770001

CO-RELATION OF PREVIOUS EXPLORATION REPORTS

TO

FRACTURE AND MINERALIZATION STUDY

AS UNDERTAKEN

BY

GEO-FLIGHT RESEARCH PTY. LTD.

IN RESPECT OF

EXPLORATION LICENCE 53/70

BY

T. M. SLOGGETT AND ASSOCIATES

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T.M. SLOGGETT & ASSOCIATES 770003

MINING & GEOLOGICAL CONSULTANTS
P.O. Box 166, Launching Place,
Victoria, 3139
Telephone: (059) 67 3562
Melbourne: ~~XXXXX~~ 859 3686

INTRODUCTION :

This report has been requested by Mr. B.T. Irving in respect of exploration licence 53/70 of approximately 63 square kilometres vicinity of Mount Livingstone, North West Tasmania.

Recently (October 1987) Geo-Flight was commissioned to undertake a low level fracture and mineralization study over the area. Mr. Irving has requested that a study of previous exploration literature be undertaken and the results of this study be co-related to conclusions as reached in the Geo-Flight Report.

SITUATION AND ACCESS :

Situated in the vicinity of Mount Livingstone, 20 kilometres north-west of the lead-zinc mining town of Zeehan, North West Tasmania, access to the area was previously restricted by lack of road in rugged topography. Early tin miners employed a flying fox across the Pieman River to gain access. In approximately 1985, the Hydro Electric Commission of Tasmania constructed a fair all-weather road into the area.

PHYSIOGRAPHY :

Mount Livingstone, 2564ft. is situated within exploration licence 53/70 forming a prominent feature. Rejuvenation and stream uplifting within the region has resulted in a high degree of erosion and stream downcutting, forming steep ridges and scree covered slopes. Thick vegetation as horizontal scrub and bauera form along numerous gullies and streams within the higher regions of the area. Areas of low relief form peat covered open alluvial plains, peat covering alluvials and supporting low scrubby button rush.

Average rainfall at Zeehan is 97", rainfall closer to the coast is 140" per year, and rainfall within the area under discussion is likely to be of this order. Highest rainfall occurs from April to November.

PREVIOUS MINING :

Around the turn of the century alluvial tin mining was undertaken. This alluvial mining was centered around two large gossan outcrops. The northern gossans are referred to as Livingstone C/K Gossan, the southerly gossan is referred to as Stanley Reward. Early miners drove adits into both gossans. The Adits are open for inspection. No previous production figures are to hand.

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REGIONAL GEOLOGY :

MERIDITH GRANITES

The Meridith Granite is an intrusion of approximately 400 sq. kms. and is classified as an Adamelite, possibly as a multiple intrusive.

It has been established that there were two major precambrian blocks in North West Tasmania. The Rocky Cape Geanticline and the Tyenhan Block. The block margins appear as roughly parallel along a curved arc about 25 kms apart.

The area between these two blocks appears to be a major syncline or rift valley. Nearly all the significant mines in Tasmania appear to lie along the margins of, or within this syncline. Intruded through the western anticlinal axis of this syncline are three devonian granites (adamalites).

The western anticlinal axis lies between the Heemskirk Granite and the Meridith Granite, part of which is the subject within EL53/70.

Of immediate interest is the western contact of the Meridith Granite in the vicinity of the Stanley Reward and Meridith Gossans.

GEOLOGY, WESTERN CONTACT :

The Stanley Reward and Livingstone Creek Gossans crop out along a north westerly trending Meridith Creek Granite contact. The distance between the outcrops being approximately 1.5 kms. Major geological units have been mapped along approximately 3 kms. of the contact, from south to north.

CRIMSON CREEK FORMATION -
Greywacke, Turbidite Mudstones

SUCCESS CREEK GROUP -
Carbonate
Undifferentiated, Siltstones, Shale and Chert

As mapped carbonates of the Success Creek Group contact the Meridith Granite for a length of over 2.5 kms.

From the Stanley Reward Gossan to the Livingstone Creek Gossan, the granite contact is mapped as a broad, up to 300 metres wide adamalite sill. Westwards the carbonate rocks of the Success Creek Group is possibly overlain by, quartz, sandstone, siltstone and cherts of the Oonah Formation.

ALLUVIALS :

Within EL 53/70 three separate zones of alluvial accumulation have been recorded. The area of immediate interest are so called alluvials, overlying the Meridith Granite Contact zone and carbonate rocks of the Success Creek Group. Given an average depth of 2.5 metres, this section of alluvial would contain a total of approximately two million five hundred thousand tonnes. The alluvials extend southwards across the Pieman River for approximately a further 1.2 kms.

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RECENT EXPLORATION WORK :

Dating back to 1968 a large amount of exploration work has been undertaken by various companies to name a few - Pacminex, Gencor, C.S.R., Aberfoyle, Valley Exploration, etc.

In main previous exploration work consisted of, stream sediment, sampling, geochemical sampling, auger drilling, air borne magnetic surveys, air borne I.P. surveys, geological mapping, diamond drilling, etc.

Much of the above work was aimed at locating copper, lead, zinc, mineralisation of the type mined at Zeehan and Roseberry.

DIAMOND DRILLING :

In all some fourteen diamond drill holes have been located along the length of the contact zone. All drill holes being within the Success Creek Group. All drill holes are located over magnetic highs.

The diamond drilling has outlined a 25 metre wide olivine, magnetite, sulphide skarn, directly in contact with the Meridith Granites.

The drilling indicates that the upper portion (to 150 metre depth) of the skarn rolls from as steep easterly dip to a shallow south westerly pitch.

Drilling indicates that at a projected distance of approximately 200 metres from surface contact position and at a depth of approximately 200 metres the granites have flattened out, dipping 10^{o} to 15^{o} south westerly.

L.C.D. ONE -

L.C.D. One was sighted to intercept a magnetic high over the northerly section of the Livingstone C/K Gossans, the magnetic model indicated that the gossans had an easterly dip. The drill hole passed under the easterly dipping upper section and would have drilled near parallel to the lower westerly dipping section. The drill hole passed through granites to its final depth.

L.C.D. TWO -

This drill hole was located in close proximity to L.C.D. One. Located to intercept the easterly dipping gossans at shallower depth. L.C.D. Two intercepted to 10 metres of dolomitic rocks (Success Creek Group) then 12 metres of gossan assaying 0.37% Sn. Core recovery within the gossan section was only 20%. The drill passed through Meridith Granites to its final depth.

Petrographic analysis of the gossan drill core, indicated that the material composition was, oxidised, ex. pyritic olivine, magnetite, skarn.

G.S.R. TEN -

G.S.R. Ten was located directly on line strike with the southern outcrop of the Livingstone Creek Gossan and 300 metres south of the gossan outcrop, under a magnetic high with a high geochemical profile.

G.S.R. Ten intercepted the upper portion or easterly dipping section of gossan skarn at a depth of 120 metres. In contact with impure limestone along its western boundary the ironstone skarn was 25 metres wide, assaying 0.41% Sn.

The drill further passed through dolomite, a small band of shale, passed through 25 metres of westerly dipping skarn contacting the Meridith Granite. The lower westerly dipping skarn assayed 380 P.P.M. Sn.

The following drill holes intercepted skarn dipping 15° to 20° westerly with granite contact.

	Skarn Width	Assay Sn.
G.S.R. 14	11m	350 ppm
G.S.R. 15	4.7m	47 ppm
S.R.D. 6	4m	400 ppm
S.R.D. 8	0.4m	0.3%

CONTACT METASOMATIC DEPOSITS (SKARN) :

Carbonate rocks are most affected by metasomatic magma intrusion. The structure of the invaded carbonate rocks and faults affect the extent and position of ore deposition. Zones where sedimentry beds dip into the intrusive afford good up dip channelways, providing for escaping emanations to form ore bodies.

Ore bodies are likely to be larger and more widely distributed up dip than across dip. Faults that extend outward and upward from the intrusive serve as channelways that concentrate and conduct the emanations far from the intrusive source.

GEO-FLIGHT REPORT :

In part, the Geo-Flight report has outlined strong shear patterns as westerly parallel to the granite contact and implies the Exoskarn Region of a skarn contact in the immediate vicinity of the Livingstone Creek and Stanley Reward Gossans. The endoskarn or internal part of the contact may still be unexposed and untested on the granite side of the contact at depth.

The Geo-Flight Report extends the known Meridith Granite Contact adamellite sill for a further 3 kms north westerly and has outlined six zones of potential mineralization within strong shears westerly of the granite contact.

The Report outlines potential for gold, monazite, ilmenite and rare earths in placer deposits.

IN CONFIRMATION OF GEO-FLIGHT REPORT :

A study of previous literature tends to confirm conclusions as in the Geo-Flight Report in the following way -

SKARN :

Diamond drilling has confirmed a 25 metre wide pyritic, olivine magnetite skarn as in contact with the Meridith Granites.

ENDOSKARN, WITH LEAD, ZINC, COPPER, MINERALIZATION (IN GRANITE SECTION):

A large number of geochemical assays have shown high (up to 1000 ppm) background for the above highly mobile minerals. High geochemical results have also been recorded within the skarn section. No source has to date been located to explain the high geochemical profiles and no exploration work (drilling etc.) has been undertaken on the granite side of the contact.

MINERALIZATION IN FRACTURES :

The Geo-Flight Report has outlined a fracture zone striking north westerly, passing 120 metres easterly of the Livingstone Creek Gossans and southerly to within 10 to 20 metres of the Stanley Reward Gossan. Further southerly the implied fracture is within 10 metres of the bottom level of diamond drill hole S.R.D.8. 150 metres further south the implied fracture cuts across the plotted position of D.D.H. SRD7 and a further 400 metres south cuts across D.D.H. SRD9.

A study of the above drill logs reveals the following (assuming the fracture dip to be vertical or near so) -

D.D.H. SRD 7

From 108 metres to 126 metres fracture zone (18 metres)

5 metres of 0.24% Sn
13 metres of 0.12% Sn

The fracture zone is strongly pyritic, no gold assays.

D.D.H. SRD 8

This hole would be easterly of the projected fracture.

At 185 to 185.9 metres transition contact zone, pale green hornfells above granite contact.

185 metres to 185.9 metres
= 0.9 metres 0.3% Sn 30 ppm Au

(Within the above 0.9 metre section the width of the gold assay is not clear).

D.D.H. SRD 9

Fracture zone 315 metres to 332 metres.

A highly pyritic 3 metre section within fracture zone 187 ppb Au.

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The above results contain the only gold detected in drill core and the only tin values recorded away from granite contact as in S.R.D. 7.

LIVINGSTONE SHEER ANOMALY FIVE -

As outlined in Geo-Flight Report the zone of potential mineralization as in zone five would correspond with the following tin deposit as described in old records.

A large stanniferous gossan skarn is located near the head of Livingstone Creek. This gossan is described as 800ft. long and 25 to 100ft. wide at outcrop and containing fine sulphides? Channel sampling across the outcrop indicated tin values averaging 0.79% to 0.44% Sn.

MONAZITE ILMENITE AND RARE EARTHS IN PLACER DEPOSITS -

A study of petrographic reports shows that monazite ilmenite leucoxene (and pyrite) occur in all of the geological units at some distance from the granite contact generally, monazite 2 to 3% ilmenite 1 to 2%.

The alluvial deposits have not been tested for heavy minerals, the following are described as panned concentrates from within the area -

MINERALOGICAL COMPOSITION, IN ORDER OF ABUNDANCE :

Sample 4	Ilmenite
	Tourmaline
	Monazite
	Zircon
	Cassiterite
	Rutile
Sample 12	Ilmenite
	Chromite
	Tourmaline
	Zircon
	Monazite
	Cassiterite
	Andalusite
	Gold
Sample 15	Ilmenite
	Amphibole
	Monazite
	Zircon
	Chromite
	Rutile
	Cassiterite
	Zircon

.../7

ALLUVIALS :

I would consider the so-called alluvial overlying the larger area of interest to be in main, the upper weathered portion of an alteration zone and as such minerals and in particular, cassiterite would remain in situ rather than concentrated as in alluviums. However, concentration of a sort has taken place according to the tin grades as previously outlined.

The large section of alluvials south of the Pieman River would be of prime interest for further tin and heavy mineral concentrations.

CONCLUSIONS :

GEOLOGY -

The area is situated within a geological area of prime interest. The Meridith Granite contact with carbonate rocks of the Success Creek Group forming good potential for base metal deposition. A skarn system is implied by the Geo-Flight Report. A skarn system has been proved by previous diamond drilling. The endoskarn as described in Geo-Flight Report within the granite side of the contact has not been tested. High geochemical results have been recorded within the area for lead zinc and copper, and no source for the anomalous results discovered.

MINERALIZATION IN FRACTURES -

That mineralization in the fractures as outlined in Geo-Flight is partly confirmed by mineralized fracture zones in previous diamond drilling and mineralization previously recorded and corresponding with zone five Geo-Flight Report.

RARE EARTHS, HEAVY MINERALS -

The geological setting is compatible to the formation of rare earth minerals and rare earth minerals have been recorded from the area.

Petrographic reports show that monazite, ilmenite, zircon etc. is recorded in geological units as altered in the vicinity of the granite contact. Dish washed samples indicate the presence of heavy minerals in unspecified quantities within the area. The alluvial areas as specified in Geo-Flight Report and the alluvials south of the Stanley Reward area make good heavy mineral and rare earth targets.

RECOMMENDATIONS :

It is recommended that a further study be undertaken of previously recorded geophysical anomalies which may correspond with mineralization within the granite zone of the contact.

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It is understood that the core from previous diamond drilling is stored at the Department of Mines, Hobart. It is recommended that specific sections of the core be re-sampled and assayed for gold and platinum minerals.

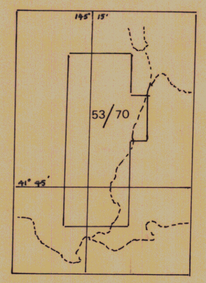
As in recommendations Geo-Flight Report - current mineral prices and future potential would indicate at this time, that priority for exploration be placed on gold and rare earth minerals.

It is recommended that a preliminary sampling programme be undertaken over the alluvial section at Stanley Reward and the alluvials directly south of the Stanley Reward area.

As in Geo-Flight Report, rapidly evaluate the gold mineralization areas along the shears. Sample zones of potential mineralization 4 to 8 by helecopter sampling and geochemistry.

Yours sincerely,

T. SLOGGETT M.Aus. I.M.M.



LEGEND

- Sill (?) Adamellite pluton (Meredith Granite)
- Greywacke turbidite mudstone marker horizon (Red Rock Mbr) Carbonate Undifferentiated siltstone shale
- Quartz sandstone siltstone chert

GEO–FLIGHT REPORT

- Gossan
- Aplite or Pegmatite Phase
- Fracture
- Colluvial Boundry
- Exoscarn Boundry

T.N

0 150 300 Metres

Scale 1:5000

5 cm

LIVINGSTONE CREEK
LCD 2
LCD 1
LCD 3
GSR 10
GSR 14 V
GSR 16
GSR 15
STANLEY REWARD
GSR 11
GSR 13
SRD 5
SRD 4
SRD 6
SRD 8
SRD 7
GSR 17
SRD 9
CASTLE CREEK
STANLEY RIVER
F

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VALLEY EXPLORATION HOLDINGS PTY LTD	
EXPLORATION LICENCE 53/70	
LIVINGSTONE CREEK	
WEST TASMANIA	
SCALE 1:5000	MAP 1
DRAWN T.M.S	
DATE 1/6/88	
REVISED	

88-2821

No AMG

C 10

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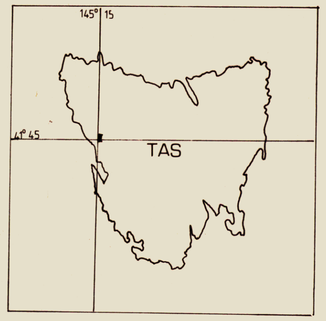

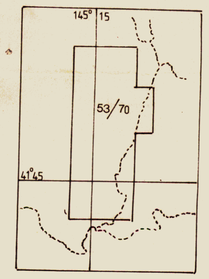

LEGEND

- Colluvium
- Gossan
- Anom Sn Zone >1000 p.p.m.
- SRD 4 / 5m — Drill Hole / Colluvium Depth
- Old Workings Sn

0 150 300 metres

Scale 1:5000

6600 N
4200 W
6200N
4600 W
5800 N
5400 N
5000 W
5400 W
5000 N
4600 N
4200N
Castle Creek
STANLEY RIVER
Good

LCD 1 8·5m
LCD 3 4·5m
GSR 10 12m
GSR 14 11m
GSR 16 18m
GSR 15 24m
GSR 11 4m
GSR 15 15m
SRD 4 5m
SRD 5 4m
SRD 6 gr
SRD 8 gr
SRD 7 7m
GSR 17 7·0m
SRD 9 gr

5 cm

VALLEY EXPLORATION HOLDINGS PTY LTD	
EXPLORATION LICENCE 53/70	
LIVINGSTONE CREEK	
WEST TASMANIA	
Scale 1:5000	MAP 2
DRAWN T.M.S	
Date 11/6/88	
REVISED	

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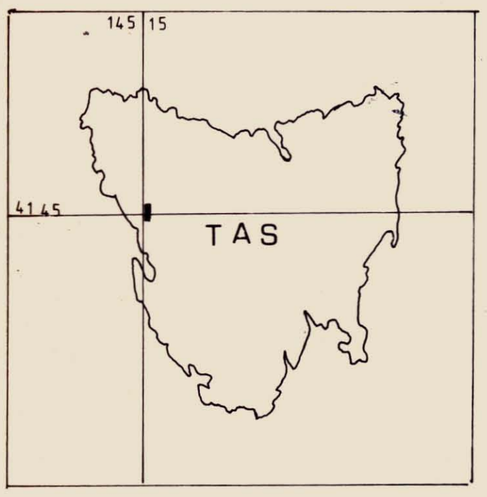
LIVINGSTONE



LEGEND

- Fractures And Lineaments
- Aplite Or Pegmatite Phase
- 7 — Potential Mineralization
- Placer Deposits
- > 50 PBB AU
- > 20 PBB AU
- > 10 PBB AU
- Circular Structures

0 1 2 3K

Scale 1: 25000

5 cm

770013

VALLEY EXPLORATION HOLDINGS PTY LTD	
Drainn From Geo Flight Map One For Dr David Duncan to replace previous map.	
Scale 1: 25 000 Drawn T. M. S Date 1/6/88	MAP 3