

**CHEM FILE**

<b>MINES</b>	
File Ref.	
13 AUG 1987	
Doc. Ref.	
Action Officer	Initials
REFERS TO	
5.8.87	
(Doc Ref. 388)	
Resubmit to	Date

899001

BILLITON AUSTRALIA, THE METALS DIVISION OF  
THE SHELL COMPANY OF AUSTRALIA LIMITED

SCAMANDER, EL 12/78

COMPARISON OF ANALYTICAL DATA FROM BULK  
AND THEIR EQUIVALENT CHANNEL SAMPLES  
AT THE GREAT PYRAMID TIN PROSPECT

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Report No.: 08.2958  
Copy No.:

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SUMMARY

Preliminary work on bulk samples taken at Great Pyramid suggested that the analytical data obtained from channel samples may have resulted in an under-estimation of the grade of the deposit.

To investigate this possibility, fourteen bulk samples (each +500 kgms) were collected, prepared and analysed. Results from three laboratories were compared and contrasted to those obtained from channel samples which were taken at the same sites as the bulks. No significant differences were noted between the two data sets.

## 1. INTRODUCTION

Since the late 1960s, Aberfoyle, BHP and Shell have jointly or individually been assessing the Great Pyramid tin deposit. Each of these companies recognised that the grade of the deposit was one of the most critical factors in evaluating the economic potential of the resource.

Early efforts by the Mines Department (Table 1) to determine the viability of the project by establishing recovery rates, were done on material with tin grades well above the average (0.22%) calculated by Shell (Hall D.B., 1984).

Aberfoyle, in 1971, and BHP/Shell in 1983, completed basic recovery tests on more representative material. In Aberfoyle's tests, a 72 kgm composite sample of percussion drill chips, assaying 0.296% Sn, achieved a 63.5% recovery in a concentrate containing 47.6% Sn. BHP/Shell obtained a 54.5% recovery of a 53% Sn concentrate from a 546.7 kgm sample assaying 0.22% Sn. However, each of these companies expressed doubt as to what was a truly representative sample from the deposit. Discrepancies were continually noted when comparing analytical data between adjacent percussion and diamond drill holes as well as between a few bulk and their corresponding channel samples. This was highlighted early in 1984 when Shell conducted a series of recovery tests on a bulk sample which, according to earlier geochemical results from channel samples, should have contained 0.25% Sn. However, after analysing all the products of this test, the grade of the initial sample was calculated to be 0.414% Sn. Because the initial split on this sample was carried out on 10 cm material, a grain size well above the liberation size of the cassiterite, some doubts were expressed as to the reliability of the result. Nevertheless, it was considered possible that the smaller  $\pm 5$  kgm samples, taken as channels or from drill holes, may not have been sufficiently large to indicate the tin grade at any particular location. It was therefore proposed to collect a number of bulk samples (about 500 kgm each) at various sites, and compare the results from those obtained from channel samples taken at the same location.

## 2. SAMPLE LOCATIONS

Sample sites were selected so that data would be available from areas with a variety of tin grades and rock types (Fig. 2). However, the majority of

samples were taken from areas of predominantly sandstone/quartzite, with tin grades thought to be in the 0.15-0.3% range (Table 2).

### 3. SAMPLING PROCEDURES

Due to the nature of the sampling (jack hammers underground), Mines Department approval was necessary before any sampling was possible. Most of the adit entrances required some attention, while poor ground conditions in two of the tunnels forced some of the originally selected sites to be abandoned.

Most of the bulk sample sites corresponded to well marked channel sample sites. Where comparative channels were not available, but grades known from drill hole data, the channel and bulk samples were taken consecutively from the same location.

Each bulk sample was collected on a ground sheet and loaded into 200 litre drums for shipment to the laboratory.

### 4. SAMPLE PREPARATION

In an attempt to avoid any possible nugget effects, the following sample preparation route was requested from the laboratory:

1. Crush jaw crusher.
2. Jaw crusher discharge crush in roll crusher
3. Split roll crusher discharge on 10 way rotary splitter
4. Combine 2x10 way splits (100 kgs)
5. Re-split 10 ways
6. Take 1x10 kg split
7. Crush to -2 mm
8. Re-split 10 ways
9. Assay for Sn in triplicate : 1 Mineral Deposits (AAS)  
1 Comlabs (XRF)  
1 Amdel (XRF)

In addition, a second 100 kgm split (step 4) was collected for three of the samples (numbers 2b, 3b, 6b) and prepared for analysis using the same procedure.

A report on this work (Appendix I) indicates that the agreed sample flowsheet was not initially followed. According to the report, after initial crushing, the -8 mm fraction passed directly to the rotary divider prior to further size reduction by the roll crusher. As a result, the laboratory was required to process all the samples again ensuring that all material passed through the roll crusher prior to splitting and subsequent analysis.

## 5. RESULTS

Analytical results from the two sets of data are, to all intents and purposes, identical. Table 3 lists the results from the samples not passed through to roll crusher while Table 4 lists the data from those which did pass through the crusher.

While there are some discrepancies, in general the analytical results from the bulks are similar to those of the corresponding channel samples. Samples 1 and 7 are clearly anomalous and the sharp variation from the rest of the data suggests there may have been an original error in sample preparation or in sample location.

The majority of the data indicates that there is no significant difference between results gained from the larger and smaller samples. No indication of any significant assay variation due to nugget effect is indicated, with the three final subsets within each sample giving almost identical analyses within each of the three laboratories. In addition, the 100 kgm subsamples for samples 2, 3 and 6 gave results almost identical to those of the original.

The accuracy of the analyses is considered to be high, since the data from the three laboratories for any given sample are virtually the same.

6. CONCLUSIONS

The data indicates that there is no significant difference in analytical results between the bulk samples (each about 500 kgms) and their equivalent channel samples (each about 5 kgm). As a consequence of this, it can be concluded that a large scale programme of bulk sampling over the deposit would not give significantly different analytical results to those already obtained from the channel and rock sampling.

It is therefore suggested that results from an additional bulk sampling programme are unlikely to significantly alter the average grade figures used in the present ore reserve estimate.

Reference

Hall, D.B., 1984, Great Pyramid, Preliminary Resource Estimates 1983-4 (Shell  
Rep. 08.2959)

*See TCR 86-2532*

TABLE 1 : HISTORICAL METALLURGICAL TESTS

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DATE	COMPANY	WORK COMPLETED	RESULTS	RECOVERIES (%)	CONCENTRATE (% Sn)	ORIGINAL GRADE (% Sn)	SAMPLE WEIGHT
1945	Mines Dept.	Size analysis	73% of -3 mm crushing measured -1.7 mm 48% of -3 mm crushing measured -0.5 mm Free SnO <sub>2</sub> in all -0.7 mm fractions.			0.64	
		Gravity concentration	-420 μm : -250 μm : -180 μm :	78.6 80.6 80.2	22.0 27.0 27.0		? Composite of 2 samples
1945	Mines Dept.	Size analysis Floatation	2 lbs Cetynal/ton+pine oil 3 lbs Cetynal/ton+pine oil	72.8-81.8 81.1-85.8	6.4-11.1 8(?)	0.64	as above
1963	Mines Dept.	Gravity concentration	a) Initial grind Initial grid & regrinding +250 μm tailings above and +150 μm tailings  b) Initial grind above & +250 μm tailings above & +150 μm tailings  c) Initial grind above & +250 μm tailings above & +150 μm tailings	79.26 84.55 87.05  73.81 77.25 79.76  60.59 66.61 71.37	61.6 59.7 59.0  50.5 48.9 46.9  46.9 43.8 41.3	2.17    0.76    0.47	1216 lbs    1316 lbs    676 lbs

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DATE	COMPANY	WORK COMPLETED	RESULTS	RECOVERIES (%)	CONCENTRATE (% Sn)	ORIGINAL GRADE (% Sn)	SAMPLE WEIGHT
1971	Aberfoyle	Size analysis Gravity concentration Magnetic separation	32% Sn in -850+500 $\mu\text{m}$ , 33% in -500+300 $\mu\text{m}$ . Various results from work on size fractions. Removed impurities - "necessary phase of the treatment".	63.5	47.6	0.29	140 lbs (percussion drill chips)
1983	Shell/BHP	Size analysis Heavy liquid tests : Cassiterite grain analysis Magnetic separation Gravity concentration	47% Sn in -300+75 $\mu\text{m}$ range Liberation commences in +3.18 mm fraction. 2.95 t/m <sup>3</sup> : 1mm particle size necessary for effective pre-concentration 2.7 t/m <sup>3</sup> : as above 90% cassiterite suitable for gravity separation. High density iron minerals - necessary phase of operation. Results from several size fractions.	sink 73.0		0.22 1.30 0.22	546.7 kgs (composite)
1984	Shell	Size Analysis Hydrosizing Spiral Tests Gravity concentration Magnetic separation	54% Sn in -300 to +125 $\mu\text{m}$ +20% total Sn liberated at -0.4 mm Coarse:86% Sn from 22% of original feed Medium:90% Sn from 29% of original feed Concentrate, middling, tail results given Results in increased concentrate grade	43	48	0.414 (calculated)	2 tonnes

TABLE 2

## BULK SAMPLING DETAILS

No.	<u>Location/Adit</u>	<u>Distance from Portal (m)</u>	<u>Level (ASL)</u>	<u>Grade % Sn</u>	<u>Lithology</u>
<u>Adit Samples</u>					
BSS 1	N*	14	195	0.5%	Qtz
BSS 2	N#	54.0-55.8	195	0.22%	Sst/stt
BSS 3	N#	70.0-71.5	195	0.145%	Shale
BSS 4	E	40.0-42.0	185	0.1%	Qtz
BSS 5	F	9.0-10.0	185	0.15%	Sst/shale
BSS 6	C#	11.0-13.5	185	0.32%	Sst/shale
BSS 7	2SLL*	40	140	0.65%	Qtz
BSS 8	2NLL	54	165	0.33%	Sst + Qtz
BSS 9	2NLL	22	165	0.3%	Qtz/shale
BSS 10	2NLL	82	165	0.23%	Qtz + shale
BSS 11	1SLL**	48.6-51.2	145	0.28%	Sst/shale

Surface Samples

BSS 12		390E 185N	175	0.3%	Sst/Qtz
BSS 13	Near BPD 10	360E 155N	165	0.1%	Sst/Qtz
BSS 14		315E 285N	180	0.1%	Qtz

\* BHP Bulk sample site.

\*\* Billiton sample from earlier sampling programme.

# Prepared in duplicate by Mineral Deposits Ltd.

Qtz = quartzite, Sst = sandstone, stt = siltstone

TABLE 3 : ANALYTICAL RESULTS (only +8 mm portion through roll mill)

SAMPLE NUMBER	BHP BULK (%Sn)	COMLABS (%Sn)**				AMDEL (%Sn)**				MINDEPS (%Sn)*				CHANNEL (%Sn)
		1	2	3	Average	1	2	3	Average	1	2	3	Average	
1	0.5	-	-	-	-	-	-	-	-	-	-	-	-	0.29
2a	-	0.100	0.105	0.110	0.105	0.114	0.108	0.112	0.111	0.107	0.092	0.096	0.098	0.22
2b	-	0.105	0.105	0.105	0.105	0.114	0.112	0.104	0.110	0.091	0.084	0.083	0.086	-
3a	-	0.018	0.019	0.019	0.019	0.018	0.021	0.018	0.019	0.025	0.015	0.015	0.018	0.145
3b	-	0.018	0.017	0.017	0.018	0.018	0.021	0.018	0.019	0.025	0.015	0.015	0.018	-
4	-	0.185	0.205	0.200	0.197	0.198	0.220	0.204	0.207	0.212	0.182	0.192	0.197	0.13
5	-	0.260	0.260	0.270	0.263	0.298	0.288	0.268	0.285	0.258	0.228	0.236	0.241	0.25
6a	-	0.240	0.240	0.250	0.243	0.254	0.248	0.256	0.253	0.231	0.214	0.225	0.223	0.32
6b	-	0.245	0.240	0.230	0.238	0.260	0.244	0.236	0.247	0.235	0.218	0.219	0.224	-
7	0.65	-	-	-	-	-	-	-	-	-	-	-	-	0.37
8	-	0.315	0.315	0.300	0.310	0.346	0.382	0.346	0.358	0.290	0.251	0.262	0.267	0.33
9	-	0.240	0.250	0.240	0.243	0.242	0.262	0.258	0.254	0.257	0.207	0.224	0.229	0.30
10	-	0.155	0.160	0.160	0.158	0.172	0.180	0.186	0.179	0.178	0.151	0.157	0.162	0.23
11	-	0.360	0.360	0.410	0.377	0.388	0.360	0.354	0.367	0.315	0.298	0.306	0.306	0.28
12	-	0.240	0.225	0.220	0.228	0.280	0.280	0.285	0.282	0.279	0.250	0.250	0.260	0.232
13	-	0.260	0.275	0.260	0.265	0.266	0.268	0.288	0.274	0.243	0.224	0.227	0.231	0.335
14	-	0.009	0.009	0.009	0.009	0.011	0.010	0.010	0.010	0.016	0.016	0.015	0.016	0.0115

\* analysis by atomic absorption spectrophotometry

\*\* analysis by x-ray fluorescence

TABLE 4 : ANALYTICAL RESULTS (entire sample through roll mill)

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ASSAYS %SN:

COMLABS

SAMPLE	MDL			AMDEL			COMLABS			MDL	AMDEL	COMLABS
	1	2	3	1	2	3	1	2	3	AVGE	AVGE	AVGE
BSS 2A	.101	.097	.090	.108	.112	.110	.110	.100	.105	.096	.110	.105
BSS 2B	.091	.094	.090	.114	.112	.112	.110	.110	.100	.092	.113	.107
BSS 3A	.015	.010	.015	.018	.019	.020	.017	.015	.016	.013	.019	.016
BSS 3B	.010	.010	.010	.018	.020	.020	.017	.017	.015	.010	.019	.016
BSS 4	.194	.189	.188	.220	.208	.222	.205	.205	.195	.190	.217	.202
BSS 5	.295	.278	.275	.284	.308	.282	.260	.280	.270	.283	.291	.270
BSS 6A	.242	.228	.230	.258	.268	.246	.230	.225	.235	.233	.257	.230
BSS 6B	.232	.210	.211	.250	.246	.246	.220	.215	.220	.218	.247	.218
BSS 8	.265	.263	.245	.310	.302	.288	.305	.305	.305	.258	.300	.305
BSS 9	.243	.223	.224	.238	.230	.258	.225	.235	.235	.230	.242	.237
BSS 10	.176	.169	.174	.174	.144	.178	.175	.165	.165	.173	.165	.168
BSS 11	.370	.336	.333	.332	.332	.358	.315	.335	.330	.346	.341	.327
BSS 12	.237	.225	.224	.232	.264	.258	.230	.240	.230	.229	.251	.233
BSS 13	.267	.247	.249	.266	.254	.260	.265	.235	.235	.254	.260	.245
BSS 14	.012	.010	.010	.010	.010	.010	.010	.010	.011	.011	.010	.010

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APPENDIX I

Report on Preparation and Analysis of  
Samples from Tasmania

by Mineral Deposits Limited

**THE SHELL COMPANY OF AUSTRALIA LIMITED**

**REPORT NO. 16.020.1/2**

**REPORT ON PREPARATION AND ANALYSIS**

**OF SAMPLES FROM TASMANIA**

**MINERAL DEPOSITS LIMITED**

**MINERAL TECHNOLOGY DIVISION**

**BUNDALL - QUEENSLAND**

**AUSTRALIA**

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## 1.0 INTRODUCTION

### 1.1 MATERIAL

The samples as received consisted of damp, lump ore in 200 litre drums. Twelve samples, each weighing about 500 kg, were received, labelled BSS 2, BSS 3, BSS 4, BSS 5, BSS 8, BSS 9, BSS 10, BSS 12, BSS 13, BSS 14, C.ADIT and 1 SLL. Samples C.ADIT and 1 SLL were subsequently renumbered BSS 6 and BSS 11 respectively.

### 1.2 OBJECTIVES

The samples were to be processed to give representative sub-samples for tin assay. Sub-samples were to be analysed by two independent laboratories by X-ray fluorescence (XRF) techniques, and by Mineral Deposits Limited (MDL) by atomic absorption (AA) spectrophotometry.

One hundred kilogram sub-samples of each sample were to be retained for further treatment if required. The full sample treatment flowsheet is given in Section 3.1.

### 1.3 TERMS OF REFERENCE

1.3.1 Telex from Mr. M. V. Atfield, MDL, to Mr. Derek Carter, Shell - STX 1274/84 of August 28, 1984.

1.3.2 Telex from Mr. Derek Carter, Shell, to Mr. M. V. Atfield, MDL - November 29, 1984.

1.3.3 Telex from Mr. M. V. Atfield, MDL, to Mr. Derek Carter, Shell - STX 3523/84 of December 18, 1984.

1.3.4 Telex from Mr. Derek Carter, Shell, to Mr. Peter Mills, MDL - January 21, 1985.

## 1.4 SUMMARY

Table 1 shows average results from the three laboratories:

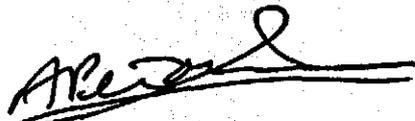
TABLE 1: Average % Sn in Sub-Sample

SAMPLE	MDL	AMDEL	COMLABS
BSS 2	0.098	0.111	0.105
BSS 2	0.086	0.110	0.105
BSS 3	0.018	0.019	0.019
BSS 3	0.018	0.019	0.017
BSS 4	0.197	0.207	0.197
BSS 5	0.241	0.285	0.263
BSS 6	0.223	0.253	0.243
BSS 6	0.224	0.247	0.238
BSS 8	0.267	0.358	0.310
BSS 9	0.229	0.254	0.243
BSS 10	0.162	0.179	0.158
BSS 11	0.306	0.367	0.377
BSS 12	0.260	0.282	0.228
BSS 13	0.231	0.274	0.265
BSS 14	0.016	0.010	0.009

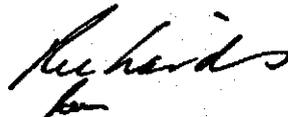
## 1.5 CONCLUSIONS

- 1.5.1 MDL assays are generally lower than the other two, except for very low concentrations of tin.
- 1.5.2 In most cases, the difference between MDL and Comlabs assays is comparable with the difference between Comlabs and Amdel assays.
- 1.5.3 Amdel assays are highest in all but one case.
- 1.5.4 MDL assays are lowest in all but four cases.

1.5.5 Considering the accuracy and reliability of the XRF assays, MDL results can be used to give a conservative estimate of the tin content of the samples.



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April 12, 1985.

## 2.0 TEST EQUIPMENT

### 2.1 MACHINES

For primary crushing, a jaw crusher was used followed by an 8mm square aperture woven wire screen with screen oversize crushed in a roll crusher.

A special 10-way rotary divider was used to give 50 kg splits of each sample, and 100 kg sub-samples were obtained by combining two 50 kg splits.

A small jaw crusher was used to crush to -2mm, all material being hand-sieved to ensure it passed this size. Oversize was recrushed.

### 2.2 TEST RIGS

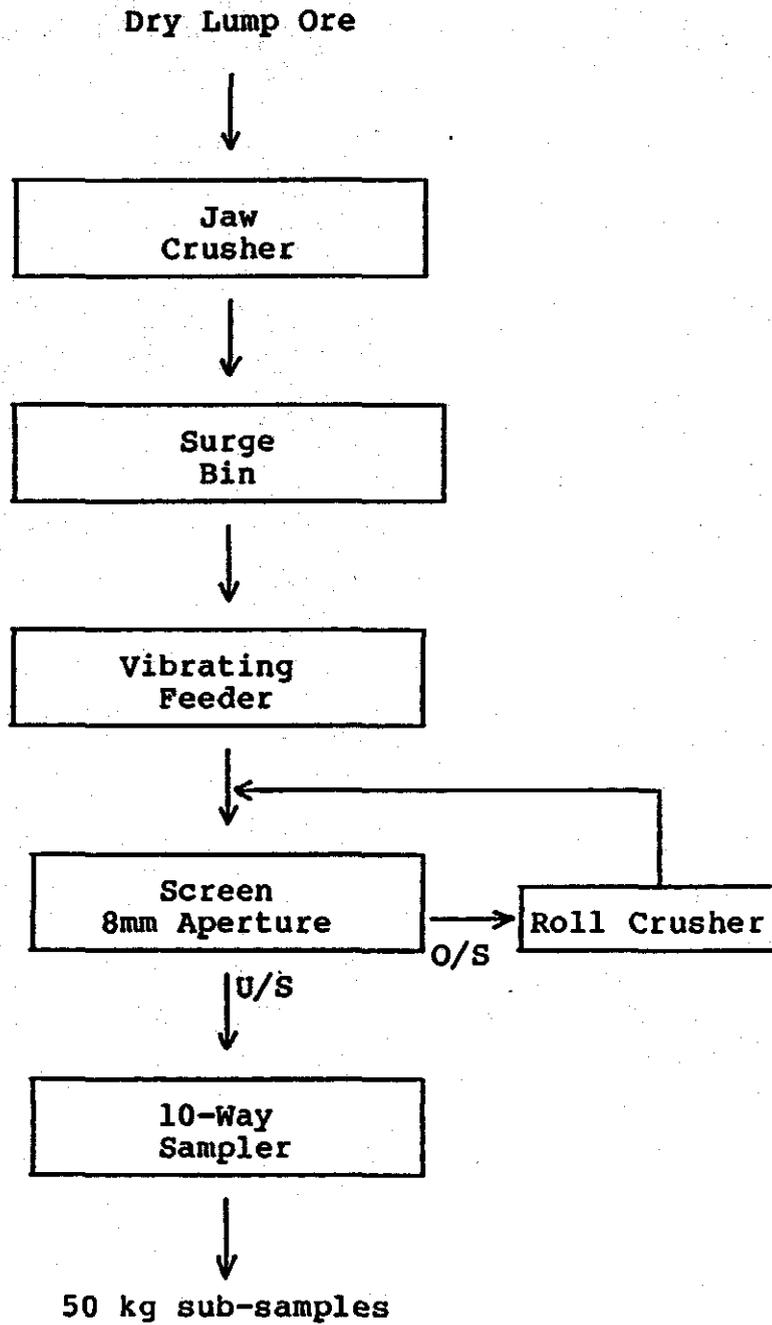
The jaw crusher, screen, roll crusher and 10-way sampler were set up in the circuit shown in Figure 1, and each 500 kg sample processed in turn. The remainder of the sample treatment was handled as a batch operation.

### 2.3 ANALYTICAL SYSTEMS

A final 1.25 kg sub-sample from each sample was assayed by standard AA spectrophotometry techniques at MDL's laboratory. The method consisted of pulverisation of the sample, then ammonium iodide sublimation followed by dissolution in hydrochloric acid. The spectrophotometer used was a Techtron AA-5.

The two independent laboratories were Australian Mineral Development Laboratories (Amdel) and Comlabs, both of Adelaide, S.A. XRF analyses were performed by the pressed powder method, whereby the sample is pulverised and pressed into a pellet in a carrying medium, for presentation to the X-ray beam.

FIGURE 1: Sample Crushing Flowsheet



### 3.1 PROCEDURES

Figure 2 (following) shows the sample treatment procedure in flowsheet form. At the stage of producing 100 kg splits from the preliminary crushing, samples BSS 2, BSS 3 and BSS 6 were treated in duplicate; i.e. two separate 100 kg splits were taken of each for further treatment.

The final subdivision of the ground sample was carried out to eight ways in a riffle, rather than ten ways as had been done earlier in the sample treatment. The selection of three sub-samples for analysis was done at random. Each sub-sample was analysed in triplicate by the methods mentioned in Section 2.3.

### 3.2 RESULTS

Table 2 (following) gives the complete set of assay results.

### 3.3 DISCUSSION

The AA technique used by MDL has an accuracy of  $\pm 10\%$  relative. The XRF methods employed by Amdel and Comlabs have an accuracy of  $\pm 5\%$  relative. This suggests that the results are reasonably consistent between laboratories, and the results obtained by MDL give a conservative estimate of the grades of tin present in the samples.

FIGURE 2: Sample Treatment and Preparation Flowsheet

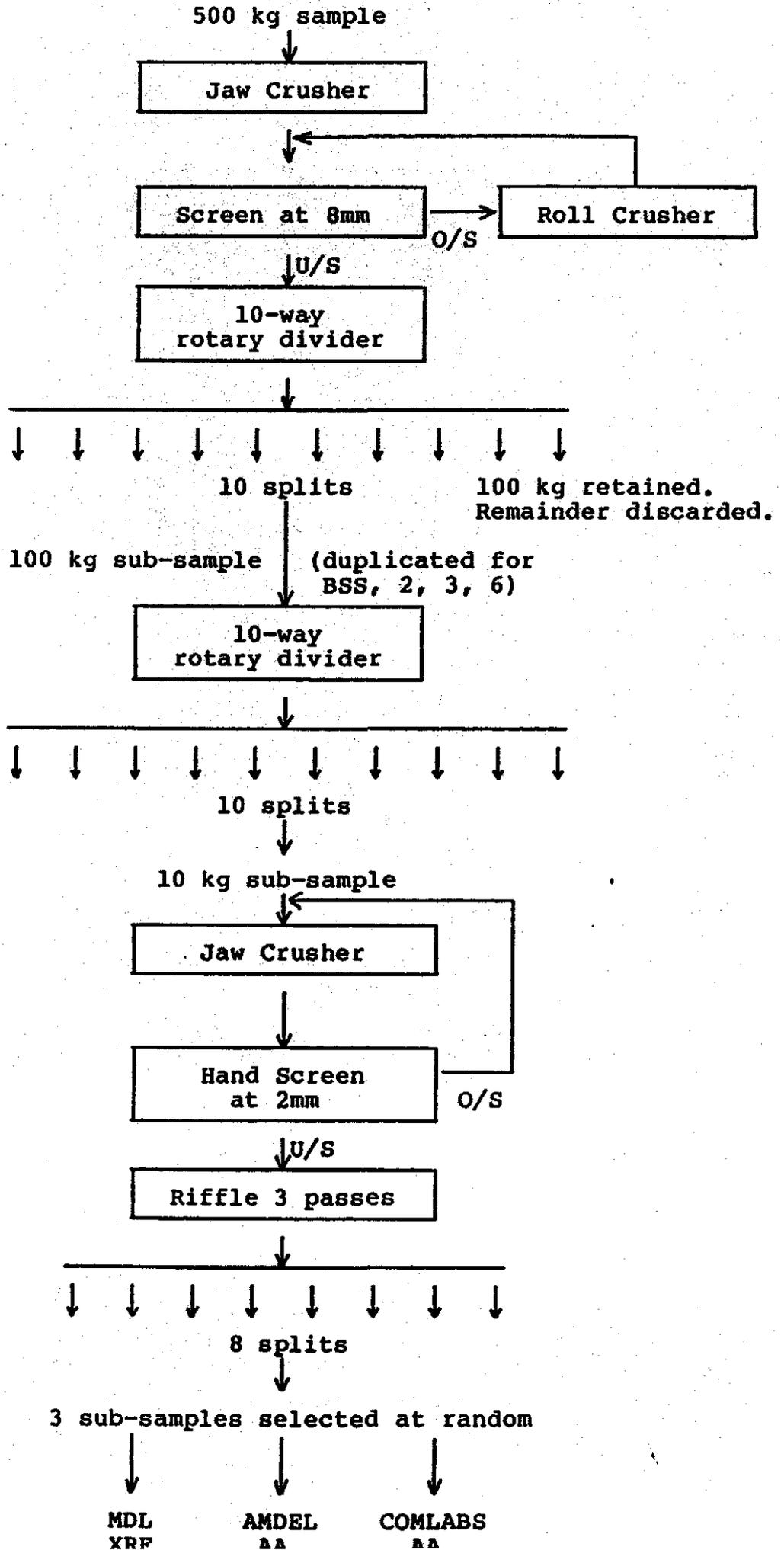


TABLE 2: Combined Results from All Laboratories

ASSAY %SN	MDL - AA				AMDEL - XRF				COMLABS - XRF			
	SAMPLE	1	2	3	Avrge	1	2	3	Avrge	1	2	3
BSS 2	0.107	0.092	0.096	0.098	0.114	0.108	0.112	0.111	0.100	0.105	0.110	0.105
BSS 2	0.091	0.084	0.083	0.086	0.114	0.112	0.104	0.110	0.105	0.105	0.105	0.105
BSS 3	0.025	0.015	0.015	0.018	0.018	0.021	0.018	0.019	0.018	0.019	0.019	0.019
BSS 3	0.025	0.015	0.015	0.018	0.018	0.021	0.018	0.019	0.018	0.017	0.017	0.017
BSS 4	0.212	0.182	0.196	0.197	0.198	0.220	0.204	0.207	0.185	0.205	0.200	0.197
BSS 5	0.258	0.228	0.236	0.241	0.298	0.288	0.268	0.285	0.260	0.260	0.270	0.263
BSS 6	0.231	0.214	0.225	0.223	0.254	0.248	0.256	0.253	0.240	0.240	0.250	0.243
BSS 6	0.235	0.218	0.219	0.224	0.260	0.244	0.236	0.247	0.245	0.240	0.230	0.238
BSS 8	0.290	0.251	0.262	0.267	0.346	0.382	0.346	0.358	0.315	0.315	0.300	0.310
BSS 9	0.257	0.207	0.224	0.229	0.242	0.262	0.258	0.254	0.240	0.250	0.240	0.243
BSS 10	0.178	0.151	0.157	0.162	0.172	0.180	0.186	0.179	0.155	0.160	0.160	0.158
BSS 11	0.315	0.298	0.306	0.306	0.388	0.360	0.354	0.367	0.360	0.360	0.410	0.377
BSS 12	0.279	0.250	0.250	0.260	0.280	0.280	0.285	0.282	0.240	0.225	0.220	0.228
BSS 13	0.243	0.224	0.227	0.231	0.266	0.268	0.288	0.274	0.260	0.275	0.260	0.265
BSS 14	0.016	0.016	0.015	0.016	0.011	0.010	0.010	0.010	0.009	0.009	0.009	0.009

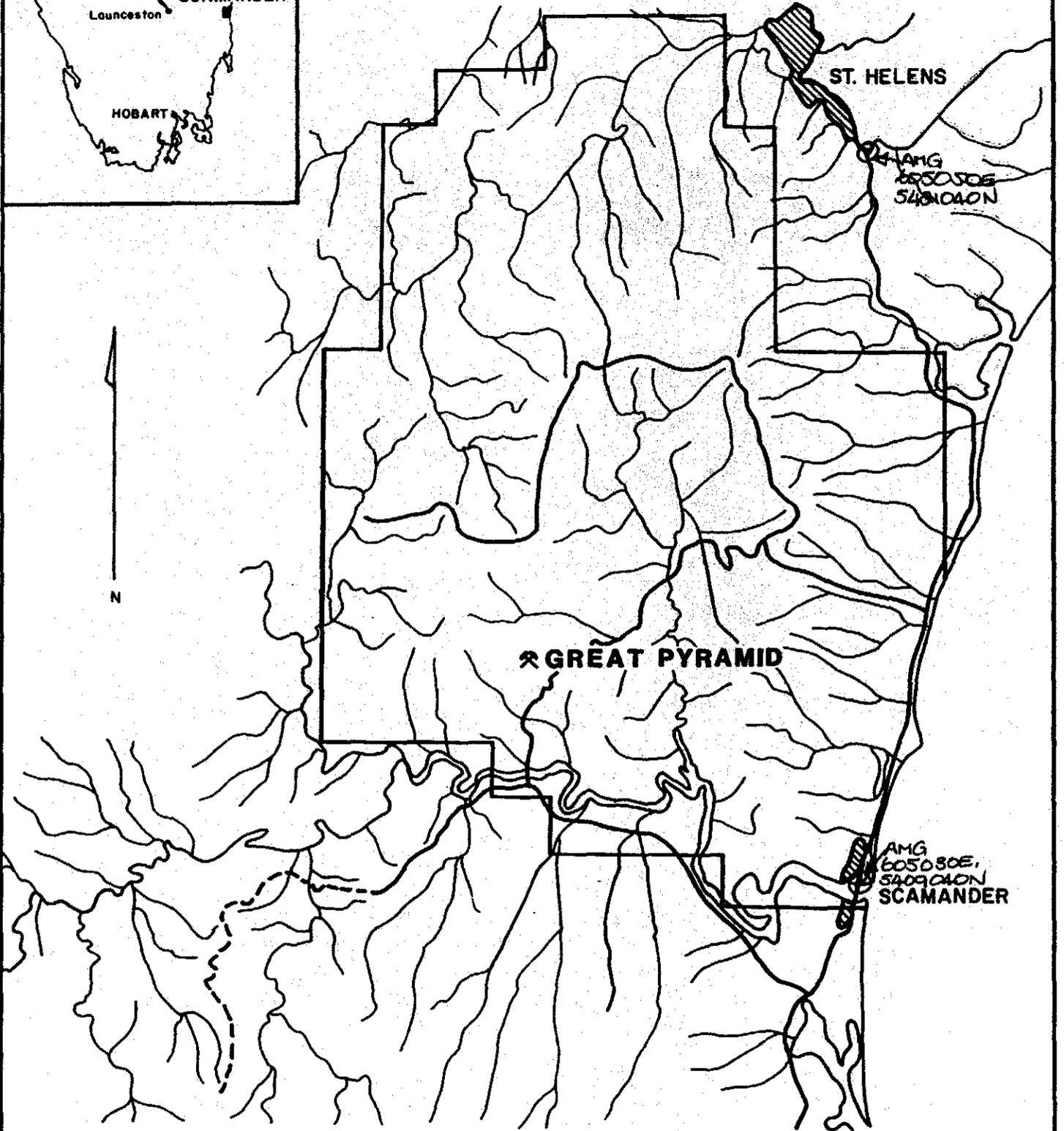
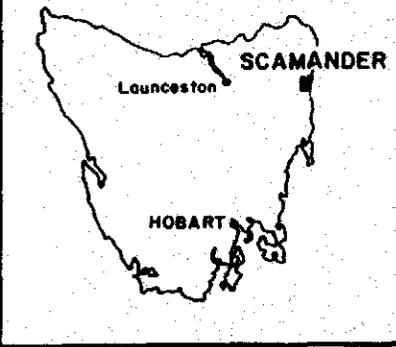
023

899025

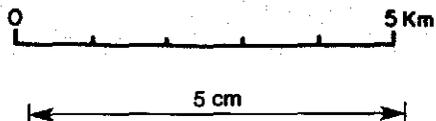
024

TASMANIA

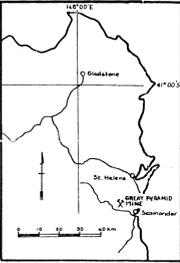
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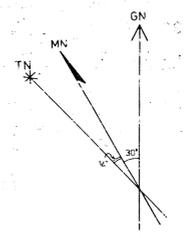
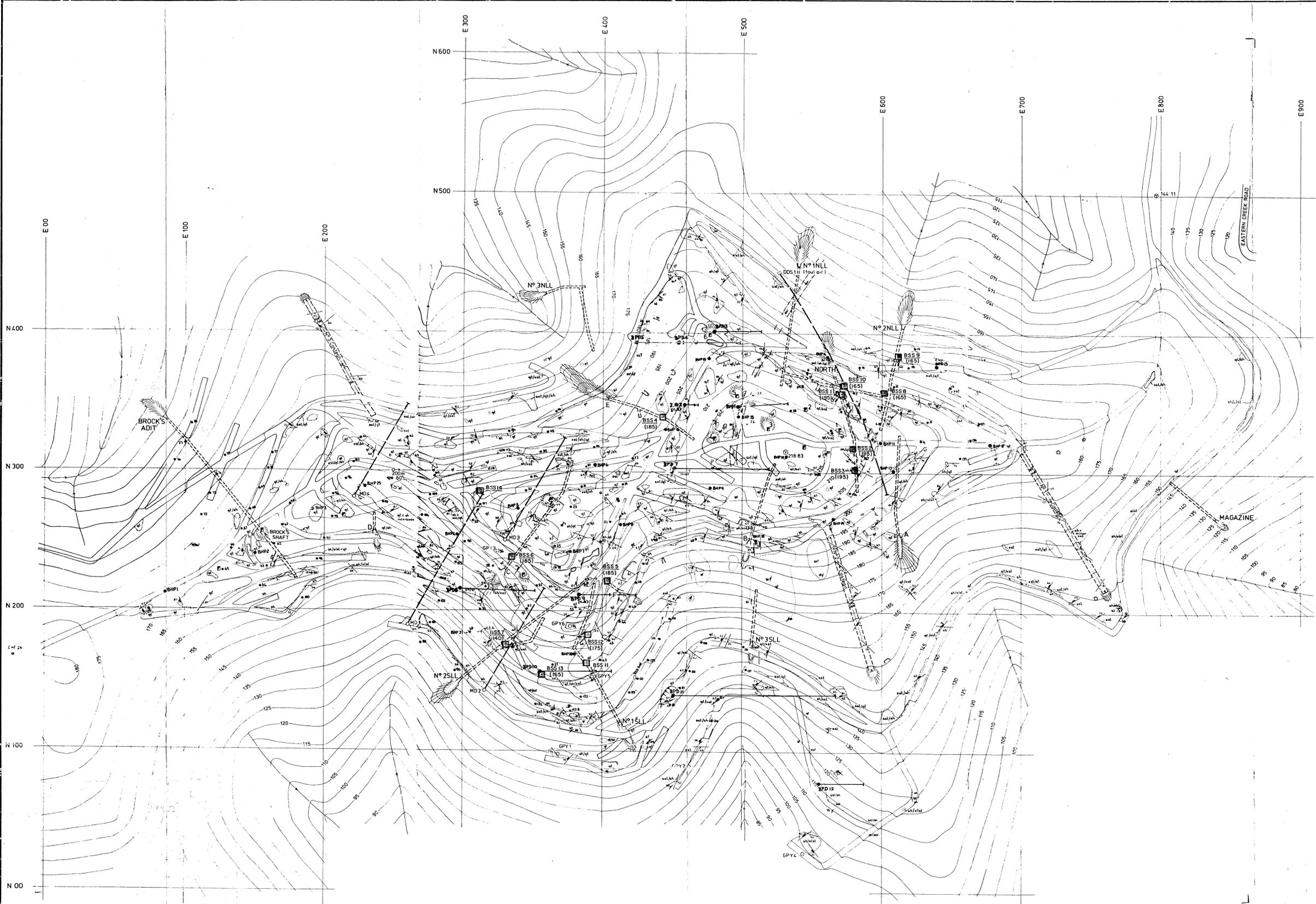
AMG REFERENCE POINTS ADDED



<b>Bilkon Australia</b>			
Project: SCAMANDER E.L.12/78			
Title: <b>GREAT PYRAMID LOCATION PLAN</b>			
Author:	Date:	Scale:	1:100 000
Drawn:	Office:	AMG	Revised:
Drawing No. L H02 / 1034			Date:



5583



899027  
SCALE 1:1,000  
0 50 100 metres

- [qt] Hard grey quartzite, generally massive with rare thin interbedded shale lenses. Beds usually >1m in width.
- [sst] Grey to yellow-brown sandstone, usually predominating over shale. Beds 10-20cm in width. Quartzite fairly common in restricted areas.
- [sh] Red brown, grey or yellow brown shale, finely bedded with rare sandstone or quartzite beds.
- [dal] Diorite extensively altered. Commonly surface expression as deep red brown soil with rare 2-5cm rounded pebbles of diorite. Very rarely outcrops. Dyke is approx 5-7m wide.

- [Symbol] Outcrop boundary
- [Symbol] Sheeted joints, dip and strike
- [Symbol] Bedding, dip and strike
- [Symbol] Minor fold plunge direction and angle
- [Symbol] Slickensides direction and dip

- [Symbol] BSS 4 (185) Bulk sample location (with elevation a.s.l.)
- [Symbol] Adit with winze
- [Symbol] Shaft with dump
- [Symbol] Workings, pits, trenches, etc.
- [Symbol] Diamond Drill Hole GPY Aberfoyle, vertical
- [Symbol] MD Mines Dept, 60° depression
- [Symbol] DDS BHP (1965), 45° depression
- [Symbol] DD Hole, collar not located

- [Symbol] Track
- [Symbol] Creek
- [Symbol] Cliff
- [Symbol] Star spike in concrete T with height

Levels are on reposit. State Datum. The datum has been transferred from Skyline Trig Station (S.T. 665) to PCP 1 (refer Forestry Commission map 6041) by the Forestry Commission, and from PCP 1 to this site by Peacock, Darcey and Andersen. [Auth. Surveyors - refer map B165 P]

NOTE: Map to accompany report by D.M.Ransom, Sep 1980

THE BROKEN HILL PROPRIETARY CO. LTD.  
EXPLORATION DEPARTMENT  
EL 10/80 GREAT PYRAMID PROSPECT, N.E. TASMANIA

**SURFACE GEOLOGY**  
WITH BULK SAMPLE LOCATIONS

Drawn by: L. J. Steele Date: 29.9.80 Centre: HOBART  
Traced by: J.E.H. Project No: Drawing No:  
Checked by: R.L.O. LH 07/1022

87-2689