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ROSEDALE FLAT

FINAL REPORT

by

MINERAL HOLDINGS AUSTRALIA PTY. LTD.

89-2942

March 1989

Vic Threader and Assoc. Pty. Ltd.
43 Kingston Heights,
Tasmania 7050.

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CONTENTS

Abstract

A test pit was dug to bedrock to investigate the anomalous cassiterite content in the drilling sludge of Dept. of Mines Diamond Drillhole No.1 at Dan Rivulet.

The presence of alluvial cassiterite was not confirmed and further work is not considered to be justified.

Location

Boreholes 1 and 2 were drilled in the Dan Rivulet Valley at A.M.G. 572 291mE, 5 412 961mN and 572 602mE, 5 413 068mN respectively (Figure 1). The holes were located approximately 4km NW of the Dan Rivulet/South Esk River confluence and 5km NW of Mathinna.

The road distance from Launceston is 200 km and straight line distance 60km east.

Previous Exploration

Two diamond drill holes were drilled by the Department of Mines to test the theory that the northerly extension of the shear zone and associated mineralisation in the New Golden Gate mine, Mathinna, occurred beneath the alluvial plain of the Dan Rivulet.

Sludge samples from one of these holes (B.H.1) was found to be rich in cassiterite from the surface to 115.75m., at which depth the hole was cased. Sludge samples below this depth did not contain cassiterite.

Sludge was collected daily, the results are given in Appendix 2 and summarised below:

Day	Mass of Sn (gm)
1	6.8
2	0.92
3	8.94
4	0.98
5	0.25
6	0.1
7	0.29
8	0.21
9	133.5
10	0.14
11	23.7

If the sludge on day 9 was from alluvial ground,it would represent a grade of 3.6 kg/m^3, which is obviously erronious as there was full core recovery at that depth (76.62-88.62) and no mineralisation was evident in the core. All samples contained cassiterite but significant amounts of cassiterite occurred on days 1, 3, 9 and 11.

To test for the presence of cassiterite in the alluvium, a line of 12 churn drill holes was drilled to bedrock across the valley on a 50m spacing (Fig.2). All but one of the holes contained minor amounts of gold but none contained cassiterite. The presence of cassiterite in the drilling sludge was therefore considered to be anomalous and localised. Three possibilities to account for it are considered:

1. Alluvial cassiterite in the 6m of overburden
2. Lode cassiterite from within the Mathinna Beds
3. Contamination of samples

1. The coarse, sub-angular to rounded nature of the cassiterite indicates an alluvial source (Bottrill 1987). If this were the case, the sludge samples below 6m contained cassiterite which had been dislodged by the action of the drill from the top 6m of the hole. After the hole was cased the source was cut off and no alluvial cassiterite could then gravitate to the bottom of the hole.

2. The in situ explanation requires:
    a) that the cassiterite was derived from the top 30m where there was some core loss.
    b) that the rounding of grains was caused by the drilling action.
    and c) that all of the primary source was removed from the core to accumulate in the sludge.

3. The sludge was collected in plastic bags by the driller and delivered to the Dept. of Mines laboratory and the only opportunities for contamination to have occurred is in using dirty sample bags or concentrating equipment or by deliberate salting. In any of these cases the contamination must have ceased on the day the hole was cased, which is an unlikely co-incidence.

Current Exploration

To test the most plausible explanation, i.e. No.1, 5kg samples were collected by excavator bucket and assayed in the Dept. of Mines laboratory. The results appear in Appendix 2 but in summary they contained minor amounts of gold and no cassiterite.

Conclusion

The origin of the cassiterite is still a mystery but in practical terms its occurrence, if indeed it does occur, is too localised to be of economic interest and no further work is thought to be justified.

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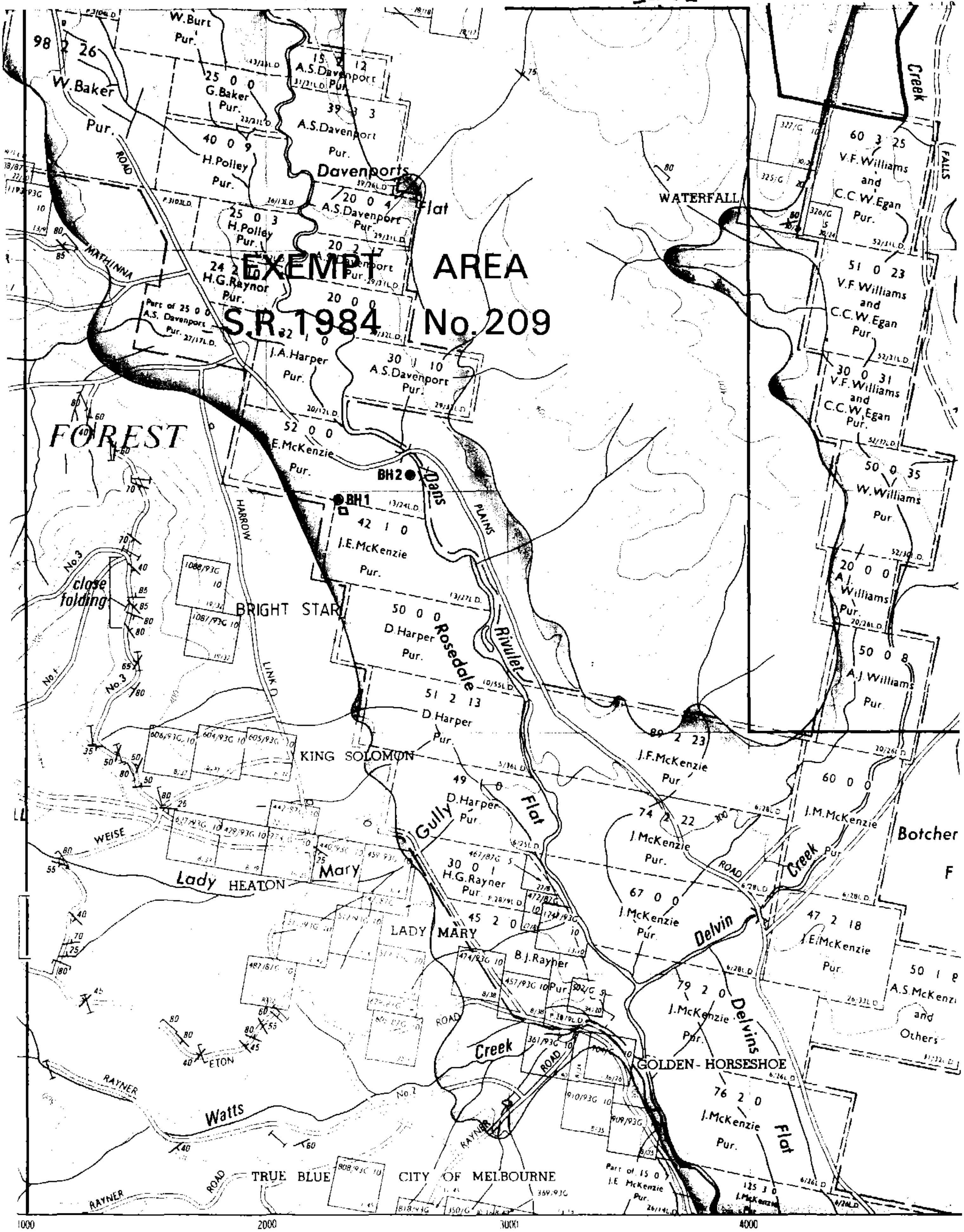
References

Bottrill R.S. (1986) Mineralogy/Petrology of Some Dan Rivulet Borehole Samples U.P.R., Dept. of Mines 1986/52

Threader V.M. (1987) Diamond and Churn drilling in Dan Rivulet Valley U.P.R., Dept. of Mines 1987/54

Figure 1



□: Test pit

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5 cm

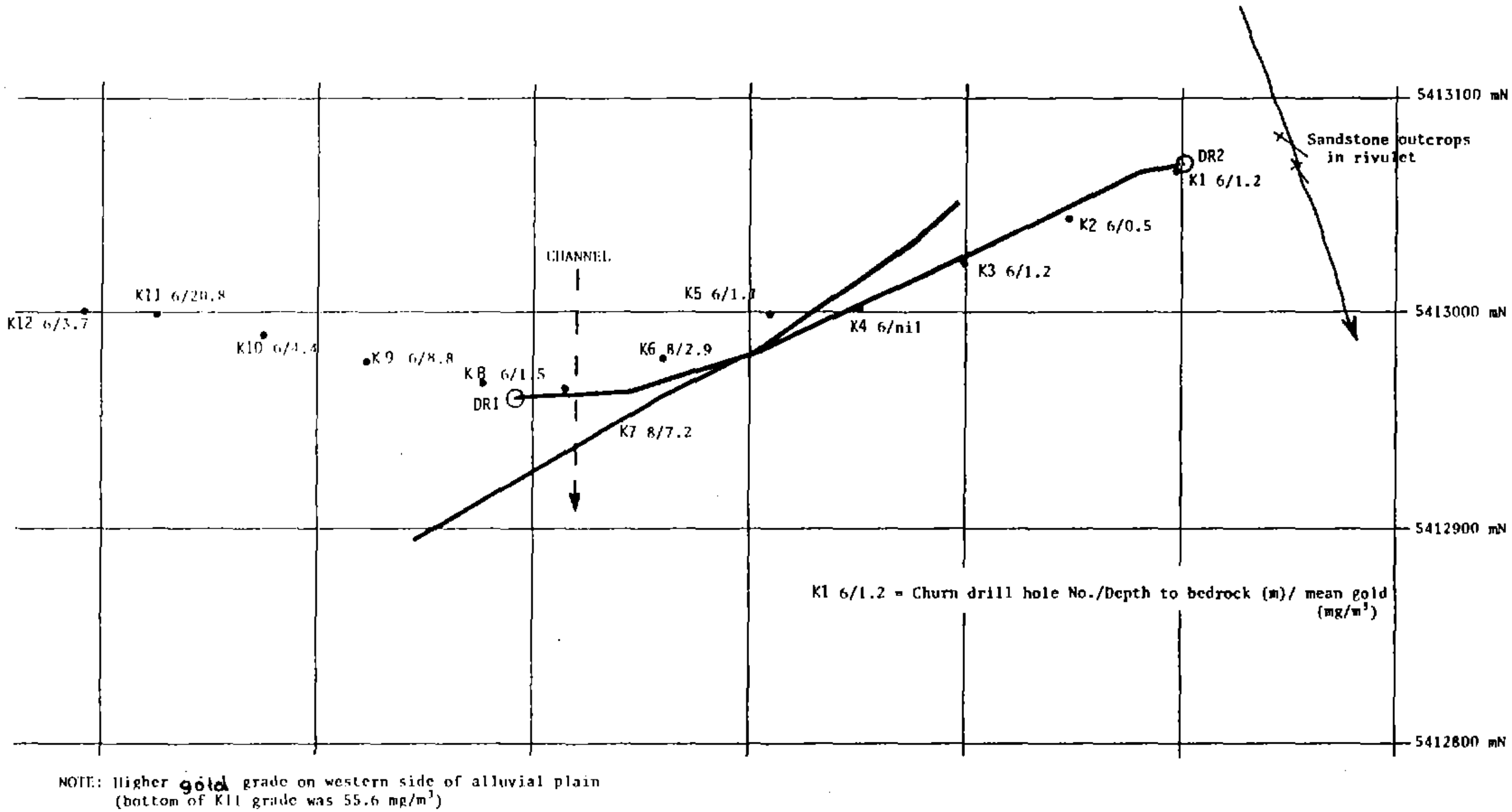

Figure 2. *Plot of DDH 1 and DDH2, and Keystone Holes K1 to K12*

5 cm

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APPENDIX 1

Mineralogy by R. Bottrill

(from U.P.R. 1986/52)

APPENDIX 1

1986/52. Mineralogy/petrology of some Dan Rivulet Bore Hole 1 samples

R. S. Bottrill

Abstract

Two samples of drill core and one pan-concentrated sludge sample from this borehole were examined and found to be mineralised. The pan concentrate is preponderately cassiterite with minor pyrite, while the drill core samples exhibit minor sulphides (pyrite, chalcopyrite, marcasite, sphalerite, galena, bornite and covellite). These sulphides principally occur in quartz-carbonate veins, but are also disseminated in phyllitic Mathinna Beds. The cassiterite is presumed to derive from Cainozoic alluvium, while the sulphides may be polygenetic, perhaps representing syngenetic sulphides overprinted or remobilised by Devonian hydrothermal fluids.

INTRODUCTION

Two samples of sulphide-bearing drill core from this borehole were submitted for examination by V. M. Threader. *The samples, from* the 89.0 *m* and 94.2 m levels, are of the Mathinna Beds.

Sludge samples collected from this borehole over the interval 76.62-85.62 m were pan concentrated at the Department's Launceston laboratories. This product, of about 0.2-2.0 mm grain size, was submitted for mineral identification.

DESCRIPTIONS

BH1 (89.0 m)

This rock is a contorted, quartz-rich phyllite with a foliation defined by phengitic muscovite and lesser chlorite. Bedding is poorly defined but is probably approximately parallel to the tectonic foliation. Rutile is very abundant as stringers and disseminations of very fine grains. Graphite flakes, zircon and pyrite are rare, while blebs of chalcopyrite-sphalerite-galena (up to 40 um) are very rare.

Numerous veins, of several generations and orientations, cut this rock and are often contorted and disjointed by shearing. Quartz is predominant but a carbonate is sporadically present and sulphides are sporadic but minor. Pyrite occurs as crystals and aggregates up to a few hundred micrometres, sometimes intergrown with marcasite. Chalcopyrite is relatively abundant as blebs to about 100 um, or as fine veinlets a few micrometres wide. The blebs often contain sphalerite, galena, bornite and covellite, and these sulphides are practically always associated with chalcopyrite in these rocks. Chalcopyrite may replace the galena and sphalerite in places.

BH1 (94.2 m)

This rock has a similar mineralogy to the above, but is less contorted and quartzose. Rutile and sulphides (as above) seem less common, while graphite may be more abundant. A large proportion of the sulphides occur as blebs in the phyllite, and a pyrite vein is present, parallel to the cleavage. A mawsonite-like mineral and other unidentified minerals are present.

BH1 (76.62 - 85.62 m - sludge)

Cassiterite comprises about 70-80% of the sample, as subangular to rounded grains, rarely subhedral. The colour varies from deep red to brown and yellow and inclusions of quartz, pyrite, mica, tourmaline and rutile are present.

Pyrite comprises about 5% of the sample, it is anhedral and often intergrown with quartz.

Hematite comprises about 5% of the sample, as reticulated aggregates probably pseudomorphous after magnetite.

Rock fragments comprise about 10-20% of the sample, and are dominantly dolerite and hornfels, often weathered.

Goethite, tourmaline, pyroxene, rutile, and an unidentified metal contaminant are all trace constituents.

CONCLUSIONS

Base metal sulphides are minor but widespread phases within both the phyllite and the quartz-carbonate veins. The veins (probably Devonian) may have only remobilised the sulphides locally, by lateral secretion. Alternatively, metals may have migrated from the veins into the phyllite (this seems less likely). The pyrite and chalcopyrite veins are probably due to late stage remobilisation. No gold was detected microscopically; some seemed visible in the original core, but was lost during preparation.

The coarse, subangular to rounded nature of the cassiterite indicates an alluvial source, probably close to the original (Devonian) tin-bearing vein or greisen, of Cainozoic age.

[2 September 1986]

APPENDIX 2

Details of Sludge Assays from D.O.M. DD.1 Dan Rivulet

(from U.P.R. 1987/54)

TASMANIA DEPARTMENT OF MINES
GEOLOGICAL SURVEY BRANCH

(SLUDGE ASSAYS)

DIAMOND DRILL CORE GEOCHEMICAL DATA

HOLE No. DAN RIVULET BH No. 1
REF. No.
SHEET No. 7 of 9

SAMPLE No.	Type	INTERVAL From (m)	INTERVAL To (m)	Sample Length	Rec (%)	Mass	%Sn	Mass Cassit. Sn g.	g/m^3	Mass Au Au mg.	mg/t
851225	S	0	4.18	4.18		65.4	10.4	6.80	395	0.12	
851226		4.18	13.62	9.44		48.7	1.88	0.92	24	0.13	2
851227		13.62	22.62	9.00		77.1	11.6	8.94	241	0.11	2
851228		22.62	34.62	12.00		87.5	1.12	0.98	20	0.03	0.2
851229		34.62	46.62	12.00		72.7	0.35	0.25	5	0.13	1
851230		47.12	55.62	7.50		77.5	0.13	0.10	5	0.70	9
851231		55.62	64.62	9.00		29.9	0.98	0.29	8	0.10	2
851232		64.62	76.62	12.00		58.2	0.36	0.21	4	0.10	1
851233		76.62	85.62	9.00		293.4	45.5	133.5	3604	0.40	4
851234		85.62	97.62	12.00		37.4	0.37	0.14	3	0.08	1
851235		100.6	106.70	6.10		87.1	27.2	23.7	944	0.78	12
851434		106.70	115.75	9.05		Total mass		175.83		0.12	2
851435		115.75	127.80	8.05						0.02	0.3
851436		127.80	145.90	18.10						0.02	0.1
851437		145.90	154.88	8.98						0.01	0.1
851438		154.88	163.74	8.86						0.02	0.3
851439		163.74	181.75	18.01						<0.01	–
851440		181.75	196.84	15.09						0.02	0.2
851441		196.84	211.89	15.05						0.13	1.2
851442		211.89	220.88	8.99						0.06	0.9
851443		220.88	241.99	21.11						0.03	0.1
851444		241.99	268.89)	16.90					)	0.05	0.2
851445		241.99	268.89)	26.90					)		
851446		268.99	280.99	12.01						0.01	0.1
851447		280.99	292.94	11.95						0.02	0.2
851448		292.94	304.88	11.94						<0.01	–
851449		304.88	313.00	8.12						0.15	2.4
851450		313.00	328.85	15.85						0.07	0.4
851451		328.85	350.00	21.15						<0.01	–
851452		350.00	361.86	11.86						0.02	0.2
851453		361.86	370.90	9.04						0.07	1
851454		370.90	379.87	8.97						<0.01	–

METAL CONTENT (g/t unless specified)

COMMENTS

$\frac{\text{g.Sn}}{\text{sample length}} \times 243$

= g.cassiterite/m^3 (HQ core)

$\frac{\text{mg Au}}{\text{sample length}} \times 132$

= mg/t (NQ hole)

The factor is 93.5 for HQ core

(calculation of grade of cassiterite is valueless due to contamination)

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TASMANIA DEPARTMENT OF MINES
GEOLOGICAL SURVEY BRANCH (SLUDGE ASSAYS contd.)

DIAMOND DRILL CORE GEOCHEMICAL DATA

HOLE No. DANS RIVULET BH No. 1
REF. No. SHEET No. 8 of 9

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SAMPLE No.	SAMPLE Type	INTERVAL From (m)	INTERVAL To (m)	Sample Length	Rec. (%)	Mass	%Sn	Mass Sn g.	Cassit. g/m³	Mass Au mg	Au mg/t							COMMENTS
851528	S	379.82	383.93	9.11						0.02	0.3							
851529		388.93	401.02	11.09						<0.01	-							
851530		401.02	416.08	15.06						0.39	2.4							
851531		416.08	423.64	7.56						2.68	33							

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APPENDIX 3

D.O.M. Laboratory Report on

Test Pit Samples in Current Exploration

TASMANIA

DEPARTMENT OF MINES

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Launceston Office:
Chemical and Metallurgical Laboratory,
287 Wellington Street,
LAUNCESTON 7249

Enquiries:
Phone:
Your ref.:
Our file:

Mineral Holdings Pty Ltd
2nd Floor
100 Collins Street
Melbourne 3000
Victoria

10th February 1989

Reg. Nos 883650-58

Dear Sir,

Nine samples of alluvial material were submitted by Mr. V. Threader and said to be from Dann's Rivulet.

The samples were first wet screened on a 2.00mm screen, and the -2.00mm screen fraction was jigged using the 60mm X 40mm Denver mineral jig. The screen oversize, the jig concentrate, and the jig tail were weighed, and the jig concentrate was examined under the microscope before being assayed for gold.

The jig concentrate from Reg. No 883656 - No 7 was sent to the Department of Mines, Mineralogist, Mr. R. Bottrill, who stated:-

"The bulk of the concentrate is lithic particles (phyllites and arenites) and quartz. Rusty iron particles are abundant, as flakes, globules and irregular grains. Sulphides are reasonably common and include galena, chalcopyrite and sphalerite. These are invariably fresh and angular. One small gold grain (about 0.2mm, elongate and subrounded) was noted. No cassiterite was detected. Fine zircon is common and one small blue corundum (sapphire) was detected.

The brassy metallic spheres were found to be moderately magnetic. The brassy colour is presumably an iridescent coating."

The results were as follows:-

Reg. No & Description	Product	Mass g.	Mass of Gold in conc. mg.	Minerals observed, in Concentrate.
883650	+ 2.00 mm	83.0		Rutile, zircon,
No 1	- 2.00 mm J C	20.0	≤0.0002	occasional cassiterite, arsenopyrite?
	J T	3164		grey metallic particle.
	Calc. Head	3267	(≤0.0001 g/t)	
883651	+ 2.00 mm	184.9		
No 2	- 2.00 mm J C	22.0	0.0005	Zircon, rutile?
	J T	4153		
	Calc. Head	4359.9	(0.0001 g/t)	
883652	+ 2.00 mm	6371		
No 3	- 2.00 mm J C	10.2	0.0039	
	J T	2570		
	Calc. Head	8951.2	(0.0004 g/t)	
883653	+ 2.00 mm	5817		
No 4	- 2.00 mm J C	6.9	0.1312	
	J T	3173		
	Calc. Head	8996.9	(0.015 g/t)	
883654	+ 2.00 mm	5668		
No 5	- 2.00 mm J C	8.1	1.435	
	J T	2931		
	Calc. Head	8607.1	(0.17 g/t)	

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Reg. No & Description	Product		Mass g.	Mass of Gold in Conc. mg.	Minerals observed, in Concentrate
883655	+ 2.00 mm		6661		
No 6	- 2.00 mm	J C	11.6	0.0014	
		J T	2367		
	Calc. Head		9039.6	(0.0002 g/t)	
883656	+ 2.00 mm		7257		Galena, chalcopyrite, gold
No 7	- 2.00 mm	J C	10.0	≤0.0002	metallic spheres and shapes,
		J T	2960		sphalerite?
	Calc. Head		10227	(0.0000 g/t)	
883657	+ 2.00 mm		4530		galena, gold, brass?
No 8	- 2.00 mm	J C	4.5	0.1631	lead-flattened shot?
		J T	2750		sphalerite?
	Calc. Head		7284.5	(0.022g/t)	
883658	+ 2.00 mm		2174		
NO 9	- 2.00 mm	J C	6.1	0.0009	galena, pyrite,
		J T	5762		sphalerite?
	Calc. Head		7942.1	(0.0001 g/t)	

Metallurgist [signature]

[signature]
(P.L. James)
Chief Chemist & Metallurgist

Fee $578.00

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