815001

AMDEX MINING LIMITED -

AQUITAINE AUSTRALIA MINERALS PTY. LTD. JOINT VENTURE

ORE RESERVES, PIONEER TIN LEAD, NORTH-EAST TASMANIA

95-3708

Distribution:

S.N.E.A.(P.) Amdex (2)
Manager/Archives
Mining Development

By: R. Overton
Date: May 1979

MD· 50

1. INTRODUCTION

Systematic exploration by cable tool drilling of the Pioneer area commenced towards the middle of 1978. To date, over 70 holes have been completed, of which 37 have been used to calculate reserves within the lead. Although the lead appears to have been closed off, an extension to the west-south-west may exist. The project is managed by Amdex Mining Ltd. who have supplied all the drilling data.

2. FIELD TECHNIQUES

Two cable tool rigs are being used to drill vertical holes at Pioneer to below bedrock. Casing is pushed down in advance of the bit to minimise contamination. Cassiterite is recovered with a bailer. All the sample is collected for each 2m interval, the actual volume of sample measured and a concentrate for analysis produced by panning. The collar position is accurately surveyed for R.L. as well as easting and northing. Particularly in the latter part of the drilling the aim has been to drill on a square grid at 50m centres.

3. GEOLOGY

The deposit is found within Cainozoic sediments derived from a granite hinterland of considerable relief (the Devonian - Carboniferous Blue Tier Batholith) which is known to contain tin in part. The environment of the alluvium of the lead is thought to be infratidal/estuarine with considerable reworking of the tin, which is confined largely below the 55m R.L. (about 30m below surface). Abundant coarse gravel channels and current bedding are evident. Much of the tin is associated with coarse "birds-eye wash" - coarse quartz pebbles - near, but not on, the weathered granite basement. The tin occurs as fine grains of cassiterite in narrow, sandy beds of limited horizontal range, in essence making thin small stacked lenses. The thickness of the tin-bearing material does not exceed 10 m.

4. MATHEMATICAL MANIPULATION OF DATA

4.1 Re-calculation of Grades

Using the basic 2m assay information from drill logs (which incorporates a Radford factor of 0.8) and the survey information, grades and accumulations were re-calculated for 1m slices at integer R.L.'s above the bottom of each hole. It was found that the tin was restricted to below the 55m R.L., as below:-

1m slice between		Av. Grade	
53 - 54m	R.L.	0.515	$KgSnO_2/m^3$
54 - 55m	"	0.245	"
55 - 56m	"	0.151	"
56 - 57m	"	0.083	"
57 - 58m	"	0.060	"
58 - 59m	"	0.056	"

Since mining costs are about $1.10/m^3, a recovery is about 70%, and hence economic break even point is at about 0.2 $KgSnO_2/m^3$, ore can be considered as entirely below the 55m R.L.

4.2 Variogram

A variogram has been performed on accumulations of SnO_2 below 56m R.L., using distance units of 10m. (Fig. 1). One couple falls in the 20 - 30m class and all others are above. A regression analysis of the data indicates

VARIOGRAM

AQUITAINE AUST. - PIONEER PROSPECT - VARIOGRAMS - APRIL 1979
GENERAL VARIOGRAM - 10M CLASS SIZE - ACC. SN VALUES AT 56M RL

MEAN = .532E+01
VARIANCE = .438E+02
STANDARD DEVIATION = .662E+01
NO. OF SAMPLES = 48

CLASS SIZE = .100E+02
DISTANCE LIMIT = .200E+03
LOGARITHMS - NO

DISTANCE (USER UNITS)	NO. OF SAMPLES	DIFFERENCE	SECOND MOMENT	MOMENT CENTER	AVERAGE DISTANCE
0 ---- 10	0.	0.	0.	0.	0.0
10 ---- 20	0.	0.	0.	0.	0.0
20 ---- 30	1.	-.241E+01	.289E+01	.284E+01	26.9
30 ---- 40	7.	-.195E+00	.499E+02	.516E+02	35.7
40 ---- 50	18.	.268E+01	.245E+02	.235E+02	46.6
50 ---- 60	35.	.376E+01	.469E+02	.461E+02	52.8
60 ---- 70	8.	-.572E+01	.842E+02	.854E+02	64.5
70 ---- 80	17.	-.117E+01	.895E+02	.889E+02	72.7
80 ---- 90	19.	.114E+01	.308E+02	.305E+02	83.7
90 ---- 100	30.	.122E+01	.281E+02	.282E+02	95.6
100 ---- 110	50.	.123E+01	.637E+02	.627E+02	102.9
110 ---- 120	46.	.549E-02	.682E+02	.679E+02	113.0
120 ---- 130	19.	.531E+00	.359E+02	.362E+02	125.4
130 ---- 140	24.	-.273E+00	.251E+02	.252E+02	135.1
140 ---- 150	57.	-.554E-01	.459E+02	.460E+02	144.3
150 ---- 160	36.	-.302E+01	.579E+02	.579E+02	155.3
160 ---- 170	30.	-.323E+01	.602E+02	.606E+02	165.3
170 ---- 180	30.	-.172E+01	.436E+02	.435E+02	174.6
180 ---- 190	40.	-.329E+01	.538E+02	.538E+02	183.9
190 ---- 200	33.	.220E+00	.208E+02	.206E+02	195.5

FIGURE 1

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815005

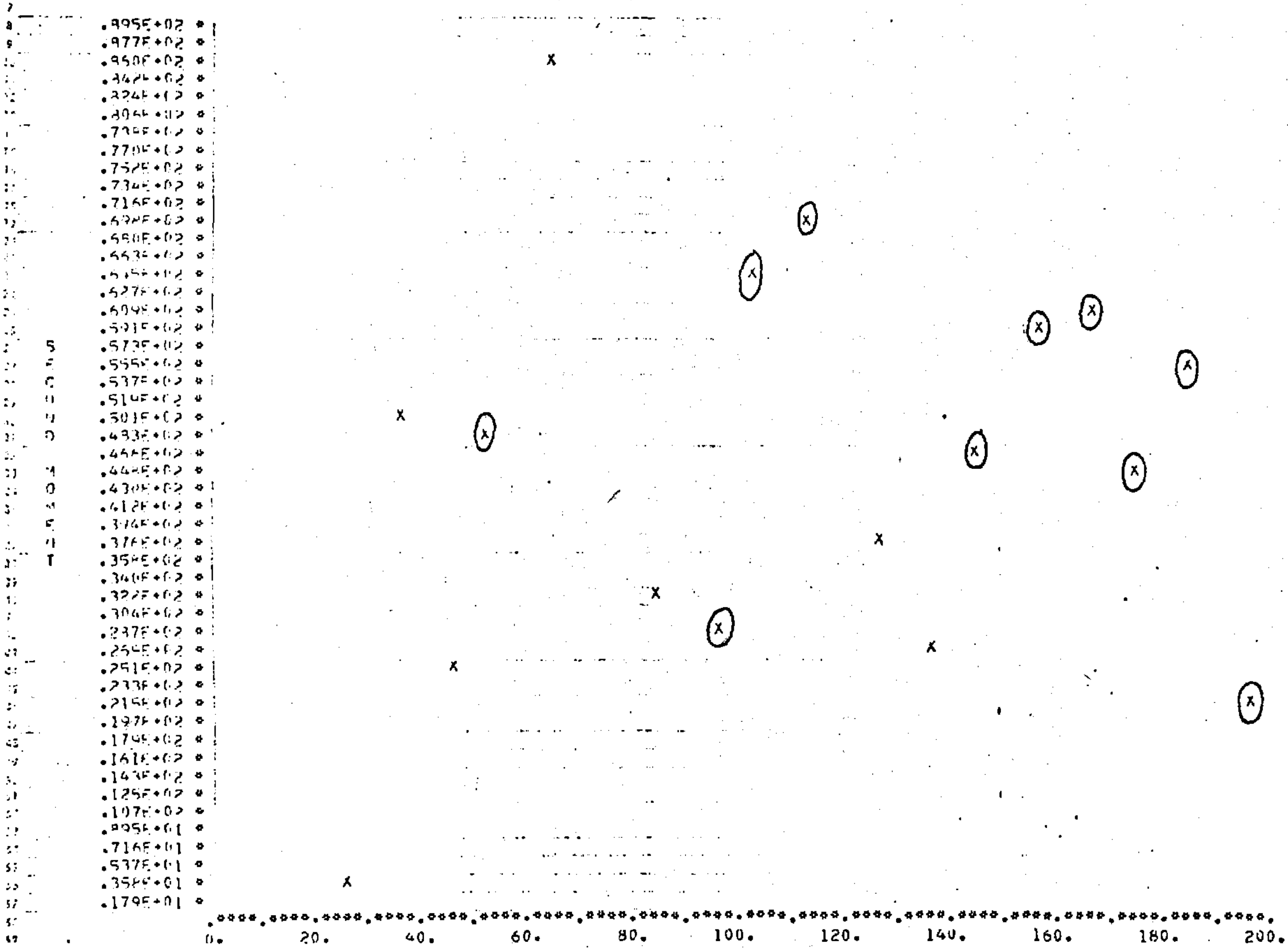
660 tons Cassiterite
3 million metres @ 0.22 -
Kg SnO_2

P3 3.95 m yds @ 0.37
c̄ cut batter .26 Kg /m³
0.44 lbs/yd³ -
2.5 million metres

50% higher due to drilling

VARIOGRAM

AQUITAINE AUST. - PIONEER PROSPECT - VARIOGRAMS - APRIL 1979
GENERAL VARIOGRAM - 10M CLASS SIZE - ACC. SN VALUES AT 56M RL.



815006

FIGURE 1A

STATISTICAL ANALYSIS PROGRAM MV203

AQUITAINE AUSTRALIA MINERALS PTY LTD - PIONEER PROSPECT - APRIL 1979
HISTOGRAM OF TIN ASSAYS - NORMAL DISTRIBUTION

NORMAL DISTRIBUTION

INTERVAL	FREQ	NSI	NST	XBAR	STDV	95CL	95CU	1 * = .25 OF 1 PCT.
0.0000- .0099	13.487	222.	1646.	.088	.149	.081	.096	***
.0100- .0199	16.586	273.	1424.	.101	.156	.093	.110	***
.0200- .0299	17.254	284.	1151.	.122	.167	.112	.132	***
.0300- .0399	9.781	161.	867.	.154	.182	.142	.166	***************************************
.0400- .0499	6.075	100.	706.	.181	.192	.167	.195	************************
.0500- .0599	4.800	79.	606.	.203	.198	.187	.219	*******************
.0600- .0699	4.435	73.	527.	.225	.203	.208	.243	*****************
.0700- .0799	2.734	45.	454.	.251	.208	.232	.270	**********
.0800- .0899	2.248	37.	409.	.271	.210	.250	.291	********
.0900- .0999	1.701	28.	372.	.289	.212	.268	.311	******
.1000- .1099	2.126	35.	344.	.305	.213	.282	.327	********
.1100- .1199	1.397	23.	309.	.328	.213	.304	.351	*****
.1200- .1299	.547	9.	286.	.345	.212	.320	.369	**
.1300- .1399	.729	12.	277.	.352	.212	.327	.377	**
.1400- .1499	1.276	21.	265.	.362	.211	.336	.387	*****
.1500- .1599	.851	14.	244.	.380	.210	.354	.407	***
.1600- .1699	.729	12.	230.	.394	.209	.367	.421	**
.1700- .1799	.547	9.	218.	.407	.207	.379	.434	**
.1800- .1899	.243	4.	209.	.417	.206	.388	.445	
.1900- .1999	.365	6.	205.	.421	.205	.393	.449	*
.2000- .2099	.547	9.	199.	.428	.204	.399	.456	**
.2100- .2199	.425	7.	190.	.438	.203	.409	.467	*
.2200- .2299	.608	10.	183.	.447	.202	.417	.476	**
.2300- .2399	.243	4.	173.	.460	.200	.430	.490	
.2400- .2499	.304	5.	169.	.465	.200	.435	.495	*
.2500- .2599	.608	10.	164.	.472	.199	.441	.503	**
.2600- .2699	.365	6.	154.	.486	.197	.455	.517	*
.2700- .2799	.243	4.	148.	.495	.196	.463	.527	
.2800- .2899	.608	10.	144.	.501	.195	.469	.533	**
.2900- .2999	.061	1.	134.	.517	.193	.484	.550	
.3000- .3099	.304	5.	133.	.519	.193	.486	.552	*
.3100- .3199	.122	2.	128.	.527	.192	.494	.561	
.3200- .3299	.243	4.	126.	.530	.191	.497	.564	
.3300- .3399	.365	6.	122.	.537	.191	.503	.571	*
.3400- .3499	.243	4.	116.	.548	.190	.513	.583	
.3500- .3599	.486	8.	112.	.555	.189	.520	.590	*
.3600- .3699	.608	10.	104.	.570	.188	.534	.607	**
.3700- .3799	.365	6.	94.	.592	.184	.554	.630	*
.3800- .3899	.243	4.	88.	.607	.181	.569	.645	
.3900- .3999	.122	2.	84.	.617	.179	.579	.656	
.4000- .4099	.182	3.	82.	.623	.177	.584	.662	
.4100- .4199	.243	4.	79.	.631	.175	.592	.670	
.4200- .4299	.122	2.	75.	.643	.172	.603	.682	
.4300- .4399	.243	4.	73.	.649	.171	.609	.689	
.4400- .4499	.182	3.	69.	.661	.168	.621	.701	
.4500- .4599	.182	3.	66.	.671	.165	.630	.711	
.4600- .4699	.182	3.	63.	.681	.161	.641	.722	

815007

FIGURE 2

that there is no relationship between grade (accumulation) and distance between samples at the scale of sampling. Geological investigations in the pit also lead one to believe the tin distribution is a short range phenomenon. $\gamma(h)$ values of the variogram fall off over 200m and show that these samples lie outside the orebody.

4.3 Histogram

A histogram of 1m. samples from the drill holes was prepared by computer (Fig. 2). There is a clear bi-modal distribution with waste samples having an average value of about 0.025 $KgSnO_2/m^3$ and ore samples well above. It is not known if the distribution of values is log normal or not.

4.4 Ore Reserve Calculation

Using a lateral cut-off of 3.78 $KgSnO_2/m^2$ for ore below 55m., 4.38 $KgSnO_2/m^2$ for ore below 60m and linear interpolation, a limit of economic ore was defined. This area is defined by a polygon with the following corner coordinates:-

PIONEER, N.E. TASMANIA

POLYGON ENVELOPE COORDINATES

	N	E
A	52796N	77095E
B	52698N	77374E
C	52638N	77376E
D	52599N	77344E
E	52513N	77339E
F	52495N	77321E
G	52496N	77239E
H	52541N	77232E
I	52568N	77125E

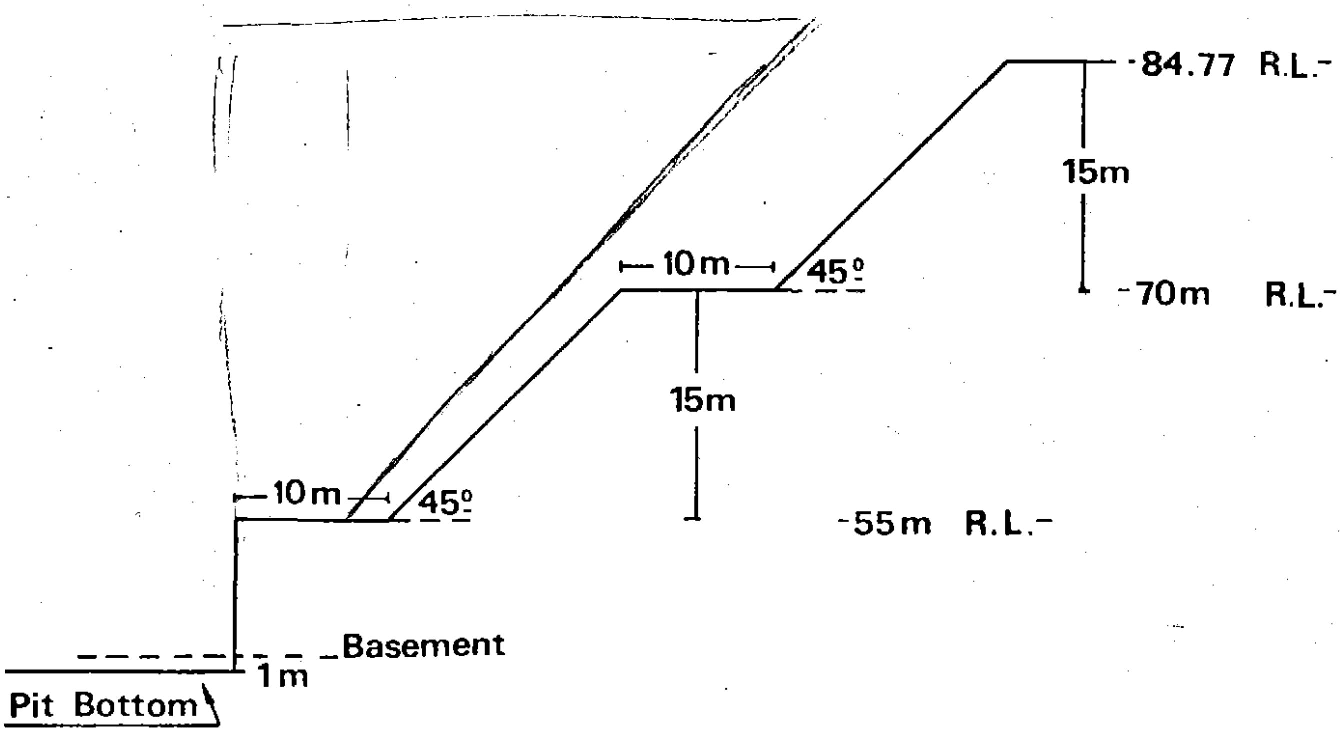
Cont'd./.....

Cont'd.	J	52613N	77020E
	K	52657N	76959E
	L	52727N	76953E
	M	52749N	77004E
	N	52782N	77018E

Using CDC Mineval (Polygon) programme, polygons were generated within this envelope (Fig. 3) and accumulations of vertical volume and SnO_2 were calculated above basement. In all calculations, SnO_2 was accumulated from the bottom of the hole. It has been assumed that 1m throughout of basement will be mined. The pit outline is shown as in the attached figure. The applied pit geometry is as in Figure 4.

The following figures have been calculated:-

Area of enveloping pit polygon	:	78,731.8m^2
Volume of polygon below 55m . R.L.	:	691,518.6m^3
Average depth of basement	:	47.22m. R.L.
Average height of surface	:	84.77m. R.L.
Volume of proposed pit	:	3,975,471.7m^3
Average grade of SnO_2 below 60m R.L., distributed throughout pit	:	02162 KgSnO_2/m^3



PIONEER Project

Proposed Pit Profile

R. Overton	May 79	Reg. No. 16 774	Fig 4
Drafting	Report No. M.D. 50	Base Plan	

	KgSnO$_2$ in slice	Accum. Kg SnO$_2$	Accum. Grade* (Polygonal)	Accum. Grade* (Average)
<55	622,123.4	622,123.4	0.900	0.746
-56	12,752.0	634,875.4	0.824	0.684
-57	6,944.7	641,820.1	0.756	0.629
-58	5,214.2	647,034.3	0.698	0.580
-59	4,658.4	651,692.7	0.648	0.540
-60	4,441.2	656,133.9	0.605	0.505

*Footnote

An explanation of grades is required. Because the distribution of tin is random, drill holes should not have a specific area or volume of influence; however, the boundary conditions of the enveloping polygon are such that it is difficult to know how to weight marginal holes (which, because of the nature of the orebody, are low grade) to indicate the correct influence. Hence, because the drilling to date has given rise to polygons of more or less equal area, actual grades encountered should be between polygonal and average grades (the grades taken with no areal weighting) and closer to polygonal grades. It should also be stressed that the positioning of the 10m wide bench, which here is at the 55m R.L., would depend finally on economic factors.

Volumes of ore and waste are as follows:-

	Volume of Ore, m^3	Volume of Waste, m^3	Stripping Ratio Ore : Waste
E <55m. RL	691,518.6	3,283,953.1	1 : 4.749
< 56	780,652.4	3,194,819.3	1 : 4.093
< 57	870,800.2	3,104,671.5	1 : 3.565
< 58	961,962.0	3,013,509.7	1 : 3.133
< 59	1,054,137.8	2,921,333.9	1 : 2.771
< 60	1,114,327.6	2,828,144.1	1 : 2.465

These volumes assume no removal inside the polygon to date, but assume the eastern end of the lead to be open.

NED OVERTON

April, 1979

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95-3708

Fig 3

APRIL 1979 | POLYGON PLOT

AQUITAINE - AMDEX MINING
PIONEER PROJECT
ORE RESERVE POLYGON &
PROPOSED PIT OUTLINE

SCALE 1 TO 1000 M.D. 50 Dwg 16 775

COMPUTING ASSOCIATES, INC. TUCSON, DENVER - USA