

NEILSON TRIP

JULY 1976

ISLAND CU; SIMILKA MEEN CU

AFTON

896430

Island Copper

4½ yrs

51 MT ore mined

145 MT waste removed

orebody has Nerby dip ESE - strike

ultimate pit ~ 100' from the original  
shoreline

Target 38000 TPD out through the mill

125 - 130 TPD waste

→ 700 - 750 Tons Cu conc. (23%)

5 - 10 Ton Mo conc. Rhenium 12 - 1500 ppm

Gold 45 oz / ton conc 1 oz Ag.

Pit Ore / 0.49 Cu

0.017 Mo

50 - 60000 oz / year produced

Moly - US, Germany, Sweden

Rh \$600 to \$1800 / lb highly variable.

Moly circuit - Hydrocarbons locally  
screw up the recovery

Discovery

John worked at Empire Devel. +  
Zebellos

Gordon Milburn - prospector

Gov't aeromag maps - high anomaly

staked 1 mi west of deposit - disseminated  
magnetite - prospector stubborn - kept  
poking, found a bit of copper - added  
claims.

1966 Utah - soil samples, 100' apart  
along 500' lines

81 holes in showings beside  
Bay Lake 200 000 tons  $1\frac{1}{2}\%$  Cu - 81 holes

Finally decided to drill Cu soil  
anomaly + hit the orebody with the  
first hole.

Subsequently, can see IP & EM  
anomalies - but not interesting  
in themselves.

45  
geochem answ. only shows where  
%B < 40' but Cu has got up  
through glacial till where cover  
thinner.

Bonanza 8-9000'  
Parson Bay  
Quaternary → 4000'  
Karmutsen 20000

Karmutsen  
- rel. massive  
flows, amyg.

Quaternary - massive to well bedded

Parson Bay - black shaly argillite to  
(~1000' thick) halobia sandy tuff  
? conformable?

Bonanza - lower Jurassic?

strike WNW / mod-low SW

Utah Mine Area

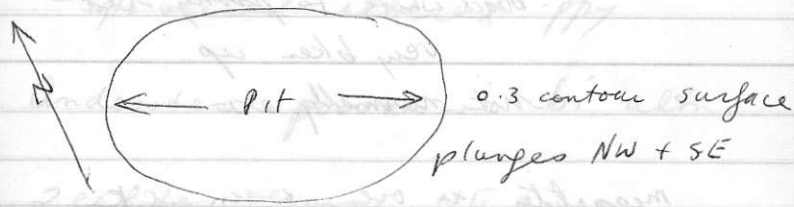
Bonanza - 2-4000' above Parsons Bay

- Volcaniclastics, pyroclastics

Plan ultimately to go to 1000' or 1200' below sea level (~20 years)

now 285' below s/l

Individual holes suggest that ore grade mat'l continues at least 600' below the proposed pit depth.



on 600 - 1200' wide max 5000' long  
two zones - one on either side of the dyke.

Reserves now 240 - 250 MT 0.5% Cu

Stockpiling 0.2 - 0.35% mat'l

25  
Karmutsen / Quatsino ~ 1 mi to N  
dip south

lower K congl tsst south of  
pit

I Vreg ppy mass 200 - 400' wide  
50° → 70° N dip (like the ore)

Ore above + below dyke

quartz ppy - highly variable

- bleed white to pinky red -  
very broken up  
not normally ore

magnetite in ore + in c.k. -  
some is introduced probably -  
10-15% in the ore

Dyke coeval with upper mon acid  
Bonanza rocks?

magnetite in dyke highly variable

Pyrite 2½ - 3 x cpy content  
- no distinctive halo

send a copy of the Is. on paper to 26  
John Lamb (+ a thank note)  
Box 370 Pt Hardy Wn 290

Intrusives - diorite to gnd

Upper level  
ore across the bench

lower  
split into two zones across the  
dyke

Yellow Dog - breccia - largely bxtfd  
qtz veined altered PPY

Andesites - pervasive bi<sup>20</sup> altn.

Zeolite veining NE area

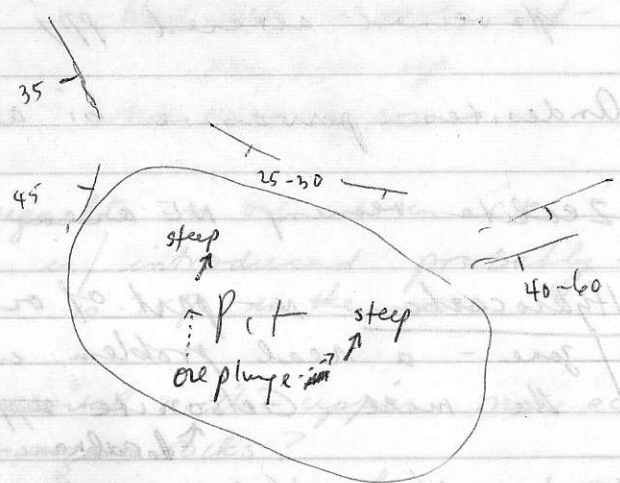
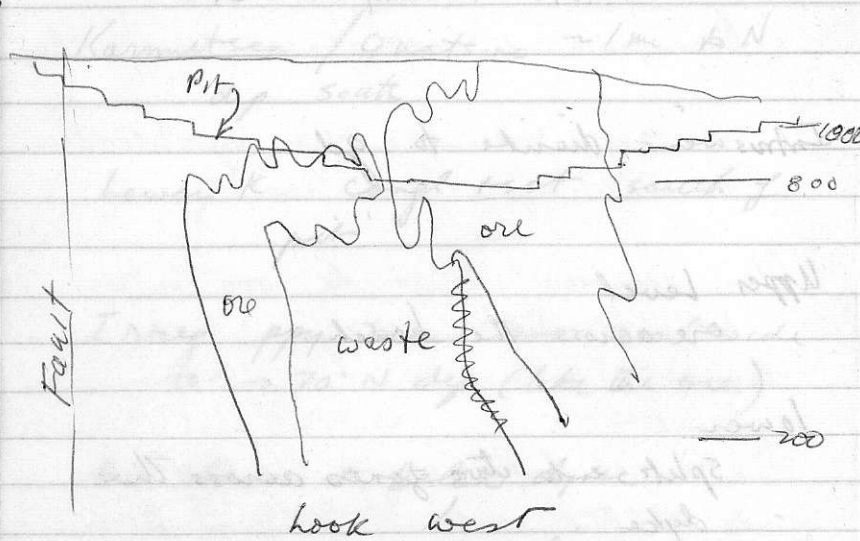
Hydrocarbon N - part of ore  
zone - a real problem in

the mill Gelsonite ~~PPY~~

↑ local name - not right

late stage - caliche (sometimes laumontite)  
around it.

Send a copy of this paper to 25  
 John Bank (+ + + + +)  
 Box 370 Ft. Verde, Ariz 8590



Pyrite 2 1/2 - 3% Cpy content  
 - no distinctive halo



Wilson 10000 TPA  
Early 1970s  
1970-71



based on type  
But - may be  
vertical etc

K. Kanne  
1970-71

delta - decreased  
with marine  
delta - decreased

South end  
delta - decreased

delta - decreased  
delta - decreased

delta - decreased  
delta - decreased

delta - decreased  
delta - decreased

Milling 2000 TPD Recovery 87%

Early Hornfels      Concs 27-28%  
Cu

Later alb/scap assoc with  
menzja

late stage  
Zoning - scap. - majority in N  
outbody

Some garnets magnetite

K alth - more of it in the  
north outbody

Local intrusive bx in N zone  
with matrix flooded by kspars.

Very Minor      sericite  
"      "      laumontite (?)

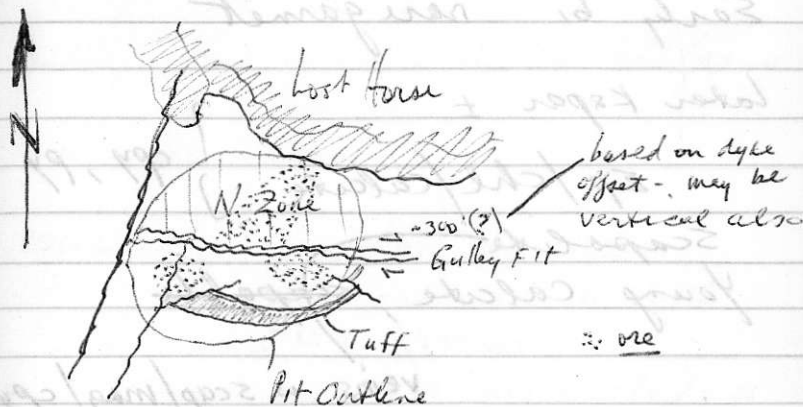
Gold 0.005 oz/ton      Ag 0.015 oz/ton  
Mulleheads ~ 0.47% Cu.

Grade highly variable - now  
use a kriging program to  
control mining

Larry Kornze

28

# Simelkameen Copper



Ore - disseminated

Dykes - tail end of Lost Horse - post-ore

altm - decreases SW

South end - py - cal - epidote - chl

N orebody - at Lost Horse / volc contact  
little menzgn in Lost Horse

Mineralogy - py / cpy

less in N zone

Grades better in N zone.

Similkameen

Early bi near garnet

later Kspar ±

Ep / chl / calcite } cpy, py

Scapolite

Young calcite, ~~scapolite~~

veins w. scap / mag / cpy

Venlets - cal / py / cpy with ep halos

Impression - near south zone - chloitic  
actn very common + pyrite

North zone - more K actn

Afton

11/6/76

probably more or less under the <sup>rest</sup> pond

Topo surface 1200'

780 level up/bn to south  
some native Cu to north  
1975. (Notes)

Deepport ore grade zone drilled 15  
native copper

900 level most native Cu at level  
Ore more ~~to~~ less steps at NNE fault  
Western side of fault Eastern side of  
Hills to west unfilled

~~1000 level - 1000' level - 1000' level - 1000' level~~ 'offcut'  
~ 1000' level - 1000' level - 1000' level of 11' depth  
1000' level - 1000' level - 1000' level - 1000' level  
Test sets seen

1140 Now the sulphide ore is

1500 Hypogene molybdenum has supergene  
on both sides  
a "cut" going ENE

1620 Hypogene now only a narrow vein

PC

Similkameen

Early to mid Tertiary

later Ksper +

sp / phs / calcite

} sp / py

Cutoff .25%

veins s. scap / mag / sp / py

### Faults

Vertical X

strike - ll to length of outbody

oblique

hypo - supergene contact

roughly ll to strike of oblique flts

oblique flts post - supergene movement

North zone - ...

Afton

11/6/76

orebody more or less under the ~~east~~ <sup>east</sup> pond

Topo surface ~2200'

780 level cpy/bn to South  
some native Cu to North

Deepest ore grade zone drilled is  
native copper

900 level Most native Cu

Ore more ~~or~~ <sup>or</sup> less stops at NNE fault  
zone (cuts thru Eastern side of  
Hill to west

1020 level - possible nt lateral offset  
~800 or 900'

1020 level is deepest level where  
Tert sed. seen.

1140 Now the sulphide ore is

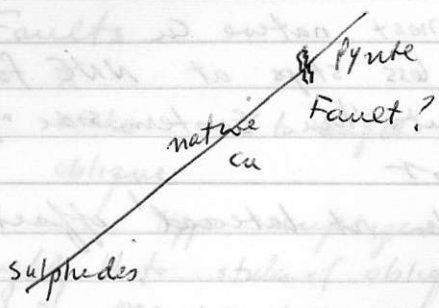
1520 Hypogene Mentz'n has supergene  
on both sides  
a "rib" going ENE

1620 Hypogene now only a narrow rib

11/18/74

Alfon

Section 9 73-45  
Supergene or Hypogene(?)



1800 Hypogene  
or fault / veins  
a "wet" deposit ENE

1800 Hypogene how early a mineral



1670 northwest area of ore <sup>very digested</sup> has with  
end

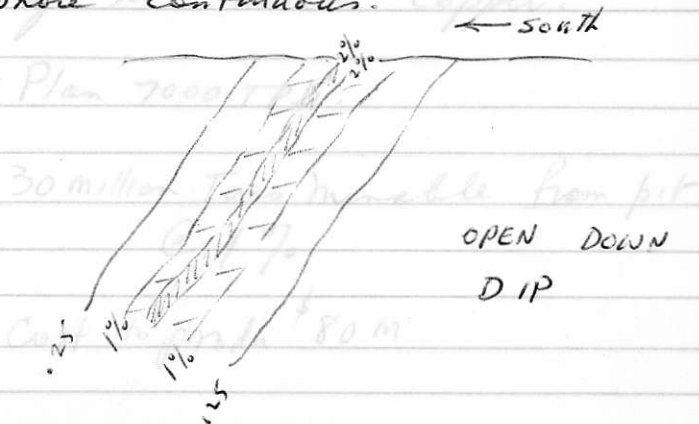
Hypogene ore in contact with  
Tertiary  
fossils & tables

1740 west end of zone has Tertiary

"wedges"

Intrusive has been thrust up  
over Test for the south to the north  
Pit

By section 10 the ore is getting deeper  
and more continuous.



Typical grade distn western  
side of orebody

201 X 2201

200 00-1

201-205

Two distinct areas of ore  
Hypogene ore in contact with  
Tertiary

1540 feet end of zone has Tertiary

"wedges"

Tertiary structure about up  
over Test for the possibility of the north



By section to the ore in contact with  
Tertiary

and ore contacts  
south

open down  
Dip

Typical zone but western  
side of contact

\$150 - \$200 gold + silver

Mill to produce 2 concentrates

jigs + tables

70-90% Cu - native Cu

Flotation 52% Cu

Plan to smelt everything from the  
pit

Overall 70% of the mineralized  
orebody is native copper.

Plan 7000 TPD.

30 million Tons mineable from pit  
@ 1%.

Cost to produce \$80M

Pemrose Conference

June/76

on miten complexes

TUSCON

George Davis

Pete Coney

a year from now

Get data for Alan Reed  
concerning thickness of tertiary  
near N Forge Mtn - He wants  
to draw a section showing the  
thickness of the tertiary cover

VLF

Geochem

wildcat percussion later



Ted Charlesworth

All Star Resources ] 19<sup>th</sup>  
Harry Landry ]           

387 - 5068

387 - 5069 (charge)

— Apartment on calendar —

B 3<sup>52</sup>  
L 2<sup>25</sup>



$$32 \text{ ppm} = 103 = 150$$

$$16 \text{ ppm} = \frac{1}{2} 103 = 75$$

$$\frac{1}{2} \text{ ppm} = \frac{150}{64}$$