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ADANAC
ASSESSMENT

ADANAC DRILL SUMMARY 1974

104N/11W

A Diamond Drill Report Filed For
Assessment Work on the CLIMAX-HOBO
Group of Claims. Atlin Mining Division

Hobo 7, ADERA 1

104N/11W

Climax Molybdenum Corp. of B.C. Ltd.

Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. 5351	MAP.....

J. E. Cassin

JAN 21, 1975

Diamond Drilling Summary 1974

The Adanac drilling program was started on July 1 and was completed on October 5, 1974. A total of 4,616 feet was drilled during this period. Core size was NQW and BQW, and is in storage at the Ruby Creek campsite.

Total manpower consisted of 2 diamond drillers, 2 drill helpers, 1 drill foreman, 1 mechanic operator, 1 cook, 3 samplers, 1 geologist and 1 mining engineer.

1974 Wage Scales were as follows:

Diamond Drillers	\$ 4.65/ hr.
Drill Helpers	4.40/ hr
Drill Foreman	5.00/hr
Cook	\$ 1,000/month
Samplers	3.50/hr
Geologist	1,600/month
Engineer	1,600/month

Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
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Summary of Expenses - Adanac Project 1974

Drilling Expenditures	\$ 141,789
Sample Preparation	6,874
Food & Accomodation	.....	10,806
Rental Equipment, heating	.....	4,376
Drill Access Roads	.....	2,842
Automotive & Travel	.....	15,785
Telephone	.....	1,060
Freight & Postage	.....	413
Sales Tax	.....	1,185
		<hr/>
TOTALS		\$ 185,100

Statement of Qualifications

Name: Reese Ganster

Date of Birth: November 13, 1945

Education: B.A. Vanderbilt University 1967

M.S. Vanderbilt University 1969

Work Experience:

1 year exploration geology,

Amax Exploration Inc.

2 years as Mine Geologist, at

the Henderson Mine, Amax Inc.

ADANAC PROPERTY

DETAILED GEOLOGIC LOG

OF

DRILL HOLES

10E - 18S

36W - 4N

12W - 12N

12W - 16N

Climax Molybdenum Company
Golden, Colorado

PERCENTAGE MOLYBDENUM CONTENT

DRILL HOLE NO. 10E - 18S

<u>Footage</u>	<u>%MoS₂</u>	<u>Footage</u>	<u>%MoS₂</u>	<u>Footage</u>	<u>%MoS₂</u>
16 - 20	.0043	200 - 210	.0046	390 - 400	.0046
20 - 30	.022	210 - 220	.177	400 - 410	.016
30 - 40	.017	220 - 230	.073	410 - 420	.017
40 - 50	.020	230 - 240	.013	420 - 430	.016
50 - 60	.0050	240 - 250	.026	430 - 440	.015
60 - 70	.0052	250 - 260	.026	440 - 450	.012
70 - 80	.0069	260 - 270	.0056	450 - 460	.0090
80 - 90	.015	270 - 280	.039	460 - 470	.011
90 - 100	.0058	280 - 290	.017	470 - 480	.0095
100 - 110	.018	290 - 300	.096	480 - 490	.018
110 - 120	.012	300 - 310	.024	490 - 500	.010
120 - 130	.0038	310 - 320	.0078	500 - 510	.010
130 - 140	.0029	320 - 330	.0075	510 - 520	.010
140 - 150	.014	330 - 340	.012	520 - 530	.059
150 - 160	.010	340 - 350	.036	530 - 540	.015
160 - 170	.0085	350 - 360	.063	540 - 550	.0060
170 - 180	.018	360 - 370	.093	550 - 560	.023
180 - 190	.018	370 - 380	.057	560 - 570	.030
190 - 200	.028	380 - 390	.0055	570 - 577	.034

- 0-22'
Overburden, mostly CA & MCA.
- 22-30'
2-10', CA, coarse grained texture w/blocky K-feld (45%) & plag (20%), w/interstitial Qtz (30%) containing up to 5mm clumps of biotite (4%). 22-28', rk is heavily stained & fx are ctd w/geothite. 8-10', rk is v fresh. Plag is rarely rimmed by lt green incipient sericitization. No visible veining or MoS₂.
- 30-40'
CA, 0-10', as above. G staining continues, w/wk He on steep fx. Good recovery, competent rock. White feldspars w/random py? ctd. μ -fx. No vning, no visible MoS₂.
- 40-50'
CA, 0-10' as above, w/slight increase in lt green ser-arg rimming of plag. 60% of interval is mottled at random w/light G stain. @2', 1/8", 80° CA barren Qtz vn. @9.5', 2, 1/8" vns @80° CA, w/Qtz, tr MoS₂.
- 50-60'
CA, 0-10'. 0-2', as above, w/lt G stain; 2-10' CA, though very badly broken, w/strong shearing @5-15° CA. Fx are ctd w/arg & rock flour, both of which are moderately stained by G. Plag phenos that have been weakly mantled by ser-arg, are also G stained. No visible MoS₂, 0-10'.
- 60-70'
CA, 0-10', as above, though intense shearing dies out @5'. 5-10', fx are more widely spaced (2/ft) & CA is not as granulated. 2 blocky phenos (K-feld) are rimmed by v fine grained biotite. This appears to be a primary texture. Mod staining by G & H. No visible Mo.
- 70-80'
CA, 0-10', all textures, etc., as above. 0-5', fx still widely spaced (2/ft), w/minor antithetic μ -fx @20° CA. 5-10', badly broken & more argillized. 0-3', fx ctd w/G & H (~3:1). No visible MoS₂.
- 80-90'
0-4', CA as above. 4-10', upper contact not present, but rock is compositionally identical to CA, although biotite is reduced to ~2%. Py is commonly seen w/fresh biotite. Texture is medium grained, w/an equigranular mosaic of plag & K-feld, w/interstitial Qtz & fine grained biotite. 30% of total Qtz occurs w/in feldspar as apparent exsolutions, producing a quasigraphic texture. Rock appears to be totally fresh. Wk G staining occurs along fx. Core is badly broken, 7-10'. MoS₂ blebs (2mm) seen dissem on end of core @6'. Qtz vns appear to be barren @1/3'. Bifurcating 1/4" Qtz @5', 75° CA.
- 90-100'
Med (sub-coarse) grained aplite continues, 0-10'. @ 7 & 8', 2" zones of lo coarsening to resemble CA. @4', 6', & 8', 2" aplite dikes @ 75° CA. Lo specks of 1x2mm dissem Mo in g'mass. Wk G staining on 30° CA, 3/ft fx.
- 100-110'
0-4', med grained alaskite, as before. Sharp contact @ 7-° CA w/C.A. C.A. w/typical CA texture. Py? ctd μ -fx occur again w/in blocky feldspars // to (& probably occupy) internal zoning directions. These are very rare. Tr dissem MoS₂ w/in blocky K-spar. @7.5', hl Qtz w/tr MoS₂ @40° CA. Wk G staining on core.

110 - 120'

0-10', CA, as above. CA is still v fresh, w/only an occasional halo of v lt green incipient ser-arg on plag. Core badly broken, 1-3', & is sheared @25° CA, 8-10'. No visible MoS₂. Mod G staining lo on fx & core.

120 - 130'

0-10', CA, w/25° CA shearing continuing, 0-1'. Rk is relatively massive & unbroken 1-10', tho fx (1/3') are ctd w/deep brown G stain. Several K-f grains are ltly ctd w/G. No visible MoS₂, or Q vns.

130 - 140'

0-10', CA as above. @2' & @4', 4-1/2", 45° CA porphyritic dikes cut CA. Texturally, these dikes resemble PFA. Primary K-f phenos are small (3x6mm) & euhedral. Incorporated large CA K-f occurs in dike @4'. Fx (1 per 2' @30° CA) are deeply stained w/brown G. No visible MoS₂ or significant Q vning.

140 - 150'

0-10', CA, w/1-2" FA dikes @20° CA, 0-3' (2/ft) Dikes have sharp contacts w/random included blocky K-spars. 4-6', 2' zone @60-65° CA of alternating hazy bands of grainy Qtz, white K-spar, w/occasional (5%) inclusions of CA feldspars. Quasibanded texture varies between ptygmatic swirls, internal boudinages, & straight // orientations. Composition is roughly same as CA. Tr dissem MoS @4' in Qtz band. CA, 4-10', w/intense random μ -fracturing of blocky K-felds. One of these μ -fx occurs on outer edge of core, ll CA, & is definitely py lined. Wk internal G staining appears to lo soak g'mass adjacent to μ -fx.

150 - 160'

0-10', CA, w/FA mixed w/hazy swirly textured bands from 4-5' @70° CA. Late 40° CA hl py ctd fx w/in banded rk are weakly oxidized to G. @2', 1/4", 80° CA, Q-py-Mo vn. Py abdt in late hl 20° CA fx 1, 0-10'.

160 - 170'

0-10', CA, though texture from 608' is one of coarse feldspar, w/fine feldspar containing exsolved Qtz (1mm). Not a MCA texture. Seems to be a local zo of P-T variation during cooling, definitely a primary texture. Incip ser-arg lo seen in cores of zoned plag, vs rims. Elsewhere, rims are ser-arg. @8', 85° CA, 2mm Mo-tr py vn. No other vning. Tr CaF₂ (purple), dissem @8'.

170 - 180'

0-10', typical CA, as above. @4.5', 45° CA, hl MoS₂ vn. No other vning or visible Mo.

180 - 190'

CA, 0-10', as above. No structural or textural variations. @5', 50° CA, 1" barren Qtz vn. @6', 40° CA, 2mm erratic Mo vn. Tr dissem MoS₂, 0-10'. Tr dissem purple CaF₂ @4'.

190 - 200'

0-10', CA, w/FA dike @ 1', 80° CA, 2", & @5', 80° CA, 4", w/included frags of blocky CA K-feld & plag. Abdt py on μ -fx & wkly dissem @2-5', 80° CA, 1/4" Qtz, w/abdt MoS₂ adjacent to, but not 2/in Q vn. @7', 60° CA, 2" barren Q vn.

200 - 210

0-10', CA, w/razor sharp contact @85° CA, 5-6.3', w/latitic-qtz latitic dike. Dike has lt greenish grey aphanitic g'mass, containing 4-5% 1x1 to 8x4mm subhedral Qtz, 3% fresh shreddy subhedral biotite (2x3mm), 3% K-feld (1x1mm), & <1% incorporated CA K-spar. Dike is characterized by a hl py filled fx // CA, 2/dendritic adjacent py in 1/2" clumps. Dike also contains tr disseminated py-Mo. 6.3-10', typical CA.

220 - 230'

0-7', MA? dike, w/v sharp 80° CA contacts. Rk is dk grey w/fine-med grained g'mass of Qz-feldspar-biot, containing ~4% white K-spar (5x7mm). Dike appears totally free of included CA K-spars. No visible alteration. @4', 85° CA, 1" barren Qtz vn. 7-10', back to CA. Barren 30° CA, 1/2" Q vns @7-5 & 8.5'. @9.7', 1/2", 80° CA, Mo-Q vn (50% Mo).

230 - 240'

0-10', CA w/7" MA? dike, 85° contact @4'. Dike is same material described above. CA, between 0-5', is typical w/v minor alteration. 5-10', rk takes on an overall lt greenish cast. 95% of plag phenos are a darker green, several w/deep green ser rims. Incipient arg is not very apparent, but may be mixed w/ser. 2-3', 10° CA, barren 1/4" Q vn. 8', 35° CA, 1/8" erratic MoS₂ vn, w/3/4" bleached primary K-f halo.

240 - 250'

0-10', CA as above 2/continuation of greenish cast & plag destruction by ser. Py lined μ -fx are strikingly consistent @10-15° CA. @2', tr disseminated MoS₂. @8', 60° CA, 1/10" Q-tr Mo vn.

250 - 260'

0-10', CA as above. Sericitization of plag producing spectacular greens in zoned crystals. @8', 40° CA, 1" Q-Mo vn (5% Mo). No other visible Mo or Q vning.

260 - 270'

0-5', CA, as above. @5-6', gradational contact @~35° CA w/MA. 5-6', 3 apophyses of MA intrude CA w/sharp contacts. 6-10', consistent MA, core very badly broken, w/fx ctd w/wk G, & mod arg. MA appears to be fresh, w/lo patchy sericitization. This MA is identical to stream otc's, & MA drilled in 12E, 4S; 12E, 12S; & in 4E, 20S, effectively forming a girdle around PFA. Based on other DH data, contact w/PFA should be encountered @+500' (4650' el). @6.5', 45° CA, 1/8" Q-tr Mo vn. No other MoS₂ encountered.

270 - 280'

0-10', MA w/poor rev & badly broken core. MA texture is med grained g'mass of equigranular Qtz, K-f, plag, & ~8% disseminated shreddy biotite. ~5% phenos of K-f (7x9mm), & 3% plag (3x5mm) are randomly & equally scattered in g'mass. Rk strongly resembles a granodiorite & was logged as such in 12E, 4S D.H. Alt: mod sericit of ~all plag, mod arg on fx (30° CA). Tr disseminated MoS₂, no SiO₂ vning.

280 - 290'

MA, 0-10', core still broken. Alteration is more intense w/plag strongly sericitized, & g'mass plag? lo seric-arg. Biot is generally fresh w/ 5/10' lo 3" zo's of either chloritization or seric of biot. Thin section would help. Instead of typical black & white MA, alt produces a green & grey rock. 0-8', 1 per ft, 3mm, 90° CA, creamy K-feld "veins." 2 have erratic stringy lmm Qtz cores. Possibly 2ndary K-feld. @8', 2, 1" Q vns @ 70° CA w/~5% MoS₂.

280 - 290'

0-10', MA w/ core v badly fx'ed. Several frags are slickensided. Alt continues to AA, tho generally more intense. 8-10', core badly sheared @40° CA, MA cataclastic. Mo-py slc, 40° CA @8.2', w/remainder of interval argillized. No other visible Mo or Q vning.

290 - 300'

0-10', MA, as above, tho core not fx'ed. Alteration extremely interesting, 0-5'. Previously described relations still in effect, w/one exception. @2.5', 80° CA, 3/4" Q-Mo-biot vn. Mo & biot are coarse grained. This assemblage is identical to the Early Dark Micaceous Alteration phase @ Butte, although their assemblage is a fine grained mixture. The other alternative for cse biot is local recrystallization of primary biotite. @3.5', 20° CA, 1/4" qtz-cse biot (no Mo) vn. I would tend to favor a 2ndary origin for these biot occurrences. @4' & 8', 30° CA, 1/8" Mo stringers. ~.1% MoS₂, 0-10' (possibly more if internally dissem).

300 - 310'

MA, 0-10', texture & alteration as above. No cse biot-Q-Mo seen. Biot lo fresh, ~80% is chloritized. Tr MoS₂ as g'mass dissems. No qtz vning.

310 - 320'

MA, 0-10', alt strong 0-2'. 2-10' MA is very fresh. Only wk seric of plag can be seen. Biot lo wkly chlor, 99% is fresh. @1', 40° CA, 3" pegmatite vn, no MoS₂. No other vning or vis MoS₂.

320 - 330'

MA, 0-10'. Erratic 6-8" alternating intervals of fresh rk w/moderately sericitized rock (+ chlorite & arg). Several vns @1.5', 80° CA, 3/4" barren qtz @5' & 5.2', 2", 60° CA, barren qtz. @7', 35° CA, 3/4" creamy K-f vn, w/2mm thick grainy qtz-K-f core. 8.5', 80° CA, 1/2" Q-Mo (3% Mo) vn. @9/6', 40° CA, 2" FA dike.

330 - 340'

MA, 0-10', 85% of interval is fresh rock, 15% wkly sericitized-chloritized (tr arg). @9', 60° CA, 1/2" barren qtz. No other vning or visible Mo.

340 - 350'

MA, 0-10', as above. @0.1', 70° CA, 1/2" irregular K-spar vn w/cse fresh (2ndary) biotite. 2-4', core badly broken, cataclastic @25° CA & wkly argillized (not alteration). 5-10', 2/ft, 45° CA clay ctd fx. @9', 85° CA, 1/8" Q-Mo vn (30% Mo). No other Mo or Q vning.

350 - 360'

0-10', MA. 3/10' erratic fresh rock. 7/10', mod to lo strong ser-arg-chlor. 0-6', 3/ft, 20° CA clay ctd ggy fx. @7', 85° CA, 1/8" Q-Mo. @9', 85° CA, 1/2" Q-Mo (5% Mo). 9.4', 85° CA 1/2" Q vn offset by 30° CA, 1/4" Q-Mo vn. Mo most abdt @ vn intersection.

360 - 370'

MA, 0-6'. 6-8.5', 30° contacts w/PFA dike. 8.5-10' MA. MA is moderately altered w/plag being sericitized & weakly argillized. Biot wkly chloritized (or seric?). PFA is lt green & v fresh. 0-3', 2 per foot, 1/2", 70° CA, qtz vns w/wk MoS₂. 3-10', no vning, tr dissem Mo.

370 - 380'

0-10', MA, moderately fresh. Alt relationships as above. 1.5-2', intense dark green ser-chlorite. @1', 80° CA, 3/4" Q-Mo vn (30% Mo) 1-10', 4 scattered Q vns, ~60° CA, 1/4" & barren.

380 - 390'

0-10', MA, exactly as above. Q vning diminishes, 2 in 10', @3' & 7', 70° CA, 1/8" & barren.

390 - 400'

MA, 0-10', rk is slightly fresher than above. ~30% is altered. 0-.4', massive creamy K-feld as 3" rims on 3° CA, 3/4" coarse biotite-K-feld vn. 3-4', & 6-9.5', strong fx, 5° CA, w/granulation & subsequent argillization of MA. @3', 40° CA, 1/8", barren qtz vn. No visible Mo or other Q vning.

400 - 410'

0-10', MA. Very badly broken core, rk is shattered, granulated & supergenetically argillized. Where visible, MA is strongly sericitized (plag & a few K-spars) & chloritized (biotite). 2ndary K-feld is not apparent. No qtz vning can be seen; no visible MoS₂.

410 - 420'

0-10', MA, as above. 0-9', w/poor rec, granulation & mod-strong alteration. Primary biotite is embayed by chlorite (possibly seric) & lo plag is so pervasively ser-arg'd that it is nearly vuggy ("bug-holed"). @2', cse fresh bio w/lo 2" bleb of creamy K-feld, both possibly 2ndary. 9-10', MA is ~85% fresh, & not as broken. @2', 50° CA, 1/4" Q vn w/faint MoS₂ rims. @5', 1/8" Q-*fgt* Mo @ 55° CA. @8', u-peg, 1/8" @35° CA.

420 - 430'

0-9', MA. 0-5', 1.5' rev. badly broken. 9-10', 45° CA, FA dike. 0-7', MA mostly fresh, 2/wk ser-arg-chlorite. 7-9', strong alteration @7', 60° CA, 1/2" pink K-f vn w/lmm grainy dissem qtz. 9-10', PFA dike is v fresh w/only 1% 4x4mm rounded qtz. No vis Mo.

430 - 440'

0-4', MA, 4-10', fine Alaskite w/65° CA contact. MA is generally fresh w/3-4" intervals of mod-strong alteration, as above. 4-10', fine Alaskite dike. Rk is dense lt green, v fresh, w/fine grained (< .1mm) g'mass ∇ qtz & K-spar. <1% dissem biotite. No qtz on K-f phenos. 4-10', 2/ft, hl, 60° CA, barren qtz vns. 8', 40° CA, 1" med grained qtz, K-spar vn, w/lmm erratic biotite rims. Tr MoS₂ dissem.

440 - 450'

0-10', fine Alas(FA) as above. No phenos at all. Rk appears to be v fresh. 2/ft @65° CA, hl to 1/4" qtz-biot vns, Q vns, or Q-fine grained Mo vns (@6'). ~1/ft Q-biot vns, generally fine gr biot, w/cse massive @9'.

450 - 460'

0-2', FA, w/contact @45° CA w/MA. MA, 2-10'. Rk is v fresh. Biot is ~totally fresh. Plag is only v weakly sericitized. @2.5', 6" barren qtz vn @80° CA. @9', 65° CA, 1/4" barren qtz. No visible MoS₂.

460 - 470'

0-10', v fresh looking MA. 506', 11 CA, undulating contact w/PFA textured rock wh/ could be an apophysic from PFA stock. Typical PFA lt green semi-aphan g'mass, w/~tot 20% pheno content of Q-K-spar-plag. In MA, @1', 4', 6', 7', 8', 2", 70° CA, "vns" of cse biot-creamy K-f. Could be deuteric or alteration - hard to say for sure. @2', 1", 80° CA, barren qtz. Tr dissem MoS₂.

470 - 480'

0-10', MA, extremely fresh (granodioritic) w/v wk ser of plag. Biot is totally fresh. @6', 80° CA, 3mm crmy K-spar vn, w/f gr biot halo. @6.5', 3" cse Q-Kspar-biot segregation. 1 hl Q vn per 3', Tr MoS₂.

480 - 490'

V.fresh MA, 0-10' as above. Q vning slightly increases to ~1 per foot, 0-10'. All are ~80° CA, 1/4", & barren. Only Mo shows are in flat Q vns @ 7' & @ 9'. @9.5', 2" pod of cse biotite-qtz-K-feld.

490 - 500'

0-10', MA as above w/lo 3" zo's of wk sericitization of plag. @9', 2", 25° CA "vn" or segregation of med gr biotite (40%) w/K-feld, qtz. @6', 85° CA, 1" apophysis of PFA. @2', 80° CA, 1/8" Q vn w/tr MoS₂. Q vning drops off to 1 per 4'.

500' - 510'

0-1', MA, as above (no vning). 65° CA contact @501' w/definite typical PFA. Earlier PFA contact prediction is verified. PFA has a dense v fine grained matrix w/~8% qtz phenos (1x1 up to 4x5mm); K-spar, 4%, up to 7x8mm; plag, 3%, 2x3mm. Only visible alteration is mod ser-arg of plag phenos (3% f grained biotite). @ 5.5', 50° CA, 2" barren qtz vn. @9.5', 85° CA, hl Mo-py vn, w/lmm bleached rims. 3/10', 30° CA, hl open fx, py ctd. @10', 30° CA, hl undulating py, w/plumose py offshoots.

510 - 520'

0-10', PFA, as above. 4 Q vns/10', w tr MoS₂. Abdt py on plumose μ -fx thru Q vn @2'. No other mineralization or veining.

520 - 530'

0-10', PFA, texture & alteration as above. 1-2', 30° CA, lo shearing w/argillization. 2-3', synthetic μ -fx, clay-py ctd. @8.5', 65° CA, 1" Q-fine gr MoS₂ (20% Mo) vn. @9', 65° CA, 1/8" Q-tr Mo vn. 3 other Q vns (0-10'), 1/8" & barren.

530 - 540'

0-10', PFA, as above. 609', 1 foot lost, 10° CA lo shearing & granulation of core. @6', 90° CA, 1/8" Q-Mo vn. @8.5' in shear zo, hl Mo vn @ indeterminate angle (probably flat). No other visible Mo.

540 - 550'

0-10', PFA. 0-1, 7-10' are extremely fresh. 1-6', core is heavily fractured @0-10° CA. Fx are clay, tr py ctd. PFA is moderately sericitized w/biotite possibly chloritized (weakly). @1', 30° CA, 1/2" Q vn w/ tr py-MoS₂. PFA, 7-10', 50% of plag have deep green sericitic core w/lmm argillic rind. Biotite & K-felds are fresh. No other vning or vis MoS₂.

550 - 560'

0-10', PFA. Rk continues very fresh w/exception of sericitic plag w/argillic rinds. Biotite is locally seen as 1/2" oval clusters resembling cellular mitochondria. @6.6', 90° CA, hl MoS₂ vn. 0-10', 3 hl Q vns, 70° CA, no MoS₂.

560 - 570'

0-10', PFA, as above. 8/10', 1/8" flat qtz vns w/tr dissem MoS₂ throughout 4 vns. No other vning or visible MoS₂.

Hole No. 10E-18S
Page 7
Date 8/18/74
Logged By R. W. Ganster

570 - 577'

0-7', PFA, as above. Rk v fresh, exc for plag. A few K-spar phenos have v faint whitish rims. Could be incipient arg. @2', 87° CA, 2mm μ -peg vn w/v fine gr Q-Kspar (plag +). @4', 45° CA, 2" pegmatite "vn" w/dissem cse Mo (3% of vn) & tr fine gr dissem cpy (1% of vn). 5-6', 7 hl 80° CA Q vns, w/tr MoS₂. These are cut by a 40° CA, 1/8" Q vn w/tr MoS₂. Fresh PFA @ EOH, 577'.

NOTE: Unlike other holes which pass from CA directly into PFA, this hole passed through ~250' of MA. Consequently, perhaps, PFA was uncrowded w/the large blocky K-feldspar xenocrysts that characterize PFA that intrudes CA directly. This phenomenon could be a reflection of relative degrees of cooling between CA & MA at the time of PFA intrusion. Other drill holes on the eastern flank of this PFA cupola bottomed (at least those holes w/available data) in MA, making it impossible to verify the uncrowded PFA relationship.

PERCENTAGE MOLYBDENUM CONTENT

DRILL HOLE NO. 36W - 4N

<u>Footage</u>	<u>%MoS₂</u>
90 - 980	No assays made
980 - 990	.027
990 - 1000	.131
1000 - 1010	.035
1010 - 1020	.036
1020 - 1030	.284
1030 - 1040	.107
1040 - 1050	.377
1050 - 1060	.416
1060 - 1070	.091
1070 - 1080	.042
1080 - 1090	.019
1090 - 1100	.494

Hole No. 36W - 4N
Page 1
Date 8/24/74
Logged By RWG

- 0 - 90' Overburden, mostly boulders w/ interlayered sand. Boulders consist of mostly CA, w/ big pheno porphyry, PFA type porph, MCA, 4th of July boulders. No visible MoS₂ in sand or boulders.
- 90 - 100' Collared in CA, 0-10'. Core is badly broken & intensely fractured @ 0-20°CA. Fx are clay filled, w/ lo arg. of CA plag phenos in zones of strongest fx'ing. CA contains % K-spar, % qtz, % plag, & ~ 4% biotite as 6 X 6 mm segregations. No q vning or visible MoS₂.
- 100 - 110' CA, 0-10', as above, w/ continuation of strong clay ctd & lo py ctd fx. Fx continues @ 0-15°CA. 4-5.5', CA has a cataclastic texture & rk is healed by clean silica (no py or MoS₂). Arg of plag in stronger fx zones. No q vning. @ 8', small amts of dissem MoS₂.
- 110 - 120' 0-10', CA. Typical CA, 0-4'. @ 4', 45°CA contact w/ possible fault zone to 10'+. CA is fairly competent (5-6), though texture is extremely cataclastic, sheared, & biotite is dynamically remobilized to produce a crenulated effect, & give the rock an overall phyllitic texture. Alteration is limited to wk arg & silica healing & tr ser-arg of plag. @ 3.5, @ 65°CA, 1" q vn w/ tr MoS₂. No other visible Mo.
- 120 - 130' CA, 0-10', w/ continuation of sheared CA to 4'. 55° (sharp) contact w/ more typical CA textured rk, though intense 5°CA fx continue to 10', clay filled. The steep clay filled fx are later than the general 45-55° shearing event, being continuous across the contact. Alt is as above. @ 9.5', 70°CA, 1/4" barren q vn. No visible MoS₂, 0-10'.
- 130 - 140' 0-10', CA. 0-2', zone where intense steep clay ctd fx & μ-fx die out. 2-10' good competent CA. Alt of plag varies from fresh to lo 80% ser-arg. @ 7', 80°CA, 1" q-CaF₂ (green) -py-MoS₂ (5% Mo) vn. @ 9', 1", 80°CA q vn, w/ green CaF₂.
- 140 - 150' CA, 0-10'. Typical CA, very unspectacular, wk alt of plag, as above. No qtz vning or visible MoS₂.
- 150 - 160' CA, 0-10', ~ as above. So far in this hole blocky K-felds do not contain py filled μ-fractures. 6.5-8', zone of 80% creamy K-feld, w/ wk interstitial biot, qtz, & dissem 2x2mm wk MoS₂. @ 8-9', 25°CA, h/ clay-py ctd fx. Several plag grains have argillic > sericitic rims. These are always near fx zones. No qtz vning.

Hole No. 36W - 4N
Page 2
Date 8/24/74
Logged By RWG

- 160 - 170' CA, 0-10'. Rk is as above, w/ exception that green sericitic-arg of plag is more intense from 4-10'. Several are replaced 100% and are easily gouged. Biot is generally fresh, though locally chloritized, 8.5-10'. @ 4', 70°CA, 3/4" barren qtz vn. 6.5', 35°CA, 1/4" barren qtz. No visible Mo, 0-10'.
- 170 - 180' 0-10', CA. 0-5, & 7-10', rk is badly fxed, sub-// to CA. Fx are generally thin & clay, or clay-py ctd. Plag is mod-strong ser-arg, 0-7'. 7-10' completely ser-arged, producing a green-tan-purple shaded rock. Generally, plag has a pervasive ser core, w/ arg halo. 8-9', 5°CA, tight 1" bxa, w/ 2x3mm CA frags in matrix of clay, ser, sil. @ 4' & 4.5', 80°CA, 2" q vns, w/ Tr MoS₂ on each. @ 5', 70°CA, 1/4" barren qtz vn. @ 5', marginal lt brown lmmxl w/ lt brown halo, possibly wolframite.
- 180 - 190' CA, 0-10'. Rk is strongly μ -fractured @ 20°CA w/ clay, clay-py fillings, & slcs. Strong ser-arg of plag continues. Biot & K-spar remain fresh. @ 6', 30°CA, 1/2" qtz-v. f. grained MoS₂ vn (5% Mo), cut by later 20° partly open fx w/ drusy qtz lining. @ 8', 60°CA, 3" barren qtz vn. No other vning, or visible MoS₂.
- 190 - 200' 0-9', CA, as above, although plag is lo completely sericitized, vuggy, w/ an argillic halo. Biot is lo chloritic. 1-2', 30°CA, fault zone, w/ slcs & green sericitic-argillic CA gouge, w/ tr granular py. @ 9', contact, obscure but appears to be 70-90°CA, w/ fine alaskite dike. 4" chill zone of μ -graphic texture. @ 6', 70°CA, 1/4" q-v. f. gr. MoS₂ (5% Mo) vn.
- 200 - 210' 0-4', FA dike. 85° contact w/ CA. CA, 4-10'. Dike is a fine-med. grained equigranular intergrowth of qtz, K-feldspar, (plag?), & thin, bladed biotite (4%). Bottom 6" has the same μ -graphic texture as the upper contact, w/ slight coarsening of the gmass. Contact zo is 1/2" v. f. grained chill. CA is as above, w/ only lo tr amts of chl after biot. @ 8', one 7x8mm plag may have had reverse zoning, & was altered accordingly. A pervasive ser rim surrounds an arg-ser core. No q vning. Tr MoS₂ on hl slip @ 6', 30°CA.

Hole No.	36W - 4N
Page	3
Date	8/23/74
Logged By	RWG

- 210 - 220' 0-10', CA, generally v. fresh. 6-8' lo zo of intense plag alteration, w/ 3 blocky K-felds rimmed by 2mm incipient argillic halos. No q vning or visible MoS₂.
- 220 - 230' 0-10', CA. 1-4', & 6.5-10' core is shattered and supergenetically argillized @ 5-15^o CA. CA, where visible, remains fresh. Destruction of plag is generally reduced, though this appears to be more a function of a reduced % of plag, 0-10'. @ 0.5, 80^o CA, 3" barren q vn. No visible Mo.
- 230 - 240' 0-10', CA. Strong fxing continues, 0-2' @ 5^o CA, filled w/ Kao (& tr ser-arg from granulated CA). Plag back to ±15% & is strongly ser, or ser-arg. 4-8', biot reduced to 1% due to variance in primary xlzation, & not alteration. @ 4', 80^o CA, 6" FA dike, fresh. @ 8', 40^o CA, 1/2" q-Mo (3% Mo) vn.
- 240 - 250' 0-10', CA. 0-3', typical CA texture. 3-9', modified by marginal mafic fine alaskite dike. 9-10', CA. @ 3.5-4.5', marginal contact @ ~5^o w/ mafic FA. Dike material is as described, 199-204', w/ thin, single blades of dissem biot, ~ 20%. Rk appears granodioritic, though compositionally monzonitic. Gmass texture of CA between 3-9' is quite variable, ranging from a v. fine grained FA assimilation texture, to a slightly coarser graphic FA assim. texture. @ 7', 3" of pegmatitic assim. CA returns to normal, 9-10'. @ 6', 80^o CA, 3mm q-Mo seam. No other visible vning, or Mo.
- 250 - 260' 0-10', CA. Strong 20^o CA clay ctd fx 3-5'. CA is more porphyritic in appearance, w/ large K-felds & plag in a medium grained mosaic of qtz, K-spar, clumpy biotite. Rock is not modified. Strong ser &/or ser-arg of plag continues. @ 5', 65^o CA, 2" barren qtz vn. No visible MoS₂.
- 260 - 270' 0-3', 30^o CA contacts w/ medium grained equigranular alaskite dike. Contact @ 0' is pegmatitic for 4". Dike is identical to those previously described, w/ platy biotite that appears almost acicular on core surface. Dike contains 3, 1" pods of pegmatite. @ upper contact is a sericitized plag grain w/ a 2mm grain of MoS₂.
3-10', CA, as before dike. Texture is more typical of CA than the previous porphyritic appearance. Plag is only wk-mod ser arg. No vning or visible MoS₂.

Hole No. 36W - 4N
Page 4
Date 8/25/74
Logged By RWG

- 270 - 280' 0-10', CA, w/ FA dike @ 30°CA, 7.5-8.5'. Dike is fine grained. CA is as above, w/ no vning or visible MoS₂.
- 280 - 290' 0-10', CA, w/ FA dike 30°CA, 3.5-5'. Both upper & lower contacts are gougy, & dike is strongly fxed, while surrounding CA is not. 2" peg w/ fluorite (purple) in center of dike. CA is as above, although plag is strongly ser &/or ser-arged. @ 0.1', 80°CA, 2 1/2" q vn w/ tr MoS₂. @ 5', 75°CA, 1" q vn w/ tr MoS₂.
- 290 - 300' 0-5.5', CA as above, w/ lo 30°CA fx 0-3'; clay ctd. Plag is only moderately ser-arged.
5.5-10.7', 30°CA contact w/ FA dike. Dike is equigranular, & varies from fine to lo med. grained. Between 6-10.7', biot is dissem as v. fine grains, or lo as 3mm long plates. Very interesting biotite arrangement in first 6" of upper contact. Biot is platy but concentrically oriented normal to contact, & ressemble eddy swirls. These swirls were formed after the interior margin chilled & are lo flattened (v. wkly) against it. Nice fluxion structure. No vning or visible Mo, 0-10'.
- 300 - 310' Termination of previously described dike @ 0.7'.
.7-10', CA. Typical texture. Plag is mod-strongly altered. Alteration arrangement could reflect variable hydrothermal chemistry, or the presence of zoned plag, because several (30% of all plag) phenos have cores of wkly arged material, w/ double rims of 1st ser, then Kaolin, each 1mm thick. Other plag is generally a mixture of arg-ser. Tr py on 30°μ-fx. No vning or vis MoS₂.
- 310 - 320' 0-10', CA. 0-3', rk is wkly fxed (2/ft) w/ arg ctgs. Plag is moderately ser-arged, 0-5', & v. wkly altered, 5-10'. 8/10', 35°CA hl q vns w/ lo tr py. No vis MoS₂.
- 320 - 330' 0-10', CA as above. @ 2', in 60°CA orientation is a 2x1x1/2" biotite schlieren of a probably inclusion. Biot w/ chloritized previous to CA emplacement. Plag is only v. wkly altered, 0-10'. 6-10', 1/2" long en echelon arrangement of μ-fracts containing biotite. A few of these terminate in clumps of primary biot. μ-fx were apparently formed while melt was still semi-solid, and crystallizing biotite. This biot does not appear to have been dynamically remobilized locally into these μ-fx. @ 2', 60°CA, 1/2" barren qtz. No vis MoS₂.

Hole No. 36W - 4N
Page 5
Date 8/25/74
Logged By RWG

- 330 - 340' 0-10', CA. Plag is v. wkly argillized, & not sericitized. All else is v. fresh. CA texture ranges from typical, to lo zones of graphic interstitial Qtz & K-spar. @ 6', 7', & 9', 6" ea. 10°CA, silica healed bxa^s containing hazy 4mm frags of CA. No vis MoS₂.
- 340 - 350' CA, 0-10', as above, w/ plag alt continuing to be v. weak. Steep μ -fx filled w/ py as well as biot. Mag-Qtz vns @ 30°CA, 1 per foot. @ 8', 30°CA, 4" silica-mag healed bxa containing hazy CA frags. Contacts are razor sharp. Bxa could contain v. fine grained MoS₂. Not visible elsewhere.
- 350 - 360' 0-10', typical CA. μ -fracts non-existent. Plag v. fresh, w/ minor incipient arg rimming. @ 6', 25°CA, 1" gouge zo, clay filled. No q vning, or visible MoS₂.
- 360 - 370' 0-10', CA, as above, w/ v. slight increase in ser-arg alt of plag. 3/10', 30°CA, 1/4" barren Qtz vns. Q vn @ 2' is twice offset by late 10°CA, clay ctd hl fx. No other fx, 0-10'. No visible MoS₂.
- 370 - 380' 0-10', CA, as above. Lo wk increase in ser-arg alt of plag, otherwise as above. No q vning & no vis MoS₂.
- 380 - 390' 0-10', CA as above. Plag is strongly altered to ser, w/ arg halo. 2-3' core is brecciated & CA has strong cataclastic texture. 6-7', & 9-10', 10°CA, CaCO₃ filled fx. No q vning, or vis MoS₂.
- 390 - 400' 0-10', CA. Plag is completely alt to ser, w/ lmm arg or ser-arg rim. ~ 5% of total K-spars have incipient lmm ser-arg rims. 6-8', strong fx @ 5°CA, clay ctd. @ 2', 6" segregation of blocky massive K-feld wh/ appears to be primary. No q vning or visible Mo.
- 400 - 410' 0-10', CA. Strong ser-arg of plag continues. 1-2', strong clay ctd fx @ 2°CA. @ 5.5', 30°CA, py ctd clc, w/ tr clay. @ 9', 1/8" py ctd slc @ 30°CA. 7-9', plag is vuggy from post alteration leaching adjacent to fx. One phao @ 8' has core of 100% arg & 2mm rim of deep green pervasive ser. Mod am'ts of white CaCO₃ in fx fillings. No q vning, or vis MoS₂.

Hole No. 36W - 4N
Page 6
Date 8/26/74
Logged By RWG

- 410 - 420' 0-10', CA. 0-2', strong fracturing & granulation of CA, 10°CA. Plag is strongly argillized 0-2'. It is questionable whether or not this argillization is h'thermal, because plag in CA, 2-10', is v. slightly ser-arged. 2-10', CA is typical, & unbroken. No qtz vning or visible MoS₂, 0-10'.
- 420 - 430' 0-10', CA. 4 fx zones/ 10', ea. 6" wide @ 20°CA, w/ clay ctgs. @ 6.5', 20°CA, fx w/ white CaCO₃. w/ tr ZnS as marginal grain. Plag is v. wkly altered in intervals of competent rk, but is strongly ser-arged adjacent to fx. @ 9.5', 1" FA dike @ 45°CA. @ 9.9', 40°CA, hl q-Mo vn. No other vis Mo.
- 430 - 440' 0-10', CA. 0-6', typical CA texture w/ mod ser-arg of plag. Alt increases adj to hl clay ctd steep fx. 4-6' fx flatten to 70°CA & @ 6', 70°CA contact w/ CA wh/ has been sheared, & dynamically remobilized to resemble phyllite or schist. Biotite is foliated & chloritized & occurs w/ sheared py. K-f & qtz of gmass is cataclastically reduced to 3x3mm grains. @ 7', 6" q vn w/ v. fine grained black dissem Mag, 70°CA. A 9', 3" barren qtz vn @ 75°CA. 8-10', later 30°CA hl clay ctd fx event cuts 70°CA major event.
- 440 - 450' 0-10', CA. Sheared phyllitic CA continues, 0-1', w/ .5-1' being v. ggy, w/ clay, ser, py. 1-10', normal unbroken CA, w/ 6" lo cataclasts @ 2'. Plag is v. weakly sericitized. 10°CA μ -fracts @ 4', 6'. Tr dissem MoS₂ @ 9.3'. No q vning.
- 450 - 460' 0-10', CA. 0-3', rk is competent w/ v. wk alt of plag. 3-10', strong fx @ 15-20°CA, w/ strong lo cataclasis. Fx are clay filled, & plag is totally ser-arged. Biot & K-feld remain fresh. @ 6', 80°CA, 3/4" barren qtz w/ tr lt green fluorite. No vis MoS₂, 0-10'.
- 460 - 470' 0-10', CA. Strong 20°CA fx continue, 0-4'. CA is lo cataclastic, & plag is completely alt to ser-arg. 4-10', rk is essentially fresh & unbroken, w/ only v. wk. ser of plag. No qtz vning. Tr dissem MoS₂ @ 2'.

- 470 - 480' 0-10', CA. Core is completely unbroken & extremely fresh. Plag is 99+% fresh, w/ only lo traces of incipient embaying ser. @ 2', 1"x1/2" possible inclusion of chloritized amphibolite. @ 8.5', possible digested inclusion. 2"² dark, gray area of 20% f. gr. dissem biot surrounding 3 plag phenos 5x7mm. No qtz vning or vis MoS₂.
- 480 - 490' 0-10', CA. Core is unbroken & v. fresh. ~10% of total plag have incipient rims of arg, ser, or both. Lo 1/4" fluorite dissem in gmass. @ 6', 60°CA 1/2" barren q vn. @ 6.8', 80°CA, 2, 1/2" // calcite vns, w/ tr purple fluorite. No visible Mo, 0-10'.
- Note: If cupola of PFA had occurred @ 4700'el interval as it does adjacent to Adera fault, it should have been intercepted in the last 20'. Core continues as CA w/ no indications of any eminent changes.
- 490 - 500' 0-10', CA, as above, though no fluorite is seen. Plag alt limited to incip. arg rims. Py lined μ -fracts are @ 90°CA instead of the usual 5°CA. No visible Mo or q vning.
- 500 - 510' 0-10', CA, still fresh & unbroken, though several (20% of tot.) plag grains have mod lmm arg rims, w/ tr ser. @ 2'. 85°CA, 3/4" q vn w/ v. cse MoS₂ (50% Mo). No other vning or vis MoS₂.
- 510 - 520' 0-10', CA. Rk is extremely fresh & unbroken. Tr arg halos on only a few plag grains. @ 6', 65°CA, 3/4" barren qtz vn. @ 6.6', 2 //, 3/4" qtz vns @ 50°CA, cut by hl open fx @ 30°CA w/ tr MoS₂ drusy qtz. 8.4', 60°CA 2" peg vn. No other q vning, or vis MoS₂.
- 520 - 530' 0-10', CA, as above, w/ only tr hl sil vns, generally @ 20-30°CA. @ 3', 60°CA, 2mm q vn w/ tr MoS₂-py. 2" peg pod @ 7'.
- 530 - 540' 0-10', CA. Rk is unbroken & extremely fresh. Most plag grains are becoming milky from incipient argillization, while others are wkly rimmed. No q vning or visible MoS₂.

Hole No. 36W - 4N
Page 8
Date 8/27/74
Logged By RWG

- 540 - 550' 0-10', CA. 0-2' as above. 2-10', CA has a greenish cast due to v. wk sericitization of plag. Arg does not seem to be affecting plag as much as before. Biot is fresh, 0-7'. 7-10', 80% of total biotite is strongly chloritic. @ 6.7', 70° CA, 1/2" barren qtz vn. No visible MoS₂.
- 550 - 560' 0-10', CA 0-2', ser of plag & chloritiz of biot continues. 2-10', biotite fresh again, but green cast from v. wk sericitization of plag. 1" inclusion of biotite schlieren @ 5'. No qtz vning or visible MoS₂.
- 560 - 570' 0-10', CA. 0-7', core is moderately fractured (3/ft) @ 30° CA, fx are filled w/ slced chlorite, py, clay, & possibly MoS₂. 6.3-7', tight bxa of CA frags, healed by sil-py. All biotite, 0-7', is strongly chloritic. Plag is weakly affected by incipient ser. 7-10', essentially fresh CA, w/ tr chlor after biot & ser of plag. @ 8', 40° CA, 1/8" fx, healed by calcite, chlorite, pyrite. No qtz vning, or visible MoS₂ (unless on slcs w/ py).
- 570 - 580' 0-10', CA, extremely fresh & unbroken. Plag phenos are v. wkly cloudy w/ incipient arg &/or ser. Biot is totally fresh. @ 0.5', 60° CA, 1/2" q-Mo vns (20% Mo).
- 580 - 590' 0-10', CA, as above. @ 0-0.5', 30° CA, tight bxa, w/ CA frags in matrix of qt-mag. // py stringers occur, also @ 30° CA. @ 5.5', 60° CA, 3/4" qtz vn w/ cse MoS₂ (20% Mo).
- 590 - 600' 0-10', CA, as above. 2/10' qtz vns, @ 1/2", w/ tr py > MoS₂. Texture, etc., typical CA, v. fresh.
- 600 - 610' 0-10', CA as above 0-6'. @ 2', 1 to 6" zone of rounded 1/2" qtz grains vs typical massive interstitial occurrence. Still primary texture. 6-10', CA, though ser & arg alteration of plag is lo intense along 25° CA, clay ctd fx (2/ft). Biot is strongly chloritic in this area. 8.5-10', 1", 20° CA, aplite vn as apparent fx healing. No q vns. Dissem cse MoS₂ @ 7'.
- 610 - 620' 0-10', CA. 0-8', continuation of altered plag, w/ ~50% of biotite strongly chloritic. 0-3', steep 1-2mm stringers of aplite, continuous. If these stringers had spread outward into the groundmass, an MCA texture would have been the result. As it stands, these are hl fx fillings. Steep 10-20° CA fx continue, 4/ft, filled mostly w/ clay, chlorite, & py. 8-10', CA is fresh. No q vns or vis MoS₂.

Hole No. 36W - 4N
Page 9
Date 8/28/74
Logged By RWG

- 620 - 630' 0-10', CA, unbroken. Fresh 0-2', & 3.5-10'. 2-3.5', lo steep fx (3/ft), clay-chlorite ctd, w/ lo wk ser of plag & mod chlor of biotite. @ 4', 85° CA, 1" vn of qtz, cse MoS₂ (10% Mo) 2, 30° CA, hl barren qtz, 4-10'. No other vis² Mo.
- 630 - 640' 0-10', CA. Completely fresh & unbroken core. 8.5', 80° CA, 1" aplite vn. No q vning or visible MoS₂.
- 640 - 650' 0-10', CA, w/ FA dike 6-7', 25° CA, w/ sharp u & l contacts. Dike is actually closer to medium grained. CA is absolutely fresh. 5-5.5', zo of 3, parallel, 1" q vns @ 85° CA, w/ erratic 1/8" ZnS grains @ vn margins. Tr chlorite after biot, & ser of plag for 2" adjacent to vns. No visible MoS₂.
- 650 - 660' 0-10', CA, generally fresh & unbroken. V. wk ser of plag, & lo tr of chlorite rims on biot. 0-1', 1x3mm lo μ aplite stringers in g'mass. Not close to a MCA texture. @ 2', 40° CA, hl py-Mo vn. @ 9.5', 80° CA, 1/2" barren qtz vn adjac to Mo ctd slc @ 70° CA. Tr CaF₂ @ 8'.
- 660 - 670' 0-10', CA. (Note: nx 0-8.5, bx 8.5-10', then to EOH.) Fresh & unbroken core. 0-1', tr ser on plag adjacent to steep open fx. 9', 85° CA, MoS₂ dissem & blebby on hl fx w/ tr SiO₂. Wk chlor after biot, 8-10'.
- 670 - 680' 0-10', CA, generally fresh, & very competent. Tr ser on plag, 0-2'. @ 0.8', 30° CA fx, py ctd. Hl flat q vn @ 9.5'. No other vns or visible MoS₂.
- 680 - 690' 0-10', CA, as above. Tr milky incipient arg on \sim 5% of total plag. Tr ser on \sim 10% of total plag. Biot is fresh. @ 2', 80° CA, 1/2" q vn w/ tr MoS₂. @ 5.5', 75° CA, 1/2" qtz-chlorite vn.
- 690 - 700' 0-10', CA. Unbroken & fresh, except for tr amts of incip ser & arg, & wk amts of chlorite on 5% of total biot. 3 flat 1/2" qtz vns /10', barren. No visible MoS₂.
- 700 - 710' 0-10', CA. Slight increase in arg & ser. Several plag grains have gougy argillic rims, & a few have weakly gougeable ser cores. Biot remains fresh. @ 4', 80° CA, cse MoS₂ as irregular vn filling w/ only tr amts of hl qtz.
- 710 - 720' 0-10', CA. Core is well broken w/ 20-30° CA clay, chlorite, ctgs. @ 2', 4" bxa w/ ggy calcite filling. 95% of all plag is mod-strong arg, w/ lo mod ser. Biot is 99% fresh. @ 5', 70° CA, 4" barren qtz vn. No visible MoS₂.

Hole No. 36W - 4N
Page 10
Date 8/30/74
Logged By RWG

- 720 - 730' 0-10', CA, as above 0-7'. 7-10', badly broken, ggy, w/ intense chlor, arg, & ser alt. Unbroken 0-7' interval w/ plag still mod-strongly arged &/or sericitized. 9-10', 30° CA, tight, but ggy bxa, w/ CA frags in matrix of sil, py, clay, chlorite, & possibly MoS₂. 9.8-10', aplite vn // fx zone.
- 730 - 740' 0-10', CA. Core is v. badly broken. Texture is cataclastic & generally gougy. Fracture trend is mainly 20-25° CA. Probable fault zone. Gougy material predominantly consists of chlorite, clay, silica, & fine grained py. MoS₂ could be present, but is not visible.
- 740 - 750' 0-10', CA. Core is ggy, 0-2.5', as above. 2.5-10', 5 fx/ft @ 30° CA. Rock is 7 competent & texture is preserved. Alteration is strong w/ seric of plag & lo chloritization of biot. Arg & chlorite coat all fx, w/ tr's of py. No q vning or visible MoS₂.
- 750 - 760' 0-10', CA. 1-4', rk is badly broken @ 20° CA. Texture is preserved. 2-2.7', 20° CA, tight gge zone bxa, w/ CA frags in a matrix of clay, chlor, silica, CO₃, py, (Mo?). 2.8', 2, ½" // calcite filled fx. Alteration is mod to strong, 0-8', w/ sericit of plag (tr's of arg), chlorit of biot (20% of total). 8-10', rk is unbroken, biot is fresh, & mod ser of plag continues. No q vning.
- 760 - 770' 0-10', CA. Rk is generally unbroken, though slc fractures occur @ 20° CA, @ 5', & 6'. 8-10', 20° CA, 1" tight shear, w/ granulated CA in clay-chlorite matrix. Plag alteration is strong rimming by ser-arg, w/ wk ser in core. Biot is fresh. No q vning or vis MoS₂.
- 770 - 780' 0-10', CA. Core shows incipient shattering reflected by intense 10-30° CA μ -fracturing. 5-6.6', core is hvly fxed @ 30° CA, w/ lo foliation of biotite. 0-10', all plag is strongly altered w/ mixed ser-arg. Biot is lo chloritic. 8.5', 75° CA, ½" q-Mo vn (5% Mo).
- 780 - 790' 0-10', CA. Core is unbroken 0-10', & alt of plag consists of mod-strong kaolinization w/ only tr amts of ser. Biot is fresh. @ 1', 20° CA, hl MoS₂ vlt w/ tr Qtz. Steep μ -fx continue & are lined w/ wk arg.
- 790 - 800' 0-10', CA w/ lo 25° CA fxing, clay-chlorite ctd (2/ft) plag continues w/ strong arg-ser alteration. Tr chlor after biot @ 4', 80° CA, dissem MoS₂ on irregular partly open fx, w/ tr SiO₂.

Hole No. 36W - 4N
Page 11
Date 8/31/74
Logged By RWG

- 800 - 810' 0-10', CA. 0-2.6', rk is cataclastically deformed, & biotite is irregularly foliated @ $\sim 10^\circ$ CA. 2.6-10', core is competent, & plag continues to be strongly argillized lo, w/ tr amts of ser. @ 6', 70° CA, irreg $\frac{1}{2}$ " q vn w/ cse MoS_2 (5% Mo). No other vning.
- 810 - 820' 0-10', CA. Unbroken, 0-10'. Alteration continues as above. 5% of plag phenos are vuggy from post-argillis leaching adjacent to fx. $\frac{1}{2}$ " long, steep py filled μ -fx, 0-4'. @ 9.8', 60° CA, $3/4$ " barren qtz vn. No other vning or visible MoS_2 .
- 820 - 830' 0-10', CA. Unbroken, although @ 8', 2 // 15° CA, clay cts fx. Alteration is as above. Tr chlorite w/ biotite. No vning or vis MoS_2 .
- 830 - 840' 0-10', CA, unbroken though chl ctd hl fx do randomly occur @ 20° CA, 2/ft. Alt, as above. No vning. Hl MoS_2 on slip @ 9'.
- 840 - 850' 0-10', CA. Core is as above, w/ μ -fx gradually becoming open slips, clay ctd 0-7'. 7-10', texture is cataclastic, w/ lo intense granulation. Steely grey 30° CA slcs could be py-Mo. No q vning, 0-10'.
- 850 - 860' 0-10', CA. 0-10', is fault zone, entered into @ 7' of last interval. CA is completely cataclastic, w/ 20° CA py (+ Mo?) ctd slcs (4/ft). Alteration may not be as strong as it seems, because most of it is redistributed pre-fault material. Biotite is erratically foliated @ + 30° & slightly chloritic. MoS_2 is hard to estimate. @ 4', MoS_2 is smeared // to foliated biotite on an irregular surface. No other Mo is visible, unless wkly mixed w/ py on a few slcs.
- 860 - 870' 0-10', CA. Fault zone continues as above, w/ py-(Mo)?, clay-chlorite slcs @ 20° CA, 0-7'. Ser & arg of plag is still intense. 7-10', rock isn't as badly broken, w/ ~ 3 -4 fx/ft @ 25° CA. CA texture is not cataclastic, but alteration continues to be strong. @ 7 & 9', 60° CA, $\frac{1}{2}$ " barren qtz vns.
- 870 - 880' 0-10', CA. 0-10', rk is heavily fractured & overall texture is cataclastic. Fx is > 10 /ft. Alt is strong, w/ ser-arg of plag, chloritiz of biot. Fx are clay slced, w/ v. minor py (+ Mo). On clay slip @ 5° CA, 5', is tr red He. 3mm bleb of dissem MoS_2 @ 2'. @ 9', 80° CA, $\frac{1}{2}$ " bxd q vn w/ cse MoS_2 (20%).

Hole No. 36W - 4N
Page 12
Date 9/1/74
Logged By RWG

- 880 - 890' 0-10', CA. 2' rcv due to loss of fault gge. 2' wh/ is recovered is badly broken, well altered CA. 6 mm bleb of dissem Mo @ 5'. CA wh/ is fairly competent, is characterized by 30° CA intense μ -fractures.
- 890 - 900' CA, 0-10', w/ continuation of 10-25° CA fault zone. 0-5', is v. ggy, w/ pure kaolinitized gge, 1-2'. 5-10', texture is cataclastic & shattered. Alteration continues strong, as above. 3-5', tr's of dissem lmm MoS₂ in CA gouge. No vning.
- 900 - 910' 0-10', CA. Fault zone, w/ cataclastic CA, instead of gge, continues, 0-4'. 4-10', CA is only moderately μ -fractured, w/ v. thin py ctgs. Alt is strong 0-10', biot is only wkly chloritized, 4-10'. @ 8', 8 mm bleb of dissem MoS₂. No vning.
- 910 - 920' 0-10', CA. Typically textured CA, 0-3', w/ clumpy biotite ~ 3-5%. 3-10', biot increases to 10%, is clumpy & lo strung out & swirly. 5-10', lo 4" intervals of assimilated CA by fine alaskite material, MCA texture. Rk is generally μ -fractured @ 30° CA, lined w/ py, clay, chlorite. 15% tot biotite is chloritized. Plag alt is very minor, w/ only incipient ser-arg. Tr dissem MoS₂, no vning.
- 920 - 930' 0-3.5', CA. 70° CA contacts w/ FA, 3.5-5'. CA, 5-6'. 70° contacts w/ FA, 6-8'. CA, 8-10'. CA texture continues w/ increased bio %. Lo FA assimil of CA. FA dikes appear to be v. fresh. Lower dike contact @ 8' has 3" assimilation texture. Plag still only wkly altered. No q vning. @ 9.8', 65° CA, 3mm Mo-py slc.
- 930 - 940' 0-10', alternating 4-6" intervals of CA w/ MCA. MCA is an aplitic assimilation texture. Assimilated intervals usually contain ½" aplitic veins. Biot is lo chloritic. Plag is wkly ser-arg. 8-10', assim text, w/ biot lo up to 20% & fresh. Hl py-chlorite slips, 2/ft, @ 65° CA, 8-10'. @ 8', 2mm q-Mo vn @ 70° CA. @ 9.9', 60° CA, ½" q-Mo vn (5% Mo).
- 940 - 950' 0-10', CA, w/ 1 or 2 lo 3" intervals of v. minor assim texture. Rk has a lt green cast due to ~ 5% overall chlorite. Chl is v. hvy along 30° CA fract. Rk is v. strongly μ -fractured, & locally these merge to form through-going fractures and/or slips. Very interesting relationship between fx & slips & their antecedent incipient structures (μ -fx). μ -fx are py-chlorite lined. @ 2.5', 70° CA, μ -apl vn w/ tr MoS₂. 6', 80° CA, 3/4" qtz vn w/ tr MoS₂.

Hole No.	36W - 4N
Page	13
Date	9/1/74
Logged By	RWG

- 950 - 960' 0-2', CA (wk MCA). 2-4', transition MCA zo w/ aplitic assim of CA. 4-10', fine alaskite, w/ gradational contact @ 4'. 3-4', zo of 20% dissem & swirly biotite-chlorite. Intense μ -fracturing dies out @ 0-1'. @ 3', 70° CA, ½" q vn w/ tr MoS₂. 8', 70° CA, ½" q vn w/ tr MoS₂. MoS₂ v. wkly dissem 0-4'.
- 960 - 970' 0-1.5', FA continues. 1.5', fine alaskite takes on assimilation texture to 10'. Large blocky K-f phenos of CA origin constitute ~ 15% of g'mass, w/ minor plag (5%) & qtz (6%). G'mass is definitely FA textured & apparently fresh except for pinpoint specks of argillic material too small to tell what is has altered. Plag grains (4x6mm) are v. strongly ser-arged thruout, & not rimmed. Biot is fresh. Chlorite restricted to slip ctgs, 1/ft, 30° CA. @ 6', bxd 1" q vn (X?) w/ tr MoS₂. No other vis Mo, or q vning.
- 970 - 980' 0-10', MCA, w/ FA g'mass. Interval is as above, except that a few plag grains have argillic cores w/ ser rims. Rock is fxd, 5/ft, @ 30° CA, clay and/or chlorite ctd. @ 7', 60° CA, 1/8" q-Mo vn (40% Mo).
- 980 - 990' 0-10', variable between MCA & CA. Texture is almost migmatitic from intense internal shearing & structural deformation. Biot is sheared & strung out in irregular bands, locally. 60% of interval appears to have a MCA g'mass texture, though alteration & cataclasis make it hard to tell. Argillic alteration predominates over chlorite (on slips) & sericite (wk after plag). 7-10', 4, ½", 30-50° CA qtz vns, 2 w/ tr MoS₂.
- 990 - 1000' 0-10', ~ 90% MCA, 10% CA. Aplitic g'mass w/ incorporated phenos is evident, but texture is hard to see due to structural reorganization & cataclasis. Alteration is as above, though slightly reduced. MoS₂ increases, w/ ctd slc, @ 2', 40° CA. @ 5', 70° CA, 3/4" q-cse Mo vn (35% Mo). MoS₂ is wkly dissem, 0-10'.
- 1000 - 1010' 0-10', 90% MCA, 10% CA textured rk. Texture is somewhat obscured by granulation &/or cataclasis. Fx & thinly clay ctd, or chlorite ctd. Ser & arg of plag is wk-mod. Biotite is weakly rimmed by chlorite. Qtz vning not seen, & MoS₂ is weakly dissem.
- 1010 - 1020' 0-10', 80% CA, 20% MCA, erratic distribution. Core continues to be v. badly broken. Plag are once again totally altered to argillic cores w/ ser rims. Slcs are clay-chlorite ctd. Biot is mostly fresh. MoS₂ is wkly dissem, 9-10', 80° contact w/ tight bxa w/ CA frags (one w/ MoS₂-py) in matrix of qtz-py-clay.

Hole No. 36W - 4N
Page 14
Date 9/2/74
Logged By RWG

- 1020 - 1030' 0-10', CA. 0-1', continuation of tight bxa, previously described. 1-10', CA texture is barely recognizable due to extreme cataclasis. Core is also badly broken. Alteration is as above. 2, 3x5mm blebs of dissem MoS₂, 0-10'. @ 9.95', interval ends on 80° CA, 1/8" MoS₂ vn, w/ tr Qtz, clay.
- 1030 - 1040' 0-10', CA. Core badly broken, but texture is definitely CA. Fx are ~ 20° CA, clay ctd, or locally ggy w/ clay, chlorite, py. Alt is as above. @ 0.1', 80° CA, 1/8" MoS₂ w/ minor Qtz. @ 4.5', 75° CA, 3/4" barren Qtz vn. MoS₂ is probably wkly dissem, but is not visible.
- 1040 - 1050' 0-10, CA. Core is heavily fractured, but texture is not as cataclastic. Alteration of plag still strong, w/ ser-arg. 95% of tot biot is fresh. Fx & slcs are clay ctd, w/ tr chlorite, py. @ 0.2', 65° CA, 1/2" q vn, w/ tr MoS₂. @ 0.8', 80° CA, cse MoS₂-Qtz vn (80% Mo), 1/8" wide. 1 of 2 specks dissem Mo, 2-8'. 8-10', core is v. competent & unbroken.
- 1050 - 1060' 0-10', CA. Core is v. competent & unbroken, 0-10', w/ texture intact. Good CA, w/ no f grained aplitic assimilation. Plag is mod-strong ser, w/ wk arg. Biot is fresh. 1.5-3.5', clay ctd fx, // core axis. Best MoS₂ in hole. @ 1', 60° CA, 3/4" q-cse Mo vn (50% Mo). @ 7', 80° CA, 1/2" q-Mo vn (20% Mo). @ 8', 85° CA, hl MoS₂ seam. @ 8.5', 65° CA, 1/2" Qtz-cse Mo vn (15% Mo). Est between .25-.30 MoS₂, 0-10'.
- 1060 - 1070' 0-10', CA. Core is wk-mod fractured // to CA @ 3/ft. Texture remains intact. Plag is mod-strongly sericitized, w/ slightly more arg than previous 10'. Steep fx are also clay ctd. Biot is fresh, w/ tr chlorite lo on plate edges. Only vis MoS₂ is @ 7', 70° CA, 3/4" Qtz-Mo vn (10% Mo).
- 1070 - 1080' 0-10', CA. Steep fx continue as above, & are clay ctd. Alt is wk-mod, w/ wk ser & mod arg of plag. 7-8', plag appears to be more chloritic than sericitic. Biot is fresh. @ 5.5', 60° CA, 3/4" q-Mo vn (< 10% Mo). @ 6.5', 80° CA, hl Mo ctd fx w/ v. minor SiO₂.
- 1080 - 1090' 0-10', CA. Unbroken, 0-2'. 2-10', badly broken but only v. weakly arged. Intense μ -fracturing @ 10° CA producing an incipient cataclastic texture. Where μ -fx 10 anastomose, cataclastic texture is produced. Plag alt is as above. Biot is mostly fresh, w/ tr's lo chlorite. @ 6', 80° CA, 3" mafic fine alaskite dike (vn), fresh. 0-10', tr dissem MoS₂.

Hole No. 36W - 4N
Page 15
Date 9/5/74
Logged By RWG

1090 - 1100' 0-10', CA. Core is badly broken & texture is one of incipient cataclasis due to μ -fx, as above. Fxed core is more argillic than before, w/ steep chlorite-clay ctd fx, 4-5'. Plag is totally altered by ser and kaol. Biot is generally fresh w/ lo chlorite. @ 2', hl MoS₂ on slip in 6" argillized interval. @ 7', 70° CA, 1/8 to 1/4" irregular massive cse MoS₂-q vn (60% Mo) in cataclastic CA. @ 8', 55° CA, 1/8" q-Mo vn (10% Mo). No other visible MoS₂. Hole bottoms in strongly μ -fxed CA, w/ no evidence or indication of any ensuing rock change.

End of Hole
9/5/74
RWG

PERCENTAGE MOLYBDENUM CONTENT

DRILL HOLE NO. 12W - 16N

No assays available.

Hole No. 12W - 16N
Page 1
Date 9/17/74
Logged By RWG

- 501 - 510' 1-10', MCA, w/ 4" pod of irregular granite peg @ 3.5'. MCA texture is one of aplitic assimilation, w/ fragments of blocky K-feldspar & plag in a fine grained matrix of equigranular Qtz, feldspar, & 5% f gr disseminated biotite. % assimilation texture varies from 10%-60%, averaging ~30%. Rock is extremely competent, w/ 2" ggy zo @ 6', 40° CA. Plag adjacent to & w/in this zo is sericitized & wkly argillized. All other plag, 1-10', is fresh, or only wkly ser-arg'ed. Biot & K-feldspar are fresh. Where 1" masses of CA occur whose interiors were protected from aplitic assimilation, biot has the typical clumpy CA appearance. Biotite on edges of CA frags appears to have been stripped off through assimilative processes, and redistributed in the fine grained g'mass. It seems quite possible (even probable) that some (~30%?) of the fine grained g'mass biotite could merely be redistributed CA biotite. No Qtz vning. Tr disseminated MoS₂ w/ py @ 10'.
- 510 - 520' 0-10', MCA, as above. Alt of plag continues as wk ser-arg. Texturally, 10 6" zones of strong assimilation resemble MA. @ 5', 5° CA, hl seam of Qtz-py-tr chlorite. μ -fracts are v. rare, but are py ctd when observed. Tr disseminated Mo, 0-10'.
- 520 - 530' 0-10', MCA, w/ 10 non-assimilated 2-3" CA intervals. Rk is essentially fresh, w/ v. wk incipient ser of plag. @ 4', 30° CA, 1/2" barren Qtz. @ 7', 90° CA, 1/2" barren Qtz. Tr disseminated Mo, 0-10'.
- 530 - 540' 0-10', MCA, as above. Lo v. wk ser of plag, w/ no visible argillization. 6 hl barren Qtz vns /10'. @ 4' & @ 6', 30° hl chlorite-py ctd sles. Tr disseminated Mo.
- 540 - 550' 0-9', MCA, as above, 0-1'. 1-10', alteration increases to mod sericitization w/ v. wk lo arg of plag. 2 square inch mafic inclusion (biot) is mod chloritized. Lo clumps of primary biot are wkly chloritic. @ 1', 70° CA, 1/2" Qtz-py vn, w/ tr MoS₂. 2 hl q vns /10'. 9-10', CA texture w/ no interstitial assim text.
- 550 - 560' 0-10', CA. No assimilation textures. Alteration continues as above. @ 1', 35° CA, clay ctd fract w/ drusy Qtz in associated adjacent open fract. @ 8.5', 30° CA, 2" barren Qtz w/ hazy wallrock margins.
- 560 - 570' 0-10', CA, as above. Alt as above. Py coats hl partially open fx, 3/10' @ 30° CA. 2 hl q vns /10'. @ 3', 30° CA, 1/8" q-Mo vn (10% Mo). @ 7', 85° CA, 1/2" q-Mo vn (3% Mo). 9-10', v. wk μ -fracturing begins, @ 45° CA, 6 per inch, & not py ctd. μ -fx affect only blocky K-spars.

Hole No. 12W - 16N.
Page 2
Date 9/18/74
Logged By RWG

- 570 - 580' 0-10', CA as above. Alt, as above. μ -fracturing continues, weakly, and affects only blocky K-spars. 1' long hl chlorite ctd fx, parallel to CA, 3-7'. 4/10', hl, 20° CA, q vns. @ 8.5', 85° CA, ½" barren q vn. @ 9.8', 25° CA, ½" barren irregular q vn.
- 580 - 590' 0-10', CA, w/ graphic qtz in K-spar, 2-3'. Alteration is as above. 6-10', chlorite & clay ctd fx increase to ~ 5/ft @ ~ 35° CA. 2" argillized gge @ 7'. @ 2', 80° CA, ½" barren q vn. Tr MoS₂ on slcs.
- 590 - 600' 0-10', CA, w/ lo 3mm equigranular interstitial mosaic of q & K-spar. Core is badly broken @ 30-40° CA, but primary rock texture is preserved. Alt is as above, w/ slight increase in arg on fx. @ 1.3', 10° CA, ½' q vn w/ v. f grained MoS₂ rims. @ 7', 30° CA, ½" q-py vn. No other vis MoS₂.
- 600 - 610' 0-10', CA, core not as badly broken, though chloritization is stronger w/ ~ 75% of biotite altered. 5.5-7', v. coarse to massive primary (or deuteric) creamy-tan K-spar. 4', 90° CA, 1/8" q vn w/ tr fluorite. 7', 20° CA, ½" q vn w/ v. f grained MoS₂ rims.
- 610 - 620' 0-10', CA. 0-3', primary texture is preserved. 3-10', text is cataclastic & lo ggy. Color is an overall pale greenish due to chloritization of all biot & lo comminution of g'mass to produce an overall hazy texture. 4-8 is v. ggy @ 40° CA, w/ 10 ½" slips of chlorite-py-arg-t MoS₂. @ 1.3', 80° CA, ½" q-Mo vn (10% Mo). @ 4', 35° CA, partly open hl fx w/ Mo & minor qtz.
- 620 - 630' 0-10', cataclastic CA, w/ 1' FA dike, 40° CA, @ 4-5'. Alteration & lo brecciation continue as above. Q vns are hazy & brecciated (2/10') & appear to be barren. Possible MoS₂ on 20° CA, ½" chlorite-py filled fx.
- 630 - 640' 0-10', CA. 0-10', intense shearing (faulting), brecciation, & gouge @ 40° CA. CA barely recognizable. lmm cubic py in gge w/ chlorite & argillized CA. @ 3', 80° CA, brecc 1/8" 2-py-Mo vn (15% Mo). MoS₂ may occur on slips & in gge, but is not visible.
- 640 - 650' 0-10', CA. 1-3', aplitic matrix w/ possible assimilation. 0-10', cataclastic texture, though core is not badly broken. 4-5', // bands @ 30° CA, of chlorite-py-clay-qtz-(Mo?). @ 6', 25° CA, 3/4" bxd barren qtz vn.

- 650 - 660' 0-10', CA. W/ lo aplitic g'mass texture. Seems to be from cataclasis & not actual assimilation. Where blocky K-spar phenos remain intact, interstitial q, K-spar does too. Marked increase in py, ~ 1%, 0-10', as lmm cubes, or massive hl fx fillings. @ .5', 70° CA, 1/8" py-Mo vn (5% Mo). @ 6', 30° CA, bxd 2" barren q vn.
- 660 - 670' 0-2', CA as above. 2-10', FA dike, w/ contacts obscured by heavy fx. FA is fine grained, equigranular, cataclastic mixture of Qtz K-spar, w/ ~ 3% chloritized biotite. 30° CA, fx are chlorite-py-arg ctd, w/ lo traces of MoS₂. On contact @ 2', hl q-Mo vn, & obscured. @ 6', 20° CA, 1/2" q-Mo vn (10% Mo). Mo estimated @ ~ .1, but may be higher w/ MoS₂ on slcs w/ chlorite. Hard to tell.
- 670 - 680' 0-6', FA continues, as above. MPFA, 6-10'; contact lost due to bxiation. All textures very cataclastic. A few CA frags appear to be lo assimilated by FA. 4.5-6' in FA, hl to 1/8" irregular 60° CA Mo vns. Purple fluorite v. wkly dissem in FA, @ 2'.
- 680 - 690' 0-10', MPFA, w/ strong aplitic assimilation. All textures cataclastic. 6-8' silica healed fault bxa, w/ tr fluorite. Only visible Mo is in tr am't w/ purple flu @ 1', but mode of occurrence is not seen. Brecciation is too intense for an accurate compositional analysis @ this time. Text & composition will be described when they are more discernible.
- 690 - 700' 0-10', MPFA (?). Rock is complete shattered, but texture is visible. G'mass is fine grained and aplitic. 8% primary rounded Qtz phenos, 2x3mm. #% blocky K-spar phenos. 4x4mm. ~ 2-3% chloritized biotite, 1x1mm. Blocky CA K-spar fragments are 6-10x6-20mm, 6%. Qtz vns are @ 30° CA, 4/10', 1/2" & barren. No visible Mo, but it could be present on slcs w/ py-chlorite, or arg.
- 700 - 710' 0-10', MPFA, as above. ➤ 10 fx/ft, w/ argillized, chloritic, pyritic slcs. Tr wolframite in Qtz vn @ 2', 80° CA, 1/2". 17 hl q vns /10', generally @ 30° CA. @ 6', 30° CA, 1/2" bxd q-Mo vn. @ 10', 20° CA, 1/4" q-py-Mo.
- 710 - 720' 0-10', MPFA. 0-1', bxa healed by massive silica, w/ dissem ser-py-MoS₂. 1-2.5', MPFA, cataclastic w/ stockwork 1/2" Qtz vns @ 20° CA, w/ tr py-MoS₂. @ 2.5 & 3.5', 80° CA, 3/4" Qtz vns w/ cse ser-py, w/ tr MoS₂. Core is v. badly broken, 4-10'. Aplitic g'mass is argillized.

- 720 - 730' 0-10', MPFA, cataclastic texture & core is locally sandy. Sericitic-argillic alt of g'mass continues, w/ py weakly disseminated. Qtz vning continues w/ 1/8" 30° CA stockwork, 6-8' w/ no vis MoS₂. Where strong 30° CA shearing occurs, ctd w/ chlor-ser-py-arg, MoS₂ may be present, but difficult to evaluate.
- 730 - 740' 0-10', MPFA (PFA). 0-7', texture is not as cataclastic & fracturing & brecciation are weaker. 7-10', core is competent & unbroken, & rk texture is intact. Alt is as above, though reduced. Poss MoS₂ on slc @ 2', 20° CA, w/ bxd q-py. @ 7.2', 70° CA, 1" quartzose pegmatite vn. V. wk steep hl stkwk q & q-py vning, 7-10'; could be fracture healing.
- 740 - 750' 0-10', MPFA to PFA. Blocky assimilated K-spar is reduced to 4% overall. Textures are intact, though core is moderately fractured. Fx diminish w/ increasing distance from fault zone. Plag is wkly sericitized. 30% of biot is fresh while the rest is chloritic 1.5', 85° CA, 1 1/2" q vn w/ tr Mo. 4-9', strong steep hl stockwork q vning, w/ v. wk MoS₂ overall. 50% of vns are later healed fx.
- 750 - 760' 0-10', PFA (MPFA, locally). PFA is as above, 0-7'. 7-10', texture is jumbled & possibly autobrecciated. Hl stockwork qtz vns heal the matrix. This rock is identical to jumbled Urad porphyry. Late 30° CA, hl q-f gr MoS₂ every other inch, 9-10'. @ 0.1', 65° CA, 3/4" q-Mo vn (5% Mo). @ 5', 65° CA, 1/2" q vn w/ tr MoS₂. @ 8', 40° CA, 1/2" qtz-v. f gr Mo vn.
- 760 - 770' 0-10', PFA (MPFA locally). 0-1', jumbled texture continues. 1-10', PFA & MPFA, looks very much like Urad porphyry. 3-4.4', 40° CA, siliceous bxa, w/ dissem py (2%), tr Mo. @ 4', 1" greasy sericite-chlorite seam. Stockwork qtz vning continues 0-10', from weak to intermittently strong for 6" lo. Mo occurs wkly as v. fine grained w/ hl sugary qtz vns, or as lmm blebs in 3, 1/2" qtz vns /10'.
- 770 - 780' 0-6', PFA, as above. @ 5', 60°, 1/2" K-spar vn w/ dissem MoS₂ (5% Mo). @ 6', 2" lt grey silicified chill zone adjacent to sharp 35° CA contact w/ CA. CA, 6-10'. Rk is essentially fresh, w/ only tr ser of plag. Biot is moderately chloritic. Stockwork hl q vning v. minor, & is restricted to 20° CA, hl fx fillings. @ 8.5', 80° CA, 1/2" q-Mo vn (10% Mo).
- 780 - 790' 0-10', CA, as above. Alt as above. No more stockwork q vning. 1/2-3/4" qtz vns @ 75° CA, @ 2', 5', 5.2', 9.4', each w/ tr amts of MoS₂. Qtz vn @ 5' cut by lmm py vn parallel CA.
- 790 - 800' 0-10', CA, as above. Wk ser of plag. < 1% blocky K-spar are rimmed by chlorite. 7 q vns /10', @ 30° CA, w/ tr MoS₂-py.

Hole No. 12W - 16N
Page 5
Date 9/20/74
Logged By RWG

- 800 - 810' 0-10', CA. 1-4', ggy zone @ 20° CA, wkly argillized & lo healed w/ drusy qtz-chlorite. 8-9', ggy parallel CA, w/ drusy qtz in fx. 7', 3/4", 60° CA, q-Mo vn (5% Mo). Cse sericite lo in ggy zones (1x1mm flakes).
- 810 - 820' 0-10', CA, unbroken & competent. Alteration consists of wk-mod ser of plag, & mod chloritization of biot. Biot is much fresher in this interval than in any previous one. Only one qtz vn: @ 4', 65° CA, 3/4", w/ cse MoS₂ (25%).
- 820 - 830' 0-10', CA, as above. Slight increase in chlorite. @ 6', 1/2" q vn @ 80° CA, w/ upper rim of 1/2" cse sericite (1-2mm²), & lower rim of 1/2" cse ser w/ tr MoS₂. @ 7', 40° CA, 2mm MoS₂ seam, fx filling. Tr dissem Mo, 0-10'.
- 830 - 840' 0-10', CA, w/ FA dikes @ 7.3-7.4', 60° CA, & @ 8.5-9.0', 70° CA. Contacts are sharp, w/ no associated assimilation of CA. Texture and alteration of CA is as above. @ 4', 30° CA, 2" gge bxa, loosely cemented by clay-chlorite. 0-2.8', 1/2" qtz vn // to CA, w/ tr amts of MoS₂. @ 6', 30° CA, 1/2" barren q vn. No other visible MoS₂.
- 840 - 850' 0-10', CA, as above, no FA dikes. 2-3', & 6-8', texture is mottled, as g'mass qtz increases & blocky feldspars are reduced in size (to 10x10mm) & quantity. Texture is best described as mottled equigranular. Typical CA texture, 0-2, 3-6, 8-10'. @ 5', 80° CA, 1/8" q-Mo vn (5% Mo). @ 8 & 8.1', 85° CA, 1" q vns, w/ tr MoS₂. @ 9', 80° CA, 3/4" barren qtz. Tr dissem Mo, 0-10'.
- 850 - 860' 0-10', CA, w ~60% of texture locally mottled, as above. Rock is still CA. This texture does not resemble MA, or MCA. Seric of plag remains mod. Chloritiz of biot increases slightly to ~40% of total. @ 4', 10° CA, 2mm qsp vn, w/ tr MoS₂. Sericitic occurs as irregular 5mm patches, every other inch along vn margins. @ 7.5', 2" dissem cse ser (2mm), py, w/ minor qtz. 3 barren 30° CA, 1/2" q vns /10'. Tr dissem Mo, 0-10'.
- 860 - 870' 0-10', CA. Texture is more typical, w/ 10% mottling overall. Chlorite is decreased, w/ biot ~75% fresh. Wk ser of plag continues; @ 7', 65° CA, 1" barren qtz vn. 3 hl q vns /10'. Tr dissem MoS₂ @ 4' & 8'.

Hole No. 12W - 16N
Page 6
Date 9/21/74
Logged By RWG

- 870 - 880' 0-9', CA, no mottling of texture. Biot is only ~50% fresh. @ 0.4', 2" chloritized mafic inclusion. @ 1.2', 70° CA, 2" Qtz-py-cse-ser vn (no Mo). @ 6', 35° CA, 1/2" Qtz-cse MoS₂ vn (8% Mo). 3 hl 30° CA q vns w/ tr MoS₂. @ 9', 90° CA, sharp contact w/ 6" biotite rich (30% dissem) chill zone of PFA-type dike. Biot rich zo is too mafic for MFA & is gradational over 2" into PFA, w/ decreasing dissem. Biot content texture is more that of PFA than MPFA, w/ only ~3-5% CA type blocky K-fphenos. Plag phenos have mod ser rims on mod arg cores. No q vning or vis MoS₂.
- 880 - 890' 0-10', PFA textured rock, w/ lt greenish-grey fine grained matrix containing 10% Qtz (4x5mm), 7% K-spar (4x6mm), 3% Plag? (1x3mm), 2-3% dissem biot (1x1mm), & 1-2% blocky K-spar (10x15mm) ressembling CA K-spar. Overall, rock is fresh, w/ wk-mod ser of Plag. @ 0', 2" q, K-spar peg vn. @ 1' & @ 2', 80° CA, 2" MFA dikes of hazy contacts. @ 7', 50° CA, 1/2" barren Qtz vn. 3 hl q vns /10', w/ tr MoS₂. 9.4-10', texture is crowded w/ ~15% blocky K-spar. Hl 30° CA, open fx w/ ser-py filling, cutting @ 1" massive creamy K-spar vn. K-spar appears to be deuteritic & not from potassic alteration.
- 890 - 900' 0-10', PFA, as above, w/ ~1% blocky K-spar phenos. G'mass is fine grained & lt greenish-grey. Where rk is strongly fxed @ 20° CA, 15 @ 2' & @ 8', g'mass is bleached to a lt tan due to wk arg. 3 fx /10' w/ 3mm zones of cse ser w/ dissem py-Qtz. 5 hl q vns /10'. @ 6', 80° CA, 1/2" q-Mo vn (5% Mo). Tr dissem Mo, 0-10'.
- 900 - 910' 0-10', PFA. 0-8', g'mass is v. wkly argillized & lt tan due to strong fx @ 15-20° CA. Texture is lo cataclastic & resembles jumbled Urad. 2-4', lo ggy, w/ clay, chlorite, py. @ 1', 85° CA, 1/2" bxd barren q vn. @ 7', ggy MoS₂ in lo argillized fx. 8-10', no fracturing & PFA texture is fresh & lt greenish-grey.
- 910 - 920' 0-4', PFA grading into assimilation PFA @ 2' w/ increase in blocky K-feld phenos to 15%. PFA continues to be fresh & unbroken. @ 4', 80° CA, sharp contact w/ CA. 1/2" peg vn marks the contact. No chill zone present in PFA. 4-10', typical CA texture. Plag is fresh, though 35% of biot is chloritized. @ 0.7', 85° CA, 3/4" barren Qtz vn. @ 4', in contact peg, ~10% dissem Mo over 1/2". @ 7', 75° CA, 3/4" q-Mo vn (5% Mo).
- 920 - 930' 0-1', CA continues as above. From 1', CA gradationally becomes more and more assimilated, as blocky K-spars are gradually spread further apart. G'mass is fine grained aplite. @ 3.5', more aplitic g'mass than phenos & K-spar inclusions. Rock closely resembles MPFA. 3-10', rk is fractured (6/ft) @ 5-20° CA. Wk argillization in this area produces a bleaching of the g'mass. @ 4.5', 30° CA, 1/2" bxd q vn, w/ 10% fine MoS₂. 5-10', good Mo showing (~.12 overall) on 10° CA slcs, w/ or w/o py, arg, chlorite.

Hole No. 12W - 16N
Page 7
Date 9/21/74
Logged By RWG

- 930 - 940' 0-3', assimilation texture continues as before. Gradationally, 3-10', fine grained aplitic g'mass predominates, w/ only 15-20% total pheno content (qtz \gg K-spar \gg plag, \sim 1% dissem biot), & blocky K-spars drop to \sim 1-2%. \sim $\frac{1}{2}$ of blocky K-spars have 2mm ser rims. Biot is moderately chloritic. @ 4', 70° CA, 1" q vn w/ tr MoS₂. @ 8', 65° CA, 3/4" q vn w/ \sim 3% Mo). Rare MoS₂ on steep slcs.
- 940 - 950' 0-10', 70% PFA, 30% MPFA₂ lo for 6-8" & characterized by crowding of blocky (\gg 20 mm) K-spar. Alt is as above. 5 hl q vns /10'. @ 1.7', 45° CA, 1/2" q vn w/ 10% cse MoS₂. @ 9.4', 80° CA, 3/4" q vn (tr MoS₂) w/ 1/2" rims of creamy massive K-spar.
- 950 - 960' 0-10', 60% PFA, 40% MPFA texture. Fracturing is reduced to \sim 1/ft @ 30° CA. 0-1', rk is bxd & lo healed by hl stockwork silica. Plag is v. weakly sericitic, & biot is \sim 20% chloritic. @ 9.7', 1" q vn w/ tr wolframite; vn has 1/2" rims of massive creamy K-spar. Lo ggy MoS₂ w/ py-arg on 40° CA slcs @ 1' & 4'.
- 960 - 970' 0-10', MPFA. Large blocky CA-type K-spar phenos occupy \sim 10% of interval. G'mass is argillically bleached & aplitic. Core is heavily fxed & lo ggy, 3-8', @ 5° CA. Biotite is chloritic & @ 7', 80° CA, 1" massive creamy K-spar vn. @ 1', 80° CA, 3/4" q vn w/ tr MoS₂. @ 8.5', 60° CA, 1/2" cse Mo-q vn (30% Mo). 4 hl q vns /10'.
- 970 - 980' 0-7', MPFA. @ 7' contact appears to be sharp w/ CA, but \times lost due to fx & argillization. MPFA is as above, both texturally & alteration effects. MPFA is fractured @ 40° CA, & cataclastic, 4-7' w/ strong arg. @ 4', 1.5" q vn w/ 3% cse Mo. @ 4.1', 60° CA, 1/2" q-Mo vn (5% Mo). @ 7' CA, w/ v. wk aplitic assimilation, 7-8'. Typical CA textures, 8-10'. Core is competent & unbroken. Biot is v. wkly chloritic (\ll 5%), & plag is fresh. No visible MoS₂.
- 980 - 989' 0-9', typical CA. Core is unbroken, w/ earlier fracture event @ 30° CA (3-8') healed by lo stockwork q vns (1mm to 5mm). @ 7', 30° CA, 2mm Mo-slc; w/ minor qtz. @ 8', 25° CA, 1/2" q-Mo vn (5% Mo) cutting earlier hl stockwork q vns. Plag remains fresh (incipient lo ser), & biotite is weakly chloritic. 8.5-9.0', hole bottoms in 6" of massive creamy K-spar (w/ 5% dissem biot). K-spar is either primary, or deuteric. No crosscutting vn relationship.

End of Hole 989'
9/22/74
RWG

PERCENTAGE MOLYBDENUM CONTENT

DRILL HOLE NO. 12E - 12S

<u>Footage</u>	<u>%MoS₂</u>	<u>Footage</u>	<u>%MoS₂</u>
15 - 20	.0062	180 - 190	.022
20 - 30	.011	190 - 200	.021
30 - 40	.014	200 - 210	.0076
40 - 50	.0060	210 - 220	.011
50 - 60	.093	220 - 230	.025
60 - 70	.016	230 - 240	.011
70 - 80	.029	240 - 250	.011
80 - 90	.042	250 - 260	.020
90 - 100	.029	260 - 270	.0052
100 - 110	.014	270 - 280	.0032
110 - 120	.010	280 - 290	.0062
120 - 130	.010	290 - 300	.012
130 - 140	.029	300 - 310	.015
140 - 150	.025	310 - 320	.021
150 - 160	.058	320 - 330	.0020
160 - 170	.042	330 - 340	.0054
170 - 180	.012	340 - 350	.0052
		350 - 358	.0020

Hole No. 12S - 12E
Page 1
Date 7/9/74
Logged By DRS

- 0 - 20' Overburden.
- 20 - 30' 0-10', CA; @ 6', 10° CA, PFA (?) dike. Material is atypical PFA. The groundmass is coarser than usual. 3/4" chilled border within dike; @ 6.5', 80° CA, 1/8"+ wide qtz-crs MoS₂ vns; @ 9.5', 60° CA, 1/2" wide qtz vns; v. mild ser of plag; FeOx staining strong on fract surfaces; 4 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; 0-5', rock broken, 0.1' pieces.
- 30 - 40' 0-10', CA; consistent qtz vns set thru interval, 30-40° CA; @ 8.4' & 4.5', 1/2" qtz vns, 40° & 30° CA respectively; @ 9', 80° CA, 1/2" qtz vns; @ 9.3', 70° CA, 1/2" qtz-crs MoS₂ vns; 10 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; alter as above.
- 40 - 50' 0-1.8', CA; 1.8-~6.6', mixed CA & PFA. V. intermittent. Where present, rock looks similar to a "crowded porph"; @ 7.7', 20° CA, 1+" wide MFA dike; no sharp contacts noted in area of "crowded porph"; alter as above; FeOx on fract surfaces; @ 7.5', 45° CA, 1/16" wide pyr-hem vns; thru interval, 6 v. minor qtz & qtz-MoS₂ vns /10'; no MoS₂.
- 50 - 60' 0-~3', CA; 3-6', CA w/ intermittent small pods of PFA-CA mixture; 6-8.7', PFA-CA mixture. Rock is porph but has equigranular groundmass w/ xtals ave 0.5-1.0 mm. Local CA remnants. Contact @ 6', 70° CA & @ 8.7', 20° CA. PFA definitely younger than CA; 2 6', 70° CA, 1 1/2" wide qtz-crs MoS₂ vns; @ 6.3', 50° CA, 1/8"+ wide qtz-crs MoS₂ vns; @ 9.7', 65° CA, 1/2" wide qtz-crs MoS₂ vns; 17 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; @ 6.6', 30° CA, 1/8" pyr vns; @ 6.6', 65° CA, 1/2" K-f vns that cuts qtz vns?; 3 principal vns dir'n, 30° CA, 45°-50° CA, & 65°-75° CA; alter as above w/ possible increase in intensity over previous interval.
- 60 - 70' 0-5.1', CA; 5.1-5.6', PFA dike. Contacts @ 80° & 70° CA; Contact @ 5.6' cut by 1/8" qtz vns, 30° CA; @ 4.1 & 4.6', 80° CA, 1/2" & 1/2" wide PFA dikelets; 5.6-8.8', CA; 8.8-10', mixture of CA & PFA. At contact (8.8'), ~2" of rock with texture of porph. Med fine alaskite; ~9-10', mixture of CA, PFA & PFA textures w/ foliation @ 40° CA from 9.5-10'. Foliation possibly due to flow while hot & fluid; @ 4.6', 1/2" qtz vns; 12 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; ser of plag & K-f weak; FeOx along natural fract.
- 70 - 80' 0-1.3', mixed textures as at bottom of previous interval; 1.3', 60° CA, to 2.5', 70° CA, PFA dike. PFA is more pheno rich than usual, but may be due to contamination by CA; 2.5-3.2', mixed CA & PFA. Zone tends to be banded w/ alternative PFA-CA material. Overall, material coarsens near the contact @ 3.2'; 5.3-9.4', good "assim" CP; 9.4-10', CA; no contacts noted between "assim" CP & CA; @ 1.3', 30° CA, 1/2" qtz vns; occasional diss pyr.; 17 qtz-qtz-MoS₂ vns /10'; high OX% MoS₂; ser alter as before; @ 1.9', 60° CA, 1/2" qtz-crs MoS₂ vns (minor MoS₂).

Hole No. 12S - 12E
Page 2
Date 7/10/74
Logged By DRS

- 80 - 90' 0-2.5', CA; @ 1', 0° CA, ½" FFA dike which appears to be truncated by large irreg qtz vn, ~30° CA; 2.5-2.8', 30° CA, PFA dike x cut by 1/8" qtz-MoS₂ vn; 2.8-8.9', CA; 8.9'-9.3' & 9.7-10', 80° & 60° CA respectively, aplite dikes. Contacts cut by qtz vns (1/16" wide); @ 6', 20° CA, 1" wide flt w/ clay gge; alter as above; 10 qtz & qtz-MoS₂ vns /10'; high OX% MoS₂; most MoS₂ in interval is in 1/8" qtz crs MoS₂ vns (3) 55-80° CA.
- 90 - 100' 0-10', CA; @ 6.8-7.1', pod of FFA. Texture varies from FFA to MFA due to contamination by CA; 0.0-0.1', 80° CA, FFA dike; @ 3.9', 80° CA, ½" qtz-crs MoS₂ vn; @ 7.3', 60° CA, 1/8"+ qtz-crs MoS₂ vn; 6.8-7.0', pod of "graphic" material; 12 qtz-qtz-MoS₂ vns /10'; high OX% MoS₂; consistent vn set (qtz vning) 2 45-60° CA; alteration as above.
- 100 - 110' 0-10', CA; 2 3 & 5.6', 0° CA, MFA dike (just "clipped" w/ side of hole); @ 6.6', 50° CA, ½" wide PFA dikelet; alter as above; 13 qtz-qtz-Mo vns /10'; low OX% MoS₂; @ 8.2', 75° CA, ½" FFA dike. Texture of dike extremely variable from aplite to MFA; local pyr in vns; mag pods noted.
- 110 - 120' 0-10', CA; @ 6', 75° CA, 3/4" FFA dikelet; @ 8.2', 25° CA, 3" wide FFA dike x-cut by qtz vning; 9-10', K-f-qtz peg zone. Local "graphic" texture; ser of plag mod strong, while K-f weak; pods of mag noted locally; dikelet @ 6' x-cut by qtz-Mo vn; 14 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; series of qtz vns in interval @ 0-15° CA; pyr noted in few qtz vns & along minor slips w/ ser.
- 120 - 130' 0-3', K-f-qtz peg. Peg changes texture dramatically, from typical peg (large xtals) from 0-0.6', to MFA texture @ 0.6-1' to v. finely xtalline (how crystalline) w/ local MFA pods (lense-like) from 1-2.2'. Last (lowest) section of peg is mixture of K-f & qtz w/ occasional qtz x'tal to 8mm; possibility that MFA texture is dike but contacts are indistinct; from 2.2-3', 55° CA, strong fault w/ breccia. Clasts ang & are aplites (possibly FFA). Qtz clasts indicate that fault material may not have moved far. FeOx & clay matrix. Clasts to 1" long; 7.7', large K-f pheno appears to have overgrown qtz vn; @ 9.3', 80° CA, ½" qtz-crs MoS₂ vn; alter as above; 17 qtz & qtz-MoS₂ vns /10'; high OX% MoS₂; most fract surfaces show minor ser coating; @ 1.1', 0° CA, 1/8" qtz-pyr-Mo-fluor vn.

- 130 - 140' 0-2.9', CA; 2.9-3.6', FFA dike, 60° CA; 3.6-5.2', CA; 5.2-10', MA. Contact at 5.2', 85° CA. ~½" wide chilled zone within MA. K-f phenos in CA are truncated by contact indicating along w/ chilled zone that MA is younger than CA; MA in interval certainly not typical for most part, MA is lt grey porph w/ K-f phenos to 18 mm (ave 4mm) & aphanitic gm of apparent mixture of qtz & K-f (pheno % ~20-25). Locally a good MA texture is developed; @ 8', 40° CA, 2-1/8" qtz vns w/ local pyr & ½" K-f halos; ser of plag noted (weak); mag pods sparse but present; @ 0.5', 75° CA, ½" wide qtz-crs MoS₂ vn; @ 8.8', 65° CA, ½" qtz-crs MoS₂ vn; mod qtz & qtz-MoS₂ vning in interval @ 65-75° CA & 20° CA; 16 qtz & qtz-MoS₂ vns /10'; low 0.1% MoS₂.
- 140 - 150' 0-10', MA; @ 0.7', 30° CA, 1/8" wide qtz vn w/ ½" K-f halo; @ 2.5', 50° CA, ½" qtz-crs MoS₂ vn; 5.5-6.5', MA becomes v. finely xtalline. No contacts noted so change is local & "primary"; 6.8-7.0', pod of K-f & bio, ~25° CA (v. irregular); 7.5', 70° CA, ½" qtz-crs MoS₂ thru interval, 0-20° CA, pyr-ser vns (slips); few fract's coated w/ brown carb, 20-30° CA; 13 qtz & qtz-Mo vns /10'; low 0.1% MoS₂; MA in interval atypical but v. similar to good MA. This interval tends to be coarser xtalline than typical MA
- 150 - 160' 0-10', MA; @ 2.5 & 5', 3/4 & ½" qtz vns @ 75° & 80° CA respectively; 0-2', 4 K-f vns, 1/8-½" wide, 70° CA; @ 6.8 & 6.5', 10° & 30° CA, qtz-crs Mo vn 1/8" wide & 1/8" wide MoS₂ vn respectively thru interval, 0-10° CA, several irreg fract's lined w/ brown carb; alter minor; 8 qtz-qtz-Mo vns /10'; low 0.1% MoS₂ (?).
- 160 - 170' 0-10', MA; 3.1-3.3', zone of finely xtalline qtz, bio, mag & felds. Individual x'tals < 1mm in max dimensions; @ 3 & 3.5', 75° & 70° CA respectively, ½" qtz vns; thru interval 4 qtz-crs Mo vns, 65-80° CA; minor clay &/or brown carb on fract's; 12 qtz & qtz-MoS₂ vns /10'; low 0.1% MoS₂ (?); finely xtalline zone does not appear to be dike; consistent fract set, 45° CA.
- 170 - 180' 0-10', MA; 1.5', 30° CA, 3/4" wide FFA dikelet x-cut by hair-line qtz vn; @ 1.8' & 7.5', ½" irreg K-f vns, 50° & 25° CA respectively; @ 5.9', 30° CA, ½" wide irreg K-f vn; all 3 K-f vns noted show signs of qtz vning within K-f vn but definitely older than the K-f vning; @ 0.1', 75° CA, ½" qtz-crs MoS₂ vn; interval badly fract, particularly from 6.7-10'; ser of feld (principally plag) mod & ser &/or clay on most fract surfaces; 4 qtz &/or qtz Mo vns /10'; low OX% MoS₂.
- 180 - 190' 0-10', MA; @ 7.9 & 8.5', ½" qtz-crs MoS₂ vns, 45° & 70° CA; @ 2', 80° CA, ½" & ½" wide qtz vns; interval badly fractured. Ser & clay slicks on all fract surfaces; ser of felds v. strong 8.5-10'; call interval fault; 4 qtz & qtz-MoS₂ vns /10'; high OX% MoS₂.

Hole No.	12S - 12E
Page	4
Date	7/13/74
Logged By	DRS

- 190 - 200' 0-10', MA; 0-5', flt gge. Material mostly clay & ser, punky. Interval struct @ 30° CA (possible indication of main struct orientation); 5-5.2', 45° CA, FFA dike; remainder of interval fract into pieces < 0.1' in largest dimension w/ a few exceptions; 3 qtz vns /10'; no MoS₂ (?); whole interval is fault.
- 200 - 210' 0-10', MA; @ 6.5', 55° CA, 2" wide PFA dike; ser & arg as above w/ less intensity; interval flt; no MoS₂; rock fract as above.
- 210 - 220' 0-2', MA; 2-4', PFA dike, 30° CA ~6" of FFA material on each of the contacts; dike x-cut by qtz vns; 6 qtz vns (1 w/ MoS₂) /10'; low OX% MoS₂; interval fault; alter & rock as above (rock crushed & fract to < 0.1' ave dimension); locally rock nothing but gge.
- 220 - 230' 0-10', MA; @ 10', 60° CA, ½-½" wide FFA dike; @ 3.6 & 7.9', 45 & 75° CA respectively, 2" & 1" wide qtz vns; interval is fault; fract & alter as above; low OX% MoS₂; 9-9.2', qtz-K-f peg pod.
- 230 - 240' 0-10', MA; 0.3-1.2', 70-75° CA, 3 qtz vns 1½" wide; 3', 50° CA, ½" qtz-crs MoS₂ (minor) vn; interval of qtz vning from 0.3-1.2' contains "pervasive" sil also; alter (ser) as in previous intervals; 7 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂.
- 240 - 250' 0-7.4', MA; 7.4-10', PFA. Contact @ 35° CA; 5.6', 80° CA, ½" qtz vn; 6.7-7.4', zone within PFA along contact that is K-f & plag (?) zoned ~ parallel to contact. Plag is sep; 6 qtz-qtz-MoS₂ vns /10'; low OX% MoS₂; ser & arg on fract surfaces; rock is strongly fractured; interval not fault.
- 250 - 260' 0-10', PFA; ser of plag mod; clay on fract surfaces common; 2-7', strong fract trend @ 0° CA, clay &/or ser lined; ~ 1.6', 50° CA, 1/8" wide MoS₂ vn; 14 qtz & qtz-MoS₂ vns /10'; high OX% MoS₂ (?); most vning 40-50° CA; rock badly fractured!
- 260 - 270' 0-10', PFA; @ ~0.5' & ~ 1.5', FFA dikes. No contacts visible & actual dimensions mashed by intense fracturing; alter as previous interval; 17 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; 3 vn trends in interval 65-70° CA, 40-50° CA, & 15° CA. Vn orient listed from youngest to oldest; @ 5.3', 40° CA, 1/8" qtz vn w/ chalcopryrite.
- 270 - 280' 0-10', PFA; ser of plag phenos strong & ser on most fract surfaces; rock strongly fractured; 9 qtz vns /10'; no MoS₂; interval not fault.

Hole No. 12S - 12E
Page 5
Date 7/14/74
Logged By DRS

- 280 - 290' 0-10', PFA; rock & alter as above; 3 qtz vns /10'; no MoS₂; fracturing v. strong, particularly @ 0° CA.
- 290 - 300' 0-10', PFA; rock & alter as above; ser on fract surfaces common; @ 4.2', 5° CA, 1/8" wide MoS₂ vn; @ 8.9', 60° CA, 1/16" wide qtz-pyr vn w/ 1/4" K-f halo; 10 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; rock still intensely fractured.
- 300 - 310' 0-10', PFA; ser (dk green) on all fract surfaces; ser of plag phenos mod; qtz vning @ 10-20° CA; 7 qtz & qtz-Mo vns /10'; low OX% MoS₂.
- 310 - 320' 0-10', PFA; ser of plag weak; minor ser on fract surfaces; 0-6', 0°-10° CA, one continuous qtz vn, 1/8+" wide w/ local MoS₂, x-cut all other vn sets; @ 2.3', 15° CA, 1 1/2" wide light band of rock. Possibly halo (bleached) around qtz-pyr vn, 20° CA; 15 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂.
- 320 - 330' 0-10', PFA; rock & alter as above; 2 small mafic inclusions (segregations) in interval (also one in previous interval); @ 8.2', 35° CA, 1/8" qtz-pyr-bio vn w/ 1/4" bleached halo; 8 qtz vns (w/ only occasional MoS₂) /10'; low OX% MoS₂; local smoky qtz covered fractures, 20° CA.
- 330 - 340' 0-10', PFA; rock & alter as above; thru interval numerous fract @ 25° CA, w/ ser & minor clay or smoky qtz coatings; 8 qtz vns (w/ minor MoS₂ occasionally) /10'; low OX% MoS₂.
- 340 - 350' 0-10', PFA; rock & alter as above; 14 qtz vns /10'; no MoS₂; vns v. small.
- 350 - 358' 0-8', PFA; rock & alter as above; no MoS₂.

End of Hole.
7/18/74
DRS

ADANAC PROPERTY

DETAILED GEOLOGIC LOG
OF
DRILL HOLES

20S - 4E

16S - 8E

12E - 12S

00 - 18S

00 - 18S,A

Climax Molybdenum Company
Golden, Colorado

PERCENTAGE MOLYBDENUM CONTENT

DRILL HOLE NO. 20S - 4E

<u>Footage</u>	<u>%MoS₂</u>	<u>Footage</u>	<u>%MoS₂</u>
30 - 40	.0027	190 - 200	.024
40 - 50	.0053	200 - 210	.024
50 - 60	.0065	210 - 220	.029
60 - 70	.0057	220 - 230	.062
70 - 80	.036	230 - 240	.026
80 - 90	.0088	240 - 250	.005
90 - 100	.036	250 - 260	.018
100 - 110	.024	260 - 270	.032
110 - 120	.013	270 - 280	.021
120 - 130	.0099	280 - 290	.028
130 - 140	.029	290 - 300	.011
140 - 150	.017	300 - 310	.013
150 - 160	.013	310 - 320	.022
160 - 170	.018	320 - 330	.013
170 - 180	.013	330 - 340	.011
180 - 190	.029	340 - 350	.0085
		350 - 354	.007

- 30 - 40' 0.5-1.2 & 5.0-5.2', PFA (2) dikes w/ texture close "assim. crowded porph.",qtz. & K-f phenos to 12 & 15 mm respectively. Contacts not present; 6.5-6.9', MFA dike. X-cutting relationships not clear but indicates MFA is younger than CA. Contact @ 75° CA & contact cut by 1/8" wide smoky qtz vn; @ 6.9; 1/2' wide qtz vn @ 75° CA; almost entire interval is "ground up" to pieces less than 1' dia ; mod. limonite staining, principally of arg plag ; 3 qtz vns in interval; local manganese oxide staining.
- 40 - 50' @ 5.8', 72° CA, 3/4" wide aplite dike; possible 1" wide (?) FFA dike @ 3'; as in above interval, plag phenos (xtals) have been arg ; 0-3.5', rock badly broken; 3 vuggy qtz vns in interval; FeOx staining as above.
- 50 - 60' 0-10', CA; alter. & FeOx staining as above; 2 v. minor qtz vns in interval; set of fract^s @ 0-15° CA, ~ 1/2 ft., FeOx lined.
- 60 - 70' @ 0.0', 10° CA, 1/4" wide aplite dike. Dike x-cut by qtz vns ; 6.0-7.0', flt w/material crush to sand size; 6.0-10.0',flt, rock has been crushed & sheared & strongly argillized. Texture badly distorted & rock is "punky"; @ 7', possible 3" wide FFA dike. No contact orient. possible; FeOx staining as above; 5 qtz vns ; rock tends to fract into angular frags.; local light green alter. as slicks on slip surfaces, possibly ser.
- 70 - 80' 0-10', CA that has been strongly sheared & locally granulated. 1-2, 6-7, & 9-10', rock has been crushed. Whole interval could be considered fault; strong arg of felds ; mod. FeOx staining; local strong slip planes @ 20° CA; 1 qtz vn.
- 80 - 90' 0-10', CA; 5.0-5.2', zone of mixed CA & hybrid PFA. No intrusive contacts noted. Hybrid texture variable and appears to have formed in place. Mod. ser-pyr alter is apparently assoc w/hybrid texture (mixture of MFA & PFA textures). Most of plag has been ser & pyr occurs as blebs to 2 mm. in the areas of mixed textures; possibility that we are near an intrusive contact between PFA & CA; @ 9.5', 30°CA, 1/4" wide FFA dike, 4 qtz vns ; 0-3', rock badly broken; local strong slips @ 10-30° CA; arg & FeOx as above; 8.5-10', rock badly broken; high OX% MoS₂.

Hole No. 20S - 4E.
Page 2
Date 6/29/74
Logged By DRS

- 90 - 100' 0.5-2', 10°CA, MFA dike with "assim" texture. Texture is fine to med xtalline equigranular w/large (>10mm) clasts or remnants of CA. Similar to "assim" textures noted underground. Contact v. irreg; 2-7.5', CA; 7.5-8.2', 60°CA, MFA dike. Contacts x-cut by qtz & qtz-MoS₂ vns; @ 8.9', 40°CA, 1/4" wide qtz-K-f peg vn Peg² vn x-cut by qtz & qtz-MoS₂ vns; 8.9-10', "assim" texture. Possibly a mixture of PFA & CA. Rock is dk. grey & lt. green grey mottled. The zone has been ser & pyr, which may explain the strange texture in part; entire interval (0-10') has been mildly ser & pyr & blebs of mag common also. Alter strongest in zones w/"assim" texture; FeOx noted on few fract surfaces; 6 qtz & qtz-Mo vns; low 0.1% MoS₂.
- 100 - 110' 0-8', rock appears to be mixture of CA & finer xtalline material, possibly PFA, texture appears to be the result of "assim" of CA in PFA; mod ser noted throughout 10', particularly the plag phenos; 8-10', reasonably normal CA; 11 qtz & qtz-MoS₂ vns; high OX% MoS₂; FeOx staining on most fract surfaces; this interval indicates we are near the PFA stock.
- 110 - 120' 0-5', CA; 5-10', CA that apparently has been ser, sil & pyr qtz content in interval v. high; alter? for most part is pervasive but locally, original relatively unaltered CA remnants can be seen. Pyr & local mag occur as fine disseminated material; felds are ser; 0-4', rock locally strongly fract w/ strong FeOx lined slip, 0-15°CA; 7 qtz & qtz-MoS₂ vns; @6', 30°CA, hairline pyr vn; high OX% MoS₂.
- 120 - 130' 0-10', CA; alter. as in previous interval; @ 8.9', 50°CA, 1 1/2" wide aplite dike x-cut by qtz vn. Dike is similar in appearance to some minor zones within the qsp altered area but has definite sharp contacts & will be logged as a dike; interval contains 2 sets of K-f vns, 45° & 80°CA. The K-f vns appear to be pre-qsp alter or at the youngest, contemporaneous w/ alter; 8 qtz & qtz-Mo vns; low OX% MoS₂; 7-9', definite layering (foliation?) in rock of bio principally @ 55°CA.

- 130 - 140' 0-10', modified CA. The rock is similar in texture to CP & may in fact be CP but will log it as CA; the rock takes on this appearance @ ~ 128', 0.8-1.3', 65°CA, zone of FFA. Although there is a sharp textural change, the FFA appears to be something other than magmatic in origin. The zone appears to be finer towards each border & coarsens up in the center. The FFA zone is cut by a 1/8" wide qtz-felds peg vn; 6-9', rock badly fract & locally sand size; plag ser; mod. arg in fractured ground. Fracturing @ ~ 30°CA; 8 qtz vns/10'; low OX% MoS₂.
- 140 - 150' 0-7', modified CA (CP-like appearance); 7-10', CA; 2.6-7', strong qsp alter; 2.6-3.1', 70°CA, irreg mass of material w/ FFA texture but is related to alter rather than being magmatic; K-f vning minor & as found in previous intervals (120-130'); @ 3.5', 40°CA, hairline pyr vn; mag occurrence where qsp alter is strongest; FeOx staining on all fract surfaces between 6-10'; 7 qtz & qtz-MoS₂ vns/10'; low OX% MoS₂; @ 0', 20°CA, 1/4" wide qtz-K-f peg vn w/ texture similar to MFA, may be MFA dikelet.
- 150 - 160' 0-10', CA; 8.2-8.4', 55°CA, FFA dike, x-cut by qtz vn; @ 8.5', 80°CA, 1/4" qtz vn w/ MoS₂ rosettes. X-cuts above mentioned qtz-vn; plag. ser.; 8 qtz vns/10'; low OX% MoS₂.
- 160 - 170' 0-10', CA; @ 1', 20°CA, 1/8" wide calcite lined slip; ser & pyr as above w/ less intensity; @ 6.5', 60°CA, 2-1/4" wide qtz-MoS₂ vns; 11 qtz & qtz-MoS₂ vns/10'; high OX% MoS₂; mod. strong fract trend in interval, 10-20°CA.
- 170 - 180' 0-10', CA; alter as above; @ 8', 20°CA, 1/4" zone of undulating qtz-K-f vns, x-cut by qtz vn @ 65°CA; 11 qtz & qtz-Mo vns/10'; high OX% MoS₂.
- 180 - 190' 0-10', CA; ser alter as before; pyr alter v. weak; mod. fracture trend 25°CA, lined w/ ser or lt. brown carb; 11 qtz & qtz Mo vns/10'; high OX% MoS₂.
- 190 - 200' 0-10', CA; @ 1.5', 65°CA; 1 1/4" FFA dike; @ 4.6', 1/4" fluorite (green) vn, no orientation possible; @ 7', 80°CA; 1/8" wide qtz-crs-MoS₂ vn; well developed ser slips throughout interval w/ occasional pyr slips @ 0-15°CA; rock locally ground up to sand size material; 8 qtz & qtz-MoS₂ vns/10'; high OX% MoS₂; ser alter as above w/ addition of strong ser slips in interval.

Hole No. 20S - 4E
Page 4
Date 7/2/74
Logged By DRS

- 200 - 210' 0-4.5', CA; 4.5-10', PFA?; @ ~ 7', 45°CA, 2" wide FFA dike x-cut by hairline qtz-MoS₂ vn; contact between CA & PFA lost, no orient possible; 4.5-7', rock texture is similar to a mafic fine alaskite without qtz & K-f phenos normally seen in good FFA. Interval has grainy finely xtalline appearance; 7-10', PFA is not typical; all of PFA in interval appears to be a mixture of PFA and MA. The rock is porph but also has the grainy groundmass similar to that of mafic alaskite. The rock is ~ 15% K-f & plag phenos (to 13mm) w/ 85% coarse gm (dk green grey); interval could be considered fault; 7 qtz & qtz-Mo vn/10'; low OX% MoS₂; gm constituents average ~ 1mm in size; arg of feld & along fract surfaces noted.
- 210 - 220' 0-10', PFA; 0-6.3', PFA-MA mixture; 6.3-10', typical PFA, no contact present in core; @ 2 & 6', 45°CA, 1/8 & 1/2" wide K-f vns respectively. 1/2" vn cuts qtz vn @ 75°CA, & is cut by qtz-pyr vn, 70°CA; rock strongly fract between 6 & 9.5'; few ser slips in interval @ 15°CA; often w/ minor pyr; 19 vns/10', 17 qtz & qtz-Mo vns; low 0.1% MoS₂; @ 6.5', 1/4" wide qtz vn w/ minor MoS₂, 10°CA.
- 220 - 230' 0-4', PFA; 4-4.7', transition zone between PFA & MA. Contact gradational; 4.7-10', MA; @ 6', 60°CA, 1/4+" wide K-f vn; @ 4.8', 55°CA, 1/4" wide qtz-K-f peg vn; 5.4-7.5', rock v. badly fract & lo arg; interval could be considered faulted; @ 2.5', 70°CA, 1/8" wide K-f vn that x-cuts qtz vn; 7-10', clay lined fract common, 0-20°CA; 17 qtz & qtz-MoS₂ vns/10'; low 0.1% MoS₂.
- 230 - 240' 0-10', MA; whole interval is heavily fractured @ 0-15°CA. Fracts are white clay lined; @ 7.7', 65°CA, 1/4+" wide K-f vn; 5 qtz-MoS₂ vns/10'; high OX% MoS₂; plag strongly ser.
- 240 - 250' 0-10', MA; Plag mod. ser & K-f appears to be slightly argillized; 7 qtz & qtz-Mo vns/10', low OX% MoS₂; most fract are ser coated w/ occasional pyr.
- 250 - 260' 0-10', MA; @ 6', 30°CA, 3" wide FFA dike x-cut by K-f & K-f-qtz vn, 60°CA; @ 6', 50°CA, 2" wide qtz vn; @ 0.5', 80°CA, 1/2" wide qtz vn; 6-10', 3 1/8" K-f vns @ 45° & 80°CA; 7 qtz & qtz-Mo vns/10'; high OX% MoS₂; alter as in previous interval.

Hole No. 20S - 4E
Page 5
Date 7/2/74
Logged By DRS

- 260 - 270' 0-10', MA; @ 2', 75°CA; 2-1/2" qtz vns w/ MoS₂; @ 3.5', 30°CA, 1/4" wide qtz-crs Mo vn; 7.6', 60°CA, 1/2" qtz-K-f peg vn; 8.6', 50°CA, 1/8" pyr-ser vn; @ 8.5', 70°CA, 3/4" wide qtz vn; alter as always; 13 qtz & qtz-Mo vns/10'; low 0.1% MoS₂.
- 270 - 280' 0-10', MA; v. strong fracturing in interval @ 30°-35°CA. White clay &/or ser on all fract surfaces; 6 qtz, qtz-Mo vns/10'; low OX% MoS₂; @ 9.0', 70°CA, 1/8" K-f vn that is x-cut by qtz vn.
- 280 - 290' 0-10', MA; interval v. badly fractured @ 25°-30°CA. All fract clay-ser lined; rock is locally "mushy." Felds xtals are strongly arg & ser; call interval fault; 3 qtz & qtz-Mo vns/10', low OX% MoS₂; 0.5', 80°CA, 1/4" wide qtz vns x-cuts 1/4" K-f vn @ 45°CA.
- 290 - 300' 0-9.5', MA; 9.5-10', v. finely xtalline FFA; contact @ 9.5', 50°CA; appears to be fair amount of silica in vicinity of contact. FFA may be silicified or may have had silica assoc with it during emplacement; @ 6', 70°CA, 2" wide qtz vn w/ MoS₂ & minor K-f stringers; @ 8', 55°CA, 1/4" K-f qtz peg vn w/ 1/4" K-f vn; 8 qtz & qtz-Mo vns/ 10', low OX% MoS₂; @ 5.5', 40°CA, 1/4" K-f vn; v. mild ser of plag.
- 300 - 310' 0-10', MA; 0.5-2.0', 60°CA, PFA dike. Dike grades from crypto crystalline @ 0.5' to more typical PFA @ 2.0. The dike has a more grainy (coarse) groundmass than normal which may be due to contamination by MA; @ ~ 4', 70 CA, 3/4" wide FFA dike; large PFA dike x-cut by qtz vn; 8 qtz & qtz-Mo vns/ 10'; high OX% MoS₂; 0-0.5', rock has general appearance of CA but is obviously MA that has been "remobilized" by PFA dike emplacement; white clay on fract as above.
- 310 - 320' 0-10', MA; 2 vns (K-f) in interval, 50°CA; 3 qtz-qtz MoS₂ vn/ 10'; low OX% MoS₂; white clay & ser on almost all² fract; @ 2.3', 10°CA, 1/8" wide flour-pyr-galena vn; @ 9.8', 30°CA, brown carb coated slip.
- 320 - 330' 0-5', MA; 5-7', FFA; 7-10', MA; no contacts recovered in core; strong fract, 20-40°CA & lined w/ white clay & ser; interval strongly fractured; 1 qtz vn/ 10', no MoS₂; @ 2', 40°CA, 2" wide FFA dike x-cut by 1/4" K-f vn @ 45°CA.

Hole No. 20S - 4E
Page 6
Date 7/3/74
Logged by DRS

- 330 - 340' 0-2', MA; 2-2.8', FFA dike @ 70°CA; 2.8-10', MA; @ 3', 70°CA, 1/2" wide FFA dikelet; 2 3.6', 55°CA, 1/2" wide FFA dike; 0.8', 50°CA, 1/4" K-f? vn. Vn may actually be v. finely xtalline aplite dike; @ 6.6', 40°CA, 1 1/4" wide qtz vn; 7.6', 50°CA, 1/8" wide K-f vn; 7.8', 55°CA, 1/4" wide biotite-qtz vn? w/ possible faint pink K-f halo to 1/4" wide; 1 qtz vn/ 10'; no MoS₂; ser on most fract along w/ occasional pyr; 5-10', fract strong @ 0-10°CA. Fracts lined w/ brown carb or smoky qtz.
- 340 - 350' 0-10', MA; 4-10', flt rock is either "punky" or sand size & strongly arg. Strong clay lined slip @ 9', 0°CA; all fracts are clay lined w/ local ser; 3 qtz Mo vn/ 10'; low OX% MoS₂.
- 350 - 354' 0-4', MA; 0-2.5', flt as in previous interval; as above, white clay & ser on fract surfaces; 0-2.5', rock sand size; no MoS₂; some ser of plag noted.

End of Hole
7/3/74

PERCENTAGE MOLYBDENUM CONTENT

DRILL HOLE NO. 16S - 8E

<u>Footage</u>	<u>%MoS₂</u>	<u>Footage</u>	<u>%MoS₂</u>
24 - 30	.0034	180 - 190	.066
30 - 40	.0050	190 - 200	.024
40 - 50	.015	200 - 210	.0050
50 - 60	.018	210 - 220	.042
60 - 70	.051	220 - 230	.438
70 - 80	.117	230 - 240	.128
80 - 90	.024	240 - 250	.010
90 - 100	.020	250 - 260	.016
100 - 110	.012	260 - 270	.068
110 - 120	.021	270 - 280	.033
120 - 130	.016	280 - 290	.020
130 - 140	.044	290 - 300	.020
140 - 150	.016	300 - 310	.016
150 - 160	.050	310 - 320	.060
160 - 170	.026	320 - 330	.0085
170 - 180	.0080	330 - 340	.016
		340 - 350	.0050

- 0 - 24' Overburden.
- 24 - 30' PFA & CA; 4-7', mixed PFA & CA. Some of PFA appears to have "assim" some of CA & CA present in core is probably remnants within the PFA stock; hole collared near the PFA-CA contact; rock is v. badly fractured & locally is sand size material; rock is also v. heavily FeOx stained; 2 qtz. vns /10'; no MoS₂.
- 30 - 40' 0-10', PFA; rock exactly as in above interval. Rock so fractured & stained that it's often difficult to see details; FeOx as above; 6 qtz vns/10'; no MoS₂.
- 40 - 50' 0-10', PFA; local green alter of plag. (ser.); rock fractured into ang. frags; v. strong FeOx staining; @ 4.2', 40° CA, 1" wide flt w/ arg-FeOx gge; @ 6.5', 30° CA, FeOx & clay gge-lined slip, ½" wide; thru interval, strong fract @30-40° CA & 0-15° CA; local "manganese" staining; flt @ 4.2', 1" wide qtz-ser? halo; 15 vns /10'; no MoS₂.
- 50 - 60' 0-10', PFA; plag. phenos are ser. Rock has grey green color which may be due to mild pervasive qsp alter; interval heavily FeOx stained; 15 qtz & qtz-Mo vns/10'; high OX% MoS₂.
- 60 - 70' 0-10', PFA; @ 6.4 & 9.2' 75° CA, 1/8 & ½" qtz-crs MoS₂ vn; @ 9', strong fract @ 25° CA; FeOx stained; natural fracts (no man-made) are FeOx coated; rock shows mild pervasive qsp alter (principally ser); 9 qtz & qtz-MoS₂ vns/10'; low 0.1% MoS₂.
- 70 - 80' 0-10', PFA; thru interval, 4 qtz-crs MoS₂ vns, 70-80° CA; alter as above; natural fractures FeOx coated; 15 qtz & qtz-MoS₂ vns/10'; low 0.1% MoS₂.
- 80 - 90' 0-10', PFA; @3.2', 1½" long bio clot; @ 8.3', 30° CA; qtz-bio-pyr vn to ½" wide w/ 1" wide ser halo cut by pyr & qtz vns; 13 qtz & qtz-Mo vns, 20-35° & 80-90° CA; high OX% MoS₂; ser of plag noted & ser as halo around vns also noted; pyr occurs principally in vns; large "flat lying" vns appear to be youngest of vns noted in interval; 6', 50° CA, ½" faint bio vn (poorly defined); FeOx on fract surfaces.
- 90 - 100' 0-10', PFA; ser & pyr as above interval; @ 2.4 & 4.2', 70° CA, ½" wide qtz-crs Mo vns; local fine bleached halos around vns in interval; @ 5.4', 60° CA, 1/8" wide qtz-Mo-ser vn w/ ½" wide bleached halo; @ 6.7', 45° CA, 1/8" wide mag -bio. vn x-cut by qtz vn; ser &/or FeOx on most fract; 12 qtz & qtz-Mo vns /10'; high OX% MoS₂.

Hole No.	16S - 8E
Page	2
Date	7/4/74
Logged By	DRS

- 100 - 110' 0-10', PFA; pheno % (total content) appears to vary locally; ser of plag mod & ser-pyr on fract surfaces common; @ 9', 15° CA, ¼" wide qtz-pyr MoS₂ vn; @ ~ 4', 65° CA, 1/8" wide qtz-pyr-MoS₂ vn w/ ¼" bleached halo; @ 3.8', large K-f pheno truncates qtz vn, K-f pheno has grown apparently since the qtz vn was emplaced; 0.5-3', rock is strong fract & FeOx stained; rock has dk grey green color possibly due to qsp alter; 12 qtz & qtz-MoS₂ vns w/ local pyr /10'; low OX% MoS₂.
- 110 - 120' 0-10', PFA; @ 2' small (1" dia) mafic inclusion; ser alter as above; 4-5', 70-80° CA, 3 K-f vns, 1/16" - 1/8" wide; @ 5', 75° CA, ½" wide qtz vn w/ MoS₂; 8', 20° CA, 1/16" wide bio - mag vn; natural fract lined w/ FeOx & occasional ser; 7 qtz & qtz-MoS₂ vns /10'; high OX% MoS₂.
- 120 - 130' 0-10', PFA; 204', 0° CA ½" wide slip w/ Mo-ser?-clay gge; well developed slickensides @ 20° CA; rock from 0-5' has been sheared and altered (arg) slightly; 7-10', fract are smoky qtz lined; 9 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂.
- 130 - 140' 0-10', PFA; @ 1' & 3-3.8', mafic inclusion w/ magnetite. Large inclusion shows one contact @ 40° CA. The PFA near contact w/ large inclusion is lacking in phenos, has a higher bio % & is definitely x-cutting the inclusion ("inclusion" is not mafic dike). Inclusion is finely xtalline; bio, qtz & mag; 1-3' & 9-10', rock strongly sheared w/ slips (ser?-clay coated) @ 0° & 50° CA; ser of plag noted as above; 12 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; @ 4.8', 70° CA, ½" wide qtz-crs MoS₂ vn.
- 140 - 150' 0-10', PFA; ser of plag mod; 2-5.5', groundmass is extremely fine xtalline. No contact noted; @ 1.2', 40° CA, ½" qtz-bio vn w/ ½" K-f halo; @ 1.7', large K-f pheno x-cuts qtz vn. Pheno has apparently grown since vn emplacement; 5.5-7', rock strongly fract; 14 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; 5.5', 15° CA, 1"+ wide flt w/ moly-clay-pyr gge.
- 150 - 160' 0-10', PFA; alter as above; 0-6', K-f & bio phenos tend to cluster together. Gives different appearance to PFA; @ 7', 80° CA, 1/8"+ qtz-crs MoS₂ vn w/ minor ser halo; @ 8', 35° CA, 1/8" pyr-MoS₂ vn (slip) coated w/ brown carb; most natural fract. FeOx² stained &/or smoky qtz coated; 7 qtz-MoS₂ vns /10'; low OX% MoS₂ bio occurs as books to 4mm.
- 160 - 170' 0-10', PFA; ser of plag mod; 1.5-4', 20° CA, series of FeOx & white clay lined fract; @ 4', 75° CA, ½" wide qtz-crs MoS₂ w/ pyr; @ 8', 55° CA, 1/8" qtz vn w/ ½" K-f (?) halo has been subsequently ser slightly; @ 7.9', ~2" wide zone of K-f w/ local lt green tint; 9 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂.

- 170 - 180' 0-10', PFA; alter as above; 8-9.3', 70° CA, series of FeOx & clay coated slips; rock has dk grey green color which may indicate stronger qsp alter than noted on opposite page; 10 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; @ 8', qtz vn, 70° CA x-cut by qtz vn, 20° CA.
- 180 - 190' 0-10', PFA; alter as above; 5.5-8' 0-30° CA, series of FeOx-clay lined slips; 16 qtz & qtz-MoS₂ vns /10'; high OX% MoS₂; @ 5', 20° CA, series of qtz vns to ½" wide w/ MoS₂ x-cut by qtz vn @50° CA.
- 190 - 200' 0-10', PFA; @ 6.5', 75° CA, 1/8"+ wide qtz-crs MoS₂ vn; @ 6.5', 65° CA, ½" k-f vn that has been slightly ser. Mo vn is younger; minor pyr vning; ser of plag & locally K-f phenos common; @ 2.2', 50° CA, ½" K-f vn; @ 1.5', 50° CA, 1/16" wide K-f vn; 12 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂.
- 200 - 210' 0-10', PFA; @ 2.2', 70° CA, ½" K-f-bio vn; @ ~ 7.5 & 8.0', 80° CA, ½ & ¾" qtz vns respectively, latter w/ crs MoS₂; @ 4.6', 50° CA, 1/8" qtz vn w/ 1/8" K-f halo. May be that qtz vn is older than K-f & was emplaced along same trend; local irregular pods of K-f noted in interval; limonite &/or white clay coating natural fracture surfaces; 9 qtz & qtz-Mo vns /10'; high OX% MoS₂; alter as above.
- 210 - 220' 0-10', PFA; some of interval shows finer matrix than others & also color differences; @ 1.6', small mafic inclusion; @ 2.9', 4.0' & 4.7', 20°, 30°, & 50° CA, qtz-crs Mo vn. Qtz-crs MoS₂ vn also at 1', 75° CA; @ 6.0-6.3', zone of K-f & mag. K-f has been ser; crs MoS₂ vns in interval ½" wide; ser of plag mod & rock has green color which is probably pervasive ser; 16 qtz & qtz-MoS₂ vns /10'; ~ 0.2% MoS₂.
- 220 - 230' 0-10', PFA; 5 qtz-crs MoS₂ vns in interval, ½-½" wide, 70-80° CA; 2.7-10', rock arg slightly & badly fractured & FeOx stained. Alter gives rock a different appearance, but I think the interval is all PFA. Felds phenos are arg; most natural fract FeOx lined; 0-2.7', ser of plag as above; 10 qtz & qtz-Mo vns /10'; ~ 0.3% MoS₂.
- 230 - 240' 0-10', PFA; @ 4', 80° CA, 3/4" wide qtz-crs MoS₂ (nice MoS₂); 0-5', pheno % (total) appears to increase somewhat. Rock locally looks similar to CP; @ 8', 80° CA, ½" qtz-crs MoS₂ vn; 0-5', felds slightly arg; ser alter as above; local textural & color variations still noted; 16 qtz & qtz-MoS₂ vns /10'; ~ 0.2% MoS₂.
- 240 - 250' 0-10', PFA; rock & alter as above; 9 qtz & qtz-MoS₂ vns /10'; high OX% MoS₂; @ 8.8', 35° CA, 1/8-¼" xtalline qtz vn.

Hole No. 16S - 8E
Page 4
Date 7/6/74
Logged By DRS

- 250 - 260' 0-10', PFA; 5.2-7', rock texture is like CP. Abrupt change @ 5.2', ~50° CA. I don't think that "crowded" material is CP but textural change due to flooding of fluids. There is a sharp "contact" @ 5.2'; @ 3.4 & 3.6', 80° CA, ¼" K-f halo around qtz-crs MoS₂ vns to ½"; natural fract lined w/ clay & ser, 30° CA & locally 0° CA; ser of plag mod. Strongest ser in "crowded" interval; 9 qtz & qtz-MoS₂ vns /10'; high OX% MoS₂ (?); @ 5.2', 20° CA, Mo slip, 1/8" wide.
- 260 - 270' 0-10', PFA; @ 2.4', 50° CA; 1½" qtz-crs MoS₂ vn (good MoS₂!); 0-2.4', rock is strongly fract & fract are clay-ser lined; ser alter as above; 5 qtz & qtz-MoS₂ vns /10'; ~ 0.3% MoS₂.
- 270 - 280' 0-10', PFA (?). Rock thru entire interval is atypical of PFA. Felds & bio phenos tend to cluster in groups. K-f phenos are larger than in typical PFA & tend to be more distinct. K-f phenos ave. ~8mm local disseminated pyr contact @ 280.2', 45° CA; the interval has apparently been "juiced up." For now, the rock will be called PFA; 7 qtz-qtz-MoS₂ vns /10'; low OX% MoS₂.
- 280 - 290' 0-10', PFA (?); @ 0.2', contact between typical PFA & atypical PFA; 0-3', typical PFA; ~3-8', changed PFA as in previous interval; ~8-10', groundmass coarsens to ~0.5 mm xtal size w/ significant decrease in large pheno percentage. Texture is similar to MFA. All textural changes are gradational; 5-6.5', 15° CA, strong clay lined fract. set; whole interval has apparently experienced increase in groundmass size with largest increase between 8 & 10'; ser of plag very mild; 8 qtz & qtz-Mo vns /10'; low OX% MoS₂.
- 290 - 300' 0-10', PFA (?); rock same as in previous interval. Sporadic increases in groundmass size occasionally approaching MFA. Textural changes appear to be gradational. Rock may have seen addition of minor qtz & bio; local pods of K-f noted; interval has several mafic inclusions to ½" wide; mild ser of plag & locally K-f present; pyr present as v. minor vns; 13 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂.
- 300 - 310' 0-10', PFA (?); rock as in previous material; 5.3-6', more typical PFA that has been strongly ser; abrupt textural change @ 5.3', 30° CA. Ser appears to be related to a series of fractures @ 30° CA. Apparent textural change may be a function of ser alter; local small mafic inclusions (segregations) in interval; ser alter as above; 4 qtz-qtz-Mo vns /10', low OX% MoS₂

Hole No. 16S - 8E
Page 5
Date 7/7/74
Logged By DRS

- 310 - 320' 0-10', PFA (?); @ 3.7', 90° CA, abrupt color change. 0-3.7', atypical PFA (?); 3.7-10', good PFA. Color boundary is not contact because large pheno (k-f) overlaps boundary; @ 3', 60° CA, 1½" wide Qtz-crs MoS₂ vn w/ ser halo (irregular) to ½" wide; pyr vning in interval at 40° - 50° CA, hairline, minor; ser alter as above; local smoky Qtz on few minor fract; 13 Qtz & Qtz-Mo vns /10'; high OX% MoS₂.
- 320 - 330' 0-10', PFA (?); 2.0-4.2', PFA as in above intervals. Rock appears to be grainier & more mafic than typical PFA. Sharp compositional changes at 40° and 20° CA, respectively; ser alter of plag mod; 10 Qtz & Qtz-Mo vns /10'; low OX% MoS₂.
- 330 - 340' 0-10', PFA; @3.1', 70° CA, ½" Qtz-crs MoS₂ vn w/ ½" ser halo. Local inward K-f growths; ser of plag noted as always; rock has locally lt green color; 17 Qtz & Qtz-Mo vns /10'; high OX% MoS₂.
- 340 - 350' 0-10, PFA; alter as above; consistent Qtz-MoS₂ vn set, 40° CA up to 3/ft locally; locally mafic inclusive (segregations); 9 Qtz-MoS₂ vns /10'; low OX% MoS₂.

End of Hole.
7/7/74
DRS

PERCENTAGE MOLYBDENUM CONTENT

DRILL HOLE NO. 12W - 12N

No assays available.

537 - 540'

7-10', gougy & cataclastic fine Alaskite (porphyritic). ~ 3-4% dissem fresh biot, 3% 4x5mm subround qtz phenos, & 1-2% 10x12mm blocky K-feld phenos. Texture is cataclastic, but discernable.

8-10', 5° CA, 1/8" seam of cse, gougy MoS₂.

540 - 550'

0-10', FA(porphyritic), as above. Rock is heavily fractures @30° CA, (3-6), & μ -fractured or sheared @15-20° CA. 30° fractures are gougy w/kaolinized rock flour. @7', 20° CA, 2mm Q vn w/hl erratic MoS₂ rims. @8.5', 50° CA, 1/8" cse MoS₂ seam in clayey gouge.

550 - 560'

0-10', FA, as above. Core is badly broken, 0-35° CA, w/fracts ctd w/arg, & lo chlorite slcs. @1', 20° CA, 2mm MoS₂ vn w/tr qtz. @9', 70° CA, 1/2" Q-cse Mo vn (10% Mo). Tr dissem Mo, 0-10'.

560 - 570'

0-10', FA, as above. 20% rcv. 9-8" lost. 8-10' is badly broken FA, argillized on fract surfs. Tr vis MoS₂. @9', 10° CA, 2mm wolframite vn, irregular w/in qtz vn.

570 - 580'

0-10', badly broken FA, as above. 20% rcv & heavily argillized. FA fragment @~4', containing 1 plag grain w/argillic core w/tr dissem mag, & rimmed by lmm ser. @3.5', 3/4", 80° CA, barren Q vn. @4', tr dissem MoF₂ w/py in clay gge.

580 - 590'

0-10', fault gouge w/FA textured, sheared fragments. Frags are arged w/minor chlorite. @~5', 2" frag of K-spar, possibly secondary, w/lmm specks of dissem MoS₂. @7', 80° CA, 1/2" barren Q vn.

590 - 600'

0-10', core is completely bx'ed & ggy, loosely cemented by clay, mud, & chlorite. @8', 3" aplitic bxa, healed w/massive silica, w/dissemin py. 7-8', chl ctd ggy seam, grey w/probable MoS₂. Hard to estimate accurately.

600 - 610'

0-10', CA contact is lost in gougy material, but appears to be @600'. Texture is very cataclastic w/lo v wk aplitic assimilation. Core is badly broken & strongly argillized. 6-7', 2, 1/2", 40° CA, pink 2ndary K-spar vns w/tr MoS₂. 1-4', gge, w/10° CA slcs of MoS₂, granulated qtz, originally 1/2" across. Scattered lmm Mo vns in gge @4', 5', & 7'.

610 - 620'

0-10', cataclastic CA. Biotite is chloritized & plag is wkly sericitic. Core is strongly fx'ed, but not as argillized. MoS₂ occurs wkly dissem in clay gge, 2-3', & as hl ctg's on steep μ -fx, 8-10'.

620 - 630'

0-10', CA, as above, alt, etc., as above. @2', 85° CA, 1/2" Q vn w/cse MoS₂ (20% Mo). Mo dissem @5', 2, lmm grains.

630 - 640'

0-10', CA, extremely cataclastic & gougy. Arg is intense, w/py & chlorite on slips. Tr CaF₂ w/hl py vn in gge @~8'. Tr dissem Mo.

640 - 650'

0-10', CA, completely ggy & broken core. Strongly argillized.
Tr MoS₂.

650 - 660'

0-10', CA, as above. @2', 3" 30° CA seam of hvy chlorite-py-arg-tr Mo gouge. CA has strong cataclastic texture. Tr Mo may be dissem in arg-py gge, but hard to see.

660 - 670'

0-10', fault gouge. No discernable rock textures. Totally argillized w/1/4", 20° CA chlorite-py seams, w/tr MoS₂. 0-1', 10° CA, pink K-spar vn w/tr mag & MoS₂. MoS₂ possibly dissem lo in gge, but very hard to see.

670 - 680'

0-10', fault gouge, 0-1', frags w/ CA texture (cataclastic). @0.5', CA frag w/1/4" Q-cse Mo vn, parallel to CA. Tr's visible Mo in chloritic, 30° CA, 1/8" seams, 4/10'.

680 - 690'

0-10', CA, totally cataclastic & dynamically restructured to resemble gneiss. Chloritized biot bands (1 per inch) alternate w/sheared Qtz-feldspar bands. Strong arg w/dissem py cubes (<1%). Poss MoS₂ w/chlorite slcs.

690 - 700'

0-10', CA, texturally as above w/lo aplitic assimilation around a few Q & K-f grains. 6-10', textures destroyed by gge, argillized.

700 - 710'

0-10', apparently CA. Rcv is poor & core is all gge except for 1 or 2 small frags w/CA texture. Arg is v strong, w/no visible MoS₂.

710 - 720'

0-10', finely comminuted fault gge w/approx 3' rcv. Arg is strong w/flakes of chlorite, tr MoS₂.

720 - 730'

0-10', exactly as above w/~2' rcv.

730 - 740'

0-10', as above. 2, 1" rock chips, 1 w/CA texture & 1 w/aplitic assim CA texture. All else is arged gge.

740 - 750'

0-10', FA, badly broken, 0-7'. 0-4', aplite w/no phenos. 4-7', lo 20% total w/10% 3x7mm feldspar phenos, & 2x3mm Q phenos (10%). 7-10', good core rcv, aplitic texture w/~2% blocky K-f phenos. @8', 3/4" barren Qtz vn w/lmm rims of creamy massive K-spar. 9.5', 70° CA, 3" Q-lattice vn, aphanitic g'mass w/1x1mm round Qtz (5%) & 2x4mm plag & K-f phenos (10%), lo arg-ser on plag.

750 - 760'

0-10', fine-medium grained, porphyritic Alaskite. Texture is hazy & lo cataclastic. ~5%, 1x1mm biot dissem in g'mass. K-spar phenos are lt tan w/hazy outlines; 10%, 5x6mm. Qtz phenos are subround, 3x3mm, ~15%. Core is competent, 0-5'. Fault intensifies, 5-10', w/badly broken, argillized core. Felty chlorite on slcs. @8', 85° CA, py-Mo clc, hl. @8.2', 5° CA, hl Mo vn filling.

760 - 770'

0-10', hybrid looking porphyry, w/combination of aphanitic g'mass, crowded w/Q, K-spar, plag phenos, w/FA textured g'mass, w/large K-feld phenos. Contacts (if any) are obscured by intense bx'iation of core in fault zo. @8.5', sharp contact, 40° CA, between aphan porph & FA (~ no phenos). No visible MoS₂.

770 - 780'

0-2', non-porphyritic FA continues. Contact @2' lost in fault material. 2-10', back into alternating aphanitic & FA porphyritic rock. Core is badly broken, 0-10'. @8', 60° CA, 1/4" biot-qtz vn (2ndary biot). 6 hl Q vns/10', w/tr MoS₂.

780 - 790'

0-10', FA w/porphyritic texture. ~9:1 FA to aphanitic. Core is badly broken w/1 or 2 hl Q vns, no vis Mo. @8.5', 2 rk frags w/apparent pinkish-tan massive K-sp w/lmm clots of fresh dissem biot. Both appear to be 2ndary.

790 - 800'

0-2', aphanitic porphyritic texture. 2-10', FA porphyritic texture. @0.3', 80° CA, 1" pink K-spar vn w/~1%, lmm dissem fresh biot. Core badly broken, 0-10'. Tr hl barren Q vns. No vis Mo.

800 - 810'

0-10', FA porphyritic w/extremely cataclastic texture feldspars & qtz phenos are fractured & lo totally granular & mixed in w/g'mass. Lo wk ser-arg of plag, where visible. @2', 2" frag w/pink mass 2ndary K-spar. Large blocky (15x20mm) K-f phenos, 8-10', to produce MPFA texture. 7.8', 70° CA, 1/2" barren qtz. @8.5', 65° CA, 2" brecciated barren qtz vn. No visible Mo.

810 - 820'

0-10', FA cataclastic & porphyritic, as above. Rk is strongly fractured, ctd w/hl clay &/or chlorite, hl Q vns, 3/10', 40° CA, & barren. 6', 40° CA, 1/2" barren qtz. 9.5', 85° CA, 1" barren bx'ed qtz vn. No vis Mo.

820 - 830'

0-10', FA porphyritic & cataclastic. lo lmm wavy flat bands of chlorite. 2-3', bxa healed w/silica & massive K-spar. @6', 2, lmm specks of Mo on chlorite ctd parting. 2/10', 80° CA, 1/2" barren qtz vns that are bx'ed &/or offset by post-ore faulting.

830 - 840'

0-10', FA, porphyritic & cataclastic texture. Plag phenos (~5%) are mod-strong ser-arg'ed. Biot is mostly chloritic. @2', 4" massive pink K-spar. @6', 80° CA, 3/4" barren Q vn, w/1/2" rims of pink K-spar. @1', 60° CA, 1/2" barren qtz. @3', 40° CA, 1/2" Q-Mo vn (5% Mo). @6.5', 30° CA, Mo ctd hl slip.

840 - 850'

0-10', FA, porphyritic & cataclastic, 0-4'. 4-10', texture is well preserved & strongly resembles PFA and/or outcropping porphyritic rock in Molly Lake area. Core may have 2-3% more K-spar phenos than typical PFA, but the overall differences are very slight. Lo 1" massive K-spar @2'. @3', 30° CA, 1/8" Q-biot vn. 8/10' hl 30° CA, barren Q vns. Tr dissem Mo.

Hole No. 12W-12N
Page 4
Date 9/14/74
Logged By R.W. Ganster

850 - 860'

0-8.5', PFA?, sharp 30° CA contact w/FA dike, 8.5-10'. Textures still well preserved. If this porphyritic rock is not PFA, it appears to be at least genetically related as a phase of PFA. This porphyry appears to be v slightly more feldspathic than the PFA S of the Adera fault. K-spar runs ~15%, vs 5-8% S of fault. Q vns, 7/10', 30° CA, hl-1/8", w/3-4 specks of 1mm MoS₂.

860 - 866'

0-6', PFA(?), as above. Plag is moderately ser-arg'ed. Biot is still fresh w/tr lo chlorite. @5', 70° CA, 3/4" hazy massive K-f vn w/ ragged hl biot vn in center. 5 hl Q vns/6' w/ tr MoS₂.

NOTE: 566-573' still in core barrel @ bottom of hole due to twist off in fault zone.

PERCENTAGE MOLYBDENUM CONTENT

DRILL HOLE NO. 00 - 18S

<u>Footage</u>	<u>%MoS₂</u>	<u>Footage</u>	<u>%MoS₂</u>	<u>Footage</u>	<u>%MoS₂</u>
13 - 20	.001	200 - 210	.079	400 - 410	.012
20 - 30	.001	210 - 220	.042	410 - 420	.005
30 - 40	<.0005	220 - 230	.044	420 - 430	.019
40 - 50	.0005	230 - 240	.246	430 - 440	.014
50 - 60	<.0005	240 - 250	.077	440 - 450	.0055
60 - 70	.0026	250 - 260	.059	450 - 460	.010
70 - 80	.010	260 - 270	.012	460 - 470	.0028
80 - 90	.0046	270 - 280	.291	470 - 480	.011
90 - 100	.0048	280 - 290	.175	480 - 490	.009
100 - 110	.012	290 - 300	.208	490 - 500	.0038
110 - 120	.016	300 - 310	.021	500 - 510	.012
120 - 130	.0095	310 - 320	.277	510 - 520	.044
130 - 140	.033	320 - 330	.023	520 - 530	.018
140 - 150	.013	330 - 340	.0055	530 - 540	.013
150 - 160	.142	340 - 350	.019	540 - 550	.0034
160 - 170	.048	350 - 360	.0085	550 - 560	.0085
170 - 180	.058	360 - 370	.009	560 - 570	.0038
180 - 190	.027	370 - 380	.008	570 - 580	.0050
190 - 200	.059	380 - 390	.023	580 - 590	.019
		390 - 400	.017	590 - 600	.0055

Hole No. 00 - 18S
Page 1
Date 7/19/74
Logged By DRS

- 0 - 13' Overburden.
- 13 - 20' 0-10', CA; 3-7', strong FeOx staining; rock fract into ~ 0.3' pieces; no vning.
- 20 - 30' 0-10', CA; @ 4', 4.6', & 10', 1" + mafic zones w/ dike-like geometry. Material appears to be principally Qtz & bio & bio has been altered to chlor? locally; 1 Qtz vn /10', 65° CA; no MoS₂.
- 30 - 40' 0-10', CA; v. poor core recovery; 1 Qtz vn /10' @ 65° CA; no MoS₂; FeOx staining noted.
- 40 - 50' 0-2', CA; 2-6', intermittent PFA dikes. Too much core loss to get no or orientation of dikes; 1 Qtz vn /10'; 55° CA; no MoS₂; PFA dike from ~5-6', has assim texture; mod FeOx staining.
- 50 - 60' 0-4', CA; 4-4.5', assim texture, ~ 30° CA (v. irregular); 4.5-8.0', CA; 8-9', PFA (no contacts in core); 9-10', CA; rock locally has grey-green tinge due to alter of plag?; @ 6.9', 30° CA, 1/8" wide healed shear zone (filled principally w/ sil.); @ 7.6', 50° CA, 1/8" wide pyr vn; @ 8.5' & 8.7', 50° CA, 1/8" vuggy Qtz vns; lo strong FeOx staining (most natural fract surfaces); no MoS₂.
- 60 - 70' 0-1', CA, 1- ~2', FFA (contacts lost); 2-10', CA; no vning; no MoS₂; FeOx as above; v. poor core recovery.
- 70 - 80' 0-2', CA; @ 2', 25° CA, 2 - 1" wide FFA dikes; 2-4', CA; 4-5', FFA dike, 50° CA; 5-10', CA; @ 9.6' & 9.8", 55° CA, 1/2" + Qtz vns; strong FeOx staining along fractures; no MoS₂.
- 80 - 90' 0-1.7', CA; 1.7-2.3', FFA, 50° CA; @ 6.6', 60° CA, 2" wide FFA dike x-cut by Qtz vning; FeOx as above; thru interval strong fracture trend, 0-10° CA; 7 Qtz vns /10'; no MoS₂.
- 90 - 100' 0-2', CA; @ 2', 80° CA, 3" wide FFA dike; 2.3'-10', CA; @ 7.9', 60° CA, 1/2" wide FFA dike; v. strong fract system thru interval, 0° CA; strong FeOx staining; 3 Qtz vns /10'; no MoS₂.
- 100 - 110' 0-10', CA; @ 6', 60° CA, 1" wide FFA dike; strong FeOx staining; 6 Qtz vns /10'; no MoS₂.
- 110 - 120' 0-10', CA; 0-5', strong fracturing (pieces generally <0.1' dia.); 7'-10', 15° CA, 1/4" Qtz healed shear zone w/ local bxa x-cut by consistent Qtz vning @ 75° CA; 7 Qtz vns /10'; no MoS₂; strong FeOx staining.

Hole No. 00 - 18S
Page 2
Date 7/20/74
Logged by DRS

- 120 - 130' 0-10', CA; @ 8.5', 65° CA, 1" wide FFA dike; @ 5', 80° CA, ½" wide vuggy qtz vn; strong FeOx staining; local v. mild ser of plag; 5 qtz vns /10' @ 75-80° CA; no MoS₂; minor clay on occasional slip surface.
- 130 - 140' 0-1.1', FFA dike, 55° CA; 1.1-4.5', CA; 4.5-9.0', 50° CA, FFA w/ local CA inclusions; 9-10', MPFA; 4.5-7', FFA has aplitic gm & occasional qtz phenos (<5%); 7-9', FFA is v. grainy w/ ~ same qtz pheno % as above; 9-10', 55° CA (contact between FFA & MPFA) MPFA appears to be a mixture of CA & PFA. Most contacts are well defined but feeling @ this time is that most textural changes are contact related & should be thought of as chilled zones (FFA) & assim textures produced by partial digestion of CA in PFA (MPFA); at this point, we are apparently near a contact between CA & PFA; mod strong fract, 9-10° CA w/ FeOx & possible clay coating; strong FeOx coating on most fract. surfaces; 8 qtz vns /10'; no MoS₂; lo mild ser of plag.
- 140 - 150' 0-8.9', MPFA; 8.0-10', 30° CA, FFA. FFA is grainy to point of almost being MFA; 1-1.3', 60° CA, FFA dike (good contact); strong FeOx staining; 10 qtz & qtz Mo vns /10'; low OX% MoS₂; @ 0-10', qtz-MoS₂ vns apparently have ½" -f halos.
- 150 - 160' 0-10', MCA; 2.3-3.0', 40° CA, FFA (v. grainy w/ <2% pheno) upper contact between FFA & MCA sharp while lower is gradational. Strong possibility that FFA is dike & has consumed some MCA to produce lower gradational contact; MCA is mostly CA w/ local grainy gm caused by injection of PFA material in some instances & in others, caused by digestion of CA in PFA; mod ser of plag; 13 qtz & qtz MoS₂ vns /10'; @ 5', 75° CA, ½" qtz-crs MoS₂ vn w/ pyr; ~ 0.1% MoS₂.
- 160 - 170' 0-10', MCA; strong FeOx staining along natural fractures; ser of plag noted locally & arg of felds present locally also; 13 qtz & qtz-MoS₂ vns /10'; high OX% MoS₂; @ 9', 80° CA, ½" qtz-crs MoS₂ vn; vning @ 15° CA, 40-45° CA & 80° CA; 15° set cuts most other vn sets in interval.
- 170 - 180' 0-10', MPFA. Rock similar to PFA w/ exception that k-f phenos are 15+ mm long & comprise ~ 20% of the rock. Rock also contains higher % of bio than normal PFA. PFA has apparently assimilated CA to produce the texture; 9 qtz & tqz-Mo vns /10'; high OX% MoS₂ (?); alter & fracturing as above.
- 180 - 190' 0-10/, MPFA; rock & alter as above; mod FeOx staining; 6 qtz & qtz-MoS₂ vns /10'; low OX% MoS₂; mod strong fracturing @ 15-20° CA; white clay on fract surfaces locally.

- 190 - 200' 0-1', mixed FFA & MPFA. Contact @ 85° CA. FFA dike has picked up MPFA while being emplaced; 2.3-3.1', 30° CA, PFA dike; 6.4', 20° CA, ~4" wide FFA dike; 6.4-10', gradational change from MPFA to CA & back to MPFA; @ 1', 80° CA, ½" qtz-crs MoS₂ vn w/ 1/8" + bleached halo; @ 5', 75° CA, ½" wide qtz vn; 7 qtz-qtz-Mo vns /10', high OX% MoS₂; mild ser of plag; FeOx noted.
- 200 - 210' 0-1', MPFA; 1-1.2', 80° CA, FFA dike; 1.2-5.8', MPFA; 5.8-6.2', ~40° CA, FFA dike, contacts v. indistinct. May represent internal textural change; 6.2-10', MCA; @ 2.7', 80° CA, ½" wide qtz vn (buggy w/ few smoky qtz x'tals); @ 4', 75° CA, ½-3/4" qtz-crs MoS₂ vn; 5.8-6', 60° CA, 4 1/16" MoS₂ vns (good MoS₂); 4-5.8', flt, no orient possible; alter as above; 16 qtz & qtz-Mo vns /10'; ~ 0.12% MoS₂; 1 qtz vn @ 2' w/ minor green fluor; @ 0.0', 75° CA, irrég bio-mag vn.
- 210 - 220' 0-10', MCA; @ 8', 60° CA & 1.2-2', 75° CA, FFA dikes; 2'-7', rock badly fract. & FeOx stained fract @ 0-30° CA; v. mild sep of plag; local arg on fract surfaces; 6 qtz vns /10'; low OX% MoS₂.
- 220 - 230' 0-10', MCA; @ 5.1', 45° CA, ½" aplite dike; low FeOx staining; thru interval, 70-80° Ca, 3-½" qtz-crs Mo vns; 10 qtz & qtz-Mo vns /10'; ~ .15% MoS₂; mild ser of plag.
- 230 - 240' 0-7.2', MCA; ~ 7.2-10', FFA: contact gradational; 4 qtz-crs MoS₂ vns, ½" wide, 35° CA; @ 2.6', 35° CA, ½" qtz vn; 12 qtz & qtz-Mo vns /10'; 0.20% MoS₂; most qtz vns vuggy; alter as above.
- 240 - 250' 0-4, MCA; 4-8.5', FFA texture, upper contact @ 70° CA, & lower contact @ 55° CA. Contacts are sharp which suggests FFA is dike; 8.5-10', MPFA, from 4-8.5', local "silica" layering (possible vning), 55° CA; @ 5', 75° CA, ½" qtz-crs Mo vn; 14 qtz & qtz-Mo vns /10'; ~0.1% MoS₂; ser as above; FFA in interval not good FFA. Material is "grainy" & "loaded" w/ inclusions of CA. Local qtz vning & possible segregations of K-f (poorly developed vns gives interval a jumbled appearance.)
- 250 - 260' 0-10', MCA; @ 0', 45° CA, ¼" qtz-crs MoS₂ vn; @ 6.8', 65° CA, series (?) of 1/8" qtz-MoS₂ vns w/ good MoS₂ content; rock has "classic" MCA texture; mod ser of plag; 15 qtz & qtz-Mo vns /10'; ~ 0.1% MoS₂.

- 260 - 270' 0-0.6', MCA; 0.6-1.2', 70° CA, FFA dike, lower contact has ½" zone of FFA material; 1.2-1.5', MCA; 1.5-4', FFA. Upper contact indistinct but appears to be ~ 35° CA & lower contact lost; 4-8', MCA; 8-10', MCA w/ local but numerous Qtz-felds pegs segregations; 3 Qtz & Qtz-Mo vns /10'; low OX% MoS₂; some of rock between 8 & 10' has grainy FFA texture.
- 270 - 280' 0-3', MCA; 3-~3.5', FFA, no contact present (lost); ~ 3.5-10', MCA; 0-4', rock badly fractured to pieces ~0.1' dia.; @ 7 & 9', 70-80° CA, ½" Qtz-crs MoS₂ vns (good MoS₂!); locally strong ser of plag noted; 11 Qtz & Qtz-Mo vns /10'; ~ 0.15% MoS₂ or little better.
- 280 - 290' 0-10', MCA; 7-10', zone of peg (Qtz-felds) vning, segregations & rock w/ MFA textures. 9.6-10', K-f zone w/ numerous MoS₂ rosettes; interval 7-10', apparently zone of high fluid content @ time of cooling; @ 1' & 2.4', 80° CA, ½" Qtz-crs Mo vns; alter as above; ~ 0.15% MoS₂.
- 290 - 300' 0-3.4', MCA; 3.4-4.3', 50° CA, FFA dike; 0-1.1', 60° CA, continuation of FFA & peg zone described at bottom of previous interval; 0.1' peg zone @ 6.9'; alter as above; 8 Qtz & Qtz-Mo vns /10'; high OX% MoS₂.
- 300 - 310' 0-4.2', CA; 4.2-8.9', FFA; 8.9-10', MCA; FFA interval is finely xtalline w/ << 1% phenos. Local zones coarsen to MFA texture. Contacts over short interval but indistinct; lo strong ser of plag; 3 Qtz & Qtz-Mo vns /10'; low OX% MoS₂.
- 310 - 320' 0-6', mixed CA & MCA; 6-6.6', 35° CA, FFA. Rock is v. finely xtalline w/ << 1% phenos. X-cuts FFA that is grainy & lacking in phenos; 6.6-7.3', CA; 7.3-8.0', 60° CA, grainy FFA approaching MFA texture; 8-10', MCA; @ 0.2' & 2.0', 70° & 55° CA respectively, ½" aplite dikes; @ 3', 80° CA, ½" Qtz-crs MoS₂ vn; @ 4.3', 75° CA, ½" Qtz-crs Mo vn; 7 Qtz & Qtz-Mo vns /10'; ~ 0.1% MoS₂; alter as above interval w/ less intensity.
- 320 - 330' 0-~1', MCA; 1-5.3', CA; 5.3-6.2', FFA dike, 80° CA; 6.2-10', CA; interval of FFA is v. finely xtalline w/ < 1% total phenos & local small inclusions of CA; @ 1', 30° CA, ¾" vuggy Qtz vn w/ ½" x'tals & crs Mo (minor), possible green fluor also; @ 3', 75° CA, 2-½" aplite (possible FFA) dikelets x-cut by Qtz vns; mild ser as always; low OX% MoS₂.
- 330 - 340' 0-10', CA; @ 7.5', 75° CA, 2½" FFA dike (grainy); 9.8', 50° CA, 1" wide FFA dike (v. finely xtalline w/ < 1% phenos); alter as above; low OX% MoS₂.

Hole No. 00 - 18S
Page 5
Date 7/23/74
Logged By DRS

- 340 - 350' 0-1.4', CA, 1.4-2.3', FFA (grainy); 2.3-10', CA; @ 2.5', 1½" dike, 75° CA, FFA w/ v. fine matrix; @ 4.2', 35° CA, 1½" FFA dike (fine matrix); @ 7', 15° CA, ½" FFA dike (grainy); qtz-Mo vn cuts dike @ 2.5'; 4 qtz & qtz-Mo vns /10'' low OX% MoS₂; @ 7.5', 60° CA, ½" grainy FFA dike x-cut by qtz-mo vn; mod ser of plag.
- 350 - 360' 0-10', mixed MCA & CA. Most of interval is CA but few zones contain irregular pods of FFA material; @ 4', 80° CA, irreg FFA dike, ½"-1" wide; @1.6', large (~1" dia) mafic inclusion; low OX% MoS₂; local minor pyr along few qtz vns; alter as always.
- 360 - 370' 0-10', CA; @ 8', 70° CA, 3" wide FFA dike; @ 3', 15° CA, 1/8" + qtz-crs-Mo vns; mod strong fract @ 0° CA, ser lined; alter as above; low OX% MoS₂; 3 qtz & qtz-Mo vns /10'.
- 370 - 380' 0-1', CA; 1'-10', aplite w/ CA inclusions (remnants). Aplite may be FFA but is "sugary" textured & has practically no phenos. Ave xtal size < 1mm but locally reaches 1mm in dia; v. minor vning; low OX% MoS₂.
- 380 - 390' 0-10', aplite; 9.3', remnants of CA inclusion; 2.5-2.8', qtz-Mo vn swarm; 75° CA; @ 6', 15° CA, ¼" irreg qtz-K-f peg vn; @ 5.7', 65° CA, ½" FFA dikelet w/ ¼" k-f halo; 16 qtz & qtz-Mo vns /10'; low OX% MoS₂.
- 390 - 400' 0-4.3', aplite; 4.3-~8.8', MFA; contact between aplite & MFA is gradational. Believe that MFA is actually "contaminated: aplite & coarse texture is function of CA digestion; @ 7.3 & 8.8', peg zones to 0.1' wide, may actually be partially assim CA; 8.8-10', aplite; v. poor vning; low OX% MoS₂; rock has green tint, possibly due to ser.
- 400 - 410' 0-6.5', mixed aplite & partially digested CA remnants; 6.5-10', MA. @ 6.5', 75° CA, contact between CA & MA w/ apparent 1" wide chilled zone within MA; @ 5.7', 25° CA, hairline slip w/ purple fluor; poor vning; low OX% MoS₂; alter as above.
- 410 - 420' 0-10', MA; @ 2.1, 4, & 9.2', FFA dikes, 70°, 50° & 60° CA respectively, also @ 6.5, 50° CA. Dikes range from ¼-1" wide; mod fract @ 20° CA, ser &/or smoky qtz lined; poor vning; no MoS₂; alter as always.
- 420 - 430' 0-10', MA; no vning; no MoS₂.
- 430 - 440' 0-1.3', MA; 1.3-1.7', K-f zone; 1.7-~3.4', aplite (mafic), contact @ 1.7', ~70° CA, low contact is gradational w/ MA @ ~3.4'; 3.4-10', MA; @ 5', 6" zone of strong ser & possible arg along fract trend, 25° CA; vning poor; low OX% MoS₂; ser of plag mod.

Hole No. 00 - 18S
Page 6
Date 7/24/74
Logged By DRS

- 440 - 450' 0-10', MA; @ 3.1, 4.7, 6, 7.1, 8 & 8.4', aplite dikes to 3" wide (generally $\frac{1}{2}$ "), 39, 75, 55, 60, 40, & 25° CA respectively. Dike @ 3.1' appears to have been formed by "soaking" of MA by aplitic material. Contacts are indistinct; @ 7', 10° CA, minor ser slip; v. little vning; no visible MoS₂; v. weak ser.
- 450 - 460' 0-10', MA; few small zones have been bleached; 2-3', rock has been "soaked" w/ v. finely xtalling material, possibly sil or v. finely xtalline aplitic material; 3.5-7', 0° CA, ser slip w/ local white clay; v. poor vning; trace MoS₂.
- 460 - 470' 0-4.8', MA; 4.8-10', assim CP, contact @ 65° CA; $\sqrt{2}$ " chilled border within CP. Chilled zone is lt grey aplite; strong possibility that cp is simply PFA which has been modified by assim of CA &/or MA; rock has total pheno % of \sim 45% & gm is finely crystalline but locally coarse enough to see individual grains; occasional large K-f phenos (to 16-18 mm) w/ fuzzy borders is reason for calling rock assim CP; 9-10', 15° CA, strong fract w/ ser & clay gge; no vning & no MoS₂; ser of plag & arg along fract weak to mod.
- 470 - 480' 0-10', assim CP; @ 6.9', 30° CA, FFA dike, 3/4" wide; 7-10', 3 mafic inclusions to 1" dia; 0-1', continuation of fract zone noted at bottom of previous interval; @ \sim 4', 70° CA, 1" wide fault zone, ser & clay filled w/ MoS₂ (zone competent & filling hard); poor vning; trace MoS₂; total pheno % varies markedly to an est of 60%; alter as always.
- 480 - 490' 0-10', assim CP; locally v. crowded; numerous ser & clay coated slips in interval; v. poor vning; no MoS₂.
- 490 - 500' 0-10', assim CP; thru interval, 0-20° CA, slips w/ ser &/or smoky qtz coating; vning v. poor (2 qtz & qtz-Mo vns /10'); trace MoS₂.
- 500 - 510' 0-10', assim CP; 7-7.6', zone of K-f & mafic clots; 8-10', numerous small mafic clots; @ 1', 30° CA, $\frac{1}{4}$ " wide clay-ser slip; mafic inclusion @ 6', 3/4" dia; alter as always; little vning; trace MoS₂.
- 510 - 520' 0-10', assim CP; strong ser of plag & ser noted on most fract surfaces; thru interval, several ser-clay slips w/ local calcites (?), 45° CA; 1 qtz-Mo vn in interval; low OX% MoS₂.

Hole No. 00 - 18S
Page 7
Date 7/25/74
Logged By DRS

- 520 - 530' 0-10', assim CP; 3.2', 15° CA, smoky qtz lined slip, ½" wide; small mafic inclusions throughout interval; ser of plag as above; poor vning; low OX% MoS₂; pheno % has decreased by est 15% from last interval.
- 530 - 540' 0-10', assim CP; vning & alter as above; trace MoS₂.
- 540 - 550' 0-10', assim CP; @ 5', 2" mafic inclusion; thru interval, 20° CA, ser slips, hairline & minor; alter of plag to ser as always; poor vning; trace MoS₂; total pheno % variable within interval.
- 550 - 560' 0-8.8', assim CP; 8.8-9', fine matrix porph dike, 40° CA. Dike has cryptocrystalline gm, lt grey-green color, 18-20% total pheno %; @ 6', peg pod; 1" wide; 2-3.2', 20° CA, hairline clay-ser lined fracture; vning & alter as above.
- 560 - 570' 0-10', assim CP; @ 5.7', 30° CA, ½" wide clay-ser clip w/ gge & sand size material as filling; v. poor vning; trace MoS₂; ser of plag strong; 7-10', no core recovery; term assim is still used based primarily on occurrence of occasional large K-f phenos.
- 570 - 580' 0-10', assim CP; 0-2', 15° CA, strong ser coated slips; @ 5', 15° CA, 1/16" wide white clay & ser slip; v. poorly developed vning; no MoS₂; alter as above; @ 7.2', 55° CA, 4½" fine matrix porph dike. Dike may actually be FFA. Is coarser than dike @ 559'.
- 580 - 590' 0-5.3', assim CP; 5.3-6.7', fine matrix porph dike, 50° CA; 6.7'-7.2', assim CP; 7.2-7.6', 50° CA, fine matrix porph dike; 7.6-10', assim CP; @ 6.8', 70° CA, 1/8" qtz vn w/ MoS₂ & w/ ½" K-f halo; ser of plag strong; mod vning (6 qtz vns /10'); trace MoS₂.
- 590 - 596' 0-0.5', assim CP; 0.5-2.0', fine matrix porph dike. Contact orient not possible; 2.0-6', assim CP; last part of interval v. crowded; ser alter as above; v. poor vning; no MoS₂.

End of Hole.
7/25/74
DRS

PERCENTAGE MOLYBDENUM CONTENT

DRILL HOLE NO. 00 - 18S,A

<u>Footage</u>	<u>%MoS₂</u>	<u>Footage</u>	<u>%MoS₂</u>
30 - 40	.0010	230 - 240	.112
40 - 50	.0005	240 - 250	.019
50 - 60	.0012	250 - 260	.203
60 - 70	< .0002	260 - 270	.116
70 - 80	.0004	270 - 280	.073
80 - 90	.0014	280 - 290	.022
90 - 100	.0065	290 - 300	.016
100 - 110	.011	300 - 310	.056
110 - 120	.017	310 - 320	.010
120 - 130	.024	320 - 330	.541
130 - 140	.0036	330 - 340	.097
140 - 150	.014	340 - 350	.070
150 - 160	.0058	350 - 360	.238
160 - 170	.0075	360 - 370	.164
170 - 180	.0065	370 - 380	.099
180 - 190	.022	380 - 390	.541
190 - 200	.036	390 - 400	.030
200 - 210	.074	400 - 410	.069
210 - 220	.077	410 - 420	.016
220 - 230	.066	420 - 428	.029

Hole No. 00 - 18S, A
Page 1
Date 7/29/74
Logged By DRS - RWG

- 0 - 30' Overburden.
- 30 - 40' 0-2', MCA; 2-10', CA; rock badly broken w/ FeOx staining; poor vning; no MoS₂.
- 40 - 50' 0-10', CA; rock & alter as above interval; no vning or MoS₂.
- 50 - 60' 0-10', MCA; small intervals of CA but rock too badly broken to get orient & exact locations within interval; rock badly fract & FeOx stained; core locally vuggy; no MoS₂; poor vning.
- 60 - 70' 0-2', MFA; gradational contact (?), 2-5', CA, badly broken w/ red-brown (goeth) FeOx staining. 5-10', CA, w/ minor assimilation textured MCA, badly broken w/ hvy FeOx stain. No vning.
- 70 - 80' 0-1', MCA, badly broken w/ hvy brown FeOx stain. 1-3', MFA w/ blotchy lt brown FeOx staining in matrix & fx surfaces. 3-4.5', CA; 4.5-6', MFA w/ ~ 0 biotite. 6-10', CA, w/ 30° CA, 1/8" slip @ 6', w/ 1" zo of CA frags in fine matrix. @ 10', FeOx stained 1/2" qz vn @ 30° CA.
- 80 - 90' 0-5', MCA, badly broken. 5-10', CA, w/ steep wk // qt ctd fx. No vning.
- 90 - 100' 0-10', CA, w/ fine alaskite @ 1.5', 75° CA, 1"; FA @ 65° CA, 1/2", 5'; aplite @ 9', 75° CA, 1". @ 3', 15° CA, 1/2" SiO₂ vn (barren) w/ lo flooding for 1". Lo mottling w/ light brown lim stain (possibly from biotite).
- 100 - 110' 0-2.5', CA, w/ FA; @ .3', 3", 60° CA; 1.6', 40° CA, 1-3/4"+ is cut by 40° CA, 1/2" K-f-qz-(M-peg or apl) w/ sil rim. FA @ 2.4', 60° CA, 3" w/ 1/2" chill zo's; FA is cut by 1/2" qz vn @ 60° CA w/ 2mm K-f rims. @ 2.5', gradational MCA contact, w/ MCA to 7'; @ 5', 30° CA, 1.5" FA dike w/ sharp but hazy contact. MCA is mottled w/ lt brown lim in matrix & on fx. 7-10', CA, w/ tr MoS₂ @ 8.5', possibly assoc w/ 30° CA, 1/8" qtz vn. 3, 4mm blebs² of MoS₂. CA is mostly fresh w/ v. wk lim mottling.
- 110 - 120' 0-10', CA, cut by FA dikes @ 2', 40° CA, 1", & @ 5', 30° CA, 2". CA has an autobrecciated texture @ 7-9'. 10 hl-1/2" barren steep qtz vning, 0-10', w/ 2" vuggy smoky qtz vn @ 2', 80° CA. 6-7', 15° CA, 1/2" qtz vn, cut by hl qtz vn @ 65° CA @ 6.8'.
- 120 - 130' 0-10', CA w/ FA dikes @ 1', 60° CA, 1"; 1.7', 70° CA, 3"; & @ 5', 30° CA, 2", w/ 3/4" of qtz-fine grained MoS₂. @ 6', 45° CA, 1" qz-coatse MoS₂ vn. Interval may run > .0X-.1 MoS₂. Lo wk gt mottling.

Hole No. 00 - 188, A
Page 2
Date 8/3/74
Logged By RWG

- 130 - 140' CA, 0-8', cut by FA dikes @ 0.5', 50° CA, 2"; @ 5.5', 40° converging contacts, w/ 3/4" barren qtz vn @ lower contact. 8-10', MCA w/ gradational contact @ upper 2". @ 9', 3/4", 70° CA, vuggy barren qtz vn wk, generally flat qtz vning, 0-10'. No visible MoS₂.
- 140 - 150' CA, 0-10', w/ crowding of blocky K-spars, 8-10' (still CA). 6-7', 2 // FA dikes @ 40° CA, 3" wide. 1-6', CA is characterized by intense hl 30° CA fractures & μ -fract-ores healed w/ goethite (resemble bl py μ -fracts @ Henderson). Poor vning, no visible Mo.
- 150 - 160' 0-10', CA, w/ crwding of blocky K-spar, 0-1', then typical CA to 10'. FA dikes @ 3', 60° CA, 2", w/ μ 5% fine biotite; @ 7', 70° CA, 2", w/ inclusions of wallrk. K-spar @ 2', 80° CA, 2 1/2" barren vuggy qtz vn. 1" barren qtz @ 6.5', 40° CA. @ 7 & 9', 2, 15° CA, 3/4" qtz vns w/ hl core of white K-spar. No MoS₂, 0-10'.
- 160 - 170' CA, 0-10'. FA dike (μ med grained) @ 4', 60° CA, 2", cut by steep 1/8" barren qtz vn. @ 6.5', 3" zo of fine textured MCA-type g'mass, cut by 1/2", 70° CA, FA dike. 2-5', partly open argillized μ -fx ore // CA. Several large K-f blasts have 1-2mm argillic halos. V. wk qtz vning, w/ no visible MoS₂. Lo gt mottling.
- 170 - 180' CA, 0-10' w/ no FA diking. Rk is extremely fresh CA, w/ μ 5% of blocky K-spars undergoing incipient argillization & sericitization (pale green). No qtz vning or visible MoS₂. Lo v. wk gt mottling.
- 180 - 190' 0-4', CA; sharp contrast @ 4', @ 65° CA, w/ PFA (MPFA). 6" chill zo @ contact which grades into assimilation crowded texture w/ μ 15% phenos of K-spar \gg qtz. @ 6', 3/4", 65° CA, q-Mo vn. @ 9.5', 1", 75° CA, q-hi MoS₂ vn. Lt mottling w/ gt, 0-10'. (@ 8', 85° CA, 1/8" μ -peg diklet cutting MPFA.)
- 190 - 200' MPFA, 0-10', aa to 4', 4-10' textures are obscured by argillization-pyritization, w/ mod-strong he-gt in matrix & on hl fx. Strong arg, 7-9'. @ 3', 70° CA, 1" q vn w/ tr MoS₂.
- 200 - 210' MPFA, 0-10', w/ FA (μ med grained) dikes @ 4-5', Δ obscured, & @ 6-7.3' @ 80° CA. @ 5.5', 25° CA, 2" aplite cut by 1/2", 20° CA q-Mo vn. @ 0', 30° CA, barren 1" q vn, buggy w/ gt. @ 2.5', 50° CA, 1" q-dissem Mo vn. Scattered steep hl q-Mo vns (1 every 2'), 3-10'. 0-7', med mottling of gt-he. Hvy gt on fx.

Hole No. 00 - 188, A
Page 3
Date 8/7/74
Logged By RWG

- 210 - 220' 0-10', MPFA, crowded assimilation texture of large blocky CA K-spar & plag phenos, ~ 20% total. Pale green incipient ser & argill of plag phenos. MoS₂ is weak & limited to hl fx, or hl qtz vns, generally @ 30-40° CA. Rk is very fresh looking, w/ rare wk goethite mottling.
- 220 - 230' 0-10', MPFA w/ crowded texture of primary & incorporated phenos. Several plag phenos are mantled by green seric-arg alteration. FA dikes @ 5 & 7', 3" @ 30° CA. Hvy q-Mo vn @ 0.5', 60° CA, 1", @ 8', 50° CA, 1". Sparse Mo as steep 1-3mm stringers, w/ or w/o qtz.
- 230 - 240' 0-10', MPFA, aa, w/ FA dike @ 40° CA, 6" @ 6'. G'mass is crowded w/ blocky assimilated K-spar, mantled and/or mottled w/ pale green ser-arg, aa. A few phenos are mantled by intense arg & are vuggy. 3.5" intense late primary K-f @ 9'. @ 2', 60° CA, 3/4" cse qtz-Mo vn. @ 5', 30° CA, 1/2" cse qtz-Mo vn. Rest of Mo restricted to steep thin stringers.
- 240 - 250' PFA, 0-10', w/ lo 1-2' MPFA segregations. FA dike @ 5', 55° CA, 4". PFA texture is ~ 15% tot q-K-spar phenos in fine grey g'mass w/ ~ 4% dissem lx (1 or 2) mm biotite. @ 4', 30° CA, 1/2" barren qz; @ 9', 75° CA, 1" barren qtz.
- 250 - 260' PFA, 0-10', w/ sharp 45° contacts w/ MPFA textures every 3'. @ 4', 6" FA dike w/ 30" CA contact w/ pegmatite @ 5'. Peg in contact w/ MPFA @ 6', obscured. PFA g'mass is quasi-aphanitic w/ 3x5mm qtz & 4x6mm K-spar phenos, totalling 15%. MPFA g'mass is ≥ 1mm, w/ ~ 15% large blocky (20x25mm) K-spar phenos, apparently assimilated from CA during PFA intrusion. Several fragments (anhedral) of apparent CA K-spar porphyroblasts are present. @ 3', 45° CA, 1/2" q-Mo vn. 8.5', 1", 35° CA, q-Mo vn, w/ 3mm core of q-K-spar -peg w/ v. fine grained Mo rim. 9.4', 80° CA, 1" qtz, w/ v. cse MoS₂.
- 260 - 270' 0-10', PFA (MPFA); aa, w/ 3" FA dike, 60° CA, @ 5'. Textures aa, though contacts between PFA & MPFA are gradational vs sharp. Rock is v. fresh w/ v. wk ser-arg on plag phenos. @ 1', 70° CA, hl barren q vn, w/ 1/2" halos of "bleached" apparent K-spar, apparently deuteritic in origin. @ 2', 80° CA, 3/4" qtz-cse MoS₂ vn. No other vning. No FeOx staining.
- 270 - 280' 0-7', PFA, as above; w/ FA fike @ 5', 30° CA, 2", offset by 45° hl, q-Mo vn. 7-10', probably MPFA. Texture is one of blocky K-f, plag phenos in a more quartzitic g'mass, quasi-mosaic, resembling CA. Qtz in matrix is definitely primary. Biotite is dissem >> segregated & totals ~ 5%. Contact @ 7' is not intrusive, but gradational over 1-2". @ 6', cse Mo w/ v. little qtz on 80° CA fx.

Hole No. 00 - 18S, A
Page 4
Date 8/7/74
Logged By RWG

- 280 - 290' Strange MPFA texture continues 0-9', w/ gradational contacts w/ PFA @ 1-1.5', 3-3.5', 9-10'. Overall, texture continues crowded w/ large blocky K-spars. Barren $\frac{1}{2}$ " Qtz vns, 30° CA, @ 5', 6' (1" vn), 7.3', 8.5'. No visible MoS₂.
- 290 - 300' MPFA texture continues, 0-10'. @ 9', 2" aplite dike @ 30° CA. @ 3 & @ 4', 6" inclusions of biotite (+ hornblende) rock rock occur w/ long axes // CA. Inclusion @ 4' is cut by 3 hl, 70° CA K-f vns, apparently deuteritic. Only visible MoS₂ as 3mm bleb in $\frac{1}{2}$ " Qtz vn @ 7', 70° CA.
- 300 - 310' MPFA, aa (no inclusions), 0-10'. No visible alteration. Py ctgs on μ -fx, usually w/ biotite, though biot is fresh. Only visible MoS₂ is @ 3', in 2 // 1/8" Qtz vns, 60° CA.
- 310 - 320' 0-10', crowded MPFA textures continue, w/ PFA gradationally occurring in 1' intervals @ 1 & @ 3'. Crowded FA dike @ 5', 50° CA, 4". 6" of intense hl μ -fx in blocky incorporated K-spar are py ctd. Visible Mo limited to 1 dissem speck in PFA @ 3', & hl ctg on 20° CA, fx @ 4'. No FeOx.
- 320 - 330' 0-10', crowded MPFA texture continues. 2" FA dikes occur @ 2', 60° CA, 5', 40° CA, & @ 6', 70° CA. @ 4', 80° CA, 2" Qtz vn w/ wk MoS₂; @ 5', 1", 65° CA, Qtz vn w/ ~75% massive & bladed MoS₂. This Qtz vn cuts FA dike. Wk hl random barren Qtz vns, 0-10'. Hl random μ -fx in blocky K-felds continue & are py ctd. μ -fx rarely continue into g'mass & •• seem to be a pre-existing texture from the original CA or MCA.
- 330 - 340' MPFA, 0-10', texture not as crowded. Primary phenos readily visible. @ 0.2', 1" apl @ 60° CA. 8-9.3', 3, 1" peg vns @ 65° CA, w/ graphic to myrmekitic textures. @ 1.5', 70° CA, 1" barren Qtz. @ 8', 40° CA, 1" vuggy Qtz, w/ cse MoS₂ (~30% of vn).
- 340 - 350' MPFA, 0-10', w/ very consistent texture thruout. ~7% crowding w/ incorporated K-f & plag "phenos," 4% primary Qtz phenos, & 5% primary K-f. Tr arg as fx ctgs. 7-10', wk hl stockwork q-Mo vning @ 35° CA. All Mo this interval occurs here.
- 350 - 360' 0-3', MPFA texture as above. @ 3', hazy 50° CA contact w/ very typically textured CA to 361'. This could represent an undigested incorporated block. No MPFA or PFA texture is visible in this 8' section. Upper contact is gradational over 3-4', w/ CA frags in MPFA. 5-9', good MoS₂, as cse Qtz-Mo @ 5', 70° CA, 2". 5.5-9', $\frac{1}{2}$ ", 25-30° CA, q-Mo vns 1/ft. 5-10', rock is moderately argillized, generally on 30° CA fx wh/ are post MoS₂.

Hole No. 00 - 18S, A
Page 5
Date 8/8/74
Logged By RWG

- 360 - 370' CA texture as above, 0-1'. Lower contact @ 50° CA, & gradational over 6", w/ CA frags in MPFA rock. MPFA, 1-10', moderately crowded w/ blocky K-f (10%), several of wh/ are rimmed w/ dark green arg-ser. Biot remains fresh. Steep arg ctd fx continue, 0-3'. @ 3', 40° CA, 2" mass vn of qtz-green fluorite, w/ no vis MoS₂. @ 5', 40° CA, 1" cse qtz-Mo (25% Mo). @ 8', 70° CA, ½", q-Mo vn (5% Mo).
- 370 - 380' 0-1.3', MPFA as above. Sharp 80° CA contact w/ typical, uncrowded PFA. PFA continues through 10'. Rock is medium green in color, w/ ~4-6% 3x5mm K-spar. 2% subround, 2x2mm qtz, & ~3% dissem subhedral biotite. G'mass is aphanitic. Tr ser as v. faint halos on < 1% total K-spar. @ 4', 70° CA, ½" q-Mo vn (5% Mo); @ 5', 60° CA, ½" q-cse Mo (20% Mo).
- 380 - 390' PFA as above, 0-10'. Texture & composition as above. @ 1' & @ 2', 1" square biotite schlieren or inclusions, both fresh. @ 7', ¾", 70° CA, q-cse Mo vn (20% Mo). @ 8', 1", 80° CA, q-cse Mo (45% Mo) vn. @ 8.5', 70° CA, ½" q vn w/ tr MoS₂.
- 390 - 400' 0-10', PFA as above. @ 6', 70° CA, ½" q-wk MoS₂. @ 8', 70° CA, ½" q-wk MoS₂. @ 9.5', 60° CA, ½" barren qtz.
- 400 - 410' 0-10', PFA as above. 0-3', cataclastic texture from 20° CA, shearing. Rk is 7 permeable & argillized (non-hydrothermal). 4-6', 1, steep hl q vn, w/ tr MoS₂-py. @ 1', ¾", 80° CA, barren q vn. @ 7', 70° CA, ½" qtz-Mo vn (10% Mo).
- 410 - 420' 0-10', PFA as above, even texture, ~1% incorporated blocky K-f. 1-3', 5° CA, fx arg ctd. 6', 35° CA, ½" q-v. fine grained Mo vn. @ 7', & @ 9.9', 30° CA, 1/8" barren q vns.
- 420 - 428' 0-8', very even textured PFA, as above. 1-4', 2/fx, 30° CA, fx, arg ctd. 0-8', scattered (1 every 2') hl, 30° CA, barren q vns. @ 6.5', 30° ca, ½" qtz-fine gt Mo vn. No other visible MoS₂. Hole bottoms in typical even-textured PFA.

End of Hole
8/8/74
RWG

LIST OF ABBREVIATIONS

about	~	dark	dk
abundant	abu, abdt	decreasing	dec
acicular	acic	deposit	dep
accumulation	accum	diameter	diam, dia
aggregate	agg	different	dif
amorphous	amor	dike	dk
amount(s)	amt(s)	disseminated	dis
angle, angular	∠, ang	distribution	dist
and	&	drill hole	D.H.
andesite	Ande		
anhedral	anh		
aphanitic	aph		
approximate	approx, ~	elevation	el
argillized	arg, arged	equal	=
assimilated	assim	nearly equal to	≈
as above	AA	not equal to	≠
at	@	equivalent	equiv
at 75° core axis	@ 75° CA	estimated	est
average	ave	except	exc
		exposure	exp
		extension	ext
		euهدral	eu
base	bs		
bedded, bedding	bdd, bdg		
biotite	bio		
black	blk	fault(s)	flt, fx
bleached	ble	feldspar, feldspathic	fld, fd
blue	blu	fine, fine-grained	fn, f.g.,
breccia, brecciated	bx, bxx, bxd		fgr
brown	brn	fluorite	fluor
		foliated	fol
		formation	fm
		fracture, fractured	fr, frr,
			frat
		fragmental	frag
		fragments	frags
calcareous	calc		
calcite	cal		
carbonate	carb		
cavernous, cavity	cav		
cemented	cmt		
chalcedony	chal		
chalcopyrite	cpy	galena	gal
chlorite	chl, chlor	gneiss	gn
coarse, coarse grained	cse, csg, crs	goethite	G
coated	ctd	gouge	gge
coatings	ctgs	gradational	grad
colloidal	coll	granite	gr
concentrate	conc	granodiorite	grano
contact	etc	granular	grnlr
core axis	CA, C _A	gray	gy
cross cut, cross cutting	x-cut, x-cutting	greater than, not greater than	>
crystal, crystalline	xl, xln	less than, not less than	<
crystals	xtals	groundmass	gm, g'mass

hairline	hl	nodular	nod
heavy	hvy	number	#
hematite, hematitic	he, hem		
horizontal	⊕ or ⊥		
hornblende	hbl		
		orthoclase	kf
		outcrop	oc
		oxidized	ox
		over	o/
ibid (in the same place)	ib		
igneous	ig		
incipient	incip		
inclusion	incl		
indistinct	ind	part	pt
intrusion	intr	parts per million	ppm
iron oxide	FeOx	parallel	//
irregular	irreg	pegmatite	peg
		perpendicular	⊥
		percent	%
		phenocryst	pheno
joint	jo or jt	plagioclase	pl
		plate	plt
		plus or minus	±
		point	pt
		porphyry, porphyritic	por, porph, phyry
latitude	lat		
light	lt		
lightly	ltly	porphyroblastic	porb
limonite	lim	potassium feldspar	K-f, kf
local	lo	present	p
locality	loc	probable	prob
longitude	long	pyrite	pyr
		pyritized	py, pyzd
mesostasis	meso		
massive	mass	quartz	qz, qtz
maximum	max		
magnetite	mag		
medium, medium-grained	md, m.g.		
member	mbr	radioactive	R
metamorphic, metamorphosed	met, mm	random	rdm
micaceous	micacs	recovery	rcv
micron, micro	μ	regular	reg
mineral	min	red	rd
minimum	minm	rhodochrosite	rho
moderate	mod	rhyolite	Rhy
molybdenite	Mo	rocks, rock	rx, rk
MoS ₂ less than .1%	OX%	round	rnd
muscovite	mus		
mylonite	mylo		

series	ser	yellow	yel
secondary	sec, 2ndary		
seriate	st		
sericite	se, ser		
shaft	☉ ☐	zone	zo
shear	she		
siderite	sid		
siliceous	sil		
slickensides	slk, slcs		
sphalerite	sph		
square	sq		
station	sta		
stain	stn		
structure	struc		
subhedral	subh		
sulphur	sulf		

to	→--
tabular	tab
texture	tex
therefore	∴
though	tho
total	tot
trace	tr
typical	typ

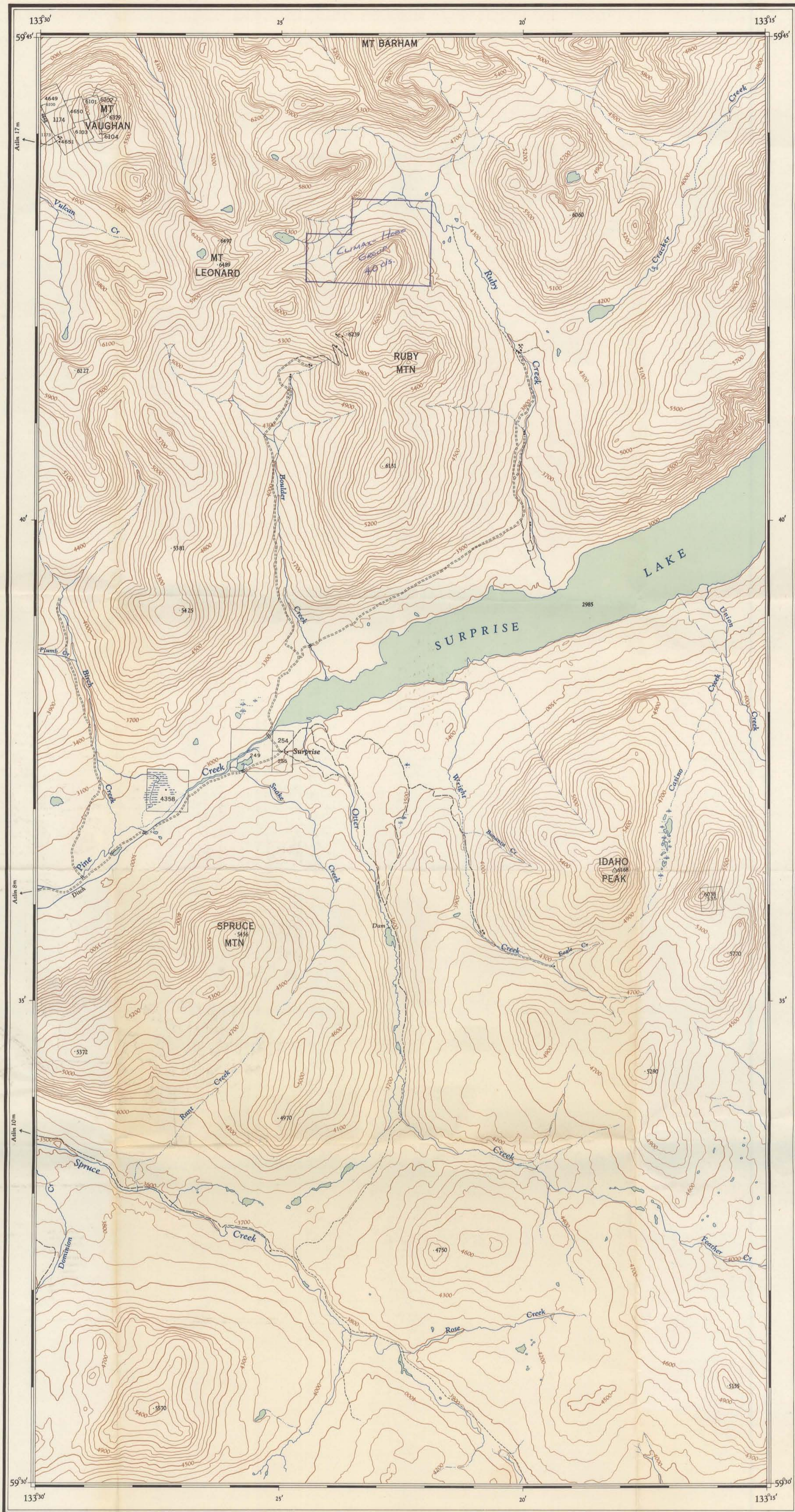
varigated	vgt
varies, variable	∞, var
vein	vn
veining	vning
vertical	↕, vert
very	v
visible	vis
volcanic	vol
vuggy	vug

weak	wk
which	wh/
with	w/, w-

xenolith	xeno
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ADANAC DRILL LOGS
KEY TO ROCK TYPES
1974

CA	Coarse alaskite
CP	Crowded porphyry
MA	Mafic alaskite
FA	Fine alaskite
PFA	Porphyritic fine alaskite (forms one of ore-bearing intrusives)
MFA	Mixed fine alaskite (a transition rock)
FFA	Fine-fine alaskite
MCA	Mixed coarse alaskite
MPFA	Mixed porphyritic fine alaskite
PEG	Pegmatite
FMP	Fine matrix porphyry



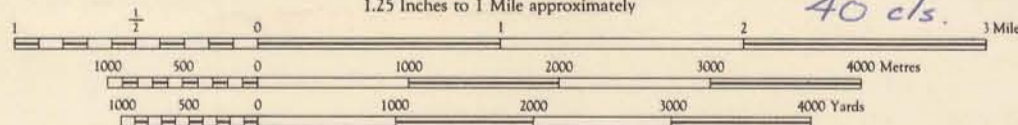
Surveyed and compiled by the Survey and Mapping Branch, Department of Lands and Forests, British Columbia, 1955. Drawn and printed by the Army Survey Establishment, R.C.E., 1955-56.

SURPRISE LAKE

CASSIAR DISTRICT
BRITISH COLUMBIA

Scale 1:50,000
1.25 Inches to 1 Mile approximately

MAGNETIC DECLINATION 12°02' EAST AT CENTRE OF MAP, 1956
Annual magnetic change 4' westerly
Contour Interval 100 Feet
Elevations in Feet above Mean Sea Level
Universal Transverse Mercator Projection
North American Datum 1927



REFERENCE

Roads: hard surface, all weather hard surface, all weather loose surface, all weather less than 2 lanes Cott Track, Trail	Boundary, International Province County or District Township or Parish City or Town Reservation, Indian, Military, etc.	Telephone or Telegraph, trunk route Horizontal Control Point Boundary Marker Benchmark Spot Elevation, (in feet) Mine or Pit
Railways: normal gauge, multiple track normal gauge, single track abandoned, or under construction narrow gauge, single track Bridge, underpass or overpass Tunnel	Power Transmission Line Telegraph or Telephone, trunk route Horizontal Control Point Boundary Marker Benchmark Spot Elevation, (in feet) Mine or Pit	House, Building School Church Post Office Tower, Radio Mast, Lookout, etc. Quarry Sand or Gravel Pit Cliff Cutting Embankment Dry River Bed
		Lighthouse Wharf or Pier Foreshore Flats Swamp or Marsh Lake or Pond, intermittent Glacier or Snowfield Stream, intermittent Irrigation Canals, Ditches Inundated Land, seasonal Contours, seasonal approximate Forest, unclassified

REFERENCE

House, Building School Church Post Office Tower, Radio Mast, Lookout, etc. Quarry Sand or Gravel Pit Cliff Cutting Embankment Dry River Bed	Lighthouse Wharf or Pier Foreshore Flats Swamp or Marsh Lake or Pond, intermittent Glacier or Snowfield Stream, intermittent Irrigation Canals, Ditches Inundated Land, seasonal Contours, seasonal approximate Forest, unclassified
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Surveyed Line
Section Number 16
Lot Number 221
Surreyed Timber Licence Number T.L. 2071
Surreyed Pulp Licence Number P.L. 626

Copies of this map showing lot lines may be obtained from the Survey and Mapping Branch, Department of Lands and Forests, Victoria, B.C., at 25 cents each.



5351
MAP 1

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5351 MAP #1

SURPRISE LAKE
104 N/1 WEST HALF