

1) Where has predictability gone

- depends on how one looks at the results
 - as an overall ~~insitu~~ quantity
 - as blocked out by blastholes in pit
- many reconciliations show that at 5% PbZn cutoff the comparison is quite good.

Slide of total Prod'n to F8805 mill

Slide of 89 Prod'n BZ 3410-3310 to F8805 mill 5% grade

one slide?

quite varies

What if 89 ore went to waste cut off?

- The same reconciliations show at a 7% cutoff the comparison is poor.

Slide of 89 Prod'n in BZ 3410-3310

Resistance shortfalls in tonnage but not

820' - water OK now

last test hole ≈ 100 gpm

drill yesterday afternoon

move sump

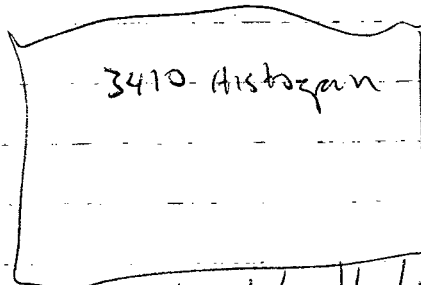
blasted

≈ 90 left side
Knee
hole
35 gpm

2

2) ~~What is causing this~~ Why is this happening?

a) it is due to the distribution of grades



- comparing to blastholes because they define reserves in pit and fit mill feed reasonably well.
- too much high grade, too little medium grade
- area under curve above cutoff proportional to metal so can see why at low cutoff things are ok but at
- we can estimate overall reserves well but run into trouble at high cutoffs

b) what causes this

- blastholes drill off on 20' benches - 1 sample
- orebody is layered with respect to grade
- orebody varying is close to bench height at high grades
- layer thickness increases as cutoff decreases. so at lower cutoff see the effect less
- this results in high grade being downgraded to medium grade - tonnes of medium grade too high - both classes higher grade than blastholes.

2) How did this happen

- we tried to simulate a sectional calculation on the computer

drawing of
orebody
and dumps

- idea was to reflect grade of material in parcel then dilute it

- This worked well
^ Show slide of comparisons of hand calculations to computer calculations

July Aug Sept
Monthly hand
Calc comparison
to FSSOS

Global comparison
Curr to K. L. Brown
Especially
revenue.

Show and
comment on
variance

- dilution practice didn't reflect actual mining activity caused by blasthole grade delimitation

actually
need to
treat each
class
separately:

- 1) ^{HG} large loss to medium grade from high grade, little actual total loss, minor dilution
- 2) ^{MG} large dilution from ~~medium~~ high grade class to medium grade - ^{small} ~~total~~ dilution from low grade - small mining loss
- 3) ^{LG} mining loss + dilution

4

3) What can be done about this?

- change diction practice

- accept that geological interpretation is good - about right volume - right elevation right rock types. ~~accept by and~~ Then recalculate using simpler and less restrictive and broader procedures instead of the strict and detailed methods used.

- second alternative has been done

- two major changes

- relax rock type matching during grade interpolation to demphasize grade distinctions between material types - but still keep basic distinctions

- use composites that include all material on a bench including waste outside roadway and mixing materials

- both tend to spread grade around.

- key concept here however is that we accepted the + & reserves from

5

the old calculation is a reasonable global estimate and don't want to move too far from it.

Comparison
of total pdr
88

4) What is effect on remaining reserves

remaining reserves
by model at
2 cut to 66s

5) What is implication for GOM and variances

- global reserves at 4% cut to 66 and we are OK, have compared
- high grade - ~~used~~^{low} grade cut to 66 is 5% thus plans should be OK

6

Vanguard
Pit Compensator
Manual Cate to
Reserves

Gunn Pit Compensator
Manual Cate
to Reserves

Further implications

- must devote careful attention to one control at both Gunn and Vanguard - must allow for personnel for 24 hour grade control, especially since will be able to do lots of visual grade control at major rock type interfaces
- must think on ore types and stockpile by material than by grade.
- beware of mine plans that use a high high grade/medium grade cut to 66 if it feeds all HG first and cut to 66 is $> 9\%$

Future work

- check assays and composites carefully
- check all benches for computer oddities
- recalc with no matching
- run mixup