Title

Author 018118

Date and Typist AUGUST 1970

103I 157

TAPE 2 SIDE 1

NATIVE MINES PROPERTY ON ZYMOETZ RIVER - TERRACE

One crosscut adit at 1700 foot elevation. At portal of adit red to brown feldspar porphyry, probably andesitic composition. Widely spaced jointing at 040, dip 63 degrees north. Feldspar phenocrysts range in size from 4 to greater than 1 centimetre in long direction, some radiating phenocrysts. Phenocrysts are set in a fine-grained matrix of chlorite. Epidote alteration is widespread in matrix and on feldspar phenocrysts. Specimen NC70-204. Amygdules of calcite both pink and white varities also present in rock. These range in size up to 1 centimetre. At 60 feet, at this point hematitic shear zone at 300, 45 degree north dip. Main variation in rock to this point is that phenocrysts range greatly in size between fine and coarse grained varieties. Also hematite staining on feldspars and on fractures renders rock a brick red colour. Specimen of hematitic variety NC70-205.

81 Previously mentioned hematitic zone continues to sharp 3-inch shear zone at 305, 62 degrees north dip. Beyond this point massive competent feldspar porphyry as at beginning of adit. Malachite stain noted in shear zone.

89 Previously mentioned feldspar porphyry continues to this point in back where it is apparently cut off by 325, 45 degree south dipping fault. One-inch wide gouge zone. This continues for 5 feet where the fine-grained red tuff unit has an irregular contact with feldspar porphyry.

100 Coarse feldspar porphyry. Narrow shear zone at this point at 295 degrees, 68 degrees north dip.

150 From last point feldspar porphyry. Jointing 055, 90 degrees and 355, 50 degrees east. Narrow shear zone 20 feet north of 150 foot mark at 085, 80 degrees north.

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160 Abundant epidote in rock matrix at this point rendering rock a light green colour.

200 At this point 2 1/2-foot wide shear zone at 295, 65 degrees north dip. Shear may contain minor copper mineralization but no malachite stain noted.

250 To this point feldspar porphyry contains pinkish 1- to 2-centimetre feldspar phenocrysts in grey matrix. At this point shear zone at 300 degrees, 90 degree dip containing crystals of secondary calcite and some malachite stain. Shear zone is approximately 3 inches wide. Specimen NC70-206.

285 At this point narrow fracture plane 1-inch wide separating feldspar porphyry with fine-grained medium green volcanic rock on south side. Feldspar porphyry at this point appears to have chilled contacts. Medium green volcanic rock continues to 310 feet where another contact is exposed with feldspar porphyry. This one trending approximately north with vertical dip. Specimen of medium green volcanic rock which is transected by numerous one-eighth to one-quarter inch carbonate stringers NC70-207. A rock mapped as medium green volcanic maybe dyke rock, magnetic.

Mudstone ?

350 Coarse feldspar porphyry resembles that seen at portal of adit. One centimetre plus feldspar phenocrysts mainly white set in matrix of spots of chlorite rimmed by epidote Matrix is reddish brown to green in colour. Subparallel alignment of phenocyrsts gives impression of crude flow texture. Widely spaced jointing 040, 65 degrees south.

400 Jointing 355 degrees, 52 degrees east dip. To this point rock is uniform in appearance coarse-grained feldspar porphyry.

410 One-inch shear zone 080, 70 degree north dip. Phenocrysts of feldspar at this point in feldspar porphyry replaced by epidote. Some hematite noted on fractures.

450 Jointing 340, 50 degrees east. Some movement noted on some joint planes. Joint spacing at this point is approximately 6 inches to 1 foot apart.

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460 Feldspar porphyry as previous. One centimetre plus phenocyrsts. Phase of porphyry resembles lapilli tuff still with epidotized feldspar phenocyrsts with one-quarter to one-half inch lapilli in matrix. Also irregular clots of carbonate. Specimen NC70-208.

510 From the last point feldspar porphyry as in previous entry. at this point 2-inch wide shear zone at 015, strike, 53 degree dip east. This shear zone separates massive feldspar porphyry to east from intensely sheared and fractured rhyolite on west side of shear. Rhyolite contains finely disseminated chalcopyrite. Specimen NC70-216. Some potash feldspar and epidote alteration in light brown rhyolite.

550 Chalcopyrite occurs on fracture planes with carbonate. Coarser-grained chalcopyrite at this point. Best chalcopyrite mineralization seems to be localized along numerous fractures in rhyolitic rock.

550 At bend in adit --at this point rhyolite is brown to brick red in colour, very fine grained porcelain-like appearance. Rock also has conchoidal fracture. Some tuff sized fragments noted in rock. Extremely fractured and sheared at this point. Specimen NC70-217. Shear zones at this point at 090, 65 degrees north and 330, 31 degrees north. This rock type continues to 50-foot mark past bend in adit. Five-inched spaced jointing 110 degrees strike, dip 50 degrees south. Between last point and crosscut to south rock becomes rhyolite tuff breccia with one-inch pink fragments in fine-grained matrix. Rock is also closely fractured spacing generally 1 inch with fractures striking 145 degrees and dipping 75 degrees west. Rock contains finely disseminated bornite. Specimen NC70-218. Best chalcopyrite mineralization appears to be concentrated on the numerous fractures which transect the rhyolite tuff breccia. Some epidote alteration along fractures. Closely spaced fractures at junction of drift and crosscut at 355 degrees strike, 75 degrees west dip. Some fractures filled with carbonate seams at this point. At 120 foot mark in main

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drift 2-inch spaced fracturing in rhyolite breccia at 330 degrees, 90 degree dip. 175 foot mark in main drift 2-inch spaced fracturing at 140 degrees strike, 65 degrees north dip. At 200 foot mark and continuing to drill station in main drift at this point rhyolite breccia with large 3 to 6 inch elongate fragments composed mainly of pink rhyolitic material, epidote also widespread giving rock a characteristic pink to olive green colour. Bornite appears in patches and mainly in fractures. At drill station 2 to 3 foot wide biotite lamprophyre dyke at 010, vertical to 80 degrees west dip. Dyke is offset in north wall of drift by flat fault in back of drift. Specimen NC70-219. Ten feet past first dyke second one to 2 foot wide biotite lamprophyre dyke of similar trend but with a 75 degree dip to the east. Dyke here has chilled medium grey coloured contact. Similar dykes 2 feet wide plus or minus occur at intervals of 10 feet and 15 feet from previous dyke. Thirty feet from end of drift closely spaced fracturing in rhyolite breccia at 275 degrees 20 degree south dip and 340 degrees, 90 degrees dip. At end of drift, at this point rhyolite breccia is brown, fine-grained colour matrix with elongate red fragments which at this point trend 35 degrees in a direction of 090 giving rock a crude lineation at this point. In crosscut 15 feet south of station P19 jointing in rhyolite breccia at 000, 75 degrees west. Forty feet south of station P19, at this point contact at 085, 50 degree south dip between rhyolite breccia to north and fine-grained uniform appearing andesitic volcanic to south. Specimen NC70-220. Fifty feet past station P19 6-inch chloritic shear zone at 100 strike, dip 47 degrees south. 55 degrees south shear zone at 075, 35 degrees south dip separating extremely fractured andesite tuff from more massive type which has distinct hematitic colouration. This rock type is uniform in appearance contains carbonate stringers, and is extremely well jointed. This type continues to end of crosscut. Main fracture direction 075/40S. Specimen NC-70-221. End of adit.

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Author NCC

Date and Typist Sept. 1970

TAPE 2 SIDE 2

NATIVE MINES 1970 DRILLING PROGRAMME

Drill Hole US-1

US-1 is a horizontal hole. To 68-foot mark rock is uniform in appearance and is a rhyolite or dacite tuff breccia. Rock is brown to red with some hematite alteration. Epidote is widespread in fractures and as irregular clots in rock matrix. Fragments are similar in appearance to matrix and are generally one-quarter to one-half inch in size. Numerous one-sixteenth inch quartz carbonate stringers at 40 degrees to core surface. Little mineralization noted in rock to this point. Some pyrite and perhaps minor chalcopyrite locally. Specimen NC70-245 taken at 64 foot mark. ← Dacite tuff breccia.

90 Rock is uniform in appearance as previous to this point.

140 Dacite tuff breccia. Similar in appearance to previous section but rock here exhibits intense brecciation with numerous stringers of secondary carbonate. Hematite is widespread on fractures. Very few sulphides noted to this point.

144 Brecciated granodiorite. Potash feldspar in this case is probably secondary.

185 Andesite. Rock is similar in appearance to previous but is softer and is more of a uniform fine-grained appearance. No fragments noted in this section. Rock here is brecciated. Apparently gradational contacts with previous rock type.

296 Dacite tuff. Massive uniform appearance. Reddish brown. Numerous hematite coated fractures. Some crude stratification at 40 degrees to core surface. No sulphides noted in this section.

351 Brecciated dacite tuff. Numerous irregular lenses and stringers of carbonate healing fractures. Some pyrite noted.

This marks end of Hole US-1.

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Drill Hole US-2

Vertical hole.

33 Reddish brown dacite tuff. Intense brecciation. Very fine-grained pyrite and chalcopyrite on fractures which are also coated with chlorite & hematite.

43 Fine-grained dark green diorite, magnetic. Specimen NC70-246 at 38 feet. Diorite does not exhibit some brecciation as volcanic rocks nor are any sulphides noted in this section.

49 Dacite tuff as at top of hole.

59 Feldspar porphyry. One-half inch phenocrysts of pinkish feldspar in medium green, fine-grained matrix.

89 Fine-grained medium green diorite, magnetic. Appears to be post-brecciation. Chilled contacts at beginning of section.

124 Dacite tuff breccia, light green to red. Abundant hematite in matrix. Crude stratification seen locally at 60 degrees to core surface. Rock is intensely brecciated. Some bornite on fractures.

129 Brick red dacite tuff, fine grained, uniform. Abundant carbonate.

137 Dacite tuff breccia. Lithic rock fragments to one-half inch size.

169 Fine-grained feldspar porphyry. Brown matrix. Green to pink feldspar phenocrysts measuring up to one-quarter inch in long direction. Fine disseminations of bornite in matrix and in one-eighth inch quartz veinlets to near end of section. Specimen NC70-247 at 150 feet.

173 Light green rhyolite breccia. Irregular patches of quartz with fair grade bornite.

177 Fine-grained dark green diorite. Apparently post-mineral.

193 Brecciates sheared rhyolite tuff breccia. Irregular lenses of quartz throughout.

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Quartz contains medium-grained chalcopyrite and bornite. Specimen NC70-248 at 193 feet.

213 Feldspar porphyry, coarse grained, crowded. One-half inch long feldspar laths in reddish green matrix. Numerous clots of epidote.

215 Brick red andesite tuff. Sharp contacts with feldspar porphyry, suggesting porphyry is intrusive. Specimen NC70-249 at 215 feet.

227 Feldspar porphyry as in previous section. Some brecciation near end of section.

246 Breccia zone. Abundant quartz. Little mineralization seen in this section.

293 Medium grey dacite or andesite. Uniform appearance. Little or no brecciation. Occasional hair-line fractures healed with white carbonate. Some hematitic bands 1 inch wide at 40 degrees to core surface.

316 Reddish brown dacite tuff breccia. Abundant epidote in interstitial areas between 1-inch rounded fragments.

352 Crowded feldspar porphyry, massive.

425 To this point fine-grained to medium-grained diorite. Chilled contact at most of section. Rock is uniform, magnetic, and contains numerous carbonate stringers one-sixteenth to one-eighth inch wide. Occasional inclusions up to 1 foot of fine-grained feldspar porphyry or andesite near end of section.

491 Fine-grained andesite. Abundant epidote alteration.

491 marks end of Hole US-2.

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Drill Hole US-3

Vertical.

24 Rhyolite breccia. Light grey to buff. Siliceous matrix with good pyroclastic texture. one-half inch angular rhyolitic fragments. Finely disseminated chalcopyrite.

26 Lamprophyre dyke.

49 Dacite crystal tuff. Fine-grained brownish-red matrix. Bornite occurs as fine disseminations and in quartz veinlets. Specimen NC70-250 at 42 feet.

173 Feldspar porphyry, coarse grained, one-half inch, crowded plagioclase laths. Abundant interstitial epidote alteration. One-quarter inch amygdules of calcite. Sharp lower contact.

194 Reddish brown dacite crystal tuff similar to that seen near top of hole. Hematite on fractures.

246 Diorite, fine-grained, medium green colour. Main metallic mineral appears to be magnetite. Quartz carbonate one-sixteenth to one-eighth stringers at 70 degrees to core surface. Chilled contact at beginning and end of section.

260 Brecciated andesite. Abundant quartz carbonate veining. Appears very similar to diorite section. Crude alignment of quartz carbonate lenses at 60 degrees to core surface.

276 Diorite, fine grained.

281 Andesite, brecciated.

340 Crowded feldspar porphyry. Main grain size is one-half inch plus laths of plagioclase but gradations also noted to finer grained variety. Intense epidote alteration at end of section.

355 Dacite crystal tuff. Brownish-gred colour. Apparently sharp contact with

feldspar porphyry. Some disseminations of bornite noted.

473 Feldspar porphyry, crowded. Numerous 1- to 2-foot wide sections exhibit intense epidote alteration which obliterates original rock texture. Secondary carbonate also noted in these zones. Crude alignment of feldspar phenocrysts noted locally at 90 degrees to core surface.

473 foot marks end of Hole US-3.

Drill Hole US-4

Minus 60 degrees.

40 Dacite tuff and breccia. Reddish-brown matrix with one-quarter to one-half inch plus subrounded fragments, closely packed. Much fractured and brecciated to this point with disseminations of bornite rimmed with chalcopyrite. Specimen NC70-251 at 10 foot mark.

77 Dacite tuff and breccia as in previous section. Some sections are more massive and appear similar to feldspar porphyry. Disseminated bornite noted to this point.

84 Crowded feldspar porphyry, coarse grained.

93 Dacite crystal tuff, apparently sharp contact with feldspar porphyry. Contacts obscured by intense shearing in this section.

138 Crowded feldspar porphyry. One-half inch feldspar laths in medium green matrix.

142 Crowded feldspar porphyry with alternating dark red-brown to green matrix.

157 Feldspar porphyry, sheared and brecciated. Hematite and chlorite on fractures.

172 Crowded, feldspar porphyry. Medium green matrix.

202 Fine-grained feldspar porphyry or dacite crystal tuff. Some minor bornite seen in this section. Abundant lost core.

225 Crowded feldspar porphyry. Apparently gradational contacts with previous.

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270 Diorite, fine-grained, medium green colour, magnetic. Occasional quartz carbonate stringers at 60 degrees to core surface.

278 Andesite, brecciated, fine-grained, medium green colour. Chilled contacts with diorite.

298 Diorite, fine-grained, medium green to dark grey colour, magnetic. Chilled contacts.

321 Dacite crystal tuff and breccia. Crudely resembles coarse feldspar porphyry. Contact with porphyry is obscured by shear at end of section.

364 Feldspar porphyry, coarse, crowded. Some half inch to 1 inch lithic fragments noted. Epidote alteration locally intense.

364 marks end of Hole US-4.

Drill Hole US-5

Horizontal.

13 Dacite breccia. Abundant secondary quartz with medium-grained chalcopyrite. This section would grade in excess of 2 per cent. Specimen NC70-252 at 12 feet.

RT = Dacite.

69 Dacite tuff and breccia as previous. Chalcopyrite is best developed in areas of intense quartz veining and silicification. Overall section would grade near 1 per cent copper.

91 Dacite crystal tuff. Reddish-brown, fine-grained matrix. Crystals 2 to 4 millimetres. Some spots of epidote. Little mineralization seen in this section.

110 Fine-grained, dark grey diorite. Finely disseminated pyrite. and magnetite. Only metallic minerals noted. Chilled contacts.

120 Dacite crystallithic tuff, sheared at lower contact.

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183 Crowded feldspar porphyry, coarse grained.

187 Biotite lamporphyre dyke.

192 Dacite crystallithic tuff.

192 marks end of hole US-5.

Drill Hole US-6

Vertical.

15 Dacite crystallithic tuff, brecciated with abundant introduced silica along with chalcopyrite and bornite.

17 Lamprophyre dyke.

104 To this point brecciated dacite tuff and breccia. Percentage of sulphides including pyrite and chalcopyrite near top of section and bornite near end of section depends on degree of brecciation and/or amount of introduced quartz. Metallic occur principally in interstitial areas between fragments in brecciated zones. Copper grade to this point would be between 1 and 1.5 per cent.

130 Dacite crystal tuff. Reddish-brown matrix with 2 to 4 millimetre crystals and some small lithic fragments. Rock is more cohesive than previous section with very little introduced quartz. Sulphides including bornite, chalcopyrite, and pyrite occur principally on hair-line fracture faces. Overall copper grade to this point would be less than 0.5 per cent.

164 Crowded feldspar porphyry.

166 Fault zone.

195 Crowded feldspar porphyry.

209 Dacite crystallithic tuff. Lithic fragments to 1 inch size.

210 Lamprophyre dyke.

243 Dacite crystallithic tuff as in previous section. Some minor bornite noted.

Abundant epidote alteration.

268 Red hematitic tuff, fine grained, uniform appearance. Sheared and brecciated near end of section. Epidote alteration extends slightly into this rock unit from previous type.

355 Fine-grained, medium grey diorite, magnetic. Numerous quartz carbonate lenses and stringers. Abundant hematite on fracture faces with chlorite.

355 Shear zone.

383 Andesite. Numerous carbonate fractures. Abundant epidote alteration.

390 Red tuff.

396 Andesite.

441 Red tuff.

Marks end of Hole US-6.

Drill Hole US-7

Core begins at 351 feet. Hole is horizontal.

394 Dacite crystal tuff, fine grained. Severely sheared and brecciated near end of section with approximately 25 feet of lost core. Rock contains finely disseminated pyrite and some minor bornite to this point.

420 Brecciated dacite crystal tuff.

518 Andesite crystal tuff. Crystals of mafic mineral now completely altered to chlorite. These range in size from 2 to 4 millimetres. Specimen NC70-253 at 438-foot mark.

535 Dacite crystal tuff.

538 marks end of hole US-7.

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Drill Hole CS-1 Native Mines

Vertical.

0 - 32 Overburden.

56 Quartz diorite, medium to coarse grained. Grain size 4 millimetres plus. Rock consists equigranular quartz, plagioclase feldspar, hornblende, and biotite. Some quartz carbonate veins at 70 degrees to core surface.

57 Lamprophyre dyke.

125 Quartz diorite as in previous entry. Rock is extremely uniform in appearance. Mafic minerals appear fresh. Pyrite is common as an accessory mineral. Main alteration is chlorite on slip planes. Specimen NC70-254 at 95-foot mark. Diorite is magnetic.

154 Granodiorite, medium grained. To this point rock is more leucocratic, containing less mafics than previous quartz diorite section. Potash feldspar may be an alteration product. Mafics here are altered to chlorite and epidote. Rock is magnetic.

186 Granodiorite, fine grained in contrast to previous section. Potash feldspar may be secondary as evidence by veinlets of same. Specimen NC70-254 at 168 feet.

210 Granodiorite, coarse grained.

212 Inclusion of more basic material.

269 Granodiorite, coarse grained.

274 Lamprophyre dyke.

288 Quartz diorite or granodiorite exhibiting moderate to intense chlorite-sericite alteration, which locally obliterates original sharp texture.

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347 Granodiorite, coarse grained. Rock is more leucocratic than that seen higher up in drill hole due to less mafics. Mafic minerals consist mainly of hornblende which is euhedral. Rock exhibits some epidote alteration.

347 marks end of Hole CS-1.

Drill Hole Cs-2

Vertical hole.

0 - 7 Overburden.

41 Granodiorite, fine grained to medium grained.

75 Granodiorite, medium grained to coarse grained. Brecciated with abundant epidote-chlorite-sericite alteration.

83 Granodiorite brecciated with chlorite slips with some MoS_2 and pyrite.

176 Granodiorite, medium grained. Abundant hematite in matrix giving the rock a pinkish cast. Chlorite alteration intense.

191 Granodiorite. Chlorite alteration intense. Severely brecciated section.

239 Granodiorite, medium grained. Intense potash feldspar alteration. Specimen NC70-255 at 232 feet. Xenoliths of light grey volcanic rock up to 2 inches in section.

380 Granodiorite, fine grained to medium grained. Numerous inclusions of fine grained, grey, porphyritic volcanic rock. Some up to 1 foot in length.

388 Lamporphyre dyke.

438 Granodiorite, fine grained. Numerous inclusions as in previous section.

443 Lamprophyre dyke. Chilled contacts.

449 Granodiorite, fine grained.

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451 Lamprophyre dyke.

468 Granodiorite, fine grained, inclusion-rich as previous.

502 Lost core, mainly lamprophyre dyke material.

502 marks end of Hole CS-2.

Native Mines - Drill Hole K-1

Vertical.

0-67 Overburden.

205 Feldspar porphyry, medium grained. One-quarter to one-half inch long laths of plagioclase feldspar in purple fine-grained matrix. Locally with abundant clots of epidote. Some lithic fragments to one-half inch giving rock a pyroclastic texture. Also irregular patches of quartz. Hematite is a common constituent on fractures.

224 Brecciated feldspar porphyry. Numerous slip planes.

232 Lamprophyre dyke.

240 Feldspar porphyry. Grey to green, fine-grained matrix.

342 Feldspar porphyry. Purple, fine-grained matrix. Glomeroporphyritic in part Abundant epidote in matrix and fractures. Some lithic fragments to one-half inch. Main size of feldspar laths is about one-half inch long. Some spots of chlorite in matrix. Specimen NC70-256 at 306 feet.

343 Brecciated epidotized feldspar porphyry.

465 Feldspar porphyry, fine-grained, purple matrix as previous.

482 Hematitic feldspar porphyry. One-millimetre spots of hematite uniformly distributed in matrix.

446 Purple feldspar porphyry.

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464 Grey feldspar porphyry. Uniformly distributed 1-millimetre spots of hematite in matrix.

517 Feldspar porphyry, purple to grey with disseminated hematite 1-millimetre spots. Occasional 1-foot sections of intense epidote alteration in which original rock has been completely obliterated.

522 Lamprophyre dyke, fine grained, medium grey.

539 Feldspar porphyry, fine grained. Most phenocrysts of feldspar are 2 to 3 millimetres and are stubby grains rather than laths.

541 Lamprophyre dyke.

553 Feldspar porphyry, coarse grained. Grey-green, fine-grained matrix.

553 marks end of Hole K-1.

Main feature of core examined on Native Mines property from 1970 drilling programme is the apparent restriction of copper mineralization including chalcopyrite and bornite to acidic tuffs and breccias and the complete absence of such mineralization in the widespread feldspar porphyry. Mineralization is also apparently dependent upon the amount of introduced quartz. The presence of mineralization in the acidic tuff horizons may be just indicative of mineralization favouring a more brittle rock in which a greater degree of fracturing would occur. Very little mineralization was noted in the diorites, granodiorites.

Title

Author Lee

Date and Typist Sept. 1970

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TAPE 2 SIDE 2

NATIVE MINES 1970 DRILLING PROGRAMME

Drill Hole US-1

US-1 is a horizontal hole. To 68-foot mark rock is uniform in appearance and is a rhyolite or dacite tuff breccia. Rock is brown to red with some hematite alteration. Epidote is widespread in fractures and as irregular clots in rock matrix. Fragments are similar in appearance to matrix and are generally one-quarter to one-half inch in size. Numerous one-sixteenth inch quartz carbonate stringers at 40 degrees to core surface. Little mineralization noted in rock to this point. Some pyrite and perhaps minor chalcopyrite locally. Specimen NC70-245 taken at 64 foot mark. ← Dacite Andesite.

90 Rock is uniform in appearance as previous.to this point.

140 Dacite tuff breccia. Similar in appearance to previous section but rock here exhibits intense brecciation with numerous stringers of secondary carbonate. Hematite is widespread on fractures. Very few sulphides noted to this point.

144 Brecciated granodiorite. Potash feldspar in this case is probably secondary.

185 Andesite. Rock is similar in appearance to previous but is softer and is more of a uniform fine-grained appearance. No fragments noted in this section. Rock here is brecciated. Apparently gradational contacts with previous rock type.

296 Dacite tuff. Massive uniform appearance. Reddish brown. Numerous hematite coated fractures. Some crude stratification at 40 degrees to core surface. No sulphides noted in this section.

351 Brecciated dacite tuff. Numerous irregular lenses and stringers of carbonate healing fractures. Some pyrite noted.

This marks end of Hole US-1.

Title

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Drill Hol US-2

Vertical hole.

33 Reddish brown dacite tuff. Intense brecciation. Very fine-grained pyrite and chalcopyrite on fractures which are also coated with chlorite hematite.

43 Fine-grained dark green diorite, magnetic. Specimen NC70-246 at 38 feet. Diorite does not exhibit some brecciation as volcanic rocks nor are any sulphides noted in this section.

49 Dacite tuff as at top of hole.

59 Feldspar porphyry. One-half inch phenocrysts of pinkish feldspar in medium green, fine-grained matrix.

89 Fine-grained medium green diorite, magnetic. Appears to be post-brecciation. Chilled contacts at beginning of section.

124 Dacite tuff breccia, light green to red. Abundant hematite in matrix. Crude stratification seen locally at 60 degrees to core surface. Rock is intensely brecciated. Some bornite on fractures.

129 Brick red dacite tuff, fine grained, uniform. Abundant carbonate.

137 Dacite tuff breccia. Lithic rock fragments to one-half inch size.

169 Fine-grained feldspar porphyry. Brown matrix. Green to pink feldspar phenocrysts measuring up to one-quarter inch in long direction. Fine disseminations of bornite in matrix and in one-eighth inch quartz veinlets to near end of section. Specimen NC70-247 at 150 feet.

173 Light green rhyolite breccia. Irregular patches of quartz with fair grade bornite.

177 Fine-grained dark green diorite. Apparently post-mineral.

193 Brecciates sheared rhyolite tuff breccia. Irregular lenses of quartz throughout.

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Quartz contains medium-grained chalcopyrite and bornite. Specimen NC70-248 at 193 feet.

213 Feldspar porphyry, coarse grained, crowded. One-half inch long feldspar laths in reddish green matrix. Numerous clots of epidote.

215 Brick red andesite tuff. Sharp contacts with feldspar porphyry, suggesting porphyry is intrusive. Specimen NC70-249 at 215 feet.

227 Feldspar porphyry as in previous section. Some brecciation near end of section.

246 Breccia zone. Abundant quartz. Little mineralization seen in this section.

293 Medium grey dacite or andesite. Uniform appearance. Little or no brecciation. Occasional hair-line fractures healed with white carbonate. Some hematitic bands 1 inch wide at 40 degrees to core surface.

316 Reddish brown dacite tuff breccia. Abundant epidote in interstitial areas between 1-inch rounded fragments.

352 Crowded feldspar porphyry, massive.

425 To this point fine-grained to medium-grained diorite. Chilled contact at most of section. Rock is uniform, magnetic, and contains numerous carbonate stringers one-sixteenth to one-eighth inch wide. Occasional inclusions up to 1 foot of fine-grained feldspar porphyry or andesite near end of section.

491 Fine-grained andesite. Abundant epidote alteration.

491 marks end of Hole US-2.

Title

Author

Date and Typist August 1970

TAPE 2 SIDE 1

NATIVE MINES PROPERTY ON ZYMOETZ RIVER - TERRACE

One crosscut adit at 1700 foot elevation. At portal of adit red to brown feldspar porphyry, probably andesitic composition. Widely spaced jointing at 040, dip 63 degrees north. Feldspar phenocrysts range in size from 4 to greater than 1 centimetre in long direction, some radiating phenocrysts. Phenocrysts are set in a fine-grained matrix of chlorite. Epidote alteration is widespread in matrix and on feldspar phenocrysts. Specimen NC70-204. Amygdules of calcite both pink and white varities also present in rock. These range in size up to 1 centimetre. At 60 feet, at this point hematitic shear zone at 300, 45 degree north dip. Main variation in rock to this point is that phenocrysts range greatly in size between fine and coarse grained varieties. Also hematite staining on feldspars and on fractures renders rock a brick red colour. Specimen of hematitic variety NC70-205.

81 Previously mentioned hematitic zone continues to sharp 3-inch shear zone at 305, 62 degrees north dip. Beyond this point massive competent feldspar porphyry as at beginning of adit. Malachite stain noted in shear zone.

89 Previously mentioned feldspar porphyry continues to this point in back where it is apparently cut off by 325, 45 degree south dipping fault. One-inch wide gouge zone. This continues for 5 feet where the fine-grained red tuff unit has an irregular contact with feldspar porphyry.

100 Coarse feldspar porphyry. Narrow shear zone at this point at 295 degrees, 68 degrees north dip.

150 From last point feldspar porphyry. Jointing 055, 90 degrees and 355, 50 degrees east. Narrow shear zone 20 feet north of 150 foot mark at 085, 80 degrees north.

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160 Abundant epidote in rock matrix at this point rendering rock a light green colour.

200 At this point 2 1/2-foot wide shear zone at 295, 65 degrees north dip. Shear may contain minor copper mineralization but no malachite stain noted.

250 To this point feldspar porphyry contains pinkish 1- to 2-centimetre feldspar phenocrysts in grey matrix. At this point shear zone at 300 degrees, 90 degree dip containing crystals of secondary calcite and some malachite stain. Shear zone is approximately 3 inches wide. Specimen NC70-206.

285 At this point narrow fracture plane 1-inch wide separating feldspar porphyry with fine-grained medium green volcanic rock on south side. Feldspar porphyry at this point appears to have chilled contacts. Medium green volcanic rock continues to 310 feet where another contact is exposed with feldspar porphyry. This one trending approximately north with vertical dip. Specimen of medium green volcanic rock which is transected by numerous one-eighth to one-quarter inch carbonate stringers NC70-207. A rock mapped as medium green volcanic maybe dyke rock, magnetic.

350 Coarse feldspar porphyry resembles that seen at portal of adit. One centimetre plus feldspar phenocrysts mainly white set in matrix of spots of chlorite rimmed by epidote Matrix is reddish brown to green in colour. Subparallel alignment of phenocyrsts gives impression of crude flow texture. Widely spaced jointing 040, 65 degrees south.

400 Jointing 355 degrees, 52 degrees east dip. To this point rock is uniform in appearance coarse-grained feldspar porphyry.

410 One-inch shear zone 080, 70 degree north dip. Phenocrysts of feldspar at this point in feldspar porphyry replaced by epidote. Some hematite noted on fractures.

450 Jointing 340, 50 degrees east. Some movement noted on some joint planes. Joint spacing at this point is approximately 6 inches to 1 foot apart.

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460 Feldspar porphyry as previous. One centimetre plus phenocyrsts. Phase of porphyry resembles lapilli tuff still with epidotized feldspar phenocyrsts with one-quarter to one-half inch lapilli in matrix. Also irregular clots of carbonate. Specimen NC70-208.

510 From the last point feldspar porphyry as in previous entry. at this point 2-inch wide shear zone at 015, strike, 53 degree dip east. This shear zone separates massive feldspar porphyry to east from intensely sheared and fractured rhyolite on west side of shear. Rhyolite contains finely disseminated chalcopyrite. Specimen NC70-216. Some potash feldspar and epidote alteration in light brown rhyolite.

550 Chalcopyrite occurs on fracture planes with carbonate. Coarser-grained chalcopyrite at this point. Best chalcopyrite mineralization seems to be localized along numerous fractures in rhyolitic rock.

550 At bend in adit --at this point rhyolite is brown to brick red in colour, very fine grained porcelain-like appearance. Rock also has conchoidal fracture. Some tuff sized fragments noted in rock. Extremely fractured and sheared at this point. Specimen NC70-217. Shear zones at this point at 090, 65 degrees north and 330, 31 degrees north. This rock type continues to 50-foot mark past bend in adit. Five-inched spaced jointing 110 degrees strike, dip 50 degrees south. Between last point and crosscut to south rock becomes rhyolite tuff breccia with one-inch pink fragments in fine-grained matrix. Rock is also closely fractured spacing generally 1 inch with fractures striking 145 degrees and dipping 75 degrees west. Rock contains finely disseminated bornite. Specimen NC70-218. Best chalcopyrite mineralization appears to be concentrated on the numerous fractures which transect the rhyolite tuff breccia. Some epidote alteration along fractures. Closely spaced fractures at junction of drift and crosscut at 355 degrees strike, 75 degrees west dip. Some fractures filled with carbonate seams at this point. At 120 foot mark in main

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drift 2-inch spaced fracturing in rhyolite breccia at 330 degrees, 90 degree dip. 175 foot mark in main drift 2-inch spaced fracturing at 140 degrees strike, 65 degrees north dip. At 200 foot mark and continuing to drill station in main drift at this point rhyolite breccia with large 3 to 6 inch elongate fragments composed mainly of pink rhyolitic material, epidote also widespread giving rock a characteristic pink to olive green colour. Bornite appears in patches and mainly in fractures. At drill station 2 to 3 foot wide biotite lamprophyre dyke at 010, vertical to 80 degrees west dip. Dyke is offset in north wall of drift by flat fault in back of drift. Specimen NC70-219. Ten feet past first dyke second one to 2 foot wide biotite lamprophyre dyke of similar trend but with a 75 degree dip to the east. Dyke here has chilled medium grey coloured contact. Similar dykes 2 feet wide plus or minus occur at intervals of 10 feet and 15 feet from previous dyke. Thirty feet from end of drift closely spaced fracturing in rhyolite breccia at 275 degrees 20 degree south dip and 340 degrees, 90 degrees dip. At end of drift, at this point rhyolite breccia is brown, fine-grained colour matrix with elongate red fragments which at this point trend 35 degrees in a direction of 090 giving rock a crude lineation at this point. In crosscut 15 feet south of station P19 jointing in rhyolite breccia at 000, 75 degrees west. Forty feet south of station P19, at this point contact at 085, 50 degree south dip between rhyolite breccia to north and fine-grained uniform appearing andesitic volcanic to south. Specimen NC70-220. Fifty feet past station P19 6-inch chloritic shear zone at 100 strike, dip 47 degrees south. 55 degrees south shear zone at 075, 35 degrees south dip separating extremely fractured andesite tuff from more massive type which has distinct hematitic colouration. This rock type is uniform in appearance contains carbonate stringers, and is extremely well jointed. This type continues to end of crosscut. Main fracture direction 075/40 S. Specimen NC-70-221. END OF ADIT.