AND 8-1
C.C. J.L. OLIC

017409

DY U/G PROJECT (Revised April 1982)

PHASE I
Exploration Development

The work includes the following items:

1. Upgrade access road and site preparation

2. Provision of headframe, sinking hoist, workshop, shafthouse

3. Excavation and forming shaft collar

4. Sinking of 685 m. (2247 ft.) of shaft, based upon a 3 compartment timber lined shaft of standard 1.83 m (6' x 6') compartment size, complete with funishings

5. Provision of two shaft stations and one loading pocket.

6. Driving of 2529 m (8304') lateral development for exploration drilling and 15 m (50') waste pass. The drifts will be 2.14 m x 2.74 m (7' x 9') and tracked. Allowance has been made for standard rock bolt supports.

CAPITAL COSTS

	1982 $
Upgrade access and site preparation	560,000
Mobilization	400,000
Shaft collar excavation and lining 20 m (65')	235,000
Sinking Hoist: - foundation, erection, electrics, hoistroom	1,197,300
Headframe: - supply and erect, sheaves, electrics, shafthouse, rope, buckets, crossheads	576,000
Equipment rentals for surface works and collar	290,200
Shaft sinking 685 m (2247 ft) plus 2 shaft stations and loading pocket	4,718,700
Lateral development 2529 m (8304')	4,567,200
Vertical development 15 m (50')	12,000
	12,556,400

Sub-total	12,556,400
Plus 20% contingency	2,511,280
Plus 15% General Administration	1,883,460
Plus 10% Contractors markup	1,255,640
	18,206,780

Cyprus Anvil's Cost:

Road and Site maintenance	448,000
Survey Controls	112,000
Camp Cost	1,053,000
	19,819,780
U/G Diamond Drilling	2,240,000
PHASE I TOTAL COST	22,059,780

Contract labour component 31 men, 24 hrs/d, 7 d/wk
Preliminary Schedule:

Mobilization	2 weeks
Pre-shaft	18 weeks
Shaft sinking	43 weeks
Lateral Development	40 weeks
	103 weeks = 2 years

DY U/G EXPLORATION DRIFT DEVELOPMENT

Tracked 7' x 9' drift @ 400 m elevation (Refer to enclosed plan)

	m	ft
400 - Exploration Dr. N.	1400	4593
400 - Exploration Dr. S.	1000	3281
N. D.D. stn. 10 x 3 m	30	100
S. D.D. stn. 8 x 3 m	24	80
W.P. Dump 3 m	3	10
Bty. charging stn. 2 x 6 m	12	40
Switch Bays 4 x 15 m	60	200
TOTAL Lat. Dev.	2529	8304
Vert. Waste Pass	15	50

COST:

	1982 $
Lat. 8304' @ $550/ft.	4,567,200
Vert. 50' @ $300/ft.	12,000
	4,579,200

NOTE:

To minimize initial exploration drift cost, 400 - Exploration drift south may be driven first and diamond drilling (down holes) be concentrated on the larger "A" ore zone. (refer to composite x-section) Early interpretation of the ore structure, grade and reserves of the "A" zone will facilitate, decision on a twin decline from either the Vangorda pit, Grum O.L. conveyor tail pulley or deepening the shaft to the required depth. (ground condition permitting), 400 - Exploration drift north will be required eventually to drill off part of the "A" zone (sec. 13+50) and the "B" zone. The upper zone can be brought into early production at a limited tonnage by cut and fill method, while the phase II development, either by means of twin decline or shaft deepening and internal ramping is continued. The waste from the development of the ramp can be used as backfill for the stopes. The fragmentation from the cut and fill stopes will be small enough to be hoisted and trucked to the concentrator or stockpiled.

TWIN DECLINE:

A conveyor decline @ 20% from the Grum O.L. tail pulley will be of 1800' slope distance and will measure 13' wide by 9' wide. The service decline will be @ 15% and measure 15' wide by 11' high. Alternately both the declines may be driven @ 17%, with x-cut connections @ 500' interval for ventilation and as remuck bays. A detail large scale contour plan and section will be required for the decline, particularly from the Grum to the Vangorda Creek, to ensure safe vertical crown pillar between the decline and the creek.

Advantages of Decline Conveyor over Production Shaft:

1. Ore reaches the surface in a steady continuous stream, rather than intermittently.

2. There is no loss of capacity due to inspections, material handling, or moving men in or out of the mine.

3. The cost of operating a drift is less because of reduced maintenance and manpower requirements.

4. Inspection and maintenance are more easily carried out.

5. From the environmental point of view, the surface buildings at a decline is less conspicuous than the headgears necessary with shaft winding.

6. Cost of U/G conveyor installation will be cheaper than the overland variety and environmentally desirable.

7. Plant and services can be concentrated at the Grum site rather than at both Grum and DY by shaft production.

Mining Methods

Two sections 13+50 and 18+00 were studied in detail. From the available data, the major mining methods possible are mechanized cut and fill for narrow lenses, Avoca cut and fill for the rib pillars and Vertical Crater Retreat for the thicker zones. The rib pillars between the V.C.R. stopes should be mined first by Avoca method and filled with development waste. Consolidation of the fill to be accomplished by cement slurry 1:30 ratio (Geco mine practice). The V.C.R. stopes then can be mined safely without leaving any pillars and filled with development waste if desired to prevent air burst in the draw points. It is quite conceivable that the structure as interpretated may not be so simple and could very well be as complicated as that of the Grum. In that case the mechanised cut and fill will be the most dominant mining method and will have to be very selective. This will certainly restrict the productivity with high labour ratio and production cost.

Mine production rate of 2000 tons per day by cut and fill method would be more practicle than the 3000 tons per day originally proposed.