

APPENDIX IGRUM DEPOSIT

The Grum Deposit, located approximately 9 miles from the Faro minesite, consists of two sulfide horizons which are structurally complicated by successive fold deformation and faulting.

Grum was discovered in 1973, by A.E.X. Syndicate. Prior to the acquisition of the property in 1979 by Cyprus Anvil, more than 41,000 metres of surface diamond drilling, a 2,900 metre exploration decline, 15,000 metres of underground diamond drilling, bulk sampling and metallurgical pilot plant testing of the order had been done.

Cyprus Anvil is currently in the process of relogging the Grum deposit and preparing the data base for computer modelling. However, to date a geological reserve of 37,100,000 tonnes of 8.7% combined lead zinc has been hand calculated on cross-sections between 51 and 86 West: the eastern end of the deposit. The deposit is open at both ends with 8,000,000 tonnes of possible ore to the west.

The amount of reserve that can be mined by open pit methods is dependent on the stripping ratio and the relative economics of underground mining. Initially, a small pit with a low stripping ratio was designed: more recently an increment to this pit has been estimated. The stripping volume calculation and mineable ore reserve is shown for both pits. Grades for the pitable ore are estimated as 90% of the calculated sectional grade. The remaining reserves not included in either pit but available for underground extraction are also summarized below.

Section 86 - 1000' deep ore
no potential open pit.

NW. extension = 5 to 10 million tons
at depth @ 8-10% combined

North part of deposit
is cut off by
fault

20° dipping foliation
of phyllite

Champ area - needs more drilling - low grade that
may be included in the current pit design

PIT CHARACTERISTICS

	<u>Small Pit</u>		<u>Increment</u>		<u>Large Pit</u>	
	<u>BCM</u> <u>MM</u>	<u>Tonnes</u> <u>MM</u>	<u>BCM</u> <u>MM</u>	<u>Tonnes</u> <u>MM</u>	<u>BCM</u> <u>MM</u>	<u>Tonnes</u> <u>MM</u>
Overburden	12.0	21.7	4.7	8.3	16.7	30.0
Waste	34.4	94.1	31.4	86.2	65.8	180.3
Ore	5.6	17.4	2.6	10.6	8.2	28.0
TOTAL	52.0	133.2	38.7	105.1	90.7	238.3

MINEABLE RESERVES (51 W to 86W)

<u>Nature of Reserves</u>	<u>Cut off</u> <u>%</u>	<u>Tonnes</u> <u>(Million)</u>	<u>Lead</u> <u>%</u>	<u>Zinc</u> <u>%</u>	<u>Silver</u> <u>(gms/DMT)</u>	<u>Copper</u> <u>%</u>	<u>Gold</u> <u>(gms/DMT)</u>
<u>Large Pit</u>							
Open Pit	3.0	28.0	3.00	4.9	50	.15	.7
Potential Underground	7.0	5.2	4.25	7.0	71	.15	.7
<u>Small Pit</u>							
Open Pit	4.0	17.4	3.40	5.87	58	.15	.7
Potential Underground	7.0	9.9	4.28	6.80	72	.15	.7

Note: Gold and copper grades are deposit averages

GRUM DEPOSIT

summary of some comparable tonnage & grade figures

Open pits at 4% Pb+Zn cutoff (62W-86W)

	tonnes	Pb%	Zn %	Ag $\frac{g}{tonne}$	Stripping Ratio $\frac{m^3}{tonne}$
OIK Pit '83 hand calculation	17,055,000	3.4	5.9	59	2.91
same interpolation Kerr Addison - Noranda computer model	15,583,000	3.1	5.0	47	2.90
	Cyprus Anvil Interim computer model	16,875,000	3.0	4.9	47

P.C. through this is too low should be ≈ 3.0

Geological Reserves at 4% Pb+Zn cutoff (62W-86W)

same in hand slightly higher grade Kerr Addison hand calculation	26,083,000	4.1	6.4	62	
	Kerr Addison Noranda computer	27,650,000	3.1	4.9	48
	Cyprus Anvil interim computer	30,781,000	3.1	4.9	49
Cyprus-Anvil * hand calculation per Visagie	32,611,000	3.5	5.7	59	

includes v.w. area

High Grade Reserves - Underground - 8% Pb+Zn cutoff

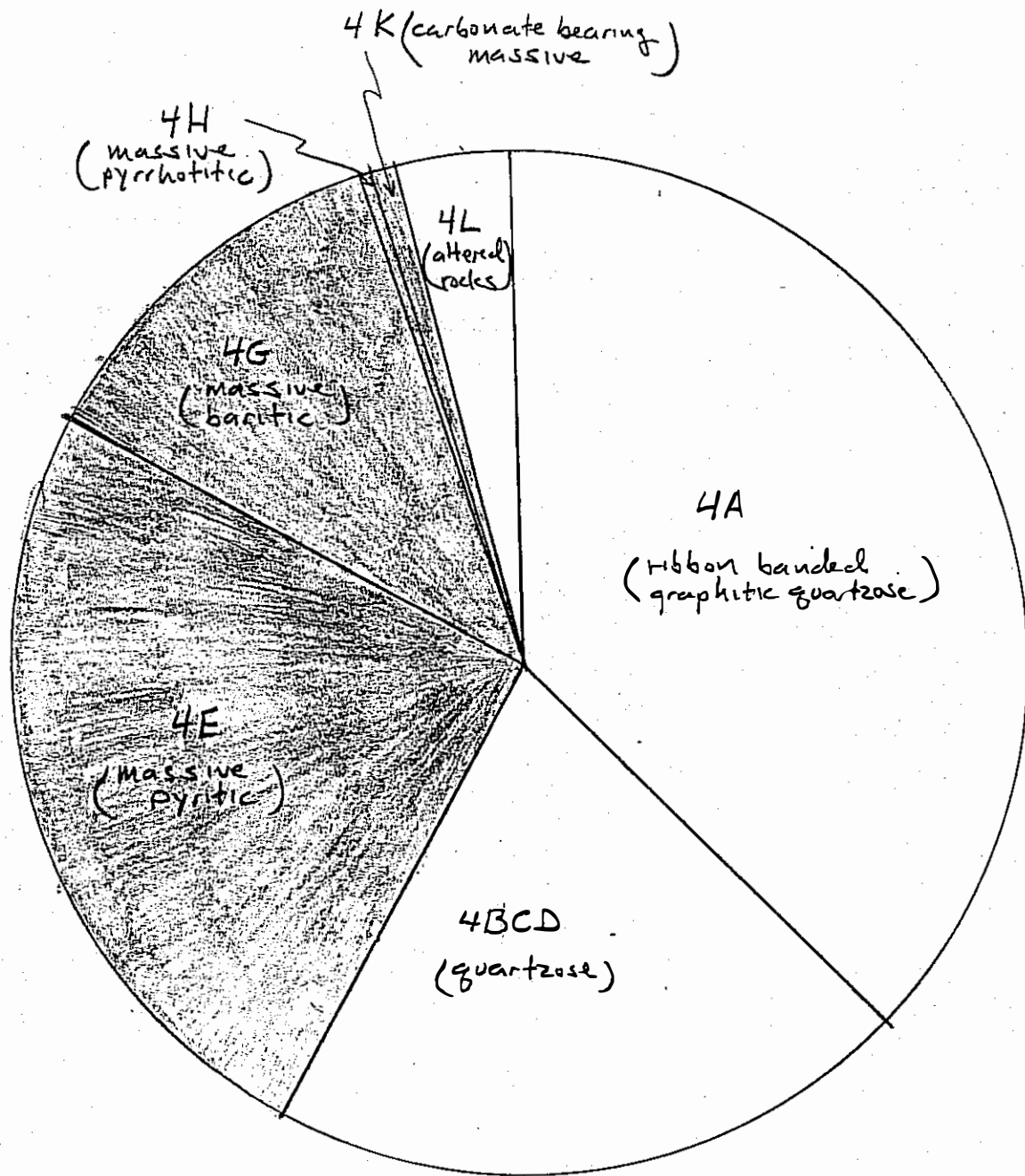
Kerr Addison hand calculation	15,784,000	5.2	8.3	78
Cyprus-Anvil ** hand calculation	10,960,000	4.5	7.8	78

Notes:

* includes about 4,000,000 tonnes drilled off after the other calculations were done

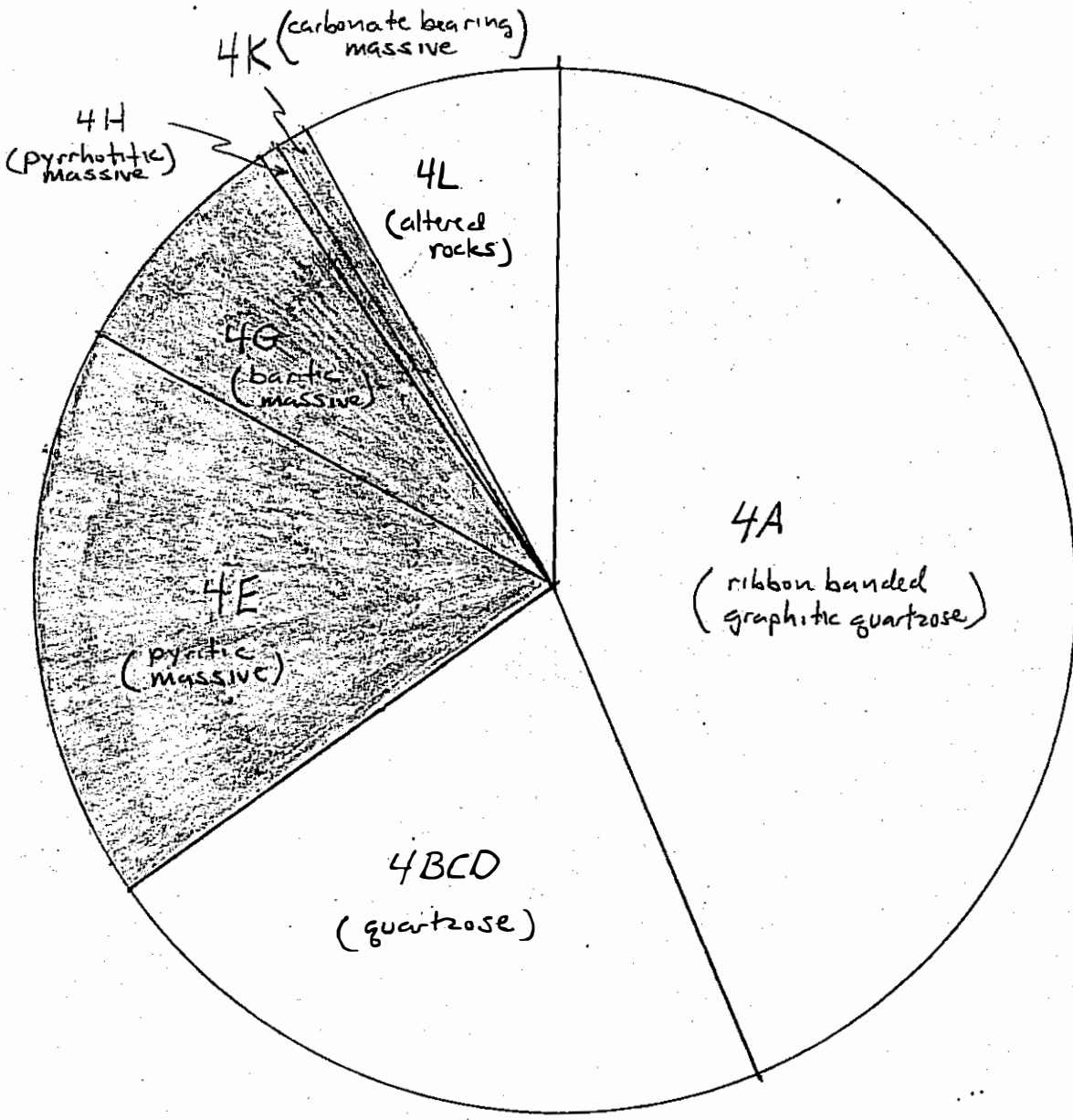
** more selective choice of ore panels than Kerr Addison calculation

GRUM DEPOSIT



All ore types
with grade > 4% Pb+Zn

GRUM DEPOSIT

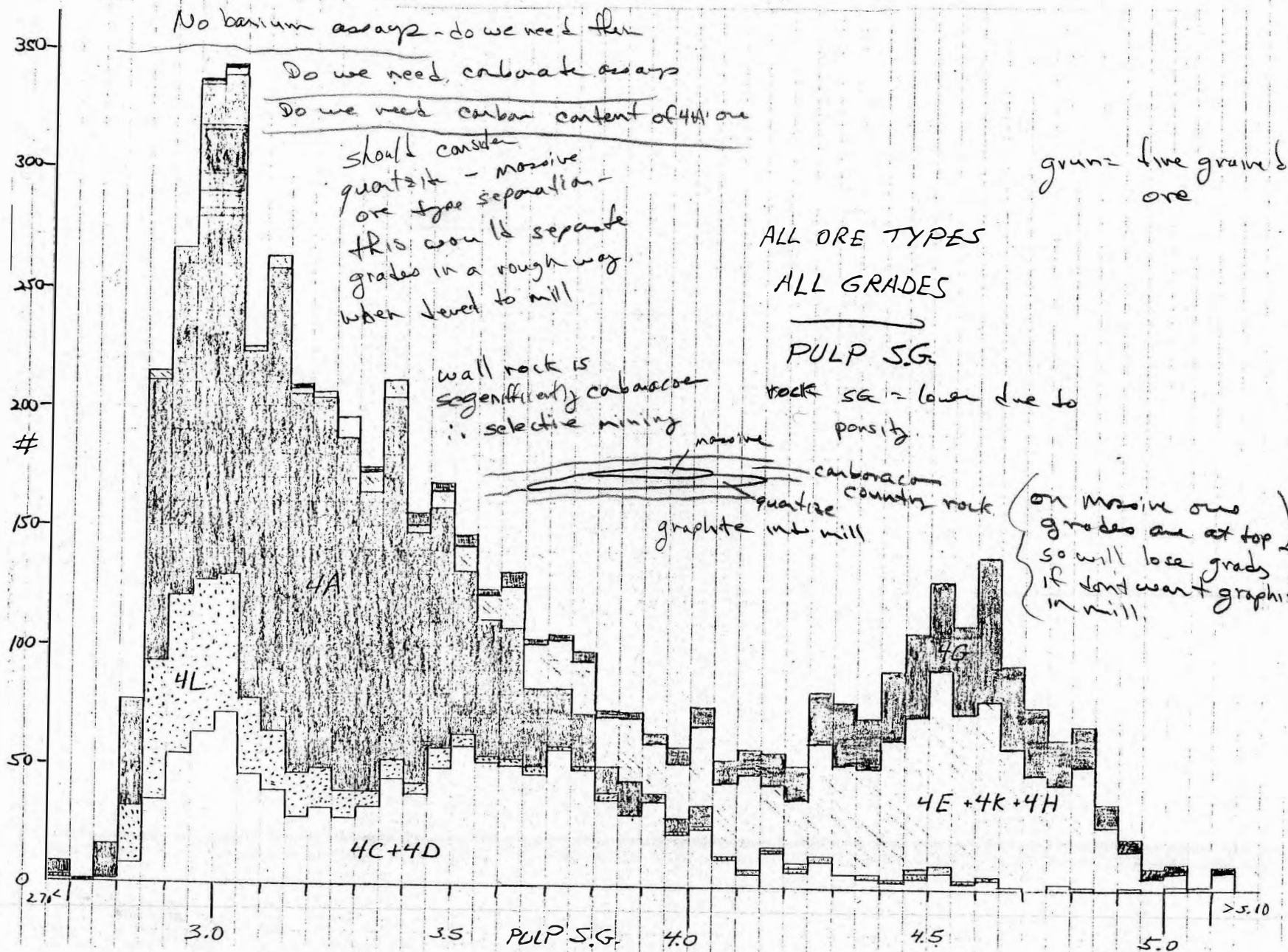


All ore types
All grades

9000 samples
in D. Base

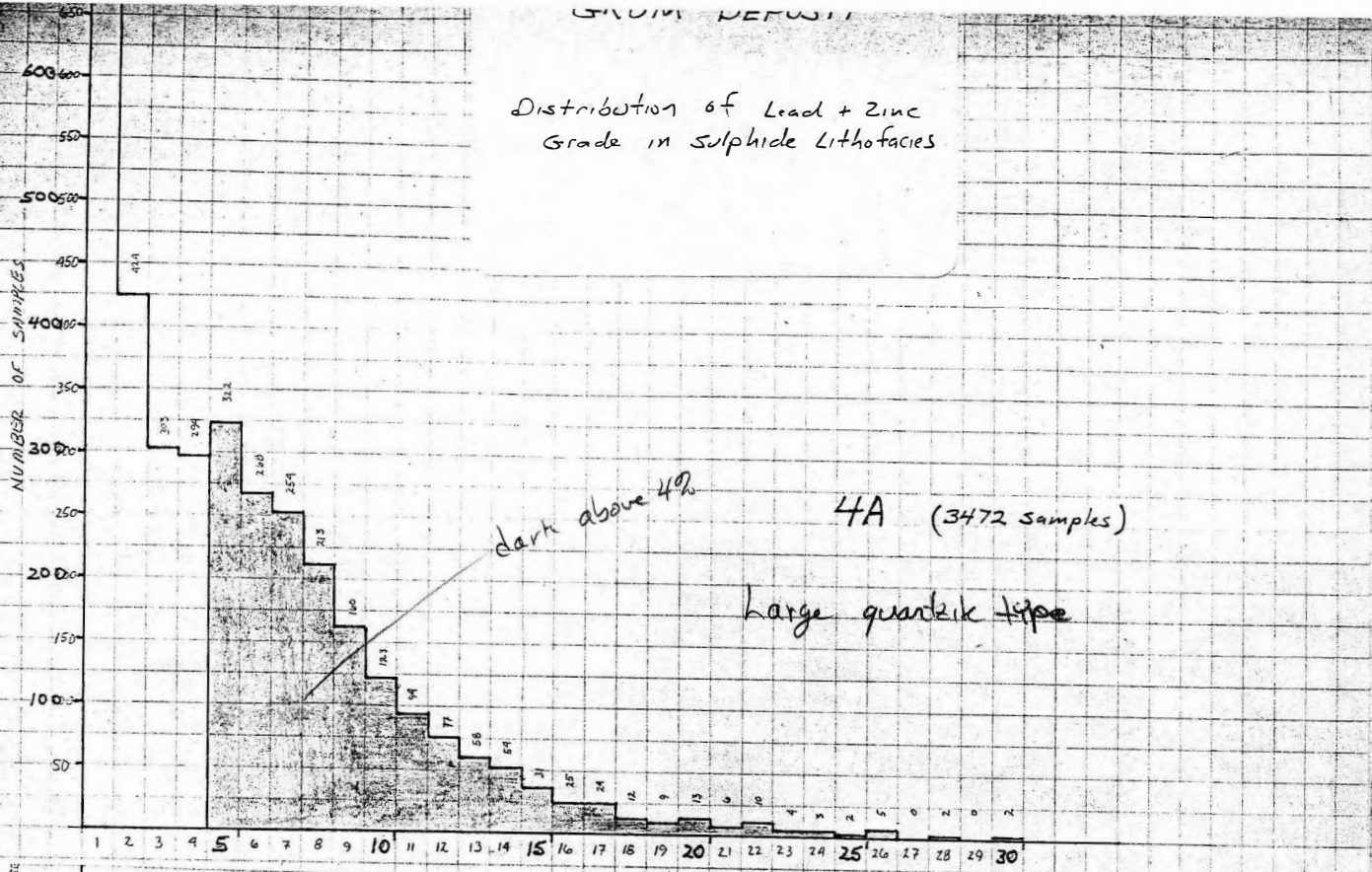
10% of deposit
Additional info only

	4A	4CD	4E	4G
Cu(%)	0.08	0.13	0.17	0.12
Pb(%)	2.00	3.05	4.80	5.45
Zn(%)	3.58	5.25	7.65	8.34
Ag(g/t)	36.0	53.0	81.3	91.8
Fe(%) soluble	1.86	3.45	3.39	2.14
Fe(%) insoluble	9.62	12.27	25.85	18.00

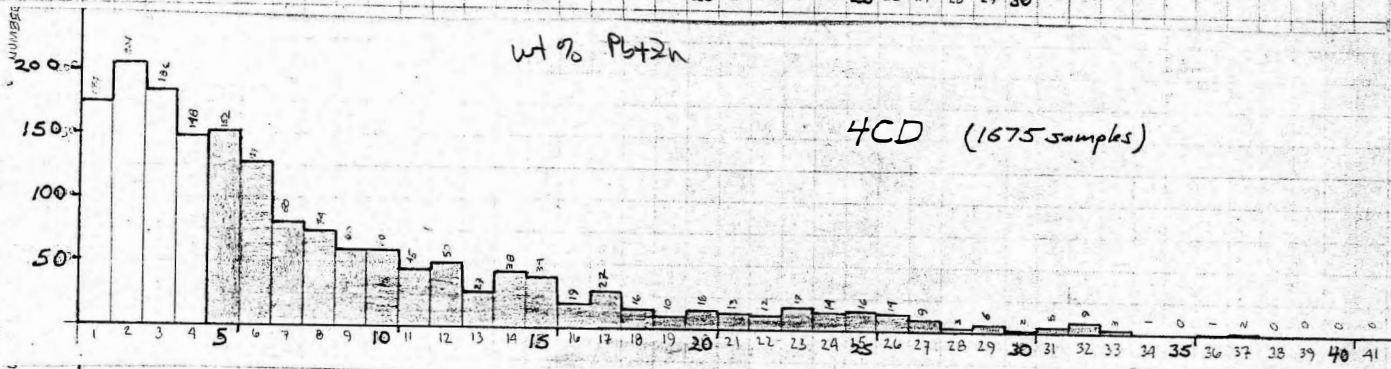


Distribution of Lead + Zinc
Grade in sulphide Lithofacies

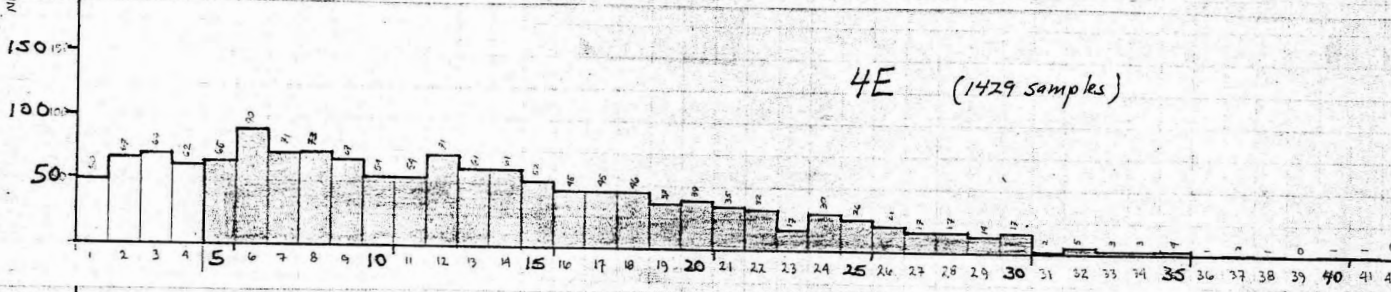
NUMBER OF SAMPLES



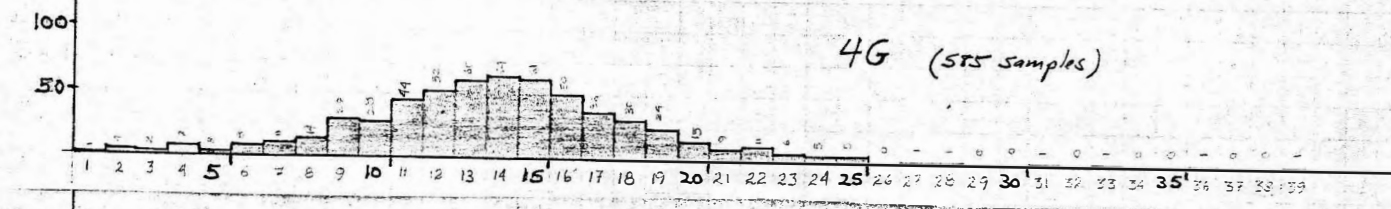
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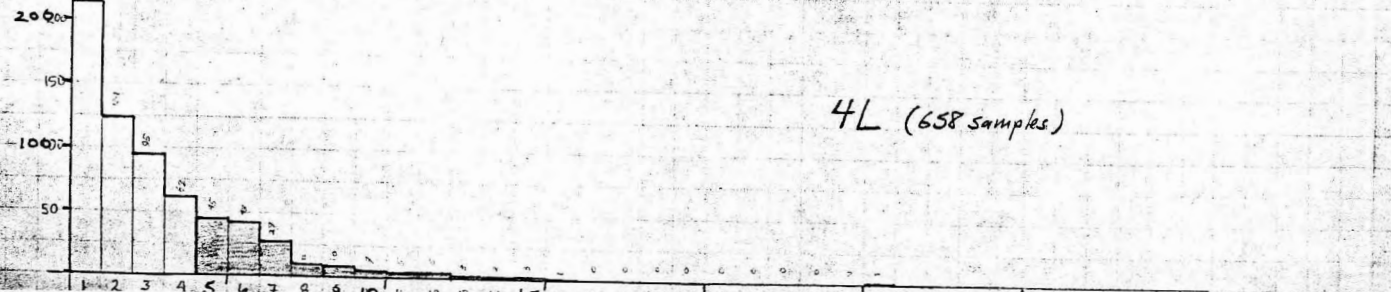
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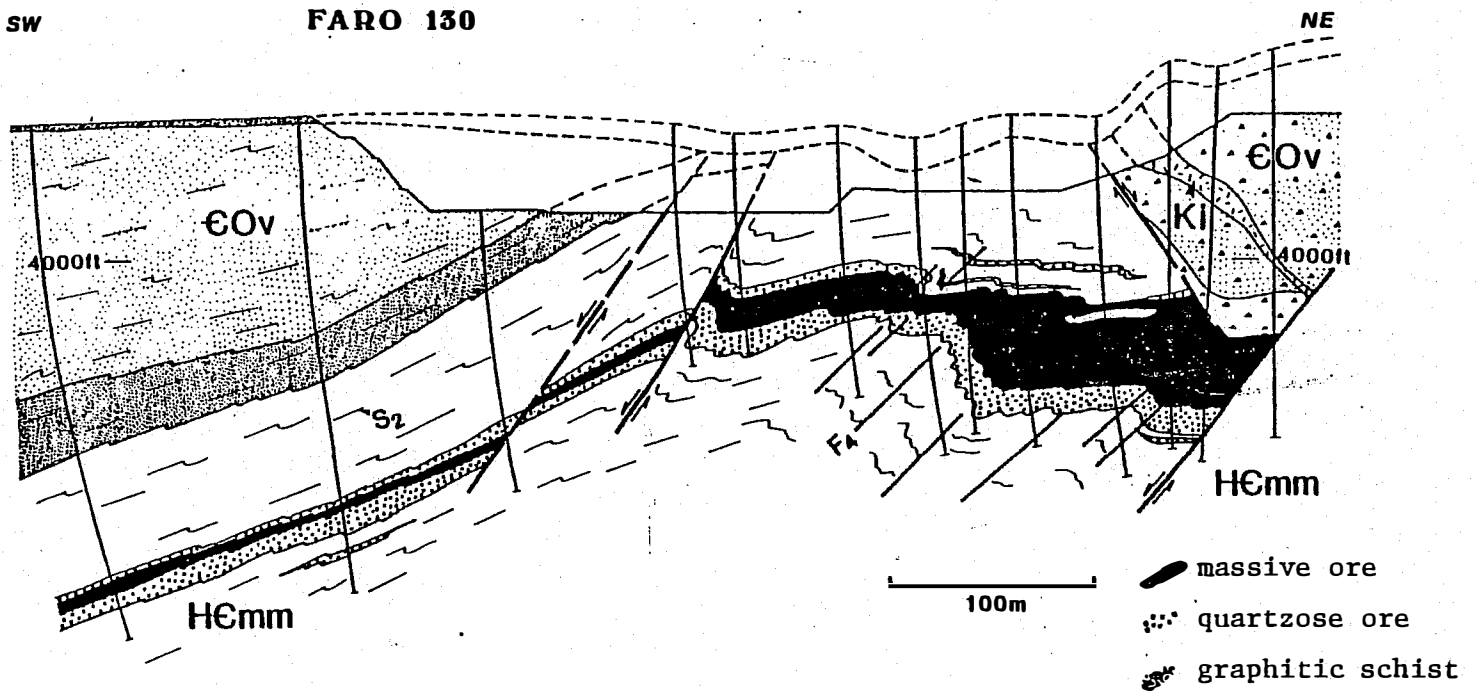
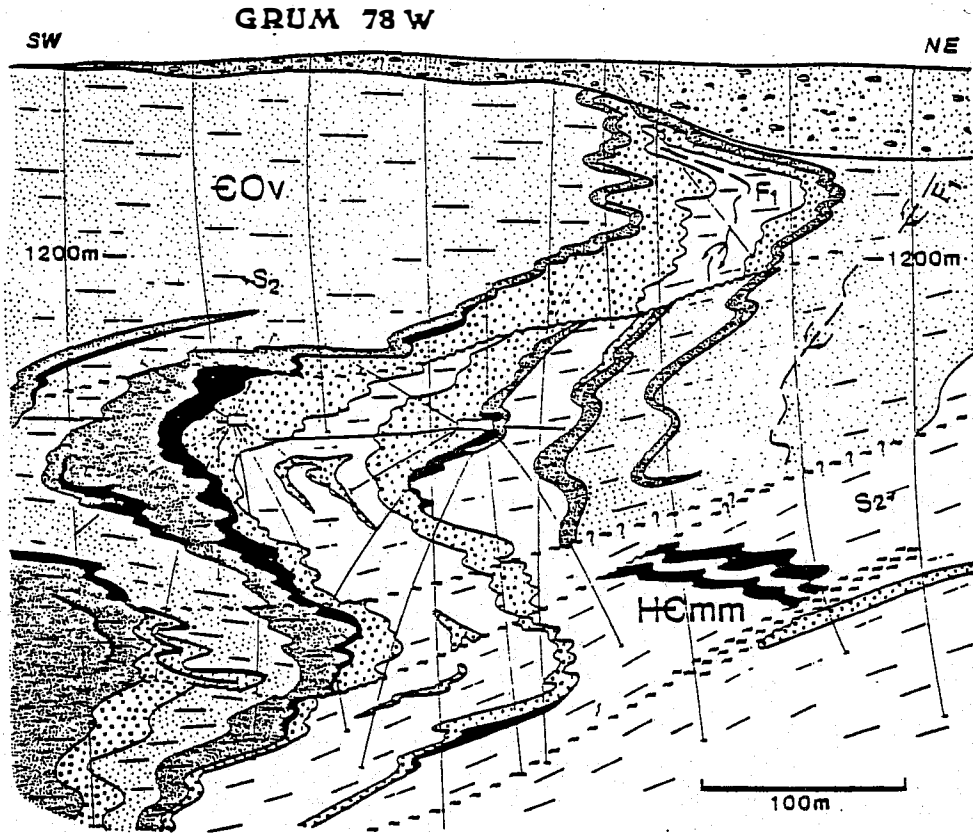


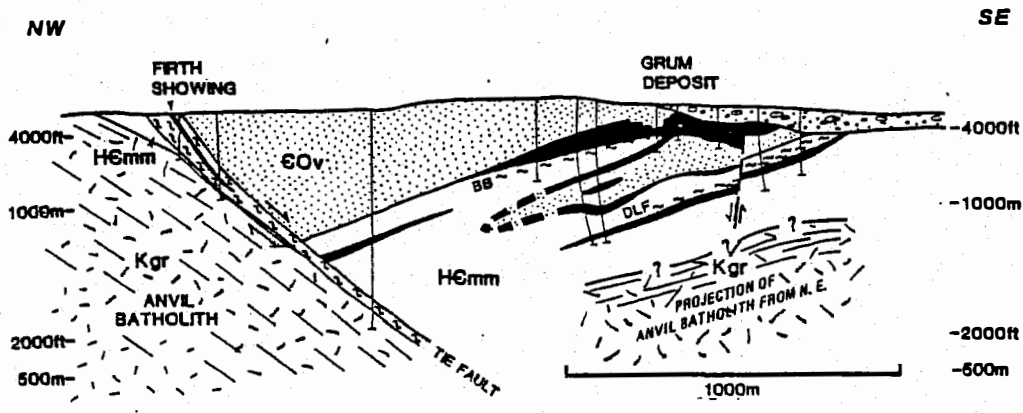
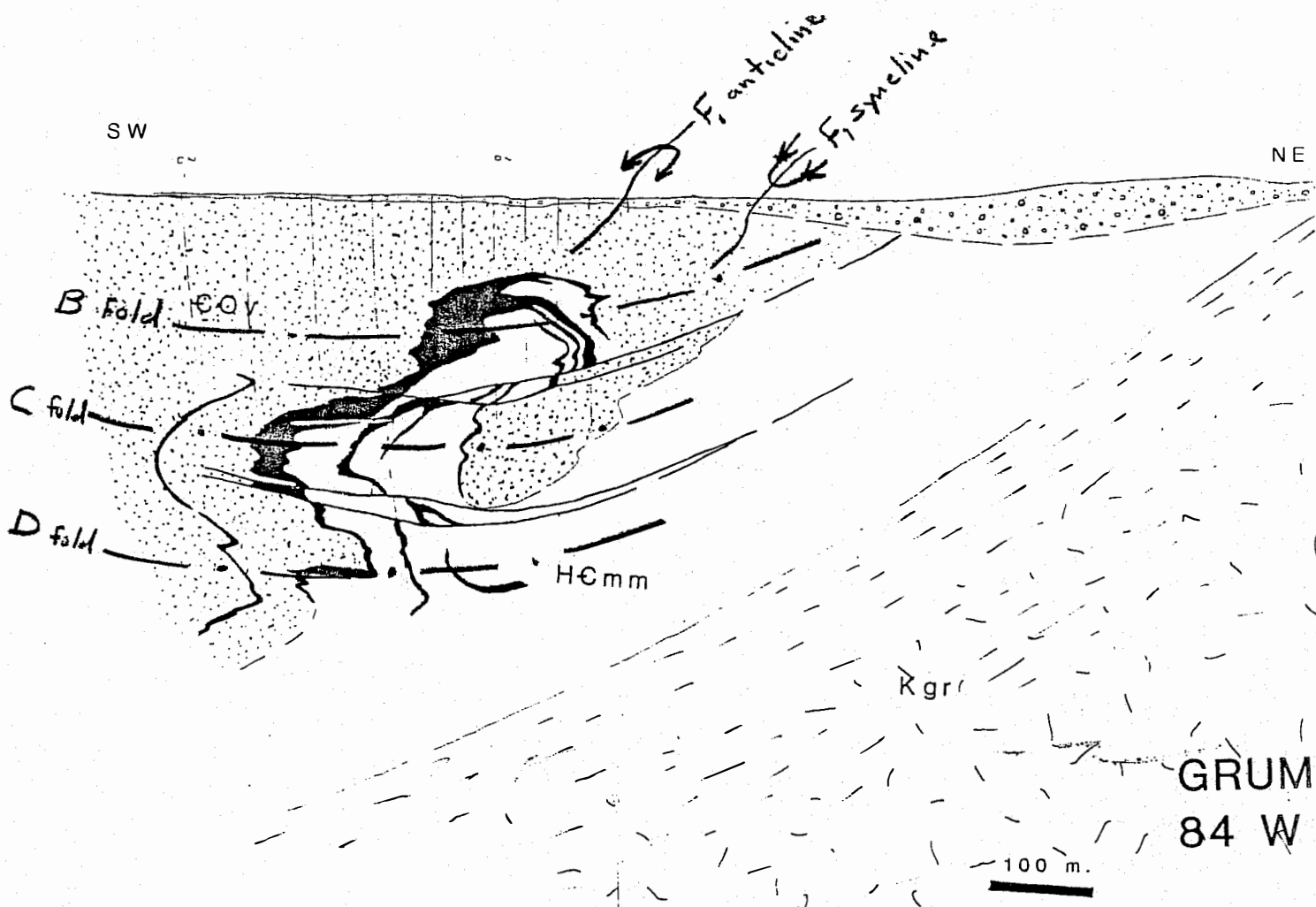
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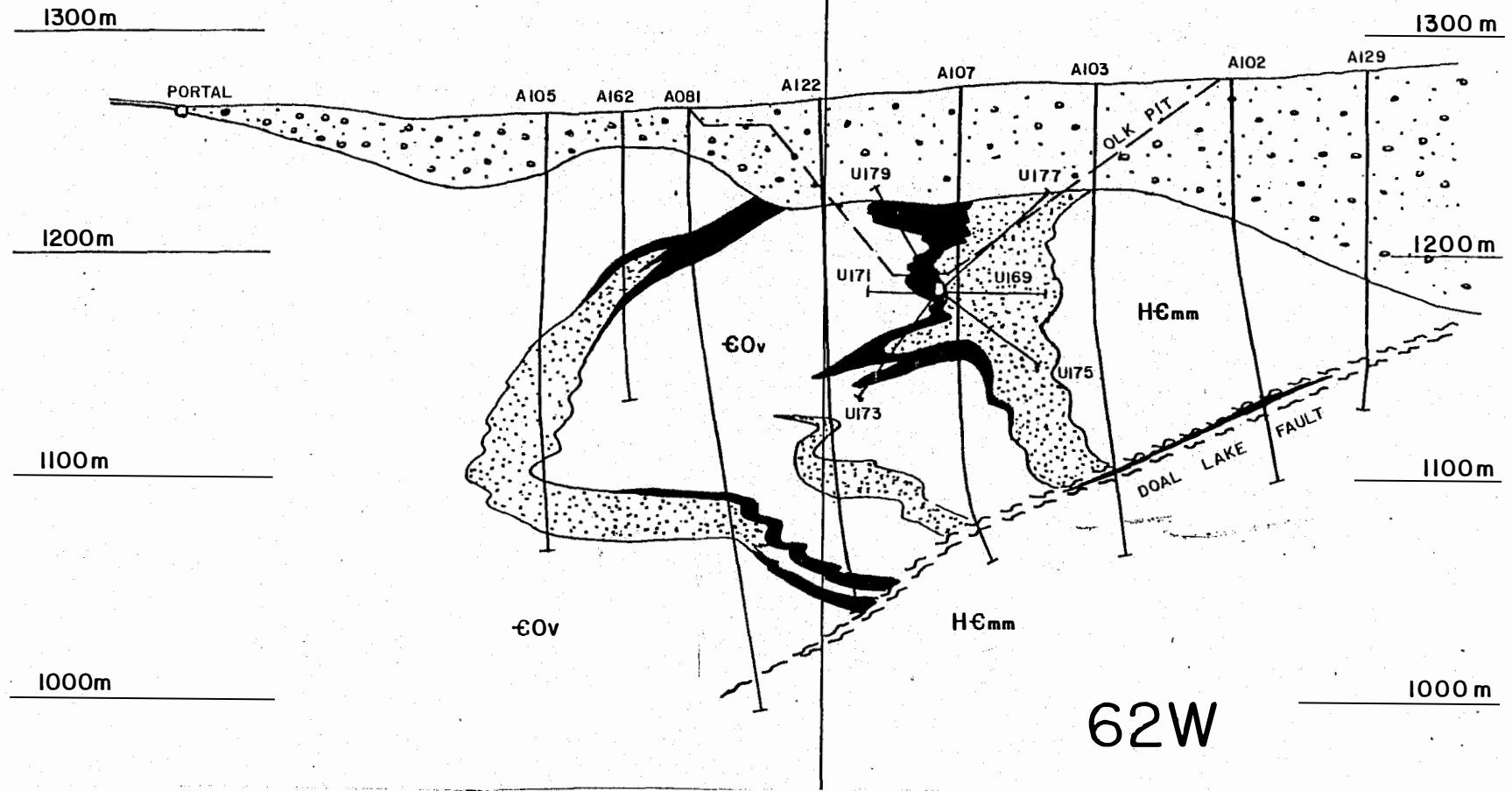


all sulphide lithofacies

SW

ON

NE



MASSIVE SULPHIDES



DISSEMINATED SULPHIDES



METRES

Rock strengths - compressive + tensile

water - in fault zones!

jointing

20° dipping foliation in phyllite

rock porosity

detailed jointing/foliation

any water info

rock strengths

JUNE - 85 → Bench plan phase for Grum

Now



FARD work
F4 MODEL

June 85



GRUM DEPOSIT

Grum Dump AREAS ?