

Summary of Annual Rpts 1963 → 1971

BETHLEHEM COPPER

010111

Official Opening Feb 1, '63

1st ppy Cu prod. in Canada

Historical Staked 1899 - Snowstorm 136? 96 tons H.G. shipped 1915 & 1916
1st DDing 1917

Expln Adit 1919 BCDM Iona 280' @ .64% Cu

1941 ventures

Bethlm Cu Co incorp 1955 (Feb) 1.5 million shares \$2.00 par value
1963 est. for open pit later 4 way split

Deposits E-J 9 1/2 MT @ .95 (3.3 @ 1.00 Cu)
J 50 MT @ .65 (12.7 @ .82 Cu) 1956 Cu price up sharply
H 1963 Cu 284/16 u.s.
I .6% cutoff

Trenching by the Co. 1955

Ashcroft 1955 → Drilling 68000' churn, rotary, diamond 1.25 Million
outlined J + E-J by May '58
OPTION DROPPED MAY '58

underground sampling program

1958-1959 9823' drift + \$1.2 million E-J + J 16 MT proven
X cutting 44 MT indic surf + undergrd by drilling
22766 pc drilling Iona 25 MT " " "
941' undergrd "

owned 700,000 sh. then + loaned Co \$5M U.S. - to take conc. for 10 years
Sumitomo supplied \$5 1/2 Million to buy prop to prodn
Mill rate initially 3300 T/day (prodn began 28/11/62)

Decided to use Ashcroft as a base + use contractors to mine initially (saved \$1.375M)
saved \$58M

1960 Sumitomo 12,788 surface DDing
218' raising 2080' undergrd Drilling

Geology Guchon cut by bx, ppy, Bm [younger complex]
most ore in younger complex

JM Carr 1957-59 P1, P2 little or no gtz
P3 crowded ppy with gtz
bx farming?

Bethlehem

125 $\sqrt{\frac{500}{500}}$
4
②
1" = 400'

- ① Dacite ppy
light green
serice hb
coarser var merges w. ppytic Bom g. Di
some Qtz - free
" " - rich

- ② Qtz Di Ppy - ~~to~~ crowded ppy
light gray high % phenos
well devel. rounded Qtz xls ($> 1/4$ " ϕ)
Hb \rightarrow epidote

Breccia host for menlyn
dense + hard, few cavities
contact sharp or gradual
shape - lensey
frags - Gu, Bom, Dac. Ppy

shape of frag suggests they were well jointed
prior to Bxtu

matrix Qtz, fs, small rock frags
ppy? JM Carr

Compared deposit to Ajo [low pyrite]

Altn ~~dechloritizn~~ } weakest, most extensive bi \rightarrow chl
argillic } overlap hb \rightarrow " + ep
sericitic

intense zones rock \rightarrow Qtz + chl + ser.

Best menlyn w. most intense altn

- E.J. ore bodies - Tubular sharp cutoff, variable grade
- NE trending
- a series of lenses max 150' x 660' x ?
- overall N-S trend 900-1000', width 70-250'

- J " - overall roundish 800 N-S 900 E-W
- NE trends - controlled by Gu/Bom contact
- assy walls rel. un. form grade

Bethlehem

Jersey altn pervasive - where intense, rock is chlt gtz + ser.
dk green = chl.

generally shattered but grades do not vary from
weakly to strongly shattered zones

strong metzrn adj. to J. fault for 200' on both

∴ ore depn infl. by faulting ^{grades}

Bx, altn, metzrn all N→NE

Carr - explan bx - matrix porphyry

White et al - gas streaming ∴ matrix comminuted rock

First Mining done on a contract basis

Trucks 50 Toners

Crushing see 1970 report

Road to Ashcroft built by Gov't 1961

milled 63/64 1.266 MT @ 1.058
64/65 1.445 MT @ 0.892

1.098
1.048
1.038
2.688
899

190
115
53
89

1964 3900 TPD by yr end
ore mined 1.273,275 @ 1.098% Cu
607,981 @ 0.500% Cu
\$950,000 fm BofM for plant expansion

1.098

1.88
1.32
325
237

1965 East Jersey Mining ended in Feb. [virtually all the gear is
all ore fm Jersey after that was fm E.J. tho 1,122,551 .98% Cu
246,686 .47%
Jersey, 158,000 Tons @ 0.66

Copper 33 → 34 4/16

Major slide in EJ in Feb. Bken ore w 2.4 M lbs Cu left +
(two small earlier slides in Sept. + Oct.) 1 MT ⊕ of reserves left
(.877% Cu)
Mined 1.444 696 Tons @ .892 Cu
(31.81¢/lb paid)

1966 all ore from Jersey

2,138,109 @ .710%
1,162,549 @ .464%

Plant to 10000 TPD

to stabilize prodn + increase efficiency

1967 \$2.1M more spent on plant A - now 10000 TPD

lab, warehouse, grinding eqpt,

Bought mining equipment \$3M - all own mining after Nov 1ST

Iona 9000' of DD'ing

orebody 1800 x 800 x 500 deep outlined

White Zone

2376' DD'ing + biochem survey done

	Tons	Grade
Mined	2,742,574	.638 Cu
	60,628	.460

1968 graphs on avg TPD + Pcts of Cu produced

Tax column shows Tax to Fed + Prov 2,218,000 ^{Per share} 42¢

Mining Taxes 600,000 12¢

Local Taxes 116,500 -

Mined 3,280,800 Jersey 4,136,167 milled } .584 Cu
1,009,200 stockpile

Prov. Tax on Eqpt 277,500 -

Income Tax [employees] 247,000 -

Copper 49¢ US for the year

Mill cost \$4.261 M for stabilize + to increase prodn to 14000 TPD

own mining begun

15-50 TON haulpacks ore trucks leased to buy on a 3yr basis

Huestis: 10,500' of diamond drilling
25 MT @ .65 Cu

Iona: 15,200' of diamond drilling
Reserves Minable 10,235,000 Tons @ .57 Cu

1969 350 people employed

Gross Tax \$5.642 M

op profit \$14.390 M

net profit after taxes, etc \$6.80 M

	42%
68	1580
124	496
	64

Mining - Jersey only 5,590,355 } .581 Cu 5,080,664 milled
Stockpile 331,572

Built 24 apartments in Ashcroft

Now owns 100 apartments + townhouses

1970 Swedish Co (Grängesberg) owns 24.5% of Bm

Expln on Lake zone

1 million shares @ \$21.00

Texas \$8.8M

Cu 64.41¢

milled 5,337,961

Mined 5,826,216 @ .521% Cu

1971 Mined 6,004,438 (2/3 Jersey 1/3 Huestis)
(.51% Cu)

Cu 58.35¢

Huestis prepared for operation

2/3

Bought cutting interest in Frio Oil

Maggie atleast 100 MT .5% Cu 10 mi N of Cache Ck

* Bm tried to get Cdn capital to go into prodn but wasn't able to

1972 Huestis mainly nearby 16000 17000 TPD of .53% Cu

History of Bethlehem Copper

1. Company incorporated Feb 1955

Historical Summary (Location Figure 1)

1. First staked 1899
2. H6 shipped for Snowstorm 1915 & 1916
3. First DDing 1917
4. BCDM Expln Adit ^{staked} on Iona 1919 280' E. 64 Cu - drilled Snowstorm
5. 1942 Ventures 5 holes in Iona
6. 1948 Asarco optioned then dropped - no work. Ground held by various people until 1954 when Spud nothing more done until
7. Huestis got it (Huestis - Reynolds - Mc Lallen syndicate) - staked 100 claims on Snowstorm - Iona - Jersey zones
8. 1955 Bethlehem Incorporated + claims xfd to Bom
9. 1955 Trenching + Bulk Sampling
10. optioned to Asarco Sept '55 [nearly 3 yrs work] outlined Jersey E Jersey then dropped option
11. Bom underwent sampling program ^{1957/59} led to feasibility study, then on basis of their report - finally got backing of \$5M from Sumitomo
12. Road from Ashcroft to minesite built by prov. govt in 1961 on Nov 11/62
13. Went onto prodn @ 3300 Ton/day & have gradually upped that to 16000 TPD in 1972. [designated Figure 2] Used Ashcroft as a base + mined by contractors Now use 50 Ton ore trucks, Michigan front end loaders and shovels to mine.
14. Early prodn - E-J to Feb 64 mined ~~2.68 MT @ .99% Cu~~ ^{2.68 MT @ .99% Cu} mining halted by two small slides followed by a major slide in Feb '65 Jersey (1970) 27.1 Mt @ .55 mined (1970)
15. 1967 outlined Iona, worked on White zone
16. 1968 Started doing own Mining Huestis outlined Iona reserves calc
- 1969 350 men employed Built 24 more apartments [now 100 apts + townhouses]
- 1970 1 million shares to Grangesberg Exploring Lake zone

Geology

Much of the ore is in a complex of granitic rocks which cuts older quartz diorite of the Guichen Creek batholith. ^{Breccia bodies} ~~Scattered~~, fractured zones near older rock - younger rock contacts and faults ^{host the} best mineralization. Where mineralization is best, the rocks tend to be pervasively altered to quartz, chlorite and sericite.

1971 Huestis prepared for prodn + started up

Maggie reserves calc. 10 mi N Cache Ck

100 MT of .5 Cu

JA zone discovered
ore $\frac{1}{3}$ Huestis $\frac{2}{3}$ Jersey
~~bought controlling~~

1972 JA zone explored + reserves calc - 600 MT @ .45

almost all ore prod. from Huestis

Present Reserves

East Jersey

Jersey	appx 20 MT	of .5%
Huestis	25 "	" .6%
Tona	10 "	" .5%
Lake zone	200 "	" .5%
JA	600 "	" .45% *
Maggie	100 MT	of .5% *

* these deposits present difficult engineering problems and will be more expensive to mine than the smaller deposits (at least in the early stages).