

BHP - BC Mine Tour. ^{Sat. 29}
^{Oct. 5/96}

- 'Final' (after 25 yrs) Rate of Return
at Island Copper = 5%

- BC not even mentioned at
recent meeting (BHP) re-exploring
for por Cu in world

- felt Indaka was 'unique'
(Santa Rosita in Arizona?)

Tues pm - presentation on Tintic
west proj. in Arizona by
Brack Reidell, + Dave Kelley
(Denver) -> soil gas + enzyme
leach, geochem. -> Note:

Bromine / Iodine / Copper / Moly
-> all in ppb -> identifying

both potential metal conc. + structure
- use of TP with TEM to also
give depth to bedrock [over
200m at this target].

- BHP - Magma merger couple of yrs ago
~ \$3.5 Billion

924128 924158
884305

Island Copper

Tucson, Ariz office now has 15' gal.

①

ISLAND COPPER

June 2019

- "Get something into collection"

Ken Witherly (Australia → San Francisco office)

- storage facilities in SF.

(boxes)

ie. outside interest!

- Mine Mgrs.

Bill Hogan - 'new' boss

Brent Findlay - 'cool' about idea

→ send 'check list' to SF

① Historical maps

② 20 yrs 100' - 1" geol. map

③ DDH logs

④ Digital database (GEMCOM)
of all ddh

⑤ Geology format (up to 1987)
- all drill holes

⑥ Reports: a) Technical (in house)

- eg. Smea, geochem studies
(biogeochem.)

7 Assay/blot hole data (10 yrs.)
- esp. Au data
(predicted vs actual)

8^{routine} Magnetic susceptibility on all
core - contours in pit
(cf. pit vs airborne)

9 Geotechnical database - strike/dips
in pit b) dist'n in space of drift,
metal-bearing fractures/structures

10 Interpretive data

* 11 4/1/1991 - (8-10 yrs) - ~~photos~~ 35-m slides
of core. Also 30 slides
aerial photos of pit. of 'canned' Island
Copper talk.

12 Selected samples
(eg. North Island museum - ^{water for} GSB)

13 Core - rep. X-secs. (4/2)

- level core racks - TGS to
ask 'regulators' - most pressing
issue -> core! - Team - GSB/GSC

②
⑭ Regional Material (Core):

- BHP data
eg. Transition between Parsons & Idemitsu

Hushammi - BHP - 'minority' interest

Correspondence →

⑮ a) Thin Sections (~200)
(eg. Craig Leitch's - digital)

b) Cut-offs (core)

⑯ Pulps (in banker's box with ~200 bags)
- eg. with 2 or 3 X-cess selected

ISLAND COPPER

John Flemming - Chief Geol. / Dick? ①

- Mine \$1/ton
- Mill 2.50/ton
- GTA \$1/ton

- mine engineer
 Alan Reeves - geol. org. - Queens Univ. Arancibia

Conversion costs

Mine life: end 1996

Power cost ~ 3 1/2 ¢ / kw

Work Index (21 kw hrs / tonne)

Cut off grade = 0.2% Cu

Total (global) reserve ~ 400 m ton

South Wall push back add ~ 83m tons

Recoveries: Cu = 85% (@ .4% Cu)

Au = ~ 50%

Mo = 45-50%

(Mo recovery influenced by high pyrobitumen).

Slide Show - GAC 99

- Prod. since 1971

> 1 billion tons of rock moved

> 1 m oz Au recovered!! (@ 50% rec.

Sept. (late '91) i.e. 2 m oz prod. thru.

- Au mainly in Cu conc., but also in Mo conc.

Original
METRIC LEVEL

av. 22 ppm Au

(2)

Now - values decreased deeper
in pit

Soil geochem (+ bio) - by Barry Smeel
- 'A' horizon better than 'B'

"BHP Minerals Canada"

- intrusion - vertical + later tilted
to north (block faulting)

- Quartzite 1st is "quite oily"
i.e. possible source of Pyrobitumen
in Island Copper ore!

Island Intrusion

Dio → Gd 154 ± 6 Ma → Rupert St
Mine QFP → 180+ Ma

Early Dyke - like QFP - responsible
for bulk of Cu min.

2600 ft. incline (25%) - input crusher
cap. = 4000 tons/hr.

Rhyodacite dyke - host - dips north

Sillitoe: Qtz - ser - chl act.
- typical "SEC"

ISLAND COPPER

(3)
Apr 28/92
release

rounded frags → ex-foliation due to pressure

Pyrophyllite breccias - cut by

por. dyke (i.e. several phases)

"Marginal breccias" - north &
west end of deposit

a) Qtz - mag strike

b) Rotational bx

epy - ka - ser - dum - py - tour.

(top & bottom, not known)

→ explosive phreatic event
proposed for bx.

HYDROTHERMAL ALT'/MIN - see handout

- see Olga's 1989 Abstract

- apatite present

- more intense biotite (brown) alt.,
the better the grade

- mix of biotite & chlorite

dumortierite after tourmaline deeper
in pit.- late stage 'Yellow Dog' ankerite
veins and pyrobitumen (Silsonite)

best grades occur in areas (4)
of high carbon (a thermal front
adjacent to main porphyry)
= poor (non) recovery
- esp. at west end of pit

GOLD: .22 ppm lead grade
> 1 m oz. rec. (50% rec.)

- native form
the correl. between Au + Cu
(appears to fall off with depth)
> 0.4 ppm 'highs'
- correl. with biotite (early stage)

→ 5 stages of Evolution,
- shallow sub-volc. enviro

Magnetite av. > 8% by vol.

Analogy: Tanama, Puerto Rico
Koldcha, Solomon Is.

1280' below sea level

24-25 Cu cont.

July 3/91

ISLAND COPPER MINE

Sunny + 20°C

- with Paul Wilton
- VT MDRM

PHOTOS: - Looking N over pit
- Looking W along pit.

1992 will be lowest Cu prod.
in life of mine (i.e. ~ 93 m lbs Cu)
fct. 120¹³⁰ m lbs. av.)

1997 - End of mine operation!!
(fiscal Apr.)

~ 30 m tons of low grade stockpile
'92-'93 fiscal - to mine ~ 2/3 of 9

end '93 ~ 9m tons left (low grade)

EXPL'N. (John Fleming)

- "target devel. phase" at east + west end of dls. ~~of~~ (4 zones - stam, por, grt. vein Au, high mag. por.)

Pit ~ 1100 ft. deep (ultimate 320 metres)
cut off ~ 0.3% Cu
- Au in 3 sep. concs. (incl. Moly)

George Poling

→ See Handout (July 3/91)

① Wed. June 24/87

ISLAND COPPER

Sunny, warm

- Paul Wilton + Mr. Lu (John Fleming)
Notes from M.Sc. thesis + Olga + Gordon Clarke
GOLD (Queens)

- 1) Au values vary sympathetically with Cu
- 2) Au in native state - attached to or as inclusions in, cpx, py + MoS_2 , & free in gtz. vein
- 3) bulk of recoverable Au contained in biotite - ~~epitaxial~~, fsp-stable, potassic alt'n zone.
- 4) biotite zone is, in turn, magnetite rich
- 5) overall content of magnetite in deposit is high.

- at least 2nd ^{min} stages of gold min. - bulk introduced together with Cu in early stage (Au ~ 0.2 ppm)
→ second episode (up to 1.7 ppm) assn. with strike-controlled middle stage of alt'n - min.

- av. gold at T. C. = 0.2 ppm
 (cf. 0.4 ppm threshold for
 gold-rich por. Sillitoe, 1979)

Olga believes magnetite is
 early (significant.)

MoS_2 - correl. with El Salvador

Ann. Au output ~ 75,000 oz.
 Au rec. from Cu conc. at av. grade
 of 8 ppm

- av. mill head ~ 0.2 ppm Au
 (~ 1/2 recovered in conc.)

Metallurgy ~ 1/2 total Au in
 CPY, 1/4 in PY + balance elsewhere

Au - 1.5 x 2.5 microns assoc. with
 gt₂, hydrobiotite, PY, MoS_2 , magp,
 monazite + calcite

- local high Au + low Cu

- Av. 0.2 ppm Au contour
correlates well with 0.3% Cu

- no specific corr. of MoS_2 - Au

- weak Au with epidote-alt'd
vnlcs. beyond carbon frad.
+ Cu-barren core.

Tourmaline ^{replaced by} → Dumortierite

- intermed. (~ 2 ppm) → bio-alt'd
+ gtz, amph - mag, alt'd QFP
- in gtz - ser. + chl - ser. QFP

- high (.3 to .4 ppm) - gtz - ser.
+ gtz - chl - ser. in QFP
+ bx. + gtz - vein strnd.

Au in porphyries

native at - Cariboo Bell

(Hodgson et al, 1976)

- Valley Cu

(Osatenko & Jones, 1976)

- Brenda

(Johnson in Cuddy & Kester, 1982)

- as electrum at Granisle & Bell

(Cuddy & Kester, 1982)

- An zoning at Fish Lk.

Afton, Galore Ck.

Granisle & Bell \Rightarrow coincide
with Cu dist'n.

Early gold with magmatic
sols. \rightarrow 'remobilized' to late
gold precip (assoc. with qtz-ser)

June 24/87

(3)

Ref. Sinclair et al - 1982
(Sillitoe, - 1979)

→ threshold of 0.034g/t Au (cf. 0.01g/t)

Dumontierite $Al_8B_2Si_3O_{19}(OH)$
→ in pyrophyllite

~ 140,000 tpd (waste + ore)

~ 40,000 t milled (i.e. ore)

- act treating NO_2 conc. right now - problem with Pb (cf. Kite)

Possibility of extending pit well to south

Photo - L. north over pit
- crusher + conveyor in bottom

Photo - L. east over pit

Photo - L. west from floor of pit

KEY PIT POINTS (TGS)

- ① Sig. magnetite
- ② Brownish sec. bio. 'hornfels'
- ③ Pyroph. + dumor. as a 'cap'

NEVILLE CROSSBY INC. 486 LM
Mining ~ .42% Cu
~ 800 employess

Expl'n potential → skarns to
NW (with help from FAME)
