

000

498001

0811X

MICROFILMED

SANTOS LTD.

GLADSTONE/FLY-BY-NIGHT LEASES

PROGRESS REPORT

OPEN FILE

L.E. Whitehouse

May, 1983.

001

LIST OF CONTENTS

	<u>Page</u>
1. Summary	1
2. Introduction	2
2.1 Location, Access and Geographical Features	2
2.2 Tenure	3
2.3 Previous Mining Activity	5
2.4 Previous Exploration Activity	6
3. Geology	6
3.1 Regional Geology	6
3.2 Local Geology	7
3.2.1 Igneous Units	8
3.2.2 Sedimentary Units	11
3.2.3 Structure	12
4. Results of Santos Exploration	12
4.1 1981 Programme	12
4.2 1982 Geochemical Programme	13
4.2.1 Geochemical Results	14
4.3 1983 Trenching Programme	17
5. Conclusions	26
6. Expenditure	27

LIST OF APPENDICES

Appendix 1	Assay data from 1981 Programme
Appendix 2	Geological Logs and Assay Data - DDH's, FBN4, FBN5
Appendix 3	Assay data from 1982 Geochemical Programme
Appendix 4	Assay data from 1983 Trenching Programme.

002

LIST OF PLANS

<u>Plan No.</u>	<u>List of Plans</u>	<u>Scale</u>	<u>Date</u>
1	Fly-by-Night Mine - Drillhole Locations	1:1,000	Dec. 1981
2	Gladstone Leases - Topography	1:5,000	Dec. 1982
3	Gladstone Leases - Geology	"	" "
4	Gladstone Leases - Sample Locations	"	" "
5	Gladstone Leases - Tin Geochemistry	"	" "
6	Gladstone Leases - Gold Geochemistry	"	" "
7	Location and Geology of Trenches 1-5	1:1,000	April 1983
8	Cross Sections through Trenches 1-3	1:500	April 1983
9	Cross Sections through Trenches 4-6	1:500	April 1983

003
1. Summary

Santos Ltd. and its subsidiary Hellyer Mining and Exploration Pty. Ltd. hold title to a contiguous block of 14 mineral leases totalling 714ha. in area and lying immediately south of Gladstone township. These claims were acquired in 1981 primarily for their hardrock tin potential.

The Gladstone district has been the centre of a persistent tin mining industry since late last century, with the majority of the tin production coming from alluvial mines. Minor gold has been won from the district. The geology of the area is dominated by the Blue Tier Batholith, a composite granitic body of Devonian age, which has intruded Mathinna Beds, a folded arenaceous sequence of rocks of Early Devonian age. An extensive cover of Tertiary sedimentary rocks including marine sequences is also present.

The primary sources of much of the tin mineralisation in the district are cassiterite-bearing greisenised granites and greisen bodies which are confined to irregularities in the upper contact of younger muscovite-biotite granite with older porphyritic biotite granite/adamellite.

One such greisen body lies within the leases and has been previously exploited for its tin content at the Fly-by-Night mine.

In 1981 Santos carried out a programme of rock chip sampling at the Fly-by-Night mine and drilled two drillholes totalling 150.5 metres in depth. An intercept of 2 metres of 0.89% Sn in one of the drillholes showed that further work was warranted to define the extent of the greisen and its associated tin mineralisation.

In 1982 a programme of gridding, geological mapping and geochemical sampling across the leases defined four areas worthy of follow up exploration and diamond drilling. Anomalous gold-in-soil geochemistry immediately south of the Gladstone gold workings also indicated the potential for gold mineralisation at Gladstone. Of 208 geochemical samples assayed, taken at 50 metre intervals, sixteen returned significant gold values with six samples in the range 2.5 - 5.6g/t Au. Consequently, effort was directed towards exploration for gold.

In early 1983 Santos carried out a program of gridding, geochemical sampling, geological mapping and trenching across the old Gladstone gold workings. The results of this programme indicated that the gold was associated with

004

structurally controlled narrow (5-25cm wide) quartz fissure veins. The highest assay received from trench samples was only 0.85g/t Au, and no further exploration for gold has been conducted as a result of these discouraging results.

A review of the results of exploration on the leases has recommended that future exploration should be directed towards tin mineralisation in four target areas: Fly-by-Night, West of Fly-by-Night, Star Hill and Harden's Ravine.

2. INTRODUCTION

2.1 Location, Access and Geographical Features

The Gladstone/Fly-by-Night Leases lie adjacent to and immediately south of the township of Gladstone in the North-East of Tasmania. The main roads from Gladstone to Bridport and Pioneer pass through the leases.

Gladstone is a small run-down township servicing a remote area of the Northeast in which the main income is derived from farming, small-scale alluvial tin-mining and seasonal tourism. Facilities include a small store with petrol pump, hotel, post office and primary school. There are no more than 50 houses within the township and the declining, ageing population now numbers less than 200.

Gladstone can be reached from Launceston in 2 hours via a sealed highway through Scottsdale and Pioneer. Good access via unsealed roads exists to the fishing town of Bridport and the holiday shacks at Musselroe Bay and Anson's Bay.

The township lies on a plateau at an elevation of 50-70 metres a.s.l. The Ringarooma River, incised some 30 metres through this plateau, partially encircles the town.

The climate at Gladstone is much milder and drier than that prevailing over the rest of Tasmania, with most of the rainfall coming from the east off the Tasman Sea.

The topography is generally gently undulating although several streams have cut deep narrow channels into soft altered lithologies. Vegetation for half the area of the leases consists of sparse stunted eucalyptus trees and bottle brush, interspersed

between tussock covered marshland. The other half of the leases is covered with dense secondary sheoak vegetation, in places, almost impenetrable. This vegetation grows in areas where the ground had previously been stripped to bedrock by tin-mining activity, especially that by the Chinese during the 1880's and 1890's.

The most common wildlife observed are small kangaroos, tiger snakes and rabbits. Wombats, Tasmanian devils, possums and a variety of nocturnal mammals are observed at night.

2.2 Tenure

SANTOS Ltd, and through its subsidiary company, Hellyer Mining and Exploration Pty. Ltd. holds title to a contiguous block of mineral claims adjacent to and immediately south of Gladstone township. These total 714ha (7.14 sq. kms) in area and are listed in Table 1.

TABLE I

LIST OF MINERAL LEASES AT GLADSTONE

<u>Claim No.</u>	<u>Registered Holder</u>	<u>Area</u>	<u>Commencement Date</u>	<u>Expiry Date</u>	<u>Comments</u>
88M/67	Hellyer	20ha	01.08.67	01.08.88	Subject to 1 ¹ / ₄ % ORRI to R.C. Lawry
36M/70	"	12ha	01.06.70	01.06.91	"
43M/70	"	29ha	01.06.70	01.06.91	"
44M/70	"	8ha	01.06.75	01.06.96	"
21W/70	"	1ha	01.01.71	01.08.88	"
100M/77	"	25ha	01.05.78	01.05.99	"
26M/81	SANTOS	82ha	01.12.81	01.12.2002	
27M/81	"	98ha	"	"	
28M/81	"	92ha	"	"	
29M/81	"	77ha	"	"	
30M/81	"	100ha	"	"	
31M/81	"	81ha	"	"	
54M/81	"	59ha	"	"	
55M/81	"	30ha	"	"	
		714ha			

2.3 Previous Mining Activity

(a) Tin

Since tin was discovered in the Northeast of Tasmania in 1867, the Gladstone district has been the centre of a persistent tin mining industry, with the greatest activity occurring during the 1860's, 1870's.

The majority of the tin output has been from sluicing operations within a widespread accumulation of Tertiary drifts and gravels. In 1916, Twelvetrees estimated annual output at 90 tons per annum, with half the population of working miners away in the theatre of war. From this, and the fact that alluvial mining had been consistently carried out for over 40 years prior to that date, it can be seen that a considerable (tens of thousands of tonnes) amount of tin has been won from the area. These activities have been sporadically carried out ever since, including the dredging of the present day Ringarooma River by the Dorset Dredge in 1964-1971.

Limited lode tin mining has also been carried out at Gladstone, with the Fly-by-Night tin mine being the biggest producer. Here, tin occurs within soft greisenised granite. Early (during the 1870's) mining ventures were highly successful and profitable, though a more recent venture by R.L. Lawry in 1970 was unsuccessful.

(b) Gold

Gold mining at Gladstone dates back to 1880 with the discovery of the Royal Tasman Lode. The extremely high assay returns from this mine prompted a gold rush and the discovery and opening of numerous parallel lines of reefs. By the time most of the mines closed in the mid 1880's, several thousand ounces of gold had been won. Sporadic re-opening and production at these old mines occurred during the period 1909-1930's.

Little, if any, gold-mining has been carried out in Gladstone since.

2.4 Previous Exploration Activity

The only exploration activity carried out in recent time on the Gladstone leases appears to be that of Geopeko in 1978-79. Exploration was aimed towards testing the bulk mining potential of tin bearing greisen in the vicinity of the Fly-by-Night mine.

Initial work, prior to signing an option agreement with Mr R.C. Lawry, consisted of reconnaissance geological mapping, bulk sampling of greisen and greisenised granite, assaying, heavy mineral separation, mineralogical and petrological examinations. The results of this work indicated that there was potential for 4.5 million tonnes of greisen of a grade that was possibly economic.

Upon signing the option agreement, Geopeko carried out a program of gridding (6 line-kms); surveying; geological mapping (1:1,000 scale); reverse circulation drilling on 50 metre centres (95 holes, totalling 536 metres with average depth 5.64 metres and deepest hole being 15 metres in depth); percussion drilling (2 holes of 14 metres, and 10 metres depth) diamond drilling (1 hole of 24.38 metre depth); assaying and computation of resource tonnages and grade. Based on the results of this work, Geopeko calculated a probable reserve of 658,000 tonnes of grade 290ppm Sn \pm 50ppm, and a possible reserve of 2.6 million tonnes of 110-316ppm. Sn. Geopeko concluded that insufficient tonnage, low cassiterite grades and inhomogeneous distribution of cassiterite within the greisen body rendered this resource uneconomic, and subsequently terminated the option agreement with R.C. Lawry.

3. GEOLOGY

3.1 Regional Geology

The granitic rocks of north-east Tasmania are part of a large belt of granitic bodies within the Tasman Orogenic Zone. They crop out over an area of more than 2500sq. kms with the largest mass being the Blue Tier Batholith of Upper Devonian age. The granitic rocks have been emplaced into the Mathinna Beds, a folded arenaceous sequence of Early Devonian age. They are unconformably overlain by Permian and minor Triassic sedimentary sequences which in turn have been intruded by Jurassic dolerite sills. An extensive cover of Tertiary sedimentary rocks and basaltic lavas exists, particularly in the northeastern part of the area underlain by the Blue Tier Batholith.

The Blue Tier Batholith is a composite body intruded in a general evolutionary sequence from early mafic granodiorites through to late leucocratic granites. The dominant granitic type is a porphyritic biotite granite/adamellite. Small bodies of muscovite-granite are the youngest major intrusions of the batholith. They are confined to the upper levels of the batholith and appear to represent the products of crystallisation of the residual liquid of the primary calc-alkaline magma from which the Blue Tier Batholith formed.

Cassiterite-bearing greisenised granites and greisens are confined to irregularities in the upper contact of these muscovite-biotite granite bodies.

At the Anchor mine, cassiterite mineralisation is hosted in a zone of altered alkali-feldspar granite beneath the roof contact with overlying adamellites. Potentially economic tin mineralisation is restricted to lenses of granular quartz-topaz-mica greisen and greisenised granite, occurring immediately below the roof contact and associated with a cupola-like structure approximately 200 metres in diameter. Average drillhole intersections range from 3 to 30 metres (average 8-12 metres) of grades 0.2 - 1.0% Sn. As an exploration target, greisens of the Anchor style are attractive in that they are potentially large, bulk mineable and metallurgically simple.

3.2 Local Geology

Mapping by the Tasmanian Department of Mines (Groves, et al. 1977, Bulletin 55) shows the following rock types in the vicinity of Gladstone.

- | | | |
|-----------------|---|--|
| T | - | undifferentiated Tertiary sands, gravels, ferruginous grits. |
| Dg ₁ | - | medium grained biotite - muscovite granite, greisenised granite and greisen. |
| Dg ₃ | - | Medium-coarse grained biotite granite/adamellite. |
| Dg ₆ | - | Porphyritic biotite granite/adamellite (Poimena Adamellite). |
| Da | - | Microgranite, aplite, quartz-feldspar porphyry. |
| Sm | - | Siluro-Devonian Mathinna Beds. |

010

The rock types Dg₁, Dg₃, Dg₆, and Da are several of at least 18 phases of the Devonian Blue Tier Batholith. Tin mineralisation has been introduced to the area by the granite phase Dg₁. Two abandoned workings occur on the periphery of the Dg₁ body near Gladstone:

- (a) The Fly-by-Night Mine at both a Dg₁/Dg₆ contact and a Dg₁/Mathinna Beds contact and
- (b) The Star Hill Mine at a Dg₁/Dg₃ contact.

Geological mapping at a scale 1:5,000, in conjunction with geochemical sampling, was carried out by SANTOS in late 1982. Although surficial alluvium covers more than 75% of the area mapped, a semi-detailed geological map was able to be made by reference to hand auger samples taken from an average depth of 0.75cms. As a result of this mapping, several new granitic phases have been recognised. The following is a description of rock units shown on the accompanying geological plan (Plan 3).

3.2.1. Igneous Units

PFG Porphyritic Feldspar Granite. As the name implies, this granite is characterised by large white feldspar phenocrysts, averaging 2cm in length, within a graphic medium grained matrix containing less than 5% biotite mafics. It is greyish white in colour and because of its crumbly weathering nature, is mainly observed in sub-crops. It can be correlated with Poimena Adamellite (Dg) and as such, represents the oldest phase of granite in the area mapped. Near the margins with younger granites, aplitic dykes are commonly observed.

EG Equigranular Granite. This unit, of which the second unit is formed, is characterised by rocky outcrops which weather pinkish red as a result of the oxidation of an inherently high (5-10%) percentage of biotite mafics. In general this granite is medium-coarse grained, equigranular and apart from minor variations in percentages of biotite and quartz crystals, is uniform in texture and colour.

SOEG Smokey Quartz Equigranular Granite.
With a gradual (over a lateral distance of 50-100 metres) increase in the percentage of quartz phenocrysts which become characteristically smokey in colour, the above Equigranular Granite unit passes into this new unit. It is characterised by distinctive smokey quartz crystals, in part bi-pyramidal or hexagonal in outline and in part porphyritic. The texture of the rock is much finer grained and its biotite (-muscovite) content is much greater. This unit forms deep reddish coloured, flaggy, in part crumbly, outcrops and is spatially and probably genetically related to quartz greisen.

SQPFG Smokey Quartz Porphyritic Feldspar Granite. This is a restricted transitional unit between the older feldspar porphyritic granite (Poimena Adamellite Dg) and the younger smokey quartz rich equigranular granite (SOEG). As its name implies, it is essentially a porphyritic feldspar rich hybrid granite unit with occasional smokey quartz phenocrysts.

PG Pink Granite. This is another restricted transitional unit sandwiched between PFG and SOEG. It is a fine-medium grained pink equigranular granite, mafic rich and with some smokey quartz phenocrysts and occasional large broken feldspar phenocrysts. Hornblende mafics are common.

SVI/IB Sub-volcanic Intrusive/Intrusive Breccia. This is an unusual rock type and restricted in its occurrence. It is an intensely silicified rock with great textural variations that in places make it look like a siliceous sub-volcanic intrusive (dacite) - intrusive breccia and in other places like a chert/silicified algal limestone. Some scree boulders show that this unit is the product of intense silicification of a fine-grained equigranular granite, tending aplitic.

012

- 10 -

OGR Quartz Greisen. This name is given to a rock where the primary constituents are quartz-muscovite and where quartz constitutes more than 90% by volume. Generally is is a hard, resistant rock type, commonly as structurally controlled veins or dykes cutting older units. In places, (e.g. along Line 10,600N, east of main road), hexagonal smokey quartz phenocrysts are common and suggestive of a genetic link to the unit SQEG. Because of the high quartz phenocryst content of this unit, soils developed over it are granular quartz rich and have a "rice-bubble" appearance.

MGR Muscovite Greisen. This is a soft friable muscovite-sericite - green sericite-topaz-quartz rock that is best exposed in the Fly-by-Night tin workings where it has been worked for its tin content by hydraulic sluicing. The soft nature of this unit results in areas of outcrop being deeply eroded with abundant rivulets.

Correlation with Tasmania Geological Survey Mapping:

The above units can be correlated with those of Groves et al (1977) as follows.

Dg ₁	-	SQEG, PG, SVI/IB, SQPFG, QGR, MGR
Dg ₃	-	EG
Dg ₆	-	PFG

They can also be correlated with units more recently mapped (Boobyalla 1:50,000 sheet) as follows:

Dbapc	-	PFG
Dbaem	-	EG
Dbapq	-	SQPFG,
Dmq	-	QGR, MGR
Dbapf	-	PG

Units SQEG, SVI/IB could represent previously unrecognised phases that could be grouped into the Dbau classification and possibly into a new sub-classification lying between Dbadm and Dbapf.

3.2.2

Sedimentary Units

- Qar - Recent river bed alluvium, and terraces associated with the Ringarooma River and its tributaries.
- Qam - Recent man-disturbed areas of shallow alluvium, rubble. Result of earthmoving machinery in tin workings. Type area is in the vicinity of Worbey's leases near Ogilvies Bridge.
- QAT - Quaternary - Tertiary elluvials, alluvium and river channel wash. In Garfield River tin workings (Line 11,200N), this unit is nearly 10 metres thick and consists of:
- (1) a basal unit 3-5 metres thick of coarse river gravels and grits overlain by
 - (2) fine yellow calcareous sands (approximately 2 metres thick) and possibly representing a marine incursion and in turn overlain by
 - (3) coarse quartz grits up to 2 metres thick. Elsewhere this unit is seen as either lateritised river bed gravels or ferruginous carbonaceous gravels and fine grey carbonaceous silts indicative of a swampy lacustrine environment (viz. The Great Northern Plains area of today).
- MB - Siluro-Ordovician Mathinna Beds. Where not contact metamorphosed near intrusive contacts, this unit is observed to consist of steeply dipping, greenish argillaceous sandstones, greywackes, siltstones

and lesser shales. Near the main intrusive mass, contact metamorphism has transformed these rocks into quartzites, slates, spotted pelites, and schists. At intrusive contacts these rocks are either hard and brittle (hornfelsed); intensely argillised, clay veined and very soft (e.g. bottom of Scotia workings) or saccharoidal.

3.2.3 Structure

Colour air photography at a scale 1:10,000, flown for SANTOS in 1982, was used to prepare an overlay of photo-interpreted faults and lineaments. Three major sets can be recognised: - an early north-north east set (015°, 035-045°), cut and displaced by a shallow (to the north) set of faults trending west-northwest (280-290°) and in turn cut by late north-northwest faults (310-340°). Many, if not most, creeks in the Gladstone area follow these faults resulting in deep incisions into altered /fractured bedrock.

These structures were confirmed during geological mapping of scant outcrops and trenches.

4. RESULTS OF SANTOS EXPLORATION

4.1 1981 Programme

In August 1981, a programme of chip and channel sampling of greisenised rocks at the Fly-by-Night mine was carried out. A total of 134 samples were submitted for tin analyses and of these samples 17 were also assayed for tungsten, silver and molybdenum. The results of these assays are included in Appendix I and are plotted on Plan 1.

The results of this sampling indicated that locally higher grades of tin mineralisation occur in greisen in a "cupola" contact with overlying impermeable sediments. A programme of five diamond drillholes was proposed to test whether the mineralisation at surface, of potentially economic grade, persisted to depth. This drilling commenced in October 1981, but only two of the five holes were drilled.

015

- 13 -

These holes, DFBN 4, DFBN 5 were designed to intersect the areas of best surface geochemistry. Geological logs and assay results for these two holes are included in Appendix 2.

DDH DFBN 4, penetrated altered granite with alternating bands of hard siliceous quartz-mica greisen and kaolinised partly greisenised granite. The best intercept was 2 metres of 0.89% Sn from 81-83 metres. The average tin content over the whole length of the drillhole was .05% Sn.

DDH DFBN 5 was collared in Mathinna Beds and passed through into kaolinised granite, greisenised granite and greisen. No significant tin mineralisation was intersected and the average tin content of the granitic and greisenised rocks was .02% Sn.

This drilling indicated that although the overall grade of the greisen is low (.02-.05%) significant mineralisation (2m x 0.89% Sn) did occur and that further work was warranted to better define the extent of the greisen and its associated tin mineralisation.

4.2 1982 Geochemical Programme

A programme of gridding, geochemical sampling and geological mapping, designed to test not only the remaining potential of the Fly-by-Night mine area but also the exploration potential of the other SANTOS leases in the Gladstone area was carried out in late 1982. This work comprised of:

1. Gridding

A theodolite controlled base line, 3.6kms long and bearing Magnetic North-South was cut and pegged at 50 metre intervals from 11,200N to 7,600N. Cross lines at 200 metre spacing were cut and pegged with varying lengths from 9,000E to 12,000E. The total length of gridding was 50 line-kms. The origin of the grid (10,000N, 10,000E) was the same as that used by Peko in 1978, to allow meaningful correlation of Peko's data with SANTOS' work. The location of this grid, along with geographic and topographic data is shown on Plan 2.

016

2. Geochemical Sampling

Hand auger samples were taken at 50 metre intervals along the base line and along the 19 cross lines. Samples were taken from depths ranging from 20cms to 2 metres. Average depth was 75cms. Where outcrops were present, these were sampled in preference to auger sampling. A total of 955 rock and hand-auger samples were collected and submitted to the Tasmanian Department of Mines laboratory in Launceston for tin analyses. Selected (a total of 208 samples) samples were assayed for gold, whilst samples taken from the base line (51 samples) were also assayed for rubidium. The sample locations for these samples are shown on Plan 4, whilst assay results are included in Appendix 3.

3. Geological Mapping

A 1:5,000 scale geological plan was produced by noting any outcrop and rock type in hand auger samples, whilst geochemical sampling along grid lines. The results of this mapping are shown on Plan 3.

4.2.1 Geochemical Results

1. Tin Geochemistry

Tin analyses which are plotted on Plan 5, show some degree of correlation with rock type - e.g. in the east-northeast sector, a large area of anomalously low tin values (<10ppm) corresponds with mapped SQEG whilst muscovite greisen (MGR) units have corresponding anomalously high tin geochemistry (+100ppm). However, there appears to be a greater structural control of tin values which show a distinct northwest-southeast trend, related in part to late stage quartz veining and faulting.

The distribution of tin values show that there are at least four prospective areas for significant tin mineralisation. These are:

- 017
- (a) Harden's Ravine (Line 11,200N, 10,300E-10,500E).
Two of four samples from a quartz-muscovite greisen body, some 200 metres wide and of unknown strike extent, returned anomalously high values of 300, 580ppm Sn.
- (b) Fly-by-Night (vicinity 10,200N, 10,000E).
An area of muscovite greisen at least 200 metres wide and elongated northwest-southeast returned eight assays in the range 210-460ppm Sn. As has been previously discussed, this area still holds significant exploration potential and has yet to be tested further.
- (c) 400 metres West of Fly-by-Night (lines 10,000N, 9,300E-9,700E; 10,200N, 9,300E-9,500E).
Here a 250 metre wide roughly circular lobe of +200ppm Sn overlaps greisen developed at a tri-contact between older porphyritic feldspar granite, younger altered granite and highly altered Mathinna Beds. The geology and geochemistry is further complicated by a Tertiary gutter (defined by +500ppm Sn contour) and shallow elluvial wash. This system may show continuity with the Fly-by-Night area beneath shallow Mathinna Beds and older porphyritic feldspar granite cover. Further work in this area is certainly warranted.
- (d) Star Hill Lease (base Line 8,200N-8,400N).
A 200 metre wide and at least 300 metre long elongate zone is defined by the +200ppm Sn contour and within which a higher grade zone is defined by the +500ppm contour. This zone lies in an area of NW-SE trending quartz and rare greisen vein. To the

south and south west this zone is covered by Tertiary elluvials and perched river terraces. The host rock is an indiffereniated granite lying beneath and in proximity to older porphyritic feldspar granite. The stanniferous quartz and greisen veins may represent leakage from a larger greisen body within a blind cupola and as such constitute a target worthy of further exploration. This 25ha lease is currently held by Triako-Buka (ML 29M/80).

2. Gold Geochemistry

Following the detection of anomalous gold in four auger samples taken along line 10,200N just east of a line of collapsed mine shafts, additional assaying for gold was undertaken. Of 208 samples assayed, 16 returned significant (0.3g/t Au) gold values including six samples in the range 2.5-5.6g/t Au. These anomalous samples are clustered adjacent to a granite-sediment interface and lie immediately south of the abandoned Gladstone gold workings. The location and assay results of these samples are shown on Plan 6.

The significance of the anomalous gold was not, at the time, properly understood as each value represented a small grab sample (hand auger) from widely spaced (50 metre) locations. It was thought that although individual gold reefs were not sampled, these assays indicated the potential for disseminated low grade gold mineralisation enveloping quartz reefs which contain higher gold grades.

Descriptions* of the old gold workings at Gladstone (Twelvetrees 1916 - TDM Bulletin 25) and the widespread anomalous gold values obtained from the hand auger samples some distance away from these workings indicated that the

Gladstone area was highly prospective for economic gold mineralisation. Consequently, a recommendation was made to further investigate this gold potential by implementing a program of geological mapping of the old workings and trenching across auriferous lodes.

* The following mines were the largest recorded producers of gold at Gladstone:

<u>Name</u>	<u>Width of Reef</u>	<u>Grade</u>
North Tasman	5-6 feet	14g/t Au.
Royal Tasman	2-6 feet	up to 20oz/t Au.
Fleming's	1-2 feet	8-10oz/t Au.
Royal Mint	4 feet	no data
Royal Standard	10-15 feet at surface 3-22 feet at depth	visible Au.
Coarse Gold Creek	2 feet	8g/t - 1oz/t Au.

4.3 1983 Trenching Programme

In March, 1983 SANTOS carried out a programme of infill geochemical sampling, geological mapping and trenching across the old gold workings which lie immediately south of Gladstone township. The following work was completed:

1. Gridding

Gridding at 100 metre line spacing was carried out west of the base line and north of line 10,400N. In addition, infill-gridding was carried out between Lines 9,800N and 10,400N. The total length of gridding was 8.1 line kilometres.

2. Geochemical Sampling

Hand auger geochemical sampling was carried out at 50 metre intervals along the infill and additional grid lines. A total of 160 samples were submitted to the Tasmanian Department of Mines Laboratory in Launceston for tin and gold

analyses. Plans 5 and 6 were subsequently revised to incorporate the results of this sampling. Assay results are included in Appendix 4.

3. Geological Mapping

Geological mapping was carried out along the new grid lines and Plan 3 subsequently revised.

4. Trenching

A proposal to dig three trenches each 200 metres long and spaced approximately 200 metres apart across the trend of the old Gladstone gold workings as well as dig four 50 metre trenches, to investigate isolated high gold-in-soil assays was approved in March, 1983. This work was carried out shortly thereafter.

A small bulldozer was used to clear sedimentary access into trench sites. This was done by J. Groves of Gladstone. Trenching totalling 742 linear metres and averaging 1.5 metres in depth, was carried out using a JCB excavator operated by Mr Darryl Smith of Winnaleah. Trenches were subsequently filled in and trench sites restored to as natural a position as possible upon completion of sampling and mapping. Plans 7, 8 and 9 show the location, geology and geochemistry of the six trenches dug. A seventh trench, at 11,200N, 10,000E was not dug (proposed 50 metre length) because of topographical and access constraints. Closer spaced auger sampling was carried out instead. Trenches were channel sampled at 2 metre intervals and a total of 378 samples each averaging 2kg in weight, were submitted to Analabs in Burnie for Cu, Pb, Zn, Ag, As analyses by AAS and gold analyses by fire assay (30gm digestion). Assay results are included in Appendix 4.

(a) Trench 1

Location:

From 10,700N 9,400E, 77 metres bearing 070° and 205 metres bearing 252°.

Objective:

To investigate the width and grades of the Royal Standard and northern extension of the Tasman Lodes.

Geology:

From the western end of the trench through to the eastern end, greenish argillites, indurated siltstones and f.g. greywackes pass through into friable yellowish-white hydrothermally altered sandstones, with increasing narrow (5-20cm thick) quartz veins and several zones of hybridised intrusive dyking. Near the end of the trench the geology is masked by limonite cemented massive quartz rubble and water transported gravels overlying Tertiary (?) lacustrine silts. At the very end of the trench, a steeply dipping massive quartz reef is exposed which can be followed into a line of old collapsed mine shafts. This represents the trace of the Royal Standard Lode. The most dominant quartz veining was a set trending 280 - 305° and steeply dipping to vertical. Although the trench crossed a line of shafts representing the North Royal Tasman Lode, no well defined lode as such was noted. In close proximity however, a rubble zone, possibly a Tertiary gutter, masked the underlying bedrock.

Geochemistry:

Gold assays were disappointingly low, the highest assay over a two metre interval being 0.85g/t Au. This was associated with a zone of close-spaced quartz veining trending 290° and dipping vertical to 80° South. Detectable gold (0.18g/t, 0.73g/t) was also associated with a Tertiary gutter which masked the underlying bedrock.

Silver assays were very low also with numerous 0.5g/t Ag (limit of detection) values being recorded at the western end of the trench.

Arsenic (detection limit = 100ppm) was detected in only a few samples.

022

Copper, Lead and Zinc geochemistry showed no trends indicative of an auriferous reef although copper and zinc which showed a very close correlation, were very low across the eastern half of the trench where alteration was much more intense, possibly as a result of hydrothermal flushing.

(b) Trench 2 (Length = 133.5 metres)

Location:

Starting near 10,400N 9,300E and bearing approximately 070° for 100 metres then veering 045° to the Fly-by-Night Creek.

Objective:

To investigate a 2.5g/t assay from a soil sample 20 metres away from a line of shafts marking what was thought to be the Royal Mint Lode but what now appears to be the West Tasman Lode. Another objective was to test a possible southern extension of the Royal Tasman Lode. Topographic constraints however, prevented the trench's continuation past the Fly-by-Night Creek to test this extension.

Geology:

From the western end of the trench, highly altered friable sandstones intruded by numerous granite dykes, quartz veins and quartz-muscovite greisen veins pass through weakly altered argillaceous siltstones and sandstones into greenish grey greywackes and phyllites. The dominant trend of both the quartz and greisen veins is 285 - 300° with dips of 50 - 65° to the southwest. The trace of numerous shafts and collapsed workings, which represent the West Tasman Lode, was observed in the trench as an increase in the intensity of quartz veining. However, the thickest vein, or zone of silification, was no more than 20cms thick.

023

Geochemistry:

Gold assays were again disappointingly low considering the intensity of alteration and quartz veining over such a substantial width. Although low grade gold mineralisation over at least 50 metres was confirmed, indicated grades in the range 0.05 - 0.15g/t Au are too low to be of economic interest. The highest assay recorded in this trench was 0.57g/t Au over 2 metres and was associated with a 20cm wide shallow (65°) dipping quartz greisen vein.

Silver was in all but one sample (0.5ppm) below the detection limit.

Arsenic was anomalously high (+500ppm) over a 10 metre wide zone of manganiferous quartz veining 20 metres west of the West Tasman line of shafts. The highest arsenic assay from this zone was 1500ppm. The highest gold assay however, was 0.12g/t, indicating little correlation between gold mineralisation and arsenic geochemistry. The highest arsenic assay (2250ppm) was however associated with the auriferous (0.57g/t Au) quartz greisen vein above.

Copper, Lead and Zinc assays were not significantly anomalous with the highest copper assay being 100ppm, the highest lead assay being 115ppm and the highest zinc assay being 135ppm.

(c) Trench 3 (length = 176 metres)

Location:

Bearing 075° and passing through 10,200N 9,450E at approximately 105 metres from the western end of the trench.

Objective:

The primary objective of this trench was to investigate what appeared to be a wide zone of low grade gold mineralisation immediately east of a line of shafts marking the trend of the Royal Mint Lode. Three hand auger geochemical samples taken at 50 metres spacings in late 1982 had returned gold

assays of 0.55g/t, 4.57g/t and 0.3g/t Au. Another objective of the trench was to investigate the width and grade of the Royal Mint Lode itself.

Geology:

From west to east this trench passed through yellowish friable hydrothermally altered sandstones with increasing stockwork clay veining, pervasive clay-sericite alteration and numerous zones of vertical quartz veins into a 50 metre wide argillic altered granite dyke. Further east the trench cut through hematitic (a result of the oxidation of muscovite) muscovite rich sandstones with numerous vertical greisen veins and ended in a Tertiary gutter filled with stanniferous quartz pebble wash.

Geochemistry:

Gold assays were again very low although nearly the whole length of the trench, a width of some 150 metres, had detectable low grade gold mineralisation in the range 0.01 - 0.08g/t Au. It seems apparent that as the main granite - Mathinna Bed contact is neared either laterally or vertically (by erosion), the nature of the gold mineralisation changes from being narrow, higher grade and primarily associated with quartz veins to that of a much lower grade but more widespread zone of disseminated mineralisation.

Silver again was only detected (0.5ppm) in four of the 88 samples assayed.

Arsenic was detected (100-200ppm) in only eight samples and showed no correlation with either silver or the higher gold assays.

Copper, Lead and Zinc assays showed no significant anomalous zones although copper-zinc geochemistry was higher near the eastern end of the trench and associated with hematitic muscovite rich altered sandstones.

025

(d) Trench 4 (Length = 50 metres)Location:

Bearing 072° and mid point at approximately 10,200N, 9,000E.

Objective:

To investigate an isolated anomalous gold-in-soil assay (4.8g/t Au) at 10,200N, 9,000E.

Geology:

Apart from the westernmost last 10 metres of altered and greisenous granite, this trench passed for the most part through rubbly sandstones, conglomerates with the high carbonaceous content and bluish grey sticky clays which were interpreted as part of a Tertiary elluvial (drift) horizon. The highly altered nature of the elluvials indicated that they had not travelled far. At the time of sampling it was realised that the anomalous gold assay represented detrital gold within an elluvial/alluvial horizon and as such had little economic significance.

Geochemistry:

As had been expected, gold assays were very low, in fact traces of gold (0.008g/t) were detected in only five samples. Silver (0.5ppm) was detected in two samples, arsenic (100ppm) in three whilst copper, lead and zinc assays were not significant.

(e) Trench 5 (length = 50 metres)Location:

Mid-point of trench is 15 metres south of 10,000N, 9,200E.

Objective:

To investigate an isolated gold-in-soil assay (1.3g/t) that showed possible northwest continuity with the gold assay of 4.8g/t at 10,200N, 9,000E.

026

- 24 -

Geology:

This trench was dug solely through poorly consolidated weakly altered granitic detritus with a blue-grey clayey matrix with a strong sulphurous/swampy odour. Very little lateral transport of this granite detritus must have occurred to account for the poor reworking of altered feldspar phenocrysts. A swampy carbonaceous rich environment at the time of emplacement has been suggested. The source of the anomalous gold in the original soil sample at 10,200N, 9,000E has been interpreted as being derived from detrital quartz fragments within these Tertiary elluvials, and as such have no economic significance.

Geochemistry:

As had been expected, gold assays were very low with only ten samples showing detectable (.008g/t) gold. Silver was not detected in any sample whilst copper, lead and zinc assays were not significant.

(f) Trench 6 (Length = 52 metres)Location:

Bearing 077° with mid point at 10,000N, 9,950E.

Objective:

To investigate a gold-in-soil value of 5.6g/t Au at 10,000N, 9,950E.

Geology:

This trench, was dug wholly within crumbly weathered porphyritic feldspar granite (Dg - Poimena Adamellite) that in part showed only weak argillic alteration.

Geochemistry:

No significant copper, lead, zinc, arsenic, silver or gold assays were recorded. Gold was detected (.008g/t) in only four samples whilst silver (0.5ppm) was detected in only one sample. The source of the gold in the

027

- 25 -

hand auger geochemical sample at 10,00N.
9,950E is most likely attributed to a
detrital speck of gold in the soil/"C"
horizon.

028

- 26 -

5. CONCLUSIONS

The results of the 1981 and 1982 Geochemical Programmes have indicated that exploration potential for tin mineralisation exists in at least four localities on and in the immediate vicinity of the SANTOS leases at Gladstone. The locations identified are the Fly-by-Night Mine (greisen mineralisation); Fly-by-Night West (apparent stanniferous body at shallow depth beneath Mathinna Bed cap-rocks and beneath the older porphyritic granite); the Star Hill Lease (anomalous tin geochemistry); and Harden's Ravine (suspected stanniferous greisen body).

The 1983 Trenching Programme failed to locate a major wide auriferous lode but rather delineated zones containing thin gold-bearing quartz or fissure veins.

6. Expenditure

Expenditure on the Fly-by-Night (Gladstone Leases) has been as follows:

1981

Salaries	141	
On costs	42	
Australian Travel and Accommodation	576	
Labour and Material	277	
Geological/Geochemical	3,839	
Access/Site Preparation	540	
Drilling	7,255	
Laboratory Services	<u>1,094</u>	
	13,764	13,764

1982

Salaries	1,821	
On costs	546	
Casual Labour	481	
Australian Travel and Accommodation	1,014	
Labour and Material	244	
Data Reproduction	6	
Licence Fees	1,795	
Surveying	10,465	
Laboratory Services	<u>3,560</u>	
	19,932	19,932

1983 (To 30th April)

Salaries	10,200	
On costs	3,060	
Casual Labour	740	
Australian Travel and Accommodation	2,652	
Contract Services	412	
Lease Rentals	199	
Surveying	1,910	
Excavating	2,160	
Laboratory Services	5,065	
Airfreight	<u>539</u>	
	26,937	<u>26,937</u>

TOTAL \$60,633

030

498031

APPENDIX 1

ASSAY DATA FROM 1981 PROGRAMME



COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

498032



NATA REGISTERED No. 1528

Head Office and
Central Laboratory
305 SOUTH ROAD,
MILE END SOUTH
STH. AUST. 5031
TEL: (08) 43 5722
TELEX: AA89323

OUR REF: COM 811447

YOUR REF: Order No 5DL/5016/015

Queensland
Preparation Laboratory
172 LAVARACK AVE.,
EAGLE FARM,
QUEENSLAND. 4007
TEL: (07) 268 4748

Mr. S. Lee,
Santos Limited,
183 Melbourne Street,
NORTH ADELAIDE. S.A. 5006.

21.9.81

Dear Simon,

RE: JOB COM 811447

Enclosed are the assays for the samples delivered to our laboratory on the
15th September, 1981.

Yours sincerely,

Harry Fishman
Managing Director

1 copy

032

498033

 COMLABS Pty Ltd

ANALYTICAL REPORT

COMPUTERISED ANALYTICAL LABORATORIES

JOB COM811447

O/N : SDL/5016/015

Results in ppm

SAMPLE	Sn
FBN 10	430
FEN 11	1200
FBN 12	510
FEN 13	170
FBN 14	135
FBN 15	170
FBN 16	70
FBN 17	42
FBN 18	145
FBN 19	200
FBN 20	65
FBN 21	105
FBN 22	260
FBN 23	160
FBN 24	390
FBN 25	190
FBN 26	210
FBN 27	220
FBN 28	260
FBN 29	175
FBN 30	150
FBN 31	150
FBN 32	1300
FBN 33	260
FBN 34	260

033

COMLABS Pty Ltd

ANALYTICAL REPORT

COMPUTERISED ANALYTICAL LABORATORIES

JOB COM811447

O/N : SDL/5016/015

Results in ppm

SAMPLE	Sn
FBN 35	790
FBN 36	180
FBN 37	130
FBN 38	180
FBN 39	170
FBN 40	160
FBN 41	250
FBN 42	155
FBN 43	220
FBN 44	200
FBN 45	165
FBN 46	120
FBN 47	240
FBN 48	140
FBN 49	135
FBN 50	130
FBN 51	170
FBN 52	180
FBN 53	175
FBN 54	140
FBN 55	190
FBN 56	220
FBN 57	180
FBN 58	170
FBN 59	155

034

COMLABS Pty Ltd

ANALYTICAL REPORT

COMPUTERISED ANALYTICAL LABORATORIES

JOE COM811447

O/N : SDL/5016/015

Results in ppm

SAMPLE	Sn
FBN 60	195
FBN 61	135
FBN 62	135
FBN 63	150
FBN 64	120
FBN 65	135
FBN 66	110
FBN 67	130
FBN 68	120
FBN 69	125
FBN 70	140
FBN 71	200
FBN 72	340
FBN 73	300
FBN 74	400
FBN 75	2000
FBN 76	200
FBN 77	170
FBN 78	220
FBN 79	160
FBN 80	230
FBN 81	190
FBN 82	170
FBN 83	350
FBN 84	190

COMLABS Pty Ltd

ANALYTICAL REPORT

COMPUTERISED ANALYTICAL LABORATORIES

JOB COM811447

O/N : SDL/5016/015

Results in ppm

SAMPLE	Sn
FBN 85	115
FBN 86	200
FBN 87	210
FBN 88	300
FBN 89	210
FBN 90	230
FBN 91	2800
FBN 92	180
FBN 93	160
FBN 94	195
FBN 95	180
FBN 96	240
FBN 97	990
FBN 98	140
FBN 99	230
FBN 100	520
FBN 101	1700
FBN 102	170
FBN 103	125
FBN 104	120
FBN 105	130
FBN 106	540
FBN 107	155
FBN 108	400
FBN 109	280

COMLABS Pty Ltd

ANALYTICAL REPORT

COMPUTERISED ANALYTICAL LABORATORIES

JOB COM811447

O/N : SDL/5016/015

Results in ppm

SAMPLE	Sn
FBN 110	210
FBN 111	230
FBN 112	1.03%
FBN 113	160
FBN 114	510
FBN 115	210
FBN 116	160
FBN 117	1250
FBN 118	3500
FBN 119	340
FBN 120	380
FBN 121	1000
FBN 122	210
FBN 123	170
FBN 124	150
FBN 125	520
FBN 126	70
FBN 127	750
FBN 128	28
FBN 129	24
FBN 130	24
FBN 131	20
FBN 132	24
FBN 133	26
FBN 134	12

037

COMLABS Pty Ltd

ANALYTICAL REPORT

COMPUTERISED ANALYTICAL LABORATORIES

JOB COMF11447

O/N : SDL/5016/015

Results in ppm

SAMPLE	Sn
FBN 135	14
FBN 136	18
FBN 137	32
FBN 138	20
FBN 139	44
FBN 140	140
FBN 141	160
FBN 142	115
FBN 143	135

Method of Analysis : Sn : XRF1/2

038



COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES



NATA REGISTERED No. 1526

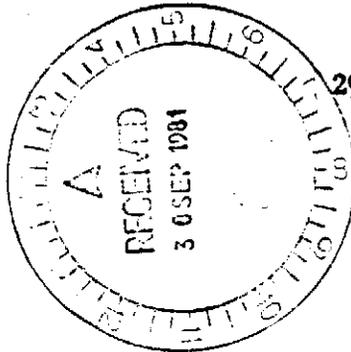
OUR REF.: COM 811447(Additional)
YOUR REF.: SDL/5305/017

Head Office and
Central Laboratory
305 SOUTH ROAD,
MILE END SOUTH
STH. AUST. 5031
TEL: (08) 43 5722
TELEX: AA89323

Queensland
Preparation Laboratory
172 LAVARACK AVE.,
EAGLE FARM,
QUEENSLAND. 4007
TEL: (07) 268 4748

Mr. S. Lee,
Santos Ltd.,
183 Melbourne Street,
NORTH ADELAIDE. S.A. 5006.

29.9.81



Dear Simon,

RE: JOB COM 811447(Additional)

Enclosed are the results requested as additional to our Job COM 811447.

Yours sincerely,

Harry Fishman
Managing Director

1 copy

039

COMLABS Pty Ltd

ANALYTICAL REPORT

COMPUTERISED ANALYTICAL LABORATORIES

JOB COM811447

O/N : SDL/5305/017

Results in ppm

SAMPLE	W	Ag	Mo
FBN 11	<10	<1	<4
FBN 12	30	<1	<4
FBN 32	15	<1	<4
FBN 35	20	<1	<4
FBN 75	15	<1	<4
FBN 91	25	<1	<4
FBN 97	20	<1	<4
FBN 100	25	<1	<4
FBN 101	25	<1	<4
FBN 106	20	<1	<4
FBN 112	15	<1	<4
FBN 114	25	<1	<4
FBN 117	25	<1	<4
FBN 118	25	<1	<4
FBN 121	25	<1	<4
FBN 125	20	<1	<4
FBN 127	25	<1	<4

Method of Analysis : Ag Mo : AAS3
W : XRF1

APPENDIX 2

GEOLOGICAL LOGS AND ASSAY DATA - DDH's, FEN4, FEN5

498042



HELLYER MINING & EXPLORATION PTY. LTD.

123 Melbourne Street, North Adelaide 5006
P.O. Box 121, North Adelaide 5006

Tel (08) 7675000

Telegraphic address 'SALYOS' Adelaide
Telex No AAB2716

MEMO TO: D. B. Clarke Date 17.11.81
FROM: N. R. Langsford HM 107/81 File: HM 6.12
SUBJECT: FLY-BY -NIGHT HOLES DFBN 4 and DFBN 5

Please find attached:

- ATTACHMENT I Drill log and sampling details of Hole DFBN 4.
- ATTACHMENT II Drill log and sampling details of Hole DFBN 5.

N. R. Langsford

NRL:gj

DFBN 49900E A₂ 180° T

T.D. 86m

10240N -45°

Driller A. Cuenden/7-9 October 1981

Logged N.R. Langsford

Summary Log

Hole penetrated altered granite from collar to final depth. Alternating bands of hard siliceous quartz-mica greisen with associated quartz veins, and kaolinized partly greisenized granite. Minor quartz veins spaced about 1-3m from 30m → 58m, 0.1 - 0.3m thick. No visible SnO₂.

From 58-67m, relatively little altered granite. From 67m to total depth, kaolinized partly greisenized granite, alteration decreasing with depth.

Drilling Notes

Drilled HQ to 39.0m, cased off and completed to target depth N.Q. Rapid drilling with overall good recovery. Altered granite was surprisingly abrasive.

Hole completed to target depth 85m. No core 0-3m, 44.3 - 47.3m.

Sampling

Samples split and bulked over 2m interval submitted for Sn Au Ag W Mo Ta.

Detailed Log

- 0 - 3 m. No core (soft weathered kaolinized granite).
- 3 - 4.5m. Grey coarse grained greisenized silicified granite with irregular vuggy quartz veins with coarse grey quartz crystals.
- 4.5-7.8m. Grey mg-cg greisenized kaolinized granite.
- 7.8-9.8m. Hard grey-green mg siliceous greisen.
- 9.8-22m. Grey mg-cg kaolinized greisenized granite.
- 22-22.7m. Dark grey siliceous greisen.
- 22.7-48.8 Light to dark grey mg-cg greisenized granite, very soft.
 - grey platy quartz veins @ 29.8m (10cm)
 - 31.9m (10cm)
 - 34.7m (5cm)
 - black glassy quartz vein 39.4m (5cm)
 - white platy quartz vein 42.3m (10cm)
- 48.8-49.6 Fractured white to pale pink quartz vein with siliceous greisen carrying green mica. No visible SnO₂.
- 49.6-51.3 White crumbly coarse grained kaolinized granite.
- 51.3-54 Grey yellow mottled medium grained weakly greisenized granite.
- 54-54.4 White fractured Fe stained barren quartz vein.
- 54.4-58.2 Grey mg greisen. Thin grey quartz veins at 54.5, 55.8.
- 58.2-66.6 Altered granite - m.g. feldspars altered to greenish-cream clay minerals, + abundant fine grained sericite. Rock is coherent but intensely altered. Minor c.g. green chlorite.

043

- 66.6-73.2 Soft c.g. grey greisenized kaolinized granite. Quartz is "smoky", kaolinite grey, with fine grained mica. Minor very thin platy grey quartz veins.
- 73.2-84 Fine grained soft grey to khakhi clay-mica rock; quartz is fine grained compared with other sections of core. Thin grey fractured quartz veins at 74.6m 79.1m 80.9m 84.7m.
- 84-85.8m Coarse grained soft kaoloinized grey granite.

FLY-BY NIGHT PROSPECT N.E. TASMANIADFBN 5

9820E A₂ 140T T.D. 64.5m

10170N -45° Driller A. Cuenden/5-7 October 1981

Logged N.R. Langsford

Summary Log

0-14m. Slightly hornfelsed yellow mudstones, siltstones. (Mathinna Gp. Sediments). 14-15.5m. Contact zone - soft cream greisenized granite
 15.5 - 42m. Variable greisenized and kaolinized mg granite. Minor quartz veins.
 42-64.5 (No core) fg soft greisen and kaolinized granite.

Drilling Notes

HQ to 42m. Cased off and drilled NQ to 64.5m. No core recovered 34.5-36m, 40.5-42m, 42-64.5. Generally core recovery was excellent in Mathinna Gp, acceptable in altered granite to 42m. Below this no recovery occurred due to the softness of the altered granite. Driller tried all possible techniques available to him but was unsuccessful. Sludge samples were collected below 42m and above where recovery was low. Hole abandoned short of target depth, 75m due to no core recovery and constantly jamming rods.

Detailed Log

- 0-1.5m Surface rubble, yellow clay.
- 1.5-9m Yellow to red brown poorly laminated slightly hornfelsed siltstones and mudstones. Red and brown mottled; slightly micaceous and "spotted". Close, open, joints, commonly clay filled.
- 9-12m Pale grey green poorly laminated siltstones and mudstones, minor quartzite bands <10cm thick. Yellow and brown mottled, "spotting" due to hornfelsing prominent. Open rare patches of coarse green chlorite and muscovite, f.g. mica common along joints, with yellow clay. Thin seams of granitic material developed along closed fractures. Open joints spaced 10-15cm. Narrow (<2cm) greisen zone at 9.5m.
- 12-14m Yellow to grey silicified hornfelsed (strongly "spotted") closely jointed mudstone.
- 14-15.5m Yellow to cream fine grained soft kaolinized greisenized granite.

MATHINNA
BEDS

CONTACT
ZONE

044

498045

- 15.5-22.6m Grey altered granite. Medium grained partly greisenized kaolinized granite. Mica <20%. Irregular clots of c.g. muscovite common. 1.2mm wide steeply dipping irregular anastomosing quartz-white clay veins spaced 5-10cm. Few small Xtals SnO₂.
- 22.6-28.5m Grey greisenized granite; notable harder and more siliceous than above.
- 28.5-29m Massive white barren quartz vein.
- 29-30.7m Kaolinized and greisenized granite - at 30.2m 10cm wide "platy" fractured quartz vein. No visible SnO₂.
- 30.7-31.8m Fine grained siliceous grey greisen - (minor SnO₂ in most siliceous section.)
- 31.5-31.8m
- 31.8-34.5m Kaolinized and greisenized granite.
- 34.5-36m No core (probably soft greisen).
- 36-40.5m Grey greisenized granite.
- 40.5-42m No core.

ALTERED
DEV.
GRANITE

To end of hole at 64.5m, no core. Sludge samples suggest m.g. kaolinized and greisenized granite with minor SnO₂ (panned in cuttings).

Sampling

Hard core diamond sawn, soft split, into halves; half submitted to Mines Department Labs, Launceston for Sn Au W Mo Ag Ta two metre intervals.

Sludges over 1.5 or 3 metres intervals; collected in tow traps, mixed, coned and quartered. 1 kg sample submitted to Tasmanian Mines Department Labs as above.

043

M 1588

498046



DEPARTMENT OF MINES—TASMANIA

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

TELEPHONES:

Metallurgical Research }
Laboratory } 44 2431-2
Mines Inspection } (2 lines)
Explosives & Inflammable Liquids }

25th November 1981

Santos
183 Melbourne Street,
Adelaide 5006
South Australia

c.c. N. Langsford
P.O. Box 118
Smithton 7330

Reg. Nos 814265-290, 814300-329, 814349-359.

Dear Sirs,

Please find attached results of samples submitted to this laboratory on the 16th Oct'81, 19th Oct'81 & 28th Oct'81 and stated to be from the Fly-by-Night. DFBN 5 & 4. Gladstone area.

Yours faithfully,

(H. K. Wellington)
Chief Chemist & Metallurgist

Encl.

Core Samples Fly-by-Night

Santos Reg. No 814265-290, 814300-329, 814349-359

<u>Reg. Nos.</u>	<u>Description</u>	<u>g/t Sn</u>	<u>g/t Ag</u>	<u>g/t Ta</u>	<u>g/t Mo</u>	<u>g/t W</u>	<u>g/t Au</u>
814265	DFBN 5 1.8 - 4 m	21	<10	<10	3	<15	<0.3
266	4 - 6 m	24	<10	<10	4	<15	
267	6 - 8	< 5	<10	<10	3	35	
268	8 - 10	< 5	<10	<10	<3	80	
269	10 - 12	< 5	<10	<10	<3	40	
270	12 - 14	< 5	<10	<10	3	105	
271	14 - 16	115	<10	19	<3	<15	
272	16 - 18	260	<10	20	3	25	
273	18 - 20	255	<10	14	4	75	
274	20 - 22	425	<10	14	6	95	
275	22 - 24	190	<10	11	5	40	
276	24 - 26	160	<10	20	4	135	
277	26 - 28	140	<10	15	6	<15	
278	28 - 30	110	<10	<10	5	<15	
279	30 - 32	430	<10	<10	4	<15	
280	32 - 34	285	<10	<10	4	<15	
281	*34 - 36	150	<10	<10	<3	120	
282	36 - 38	150	<10	<10	<3	95	
283	38 - 40.5	160	<10	<10	<3	90	
284	Sludge S. 36 - 37.6	75	<10	<10	4	<15	
285	45.0 - 46.5	195	<10	10	38	70	
286	46.5 - 49.5	90	<10	<10	15	50	
287	51.3 - 54.0	100	<10	<10	8	80	
288	66.6 - 69.3	75	<10	<10	4	95	
289	69.6 - 72.9	85	<10	<10	6	80	
290	72.7 - 74	65	<10	<10	3	60	<0.3

* (No core 34.5 - 36)

498047

046

Core Samples DFBN 4 Fly-by-Night

- 2 -

<u>Reg. Nos</u>	<u>Description</u>	<u>g/t Sn</u>	<u>g/t Ag</u>	<u>g/t Ta</u>	<u>g/t Mo</u>	<u>g/t W</u>	<u>g/t Au</u>
814300	DFBN 4 3 - 4 m	280	<10	21	3	50	<0.3
301	4 - 6	550	<10	<10	4	50	
302	6 - 8	260	<10	13	3	90	
303	10 - 12	245	<10	<10	5	55	
304	12 - 14	165	<10	<10	5	85	
305	14 - 16	245	<10	<10	3	45	
306	16 - 18	170	<10	<10	3	25	
307	18 - 20	105	<10	<10	3	40	
308	24 - 26	185	<10	<10	<3	60	
309	26 - 28	155	<10	<10	5	75	
310	28 - 30	340	<10	<10	5	65	
311	30 - 32	130	<10	13	3	<15	
312	32 - 34	170	<10	15	4	65	
313	34 - 36	140	<10	<10	4	45	
314	36 - 38	145	<10	<10	4	35	
315	38 - 40	185	<10	<10	4	115	
316	40 - 42	455	<10	11	5	55	
317	42 - 44.3	365	<10	<10	3	30	
318	49 - 51	170	<10	<10	5	30	
319	51 - 53	175	<10	<10	3	85	
320	55 - 57	150	<10	<10	4	90	
321	57 - 59	150	<10	12	4	50	
322	69 - 71	135	<10	<10	<3	105	
323	71 - 73	110	<10	10	4	85	
324	73 - 75	260	<10	<10	4	35	<0.3

498048

470

498049

<u>Reg. Nos</u>	<u>Description</u>	<u>g/t Sn</u>	<u>g/t Ag</u>	<u>g/t Ta</u>	<u>g/t Mo</u>	<u>g/t W</u>	<u>g/t Au</u>
814325 DFBN 4	75 - 77 m	155	<10	<10	<3	25	<0.3
326	77 - 79	235	<10	<10	4	60	
327	79 - 81	505	<10	<10	<3	80	
328	81 - 83	8930	<10	<10	<3	85	
329	83 - 85	370	<10	<10	4	55	
814349 DFBN 4	7 - 9	585	<10	17	3	90	
350	9 - 11	255	<10	14	3	<15	
351	19 - 21	115	<10	12	3	40	
352	21 - 23	310	<10	<10	4	<15	
353	49 - 51	1050	<10	<10	4	<15	
354	53 - 55	435	<10	10	<3	70	
355	59 - 61	100	<10	<10	6	55	
356	61 - 63	100	<10	<10	5	70	
357	63 - 65	110	<10	<10	<3	55	
358	65 - 67	75	<10	<10	4	30	
359	67 - 69	100	<10	<10	<3	100	<0.3

Analyses by.....

[Handwritten signature]

[Handwritten signature]

(H. K. Wellington)

Chief Chemist & Metallurgist

048

049

498050



DEPARTMENT OF MINES—TASMANIA

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

TELEPHONES:
Metallurgical Research ... }
Laboratory ... } 44 2431-2
Mines Inspection ... } (2 lines)
Explosives & Inflammable Liquids }

12th November 1981

Santos Ltd.
183 Melbourne Street,
Lower North Adelaide,
South Australia

Attent. Simon Lee

Reg. Nos 814188-205

Dear Sir,

Please find below results of samples submitted to this laboratory on the 9th Oct'81 and stated to be from Fly-by-Night, in the Gladstone area.

<u>Reg. No</u>	<u>Description</u>	<u>g/tonne</u>			
		<u>Sn</u>	<u>W</u>	<u>Mo</u>	<u>Au</u>
814188	Hole 4 0 - 3m sludge	265	40	<3	<3
189	39 - 40.5 "	125	85	<3	<3
190	40.5- 41.3 "	120	60	<3	<3
191	42.3- 44.3 "	360	65	<3	<3
192	44.3- 47.3 "	160	45	<3	<3
193	47.5- 48.9 "	145	75	<3	<3
194	49.6- 51.3 "	280	65	<3	<3
195	54.0- 57.2 "	405	85	<3	<3
196	57.3- 60.4 "	235	80	<3	<3
197	74 - 76 "	95	30	<3	<3
198	Hole 5 42 - 45 "	275	130	9	<3
199	46.5- 49.5 Core	140	15	15	<3
200	49.5- 52.5 Sludge	200	35	45	<3
201	52.5- 55.5 "	170	25	30	<3
202	55.5- 58.5 "	225	25	10	<3
203	58.5- 61.5 Core	1080	25	<3	<3
204	58.5- 61.5 Sludge	340	30	<3	<3
205	61.5- 64.5 "	765	70	3	<3

Yours faithfully,

[Signature]
(H.V. Wellington)

Analyses by *[Signature]*

Fee \$360.00

050

APPENDIX 3

ASSAY DATA FROM 1982 GEOCHEMICAL PROGRAMME

Santos Reg. No. 821410 - 642 Gladstone area rock chip and Hand auger soil samples

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Rb g/t</u>	<u>Au g/t</u>
821410	A0001 RC	55	420	
411	2 "	32	420	
412	3 "	28	420	
413	4 "	29	430	
414	5 "	94	540	
821415	A0006 RC	40	660	
416	7 "	43	710	
417	8 "	37	780	
418	9 "	77	700	
419	FBNO001 C	41	99	
821420	FBNO002 C	15	230	
421	3 "	31	350	
422	4 "	56	120	
423	5 "	28	85	
424	6 "	28	210	
821425	FBNO007 C	27	6	
426	8 "	31	260	
427	9 "	45	170	
428	10 "	127	150	
429	11 "	29	20	
821430	FBNO012 C	38	44	
431	13 "	61	16	
432	14 "	42	20	
433	15 "	37	10	
434	16 "	34	19	
821435	FBNO017 C	17	22	
436	18 "	38	12	
437	19 "	38	180	
438	20 "	58	13	
439	21 "	48	33	

051

498052

<u>Reg. Nos</u>	<u>Descriptions</u>	<u>Sn g/t</u>	<u>Rb g/t</u>	<u>Au g/t</u>
821440	FBNO022 C	130	110	
441	23 C	270	91	
442	24 C	140		
443	25 C	450		
444	26 C	660		
821445	FBNO027 C	540		
446	28 C	130		
447	29 C	130		
448	30 C	93		
449	31 C	110		
821450	FBNO032 C	94		
451	33 "	100		
452	34 "	44		
453	35 "	54		
454	36 "	53		
821455	FBNO037 C	120		
456	38 "	43		
457	39 "	200		
458	40 "	190		
459	41 "	17	450	
821460	FBNO042 C	100	180	
461	43 C	460	440	
462	44 RC	110	650	
463	45 RC	83	460	
464	46 C	460	610	
821465	FBNO047 C	440	640	
466	48 "	61	580	
467	49 "	190	160	
468	50 "	170	62	
469	51 "	19	180	

052

498053

<u>Reg. Nos</u>	<u>Descriptions</u>	<u>Sn g/t</u>	<u>Rb g/t</u>	<u>Au g/t</u>
821470	FBNO052 C	15	110	
471	53 "	25	55	
472	54 "	20	28	
473	55 "	10	41	
474	56 "	<10	82	
821475	FBNO057 C	14	83	
476	58 "	16	170	
477	59 "	18	170	
478	60 "	10		
479	61 "	<10		
821480	FBNO062 C	12		
481	63 RC	<10		
482	64 C	14		
483	65 C	<10		
484	66 C	20		
821485	FBNO067 C	<10		
486	68 "	16		
487	69 "	32		
488	70 "	47		
489	71 "	25		
821490	FBNO072 C	24		
491	73 "	<10		
492	74 "	18		
493	75 C	25		
494	76 "	19		
821495	FBNO077 C	22		
496	78 "	<10		
497	79 "	18		
498	80 "	150		
499	81 "	77		

053

498054

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Rb g/t</u>	<u>Au g/t</u>
821500	FBNO082 C	31		
501	83 C	67		
502	84 C	46		
503	85 C	<10		
504	86 C	12		
821505	FBNO087 C	28		
506	88 "	12		
507	89 "	32		
508	90 "	15		4.8
509	91 "	21		<0.3
821510	FBNO092 C	43		<0.3
511	93 "	33		1.9
512	94 "	41		<0.3
513	95 "	86		<0.3
514	96 "	62		<0.3
821515	FBNO097 C	260		<0.3
516	98 "	360		0.55
517	99 "	360		4.57
518	100 "	480		0.3
519	101 "	140		<0.3
821520	FBNO102 C	105		<0.3
521	103 RC	< 10		<0.3
522	104 C	48		<0.3
523	105 C	14		0.7
524	106 C	110		<0.3
821525	FBNO107 RC	160		<0.3
526	108 RC	330		<0.3
527	109 RC	210		<0.3
528	110 C	52		
529	112 C	29		

054

498055

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>
821530	FBNO113 C	25
531	114 "	23
532	115 "	450
533	116 "	623
534	117 "	130
821535	FBNO118 C	110
536	119 "	260
537	120 "	210
538	121 "	260
539	122 "	670
821540	FBNO123 C	88
541	124 "	340
542	125 RC	120
543	126 RC	21
544	127 C	56
821545	FBNO128 C	160
546	129 "	29
547	130 RC	16
548	131 C	120
549	132 "	49
821550	FBNO133 C	61
551	134 "	510
552	135 "	35
553	136 "	34
554	137 "	25
821555	FBNO138 C	48
556	139 "	100
557	140 "	33
558	141 RC	10
559	142 C	22

055

498056

<u>Reg. No</u>	<u>Description</u>	<u>Sn g/t</u>
821560	FBNO143 C	< 10
561	144 "	18
562	145 "	15
563	146 "	13
564	147 "	19
821565	FBNO148 C	< 10
566	149 "	17
567	150 "	29
568	151 "	56
569	152 "	250
821570	FBNO153 C	140
571	154 "	150
572	155 "	100
573	156 "	55
574	157 "	110
821575	FBNO158 C	76
576	159 "	60
577	160 "	< 10
578	161 "	19
579	162 "	66
821580	FBNO163 C	15
581	164 "	15
582	165 "	10
583	166 "	27
584	167 "	< 10
821585	FBNO168 C	< 10
586	169 "	< 10
587	170 "	< 10
588	171 "	X 10
589	172 "	< 10

056

498057

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>
821590	FBNO173 C	< 10
591	174 "	< 10
592	175 "	< 10
593	176 "	< 10
594	177 "	< 10
821595	FBNO178 C	< 10
596	179 "	< 10
597	180 "	15
598	181 "	41
599	182 "	65
821600	FBNO183 C	52
601	184 "	32
602	185 "	21
603	186 "	27
604	187 "	11
821605	FBNO188 C	19
606	189 "	12
607	190 "	11
608	191 "	11
609	192 "	10
821610	FBNO193 C	< 10
611	194 "	< 10
612	195 "	< 10
613	196 "	< 10
614	197 "	14
821615	FBNO198 C	< 10
616	199 "	< 10
617	200 "	< 10
618	201 "	< 10
619	202 "	< 10

057

498058

058

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Au g/t</u>
821620	FBNO203 C	< 10	
621	204 "	< 10	
622	205 RC	12	
623	206 C	< 10	
624	207 C	< 10	
821625	FBNO208 C	< 10	
626	209 RC	< 10	
627	210 C	< 10	
628	211 "	< 10	
629	212 "	< 10	
821630	FBNO213 C	10	
631	214 "	< 10	
632	215 RC	< 10	
633	216 RC	< 10	
634	217 C	< 10	
821635	FBNO218 C	< 10	
636	219 "	< 10	
637	220 "	370	<0.3
638	221 "	170	<0.3
639	222 "	190	<0.3
821640	FBNO223 C	53	<0.3
641	224 "	190	<0.3
642	225 "	140	<0.3

Analyses by *A. L. Leitch*
M. L. ...

H. K. Wellington
 (H. K. Wellington)
 Chief Chemist & Metallurgist

498059

DEPARTMENT OF MINES—TASMANIA



LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

TELEPHONES:

Metallurgical Research }
Laboratory } 44 2431-2
Mines Inspection } (2 lines)
Explosives & Inflammable Liquids }

15th December 1982

Santos Ltd,
G.P.O. Box 2319,
Adelaide,
South Australia

Reg. Nos 821662-876

Dear Sirs,

Please find below results of samples submitted to this laboratory on the 3rd December 1982, and stated to be from the Gladstone area.

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Au g/t</u>
821662	FBN 0226 C	100	0.3
663	227 "	94	<0.3
664	228 "	72	<0.3
665	229 "	83	<0.3
666	230 "	52	0.8
821667	FBN 0231 C	89	<0.3
668	232 "	54	<0.3
669	233 "	55	<0.3
670	234 "	61	<0.3
671	235 "	20	<0.3
821672	FBN 0236 C	11	<0.3
673	237 "	<10	<0.3
674	238 "	<10	<0.3
675	239 "	17	<0.3
676	240 "	12	<0.3
821677	FBN 0241 RC	11	<0.3
678	242 C	<10	
679	243 "	<10	
680	244 RC	<10	
681	245 C	<10	
821682	FBN 0246 C	12	
683	247 "	<10	
684	248 "	<10	
685	249 "	14	
686	250 "	<10	
821687	FBN 0251 C	17	
688	252 "	15	
689	253 "	11	
690	254 "	26	
691	255 "	13	

060

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>
821692	FBN 0256 C	29
693	257 "	260
694	258 "	300
695	259 "	150
696	260 "	47
821697	FBN 0261 C	110
698	262 "	94
699	263 "	39
700	264 "	34
701	265 "	20
821702	FBN 0266 C	24
703	267 "	16
704	268 "	32
705	269 "	29
706	270 "	35
821707	FBN 0271 C	<10
708	272 "	26
709	273 "	<10
710	274 RC	14
711	275 C	<10
821712	FBN 0276 C	<10
713	277 RC	11
714	278 C	<10
715	279 C	<10
716	280 "	<10
821717	FBN 0281 C	<10
718	282 "	<10
719	283 "	<10
720	284 "	<10
721	285 "	15
821722	FBN 0286 C	16
723	287 "	46
724	288 "	36
725	289 "	33
726	290 "	11
821727	FBN 0291 C	<10
728	292 "	20
729	293 "	13
730	294 "	14
731	295 "	<10
821732	FBN 0296 RC	17
733	297 C	<10
734	298 C	<10
735	299 RC	13
736	300 C	<10

<u>Reg. No</u>	<u>Description</u>	<u>Sn g/t</u>
821737	FBN 0301 C	<10
738	302 "	<10
739	303 "	10
740	304 "	11
741	305 RC	<10
821742	FBN 0306 C	<10
743	307 RC	<10
744	308 RC	2000
745	309 C	56
746	310 "	15
821747	FBN 0311 C	22
748	312 "	11
749	313 "	10
750	314 "	<10
751	315 "	<10
821752	FBN 0316 C	<10
753	317 RC	<10
754	318 C	<10
755	319 "	<10
756	320 "	<10
821757	FBN 0321 C	<10
758	322 "	<10
759	323 RC	<10
760	324 RC	15
761	325 C	<10
821762	FBN 0326 C	<10
763	327 "	<10
764	328 "	<10
765	329 "	<10
766	330 "	<10
821767	FBN 0331 C	12
768	332 "	17
769	333 "	<10
770	334 "	124
771	335 RC	11
821772	FBN 0336 C	48
773	337 "	19
774	338 "	11
775	339 "	32
776	340 "	92
821777	FBN 0341 C	97
778	342 "	62
779	343 "	54
780	344 "	21
781	345 "	<10

062

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>
821782	FBN 0346 C	19
783	347 RC	<10
784	348 RC	14
785	349 C	13
786	350 "	17
821787	FBN 0351 C	25
788	352 "	<10
789	353 RC	<10
790	354 C	<10
791	355 "	<10
821792	FBN 0356 C	<10
793	357 "	14
794	358 "	<10
795	359 "	<10
796	360 "	10
821797	FBN 0361 C	<10
798	362 "	<10
799	363 "	<10
800	364 "	<10
801	365 "	<10
821802	FBN 0366 C	16
803	367 "	<10
804	368 "	<10
805	369 "	41
806	370 "	10
821807	FBN 0371 C	<10
808	372 "	22
809	373 "	88
810	374 "	47
811	375 "	17
821812	FBN 0376 C	<10
813	377 "	<10
814	378 RC	13
815	379 RC	41
816	380 C	31
821817	FBN 0381 C	13
818	382 "	14
819	383 "	22
820	384 "	28
821	385 RC	11
821822	FBN 0386 C	19
823	387 "	14
824	388 RC	20
825	389 C	24
826	390 "	360

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>
821827	FBN 0391 C	165
828	392 "	30
829	393 "	22
830	394 "	42
831	395 "	32
821832	FBN 0396 C	34
833	397 "	34
834	398 "	<10
835	399 "	<10
836	400 "	<10
821837	FBN 0401 C	20
838	402 "	12
839	403 "	<10
840	404 "	<10
841	405 "	22
821842	FBN 0406 C	<10
843	407 "	34
844	408 "	<10
845	409 "	<10
846	410 "	<10
821847	FBN 0411 C	<10
848	412 "	<10
849	413 "	14
850	414 RC	26
851	415 RC	580
821852	FBN 0416 C	120
853	417 "	67
854	418 "	300
855	419 "	43
856	420 "	190
821857	FBN 0421 C	195
858	422 "	85
859	423 "	105
860	424 "	130
861	425 "	89
821862	FBN 0426 C	39
863	427 "	72
864	428 "	810
865	429 "	86
866	430 "	63
821867	FBN 0431 RC	95
868	432 C	30
869	433 C	40
870	434 "C	45
871	435 "	30

064

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>
821872	FBN 0436 RC	30
873	437 RC	200
874	438 C	<10
875	439 C	<10
876	A 00010 RC	<10

Yours faithfully,

G. K. ...
(H. K. Wellington)
Chief Chemist & Metallurgist

Analyses by *M. ...*



DEPARTMENT OF MINES—TASMANIA

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

19th January, 1983

Santos Ltd.,
G.P.O. Box 2319,
ADELAIDE S.A. 5001

Reg. Nos. 821942 - 822457

Dear Sirs,

Please find below results of samples submitted to this laboratory on the 22nd December, 1982 and stated to be from the Gladstone Area.

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>
821942	FBN 0440 RC	235
943	441 RC	100
944	442 C	90
945	443 C	82
946	444 RC	53
821947	FBN 0445 C	125
948	446 C	85
949	447 C	60
950	448 C	53
951	449 C	51
821952	FBN 0450 C	40
953	451 C	43
954	452 C	51
955	453 C	36
956	454 C	32
821957	FBN 0455 C	24
958	456 C	27
959	457 C	20
960	458 C	18
961	459 C	26
821962	FBN 0460 C	17
963	461 C	15
964	462 C	39
965	463 C	20
966	464 C	43
821967	FBN 0465 C	140
968	466 C	27
969	467 C	34
970	468 C	28
971	469 C	18

066

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>
821972	FBN 0470 C	20
973	471 C	21
974	472 C	33
975	473 C	15
976	474 C	13
821977	FBN 0475 C	14
978	476 C	13
979	477 C	12
980	478 C	11
981	479 C	<10
821982	FBN 0480 RC	14
983	481 C	11
984	482 C	12
985	483 C	26
986	484 C	19
821987	FBN 0485 C	14
988	486 RC	30
989	487 C	20
990	488 C	12
991	489 RC	35
821992	FBN 0490 RC	24
993	491 C	14
994	492 C	<10
995	493 C	12
996	494 C	10
821997	FBN 0495 RC	16
998	496 RC	15
999	497 C	11
822000	498 C	16
001	499 C	17
822002	FBN 0500 C	29
003	501 C	15
004	502 C	14
005	503 C	14
006	504 C	15
822007	FBN 0505 RC	29
008	506 C	18
009	507 C	<10
010	508 RC	29
011	509 C	<10
822012	FBN 0510 C	37
013	511 RC	35
014	512 RC	35
015	513 C	20
016	514 RC	35

067

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Au g/t</u>
822017	FBN 0515 C	24	
018	516 RC	36	
019	517 C	<10	
020	518 C	10	
021	519 C	<10	
822022	FBN 0520 RC	19	
023	521 C	16	
024	522 C	13	
025	523 C	20	
026	524 C	14	
822027	FBN 0525 C	12	
028	0526 C	14	
029	527 C	22	
030	528 C	29	
031	529 C	29	
822032	FBN 0530 C	79	
033	531 C	33	
034	532 C	29	
035	533 C	38	
036	534 C	28	
822037	FBN 0535 C	12	
038	536 C	29	
039	537 C	24	
040	538 C	38	
041	539 C	59	
822042	FBN 0540 RC	15	
043	541 C	19	
044	542 C	15	
045	543 C	<10	
046	544 C	13	
822047	FBN 0545 C	38	
048	546 C	38	
049	547 C	42	
050	548 C	43	
051	549 C	22	
822052	FBN 0550 C	78	
053	551 C	52	
054	552 C	93	
055	553 C	100	
056	554 C	20	
822057	FBN 0555 RC	56	<0.3
058	556 RC	31	<0.3
059	557 C	22	
060	558 C	32	
061	559 C	30	

058 Reg. Nos.

Description

Sn g/t

822062	FBN 0560 C	21
063	561 C	<10
064	562 C	11
065	563 C	60
066	564 C	36
822067	FBN 0565 C	25
068	566 C	22
069	567 C	36
070	568 RC	35
071	569 C	15
822072	FBN 0570 RC	105
073	571 C	76
074	572 C	130
075	573 RC	28
076	574 C	31
822077	FBN 0575 RC	24
078	576 C	17
079	577 RC	34
080	578 RC	20
081	579 C	10
822082	FBN 0580 C	22
083	581 C	22
084	582 C	42
085	583 C	30
086	584 C	14
822087	FBN 0585 C	12
088	586 C	18
089	587 C	16
090	588 C	24
091	589 C	12
822092	FBN 0590 C	33
093	591 C	11
094	592 C	15
095	593 C	12
096	594 C	32
822097	FBN 0595 C	28
098	596 C	23
099	597 C	26
100	598 C	27
101	599 C	16
822102	FBN 0600 C	28
103	601 C	11
104	602 C	24
105	603 C	11
106	604 C	19

069

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Au g/t</u>
822107	FBN 0605 C	12	
108	606 C	10	
109	607 C	24	
110	608 C	63	
111	609 C	32	
822112	FBN 0610 C	24	
113	611 RC	28	
114	612 C	41	<0.3
115	613 C	17	<0.3
116	614 C	25	
822117	FBN 0615 C	81	
118	616 C	34	
119	617 C	20	
120	618 C	13	
121	619 C	23	
822122	FBN 0620 RC	25	
123	621 C	29	
124	622 C	18	
125	623 C	15	
126	624 C	23	
822127	FBN 0625 RC	24	
128	626 C	11	
129	627 C	11	
130	628 C	<10	
131	629 C	<10	
822132	FBN 0630 C	<10	
133	631 C	28	
134	632 C	33	
135	633 C	30	
136	634 C	48	
822137	FBN 0635 C	31	
138	636 C	54	
139	637 C	50	
140	638 C	37	
141	639 C	30	
822142	FBN 0640 C	46	
143	641 C	50	
144	642 C	25	
145	643 C	62	
146	644 C	58	
822147	FBN 0645 C	23	
148	646 C	28	
149	647 C	21	
150	648 C	30	
151	649 C	77	

070

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>
822152	FBN 0650 C	28
153	651 C	16
154	652 C	16
155	653 C	17
156	654 C	48
822157	FBN 0655 C	14
158	656 C	980
159	657 C	115
160	658 C	48
161	659 RC	18
822162	FBN 0660 C	12
163	661 C	28
164	662 C	14
165	663 C	17
166	664 RC	21
822167	FBN 0665 RC	150
168	666 RC	23
169	667 C	10
170	668 RC	26
171	669 C	22
822172	FBN 0670 C	40
173	671 C	37
174	672 C	56
175	673 C	41
176	674 C	66
822177	FBN 0675 C	54
178	676 C	55
179	677 C	130
180	678 C	130
181	679 C	210
822182	FBN 0680 C	82
183	681 C	46
184	682 C	18
185	683 C	44
186	684 C	34
822187	FBN 0685 C	55
188	686 C	33
189	687 C	82
190	688 RC	70
191	689 RC	43
822192	FBN 0690 C	42
193	691 RC	44
194	692 C	44
195	693 RC	37
196	694 C	14

071

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>
822197	FBN 0695 C	16
198	696 C	23
199	697 C	26
200	698 C	30
201	699 C	13
822202	FBN 0700 C	<10
203 & 204 (combined)*	701 C & 702 C	63
205	703 C	49
206	704 C	<10
207	705 RC	16
822208	FBN 0706 C	24
209	707 RC	16
210	708 C	88
211	709 C	990
212	710 C	422
822213	FBN 0711 C	42
214	712 C	69
215	713 C	38
216	714 C	56
217	715 C	25
822218	FBN 0716 C	38
219	717 C	46
220	718 C	53
221	719 C	39
222	720 C	19
822223	FBN 0721 C	13
224	722 C	52
225	723 C	28
226	724 C	24
227	725 C	30
822228	FBN 0726 C	33
229	727 C	54
230	728 C	25
231	729 RC	20
232	730 C	65
822233	FBN 0731 C	265
234	732 RC	72
235	733 C	135
236	734 C	91
237	735 C	27
822238	FBN 0736 C	19
239	737 C	79
240	738 C	42
241	739 C	165
242	740 C	100

* during sample preparation these two samples were mixed accidentally.

072

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>
822243	FBN 0741 C	59
244	742 RC	47
245	743 RC	54
246	744 C	35
247	745 C	100
822248	FBN 0746 C	49
249	747 RC	36
250	748 C	105
251	749 C	47
252	750 C	130
822253	FBN 0751 C	245
254	752 C	78
255	753 C	73
256	754 C	82
257	755 C	24
822258	FBN 0756 C	12
259	757 C	17
260	758 C	30
261	759 C	13
262	760 C	17
822263	FBN 0761 C	19
264	762 C	12
265	763 RC	21
266	764 C	22
267	765 C	22
822268	FBN 0766 C	15
269	767 C	30
270	768 C	90
271	769 C	40
272	770 C	38
822273	FBN 0771 C	77
274	772 C	87
275	773 C	64
276	774 C	44
277	775 C	254
822278	FBN 0776 C	62
279	777 C	25
280	778 RC	43
281	779 C	52
282	780 C	34
822283	FBN 0781 C	19
284	782 C	14
285	783 C	42
286	784 RC	24
287	785 RC	15

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>
822288	FBN 0786 C	22
289	787 C	19
290	788 C	38
291	789 C	19
292	790 C	46
822293	FBN 0791 C	15
294	792 C	24
295	793 C	37
296	794 C	16
297	795 RC	12
822298	FBN 0796 C	49
299	797 C	200
300	798 C	200
301	799 C	130
302	800 C	130
822303	FBN 0801 C	46
304	802 C	83
305	803 C	130
306	804 C	250
307	805 C	191
822308	FBN 0806 C	195
309	807 C	115
310	808 C	325
311	809 C	74
312	810 C	91
822313	FBN 0811 RC	38
314	812 C	55
315	813 C	170
316	814 RC	120
317	815 C	45
822318	FBN 0816 C	40
319	817 C	39
320	818 C	64
321	819 C	84
322	820 C	61
822323	FBN 0821 C	74
324	822 C	195
325	823 RC	65
326	824 C	41
327	825 C	58
822328	FBN 0826 C	13
329	827 C	14
330	828 C	16
331	829 C	35
332	830 C	11

074

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>
822333	FBN 0831 RC	10
334	832 RC	36
335	833 C	24
336	834 C	25
337	835 RC	14
822338	FBN 0836 RC	<10
339	837 C	465
340	838 C	545
341	839 C	83
342	840 C	100
822343	FBN 0841 C	52
344	842 C	190
345	843 RC	49
346	844 RC	60
347	845 C	155
822348	FBN 0846 C	225
349	847 C	195
350	848 RC	53
351	849 C	550
352	850 C	195
822353	FBN 0851 C	290
354	852 C	115
355	853 C	195
356	854 RC	37
357	855 RC	39
822358	FBN 0856 C	53
359	857 RC	33
360	858 RC	35
361	859 RC	25
362	860 RC	27
822363	FBN 0861 RC	29
364	862 RC	20
365	863 RC	13
366	864 RC	12
367	865 RC	13
822368	FBN 0866 RC	10
369	867 C	74
370	868 C	16
371	869 C	170
372	870 RC	21
822373	FBN 0871 RC	16
374	872 RC	35
375	873 RC	65
376	874 C	55
377	875 C	134

075

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>
822378	FBN 0876 RC	57
379	877 RC	50
380	878 RC	49
381	879 RC	66
382	880 RC	74
822383	FBN 0881 C	155
384	882 C	185
385	883 C	125
386	884 C	105
387	885 RC	48
822388	FBN 0886 RC	49
389	887 RC	54
390	888 C	99
391	889 C	34
392	890 RC	26
822393	FBN 0891 RC	55
394	892 C	24
395	893 C	260
396	894 C	390
397	895 C	140
822398	FBN 0896 RC	25
399	897 RC	13
400	898 C	18
401	899 RC	22
402	900 RC	555
822403	FBN 0901 C	110
404	902 C	145
405	903 C	65
406	904 C	39
407	905 RC	51
822408	FBN 0906 C	71
409	907 C	11
410	908 RC	13
411	909 RC	23
412	910 C	37
822413	FBN 0911 C	71
414	912 C	340
415	913 C	105
416	914 C	52
417	915 C	120
822418	FBN 0916 C	362
419	917 C	74
420	918 RC	42
421	919 C	91
422	920 RC	98

076

<u>Reg. Nos.</u>	<u>Description</u>	<u>Sn g/t</u>
822423	FBN 0921 RC	54
424	922 RC	63
425	923 RC	42
426	924 C	64
427	925 RC	35
822428	FBN 0926 RC	38
429	927 RC	39
430	928 C	21
431	929 C	43
432	930 C	23
822433	FBN 0931 C	19
434	932 C	26
435	933 C	37
436	934 RC	23
437	935 C	685
822438	FBN 0936 C	65
439	937 C	55
440	938 C	36
441	939 C	39
442	940 C	57
822443	FBN 0941 C	80
444	942 C	21
445	943 C	94
446	944 C	115
447	945 C	28
822448	FBN 0946 C	22
449	947 C	28
450	948 C	13
451	949 C	31
452	950 C	54
822453	FBN 0951 C	425
454	952 C	570
455	953 C	565
456	954 C	15
457	955 C	20

Yours faithfully,

(H. K. Wellington)
Chief Chemist & Metallurgist

Analyses by *M. Fuchs*
J. K. Wellington



DEPARTMENT OF MINES—TASMANIA

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

17th January, 1983

Santos Ltd.,
G.P.O. Box 2319,
ADELAIDE S.A. 5001

Reg. Nos. 821459 - 507
821528 - 566
821743 - 746
821848 - 855

Dear Sirs,

Please find below additional gold assays on samples submitted to this laboratory, as requested by you.

<u>Reg. Nos.</u>	<u>Description</u>		<u>Au g/t</u>
821459 - 821482	FBNO041C - FBNO064C	all -	<0.3
821483	FBNO065C		4.0
821484 - 821498	FBNO066C - FBNO080C	all -	<0.3
821499	FBNO081C		2.5
821500 - 821502	FBNO082C - FBNO084C	all -	<0.3
821503	FBNO085C		0.3
821504 - 821507	FBNO086C - FBNO089C	all -	<0.3
821528	FBNO110C		5.6
821529 - 821541	FBNO112C - FBNO124C	all -	<0.3
821542	FBNO125RC		1.3
821543 - 821566	FBNO126RC - FBNO149C	all -	<0.3
821743 - 821745	FBNO307RC - FBNO309C	all -	<0.3
821746	FBNO310C		1.3
821848 - 821855	FBNO412C - FBNO419C	all -	<0.3

Reg. Nos. 821856 - 821875 to follow.

Yours faithfully,

Analyses by *J. P. K. ...*

K. K. Wellington
(H. K. Wellington)
Chief Chemist & Metallurgist

DEPARTMENT OF MINES—TASMANIA



LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

TELEPHONES:

Metallurgical Research }
Laboratory } 44 2431-2
Mines Inspection } (2 lines)
Explosives & Inflammable Liquids

19th January, 1983

Santos Ltd.,
G.P.O. Box 2319,
ADELAIDE S.A. 5001

Reg. Nos. 821856 - 875

Dear Sirs,

Please find below additional gold assays on samples submitted to this laboratory, as requested by you.

<u>Reg. Nos.</u>	<u>Description</u>	<u>Au g/t</u>
821856	FBNO420C	<0.3
821857	FBNO421C	<0.3
821858	FBNO422C	3.8
821859 - 821875	FBNO423C - FBNO439C	all - <0.3

Yours faithfully,

(H. K. Wellington)
Chief Chemist & Metallurgist

Analyses by *J. A. Bellamy*



DEPARTMENT OF MINES—TASMANIA

TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

21st January, 1983

Santos Ltd.,
G.P.O. Box 2319,
ADELAIDE S.A. 5001

Reg. Nos. 822116 & 822117
822209
822233 - 822236
822314
822321 - 822327
822355 - 822378
822394 - 822402
822450 - 822457

Dear Sir,

Please find below gold assays of samples submitted to this laboratory on the 22nd December, 1982.

<u>Reg. Nos.</u>	<u>Description</u>	<u>Au g/t</u>
822116	FBNO614C	<0.3
822117	FBNO615 C	<0.3
822209	FBNO707 RC	<0.3
822233 - 822236	FBNO731 C - FBNO734 C	all <0.3
822314	FBNO812 C	<0.3
822321	FBNO819 C -	<0.3
822322	FBNO820 C	1.5
822323 - 822327	FBNO821 C - FBNO825C	all <0.3
822355 - 822378	FBNO853 C - FBNO876 RC	all <0.3
822394 - 822402	FBNO892 C - FBNO900 RC	all <0.3
822450 - 822457	FBNO948 C - FBNO955 C	all <0.3

Reg. No. 822342 to follow.

Yours faithfully,

(H. K. Wellington)
Chief Chemist & Metallurgist

Analyses by *J. d. Thornton*

DEPARTMENT OF MINES—TASMANIA



TELEPHONES:

Metallurgical Research	} 44 2431-2 (2 lines)
Laboratory	
Mines Inspection	
Explosives & Inflammable Liquids	

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

26th January 1983

Santos Ltd,
G.P.O. Box 2319,
Adelaide,
South Australia 5001.

Dear Sirs,

Please find below results of samples submitted to this laboratory on the 3rd Dec'82 and stated to be from the Gladstone area.

<u>Reg. No</u>	<u>Description</u>	<u>Au g/t</u>
821773	F.B.N. 0337 C	<0.3
774	338 "	
775	339 "	
776	340 "	
777	341 "	
778	342 "	
779	343 "	
780	344 "	<0.3
821810	F.B.N. 0374 C	<0.3
811	375 "	
812	376 "	
813	377 "	
814	378 RC	
815	379 RC	
816	380 C	
817	381 "	<0.3
821824	F.B.N. 0388 RC	<0.3
825	389 C	<0.3
821830	F.B.N. 0394 C	<0.3
831	395 "	
832	396 "	
833	397 "	
834	398 "	<0.3
821837	F.B.N. 0401 C	<0.3
821841	F.B.N. 0405 C	<0.3
821843	F.B.N. 0407 C	<0.3
821419	F.B.N. 0001 C	<0.3
822342	F.B.N. 0840 C	<0.3

Analyses by *J. L. ...*

H. K. Wellington
(H. K. Wellington)
Chief Chemist & Metallurgist

081
1588

498082



DEPARTMENT OF MINES—TASMANIA

LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

TELEPHONES:
Metallurgical Research }
Laboratory } 44 2431-2
Mines Inspection } (2 lines)
Explosives & Inflammable Liquids }

23rd February 1983

Santos Ltd,
Minerals Exploration,
G.P.O. Box 2319,
Adelaide,
South Australia 5001

Attent. Mr. L. Whitehouse.

Dear Sir,

Please find below results of extra work done on samples submitted on the 26th Nov'82, and stated to be from the Gladstone area. Additional work requested on 4th Feb'83.

<u>Reg. Nos</u>	821567 - 821584	<0.3 Au g/t.
	821589 - 821596	<0.3 Au g/t.
	821694 - 821707	<0.3 Au g/t.
	821721 - 821730	<0.3 Au g/t.
	821747 - 821750	<0.3 Au g/t.
	821799 - 821805	<0.3 Au g/t.

Yours faithfully,

(H. K. Wellington)
Chief Chemist & Metallurgist.

Analyses by *J. Letting...*

Fee \$305.

082

APPENDIX 4

ASSAY DATA FROM 1983 TRENCHING PROGRAMME

083

ANALABS

A division of MacDonal Hamilton & Co. Pty. Ltd.

Phone (09) 458 7999

52 Murray Road, Welshpool, W.A. 6106

Telex AA92560

ANALYTICAL REPORT No. 171.8 06 1898

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Santos Ltd
G.P.O. Box 2319
Adelaide
South Australia 5001

ORDER No.	PROJECT
L. Whitehouse	-
DATE RECEIVED	RESULTS REQUIRED
21.3.83	

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
		3	378

SAMPLES	SAMPLE NUMBERS	PRE-TREATMENT							ANALYSIS		
		DRY	CRUSH	SPLIT	PUL-VERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
RO	FBN 1109T-1477T FBN 1486G-1494G	1	2	4	3 5				Cu Pb Zn Ag As Au		101 309

RESULTS

TO

2 Copies As Above
Att. Laurie Whitehouse

RESULTS

TO

REMARKS

STATE OF SAMPLES	ANALYSIS — PREPARATION	ANALYSIS — METHOD
whole core split core ring sk bit pulp water slurries slam sediment heavy mineral	WC SC CU Ro SO PU WA TI SS HM	perchloric acid A1 hydrochloric acid A2 nitric acid A3 aqua regia A4 nitric-perchloric A5 HF mixture A6 HF under pressure A7 fusion A8
	cold acid specific sulphide other mixed acids alkaline attack volatilization ignition pressed powder (XRF) glass fusion (XRF)	CA SS Ma AA VO IG PP GF
		atomic absorption AAS x-ray fluorescence XRF spectrophotometry SPEC calorimetry COL chromatography CHR titration TTN other chemicals means CHEM miscellaneous MISC fluorescence FLUOR inductively coupled plasma ICP

AUTHORISED OFFICER

[Signature]

084

498085

ANALABS

A division of MacDonal Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

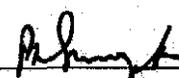
FBN		171.8 08 1898					12.4.83		1 OF 13	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As				
1	1109T	15	30	30	X	X				
2	1110T	15	35	30	0.5	X				
3	1111T	15	25	30	X	X				
4	1112T	5	20	15	X	X				
5	1113T	X	15	10	X	X				
6	1114T	5	10	10	0.5	X				
7	1115T	5	X	15	X	X				
8	1116T	X	5	10	X	X				
9	1117T	5	5	15	X	X				
10	1118T	5	5	15	X	100				
11	1119T	X	X	10	X	X				
12	1120T	X	X	10	X	X				
13	1121T	5	X	15	X	X				
14	1122T	10	X	15	X	X				
15	1123T	10	X	15	X	X				
16	1124T	5	X	15	X	100				
17	1125T	15	15	25	X	X				
18	1126T	20	20	35	X	X				
19	1127T	15	15	30	X	X				
20	1128T	15	15	25	X	X				
21	1129T	15	15	35	X	X				
22	1130T	15	15	45	X	100				
23	1131T	15	15	25	X	X				
24	1132T	25	15	35	X	X				
25	1133T	15	15	20	X	X				

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

— = element not determined

AUTHORISED
OFFICER

085

498086

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

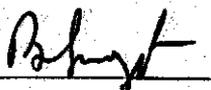
CLIENT ORDER No.

PAGE

FBN		171.8 08 1898					12.4.83		2 OF 18		
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As					
1	1134T	10	X	15	X	X					
2	1135T	25	10	60	X	X					
3	1136T	35	15	65	X	X					
4	1137T	35	10	100	X	100					
5	1138T	50	15	55	X	X					
6	1139T	65	15	70	X	X					
7	1140T	60	20	80	X	X					
8	1141T	80	20	75	X	X					
9	1142T	45	10	45	X	100					
10	1143T	45	15	55	X	X					
11	1144T	60	20	75	X	X					
12	1145T	30	15	50	X	X					
13	1146T	35	15	50	X	100					
14	1147T	20	10	30	X	X					
15	1148T	20	10	30	X	X					
16	1149T	60	35	95	X	X					
	1150T	45	10	70	X	X					
18	1151T	65	20	70	X	X					
19	1152T	40	10	50	X	X					
20	1153T	50	10	65	X	X					
21	1154T	55	10	90	X	X					
22	1155T	20	5	35	X	X					
23	1156T	20	15	35	X	100					
24	1157T	25	X	30	X	X					
25	1158T	30	X	55	X	X					

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER



086

498087

ANALABS

A division of MacDonaid Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

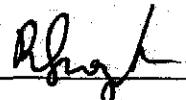
CLIENT ORDER No.

PAGE

USE No.	SAMPLE No.	Cu	Pb	Zn	Hg	As				
	FBH			171.8	88	1898	12.4.88			3 OF 18
1	1159T	15	X	40	X	X				
2	1160T	15	X	30	X	X				
3	1161T	20	15	30	X	X				
4	1162T	25	5	45	X	X				
5	1163T	35	5	60	X	200				
6	1164T	35	40	135	X	500				
7	1165T	30	35	90	X	2250				
8	1166T	20	15	25	X	200				
9	1167T	25	20	25	X	X				
10	1168T	25	25	30	X	200				
11	1169T	20	15	25	X	100				
12	1170T	20	30	35	X	X				
13	1171T	25	20	30	X	100				
14	1172T	20	15	20	X	X				
15	1173T	20	15	20	X	200				
16	1174T	25	20	20	X	X				
	1175T	10	10	10	X	X				
18	1176T	15	10	10	X	X				
19	1177T	20	15	20	X	X				
20	1178T	20	20	20	X	200				
21	1179T	15	15	20	X	X				
22	1180T	20	25	20	X	X				
23	1181T	15	25	30	X	X				
24	1182T	25	20	35	X	100				
25	1183T	35	30	35	X	400				

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 — = element not determined

 AUTHORISED
 OFFICER



087

498088

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

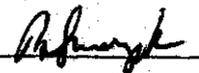
CLIENT ORDER No.

PAGE

FBM		171.8 08 1898				12.4.83				4 OF 18	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Hg					
1	1184T	30	20	20	X	X					
2	1185T	30	15	20	X	300					
3	1186T	35	20	25	X	200					
4	1187T	40	30	35	X	300					
5	1188T	85	35	45	X	200					
6	1189T	100	20	65	X	700					
7	1190T	35	15	20	X	500					
8	1191T	55	65	40	X	1500					
9	1192T	85	45	40	X	900					
10	1193T	65	35	30	X	800					
11	1194T	45	15	25	0.5	200					
12	1195T	40	20	35	0.5	100					
13	1196T	35	115	55	X	100					
14	1197T	35	45	70	X	X					
15	1198T	50	30	40	X	X					
16	1199T	60	20	45	X	X					
17	1200T	40	15	25	X	100					
18	1201T	X	X	10	X	X					
19	1202T	X	X	10	X	X					
20	1203T	5	5	10	X	X					
21	1204T	X	X	10	X	X					
22	1205T	X	X	10	X	X					
23	1206T	X	X	10	X	100					
24	1207T	X	15	10	X	100					
25	1208T	5	20	10	X	X					

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

 AUTHORISED
 OFFICER



088

108000

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

FBN

171.8 00 1898

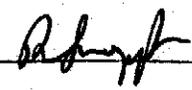
12.4.83

5 OF 18

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As				
1	1209T	10	10	15	X	X				
2	1210T	X	5	5	X	X				
3	1211T	X	5	10	X	X				
4	1212T	10	30	15	X	X				
5	1213T	15	5	15	X	X				
6	1214T	15	15	20	X	100				
7	1215T	15	10	20	X	X				
8	1216T	5	X	15	X	X				
9	1217T	X	10	10	X	X				
10	1218T	X	5	15	X	X				
11	1219T	10	20	15	X	X				
12	1220T	5	10	10	X	X				
13	1221T	5	5	35	X	X				
14	1222T	X	X	5	X	X				
15	1223T	5	10	10	X	X				
16	1224T	10	5	15	X	100				
	1225T	10	X	15	X	X				
18	1226T	5	5	15	X	X				
19	1227T	5	X	10	X	X				
20	1228T	5	X	10	0.5	X				
21	1229T	X	X	10	X	X				
22	1230T	X	X	10	X	100				
23	1231T	X	5	10	X	200				
24	1232T	X	45	15	X	X				
25	1233T	5	85	35	X	X				

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER



089

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

FBN

171.8 08 1898

12.4.83

6 OF 18

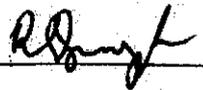
TEST No.	SAMPLE No.	Cu	Pb	Zn	Ag	As					
1	1234T	X	5	15	X	100					
2	1235T	5	15	15	X	X					
3	1236T	35	15	60	X	X					
4	1237T	25	20	45	X	100					
5	1238T	25	45	45	X	X					
6	1239T	15	10	45	X	X					
7	1240T	10	25	55	X	X					
8	1241T	10	30	25	X	100					
9	1242T	X	20	20	X	X					
10	1243T	X	10	15	X	X					
11	1244T	5	30	20	X	X					
12	1245T	25	25	25	X	X					
13	1246T	15	45	40	X	X					
14	1247T	10	20	30	X	X					
15	1248T	X	45	30	X	X					
16	1249T	5	20	45	X	100					
17	1250T	5	10	30	X	X					
18	1251T	5	X	25	X	X					
19	1252T	15	X	40	X	X					
20	1253T	5	X	20	X	X					
21	1254T	20	25	50	X	X					
22	1255T	15	10	35	X	X					
23	1256T	10	10	35	X	X					
24	1257T	X	X	15	X	X					
25	1258T	X	5	5	X	X					

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER


090

ANALABS

A division of MacDonal Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

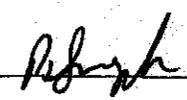
REPORT DATE

CLIENT ORDER No.

PAGE

FBH		171.8 08 1898					12.4.83		7 OF 18	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Hg	As				
1	1259T	X	10	10	X	X				
2	1250T	X	15	10	X	100				
3	1261T	X	15	10	X	X				
4	1262T	X	30	5	X	X				
5	1263T	X	15	10	X	X				
6	1264T	X	X	10	X	X				
7	1265T	X	35	10	X	X				
8	1266T	X	X	10	X	X				
9	1267T	X	5	10	X	X				
10	1268T	X	25	5	X	X				
11	1269T	5	5	10	X	X				
12	1270T	5	10	15	X	X				
13	1271T	X	20	15	X	X				
14	1272T	5	25	15	X	X				
15	1273T	5	40	15	X	X				
16	1274T	5	30	15	X	X				
17	1275T	5	30	15	X	100				
18	1276T	X	15	15	X	X				
19	1277T	X	X	5	X	X				
20	1278T	X	10	10	X	100				
21	1279T	X	10	10	X	X				
22	1280T	5	15	10	X	X				
23	1281T	5	15	15	X	X				
24	1282T	5	15	15	X	100				
25	1283T	5	15	15	X	X				

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 — = element not determined

 AUTHORISED
 OFFICER
 

091

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

FBN

171.8 08 1898

12.4.83

8 OF 18

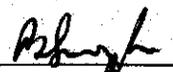
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Hg	Hs				
1	1284T	5	5	15	X	X				
2	1285T	5	5	10	X	X				
3	1286T	5	5	10	X	X				
4	1287T	X	10	10	X	X				
5	1288T	5	10	15	X	X				
6	1289T	5	15	20	X	X				
7	1290T	5	10	15	0.5	X				
8	1291T	5	25	15	X	X				
9	1292T	X	20	10	X	X				
10	1293T	X	10	10	X	X				
11	1294T	5	15	20	0.5	X				
12	1295T	5	20	15	0.5	X				
13	1296T	5	15	15	0.5	X				
14	1297T	5	15	15	X	X				
15	1298T	X	10	10	X	X				
16	1299T	5	25	15	X	X				
17	1300T	5	X	5	X	X				
18	1301T	5	X	5	X	X				
19	1302T	X	X	X	X	X				
20	1303T	5	X	5	X	X				
21	1304T	5	X	5	0.5	X				
22	1305T	5	5	10	X	X				
23	1306T	X	5	10	X	X				
24	1307T	5	5	5	X	X				
25	1308T	X	X	5	X	X				

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

FBN		171.8 00 1898					12.4.83				9 OF 18	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Hg	As						
1	1309T	5	5	10	X	X						
2	1310T	5	X	20	X	X						
3	1311T	10	X	10	X	X						
4	1312T	5	X	10	X	100						
5	1313T	5	5	15	X	X						
6	1314T	5	X	X	X	X						
7	1315T	30	X	5	X	X						
8	1316T	5	X	25	X	X						
9	1317T	5	X	30	X	X						
10	1318T	X	10	45	X	100						
11	1319T	X	X	45	X	X						
12	1320T	X	X	25	X	X						
13	1321T	X	X	5	X	100						
14	1322T	X	X	20	X	100						
15	1323T	X	X	45	X	100						
16	1324T	X	X	45	X	X						
17	1325T	X	X	45	X	X						
18	1326T	X	X	45	X	X						
19	1327T	X	X	40	X	X						
20	1328T	X	X	30	X	X						
21	1329T	X	X	30	X	100						
22	1330T	X	X	30	X	X						
23	1331T	X	X	30	X	X						
24	1332T	5	X	30	X	X						
25	1333T	5	5	35	X	X						

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER*R. H. H.*

093

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

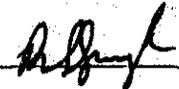
ANALYTICAL DATA

SAMPLE PREFIX REPORT NUMBER REPORT DATE CLIENT ORDER No. PAGE

FBN	171.9 08 1898	12.4.83		10 OF 18
-----	---------------	---------	--	----------

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Hg	As				
1	1334T	X	15	30	X	100				
2	1335T	X	15	30	X	X				
3	1336T	5	15	25	0.5	X				
4	1337T	5	20	30	X	X				
5	1338T	5	5	25	X	X				
6	1339T	55	10	40	X	X				
7	1340T	5	10	45	X	X				
8	1341T /	5	10	45	X	X				
9	1342T /	5	10	40	X	X				
10	1343T	5	5	10	X	X				
11	1344T	X	20	25	X	X				
12	1345T	X	X	10	X	X				
13	1346T	X	5	5	X	X				
14	1347T	X	X	5	X	X				
15	1348T	X	10	10	X	X				
16	1349T	5	5	20	0.5	X				
17	1350T	5	X	15	X	X				
18	1351T	5	X	10	X	X				
19	1352T	10	X	35	X	X				
20	1353T	10	5	25	X	X				
21	1354T	5	X	15	X	X				
22	1355T	5	X	10	X	X				
23	1356T	15	15	20	X	X				
24	1357T	25	X	20	X	X				
25	1358T	35	X	20	X	X				

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER 

094

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

USE No.	SAMPLE No.	Cu	Pb	Zn	Hg	As				
	FBH			171.8 08 1898		12.4.83				11 OF 18
1	1359T	30	X	15	X	X				
2	1360T	20	5	15	X	X				
3	1361T	20	10	20	X	X				
4	1362T	25	10	25	X	X				
5	1363T	15	10	20	X	X				
6	1364T	15	10	20	X	X				
7	1365T	20	15	25	X	X				
8	1366T	20	10	40	X	X				
9	1367T	15	10	35	X	X				
10	1368T	15	10	25	X	X				
11	1369T	10	15	25	X	X				
12	1370T	10	X	20	0.5	X				
13	1371T	15	X	20	X	X				
14	1372T	15	X	20	0.5	200				
15	1373T	5	X	25	X	X				
16	1374T	10	X	30	X	X				
	1375T	5	X	30	X	X				
18	1376T	5	X	40	X	X				
19	1377T	15	X	55	X	X				
20	1378T	40	X	110	X	X				
21	1379T	10	10	45	X	X				
22	1380T	5	10	45	X	X				
23	1381T	10	5	25	X	X				
24	1382T	10	X	25	X	X				
25	1383T	25	5	45	X	X				

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER

095

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

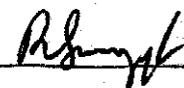
FBN		171.8 00 1898B					12.4.83		12 OF 18	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Hg	As				
1	1384T	65	5	70	X	X				
2	1385T	105	X	90	X	X				
3	1386T	75	25	75	X	X				
4	1387T	40	5	40	X	X				
5	1388T	30	10	40	X	X				
6	1389T	40	15	65	X	X				
7	1390T	30	15	60	X	X				
8	1391T	25	15	70	X	X				
9	1392T	30	15	75	X	X				
10	1393T	25	15	70	X	X				
11	1394T	5	5	10	X	X				
12	1395T	5	5	15	X	X				
13	1396T	5	15	35	X	100				
14	1397T	5	10	35	X	X				
15	1398T	5	X	20	X	X				
16	1399T	5	5	25	X	100				
17	1400T	15	10	60	X	X				
18	1401T	10	10	40	X	X				
19	1402T	5	5	30	X	100				
20	1403T	5	10	25	X	X				
21	1404T	5	10	25	X	100				
22	1405T	5	10	15	X	X				
23	1406T	5	10	15	X	X				
24	1407T	5	10	20	X	X				
25	1408T	5	5	35	X	100				

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER


096

498097

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

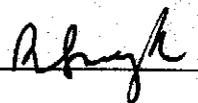
CLIENT ORDER No.

PAGE

FBN		171.3 08 189AB					12.4.83		13 OF 18	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As				
1	1409T	5	5	20	X	X				
2	1410T	X	10	20	X	X				
3	1411T	X	10	15	X	X				
4	1412T	X	10	20	X	X				
5	1413T	5	10	20	X	X				
6	1414T	5	5	15	X	X				
7	1415T	5	5	10	X	100				
8	1416T	5	10	20	X	X				
9	1417T	5	15	25	X	X				
10	1418T	70	X	90	X	X				
11	1419T	85	10	100	0.5	X				
12	1420T	50	25	115	X	X				
13	1421T	30	10	90	0.5	X				
14	1422T	55	20	100	X	X				
15	1423T	75	10	110	X	X				
16	1424T	75	10	85	X	X				
17	1425T	25	10	55	X	X				
18	1426T	25	10	60	X	X				
19	1427T	30	10	100	0.5	X				
20	1428T	40	15	100	0.5	X				
21	1429T	40	X	70	X	X				
22	1430T	25	20	35	X	X				
23	1431T	50	25	130	X	100				
24	1432T	55	30	110	X	100				
25	1433T	55	30	105	X	X				

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 — = element not determined

 AUTHORISED
 OFFICER



001

498098

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

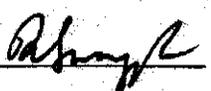
CLIENT ORDER No.

PAGE

PIPE No.	SAMPLE No.	Cu	Pb	Zn	Hg	Hs				
	FBH	171.8 08 1898B			12.4.83				14 OF	18
1	1434T	70	30	105	X	X				
2	1435T	80	25	145	X	X				
3	1436T	50	20	50	X	X				
4	1437T	55	15	75	X	X				
5	1438T	55	40	55	X	X				
6	1439T	80	15	55	X	X				
7	1440T	125	20	105	X	X				
8	1441T	55	15	40	0.5	X				
9	1442T	65	30	80	X	X				
10	1443T	40	20	75	X	X				
11	1444T	15	50	40	0.5	X				
12	1445T	25	35	55	X	X				
13	1446T	30	25	40	X	X				
14	1447T	20	25	25	0.5	X				
15	1448T	30	15	55	X	100				
16	1449T	25	15	45	X	X				
17	1450T	15	20	40	0.5	X				
18	1451T	10	5	30	X	X				
19	1452T	45	25	70	0.5	X				
20	1453T	50	25	55	0.5	X				
21	1454T	20	25	30	0.5	X				
22	1455T	5	15	20	0.5	X				
23	1456T	5	15	15	0.5	X				
24	1457T	5	30	5	0.5	X				
25	1458T	5	20	15	X	X				

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER



098

498099

ANALABS

A division of MacDonaid Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

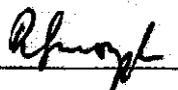
CLIENT ORDER No.

PAGE

FBH		171.8 08 1898B				12.4.83				15 OF 18	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As					
1	1459T	15	25	25	X	X					
2	1460T	45	25	45	X	X					
3	1461T	10	30	30	0.5	X					
4	1462T	5	25	20	X	X					
5	1463T	30	35	45	0.5	X					
6	1464T	20	30	40	X	X					
7	1465T	5	20	5	X	100					
8	1466T	5	25	10	X	X					
9	1467T	5	25	10	X	100					
10	1468T	5	20	15	0.5	X					
11	1469T	30	15	40	X	X					
12	1470T	15	10	25	X	X					
13	1471T	25	20	40	0.5	X					
14	1472T	60	30	55	X	X					
15	1473T	55	25	45	0.5	X					
16	1474T	15	15	15	X	X					
17	1475T	X	X	5	X	X					
18	1476T	5	20	15	0.5	X					
19	1477T	10	30	25	X	X					
20	1486G	5	X	X	X	X					
21	1487G	5	X	X	0.5	X					
22	1488G	X	X	X	X	X					
23	1489G	5	5	5	X	X					
24	1490G	5	X	X	X	X					
25	1491G	345	2600	45	27*	2300					

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

 AUTHORISED
 OFFICER



100

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

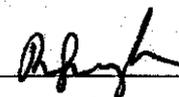
FBN		171.8 08 18988					12.4.83		17 ^{CF} 18	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As				
1	STD FS4	310	105	780	0.5	X				
2	RPT 1109T	15	20	30	X	X				
3	RPT 1128T	15	15	25	X	X				
4	STD FS4	315	110	770	1.0	X				
5	RPT 1149T	60	35	85	X	X				
6	RPT 1168T	25	15	30	X	100				
7	STD FS4	310	100	770	1.0	X				
8	RPT 1189T	100	20	60	0.5	800				
9	RPT 1208T	10	20	10	X	X				
10	STD FS4	305	100	790	0.5	X				
11	RPT 1229T	X	X	10	X	X				
12	RPT 1248T	X	35	30	X	X				
13	STD FS4	300	95	740	0.5	X				
14	RPT 1269T	X	5	5	X	X				
15	RPT 1288T	5	10	15	X	X				
16	STD FS4	300	105	800	1.0	X				
17	RPT 1309T	5	5	5	X	X				
18	RPT 1328T	X	5	25	X	X				
19	STD FS4	300	110	830	1.0	X				
20	RPT 1349T	5	5	15	X	X				
21	RPT 1368T	15	10	25	X	X				
22	STD FS4	330	110	830	1.0	X				
23	RPT 1389T	40	15	65	X	100				
24	RPT 1408T	5	5	30	X	X				
25	STD FS4	300	100	765	1.0	X				

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER

101

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

FBH		171.8 08 18988				12.4.83				18 OF 18	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As					
1	RPT 1429T	40	5	65	0.5	X					
2	RPT 1448T	30	15	55	X	X					
3	STD FS4	300	100	745	1.0	X					
4	RPT 1469T	30	10	40	X	X					
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23	DETECTION	5	5	5	0.5	100					
24	DIGESTION										
25	METHOD	101	101	101	101	101					

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 — = element not determined

AUTHORISED OFFICER

Abys

102

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

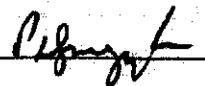
CLIENT ORDER No.

PAGE

SIZE No.	SAMPLE No.	RU								
	FBH		171.6 00 1098B	15.4.83					19	OF 34
1	1109T	X								
2	1110T	0.01								
3	1111T	X								
4	1112T	X								
5	1113T	X								
6	1114T	X								
7	1115T	X								
8	1116T	X								
9	1117T	X								
10	1118T	X								
11	1119T	X								
12	1120T	X								
13	1121T	X								
14	1122T	0.01								
15	1123T	X								
16	1124T	X								
17	1125T	X								
18	1126T	X								
19	1127T	X								
20	1128T	X								
21	1129T	0.01								
22	1130T	0.01								
23	1131T	0.01								
24	1132T	X								
25	1133T	X								

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 — = element not determined

AUTHORISED OFFICER



103

498104

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

FBN		171.8 88 1898E			15.4.83				20 OF 34	
TUBE No.	SAMPLE No.	RU								
1	1134T	X								
2	1135T	0.01								
3	1136T	0.01								
4	1137T	X								
5	1138T	X								
6	1139T	0.02								
7	1140T	0.02								
8	1141T	0.01								
9	1142T	0.02								
10	1143T	0.02								
11	1144T	0.02								
12	1145T	0.01								
13	1146T	0.03								
14	1147T	0.03								
15	1148T	0.02								
16	1149T	0.04								
17	1150T	0.04								
18	1151T	0.03								
19	1152T	0.04								
20	1153T	0.03								
21	1154T	0.04								
22	1155T	0.04								
23	1156T	0.04								
24	1157T	0.02								
25	1158T	0.01								

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER*[Signature]*

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

LINE No.	SAMPLE No.	Ru							
	FBN		171.8 08 1898B	15.4.88				21	OF 34
1	1159T	X							
2	1160T	0.01							
3	1161T	0.02							
4	1162T	0.03							
5	1163T	0.04							
6	1164T	0.10							
7	1165T	0.57							
8	1166T	0.07							
9	1167T	0.02							
10	1168T	0.04							
11	1169T	0.02							
12	1170T	0.06							
13	1171T	0.07							
14	1172T	0.13							
15	1173T	0.06							
16	1174T	0.09							
17	1175T	0.08							
18	1176T	0.11							
19	1177T	0.08							
20	1178T	0.14							
21	1179T	0.11							
22	1180T	0.07							
23	1181T	0.08							
24	1182T	0.13							
25	1183T	0.16							

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER*Blayke*

105

498106

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

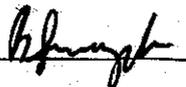
TUBE No.	SAMPLE No.	Ru								
	FBH		171.8 08 1895B	15.4.83					22	OF 34
1	1184T	0.13								
2	1185T	0.11								
3	1186T	0.15								
4	1187T	0.09								
5	1188T	0.12								
6	1189T	0.08								
7	1190T	0.10								
8	1191T	0.12								
9	1192T	0.05								
10	1193T	0.08								
11	1194T	0.03								
12	1195T	0.04								
13	1196T	0.01								
14	1197T	0.02								
15	1198T	0.02								
16	1199T	0.02								
17	1200T	0.11								
18	1201T	X								
19	1202T	X								
20	1203T	X								
21	1204T	0.01								
22	1205T	X								
23	1206T	0.01								
24	1207T	0.01								
25	1208T	0.02								

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER

106

ANALABS

A division of MacDonald Hamilton & Co., Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

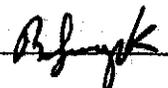
CLIENT ORDER No.

PAGE

USE No.	SAMPLE No.	RLI								
	FBN		171.8 08 18985	15.4.83				23	OF	34
1	1209T	0.01								
2	1210T	0.02								
3	1211T	0.01								
4	1212T	0.01								
5	1213T	0.03								
6	1214T	0.04								
7	1215T	0.02								
8	1216T	0.04								
9	1217T	0.02								
10	1218T	0.05								
11	1219T	0.06								
12	1220T	0.03								
13	1221T	0.01								
14	1222T	0.01								
15	1223T	0.04								
16	1224T	0.04								
17	1225T	0.02								
18	1226T	0.03								
19	1227T	0.02								
20	1228T	0.02								
21	1229T	0.02								
22	1230T	0.07								
23	1231T	0.03								
24	1232T	0.02								
25	1233T	0.08								

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 — = element not determined

AUTHORISED OFFICER



107

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

FBH

171.8 08 1898B

15.4.83

24 OF 34

USE No.	SAMPLE No.	Flu							
1	1234T	0.08							
2	1235T	0.03							
3	1236T	X							
4	1237T	X							
5	1238T	X							
6	1239T	X							
7	1240T	X							
8	1241T	X							
9	1242T	X							
10	1243T	X							
11	1244T	X							
12	1245T	X							
13	1246T	X							
14	1247T	0.01							
15	1248T	X							
16	1249T	X							
17	1250T	X							
18	1251T	X							
19	1252T	X							
20	1253T	X							
21	1254T	X							
22	1255T	X							
23	1256T	X							
24	1257T	0.31							
25	1258T	0.02							

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER *[Signature]*

108

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

LINE No.	SAMPLE No.	RU								
	FBN		171.8 68 1898B	15.4.83					25	OF 34
1	1259T	0.01								
2	1260T	X								
3	1261T	X								
4	1262T	X								
5	1263T	X								
6	1264T	0.04								
7	1265T	X								
8	1266T	0.01								
9	1267T	X								
10	1268T	X								
11	1269T	0.01								
12	1270T	X								
13	1271T	X								
14	1272T	X								
15	1273T	X								
16	1274T	X								
17	1275T	0.01								
18	1276T	0.02								
19	1277T	0.01								
20	1278T	0.02								
21	1279T	0.02								
22	1280T	0.02								
23	1281T	0.03								
24	1282T	0.02								
25	1283T	0.03								

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

— = element not determined

AUTHORISED
OFFICER*Blayke*

109

498110

ANALABS

A division of MacDonaid Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

FBN

171.8 08 18988

15.4.63

26 OF 34

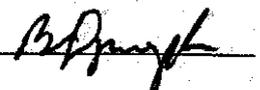
TUBE No.	SAMPLE No.	RU								
1	1284T	0.02								
2	1285T	0.01								
3	1286T	0.01								
4	1287T	0.02								
5	1288T	0.01								
6	1289T	X								
7	1290T	X								
8	1291T	X								
9	1292T	X								
10	1293T	X								
11	1294T	X								
12	1295T	X								
13	1296T	0.02								
14	1297T	0.01								
15	1298T	X								
16	1299T	0.02								
17	1300T	0.01								
18	1301T	X								
19	1302T	X								
20	1303T	X								
21	1304T	X								
22	1305T	0.06								
23	1306T	0.03								
24	1307T	X								
25	1308T	X								

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER

110

498111

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

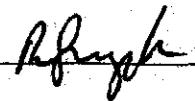
PAGE

FBN	171.8 08 1898B	15.4.88		27 OF 34
-----	----------------	---------	--	----------

TEST No.	SAMPLE No.	RLU							
1	1309T	0.01							
2	1310T	X							
3	1311T	0.02							
4	1312T	0.02							
5	1313T	0.03							
6	1314T	0.05							
7	1315T	0.03							
8	1316T	0.01							
9	1317T	X							
10	1318T	X							
11	1319T	X							
12	1320T	X							
13	1321T	0.01							
14	1322T	0.01							
15	1323T	0.01							
16	1324T	X							
17	1325T	X							
18	1326T	X							
19	1327T	X							
20	1328T	X							
21	1329T	X							
22	1330T	X							
23	1331T	X							
24	1332T	0.01							
25	1333T	X							

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER



111

498112

ANALABS

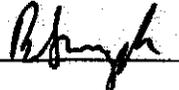
A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX REPORT NUMBER REPORT DATE CLIENT ORDER No. PAGE

SE No.	SAMPLE No.	Flu							
	FEN		171.8 68 1898B	15.4.83					28 OF 34
1	1334T	X							
2	1335T	X							
3	1336T	X							
4	1337T	X							
5	1338T	X							
6	1339T	X							
7	1340T	X							
8	1341T	X							
9	1342T	X							
10	1343T	0.04							
11	1344T	0.06							
12	1345T	0.07							
13	1346T	0.05							
14	1347T	0.06							
15	1348T	0.06							
16	1349T	0.06							
17	1350T	0.05							
18	1351T	0.05							
19	1352T	0.04							
20	1353T	0.11							
21	1354T	0.05							
22	1355T	0.05							
23	1356T	0.12							
24	1357T	0.05							
25	1358T	0.06							

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER 

112

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

FBH

171.8 08 1395B

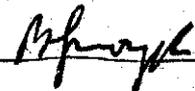
15.4.63

29 OF 34

TUBE No.	SAMPLE No.	RU								
1	1359T	0.08								
2	1360T	0.01								
3	1361T	0.02								
4	1362T	0.02								
5	1363T	0.03								
6	1364T	0.02								
7	1365T	0.02								
8	1366T	0.02								
9	1367T	0.01								
10	1368T	0.04								
11	1369T	0.04								
12	1370T	0.04								
13	1371T	0.04								
14	1372T	0.05								
15	1373T	0.05								
16	1374T	0.04								
17	1375T	0.04								
18	1376T	0.04								
19	1377T	0.03								
20	1378T	0.05								
21	1379T	0.04								
22	1380T	0.04								
23	1381T	0.06								
24	1382T	0.10								
25	1383T	0.06								

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 — = element not determined

AUTHORISED
OFFICER


113

498114

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

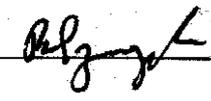
ANALYTICAL DATA

SAMPLE PREFIX REPORT NUMBER REPORT DATE CLIENT ORDER No. PAGE

FBN 171.8 08 18988 15.4.83 38 OF 34

LINE No.	SAMPLE No.	BU							
1	1384T	0.05							
2	1385T	0.03							
3	1386T	0.05							
4	1387T	0.03							
5	1388T	0.03							
6	1389T	0.02							
7	1390T	0.02							
8	1391T	0.02							
9	1392T	0.02							
10	1393T	0.02							
11	1394T	0.01							
12	1395T	0.01							
13	1396T	0.01							
14	1397T	X							
15	1398T	X							
16	1399T	X							
17	1400T	X							
18	1401T	X							
19	1402T	X							
20	1403T	X							
21	1404T	X							
22	1405T	X							
23	1406T	0.01							
24	1407T	0.01							
25	1408T	0.01							

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER 

114

498115

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

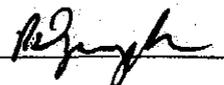
FBN		171.8 88 1898E	15.4.83		31 OF 34
URE No.	SAMPLE No.	RU			
1	1409T	0.01			
2	1410T	X			
3	1411T	0.01			
4	1412T	X			
5	1413T	0.02			
6	1414T	0.01			
7	1415T	0.01			
8	1416T	X			
9	1417T	0.01			
10	1418T	0.01			
11	1419T	0.01			
12	1420T	0.01			
13	1421T	X			
14	1422T	X			
15	1423T	0.01			
16	1424T	0.01			
17	1425T	0.01			
18	1426T	0.01			
19	1427T	0.02			
20	1428T	0.01			
21	1429T	0.03			
22	1430T	0.01			
23	1431T	0.01			
24	1432T	0.02			
25	1433T	0.02			

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER

115

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

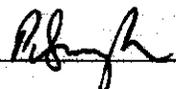
ANALYTICAL DATA

SAMPLE PREFIX
REPORT NUMBER
REPORT DATE
CLIENT ORDER No.
PAGE

USE	SAMPLE No.	Au						
	FBN		171.8 08 18988	15.4.83				32 OF 34
1	1434T	0.04						
2	1435T	0.03						
3	1436T	0.02						
4	1437T	0.01						
5	1438T	X						
6	1439T	0.01						
7	1440T	X						
8	1441T	0.01						
9	1442T	X						
10	1443T	X						
11	1444T	0.04						
12	1445T	0.07						
13	1446T	0.15						
14	1447T	0.18						
15	1448T	0.73						
16	1449T	0.05						
17	1450T	0.05						
18	1451T	0.03						
19	1452T	0.04						
20	1453T	0.04						
21	1454T	0.05						
22	1455T	0.05						
23	1456T	0.03						
24	1457T	0.04						
25	1458T	0.03						

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

AUTHORISED OFFICER



ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

LINE No.	SAMPLE No.	Flu							
	FBN		171.8 08 1998E	15.4.88				33	OF 34
1	1459T	0.04							
2	1460T	0.04							
3	1461T	0.02							
4	1462T	0.85							
5	1463T	0.03							
6	1464T	0.03							
7	1465T	0.03							
8	1466T	0.02							
9	1467T	0.03							
10	1468T	0.03							
11	1469T	0.02							
12	1470T	0.01							
13	1471T	0.01							
14	1472T	0.01							
15	1473T	0.01							
16	1474T	0.19							
17	1475T	X							
18	1476T	0.01							
19	1477T	0.01							
20	1486G	0.60							
21	1487G	0.008							
22	1488G	X							
23	1489G	0.02							
24	1490G	0.01							
25	1491G	0.27							

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED
OFFICER*R. H. J.*

117

498118

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

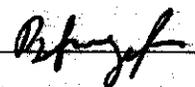
PAGE

FBN 171.9 00 1898B 15.4.83 34 OF 34

TEST No.	SAMPLE No.	RU								
1	1492G	0.17								
2	1493G	0.01								
3	1494G	0.01								
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.008								
24	DIGESTION									
25	METHOD	309								

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 — = element not determined

AUTHORISED OFFICER



*
SANTOS AA82716
TASLABS AA59224

498119

118

TLX:334/83

27/4/83

ATTNEITON LAURIE WHITEHOUSE

RE JOB NO 171.8 08 1898

THE FOLLOWING ARE DUPLICATES RUN WITH THE ORIGINAL BATCH

SAMPLE	AU	AU
FBN		
1114T	X	0.01
24T	X	X
41T	0.01	0.02
57T	0.02	0.01
93T	0.08	0.07
1204T	0.02	0.01
1175T	0.08	0.08
1217T	0.02	0.02
1234T	0.08	0.09
1262T	X	0.03
1273T	X	X
1301T	X	0.01
1315T	0.02	0.03
1328T	X	X
1353 T	0.11	0.13
14023T	X	0.01
1412T	X	0.01
1426T	0.01	0.02
1463T	0.03	0.03
1466T	0.02	0.02
1488T	X	0.008

27 APR 1983

THE FOLLOWING ARE REASSAYS:-

SAMPLE	AU	AU
FBN		
1164T	0.10	0.10
1165T	0.57	0.46
1166T	0.07	0.08
1167T	0.02	0.03
1168T	0.04	X
1446T	0.15	0.15
1447T	0.18	0.52
1448T	0.73	0.23
1449T	0.05	0.03
1450T	0.05	0.03
DETECTION	0.008	0.008
METHOD	309	309

SAMPLES 1447T, 1448T SHOW VARIATION WHICH APPEARS TO BE METALLIC AU

REGARDS PETER
ANALABS COOEE

TELETYPE MESSAGE

SAGE TELEX MESSAGE TELEX MESSAGE

DEPARTMENT OF MINES—TASMANIA



LAUNCESTON OFFICES
287 WELLINGTON STREET
SOUTH LAUNCESTON 7250

TELEPHONES:

Metallurgical Research } 44 2431-2
Laboratory } (2 lines)
Mines Inspection }
Explosives & Inflammable Liquids }

4th May 1983

Santos Ltd,
Minerals Exploration,
G.P.O. Box 2319,
Adelaide,
South Australia 5001

Attent. Mr. L. Whitehouse

Reg. Nos 830412-563 & 830579-88

Dear Sir,

Please find below results of samples submitted to this laboratory on the 18th Mar'83 and stated to be from the Gladstone Area.

<u>Reg. Nos</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Au g/t</u>
830412	FBN 0111 C	16	<0.3
413	0956 "	95	<0.3
414	957 "	<10	<0.3
415	958 "	130	1.4
416	959 "	35	<0.3
830417	FBN 0960 C	110	<0.3
418	961 "	73	<0.3
419	962 "	46	<0.3
420	963 "	68	<0.3
421	964 "	75	<0.3
830422	FBN 0965 RC	<10	<0.3
423	966 C	25	<0.3
424	967 "	55	<0.3
425	968 "	17	<0.3
426	969 "	23	<0.3
830427	FBN 0970 C	16	<0.3
428	971 "	160	<0.3
429	972 "	19	<0.3
430	973 "	52	<0.3
431	974 "	41	<0.3
830432	FBN 0975 C	68	<0.3
433	976 "	91	<0.3
434	977 "	35	<0.3
435	978 "	100	<0.3
436	979 "	78	<0.3
830437	FBN 0980 C	46	<0.3
438	981 "	41	<0.3
439	982 "	66	<0.3
440	983 "	25	3.2
441	984 "	37	<0.3

120

- 2 -

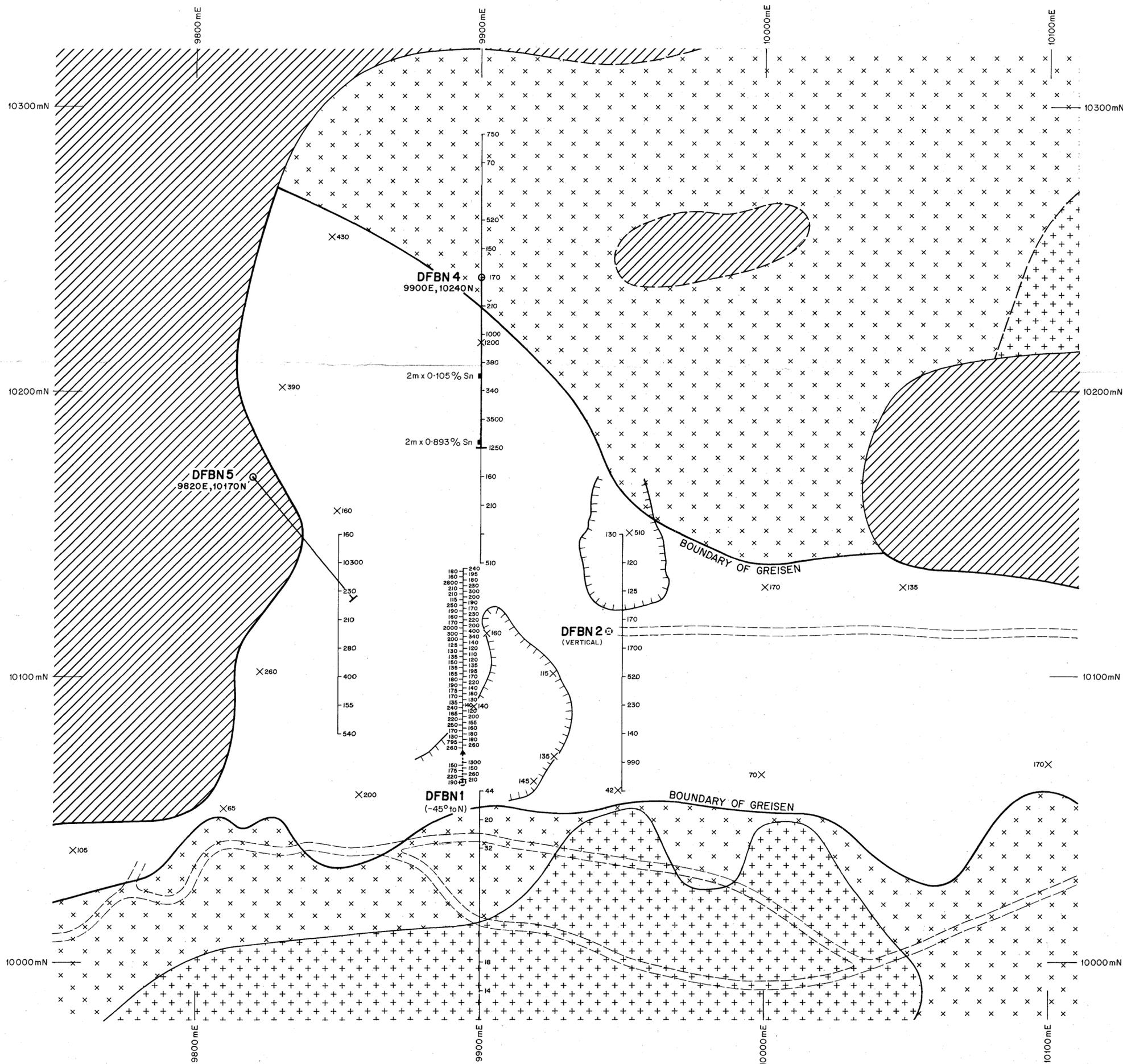
<u>Reg. No</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Au g/t</u>
830442	FBN 0985 C	120	<0.3
443	986 "	160	<0.3
444	987 RC	220	<0.3
445	988 C	28	<0.3
446	989 "	78	<0.3
830447	FBN 0990 C	37	<0.3
448	991 RC	37	4.5
449	992 C	140	<0.3
450	993 "	84	<0.3
451	994 "	76	<0.3
830452	FBN 0995 C	220	<0.3
453	996 "	62	<0.3
454	997 "	69	<0.3
455	998 "	44	<0.3
456	999 "	190	<0.3
830457	FBN 1000 C	230	<0.3
458	1001 "	120	<0.3
459	1002 "	63	<0.3
460	1003 "	50	<0.3
461	1004 "	36	<0.3
830462	FBN 1005 C	29	<0.3
463	1006 "	16	<0.3
464	1007 "	56	<0.3
465	1008 "	49	<0.3
466	1009 "	20	<0.3
830467	FBN 1010 C	28	<0.3
468	1011 "	65	<0.3
469	1012 "	88	<0.3
470	1013 "	140	<0.3
471	1014 "	58	<0.3
830472	FBN 1015 C	32	<0.3
473	1016 "	35	<0.3
474	1017 "	65	<0.3
475	1018 "	29	<0.3
476	1019 "	32	<0.3
830477	FBN 1020 C	27	<0.3
478	1021 "	29	<0.3
479	1022 "	42	<0.3
480	1023 "	120	<0.3
481	1024 "	85	<0.3
830482	FBN 1025 C	54	<0.3
483	1026 "	440	<0.3
484	1027 "	83	<0.3
485	1028 "	150	<0.3
486	1029 "	35	<0.3

<u>Reg. No</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Au g/t</u>
830487	FBN 1030 C	56	<0.3
488	1031 "	29	<0.3
489	1032 "	11	<0.3
490	1033 "	12	<0.3
491	1034 "	110	<0.3
830492	FBN 1035 C	10	<0.3
493	1036 "	17	<0.3
494	1037 "	42	<0.3
495	1038 "	20	<0.3
496	1039 "	16	<0.3
830497	FBN 1040 C	13	<0.3
498	1041 "	14	<0.3
499	1042 "	17	<0.3
500	1043 "	230	<0.3
501	1044 "	49	<0.3
830502	FBN 1045 C	68	<0.3
503	1046 "	59	<0.3
504	1047 "	170	<0.3
505	1048 "	210	<0.3
506	1049 "	390	<0.3
830507	FBN 1050 C	130	<0.3
508	1051 "	780	<0.3
509	1052 "	23	<0.3
510	1053 "	36	<0.3
511	1054R C	18	<0.3
830512	FBN 1055 C	49	2.5
513	1056 "	39	<0.3
514	1057 "	66	<0.3
515	1058 "	150	<0.3
516	1059 "	210	<0.3
830517	FBN 1060 C	410	<0.3
518	1061 "	540	<0.3
519	1062 RC	420	<0.3
520	1063 C	60	<0.3
521	1064 "	45	<0.3
830522	FBN 1065 C	27	<0.3
523	1066 "	240	<0.3
524	1067 "	16	<0.3
525	1068 "	51	<0.3
526	1069 "	18	<0.3
830527	FBN 1070 C	10	<0.3
528	1071 "	82	<0.3
529	1072 "	160	<0.3
530	1073 "	100	<0.3
531	1074 "	19	<0.3

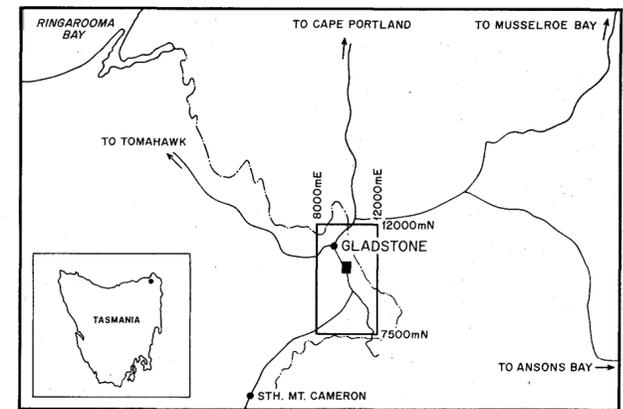
122

<u>Reg. No</u>	<u>Description</u>	<u>Sn g/t</u>	<u>Au g/t</u>
830532	FBN 1075 C	170	<0.3
533	1076 "	97	<0.3
534	1077 RC	10	<0.3
535	1078 C	450	<0.3
536	1079 RC	270	<0.3
830537	FBN 1080 C	210	<0.3
538	1081 "	51	<0.3
539	1082 "	23	<0.3
540	1083 "	140	<0.3
541	1084 "	49	<0.3
830542	FBN 1085 RC	27	<0.3
543	1086 C	24	<0.3
544	1087 "	47	<0.3
545	1088 "	28	<0.3
546	1089 "	75	<0.3
830547	FBN 1090 C	110	<0.3
548	1091 "	210	0.4
549	1092 "	19	<0.3
550	1093 "	81	<0.3
551	1094 "	26	<0.3
830552	FBN 1095 C	17	<0.3
553	1096 "	24	<0.3
554	1097 "	42	<0.3
555	1098 "	39	<0.3
556	1099 "	13	<0.3
830557	FBN 1100 RC	22	<0.3
558	1101 C	24	<0.3
559	1102 "	670	<0.3
560	1103 "	32	<0.3
561	1104 "	96	<0.3
830562	FBN 1105 C	38	<0.3
563	1106 "	46	0.7
830579	FBN 1107 RC	520	<0.3
580	1108 C	77	<0.3
581	1478 C	10	0.4
830582	FBN 1479 C	17	<0.3
583	1480 "	19	<0.3
584	1481 "	18	<0.3
585	1482 "	20	<0.3
586	1483 "	18	<0.3
830587	FBN 1484 C	16	<0.3
588	1485 "	23	<0.3

Analyses by *Ally & Smith**J. Kirby**H. K. Wellington*(H. K. Wellington)
Chief Chemist & Metallurgist



LOCATION



REFERENCE

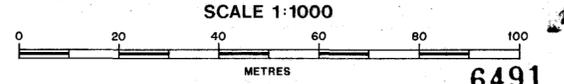
- GRANITE
- ALTERED GRANITE
- MATHINNA BEDS
- TIN-IN-ROCK ASSAY (PPM.)
- DRILLHOLE INTERCEPT
- SANTOS DRILLHOLE (ACTUAL)
- PROPOSED SANTOS DRILLHOLE
- TRACK

5 cm

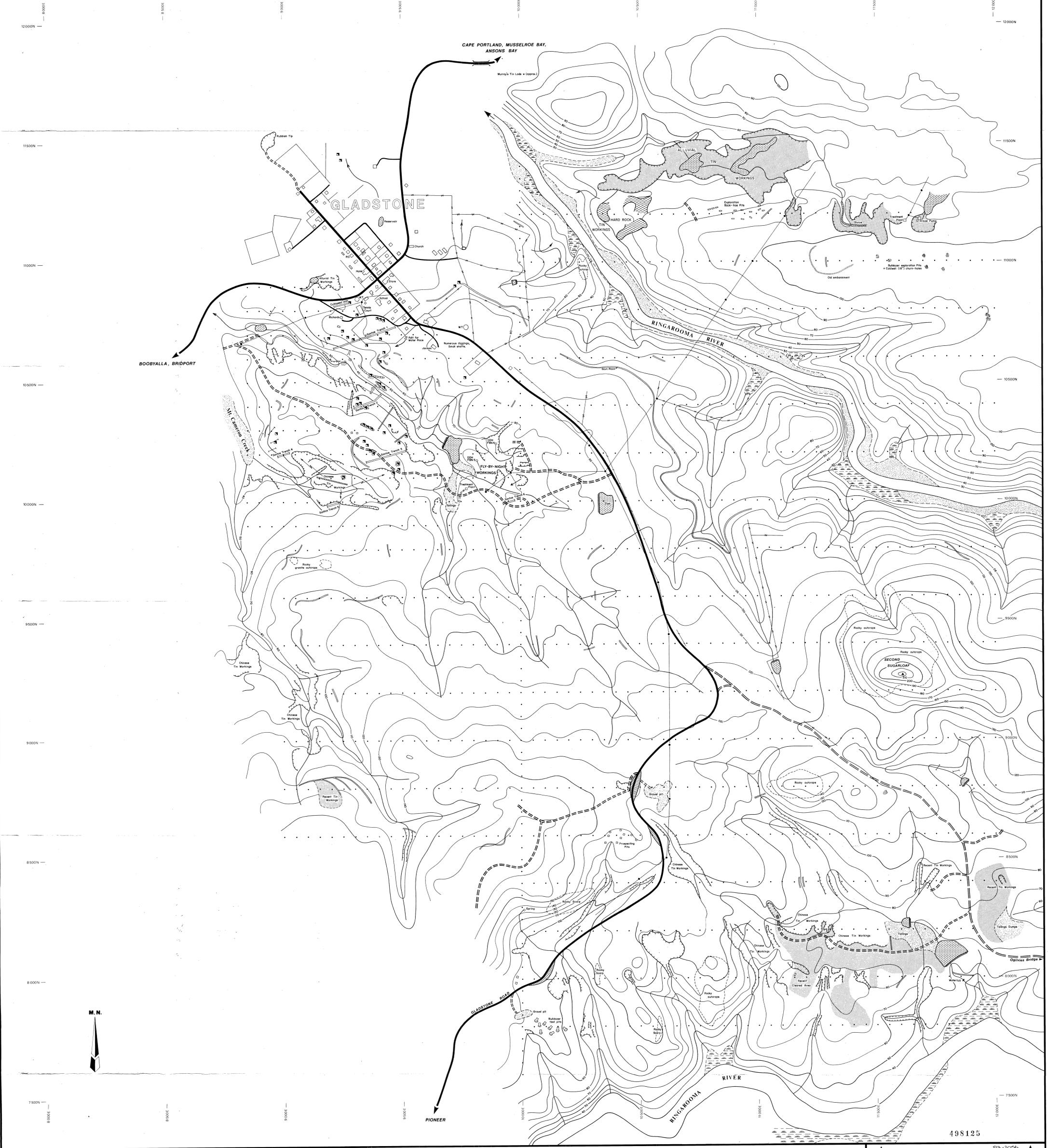
498124



SANTOS LIMITED 83-2056
NORTH EAST TASMANIA
1981 PROGRAMME
FLY-BY-NIGHT MINE
SURFACE GEOCHEMISTRY &
LOCATION OF DRILLHOLES



ORIGINAL SCALE : 1:1000	DRAFTED : R.GERMANIS	ENCL.
DATE : JUNE 1983		1
AUTHOR : L.E. WHITEHOUSE	PLAN/FILE N ^o : S83-0604/9-C1	



BOOBYALLA, BRIDPORT

CAPE PORTLAND, MUSSELROE BAY, ANSONS BAY

GLADSTONE

RINGAROOMA RIVER

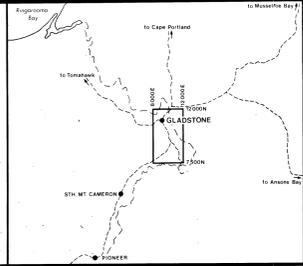
GLADSTONE ROAD

RIVER

PIONEER

M.N.

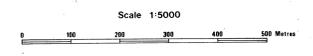
498125



LEGEND

- Primary Road; Bridge; Cutting
- Secondary Road
- Track
- Power Transmission Lines
- Fence; electrified
- Creek; Dam
- Water Race

- Water Tank
- Santos Drill Hole
- Abandoned Mine Shaft
- Pit or Digging
- Shallow Trench
- Excavation or Embankment
- Grid Peg
- Adit



Scale 1:5000

0 100 200 300 400 500 Metres

- Disturbed Area
- Marsh
- Recent Alluvium

SANTOS LIMITED

NORTH EAST TASMANIA

GLADSTONE / FLY-BY-NIGHT MINERAL LEASES

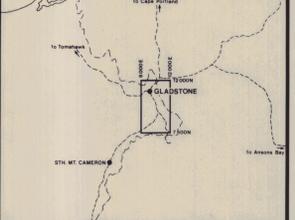
1982 GEOCHEMICAL PROGRAMME

TOPOGRAPHY

Original Scale 1:5000
 Contour Interval: 10m
 Author: L.E. Whitehouse

Drafted: H.J. Nestler
 Date: April 1983
 Plan File No: 583-0612/9-C8

6492



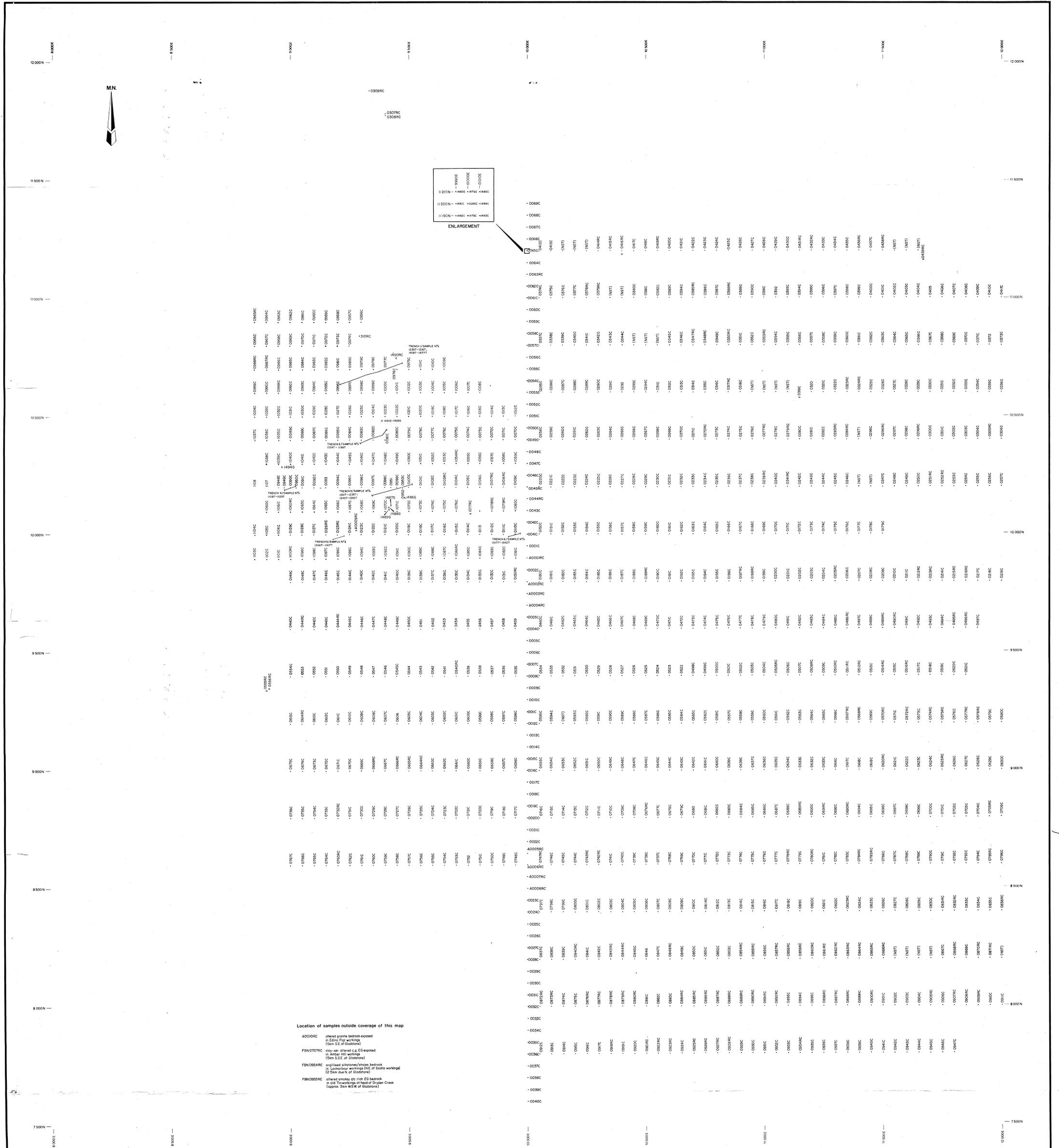
- | | |
|--|--|
| <ul style="list-style-type: none"> 500 River bed alluvium, recent alluvial terraces 501 Recent alluvial deposits as a result of use of earth moving equipment in tin workings 502 Fossiliferous and marine terraces, uplifted paleosols, Tertiary alluvial deposits (LAT) 503 Mafic dykes - andesites, gabbros, gneissic siltstones, metamorphosed locally to quartzites, phyllites, shales 504 Grey coarse-grained porphyritic granite. Distinctive cream feldspar phenocrysts to 4cm long 505 Pink m.g. - c.g. epigranular granite. Quartz and biotite rich varieties 506 Crumbly grey, weathering reddish granite with distinctive smoky quartz - eye phenocrysts. Possibly sub-volcanic 507 Porphyritic feldspar granite with smoky quartz "eye" phenocrysts. Transitional rock type 508 Pink siliceous medium-grained mafic rich granite. Restricted transitional rock type 509 Quartz green. Quartz grains > 90% commonly coarse-grained, smoky. Hard resistant 510 Soft muscovite - sericite (-green sericite) - lapid gneiss U0 Undifferentiated granite A denotes Altered (A) denotes Weakly altered | <ul style="list-style-type: none"> 511 Bleached fine-grained aegiric intrusive with coarse-grained granitic fragments. Probable intrusive breccia/breccia pipe. Secondary silica replacement common Limit of significant alteration Outcrop (Flat) Tin workings Photo-interpreted linears |
|--|--|

- Geologic contact
- 345 Bedding
- 350 Jointing
- 355 Shearing
- 360 Aplitic / fq. intrusive dykes
- 240 Quartz + SiO₂ veins



498126

SANTOS LIMITED	
NORTH EAST TASMANIA	
GLADSTONE/FLY-BY-NIGHT MINERAL LEASES	
1982 GEOCHEMICAL PROGRAMME	
GEOLOGY	
83-2006	
6493	
Original Scale: 1:5000 Date: January 1983 Author: L. E. Whitehouse	Drafted: F. Bowring Plan File No: 583-0475/B-P9



Location of samples outside coverage of this map

A0010RC altered granite bedrock exposed in Etna Pit workings (5km S.E. of Gladstone)

FBN0707RC clay-ey altered e.g. EG exposed in Jangle Hill workings (5km S.S.E. of Gladstone)

FBN0954RC original siltstones/shales bedrock in Lockport workings (N.E. of Scotch working) (2.5km due N. of Gladstone)

FBN0955RC altered smoky sil. rhy. EG bedrock in old workings of head of Dryden Creek (approx. 5km W.S.W. of Gladstone)

LEGEND

Hand Auger 'C' Horizon soil sample 0659 C

Spot rock chip sample 0670 RC

No sample taken (NST)

Random grab sample 1486 G

Channel sample from trench 1281 T

SCALE 1:5000

metres 200 100 0 100 200 300 400 500 metres

SANTOS LIMITED

NORTH EAST TASMANIA

GLADSTONE / FLY-BY-NIGHT MINERAL LEASES

1982 GEOCHEMICAL PROGRAMME

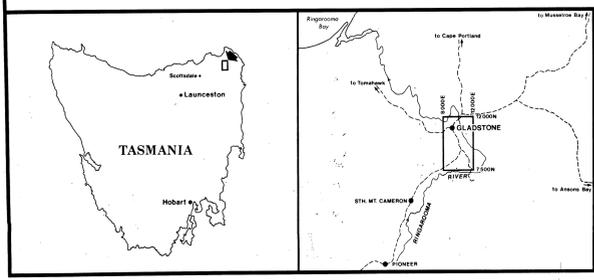
SAMPLE LOCATIONS

83-2056

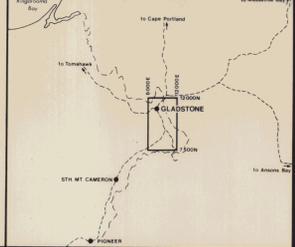
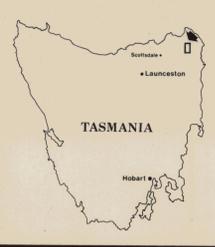
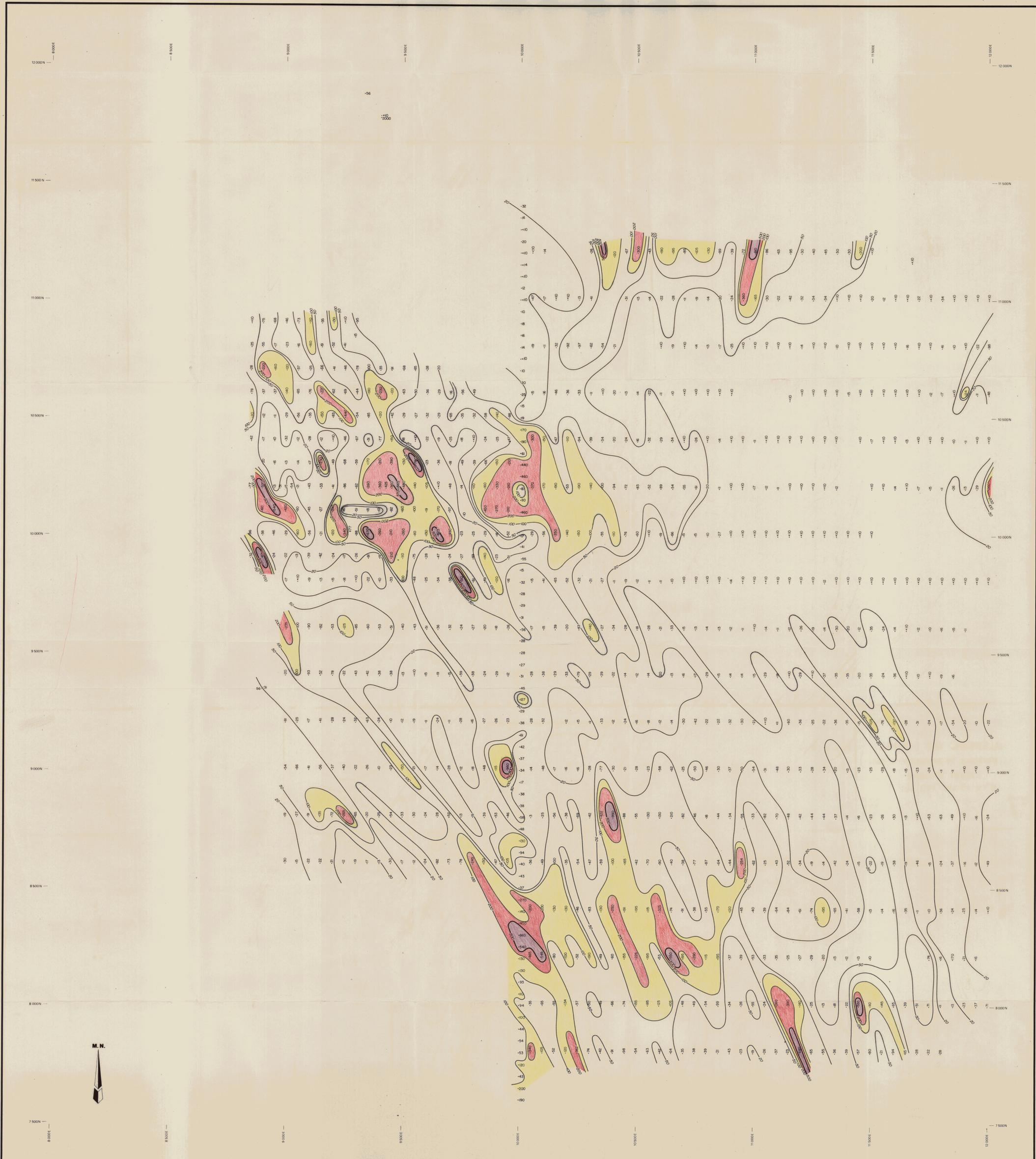
Original Scale: 1:5000
 Date: January 1983
 Author: L.E. Whitehouse

Drafted: F. Bowring
 Revised: June 1983
 Plan File No: 883-0615/9-C11

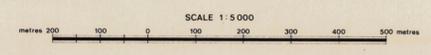
ENCL. 1



6495

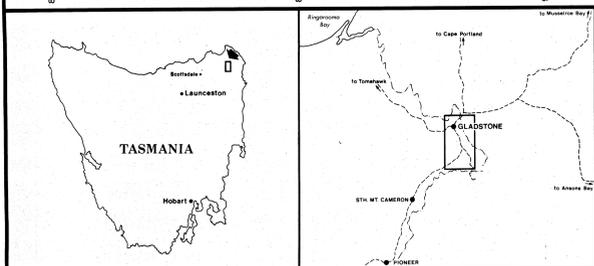
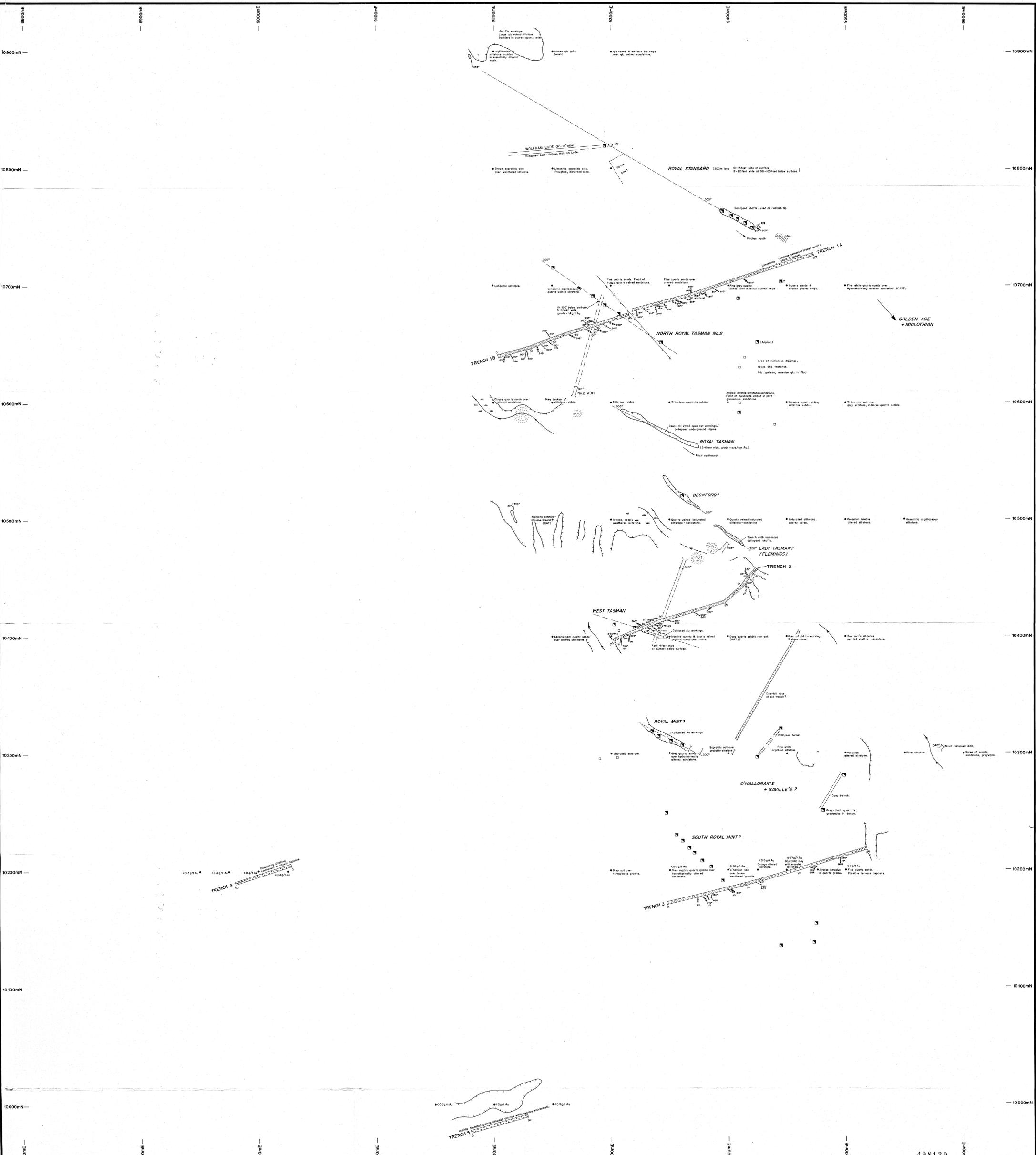


Analyses (XRF) by Tasmanian Dept. of Mines
Values in ppm (Sn)



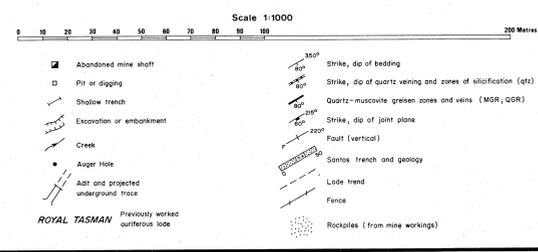
498128

SANTOS LIMITED	
NORTH EAST TASMANIA	
GLADSTONE / FLY-BY-NIGHT	
MINERAL LEASES	
1982 GEOCHEMICAL PROGRAMME	
TIN(Sn) GEOCHEMISTRY	
83-2056	6495
Original Scale: 1:5000	Drafted: H.J. Nestler
Date: April 1983	Author: L.E. Whitehouse
Plan/File No: 583-0614/9-C10	5



LEGEND

- Alluvium
- Poorly sorted rapidly deposited alluvial deposits (QAT). Source rocks in close proximity. Typical lacustrine swampy environment.
- Granite (undifferentiated)
- Green
- Green-sediment hybrid
- Granite-sediment hybrid
- Sandstones, siltstones, greywacke, argillaceous siltstone.



498130

SANTOS LIMITED

NORTH EAST TASMANIA

GLADSTONE/FLY-BY-NIGHT MINERAL LEASES

1983 Trenching Programme Gladstone Gold Workings

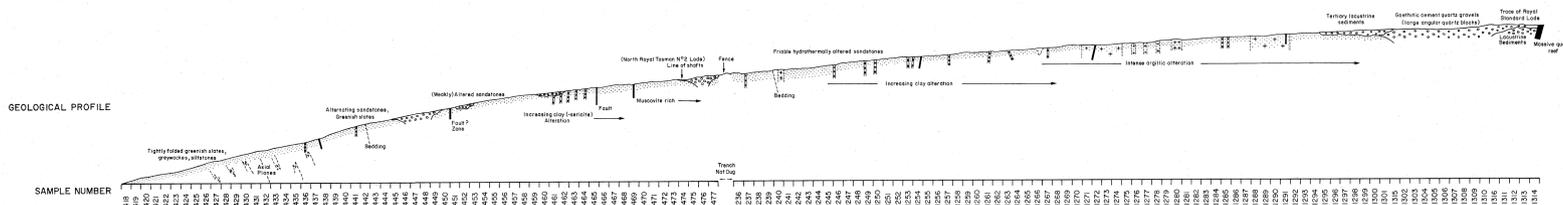
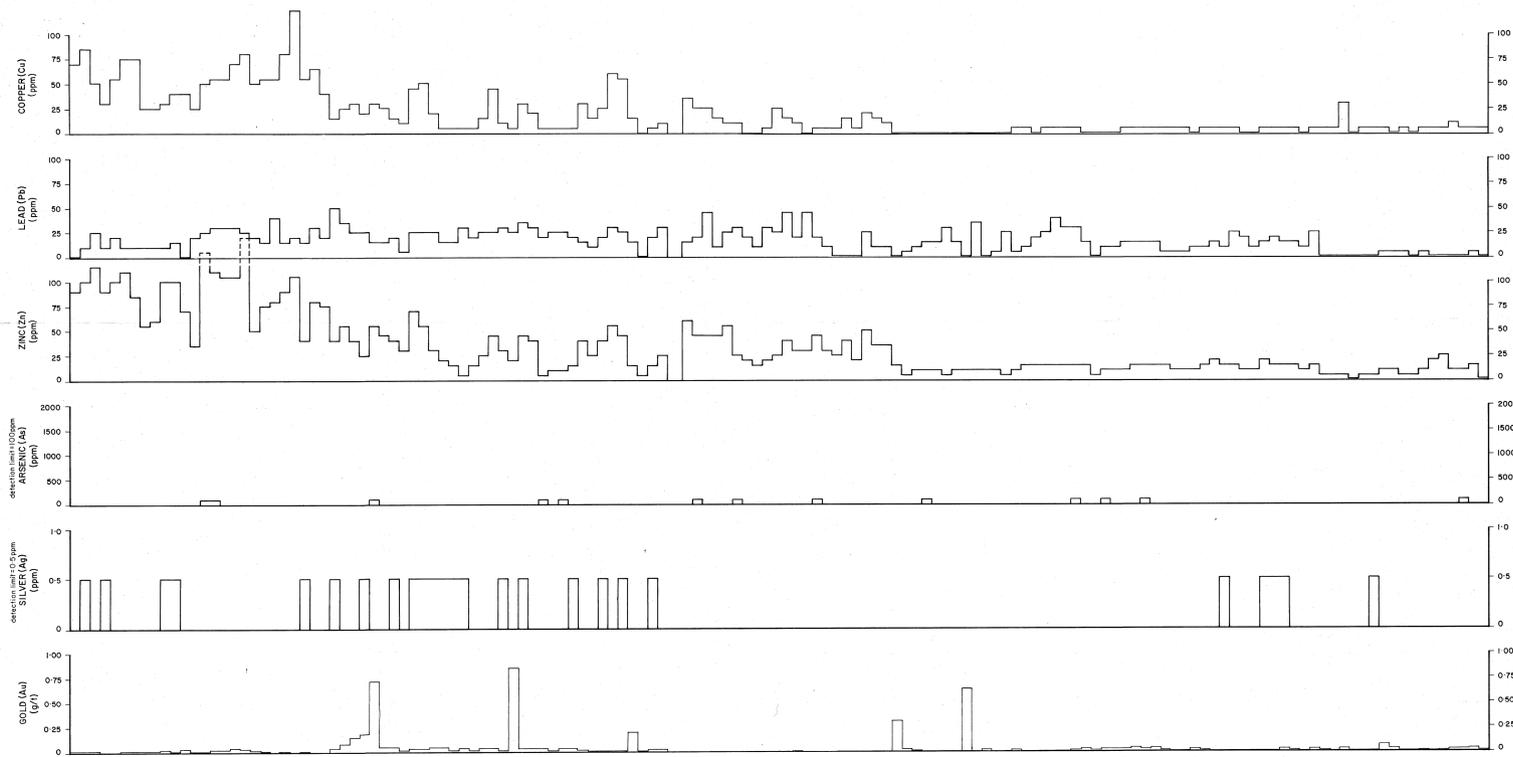
GEOLOGY 6497

Original Scale: 1:1000
Date: April 1983
Author: L.E. Whitehouse

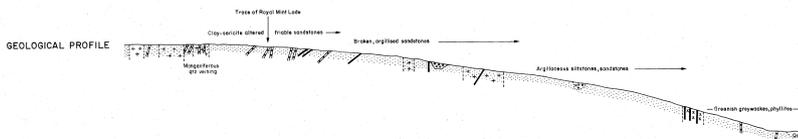
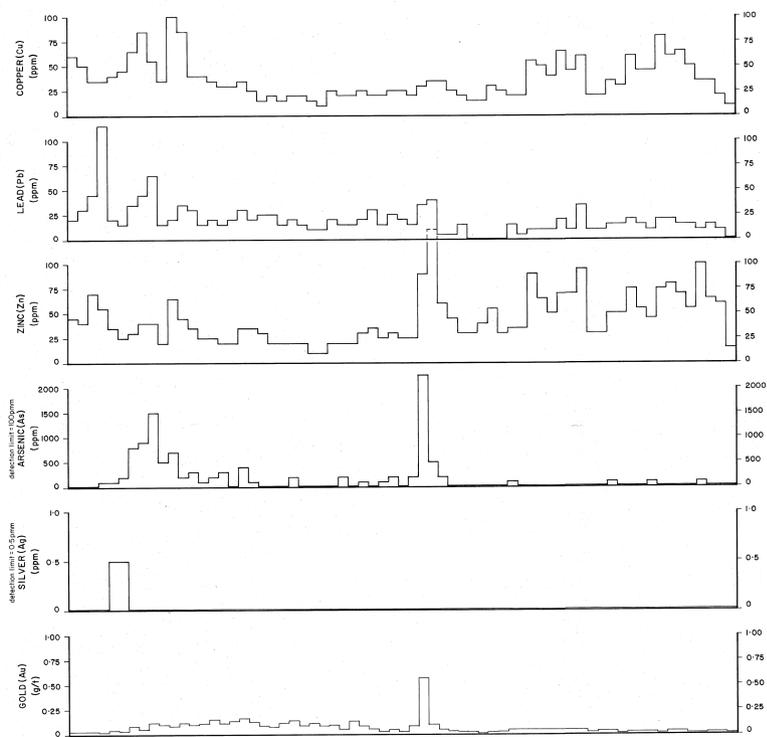
Drafted: H.J. Nestler
Plan/File No: SB3-0613/9-C9

TRENCH 1

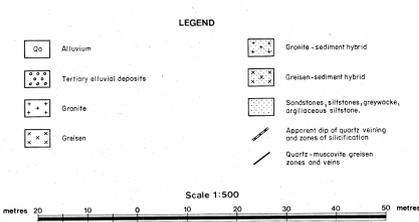
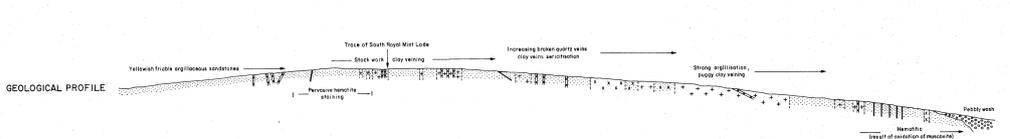
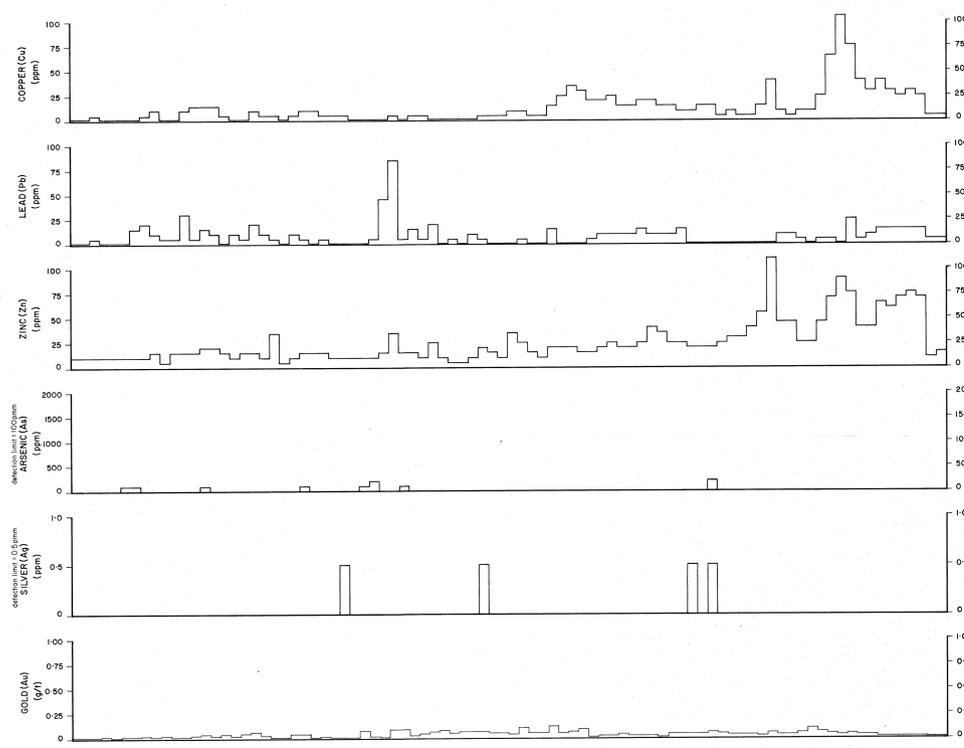
6498



TRENCH 2



TRENCH 3



498131

SANTOS LIMITED

NORTH EAST TASMANIA

GLADSTONE/FLY-BY-NIGHT MINERAL LEASES

1983 TRENCHING PROGRAMME

GEOLOGY & GEOCHEMISTRY - TRENCHES 1,2,3

(LOOKING NORTHWEST)

83-2056

Original Scale: 1:500
Date: April 1983
Author: L.E. Whitehouse

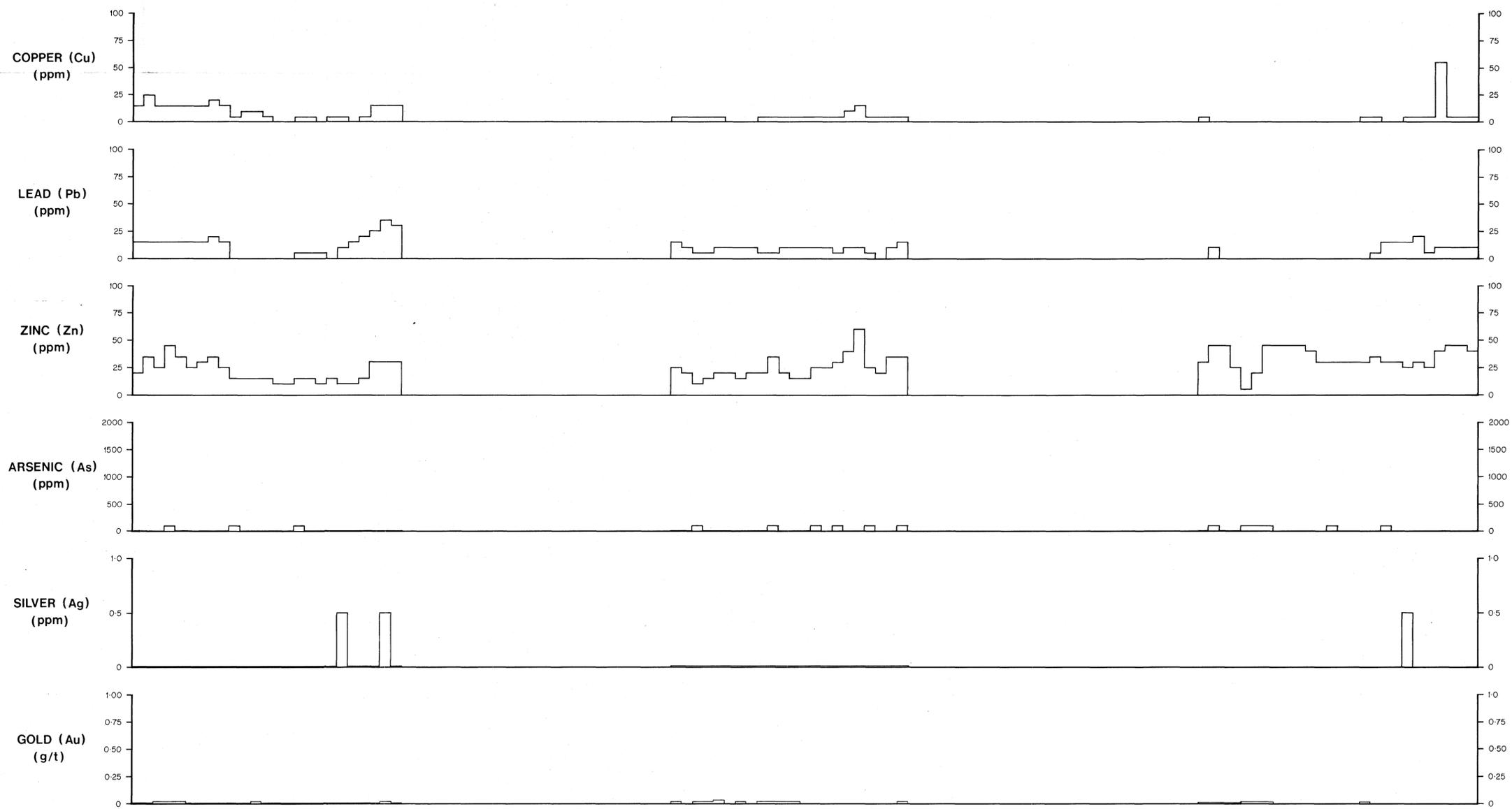
Drafted: F. Bowring

Scale: 1:500

Scale bar: 0 to 50 metres

Scale bar: 0 to 5 cm

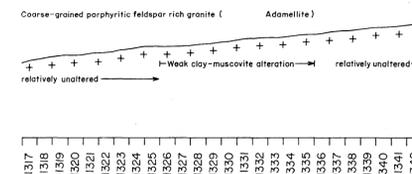
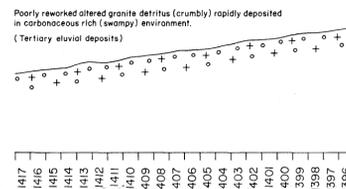
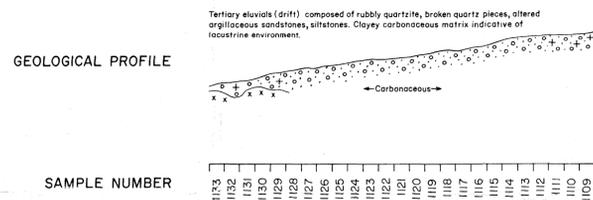
ERIC 8



TRENCH 4

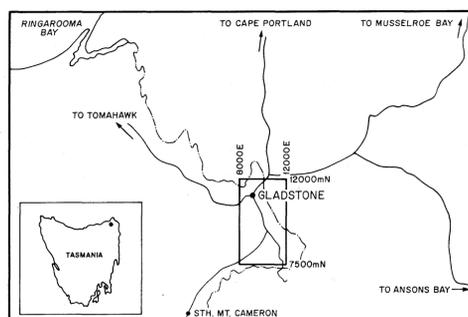
TRENCH 5

TRENCH 6

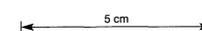


498132

LOCATION



SCALE 1:500



SANTOS LIMITED

NORTH EAST TASMANIA

**GLADSTONE / FLY-BY-NIGHT
MINERAL LEASES**

**1983 TRENCHING PROGRAMME
GEOLOGY & GEOCHEMISTRY - TRENCHES 4, 5, 6**

(LOOKING NORTHWEST)

83-2056

6499

ORIGINAL SCALE : 1:500	DRAFTED : R.GERMANIS	ENCL.
DATE : JUNE 1983		9
AUTHOR : L.E. WHITEHOUSE	PLAN/FILE No. : S83-0608/9-C4	