

003283 D.H.

To : Robin Tolbert

cc: R. Visagie

From : Alain Chevalier

D. Hogan

Date : November , 1984

M. Nicholson

Subject : HAND CALCULATED RESERVES FOR
FARO ZONE III S.E. RAMP AREA

INTRODUCTION:

In February 1984, upon completion of the diamond drilling program carried out during November-December 1983, Tonnage and Grade Calculations for Pb, Zn, and Ag were completed by hand for Zone III S.E. Ramp Area. Ore reserves were calculated using long sections and reported by ore type.

ASSUMPTIONS AND CONDITIONS:

The following assumptions and conditions are applied to the calculations of reserves for Zone III S.E. Ramp Area.

1. Ore: Defined as being greater than or equal to 4% Pb and Zn over a thickness equal to or greater than 20 feet.
2. Internal Waste: Defined as being less than 4% Pb and Zn over a thickness equal to or less than 10 feet.
3. Silver was not taken into consideration to determine cut-off grade but analyzed and reported.
4. Specific gravity was determined by Cyprus Anvil Assay Lab for each sample analyzed from pulps using a pycnometer.
5. Ore Types: The reserves were calculated for four ore types:
 - Type A: 2A ore (sulfide bearing pyrite, ribbon-banded, graphitic quartzite.)
 - Type B, C, D: 2B, 2C, 2D ores (quartzitic ore)
 - Type E, F, H: 2E, 2F, 2H ores (massive sulfides)
 - Type G: 2G ore (baritic massive sulfides, BaSO4 > 10%)
6. Assay Block Parameters:
 - a.) Geological and topographical factors necessitated the use of primarily the long sections to determine the assay blocks to be included in the reserve calculations.
 - b.) Assay blocks which extend half way between drill holes on each long section are considered proven reserves. The half way distance between each drill hole on the long section generally does not exceed 50 feet.

6. Assay Block Parameters (cont'd):
 - c.) Assay blocks not located between DDH and having grades extrapolated beyond 50 feet are considered probable reserves. No assay blocks within the probable category have grades extrapolated more than 100 feet beyond any drill hole.
 - d.) Ore blocks are extended half way to the adjoining long section (50 feet). This distance is truncated where required by the geological interpretation.
7. The reserves reported are geological reserves.
8. The information used to draw the sections were provided by DDHs drilled up to December 1983, pit mapping and previous sections.

METHOD OF CALCULATION:

The surface area of each block on every long section was measured with a planimeter at the scale of 1 inch = 50 feet (1:600).

The volume of each block was obtained by multiplying the surface area of the block on the long section by half of the summed distance to the two adjacent long sections. This distance did not exceed 100 feet. In some instances, where geologic information or pit limits dictated, this distance was less than 100 feet.

RESULTS:

The reserves of the individual blocks on each section used to determine the reserves are shown in Table I.

Tables II and III summarize the ore reserves of the S.E. Ramp Zone at 4 % and 6 % cut-off respectively.

The stripping ratio at 4 % cut-off is shown in Table IV.



Alain Chevalier
Mine Geologist

Attachments. (3)

AC/ks

T A B L E I

SECTION	BLOCK	ORE TYPE	AREA sq. ft.	VOLUME cu. ft.	S.G.	TONNES	PBZ	ZN%	AG g/MT	
Sect 9+500	A1	E, F	2875	8136	4.31	35067	6.35	6.18	125.5	
	A2	G	1075	3042	4.24	12899	4.98	6.17	72.3	
	A4	A	1675	4740	2.80	13272	2.05	4.23	24.6	
	E1	E, F	1375	3762	4.31	16217	6.35	6.18	125.5	
	E2	G	125	342	4.24	1450	4.98	5.17	72.3	
	E4	A	1175	3215	2.80	9003	2.05	4.23	24.6	
	SECT. 9+600									
	H2	G	575	813	4.36	3547	5.08	5.80	76.1	
H4	A	1125	1591	2.74	4361	1.92	4.55	21.2		
	B1	E, F	450	1273	4.15	5285	5.57	6.34	80.0	
	B2	G	1875	5306	4.36	23135	5.08	5.80	76.1	
	B4	A	2500	7075	2.74	19385	1.92	4.55	21.2	
	C1	E, F, H	2125	6013	4.15	24957	5.57	6.34	80.0	
	C2	G	500	1415	4.35	6211	5.06	5.00	80.9	
	C3	B, C, D	1000	2830	3.01	8518	2.10	2.67	36.4	
	C4	A	2375	6721	2.83	19021	1.50	2.59	28.0	
	F1	E, F, H	700	1981	4.15	8221	5.57	6.34	80.0	
	F3	B, C, D	125	353	3.01	1064	2.10	2.67	36.4	
	F4	A	2125	6013	2.83	17019	1.50	2.59	28.0	
SECT. 14+000										
	D1	E, F, H	800	2076	4.77	9903	6.81	2.42	128.8	
	D2	G	625	1621	3.20	5190	0.28	4.57	16.8	
	D3	B, C, D	1125	2919	2.98	8700	3.01	4.08	49.6	
	D4	A	2875	7460	3.17	23651	2.88	3.25	46.2	
	G1	E, F	500	1415	4.77	6749	6.81	2.42	128.8	
	G3	B, C, D	200	566	3.20	1811	3.01	4.08	49.6	
	G4	A	2250	6375	3.17	20210	2.88	3.25	46.2	

ATTACHMENT 2

TABLE II SOUTH-EAST RAMP 4 % CUT-OFF (Pb + Zn)

	Ore Type	Tonnes	Pb %	Zn %	Ag g/mt	Vol (BCY)
PROVEN: Blocks A, B, C, D	2A	75,329	2.14	3.59	31.4	34,002
	2E,F,H	75,213	6.38	5.75	107.6	22,886
	2G	47,435	4.53	5.39	69.2	14,891
	2 BCD	12,218	2.56	3.38	43.1	7,519
		<u>210,195</u>	<u>4.22</u>	<u>4.76</u>	<u>67.9</u>	<u>79,298</u>
PROBABLE: Blocks E, F, G, H	2A	50,593	2.19	3.31	34.1	22,487
	2E, F,H	31,187	6.56	5.41	114.2	9,363
	2G	4,997	5.05	5.62	75.0	1,511
	2 BCD	2,875	2.67	3.56	44.7	1,203
		<u>89,652</u>	<u>3.88</u>	<u>4.18</u>	<u>64.58</u>	<u>34,564</u>
TOTAL		<u>299,847</u>	<u>4.12</u>	<u>4.59</u>	<u>66.91</u>	<u>113,862</u>

TABLE III SOUTH-EAST RAMP 6 % CUT-OFF (Pb + Zn)

	Ore Type	Tonnes	Pb %	Zn %	Ag g/mt	Vol (BCY)
PROVEN: Blocks A, B, C, D	2E, F,H	75,213	6.38	5.75	107.6	22,886
	2G	47,435	4.53	5.39	69.2	14,891
		<u>122,648</u>	<u>5.66</u>	<u>5.61</u>	<u>92.7</u>	<u>37,777</u>
PROBABLE: Blocks E, F, G, H	2E, F,H	31,187	6.56	5.41	114.2	9,363
	2G	4,997	5.05	5.62	75.0	1,512
		<u>36,184</u>	<u>6.35</u>	<u>5.44</u>	<u>108.8</u>	<u>10,875</u>
TOTAL		<u>158,832</u>	<u>5.80</u>	<u>5.60</u>	<u>96.4</u>	<u>48,652</u>

ATTACHMENT 3

TABLE IV SOUTH-EAST RAMP AREA: Proven and Probable Reserves
APPROXIMATE STRIPPING RATIO - Assuming 40° Pitslope

SECT. 132 + 400 (Zone of influence = 100.0 feet)

$$\frac{\text{VOLUME (BCY) WASTE}}{\text{VOLUME (BCY) ORE}} = \frac{68,500}{32,200} = \frac{2.12}{1}$$

SECT. 132 + 500 (Zone of influence = 100.0 feet)

$$\frac{\text{VOLUME (BCY) WASTE}}{\text{VOLUME (BCY) ORE}} = \frac{56,500}{69,400} = \frac{.81}{1}$$

$$\text{TOTAL} = \frac{\text{VOLUME (BCY) WASTE}}{\text{VOLUME (BCY) ORE}} = \frac{125,000}{101,600} = \frac{1.24}{1}$$

* See note 1. *

Approximate Stripping Ratio = 1.24 (Waste BCY) to 1 (Ore BCY) @ 4 % Cut-off
or

Approximate Stripping Ratio = 0.97 (Waste Tonnes) to 1 (Ore Tonnes)

** NB. 1.) The ore volume here differs from Table II however the ratio of ore to waste represented by the two sections above should be a reasonable approximation.

2.) The sections were compiled for 4% cut-off. However, at a 6% cut-off the stripping ratio will increase since there is less ore to approximately the same volume of waste.