



42A16SE0022 15 GALNA

010

DIAMOND DRILLING

Township: Galna

Report No: 15

WORK PERFORMED FOR: Utah Mines Ltd.

RECORDED HOLDER: SAME AS ABOVE [X]

: OTHER []

<u>CLAIM NO.</u>	<u>HOLE NO.</u>	<u>FOOTAGE</u>	<u>DATE</u>	<u>NOTE</u>
L 610919	JL-85-D1	547'	Feb-Mar/85	(1) (2)
L 610882	JL-85-D2	497'	Feb-Mar/85	(1) (2)
		<u>1044</u>		

NOTES: (1) #192-85
(2) No specific dates were given for the drilling, only the time span of Feb 5, 1985 to March 3, 1985

Duncan M. Woods
APRIL 30. 85.

DESCRIPTIVE GEOLOGY NOTES

HOLE JL-85-D1

0 - 12'
12 - 50'

-Overburden
-med grained, cumulate textured, altered ultramafic rock
-relatively soft, strongly altered, pred a fg to med g v granular appearing, crystalline ultramafic rock, composed of 35% white to light green carbonate (magnesite-v weak reaction HCL) crystals (as a replacement feature) and 50% dark green to black serpentinized olivine crystals, pred ahedral, to 1/16"
-rock appears massive, to v v weakly sch in places at 50 to 60° to the ca,
-strongly frac at ran or w pred magnetite serpentine (both chrysotile and antigorite, and lesser calcite, magnesite, chl, and talc frac fil (some magnetite-serpentine filled frac to 1")
-often strong serpentinized alteration halos to 1 to 2" around frac
-rock is strongly magnetic w 5% magnetite diss throughout, often as interstitial mineralization to serpentine and magnesite pseudomorphs, occ magnetite is weakly hematized a light reddish brown
-a few fg to aphanitic appearing phases
-contains 0.5% vvf g diss sulphide pred^d Py, as thin acicular slips associated w carbonate blebs, and diss throughout rock
-some magnetite halos around frac, as diss blebs to 20% and 1/2"
-multiple generations of fracturing, w some offsets up to 1/2"
-from 12 to 15', fg phase locally less carb rich, more serpentinized
-at 15.5', at 30° to the ca, 1/2" magnesite calc vn at 30° to the ca, w thin serpentine and magnetite stringers in vein perpendicular to vn or
-at 17.2', 1/2" antigorite seam at 50° to the ca,
-locally trace amounts of fg diss reddish brown mineral that may be chromite
-at 20', 1.5' fil frac at 20° to the ca, light green, calc-antigorite w 1/4"

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12 - 50'

-magnetite alteration rims, locally host is intensely microfrac w calc, magnesite and serpentine frac fil
-at 25.5', 1/4" magnetite fil frac at 60° to the ca, w a 1/2" serpentinized alteration halo
-at 29', 1/2" magnetite rich (30% diss blebs to 1/8") halo around carb fil frac at 20° to the ca, often offset by thin magnetite fil frac at 80° to the ca,
-at 30.5', 1/16" magnetite seams at 80° to the ca, w a very strong 1" serpentinized halo containing minor diss magnetite and vfg diss Py-Po
-from 34 to 35', 1/4" magnetite fil frac to 0 to 20° to the ca, surrounding host is locally strongly microfrac w calc, magnesite and serpentine frac fil,
-at 39.5', 4" calc - magnesite vn w 2% diss magnetite at 40° to the ca, and a 3" strongly serpentinized alteration halo
-at 39.7', a 2" band w 80% diss magnetite
-gradational contact w underlying less carb rich and fg unit

50 - 363.5'

-weakly serpentinized, fg to med g in places cumulate textured (remnant) ultramafic rock (peridotite)
-rock pred a dark grey to black fg ultramafic, comprised of (faint) cumulate crystals (anhedral, to 1/16"), of grey weakly serpentinized olivine
-strongly magnetic, w 5 to 10% magnetite as interstitial mineralization, and often as v thin (less than 1/32") rims on olivine pseudomorphs (occ calc and magnesite rims also on olivine pseudomorphs)
-contains 5% interstitial light green hard plagioclase in places, often weakly altered or replaced by magnesite
-magnetite often weakly hematized to a light reddish brown

HOLE JL-85-D1

50 - 363.5'

-rock is massive appearing , relatively hard, although a preferred frac or lense foliated appearance to rock in places
-rock is v strongly frac, at preferred or of 45 to 65° to the ca, although other or exist, numerous frac generations w offsets to 1/2", pred light green translucent antigorite frac fil, also w minor magnetite, calc, magnesite, and talc in places
-a few coarser grained phases
-in places plagioclase content to 10% lending gabbroic appearance to rock
-frac pattern resembles 'polysuturing' in places
-some greyer zones where it appears magnesite has 'pseudomorphs olivine to 5 to 10%
-contains 0.25% vfg diss pred Py, trace pentlandite in places
-a few frac have magnetite halos to 1/2" w 30% diss magnetite blebs, a few frac have strongly serpentinized alteration halos
-at 53', locally numerous 1/16" reddish brown hematized magnetite blebs,
-at 54.5', a few 1/2" serpentine-calcite magnetite vn at 75° to the ca, locally host is intensely serpentinized, vn are zoned, w magnetite rims and calc serpentine cores
-from 56.5' to 57', locally fg, locally strongly frac resembling polysuturing, with magnetite, serpentine, and calc fil frac
-from 64 to 64.5', v strongly frac at 40° to the ca, w numerous 1/2" bright green translucent serpentinized serpentine, magnetite filled frac, locally magnetite to 15% as alteration envelopes around frac
-at 76', 2" serpentine-calc vn at 40° to the ca, w 1/4" magnetite alteration envelopes
-from 82 to 83.5', v strongly frac, at pref or of 0 to 30° to the ca, w bright light green translucent antigorite fil frac

50 - 363.5'

-to 1" w ass calc, magnesite and magnetite to 20% of rock
-from 83 to 83.5', 2" thick serpentine-calc-magnesite-magnetite banded fil frac at 20° to the ca, offset and brecciated by secondary thin calc and magnetite fil frac, locally trace Py frac fil
-from 85 to 91', intensely frac at ran or several generations, (one set at pref or of 30 to 40° to the ca) w antigorite infil frac to 1/2" and 30% of rock, w ass 10% calc-magnesite-magnetite, (infil frac are zoned w magnetite rims and serpentine calc cores), surrounding host is locally intensely serpentinized and v magnetite rich w 20% magnetite pseudomorphs of olivine and interstitial mineralization
-at 91.5', 1/2" serpentine-calc-magnetite vn at 45° to the ca,
-from 95 to 95.7', irr zone of strong carbz, w bleached appearing light green relatively hard magnesite as alteration blebs and patches to 2" proximal to frac locally rock is weakly foliated at 35° to the ca,
-at 97.5', 1/2" serpentine magnesite seam at 45° to the ca,
-from 97.5 to 106', small diss light green 1/16" plage appearing blebs (anhedral to subhedral) to 5 to 10% of rock, locally lends gabbroic appearance to rock
-at 101.5', 2" banded serpentine - calcite vn at 20° to the ca, with numerous ass 1/4" serpentine-calc stringers at ran or
-locally from 107', magnetite to 15%
-at 107', 1/4" serpentine-calc vn/ fil frac at 35° to the ca,
-at 107.5', 2" strongly serpentinized zone as alteration halos around numerous calc - serpentine fil frac at ran or
-from 108 to 108.5', numerous 1/4" calc serpentine fil frac at 1/4", lends polysutured and weakly brecciated appearance to rock
-locally at 111' appears weakly brecciated by numerous thin 1/16" to 1/4" magnetite magnesite-serpentine-chl fil fra at ran or locally v magnetite rich w diss interstitia

50 - 363.5'

-mineralization to 15%
-from 114.5', to 115.5', locally v strongly
frac, w 1/4" to 1/8" serpentine-calc
fil frac at ran or, appear to weakly
brecciate rock in polysutured pattern,
locally magnetite to 15%,
-from 116.5', to 117', numerous 1/4"
to 1/2" serpentine-magnetite-calc seams
/frac fil weakly brecciate rock, to 20%
of rock,
-from 117.5' to 118', ran or 1/4 to 1/2"
magnetite-serpentine-calc vn weakly brecc-
iate rock, locally w trace Py
-from 119 to 121', numerous 1/4" to 1/2"
serpentine calc magnetite seams at ran
or weakly brecciate rock, seams to 25%
of rock locally
-at 121.5', a few 1/4" serpentine-calc-
magnetite weakly brecciate rock at ran or
-from 122.5' to 123.5', numerous 1/4"
to 1/2" serpentine-calc-magnetite seams
at contorted ran or brecciate rock
lends polysutured appearance to rock
-from 124 to 127', locally weakly brec-
ciated by numerous thin black serpentine
chl fil frac to 1/2" , w 0.5% pale white-
ish yellow sulphide mineral (pentlandite)
-at 125', pentlandite to 0.5% over 3"
ass w chl-serpentine fil frac, locally
magnetite to 20% as diss blebs to 1/16"
and as frac fil, maybe a flow/sill boundary
-from 127', slightly coarser, magnetite
decreases to 5%, v massive appearing
more strongly carbz (thin magnesite rims
on serpentine pseudomorphs of olivine
some pseudomorphs of magnesite, carb locally
to 5%)
-from 142 to 142.5', numerous 1/4" to 1/2"
randomly or antigorite-calc vn/fil frac
at ran or and 10% of rock,
locally strongly micro frac at a pref or
of 90° to the ca,
-from 145 to 145.5', numerous 1/4" serpen-
tine seams/fil frac at ran or to 10% of rock
locally w diss magnetite to 10%
-at 146.5' 1" serpentine vn at 45° to the ca
w 1/4" magnetite rims

50 - 363.5'

- from 147', serpentinization becomes v strong
- from 147' to 148', rock appears weakly brecciated by thin dark black serpentine chl seams at ran or, to 1/4" and 10% of rock
- at 149.5', a few 1/4" serpentine - calc fil frac at 50 to 70° to the ca,
- at 156.6', a few 1/4" serpentine-calc-magnetite seams at 40° to the ca,
- from 162 to 172', gradationally coarsens to med grained, and from 172' becomes pred med grained w a few coarse grained phases, becomes strongly serpentinized, and less strongly frac, more massive appearing
- at 162', 1" banded antigorite-calc fil frac at 30° to the ca,
- at 163.5', locally a few 1/16" interstitial Py blebs to 1% over 2"
- from 165 to 165.5', locally vfg interstitial Py to 2%
- from 162 to 167', locally Py to 1%
- at 167.3', 2" banded serpentine-calc fil frac at 20° to the ca, w a 1" strongly serpentinized alteration halo where diss magnetite locally to 10%, locally reddish brown, partially hematized
- from 172', increase in pale white relatively hard interstitial magnesite, often clustered in irr ' snow flake' type texture, as blebs to 1/16", to 5 to 10% of rock (this maybe tremolite, as does not react w HCL)
- 177', 1.5" serpentine vn at 30° to the ca w 1/4" magnetite rich alteration halos
- from 178.5' to 179', numerous 1/16" to 1/4" serpentine-calc seams at 45° to 55° to the ca, weakly brecciated rock in places
- at 180', 1" serpentine fil frac at 70° to the ca, w trace diss Py
- from 183 to 184.5', locally strongly frac w numerous ran or 1/4" serpentine calc infil frac, weakly brecciated rock in places

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50 - 363.5'

-at 185.5', 1/2" serpentine fil frac at 45° to the ca, w a 1/2" magnetite rich (25%) alteration halo, locally from 185 to 186', magnetite to 15% locally as pseudomorphs to 1/8"

-from 187 to 189', locally v strongly frac at ran or w 1/4" to 1/8" serpentine calc infil frac, contorted, appear to brecciate rock in polysutured pattern to 30% of rock, w locally 40% magnetite as pseudomorphs to 1/8"

-at 193', 2" zone of 0.5% vfg interstitial Py

-at 195.5', 1/4" serpentine magnesite fil frac at 20° to the ca, w v v fg interstitial magnetite-Py

-from 198.5 to 199', numerous 1" beige calc - magnetite w minor serpentine and magnetite vn to 80% of rock at pref or of 40° to the ca,

-at 201.5', 1" light green calc vn at 50° to the ca,

-from 201.6 to 203.5', strongly frac and brecciated by 1/4 to 1" calc - magnesite serpentine fil frac at ran or, w locally 25% magnetite as pseudomorphs to 1/8" proximal to frac, and minor diss Py-Cpy

-from 204 to 205', strongly frac w serpentine-calc-magnesite-magnetite fil frac

-from 205', irr 'snowflake' type texture v pronounced as irr blebs to 1/8" of hard pale grey tremolite? to 25% of rock

-from 210 to 210.5', a few 2" calc vn at 20° to the ca w strong 3" carbz alteration envelopes

-from 205', rock becomes fine grained w only a faint cumulate texture, and only mod serpentinized, v mottled appearing w light grey clusters to 1/4" of carbonate /tremolite? in crude snowflake texture affecting 35 to 40% of rock, becomes only weakly fractured from 217', at ran or w serpentine, chl, calc, magnetite, and magnesite frac fil, w 5% magnetite as vfg interstitial mineralization riming serpentine pseudomorphs and 0.25% vfg diss Py

50 - 363.5'

-at 218.5', 2" shear at 30° to the ca, w strong serpentine alteration and numerous 1/4" calc magnesite seams pl1 to shear
-in places interstitial fg magnetite may contain trace amount of sulphide mineralization (Py)
-from 235.5' to 236', a few 1/4" to 1/2" carbonate - serpentine vn at 30° to the ca locally more strongly frac w calc and serpentine frac fil,
-from 235.5' becomes mod to strongly frac w calc-magnesite-serpentine-magnetite fil frac, locally w trace amounts of Cpy and Py along frac surfaces
-from 244.5 to 245', distinct shear zone contacts at 90° to the ca, rock a light green vfg soft intensely carbz chlz rock, sch at 90° to the ca, w 3% diss sulphides as blebs to 1/8" (2% Po, 1%Cpy)
-at 254.5', locally minor Cpy frac fil
-from 259 to 270', locally rock is v strongly frac at ran or w serpentine, chl, calc frac fil, often w Cpy and Py smear along frac surfaces
-from 262 to 267', locally intensely frac w infilled serpentine calc magnesite frac to 30% of rock, strongly brecciated rock, locally magnetite to 15% as halos around frac
-from 315' to 316', strongly frac at pref or of 40° to the ca, lends fol appearance to rock
-at 317', 1/2" calc serpentine vn at 35° to the ca,
-from 319 to 319.5', numerous thin 1/4" calc - serpentine stringers at 45° to the ca, w a strong carbz alteration halos, w calc and magnesite pseudomorphs and cumulate crystals to 1/8" and 20% of rock
-from 320 to 323', locally v strongly frac at ran or, w pred serpentine and calc frac fil
-gradationally from 302', cumulate texture fines, becomes v v faint,

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50 - 363.5'

-from 326.5' to 327.5', 1/4" calc fil
frac at 5° to the ca, w minor diss ser-
pentine, magnetite, and Py
-from 330', becomes strongly frac at ran or
w serpentine, calc, chl, frac fil, frac
brecciate rock in many places, rock pred
fg dark black to greenish black strongly
serpentinized ultramafic
-at 330.5', 1/2" light green calc and ser-
pentine vn at 40° to the ca, w a 2"
strongly carbz alteration halo
-from 330.5', to 332', v strongly frac
at ran or, w 1/4" to 1/2" serpentine infil
frac to 30%, strongly brecciating rock
brecciated frag locally v magnetite rich
to 10% locally
-from 342 to 342.5', locally v strongly
frac at ran or, w 10% calc - serpentine
magnetite fil frac to 1/2", locally
w trace fg diss Cpy
-at 348.3', a few 1/8" Py-Po blebs in
calc fil frac
-from 351 to 352', intensely frac
-from 357 to 363.5', becomes slightly
softer, appears weakly tremolite altered
-from 361 to 363', locally core badly
ground v poor recovery, rather abrupt
contact w underlying sch unit

363.5 - 367.5'

-chl-carb sch (altered ultramafic rock)
-v strongly sheared, sch (sch at 30° to
the ca, kinked, crenulated in places)
v soft, v strongly chlz, and carbz altered
komatic basalt to ultramafic
rock, composed of 60% chl and 25% calc-
magnesite w minor ass lighter green ser
and talc
-carb occurs as diss blebs to 1/16" and
thin seams pll to sch, may represent
a fine remnant cumulate texture
-mod frac pred pll sch w calc and chl frac
fil

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363.5 - 367.5'

-trace vfg diss Py
-at 364', a few 1/4" qtz calc vn pll sch
w minor ass Py

367.5 - 378.5'

-altered (chlz, carbz,) fg cumulate texture
(remnant) ultramafic rock (peroxinite
to peridotite)
-rock pred a soft, dark green, fg, strongly
altered ultramafic, comprised of f remnant
chlz cumulate crystals to 1/16" and 80%
rimed by / interstitial mineralization
of white pred carbonate (weak reaction
HCL calc to magnesite) and in places
fresher plagioclase (carbonate may replace
plagioclase)
-relatively massive, no distinct fol
-mod to strongly frac at ran or, w pred
calc, lesser chl, magnesite, and sulph
(Po, minor Py) frac fil
-a few 1/4" to 1/2" calc and magnesite
at ran or,
-sulph content varies, from 367.5 to 376',
is 0.5% (0.25% Py, 0.25% Po, trace Cpy)
pred as v fg diss mineralization, minor
frac fil, and mineralization ass w carb vn
-from 376' to 378.5', sulph become 5%
(4.5% Po, 0.25% Py, 0.25% Cpy) as vfg
diss mineralization, frac fil, and blebs
to 1/4" ass w calc - magnesite vn
-from 369.5 to 370'. 1" irr magnesite
calc-chl vn at 0° to the ca,
-from 367.5 to 376', cumulate texture
is mod dev, but from 376 is v faint,
overprinted by strong chl-carb alteration
-from 376.5 to 377', 1/2" calc-magnesite
vn at 20° to the ca, w Po and Py-Cpy
blebs to 1/4"
-from 377 to 378', irr magnesite-calc vn
to 1" and 80% of rock, w ass 5% Po (w trace
Cpy as frac fil and ass blebs to 1/4")

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367.5 - 378.5'

-from 378 to 378.5', rock is intensely carbonatized, w calc blebs to 40% and 1/16", also appears to be weakly sil
-contact w underlying chert sulph iron formation is brecciated, irr, at 40° to the ca,

378.5 - 386.6'

-banded chert-sulph exhalative
-bd v well dev at 55 to 60° to the ca, pred thinly bd (1/16 to 1")
-pred a v hard dark grey chert (70%) w a few thin 1/16 to 1/2" lighter green sericitic chert interbd to 10 to 15%
-rock is strongly frac at ran or, frac often strongly brecciate rock in places some movement along frac to 1/4" w pred chl, ser, calc, Po and minor Cpy frac fil
-sulph 8%, pred Po(6%) minor Cpy (0.5%) and Py (1%), trace sphalerite, occurring as thin (to 1/4") semi massive bands pll bd, as frac fil, and as vfg diss mineralization within chert bd
-a few 1/2" to 2" qtz calc vn at ran or
-a few thin graphitic zones (graphite interbd to 1 to 2" and graphite frac fil)
-from 378.5 to 378.75', sulph locally 15%, pred Po w minor ass Py and Cpy as thin semi massive bd to 1/8", and frac fil, locally v strongly frac, brecciated by thin sulphides - calc fil frac locally bd appears somewhat slumped, at 40 to 60° to the ca,
-from 378.75 to 379.1', hard black graphitic (to 30%) and siliceous arg, w cross cutting 1/4" calc vn at 30° to the ca, which is rimed by Cpy, locally contains 5% Po w minor Py- Cpy
-from 379.1 to 380.2', rock is intensely frac pred pll sub pll bd, frac locally strongly brecciate rock w chl calc Po and qtz frac fil, locally chert contains 40% thin light green sericitic interbd,

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378.5 - 386.6'

- and a few 1" brecciated calc vn frag locally bd is slumped from 40 to 60° to the ca,
- from 380.2 to 380.7', brecciated qtz calc vn, pred calc (80%) w 20% qtz, containing brecciated chert frag to 1/2", bd is highly contorted, and slumped locally w a few 1/8" graphitic seams in vn and at margins
- at 380.7', 1/4" qtz Py vn pll bd
- at 382', 1" calc vn pll bd
- contact w underlying unit is marked by 2" highly contorted calc magnesite vn w Po blebs to 1/2"

386.6 - 391'

- carbz crystalline andesite
- rock pred a fg v granular appearing light grey massive carbz crystalline andesitic rock
- carbonate occurs as diss calc to 25% becomes increasingly less carbz towards 396',
- contains a few 1/4" anhedral to sub hedral plagioclase phenocrysts
- mod frac at ran or w calc, chl, and minor sulph (Po-Py and qtz frac fil)
- a few 1/4" to 1" ran or qtz calc vn
- contains 5 to 10% small diss blebs of white to pale pink unknown mineral that lends tuffaceous appearance to rock
- contains 0.5% vfg diss pred Po, minor Py and Cpy
- at 388', 1" qtz calc vn at 40° to the ca,
- at 388.6', 2" qtz minor calc vn at 50° to the ca, w minor diss Po blebs to 1/16"
- at 389', 1" irr qtz calc bleb and a 1/2" qtz calc vn at 55° to the ca,
- grades from 390 to 391' into uncarbonatized slightly coarser, more dioritic appearing underlying unit

391 - 406.5'

-mineralized, porphyritic, crystalline anesitic to gabbroic rock (maybe a porphyry);
-rock is massive, hard, pred a dark green fg to med g appearing and to diorite or gabbro, composed of 60% weakly chlz ferromags and 40% plagioclase in weakly dev crystalline texture, maybe weakly silicified appears v 'granular'
-contains 10% small (1/32" to 1/16") white to pale pink diss unknown mineral blebs that lends a tuffaceous appearance to rock in places
-contains numerous (to 5% of rock) large (to 1/2" av. 1/8 to 1/4") white hard anhedral to sub hedral fspr phenocrysts and a few light green weakly chlz ferromagnesium phenocrysts
-mod frac at ran or, w pred calc, some qtz and magnesite frac fil, occ Po, and trace Py-Cpy along frac, frac often have bleached appearing 1/4 to 1" alteration halos
-sulphide content, av. 4%, with 3% Po, 0.5% Py, and 0.5% Cpy, occ as fg diss interstitial appearing mineralization often in clots that resemble large brecciated frag to 1/2", and as frac fil, usually diss mineralization is more common proximal to frac very 'clastic' appearing in places w distinct fspr and ferromagnesian phenocrysts often resembling clasts
-a few qtz blebs / phenocrysts to 1/8" or strongly sil fspr? blebs, many phenocrysts appear mod silicified
-weakly carbz in places w calc replacing plagioclase
-at 392.5', a few 1/2" light green weak epidote altered irr anhedral to sub hedral plagioclase phenocrysts, locally resemble clasts, also locally a few 1/2" diffuse (net textured) Po-Cpy blebs
-at 394', 1/4" hard white magnesite and qtz fil frac at 35° to the ca, locally numerous thin random or Po-Py fil frac and semi massive net textured Po blebs to 1/4"

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391 - 406.5'

-from 399 to 401', locally v bleached appearing, dioritic appearing, perhaps weakly sil, w hard white to beige fspr clots to 60% of rock, locally a few 1/4" to 1/2" fspr phenocrysts to 10% of rock
-at 401', 1/2" qtz calc vn at 50° to the ca,
-at 402', 1" pred qtz minor calc vn at 35° to the ca,
-at 405.5', 1/2" qtz calc vn at 45° to the ca, w brown chl clots to 1/8" at vn rims
-from 402 to 406.5', gradationally becomes finer, and sulph decrease to 2% (pred Po)
-at 406', 2" biotite rich zone, locally mod carbz, w calc replacing plagioclase v mottled appearing locally w irr med g phases and fg phases
-rather gradational indistinct contact w underlying unit

406.5 - 409'

-andesitic rock (?)
rock pred a vfg to aphanitic light green hard and, w 5 to 10% small 1/8" anhedral to sub hedral blebs of qtz and minor calc that maybe small phenocrysts (or perhaps lithic frag, rock appears v clastic in places)
-also contains numerous 1/4" to 1/2" hard white fspr blebs that appear to be phenocrysts
-contains numerous irr 1 to 2" bands/frag of slightly coarser crystalline appearing and (similar to overlying unit) w 5 to 10% small diss blebs of unknown white mineral appears v mottled, autobrecciated in places

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406.5 - 409.5'

- strongly frac at ran or w pred calc magnesite, and sulph (Po-Cpy-Py) frac fil
- appears weakly fol as exhibited by alignment of coarser 'frag' at 60° to the ca,
- may be some type of flow breccia, or perhaps a clastic rock, but appears porphyritic
- contains 1% sulph (pred Po, trace Cpy, and Py) pred as blebs to 1/4" along frac, as frac fil, and minor vfg diss mineralization
- at 408.5', a few 1/4" Po w minor ass Py-Cpy, blebs along frac
- at 409', 1/2" hard white fspr-magnesite fil frac at 40° to the ca,
- at 409.4', a few 1" sub hedral white fspr and carbonate phenocrysts ? (clasts? v irr appearing)

409.5 -421'

- porphyritic andesite
- pred a med green, massive, relatively hard, fresh and, fg (to med grained appearing in places, appearing dioritic to gabbroic)
- contains 10% small (1/32 to 1/16") diss blebs of white to pale pink unknown mineral (fspr ?) lending tuffaceous appearance to rock , but exhibits a well dev crystalline texture
- contains 5% phenocrysts of hard white fspr, occ qtz, minor ass carb, to 1" av. 1/4 to 1/2" , usually proximal to frac, (suggesting these maybe some type of alteration product), and often as aggregates of smaller 1/16" to 1/4" anhedral to sub hedral crystals (looks v clastic in places ?)
- rock is mod frac at ran or (one set at a pref or of 35 to 45° to the ca,) w pred calc, and minor chl, sulph frac fil

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409.5 - 421'

-rock contains a few 1/8 to 1/4" qtz crystals to 5%, usually sub hedral, that may be phenocrysts
-sulph content trace Po, Cpy, Py, pred as frac fil ass w calc and v minor fg diss mineralization
-at 410.5', 1" irr light green aggregate of 1/4" weakly epidote altered fspr crystals, w minor qtz and carb, looks like a phenocrysts but exhibits a close spacial relationship to frac
-at 410.7', the same
-at 412.5', 1/8" calc w trace Py-Cpy-Po fil frac at 40° to the ca, w a 1" strongly carbz alteration halo
-at 414.5', 1" phenocrysts ? of hard white greenish white aggregate of 1/16" fspr blebs
-at 415', 3" zone where med g appearing w 30% small 1/16" calc replaced / altered fspr blebs
-at 416', numerous 1/2" calc - fspr fil frac at ran or
-at 417', a few 1" calc - fspr fil frac at 40° to the ca,
-at 419.7', a few 1/4" Po - Cpy blebs along calc fil frac
-from 420 to 421', becomes increasingly mottled appearing, harder, appears weakly sil
-at 421' , 1" qtz calc vn at 45° to the ca,
-arb contact w underlying more strongly altered unit

HOLE JL-85-D1

421 - 424'

- mineralized, altered andesitic rock
- rock a dark green, soft, v mottled appearing, altered and.
- vfg to fg, appears weakly fol at 60 to 90° to the ca, due to or of intense microfracturing (with calc micro frac fil, lending carbz appearance to rock)
- mod chlz
- contains 10 to 15% irr 1/4 to 1/2" blebs of chl, occ qtz, that appear to be subhedral to anhedral phenocrysts (or amygdules?), often weakly elongate pl to fol, lending a distinct and often clastic appearance to rock
- strongly macrofractured at ran or w calc, some dolomite/magnesite, chl, Po and Cpy frac fil
- occ strong 1/4" carbz alteration halo around frac
- contains 2% Po, trace Cpy, as frac fil and blebs to 1/4" along frac, and minor vfg diss mineralization
- from 421 to 421.5', v mottled appearing w numerous irr dark brown diotite? clots to 1/4"
- at 421.5', a few 1/16" calc fil frac at 60° to the ca, w 1/4" light brown diss calc alteration halos
- from 422 to 422.5', locally numerous 1/4" Po blebs along ran or frac
- from 423 to 424', intensely microfrac at 90° to the ca, w calc frac fil and vfg diss calc as a pervasive alteration locally a dark brown colour, maybe a v minor amounts of diss biotite present
- gradational contact w underlying less altered unit

HOLE JL-85-D1

424 - 437'

- mineralized porphyritic and (?)
- rock consists of a vfg dark green and. ground mass, relatively fresh, hard, only weakly chl_z, w 30 to 35 % irr 1/16" to 1/4" dark green anhedral to sub hedral ferromagnesian blebs, relatively hard, appear to be phenocrysts but may be amygdules or possibly even clasts, as are v distinct, and occ are v weakly elongate pll to a weak fol / sch at 60° to the ca,
- these are often replaced / altered to white fspr in places, w a few 1/4" frsp phenocrysts, occ qtz phenocrysts
- also contains 15% small (less than 1/32") diss blebs of white unknown mineral (fspr ?) that lends tuffaceous appearance to rock
- mod micro frac at ran or w pred calc-chl and Po as frac fil
- sulph content, av. 3% (2.75 Po, 0.25% Cpy) w 1.5% as frac fil and blebs to 1/4" along frac, and 1.5% fg diss mineralization throughout rock
- from 424 to 425', strongly micro frac at 60° to the ca, w calc frac fil, lending a carbz appearance to rock
- from 424 to 425.5', locally Po frac fil and blebs to 1/4" along frac to 3% w 1/2% ass Cpy
- from 424.5 to 425', 1/2" chl fil frac at 20° to the ca, w 1/16" Po-Cpy seams at rims
- from 425 to 425.5', locally appears med g, dioritic, (may be an alteration affect) w 30% pale green to white fspr blebs to 1/8" weakly elongate pll sch
- locally from 428 to 430', diss Po blebs to 1/8" and 5%
- at 430', 1" strongly sil band/halo around thin qtz Po fil frac at 60° to the ca,
- at 431.4', and 431.7', 1/4" semi massive Po halos around thin calc fil frac
- from 435 to 437', weakly carbz w diss 1/16" calc blebs to 10% of rock

HOLE JL-85-D1

424 - 437'

-from 436.5' to 437', rock becomes v mottled appearing, dark brown, (possibly biotite rich)
-arb contact w underlying aphanitic, altered unit

437 - 511'

-mineralized porphyritic andesitic rock
-varies in appearance w differing alteration intensities and phenocrysts content, but pred
-a vfg to aphanitic, dark green, relatively hard, fresh (only weakly chl₂) and ground mass, weakly sch at 45 to 50° to the ca, as exhibited by elongation and pref or of v irr appearing anhedral to subhedral 1/16" to 1/4", pred light green translucent ferromagnesian phenocrysts (v clastic appearing in places, but in places appears subhedral, could these be amygdules?) in places phenocrysts are silicified (to qtz) or replaced by white fspr, occ contains a few distinct fspr phenocrysts, in places small phenocrysts aggregate to form large 1" v irr appearing blebs
-rock is v mottled appearing
-mod frac at ran or w pred calc and Po⁺ chl, and qtz frac fil
-rock is strongly brecciated in places (maybe flow breccia, marking tops of distinct flows), some movement and displacement along frac
-overall sulph content varies, from 437 to 456', is 3 to 5%, from 456' to 511' av. 3%, (to 2.75% Po, 0.25% Cpy, trace Py) as 2% frac fil and blebs to 1/4" along frac, and 1% vfg diss mineralization
-occ lighter green irr diffuse 'alteration' bands pll fol or around frac to 1", v irr, w no decernable mineralogy change (maybe v weakly ser)

HOLE JL-85-D1

437 - 511'

-mod carbz in a few places (patchy alteration) w 10% vfg diss calc
-from 437 to 438', locally dark grey, strongly carbz, w vfg diss calc to 25%, locally appears brecciated by numerous thin 1/8" chl and calc fil frac at 1/8" , locally contains 3% vfg diss Po w minor ass Cpy
-from 438 to 439', v strongly brecciated altered zone consisting of 1/2 to 1" brecciated frag of dark brown v biotite rich and. rock , and light green v calc rich altered and. rock , brecciated by thin 1/16" to 1/8" chl and calc seams locally 1% Po w trace Py and Cpy, as micro frac fil, and occ blebs to 1/4" along macrofrac (this may be some type of flow top breccia)
-from 439 to 440.5', locally strongly microfrac at ran or w thin calc fil frac w lighter green 1/4" to 1/2" weakly ser alteration halos , lending v mottled and brecciated appearance to rock locally v fg diss Po and minor Cpy to 2%
-from 440.5' to 441', Po locally 5% as thin irr semi massive bands pll to and proximal to frac sets at 0 to 45° to the ca, frac have 1/4" irr carb (magnesite-dolomite) alteration halos , locally host is v granular appearing
-from 441 to 444.5', v mottled appearing w numerous 1 to 2" lighter green irr diffuse 'alteration bands/ blebs' and 25% of rock (lends conglomeratic / clastic appearance to rock locally), appears brecciated in places w lighter green weakly ser 1 to 2" frag in darker green chl ground mass, maybe a flow top breccia
-from 443.5 to 444', numerous 1/2" hard white fspr vn at ran or, to 20% or rock, locally contorted, brecciated , w 5% sulph (4.5% Po, 0.5% Cpy,) as frac fil seams to 1/8" , and blebs to 1/4" along frac
-at 445', 1/4" calc vn cross cuts fol at 35° to the ca, rimed by 1/8" Cpy - Po Py seams

HOLE JL-85-D1

437 - 511'

-from 446 to 446.5', numerous 1/2" to 1" alteration blebs of soft light grey to brown translucent unknown mineral
-from 448 to 448.5', locally lighter grey-green, mod carbz w 10% vfg diss calc,
-locally from 444.5 to 449', sulph to 5% (Po 4.5%, Cpy 0.5%), pred as vfg diss mineralization (4%) and frac fil (1%)
-locally from 452 to 454', v 'clastic' appearing, w green translucent blebs (phenocrysts?) to 1/8" and 40% weakly elongate pll fol at 45° to the ca and a few 1/2" to 1" light green 'alteration bands', pll fol at 45° to the ca, a few 1/4" white fspr phenocrysts, appears frag
-at 454', 2" zone w thin 1/32" to 1/4" light green ser? seams weakly brecciating rock pll fol at 50° to the ca,
-at 455.5' 1/4" semi massive Po band pll fol at 45°
-from 467', becomes less porphyritic appearing, w small phenocrysts to only 5 to 10% of rock, and 1/16" to 1/8" more and. appearing
-from 469 to 488', becomes slightly lighter green in colour, harder, maybe v weakly sil in places
-at 470' numerous irr 1/2" chl bands and alteration blebs weakly pll fol w a few 1/4" semi massive Po Cpy bands and blebs
-at 472', 1" qtz calc vn at 45° to the ca, w 1/2" semi massive Po-Cpy bands at vn rims, ass w thin chl and light green sericitic seams that appear to weakly brecciate rock (may be a flow top breccia)
-at 474.5', 1" irr chl alteration bleb/phenocrysts, and aggregate of numerous smaller 1/16" crystals
-from 475 to 480', numerous 1/4" to 1" chl and hard light green carb/fspr and qtz fill frac at 0° to the ca, w ass 2% Po and minor Cpy as blebs to 1/4" along frac, frac appear to weakly brecciate rock in places, surrounding host rock is very hard, maybe silicified

HOLE JL-85-D1

437 - 511'

- from 478.5 to 480', 1" hard yellowish white carb vn at 0° to the ca, highly contorted,
- at 481', 1" chl band pll fol at 50° to the ca, locally
- from 484.5' to 485.8', rock is v strongly frac, and brecciated by 1" dark green chl bands at ran or, w 3% ass Po, 0.5% Cpy, a few secondary qtz calc vn to 1/2" at ran or, brecciated frag are v hard bleached appearing, may be weakly sil
- at 486.5', 1" chl band pll fol w fg diss Po and Cpy to 2%
- at 487.3', 3" zone w numerous 1" chl band /fil frac at ran or, weakly brecciating rock, w 3% ass Po blebs to 1/4"
- at 488.5', numerous 1/2" chl bands breccia rock, w 2% Po blebs to 1/4"
- at 489.3' 1" irr chl alteration bleb /phenocrysts
- at 489.5' to 490', 1/2" chl band to 0° to the ca, w 3% Po as semi massive blebs to 1/4" w minor ass Cpy
- from 491.5', to 492', numerous 1/2" hard yellowish beige carb and qtz vn, often highly contorted, to 10% of rock w ass 2% Po as blebs to 1/4" at vn margin
- from 493.5 to 497', 5% small diss calc blebs, lending weak tuffaceous appearance to rock
- at 497.5', and 499', 1" irr light green hard beige fspr/carb phenocrysts / alteration blebs (aggregates of smaller 1/16" crystals)
- from 499.5 to 500.5', numerous 1/4" randomly or chl fil frac breccia rock w ass 3% Po as blebs to 1/4" along frac
- at 500.7', 1" phenocrysts of hard light green fspr
- from 503.5', to 504', 1/4" hard beige carb vn at 25° to the ca, locally, numerous 1/4 to 1/2" chl bands at ran or weakly brecciate rock

HOLE JL-85-D1

437 - 511'

-from 504.5' to 505.5', numerous 1 to 2" irr chl - fspr alteration blebs or phenocrysts, and brecciated hard beige carb vn frag to 1"
-from 506.5' to 508', numerous 1 to 2" aggregates of 1/16" to 1/4" chl and fspr phenocrysts (or alteration blebs)
-sharp contact at 511', w underlying intensely altered unit

511 - 516'

-intensely altered andesitic rock
-rock pred a grey to green fg crystalline appearance, mottled appearing andesite, w large (from 1 to 2") aggregates of 1/16" dark green translucent minerals (often replaced/alterd to qtz or white fspr), either large phenocrysts, or irr alteration patches, to 40% of rock
-andesite is v granular appearing, w fg crystals rimed by white fibrous appearing mineral (sericite?)
-rock is mod to strongly frac at ran or w hard white magnesite and fspr, chl, and qtz frac fil
-no visible sulphides
-from 511 to 511.7', intensely dolomitized zone, almost complete replacement by dolomite w faint remnant crystalline texture still visible, locally strongly micro frac w qtz, calc, and chl frac fil a few thin 1/4" qtz vn pll weak fol at 40° to the ca,
-from 513.5 to 514', qtz calc vn at 40° to the ca,
-at 515.6', to 516', hard grey to beige dolomite band pll fol at 35° to the ca strongly frac w qtz and chl and calc frac fil

HOLE JL-85-D1

516 - 547'

-andesite
-rock a fg crystalline appearing dark green andesite, weakly sch at 45 to 55° to the ca, weakly chlz, relatively soft,
-contains 10% small 1/32" white slips of unknown mineral (fspr?) weakly elongate pll to fol, lending a tuffaceous appearance to rock, but rock exhibits a well dev fg crystalline texture
-contains 3 to 5% dark green translucent /occ chlz anhedral to sub hedral irr phenocrysts to 1/4"
-weakly to mod frac at ran or, w calc, chl, and minor Po - Cpy frac fil
-occ larger (to 1") light yellowish green aggregates of smaller fspr? phenocrysts
-1.5% sulphides, pred Po (1.25%) and Cpy (0.25%), as vfg diss mineralization frac fil, and blebs to 1/8" along frac
-a few 1/4" diffuse calc seams at ran or
-at 519.2', 1/2" semi massive Po w minor Cpy band pll fol at 50° to the ca,
-at 542.5', 1/4" chl band w 1/8" Cpy-Po blebs

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61 0880

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L252E

L264E

DDH JL-85-D2
-45° @ 180°
497

DDH JL-85-D1
-45° @ 180°
547

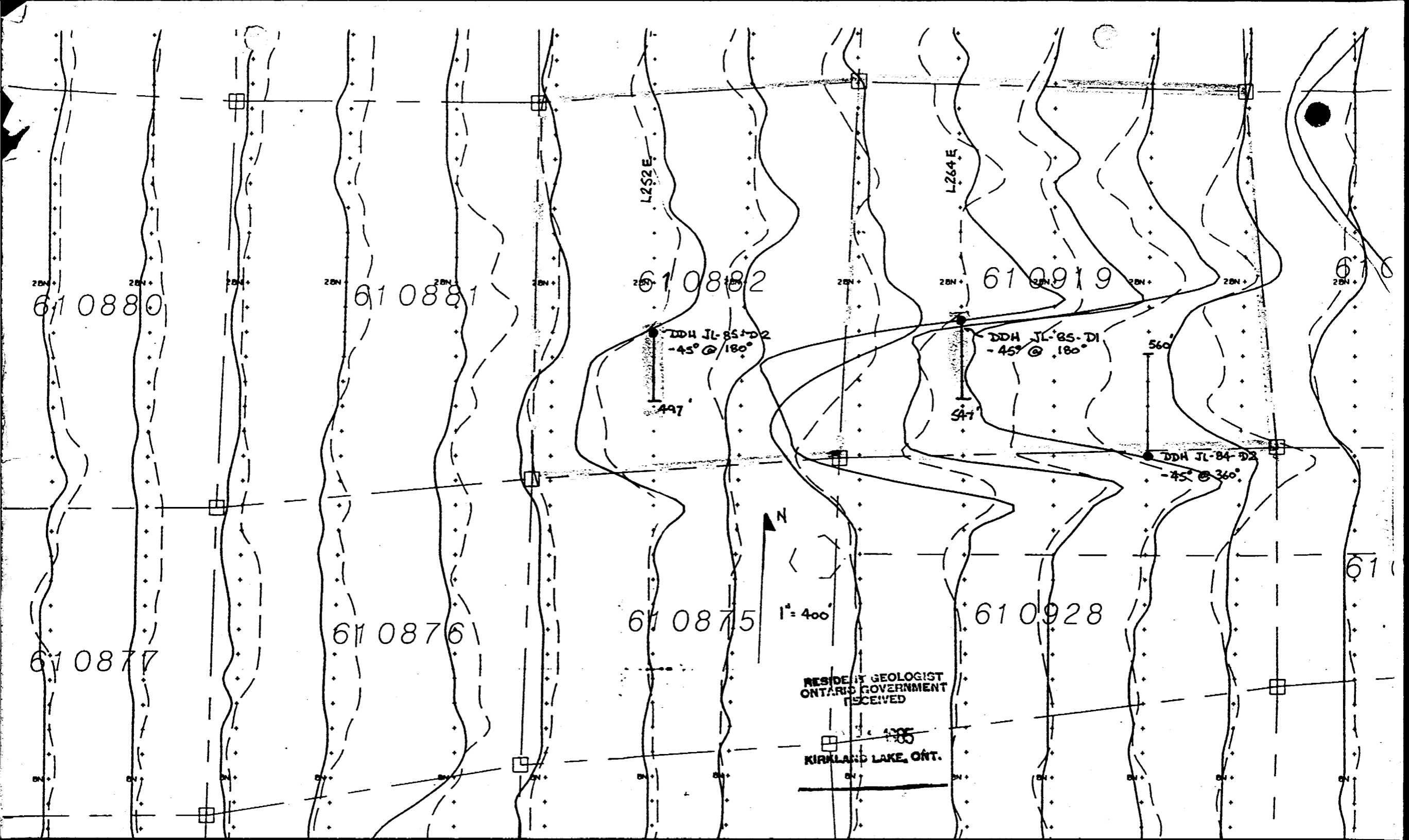
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-45° @ 360°
560

N

1" = 400'

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135
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D. McLeod,
APRIL 30, 85

DESCRIPTIVE
GEOLOGY
NOTES

HOLE JL-85-D2

- 0 - 94' - overburden
- 94 - 180.5'
- fine grained, cumulate textured (remnant, faint) serpentized ultramafic (peridotite)
 - rock pred a dark greenish black fg massive mod serpentized (too strong in places) ultramafic - peridotite, relatively hard, a few med g appearing phases
 - appears faintly 'cumulate' textured or 'porphyritic' in places, w 30% (to 60% in places) light grey to green mottled appearing anhedral to subhedral 1/8 to 1/4" blebs of hard magnesite that may be pseudomorphs of olivine or maybe a alteration feature, (may be tremolite, often exhibits a crude snowflake texture, and no reaction w HCL)
 - fg serpentine pseudomorphs of olivine visible throughout unit
 - strongly magnetic, contains 5% vfg diss interstitial magnetite
 - strongly frac at ran or, w pred calc serpentine, chl frac fil (serpentine is pred antigorite, w minor crysotile in places)
 - some frac have strong 1/4" serpentine alteration halos
 - trace vfg diss Py and Cpy as smears along along a few serpentine fil frac
 - at 99' 1/2" Calc vn at 20° to the ca,
 - from 102 to 103', a few 1/4" light green calc fil frac at pref or of 30° to the ca
 - at 103.5', a few 1/4" light green calc fil frac/vn at 70° to the ca,
 - from 103 to 107', frac exhibit a weak pref or of 65 to 75° to the ca, lends weak fol appearance to rock
 - from 139 to 139.5', 1/4" light green calc vn at 10° to the ca,
 - from 142 to 144', locally v strongly frac

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HOLE JL-85-D2

94 - 180.5'

-w numerous ran or 1/16" to 1/4" calc-serpentine (w minor talc and chl) fil frac to 25% of rock
-from 144.8 to 145', 2" softer light grey zone, appears strongly carbz but no reaction HCL (magnesite?)
-from 145 to 145.5', lamprophyre dyke, v soft light brownish grey fg rock w 35% diss biotite and 25% diss calc, w 15 to 20% small green chlz clots that may be remnant altered olivine crystals nonmagnetic, probably a dyklet, as has 2" grey alteration halos in ultramafic
-from 146 to 148', locally v strongly frac at ran or w calc, antigorite and crysotile, and chl frac fil
-from 149 to 149.5', 1" light green calc vn at 0° to the ca,
-from 150 to 161.5', rock is v strongly frac at ran or w calc, and serpentine frac fil, some strong slickensides along serpentine fil frac surfaces, locally host is intensely serpentinized, partially due to halos on frac
-at 160', 2" intensely serpentinized zone
-from 164 to 169', locally 1/8" magnesite/tremolite altered pseudomorphs / phenocrysts to 70% of rock in med g phase
-at 168.5', 1/4" crysotile fil frac at 40° to the ca,
-from 171', to 180.5' becomes lighter grey green, gradationally less magnetic fg, appears slightly softer, w a weak snowflake type texture, maybe tremolite altered
-by 180.5', only v weakly magnetic, arb contact w underlying bleached appearing altered unit

HOLE JL-85-D2

180.5 - 189'

-altered (tremolitic) porphyritic/cumulate textured ultramafic rock
-consist of a fg crystalline ground mass , light green, relatively soft, fibrous appearance , (altered to tremolite?) massive, w 30 to 35% small (to 1/8") phenocrysts or remnant crystals, pred sub hedral, of dark green to grey green serpentine , v mottled appearing
-rock is weakly frac at ran or w pred calc and minor chl frac fil
-only weakly magnetitic from 180.5' to 183', non magnetic from 183 to 189',
-trace vfg diss Py and Cpy, and a few thin seams along frac
-contact at 189', is marked by 2" shear at 55° to the ca, w soft light green ser-talc alteration

189 - 213'

- basalt to gabbro
-rock pred a dark green, fg , basalt to gabbro, composed of 60% weakly chlz ferromags, and 35% white f 1/16" anhedral to sub hedral plagioclase crystals occ light green , weakly epidote altered and may be weakly replaced by or altered to magnesite in places
-massive, relatively hard, fresh,
-weakly to mod frac at ran or w pred hard white carb (magnesite), calc, qtz, chl, fspr, and minor sulphides (Po-Py-Cpy) frac fil
-has fg chill type margins, more mafic in composition
-a few strongly chlz zones w 1/8" to 1/4" irr chlz blebs throughout rock
-sulph content, varies, from 189' to 206' trace Cpy-Py-Po, minor diss fg Cpy , and Py-Po pred ass w thin carb seams and as frac fil

HOLE JL-85-D2

189 - 213'

-from 206', sulph increase to 1%, 0.5% Py, 0.5% Po, trace Cpy, pred vfg diss mineralization, occ diss blebs to 1/4" and minor frac fil

-from 189' to 192', plagioclase only 10%, locally more mafic, softer, more strongly chlz, v mottled appearing w irr chl and light green bleached appearing alteration seams to 1/16" at ran or

-at 189.7', locally a few diss 1/32" Cpy blebs

-from 190 to 191', 1" pred light pinkish white magnesite w minor calc - qtz-chl vn at 25° to the ca,

-at 191.5', 1/2" x 4" long white hard magnesite minor qtz-calc vn at 20° to the ca,

-from 192 to 194', numerous 1/8" to 1/4" ran or magnesite w minor qtz calc fil frac/stringers

-from 197 to 199', locally appears weakly fol at 55° to the ca, due to preferred or of numerous thin carb fil frac and thin light green stringers

-at 199', 1/2" bright light green carb vn at 40° to the ca, w 1/16" to 1/8" Py rims and diss Py at vn margins

-at 200', 2" dark green chlz zone w numerous thin qtz stringers, and locally 1% fg diss Py, and trace Cpy - Po

-at 204', 1/2" contorted qtz calc vn at 30° to the ca, w a few 1/4" Py blebs at margins

-from 206', becomes more mafic, plagioclase only 5%, more basaltic appearing, w f g remnant crystalline texture, v mottled appearing, more strongly frac w numerous thin light green 1/32" serpentine fil frac and stringers at ran or, sulphides increase to 1%,

-from 207 to 207.5', 1% calc - qtz - magnesite vn at 20° to the ca, w 1% thin Po Py and trace Cpy stringers in vn and at vn margins and 2% vfg diss pred Po minor Cpy-Py in surrounding host rock

HOLE JL-85-D2

189 - 213'

-at 210.5', 1/4" Cpy - Po bleb
-at 211.2', a few 1/2" Po-Cpy blebs along frac
-at 212', 1" calc - magnesite vn at 60° to the ca,
-from 212' to 213', weakly fol at 60° to the ca,
-relatively sharp contact w underlying intensely altered mineralized unit

213 - 216.5'

-altered mineralized mafic volcanic rock a light greenish grey vfg and mafic volcanic, weakly fol at 50° to the ca, (sch), mod carbz w 10 to 15% vfg diss calc
-mod to strongly frac at ran or w pred calc, chl and sulph frac fil
-contains 5% vfg diss sulph, pred Po trace Cpy, Py
-from 215 to 216.5', becomes increasingly silicified

216.5 - 221'

-interbd mineralized chert and graphitic arg (exhalative horizon)
-rock pred thinly bd (1/16 to 1/4") grey cherts, bd highly contorted from 0 to 70° to the ca, pred at 50° to the ca, (bd is v slumped) w a few thin graphitic interbd and brecciated frag of altered volcanics / volcanic tuffs
-rock is v strongly frac at ran or w pred sulph (Po greater than Cpy greater than Py) frac fil
-overall sulphide content approx 7% pred Po w minor Py and Cpy, as thin 1/16" interbd, frac fil, and vfg diss mineralization
-from 216.5' to 217.2', pred thinly bd (less than 1/16") jet black chert (black col maybe from v minor graphite content) with a few 1/4" grey chert interbd, bd locally highly contorted from 0 to 60° to the ca, slumped, contains locally 10% sulphides (8% Po, 1.5% Py, 0.5% Cpy) as thin seams to 1/8" pll bd, and as frac fil seams to 1/8"

HOLE JL-85-D2

126.5 - 221'

-at 217', 1" green 'frag' of brecciated mafic volcanic
-from 217.2' to 217.5', hard black thinly bd graphitic arg, bd locally from 15 to 20° to the ca, w 3% Po-Py, trace Cpy, as thin 1/16" seams infil frac
-from 217.5 to 220.3', thinly bd 1/16" to 1/4" interbd grey black and light green cherts, bd highly contorted, slumped w 5% sulphides, pred Po w trace Py and Cpy, locally contains a few 1" brecciated mafic volcanic frag
-from 220.3' to 221', thinly bd light green siliceous chert, w numerous 1/16" white ser seams/interbd, locally bd highly contorted from 30 to 60° to the ca, w 10% vfg diss Po, trace Cpy, and thin 1/16" Po seams pll to bd,

221 - 224'

-chl-ser schist (altered mafic to ultramafic volcanic)
-rock a v soft, light green, v strongly sch (at 35 to 40° to the ca,) strongly chlz and serz rock (altered mafic to ultramafic volcanic), (may be an altered tuff), contains 10% to 15% small to (to 1/16") elongate pll to sch chl blebs that may be tuff frag that may be remnant crystals of a cumulate textured ultramafic
-strongly frac pred pll fol w chl and ser frac fil
-trace vfg diss Py

224 - 225'

-mineralized chert
-thinly bd (to 1/4") light grey chert, bd at 20° to the ca, w 20 to 30% thin dark brown biotite rich cherty interbd (biotite to 20%) and 10% thin dark green chl interbd
-Po w trace Cpy to 6 to 7% as thin 1/16" interbd, frac fil, and fg diss mineralization
-rock is mod frac pred pll bd, w pred sulph frac fil

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HOLE JL-85-D2

225 - 419.5'

- serpentinized fg cumulate textured (faint, remnant) ultramafic rock (peridotite)
- rock pred a dark green to greyish green fg peridotite w a weak remnant cumulate texture , w serpentine pseudomorphs of olivine comprising most of rock, (texture is v faint)
- porphyritic appearing in a few places w anhedral to sub hedral to 1/8" blebs of light grey mottled appearing magnesite ?- tremolite ? pseudomorphs , to 10 to 15% of rock
- a few coarser med grained cumulate phases
- strong pervasive serpentinization
- pred massive appearing, although appears weakly fol in places where frac exhibit a pref or
- pred a strongly to intensely frac at ran or (locally frac will exhibit a weak pref or, usually w 1 set at 40 to 60° to the ca,)
- pred serpentine (antigorite, w minor crysotile) w minor calc, magnesite talc, chl, and Py frac fil
- in fil frac often to 1/2", av. 1/16" to 5% of rock, appear to weakly brecciate rock in places, often in a 'polysutured' pattern
- some frac have strong 1/8" serpentinized alteration halos
- rock is relatively soft
- rock is mod magnetic, w 3 to 5% vfg diss magnetite as interstitial mineralization
- sulphide content variable, from 225 to 230 5%, (4% Py, 0.5% pentlandite, 0.5% Cpy) from 230 to 238', av. 1%, pred a dark brown Py, w trace Cpy, pentlandite, and Po, as vfg diss mineralization and slips /smears ass w talc, serpentine, and carb fil frac, and in places replacing magnetite
- sulphides from 238 to 277', av. 0.75% occ to 2% over a few inches, pred Py, w trace Cpy, pentlandite, and Po, as fg diss mineralization ass w talc, serpentine and chl frac fil, and v minor diss mineralization throughout host rock

HOLE JL-85-D2

225 - 419.5'

-sulphides from 277' only 0.5% , pred Py , trace Cpy, and pentlandite as mineralization ass w frac fil, some minor diss interstitial sulphide mineralization
-a few zones of weak pervasive talc alteration

-from 225 to 230', v soft, strongly serpentinized, intensely frac at ran or w talc, serpentine , and sulphide frac fil locally sulphides from 5% , pred as vfg diss mineralization and minor frac fil ass w talc and carbonate, appears to be pred Py with minor pentlandite and Cpy as seams along frac, sulphides may have replaced magnetite in contact zone w underlying exhalative horizon, by 230', sulphides reduced to 1%

-from 232', to 233', rock is locally brecciated by numerous 1/8" to 1/2" light green talc w minor calc vn/in fil frac, at ran or to 30% of rock, host rock is locally aphanitic, intensely serpentinized w 1% diss sulphide blebs ass w talc vn, and thin seams and stringers as in fil frac, pred Py w trace pentlandite and Cpy
-at 234', a few 1/4" Py w minor Cpy and pentlandite sulphide blebs partially replacing large magnetite blebs proximal to frac

-from 234 to 235.5', numerous 1/2" light green talc - serpentine- calc, 'vn' /in fil frac at ran or to 20% of rock, locally w 2% sulph as 1/8" blebs in vn and as frac fil, pred dark brown Py as blebs to 1/4" replacing magnetite
-at 236.5', 1/2" diss Py 'bleb'

-from 240.5' to 241', strongly brecciated by thin 1/16", to 1/8" calc - serpentine seams/in fil frac, at pref or locally of 35° to the ca, w minor ass Py and trace pentlandite as seams along frac,

-from 250 to 253', 1/4" serpentine (both crysotile and antigorite) and calc in fil fracs at ran or to 15% of rock w ass 1% diss 1/16" Py blebs

-at 259.5', 2" light green to white magnesite w minor calc and serpentine vn at 45° to the ca,

HOLE JL-85-D2

225 - 419.5'

-at 262.5', 1/2" magnesite vn at 70°
to the ca,
-at 266', 1/2" calc - serpentine vn at
40° to the ca,
-at 266.5', 1/4" calc - serpentine vn at
45° to the ca, w numerous ass 1/8"
Py blebs
-at 267.5', 3" calc - crysotile vn at 45°
to the ca,
-from 275.5 to 276.5', numerous 1/2" calc
serpentine vn weakly brecciate rock at
pref or of 40° to the ca, from 276.2 to 276.
5', 4" serpentine - calc band at 40° to the
ca, locally appears porphyritic w 10%
1/8 to 1/4" grey mottled appearing carb/
tremolite pseudomorphs/phenocrysts
-at 277.5', 1" calc- crysotile vn at 35°
to the ca, w a few 1/8" Py blebs
-from 277, becomes generally slightly
less strongly frac, w a faint f cumulate
texture becoming better dev
-at 294.7', 3" white magnesite- crysotile
vn at 60° to the ca, w trace diss Py-
Cpy-magnetite, locally rock contains
numerous thin 1/4 to 1/16" serpentine-
carbonate seams at ran or, is v soft
strongly serpentinized, w numerous 1/16 to
1/8" hard white tremolite?/carbonate?
phenocrysts / porphyroblasts
-at 298.5', 1/2" talc-calc vn at 45°
to the ca,
-from 298.5 to 299.5', rock is intensely
serpentinized
-at 304', 1" calc - crysotile vn at 40°
to the ca,
-from 310.5 to 311', locally weak pervasive
talc alteration
-at 311', 1" talc-magnesite vn at 35°
to the ca,
-at 312', 1" talc - calc- magnesite -
serpentine vn at 40° to the ca
-at 318.5', a few 1/2" light green calc
serpentine vn at 30° to the ca, w trace
Py

HOLE JL-85-D2

225 - 419.5'

- from 324.5 to 325', 1/4" serpentine vn at 10° to the ca,
- at 340.6', 1" serpentine band at 0° to the ca,
- at 341.2', 2" zone of intense serpentinization around numerous thin magnesite and calc stringers at pref or of 35° to the ca
- at 341.7', 1" magnesite vn at 45° to the ca,
- at 343', 1/2" magnesite-serpentine vn at 30° to the ca,
- from 348 to 350', numerous 1/4" randomly or talc-serpentine vn/in fil frac w locally 0.5% Py and trace Cpy as seams along frac
- at 354', 1/2" talc minor calc vn at 35° to the ca, w trace diss Py
- at 355.6', and 355.8', 1/2" talc-carb vn at 70 and 55° to the ca,
- at 357', 3" magnesite vn at 50° to the ca
- from 360 to 367', more strongly frac w 1/2" to 1" magnesite - serpentine - talc vn/in fil frac at ran or to 10% of rock
- at 362', 1/4" Po bleb in a carb vn, locally rock appears weakly brecciated by frac in a faint polysutured pattern
- from 372 to 375', v strongly frac at ran or, w magnesite - calc- talc-serpentine in fil frac to 1", av. 1/8", to 10% of rock, locally w a few 1/4" to 1/16" Po and trace Cpy blebs ass w in fil frac to 0.5%, locally frac weakly brecciate rock in a polysutured pattern
- from 372" rock gradationally becomes softer, v strongly serpentinized, w some weak pervasive chl and talc alteration in places.
- at 379.5', 3" magnesite vn at 45° to the ca,
- at 382', 1/2" magnesite-talc vn at 40° to the ca,
- at 383', 1/2" magnesite-serpentine vn at 35° to the ca,
- at 385', 4" zone w numerous 1/4" talc seams at ran or

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HOLE JL-85-D2

225 - 419.5'

-from 385 to 387', numerous 1/4" to 1/2" magnesite - talc - serpentine in fil frac at ran or to 10% of rock, w a few 1/8" Cpy-Po blebs and seams along frac to 0.5%
-from 389 to 391.5', numerous 1/4" to 1/2" light green talc-calc seams at ran or w 1% Po as blebs to 1/8" along frac locally host is intensely serpentinized and nonmagnetic
-at 393', a few 1/4" talc-magnesite vn at 40° to the ca, w a few 1/16" Po blebs
-by 400', rock becomes v soft, w strong chl alteration and mod pervasive talc alteration, sulphides to 1% , as vfg diss Py , minor Po and Cpy, and mineralization ass w talc-carb fil frac
-at 406.5', 1/2" calc vn at 55° to the ca,
-at 407.2', 1/2" calc vn at 30° to the ca, locally w a few 1/4" diss Po blebs
-at 408.5', 3" strongly serpentinized zone around numerous thin 1/4" calc stringers at 35° to the ca,
-by 405', rock no longer magnetic
-from 413', becomes weakly to mod sch at 40° to the ca,
-from 415.5 to 416', qtz calc vn to 1/2" pll fol to 80% of rock
-from 418 to 419.5', calc-magnesite vn to 1" at 0° to the ca, to 50% of rock
-distinct contact w underlying mineralized altered unit

419.5 - 433.5'

-mineralized altered mafic to ultramafic volcanic
-rock pred a dark grey to greenish grey fg massive relatively hard (perhaps weakly silicified towards 433.5') andesitic to basaltic appearing volcanic rock, but w a faint remnant fg cumulate texture may be an altered ultramafic
-no apparent fol
-weakly carbz, w 5 to 10% vfg diss calc
-mod frac at ran or w pred calc, some qtz chl and sulph frac fil

HOLE JL-85-D2

419.5 - 433.5'

-a few secondary 1/4" qtz-carb vn at
ran or
-appears increasingly bleached, greyer
towards 433.5',
-sulphide content, 10% pred v fg diss
Po, (8%) and Py (2%) w v minor Cpy
and some frac fil, contains a few diss
light redish brown sub metallic appearing
blebs that may be sphalerite
-from 419.5 to 423', mod chl, softer,
becomes increasingly harder towards 433.5'
and as mentioned, may be silicified
locally minor talc frac fil,
-from 422 to 424', 1/4 to 1/2" calc - mag-
nesite fil frac at 0° to the ca, w a few
Po - Py blebs to 1/4"
-at 425 to 425.5', 1/4" calc- chl fil frac
at 10° to the ca, w a few thin 1/16"
ass Py stringers
- from 426 to 426.5', 1/4" calc-chl fil frac
/vn at 0° to the ca, w a few 1/4" Py blebs
-at 427.5', 1/4" calc vn at 40° to the ca,
-at 430', 1/4" magnesite vn at 30° to the
ca,
-from 432 to 433.5', v fg diss sulphide
mineralization becomes 15% of rock,
(10% Po, 5% Py), contact at 433.5', marked
by a 1" semi massive Po-Cpy band at 35°
to the ca,
(maybe a zone of emissable sulph
settling, or be alteration related)

HOLE JL-85-D2

433.5 - 444',

- mineralized interbd chert and cherty graphitic argillite (exhalative horizon)
- rock comprised of v thinly bd (1/32 to 1/2"), bd v well dev at or ranging from 40 to 55° to the ca, some slumping offsets along frac, pred or is 45° interbedded - 15% light grey chert
- 40% dark grey chert
- 15% light green weakly sericitic chert
- and 20% hard black graphitic arg,
- w 10% sulph (7% Py, 3% Po, trace Cpy) as thin semi massive 1/16" to 1/4" bands pll bd, and vfg diss mineralization within cherty bd lending mottled appearance to rock, also as minor frac fil
- rock is mod frac at ran or, (1 set pll to bd), w pred sulph, chl, and calc frac fil
- a few secondary qtz vn to 1" usually pll to bd
- a few light green chert bd contains minor (2 to 3%) diss calc
- from 433.5 to 434', locally semi massive Po bands to 1" and vfg diss Po bands and lighter green chert to 50% of rock w minor ass Cpy
- from 433.5 to 436.5', pred interbedded grey black and light green cherts locally from 435.5 to 436.5', strongly frac at pref or of 20° to the ca, w qtz-calc- Po Py frac fil
- at 436.5' 1" band at 15° to the ca, of intensely brecciated rock
- from 436.5 to 438', graphitic arg bd to 1/2" to 50% of rock, sulph locally pred Py and 10%
- at 437.2' to 438', numerous 1 " contorte brecciated qtz vn to 10% of rock, locally graphitic arg contains a few thin v calc rich 1/4" interbd
- from 438 to 439', pred dark grey chert at 439', 1" Py bleb
- from 439 to 440', pred jet black w thick arg
- from 440 to 444', pred dark grey cherts, sulph pred Py (to 9%, w 1% Po) w minor vfg diss sphalerite
- from 443.5 to 444', locally fg diss sphalerite to 1%

HOLE JL-85-D2

444 - 497'

-mineralized, sheared, sch, altered and rock (similar to footwall in hole JL-85-D1, but significantly more mineralized and more strongly altered)
-rock varies in appearance due to varying intensities of alteration , but pred a light to med green , v fg to fg (w weak remnant crystalline texture visible in places) and. rock , mod sch , sheared appearing , at or ranging from 35 to 60° to the ca, pred at 50°
-v soft , v strongly chlz
-mod to strongly carbz, w thin vfg dalc stringers and diss blebs (less than 1/32")
pll sch to 10 to 15% of rock,
-as in D1, contains 5% irr light green often totally chlz , or occ fresher translucent relatively hard ferromagnesian blebs to 1/4", and aggregates of these blebs to 1", that may be phenocrysts (but , as in D1, appear v clastic, v distinct)
-numerous thin lighter green sericitic stringers pll fol, lends mottled appearance to rock, in places breccia rock lending frag / agglomeratic/ conglomeratic appearance to unit in places
-rock is mod to strongly frac at ran or (1 set pll sch), w chl, calc, and sulph (Po-Py) frac fil
-a few 1" secondary pred carb (calc and harder light green dolomite?)
vn at ran or
-from 444 to 449', light grey, locally v strongly carbz, w diss calc to 30%
-from 444 to 446.5', numerous large (to 1/2") aggregates of cubic Py and Po along calc fil frac, locally to 3% of rock ,
- at 445.7', 2" calc vn brecciate rock at 45° to the ca, w Py blebs at rims to 1/2" and 5% over 3",
-at 446', 1/2" chl band at 45° to the ca, weakly brecciates rock, contains 10% fg diss sulphides (8% Py-2% Po)
-sulphides from 444 to 448', 5% , (3% Po, 2% Py) as 3% fg diss mineralization and 2% blebs to 1/4" along frac and frac fil,

HOLE JL-85-D2

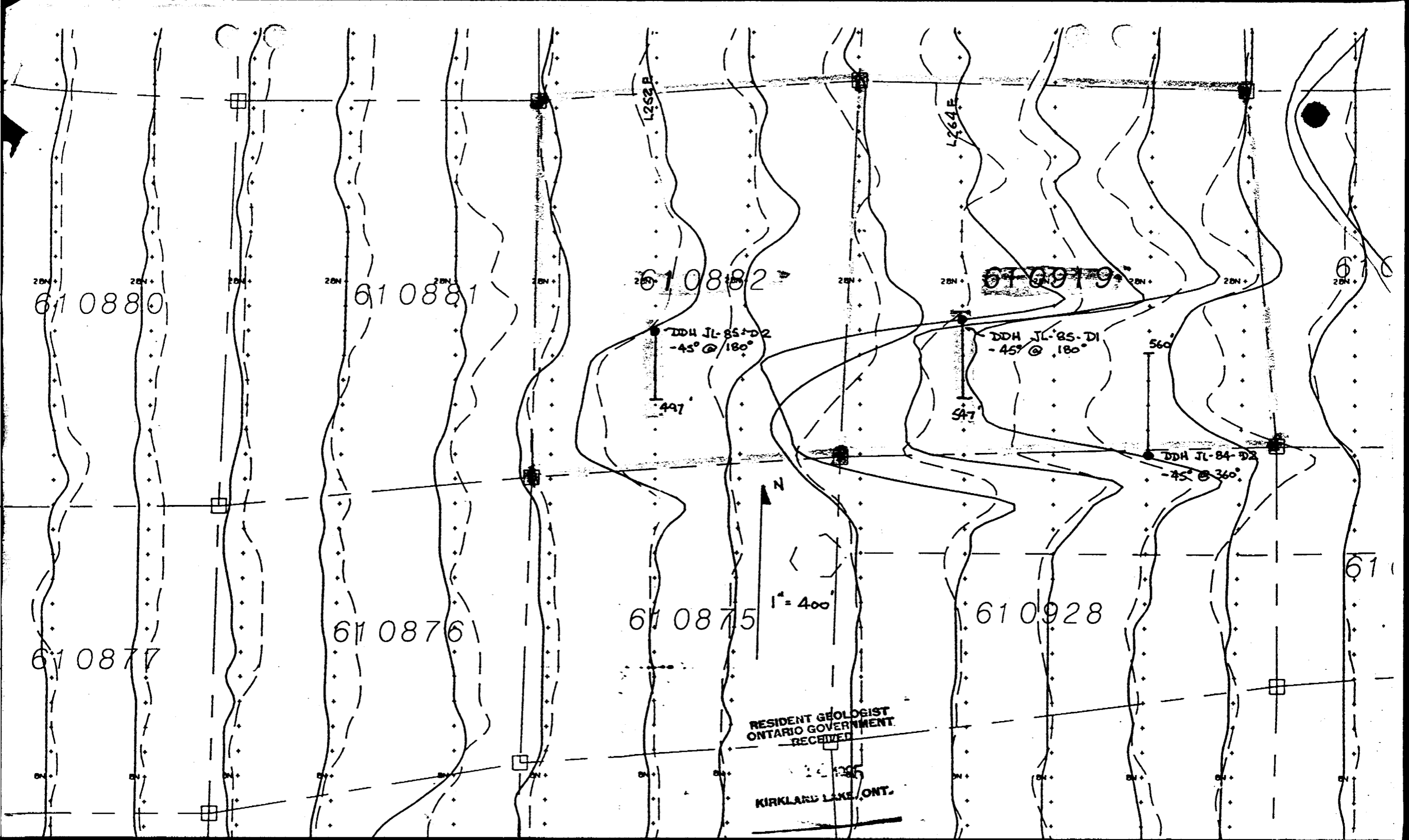
444 - 497'

-trace Cpy, frac occ have sulph rich alteration halos to 1/2"
-at 448', 1" qtz - calc - chl and minor yellow fspr? vn at 30° to the ca, w 1/16" Po seams at rims, weak pervasive silicification halo around vn
-from 448.5 to 449', thin 1/32" Po fil frac at 10° to the ca, w 1/2" diss Po-Py-Cpy halos (sulph to 30% in halos)
-sulph content from 448 to 453', 10%, pred vfg diss Po w trace Py - Cpy, lends dark mottled appearance to rock, also a few blebs to 1/8" along frac, and diss sulph halos around frac
-at 452', 1" light green sericitic band to 30° to the ca,
-at 452.5', 1/4" light redish brown soft hematized Py fil frac at 35° to the ca locally some minor diss hematite in host rock
-from 452.5' to 453', 1/4" Po - Py fil frac at 0 to 20° to the ca, w calc in a few thin reddish brown hematite seams along rims
-at 453.5', 1/4" hematized Py fil frac at 45° to the ca,
-sulph from 453 to 458', 5%, pred Po w trace Py and Cpy as vfg diss mineralization and minor frac fil
-from 453 to 456.5', locally rock is weakly brecciated by thin chl-calc - sulph in fil frac to 1/2", w numerous thin mottled yellowish green 1/32" to 1/8" sericitic seams, lending v agg/frag app to rock, locally fol at 35° to the ca,
-at 456', 1" irr light brown and white soft altered agg of small fspr crystals /phenocrysts
-from 458 to 459', numerous 1/8 to 1/4" reddish brown hematite in fil frac
-sulph from 458 to 497', av. 1 to 2%, pred Po w trace Py and Cpy, pred as fracfil minor vfg diss mineralization
-at 460', 1" semi massive vfg Po band pll sch at 50° to the ca, w some cross cutting coarser 1/4" Po - Cpy seams

HOLE JL-85-D2

444 - 497'

- at 460.3', 1" semi massive Po band
pll sch at 50° to the ca,
- from 460.3 to 460.5', numerous 1/4" chl-
Po-calc fil frac at ran or, locally
weakly brecciate rock
- at 464', 2" calc-qtz-magnesite vn at 65°
to the ca,
- from 465 to 466', numerous aphanitic
lighter green sericitic seams pll sch
weakly brecciate rock, lend v frag app
to rock locally, Po to 2% locally w minor
Py-Cpy-sphalerite as frac fil in vfg diss
mineralization
- from 467 to 472', becomes v soft, v light
green, intensely carbz w diss calc to 35%
of rock
- at 470.3', 1/2" calc-Py band pll sch
at 50° to the ca
- at 469.6', 470', and 470.4', 1/4" Po bands
pll sch at 45° to the ca
- at 477.3', 1/4" semi massive Py-Po (w a
few 1/8" Cpy blebs) bands pll fol at 40°
to the ca,
- at 477.3', to 477.5', 1/2" qtz - calc vn
cross cuts sch at 35° to the ca,
- at 478.5', 1/2" semi massive vfg Po band
pll sch at 45° to the ca
- at 479', 1/4" Po - calc-chl fil frac
pll fol
- from 480 to 480.5', numerous 1/16" to 1/4"
Po (w minor Cpy and hematite) seams pll
sch and as in fil frac w qtz and calc
to 3% of rock
- from 485.5', to 487.5', locally vfg diss
Po and thin Po seams pll to fol, to 3% of
rock, w minor ass Cpy





Report of Work

W8508-1
Kerr
Minin



42A16SE0022 15 GALNA

900

Name and Postal Address of Recorded Holder: UTAH MINES LTD, 5 Birch St. North
 Prospector's Licence No.: T-793
 TIMMINS, Ontario, P4N 6C8

Total Work Days Cr. claimed 3138	Mining Claim			Mining Claim			Mining Claim		
	Prefix	Number	Work Days Cr.	Prefix	Number	Work Days Cr.	Prefix	Number	Work Days Cr.
for Performance of the following work. (Check one only) <input type="checkbox"/> Manual Work <input type="checkbox"/> Shaft Sinking Drifting or other Lateral Work. <input type="checkbox"/> Compressed Air, other Power driven or mechanical equip. <input type="checkbox"/> Power Stripping <input checked="" type="checkbox"/> Diamond or other Core Drilling <input type="checkbox"/> Land Survey	L	568876	40	L	576903	60	L	576911	60
		568877	40		576904	60		576912	60
		576897	60		576905	60		576913	60
		576898	60		576906	60		576914	60
		576899	60		576907	60		576915	35
		576900	60		576908	60		576916	60
		576901	60		576909	60		576917	60
		576902	60		576910	60		576918	60

All the work was performed on Mining Claim(s): 801334, 576920, 576915, 610882, 610919, 554337 (see attach e)

Required Information eg: type of equipment, Names, Addresses, etc. (See Table Below)

Five BQ diamond drill holes, Totalling 3138'

- HOLE JL-85-D1 collared at L264E, 18+50N, northeast grid (see enclosed maps) bearing: 180o, Inclination: -45o, total depth: 547'
- HOLE JL-85-D2 collared at L252E, 18+00N, northeast grid (see enclosed maps) bearing: 180o, Inclination: -45o, total depth: 497'
- HOLE JL-85-K collared at L32E, 00+15S, south grid (see enclosed maps) bearing: 360o, Inclination: -55o, total depth: 577'
- HOLE JL-85-ASE collared at L148E, 70+20S, southeast grid, (see enclosed maps) bearing: 360o, Inclination: -55o, total depth: 860'
- HOLE JL-85-G collared at 330' @ 155o from 18+50S, L220E, southeast grid (see enclosed maps) bearing: 335o, Inclination: -55o, total depth: 657'

LARDER LAKE MINING DIV.
RECEIVED
 MAY 13 1985
 AM PM
 7 18 9 10 11 12 1 2 3 4 5 16

ALL HOLES WERE DRILLED BY: BRADLEY BROS LTD
 P. O. BOX 485, TIMMINS, ONT
 P4N 7E7
 DURING THE PERIOD: Feb 05 to March 03, 1985

RECORDED MAY 13 1985
 REC. No.

Date of Report: APRIL 30/85
 Recorded Holder or Agent (Signature): *Duncan F. McIvor*

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: DUNCAN F. MCIVOR, 117-1214 Riverside Drive, Timmins, Ontario, P4R 1A4

Date Certified: RESIDE IN PROLOGIST/85
 Certified by (Signature): *Duncan F. McIvor*

Table of Information/Attachments Required by the Mining Record

Type of Work	ONTARIO GEOLOGICAL SURVEY ASSESSMENT FILES RESEARCH OFFICE NII	Other information (Common to 2 or more types)	Attachments
Manual Work	MAY 19 1985	KIRKLAND & CO. LTD. as of men who performed manual work/operated equipment, together with dates and hours of employment.	Work Sketch: these are required to show the location and extent of work in relation to the nearest claim post.
Shaft Sinking, Drifting or Lateral Work			
Compressed air, other power driven or mechanical equip.	Type of equipment		
Power Stripping	Type of equipment and amount expended. Note: Proof of actual cost must be submitted within 30 days of recording.	Names and addresses of owner or operator together with dates when drilling/stripping done.	
Diamond or other core	Signed core log showing: footage, diameter of		Work Sketch: these are required to show the location and extent of work in relation to the nearest claim post.