CYPRUS ANVIL MINING CORPORATION

INTEROFFICE CORRESPONDENCE

003268

To J. Purkis/F. Gay

cc. B. Cron Assay Lab

From P. Clarke

B. Voisey Met Lab

Date October 21, 1980

Subject ZONE 1/3 TONNAGE FACTORS

Further to my July 21, 1980 memo concerning Zone 1/3 tonnage factors, further statistical analysis of rock type densities with grade has lead to the following revised figures.

Revised Zone 1/3 Tonnage Factors for Pb + Zn > 4.0%:

F3. MINE Model

COMPUTER MODEL	Rock	Tonnage Factor SDT/Cu. Yd.	S.G. (~~MT/M³~~)
7	2A	2.69	3.19
8	2BCD	2.93	3.48
9	2CE	3.18	3.77
10	2EF	3.65	4.33
11	2H	3.39	4.02
12	2G	3.74	4.44

P. Clarke

P. Clarke
Engineering Geologist

PC/mm

2.3 – 2.7 = TONNAGE FACTOR FOR WASTE

CYPRUS ANVIL MINING CORPORATION INTEROFFICE CORRESPONDENCE

To D. Gregoire cc: R. Lopaschuk

From R. Tolbert

Date June 27, 1984

Subject SPECIFIC GRAVITY OF WASTE ROCKS
Units 3D, 3DBx and 1D in
Solid Core vs Pulverised Core

A total of 28 samples of each rock type were individually tested for;

i) S.G. using volume displacemnt of whole core in water.

ii) S.G. using Hubbard pynometer, of same samples pulverised to -100 mesh. (See Appendix I)

Results

Rock Type	$\bar{M}$ S.G. Solid Core	$\bar{M}$ S.G. Pulverised Core	
3D	2.68	2.75	28 samples
3DBx	2.69	2.76	28 samples
1D	2.69	2.76	28 samples
Avg.	2.69	2.76	

From the above results there is clear evidence that for waste rocks, which visibly have little porosity, pulverised core S.G.'s ave. 2.6% higher than whole rock S.G.'s.

For porous ore types 2F, 2G, this will be much higher.

Additional study is required to quantify this variance of S.G. in ore types, but this study supports the reduction of S.G.'s in ore types by 5% that was used in the F-3 model and the reduction in tonnage by 5% on the Vangorda Deposit.

R. Tolbert
District Geologist

RT/cg

SPECIFIC GRAVITY OF DRILL CORE

SAMPLE NUMBER	SAMPLE DESCRIPTION ORE TYPE = 1D			SPECIFIC GRAVITY	
	D.D.H.#	FOOTAGE	MID BENCH	OF SOLID SAMPLE	OF PULVERIZED SAMPLE
57	82F-09	230	3810	2.80	2.71
58		270	3770	2.73	2.75
59		310	3730	2.77	2.72
60		350	3690	2.69	2.76
61	82F-05	65	3850	2.73	2.74
62		105	3810	2.63	2.76
63		145	3770	2.69	2.74
64		185	3730 (1D2)	2.70	2.70
65		225	3690	2.80	2.81
66	80-02	290	3770	2.59	2.76
67		330	3730	2.66	2.70
68		370	3690	2.75	2.79
69		410	3650	2.70	2.79
70	81-09	173	3850	2.71	2.76
71		213	3810	2.71	2.77
72		253	3770	2.84	2.82
73		333	3690	2.72	2.79
74	74-08	167	3850	2.39	2.66
75		207	3810	2.81	2.69
76		247	3770	2.53	2.74
77		287	3730	2.69	2.73
78		327	3690	2.67	2.76
79	81-11	93	3930	2.63	2.70
80		133	3890	2.76	2.78
81		173	3850	2.78	2.79
82		213	3810	2.60	2.75
83		253	3770	2.72	2.76
84		293	3730	2.84	2.86
				$\bar{M}$ = 2.69	$\bar{M}$ = 2.76

SPECIFIC GRAVITY OF DRILL CORE

SAMPLE NUMBER	SAMPLE DESCRIPTION			SPECIFIC GRAVITY	
	ORE TYPE = 3D				
	D.D.H.#	FOOTAGE	MID BENCH	OF SOLID SAMPLE	OF PULVERIZED SAMPLE
1	82F-09	30	3970	2.72	2.79
2		70	3930	2.64	2.75
3		110	3890	2.92	2.93
4	77-16	35	3970	2.50	2.77
5		75	3930	2.74	2.75
6		115	3890	2.68	2.76
7	72-13	110	3890	2.48	2.70
8		150	3850	2.58	2.79
9	82F-14	62	3930	2.63	2.67
10		102	3890	2.52	2.69
11		142	3850	2.61	2.78
12		182	3810	2.70	2.73
13	82F-16	75	3930	2.64	2.65
14		115	3890	2.72	2.75
15		155	3850	2.67	2.85
16	82F-10	9	3930	2.87	2.88
17		49	3890	2.65	2.75
18		89	3850	2.89	2.82
19		129	3810	2.69	2.70
20	82F-11	79	3930	2.60	2.66
21		119	3890	2.57	2.71
22	82F-13	56	3890	2.80	2.82
23		96	3850	2.78	2.75
24		136	3810	2.58	2.69
25	82F-15	53	3970	2.70	2.74
26		93	3930	2.66	2.72
27		133	3890	2.71	2.74
28		173	3850	2.69	2.73
				$\bar{M} = 2.68$	$\bar{M} = 2.75$

SPECIFIC GRAVITY OF DRILL CORE

SAMPLE NUMBER	SAMPLE DESCRIPTION			SPECIFIC GRAVITY	
	ORE TYPE = 3D 'breccia'			OF SOLID SAMPLE	OF PULVERIZED SAMPLE
	D.D.H.#	FOOTAGE	MID BENCH		
29	67-09	175	4010	2.58	2.70
30		215	3970	2.92	2.88
31		259	3930	2.55	2.69
32		295	3890	2.63	2.75
33		341	3850	2.87	2.87
34	82F-02	61	3970	2.71	2.78
35		101	3930	2.64	2.72
36		141	3890	2.74	2.74
37		181	3850	2.72	2.79
38	77-09	87	4010	2.70	2.80
39		129	3970	2.66	2.69
40		167	3930	2.73	2.80
41		207	3890	2.79	2.76
42		247	3850	2.64	2.87
43	81-14	62	4010	2.57	2.71
44		87	3970	2.71	2.73
45		126	3930	2.63	2.67
46		167	3890	2.63	2.67
47		215	3850	2.64	2.70
48	81-19	96	4010	2.64	2.69
49		132	3970	2.72	2.75
50		174	3930	2.91	2.80
51		212	3890	2.61	2.72
52		251	3850	2.63	2.72
53	77-06	130	4010	2.59	2.82
54		170	3970	2.69	2.75
55		210	3930	2.67	2.79
56		251	3890	2.57	2.76
				$\bar{M}$ = 2.69	$\bar{M}$ = 2.76

CONVERSION FROM TONNAGE FACTOR TO S.G.

i.e. SDT/cu.yd TO S.G. (Mt/M³)

$$SDT \times 0.9072 = Mt$$

$$cu.yd \times 0.7646 = M^3$$

$$\therefore \quad \frac{SDT}{cu.yd} \times \frac{0.9072}{0.7646} = \frac{Mt}{M^3} = S.G.$$

$$\therefore \quad SDT/cu.yd \times 1.1865 = S.G. \ (Mt/M^3)$$

(for a given density S.G. is higher numerically than SDT/cu.yd.)