Cyprus Anvil Mining Corporation

Interoffice Correspondence

Grum (MP+D)

020739

To Rik Visagie

Copy to

From Gregg Jilson

Date November 17, 1983

Subject The Possibility of Larger Open Pits at Grum

The present open pits for Grum all seem to have a stripping ratio of about $3M^3$ of waste/tonne of ore. This works out to about 8:1 on a tonnage basis. With this in mind, I have looked at the Grum assay model to see what would happen if the Olk pit were made 2-3 times bigger.

The following table gives the range in elevation (above sea level) within which most of the ore at Grum falls for a few sections within the drill proven portion of the deposit.

| Section # | Top (m) | Bottom (m) | Elevation Range of ore (m) | Elevation of present base of Olk Pit (m) | Elevation of ground surface (m) |
|---|---|---|---|---|---|
| 62W | 1220 | 1100 | 120* | 1190 | 1280** |
| 68W | 1230 | 1030-1100 | 200-170* | 1120 | 1280** |
| 72W | 1250 | 1070 | 180* | 1170 | 1290** |
| 78W | 1280 | 980 | 300 | 1090 | 1300*** |
| 82W | 1230 | 930 | 300 | 1090 | 1310*** |

* partly eroded
** difference between ground and top of ore mainly gravel
*** difference between ground and top of ore mainly rock

The above answers your first question.

Now, what would happen if the pit were deeper:
In the southeast part of the deposit it looks like we could pit the upright panel on sections 62W, 64W, 66W, 68W and 70W (approx. $5 \times 10^6$ tonnes at 5.09% Pb, 6.37% Zn, 78g/Ag, ??Au) by approximately doubling the volume of the Olk pit in that area. Some of the expansion would have to be done in order to mine Champ zone anyway, but not all of it. Depending on the shape of the pit scattered other reserves would be taken simply by taking the URP, perhaps $0.5 \times 10^6$ tonnes of lower grade (based on comparing x sectional areas to the URP x sectional areas). This looks like it would double the reserves of that portion of the pit.

In the northwest portion of the Olk pit, the geometry of the deposit is such that the added reserves increases approximately linearly with depth; the volume of the pit of course increases much more rapidly than that, thus it seems that a saw off would be arrived at fairly quickly where it is not worth stripping.

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Eyeballing the model suggests to me that to get most of the deposit would require increasing the depth of the pit by approximately 100 meters or 1/3. This increases the volume of the pit quite considerably, probably nearly tripling it, at the same time the reserves would increase something like 30%. I'm not at all sure what the real tonnes increase would be but I think its approximately 2.5 x $10^6$ of 8% with 4% cut-off.

In this part of the pit increasing the size of the pit exposes quite a bit of the potential upper horizons to the southwest of the present deposit. This is, as we discussed, an exploration drilling problem. We could be looking at a need for 15,000 to 25,000feet of additional drilling ($1-1.5 x $10^6$) to define just what reserve increases, if any, could be involved.

The Grum extension 88W - 100W approx. is so deep (say 300 meters to top) that even the above pit expansion barely touches that ore and the overall increase in volume required to take whatever is there would be staggering and I think impractical.

To sum up, increasing the volume of the Olk pit by a factor of about 2 - 3 might increase the overall reserves by 4 or 5 x $10^6$ tonnes* which I presume would have a grade of about 7% Pb+Zn and 50 grams Ag which might be worth $400-600 x $10^6$. The 2-3 times increase in volume (in terms of tonnes of waste) is 250 x $10^6$ to 400 x $10^6$ tonnes. Thus, increasing the pit size might to a point be practical but we need a better analysis of the data.

This analysis cannot wait, thus, it seems imperative to use the existing Grum computer model updated to reflect the 1982 drilling as soon as possible. The rush is of course the requirement for additional drilling which because of the huge increase in volume we are concerned with, could easily get to be more than the available manpower could handle in a field season.

The above, plus the considerations re Vandorda deposit in the gold status memo suggest we need these computer models up and running soon to address some of these questions. I think this means its all the more pressing and desireable that Dome get Mintec or some mine model in-house and get someone to the point of working familiarly with it.

* Note that 17 million tonnes in the open pit plus this 5 million tonnes does not come close to the 30 million tonne geologic reserve. This is, I think, due to my tendency to be conservative in the estimates and the fact that the assay sections I used are more selective about what is ore than Peter Clarke's computer model. The above sum is, however, close to Kerr Addison's geologic reserve.

Gregg Wilson