ 10° to 20° w/ calc & chlor fill.		2-5% chlor replacing bio & plag. 2-3% ser replacing plag phenos & plag in frags. 1-2% calc replacing bio & plag. Trs of qtz & clays.	Tr	W	Tr	W					1-2% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally. py:cpy=20:<1			Tr	Tr		1-2	Tr		Tr		10	7	
200'																												

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Ep	% ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	Mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS2	REMARKS
2200'-2233.8'	100	TS(32) Latite tuff breccia (Lithic Tuff)	Plag & K-spar phenos imbedded in dense aphanitic flow-banded matrix of K-spar & devitrified, welded glass. 55-65% of rock is K-spar & devitrified glass, 20-30% is plag phenos up to 3/8" dia., 5-7% free qtz, & 1-2% rutile. No vuggs were observed.	<1/10 ft @ 10° to 20° w/calc & chlor fill		2-5% chlor replacing bio & plag. 2-3% ser replacing plag phenos & plag lin frags. 1-2% calc replacing bio & plag. Trs of qtz & clays.	Tr	W	Tr	W					1-2% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally.			Tr	Tr		1-2	Tr		Tr				
2233.0'-2253.8'	100	Latite porphyry TS(33) Latite Porphyry	Seriate to porphyritic texture w/ andesine phenos up to 1/4" dia in an aphanitic, dense, weakly flow-banded matrix composed mostly of K-spar. 40-50% K-spar as fg granular groundmass material. Intergran w/ 3-7% qtz. 30% plag phenos. Trs of tourmaline, zircon, & apatite. No vuggs noted.	<1/10 ft @ 10° to 20° w/calc & chlor fill.		5-10% chlor replacing plag & bio to near completion. 1-2% calc, as clots associated w/ bio & trs of tourmaline. Trs of ser dusting plag phenos.		Tr		m					1-2% mag as disseminated grains. Mag is unoxidized. Trs of disseminated py & cpy were observed locally.			Tr	Tr		1-2	Tr		Tr		10	1	
2253.0'-2291.2'	100	Latite tuff breccia (lithic tuff).	Plag & K-spar phenos imbedded in dense aphanitic flow-banded matrix of K-spar & devitrified, welded glass. 55-65% of rock is K-spar & devitrified glass, 20-30% is plag phenos up to 3/8" dia., 5-7% free qtz, & 1-2% rutile. Microvuggs filled w/ calc or qtz were noted locally.	<1/10 ft @ 10° to 20° w/calc & chlor fill		2-5% chlor replacing bio & plag. 2-3% ser replacing plag phenos & plag lin frags. 1-2% calc replacing bio & plag. Trs of qtz & clays.	Tr	W	Tr	W					1-2% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally.			Tr	Tr		1-2	Tr		Tr				
2291.2'-2523.0' 2300'	100	TS(34) Latite ppy breccia Latite Porphyry Breccia	Seriate to porphyritic w/ plag phenos up to 1/4" dia in an aphanitic, weakly flow-banded, K-spar rich matrix. Microvuggs w/ calc or qtz filling becoming abdt.	<1/10 ft @ 10° to 20° w/calc & chlor fill		5-10% chlor replacing plag & bio. 1-3% calc. Tr of ser & tourmaline.		Tr	Tr	m					1-2% mag as disseminated grains. Mag essentially unoxidized. Trs of disseminated py & cpy were observed locally.			Tr	Tr		1-2	Tr		Tr		10	7	

DHY#1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	Fe	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo sz	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS2	REMARKS
2300'-2400'	100	Latite porphyry breccia	Fragments of andesine (weakly propilitized.) & up to 1/4" dia phenocrysts imbedded in dense, course grained, locally flowbanded matrix composed of K-spar & devitrified glass. Groundmass is more plag-rich than in prior descriptions. Rock is 40-50% K-spar 30-40% plag, 3-5% free qtz. & contains minor amts of rutile & apatite.	<1% of ft @ 10% to 20' w/ calc & chlor fill		5-10% chlor replacing plag & bio primarily in frags. 2-5% calc in fracs & as clots associated w/ tourmaline & chlor. Tr of ser dusting plag phenos. Tr of tourmaline in clots w/ plag, chlor, & calc.		Tr		m					1-2% mag as disseminated grains mag essentially unoxidized. Trs of disseminated py & cpy were observed locally			Tr	Tr		1-2	Tr		Tr			
																										15	8	
		TS(35) Latite porphyry Breccia																								10	10	
2400'																												

DAY #1

TAS

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	mag	tot sulf	mo ss	cu	GRAPHIC LOG	ASSAY ppm Cu	ASSAY ppm MoS_2	REMARKS
															Estimated Percent												
2400'	100	Latite porphyry breccia.	Fragments of andesine (weakly propylitized) & up to 1/4" dia plag phenos imbedded in dense, course grained, locally flow-banded matrix composed of K-spar & devitrified glass. Groundmass is more plag-rich than in prior descriptions. Rock is 40-50% K-spar, 30-40% plag, 3-5% free qtz., & contains minor amts. of rutile & apatite.	4/1 ott @ 10°to 20° w/ calc & chlor fill.		5-10% chlor replacing plag & bio primarily in frags. 2-5% calc in frags & as clots associated w/ tourmaline & chlor. Tr of ser dusting plag phenos. Tr of tourmaline in clots w/ plag, chlor, & calc.		Tr		m				1-2% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally.			Tr	Tr			Tr		Tr			
																									15	5	
																									10	3	
2500'																											

DHY #1

TAS.

DEPTH	CORE REC.	ROCK 1"=20'	ROCK DESCRIPTION	Fract.	%	ALTERATION Description	clay	ser	qz	chl	bio	fs	KB	%ox	METALLIZATION	qz vns	mo sz	cpy	py	cc	Mag	tot sulf	mo sa	cu	GRAPHIC LOG	ASSAY Cu (ppm)	ASSAY MoS2 (ppm)	REMARKS
2500'-2523.0'	100	Latite porphyry breccia	Fragments of andesite (weakly propylitized) up to 1/4" dia plag phenos imbedded in a dense, course grained, locally flow-banded matrix composed of k-spar & devitrified glass. Groundmass is more plag-rich than in prior descriptions. Rock is 40-50% K-spar, 30-40% plag, 3-5% free qtz, & contains minor amts of rutile & apatite.	<1/10ft @ 10° to 20° w/calc & chlor fill		5-10% chlor replacing plag & bio primarily in frags. 2-5% calc in frags & as clots associated w/ tourmaline & chlor. Tr of ser dusting plag phenos. Tr of tourmaline in clots w/ plag, chlor, & calc.		Tr		m					1-2% mag as disseminated grains partly oxidized to hem. Trs of disseminated py & cpy were observed locally.			Tr	Tr		1-2	Tr		Tr			
2523.0'-2543.0'	100	Latite porphyry	Blocky plag phenos up to 1/4" dia embedded in a dense, aphanitic, groundmass. microvuls are present filled w/ calc or qtz. 40-50% K-spar; aphanitic to fn grained forming groundmass 30-40% plag phenos, 7% free qtz interstitial w/ K-spar. Minor amts of apatite, rutile & zircon are scattered throughout	<1/10ft @ 10° to 20° w/calc & chlor fill.		4-6% chlor replacing bio & plag as clots & flakes in groundmass. ±1% ser dusting plag phenos & bio flakes. 2-5% calc in frags & as clots associated w/ trs of tourmaline		W		m					1-2% mag as disseminated grains mag essentially unoxidized. Trs of disseminated py & cpy were observed locally.			Tr	Tr		1-2	Tr		Tr			
		TS(36) Latite Porphyry																										
2543.0'-2556.0'	100	Latite tuff breccia (lithic tuff) TS(37) Latite Tuff Breccia	Latite cpy frags embedded in dense, tuff matrix, flow-banded devitrified glass matrix	<1/10ft @ 10° to 20° w/calc & chlor fill.		2-5% chlor replacing bio & plag. Trs of qtz, ser, & clay dust plag phenos	Tr	Tr	Tr	W					1-2% mag as disseminated grains Mag essentially unoxidized Trs of disseminated py & cpy were observed locally.			Tr	Tr		1-2	Tr		Tr		10	10	
T.D. 2556'																												