924001

EXPLORATION LICENCE NO. 8/93

MT ECHO.

FINAL REPORT.

94-3561

MANCALA PTY LTD

PO BOX 103
ST HELENS
TAS. 7216.

Prepared by G.D.Iliff.
May 1994.

AMG REFERENCE POINTS ADDED

924002

MANCALA PTY LTD.

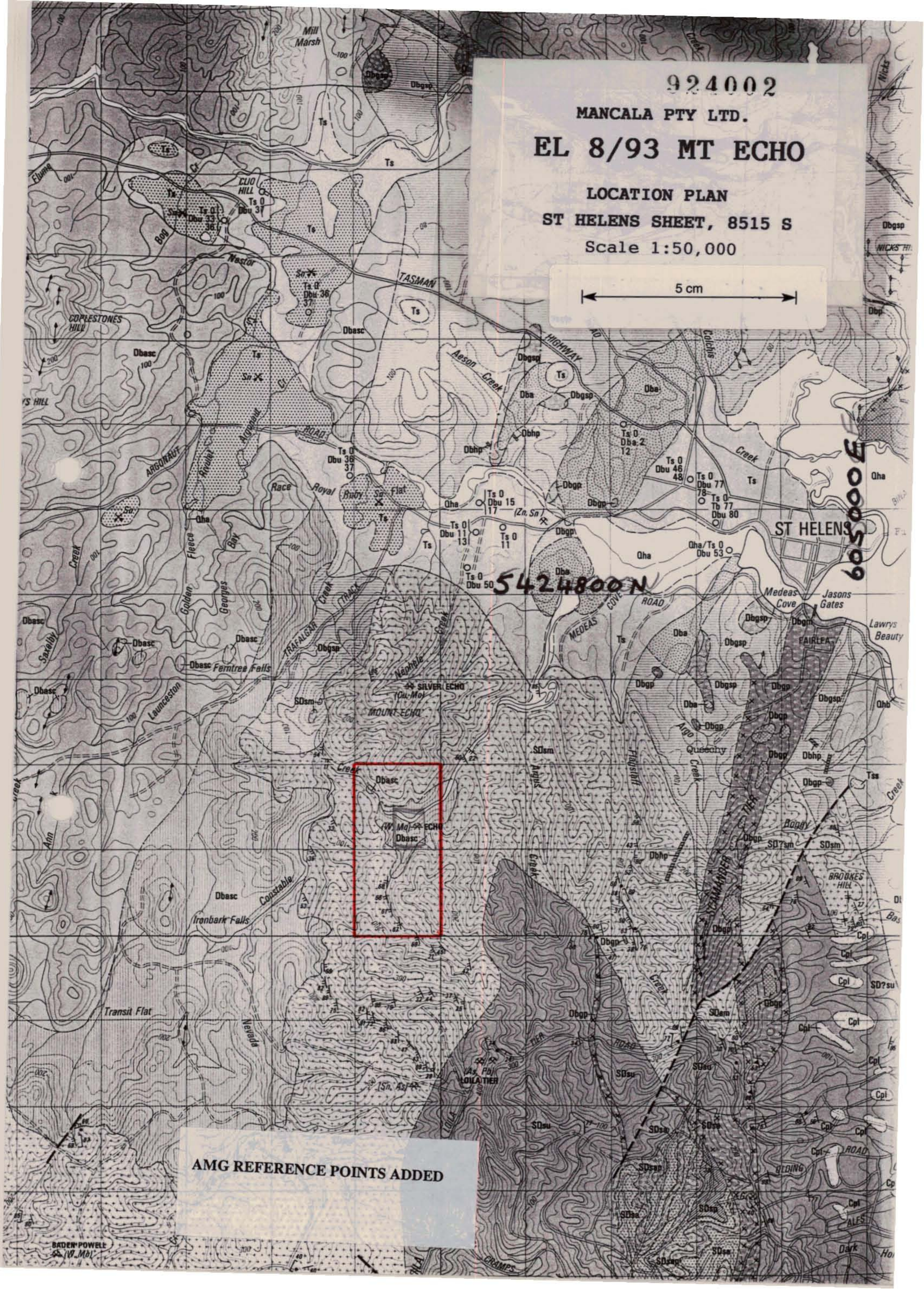
EL 8/93 MT ECHO

LOCATION PLAN

ST HELENS SHEET, 8515 S

Scale 1:50,000

5 cm



5424800N
605000E
ST HELENS
MOUNT ECHO
SILVER ECHO
(Cu-Mo)
ECHO
(W, Mo)
Dbasc
TASMAN HIGHWAY
CLIO HILL
COPLESTONES HILL
Mill Marsh
Medeas Cove
Jasons Gates
FAIRLEA
Lawrys Beauty
Queechy
Ironbark Falls
Ferntree Falls
Transit Flat
LOILA TIER
BROOKES HILL
NICKS HILL
BADEN POWELL
ST MARYS TIER
Aeson Creek
Nephele Creek
Golden Fleece
Georges Bay
Royal Ruby Flat
Launceston
Constable
Nevada
Argonaut
Flagstaff
Angus
Argo Creek
Bog Cr
Nestor
Colchis
Trafalgar Track
Medeas Cove Road

AMG REFERENCE POINTS ADDED

SUMMARY

With the need to supplement a low grade feed to the Anchor Mine mill, Mancala Pty Ltd seeks a small, open pit mineable source of tin ore, at a grade of about 1% tin.

Encouraged by a 1.41%Sn assay reported by a previous explorer in a greisen vein, Mancala Pty Ltd applied for an Exploration Licence over the so-called South Echo Prospect. This is located in a window of granite exposed in Mathinna Beds sediments that were hornfelsed by contact metamorphism in the aureole of the granite.

The prospect was investigated for tungsten by previous explorers.

After taking samples, inspecting the diamond drill core of previous workers and seeing the assay results, it was decided the greisen veins had already been drilled sufficiently to indicate if they had promise for economic tin mineralisation. Quartz and gossan veins in the hornfelsed Mathinna beds were investigated for signs of gold mineralisation.

The indications for both tin and gold were not considered encouraging enough to invite further work. Therefore, Mancala has decided to relinquish the Exploration Licence.

CONTENTS.

1. INTRODUCTION.

In the considerations of re-opening the Anchor Tin Mine, near St Helens, North East Tasmania, Mancala Pty Ltd recognised the need for a higher grade (about 1%Sn), up to one million tonnes source of tin ore to supplement the relatively low grade ore of the Anchor orebody, within trucking distance of the mine.

A literature search at the Mineral Resources Tasmania Library of reports by previous explorers, particularly Billiton (Ruxton 1984), suggested some potential for tin in greisen veins south of Mt Echo, with one rock chip sample assaying 1.41%Sn, which is an attractive grade for the workers of a 0.5%Sn orebody.

A two square kilometre Exploration Licence over the area was issued in November 1993, with the number EL 8/93.

2. WORK UNDERTAKEN.

2.1 Literature Search.

Reports available in the Library of Mineral Resources Tasmania on tin exploration in North Eastern Tasmania were read for information to guide Mancala's exploration for small high grade tin deposits. One of the most useful of these was Report No. 84-2218, E.L.12/78 - Scamander, Progress Report on Exploration During the Period 1/9/83 to 1/8/84, of Billiton Australia (Ruxton 1984).

Two prospects, South Echo and Loila Tier, emerged as of potential interest for Mancala.

REPORT ON EL 8/93 - TCR 94-3561

ADDENDUM TO SECTION 2.2

Sample No.	Date	AMG Coordinates	
		North	East
72515	25.8.93	5,420,390	600,150
72516	25.8.93	5,420,380	600,145
72517	25.8.93	5,420,370	600,140
72518	25.8.93	5,420,360	600,135
72740	20.10.93	5,420,120	599,430
72741	20.10.93	5,420,120	599,420

2.2 Ground Inspection and Sampling.

The main attraction in the Mt Echo EL was the reported greisen at the contact of the Mathinna Beds and the intruding granite, particularly the lode veins described by Ruxton (1984), which it was hoped would be sites of concentrated tin mineralisation. Encouragement for this was the Billiton rock chip sample, No. 6818, which assayed 1.41% Sn. This was unique in being such good grade, though there were three others, Nos. 6821, 6853 and 12451, which assayed anomalous 340, 950 and 580 ppm Sn respectively in greisenised rock, tourmaline and quartz greisen veins (Ruxton 1984).

Such veins were located in the field, as were the collars of the diamond drill holes testing them. These holes were drilled by Geophoto Resouces in 1970 (Mortimer 1971).

Grab samples were taken of the greisen veins within the granite and of the gossanous and quartz veins found in the hornfelsed siltstones and sandstones of the Mathinna Beds on the east side of the granite window exposed south of Constable Creek.

2.3 Inspection of Diamond Drill Core.

The Mt Echo Prospect Geophoto Resources diamond drill core was inspected at the Department of Mines drill core compound. The intersections of greisen were identified and observed to be very narrow and lacking visible cassiterite, which was not surprising in the light of the assays of the core (Mortimer 1971), of which copies were taken at the Mineral Resource Tasmania Library for Mancala's records. The majority of the assay results were below the level of detection, with highlights of 0.05% Sn (see Appendix 1). The geochemical laboratory reports of the assays did not corroborate a quoted 0.29% Sn of a half metre sample in hole DDH 1, given in Table 5 (Mortimer 1971) accompanying these reports, summarising the drilling results in the report accompanying the laboratory reports.

This drilling information, not seen earlier, was the crucial factor in the decision to relinquish the EL.

3. RESULTS.

3.1 Results of Grab Samples.

The results of samples taken by Mancala are summarised in Table 1.

Table 1: Grab Sample Results.

Sample No.	Date	Description	%Sn	%W	g/tAu
72515	25.8.93	limonitic gossan	0.002	-	0.014
72516	25.8.93	quartz in M. Beds	0.001	-	0.010
72517	25.8.93	white quartz	0.001	-	0.009
72518	25.8.93	gossan/breccia	0.001	-	0.011
72740	20.10.93	muscovite greisen	0.007	0.023	-
72741	20.10.93	sil muscov greisen	0.002	0.006	-

3.2 Assay Results of 1970 Diamond Drilling.

The drill sites and assay sheets of the 1970 drilling programme (from Mortimer 1971) are provided in Appendix 1.

3.3 Geology and Rock Sample Results of Previous Work.

The relevant portions of the Billiton Report (Ruxton 1984) are provided in Appendix 2.

4. CONCLUSIONS.

The results of the 1970 diamond drilling (Mortimer 1971) were seen as discouraging for a tin explorer looking for a small high grade deposit.

The veins, described as thinning rapidly and having no depth potential (Ruxton 1984), are not large enough, even for a company looking for a small deposit, and do not show signs of continuous tin grade.

The recent sampling results did nothing to contradict the diamond drilling assays, nor to encourage Mancala to persevere with exploring the EL.

Therefore it was decided to relinquish the Licence.

REFERENCES.

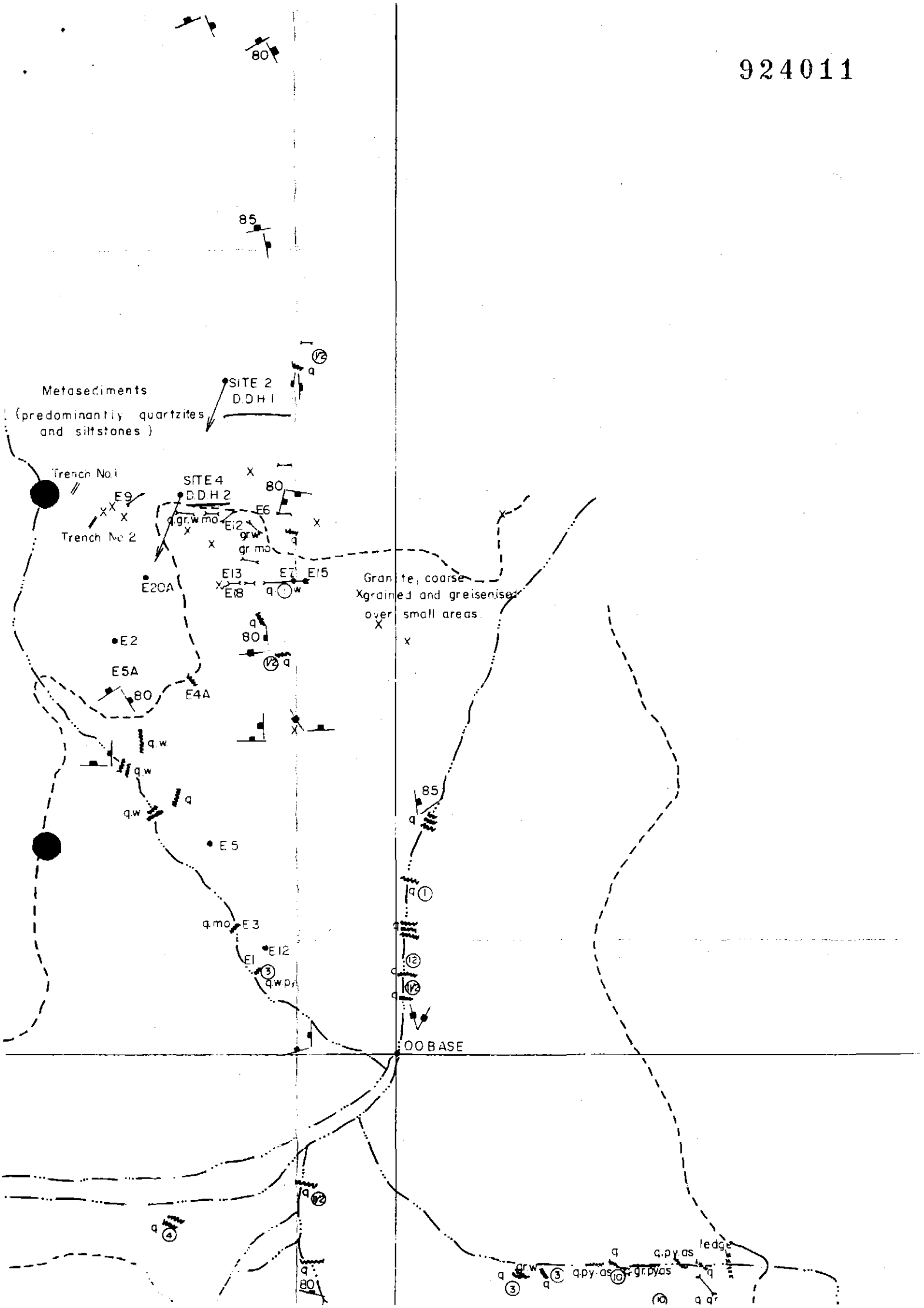
Mortimer,I.R. 1971. E.L. 6/68 - North East Tasmania, Constable's Creek Project Diamond Drilling. Geophoto Resources Consultants/Texins Development Pty Ltd. Report No. 71-818, Department of Mines, Tasmania.

Ruxton, P.A. 1984. E.L. 12/78 - Scamander. Progress Report on Exploration During the Period 1/9/83 to 1/8/84. Billiton Aust./Shell Co. of Aust. Ltd. Report No.84-2218, Department of Mines, Tasmania.

APPENDIX 1:

LOCATIONS AND ASSAYS OF 1970 DIAMOND DRILLING (from Report No. 71-818, Mortimer 1971).

924011


Metasediments
(predominantly quartzites and siltstones)
SITE 2
D.D.H 1
Trench No 1
Trench No 2
SITE 4
D.D.H 2
E9
E6
E12
E13
E18
E7
E15
E20A
E2
E5A
E4A
E5
E3
E1
Granite, coarse Xgrained and greisenised over small areas
OO BASE
ledge

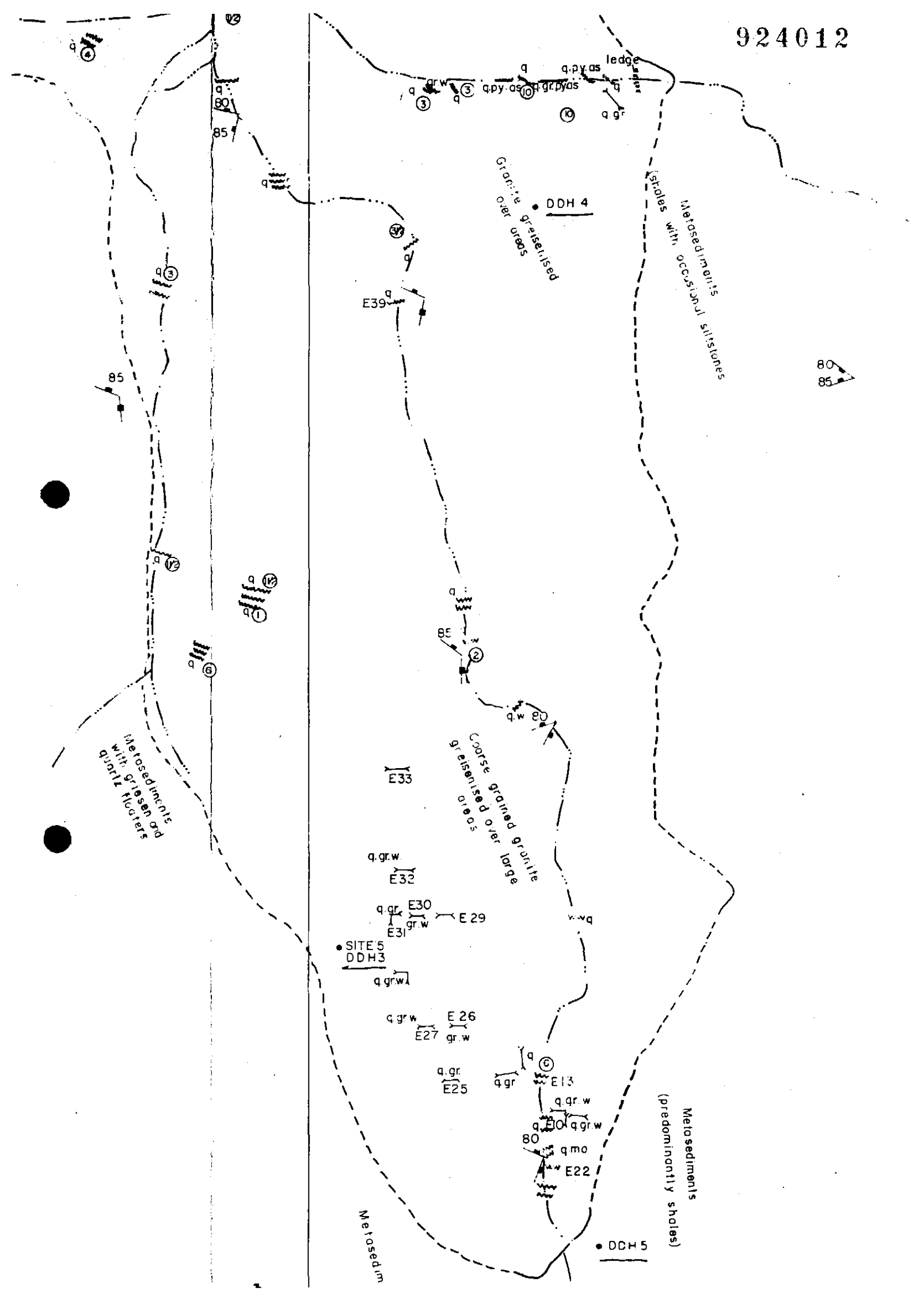

ledge
DDH 4
Granite greisenised over areas
Metasediments with occasional siltstones
E39
E33
Coarse grained granite greisenised over large areas
Metasediments with greisen and quartz floaters
E32
E30
E31
E29
SITE 5
DDH3
E26
E27
E25
E13
E10
E22
qmo
DDH 5
Metasediments (predominantly shales)
Metasedim

TABLE 5

CONSTABLE'S CREEK CORE ASSAYS

HOLE	HOLE DEPTH	INTERSECTION WIDTH	ASSAY Sn	W	Bi	Mo	Cu	Au
DDH 1	138' - 141'2"	1'2"			0.05	0.01		
	197'5"- 198'5"						0.04	
	277'7"- 278'11"	1'4"			0.02	0.01	0.01	
	359' - 360'6"	1'6"	0.29%					
DDH 2	25'8" - 27'2"	1'6"		0.05	0.02	0.02		
	35'3" - 37'	1'9"			0.01	0.01	0.06	
	37' - 39'	2'0"			0.03	0.01	0.05	
	39' - 43'9½"	4'9½"			0.03			
	48'11"- 49'4"	0'5"		0.10	0.02			
	74'3" - 84'4"	10'4"	0.03			0.01		
	96' - 97'10"	1'10"			0.08	0.03		
	133' - 134'5"	1'5"		0. 5	0.02			
	170'8"- 172'8"	2'0"			0.06			
DDH 3	23'2" - 33'4"	10'2"		0.05				
	43'6" - 53'0"	9'9"	Tr	0.05	0.01			
	53' - 57'2"	4'2"		0.05	0.03	0.01	Tr	
	57'2" - 64'	6'10"		0.05	0.01			
	76'6" - 78'6"	2'0"		0.05	0.01			
**	250' - 254'	4'0"		0.20	0.18	0.01		

924014

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 000022 Project No. EL 6/68.

LAB. SHEET No.: 35/1. DATE: 19th September, 19

SAMPLE No.	LAB. No.	GRC No. 4A W ppm	GRC No. 4A Av.	GRC No. 4B W ppm	GRC No. 4B Av.	Mo	Bi
POP E1	69-J-584	BLD	BLD	40	40	50	80
		BLD		40			
POP E2	69-J-585	4.4%	4.6%	5.0%	4.8%	100	130
		4.7%		4.7%			
POP E2/E3	69-J-586	2200	2250	1930	1960	750	215
		2300		1980			
POP E4	69-J-587	200	200	230	250	1250	110
		200		270			
POP E5	69-J-588	1300	1300	1100	1140	140	160
		1300		1170			
POP E6	69-J-589	15.2%	15.5%	14.6%	15.1%	100	4350
		15.8%		15.5%			
POP E7	69-J-590	7700	7650	7050	6950	160	2075
		7600		6850			
POP E8	69-J-591	1.3%	1.3%	1.3%	1.3%	1000	5845
		1.2%		1.3%			
POP E9	69-J-592	1.2%	1.2%	1.2%	1.2%	240	1930
		1.1%		1.1%			

METHODS: AV: Average Result

BLD: Below Limit of Detection

Note: Analysis conducted on approx. -200 fraction Ground in Disc Mill.

Chief Chemist

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001155 Project No. EL6/68. CONSTABLES CK. No.1

LAB. SHEET No.: 200/3. DDH Core. DATE: 9th March, 1970.

SAMPLE No.	LAB. No.	W %	Av.	Sn %	Av.	Au ppm	Av.		
134'1"-135'10"	70-B-933	BLD	BLD	BLD	BLD	BLD	BLD		
		BLD		BLD		BLD			
138'0"-141'2"	70-B-934	BLD	BLD	BLD	BLD	--	--		
		BLD		BLD		--			
147'1"-148'0"	70-B-935	BLD	BLD	BLD	BLD	--	--		
		BLD		BLD		--			
183'0"-186'10"	70-B-936	BLD	BLD	BLD	BLD	--	--		
		BLD		BLD		--			
187'2"-187'8"	70-B-937	BLD	BLD	BLD	BLD	--	--		
		BLD		BLD		--			
197'5"-198'5"	70-B-938	BLD	BLD	BLD	BLD	BLD	BLD		
		BLD		BLD		BLD			
254'4"-258'3"	70-B-939	BLD	BLD	BLD	BLD	--	--		
		BLD		BLD		--			
261'4"-262'6½"	70-B-940	BLD	BLD	BLD	BLD	--	--		
		BLD		BLD		--			
277'7"-278'11"	70-B-941	BLD	BLD	0.01	0.01	--	--		
		BLD		0.01		--			
346'7"-347'8"	70-B-942	BLD	BLD	BLD	BLD	--	--		
		BLD		BLD		--			
348'1"-356'7"	70-B-943	BLD	BLD	0.01	0.01	--	--		
		BLD		0.01		--			
356'7"-359'0"	70-B-944	BLD	BLD	0.04	0.04	--	--		
		BLD		0.04		--			

METHODS:

Chief Chemist

924015

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001182 PROJECT No.: EL 6/68 - CONSTABLES CK. D.D.H. 1

LAB. SHEET No.: 321/1 SAMPLE TYPE: D.D.H. CORE DATE: 22nd June, 1970.

SAMPLE No.	LAB. No.	Cu ppm	Mo ppm	Bi ppm	W %	Sn %
224'6"-233'6"	70-E-1213	10	20	20	BLD	BLD
233'6"-243'3"	70-E-1214	10	BLD	25	BLD	BLD
243'3"-252'0"	70-E-1215	BLD	BLD	20	BLD	BLD
252'0"-254'4"	70-E-1216	10	BLD	15	BLD	0.05
255'9"-256'1"	70-E-1217	BLD	BLD	20	BLD	BLD
258'3"-261'4½"	70-E-1218	BLD	BLD	25	BLD	BLD
262'6½"-265'11"	70-E-1219	10	BLD	10	BLD	BLD
265'11"-275'7"	70-E-1220	10	BLD	15	BLD	0.05
275'7"-277'7"	70-E-1221	BLD	BLD	15	BLD	BLD
278'11"-286'9"	70-E-1222	BLD.	BLD.	15	BLD.	0.05
286'9"-295'4"	70-E-1223	BLD	BLD	15	BLD	BLD
295'4"-304'10"	70-E-1224	BLD	BLD	BLD	BLD	BLD
305'2"-314'9"	70-E-1225	BLD.	BLD	BLD	BLD	BLD
314'9"-322'7"	70-E-1226	BLD	BLD	BLD	BLD	BLD
322'7"-332'4"	70-E-1227	BLD.	BLD	15	BLD	BLD
332'4"-342'0"	70-E-1228	BLD	BLD	BLD	BLD	BLD
342'0"-346'7"	70-E-1229	10	BLD	BLD	BLD	BLD
347'8"-353'0"	70-E-1230	10	BLD	BLD	BLD	BLD
361'8"-370'10"	70-E-1231	15	BLD	BLD	BLD	BLD
370'10"-379'9"	70-E-1232	10	BLD	BLD	BLD	BLD
379'9"-383'6"	70-E-1233	10	BLD	BLD	BLD	BLD
384'5"-389'10"	70-E-1234	10	BLD	15	BLD	0.05
391'4"-399'9"	70-E-1235	15	BLD	BLD	BLD	BLD
399'9"-409'6"	70-E-1236	50	BLD	BLD	BLD	BLD
409'8"-414'6"	70-E-1237	10	BLD	BLD	BLD	BLD

METHODS: Cu, by GRC.100
Mo, Bi, by GRC 102
W, by GRC 106
Sn, by GRC 6A

NATA

924016

B.L.D.: Below Limit of Detection

Ray W. [signature]
Chief Chemist

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001180 PROJECT No.: EL6/68 Constable Creek.

LAB. SHEET No.: 273/4. SAMPLE TYPE: DDH Core 1 DATE: 21st May, 1970.

SAMPLE No.	LAB. No.	Sn %	Sn % Av	Au	Au Av				
10'-19'10"	70-E-880	BLD	BLD	BLD	BLD				
		BLD		BLD					
19'10"-28'9"	70-E-881	BLD	BLD	BLD	BLD				
		BLD		BLD					
28'9"-37'6"	70-E-882	BLD	BLD	BLD	BLD				
		BLD		BLD					
37'6"-47'	70-E-883	BLD	BLD	BLD	BLD				
		BLD		BLD					
47'-55'8"	70-E-884	BLD	BLD	BLD	BLD				
		BLD		BLD					
55'8"-65'	70-E-885	BLD	BLD	BLD	BLD				
		BLD		BLD					
65'-74'3"	70-E-886	BLD	BLD	BLD	BLD				
		BLD		BLD					
74'3"-84'4"	70-E-887	BLD	BLD	BLD	BLD				
		BLD		BLD					
84'4"-93'	70-E-888	BLD	BLD	BLD	BLD				
		BLD		BLD					
93'-101'7"	70-E-889	BLD	BLD	BLD	BLD				
		BLD		BLD					
101'7"-110'8"	70-E-890	BLD	BLD	BLD	BLD				
		BLD		BLD					
110'8"-119'10"	70-E-891	BLD	BLD	BLD	BLD				
		BLD		BLD					

METHODS:

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

924017

Chief Chemist Ray W. Godfrey

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001180 PROJECT No.: EL6/68. Constable Creek

LAB. SHEET No.: 273/5. SAMPLE TYPE: DDH Core 1 DATE: 21st May, 1970.

SAMPLE No.	LAB. No.	Sn %	Av	Au	Av				
119'10"-129'6"	70-E-892	BLD	BLD	BLD	BLD				
		BLD		BLD					
129'6"-132'8"	70-E-893	BLD	BLD	BLD	BLD				
		BLD		BLD					
132'8"-134'1"	70-E-894	BLD	BLD	BLD	BLD				
		BLD		BLD					
135'10"-138'6"	70-E-895	BLD	BLD	BLD	BLD				
		BLD		BLD					
141'2"-143'1"	70-E-896	BLD	BLD	BLD	BLD				
		BLD		BLD					
143'1"-147'1"	70-E-897	BLD	BLD	BLD	BLD				
		BLD		BLD					
148'-153'	70-E-898	BLD	BLD	BLD	BLD				
		BLD		BLD					
153'-162'7"	70-E-899	BLD	BLD	BLD	BLD				
		BLD		BLD					
162'7"-172'3"	70-E-900	BLD	BLD	BLD	BLD				
		BLD		BLD					
172'3"-181'4"	70-E-901	BLD	BLD	BLD	BLD				
		BLD		BLD					
181'4"-195'7"	70-E-902	BLD	BLD	BLD	BLD				
		BLD		BLD					
195'7"-197'5"	70-E-903	BLD	BLD	BLD	BLD				
		BLD		BLD					

METHODS:

924018

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Chief Chemist

Ray W. Parkyn

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001180 PROJECT No.: EL6/68. Constable Creek.

LAB. SHEET No.: 273/6. SAMPLE TYPE: DDH Core 1 DATE: 21st May, 1970.

SAMPLE No.	LAB. No.	Sn %	Sn % Av	Au	Au Av				
198'5"-205'9"	70-E-904	BLD	BLD	BLD	BLD				
		BLD		BLD					
205'9"-215'	70-E-905	BLD	BLD	BLD	BLD				
		BLD		BLD					
215'-224'6"	70-E-906	BLD	BLD	BLD	BLD				
		BLD		BLD					

METHODS:

924019

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Chief Chemist

Ray W. Gerlach

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001164 PROJECT No.: EL6/68

LAB. SHEET No.: 240/5. SAMPLE TYPE: DDH Core DATE: 17th April, 1970.

SAMPLE No.	LAB. No.	Cd ppm	Cd ppm Av.	Sb ppm	Sb ppm Av.	W %	W % Av.	Sn %	Sn % Av.
19'6"-21'2"	70-C-347	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
21'2"-22'8"	70-C-348	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
22'8"-24'2"	70-C-349	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
24'2"-25'8"	70-C-350	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
25'8"-27'2"	70-C-351	BLD	BLD	BLD	BLD	0.05	0.05	BLD	BLD
		BLD		BLD		0.05		BLD	
27'2"-29'	70-C-352	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
29'-31'	70-C-353	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
31'-32'6"	70-C-354	25	25	BLD	BLD	BLD	BLD	BLD	BLD
		25		BLD		BLD		BLD	
32'6"-33'10"	70-C-355	10	10	BLD	BLD	BLD	BLD	BLD	BLD
		10		BLD		BLD		BLD	
33'10"-35'3"	70-C-356	45	45	BLD	BLD	BLD	BLD	BLD	BLD
		45		BLD		BLD		BLD	
35'3"-37'	70-C-357	BLD	BLD	BLD	BLD	BLD	BLD	0.04	0.04
		BLD		BLD		BLD		0.04	
37'-39'	70-C-358	BLD	BLD	BLD	BLD	BLD	BLD	0.01	0.01
		BLD		BLD		BLD		0.01	

METHODS:

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924020

Ray W. Gardiner

Chief Chemist

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001164 PROJECT No.: EL6/68

LAB. SHEET No.: 240/6. SAMPLE TYPE: DDH Core DATE: 17th April, 1970.

SAMPLE No.	LAB. No.	Cd ppm	Av.	Sb ppm	Av.	W %	Av.	Sn %	Av.
39'-41'7"	70-C-359	10	10	BLD	BLD	BLD	BLD	BLD	BLD
		10		BLD		BLD		BLD	
42'11"-43'9½"	70-C-360	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
47'-48'11"	70-C-361	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
48'11"-49'4"	70-C-362	BLD	BLD	BLD	BLD	0.10	0.10	BLD	BLD
		BLD		BLD		0.10		BLD	
51'2"-52'1"	70-C-363	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
66'7"-68'7"	70-C-364	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
68'7"-71'	70-C-365	15	15	BLD	BLD	BLD	BLD	BLD	BLD
		15		BLD		BLD		BLD	
71'1"-79'	70-C-366	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
83'3"-86'3"	70-C-367	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
86'3"-87'10"	70-C-368	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
94'1½"-96'	70-C-369	BLD	BLD	BLD	BLD	0.05	0.05	BLD	BLD
		BLD		BLD		0.05		BLD	
96'-97'10"	70-C-370	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	

METHODS:

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

924021

Ray W. Gulson

Chief Chemist

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001164 PROJECT No.: EL6/68

LAB. SHEET No.: 240/2. SAMPLE TYPE: DDH Core DATE: 17th April, 1970.

SAMPLE No.	LAB. No.	Cd ppm	Av.	Sb ppm	Av.	W %	Av.	Sn %	Av.
101'6"-103'4"	70-C-371	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
105'6"-107'8"	70-C-372	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
115'1"-118'	70-C-373	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
128'-128'9"	70-C-374	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
130'6"-131'11"	70-C-375	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
133'-134'5"	70-C-376	BLD	BLD	BLD	BLD	0.05	0.05	BLD	BLD
		BLD		BLD		0.05		BLD	
135'-135'11"	70-C-377	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
161'11"-163'10"	70-C-378	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
167'11"-168'9"	70-C-379	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
170'8"-172'8"	70-C-380	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
187'-188'	70-C-381	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
188'8"-189'9"	70-C-382	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	

METHODS:

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

924022

Chief Chemist

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001164 PROJECT No.: EL6/68

LAB. SHEET No.: 240/8. SAMPLE TYPE: DDH Core DATE: 17th April, 1970

SAMPLE No.	LAB. No.	Cd ppm	Cd ppm Av.	Sb ppm	Sb ppm Av.	W %	W % Av.	Sn %	Sn % Av.
191'9"-192'8"	70-C-383	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
192'8"-193'	70-C-384	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
195'3"-196'2"	70-C-385	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	
201'7"-202'3"	70-C-386	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD		BLD	

METHODS:

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its *terms of registration.*

924023

Chief Chemist

Ray W. Gardner

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001183 PROJECT No.: EL 6/68 CONSTABLES CREEK D.D.H.2

LAB. SHEET No.: 321/2 SAMPLE TYPE: D.D.H. CORE DATE: 22nd June, 1970

SAMPLE No.	LAB. No.	Cu ppm	Mo ppm	Bi ppm	W %	Sn %
16'0" - 19'6"	70-E-1238	35	BLD	10	BLD	BLD
41'7" - 42'11"	70-E-1239	20	BLD	240	BLD	BLD
43'9½" - 47'0"	70-E-1240	70	BLD	230	BLD	BLD
49'4" - 56'7"	70-E-1241	10	BLD	70	BLD	BLD
56'7" - 61'0"	70-E-1242	30	BLD	40	BLD	BLD
61'0" - 66'7"	70-E-1243	20	BLD	30	BLD	BLD
71'0" - 77'1"	70-E-1244	105	BLD	40	BLD	BLD
79'0" - 84'3"	70-E-1245	40	BLD	45	BLD	BLD
87'10" - 94'1½"	70-E-1246	25	BLD	40	BLD	BLD
97'10" -101'6"	70-E-1247	10	45	130	BLD	BLD
103'4" -105'6"	70-E-1248	BLD	BLD	25	BLD	BLD
107'8" -113'0"	70-E-1249	10	BLD	15	BLD	BLD
113'0" -115'1"	70-E-1250	BLD	BLD	BLD	BLD	BLD
118'0" -123'0"	70-E-1251	BLD	BLD	30	BLD	BLD
123'0" -130'6"	70-E-1252	10	BLD	15	BLD	0.05
131'11" -133'0"	70-E-1253	10	BLD	50	BLD	BLD
134'5" -135'0"	70-E-1254	BLD	BLD	10	BLD	BLD
135'11" -140'0"	70-E-1255	BLD	BLD	BLD	BLD	BLD
140'0" -149'1"	70-E-1256	BLD	BLD	BLD	BLD	BLD
149'1" -158'9"	70-E-1257	BLD	BLD	BLD	BLD	BLD
158'9" -161'11"	70-E-1258	10	BLD	BLD	BLD	BLD
163'10" -170'8"	70-E-1259	BLD	BLD	BLD	BLD	0.05
172'8" -180'6"	70-E-1260	65	BLD	BLD	BLD	BLD
180'6" -187'0"	70-E-1261	10	BLD	BLD	BLD	BLD
187'0" -188'8"	70-E-1262	BLD	BLD	10	BLD	BLD
189'9" -191'9"	70-E-1263	BLD	BLD	15	BLD	BLD
193'0" -195'3"	70-E-1264	BLD	BLD	10	BLD	BLD
196'2" -201'7"	70-E-1265	BLD	BLD	BLD	BLD	BLD
202'3" -203'0"	70-E-1266	BLD	BLD	BLD	BLD	BLD

METHODS: Cu, by GRC.100
Mo, Bi, by GRC.102
W, by GRC.106
Sn, by GRC.6A

924024

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

B.L.D: Below Limit of Detection

Chief Chemist

FIELD SHEET No. 001172 PROJECT No.: EL6/68

LAB. SHEET No. 2615. SAMPLE TYPE: DDH Core DATE: 11th May, 1970.

SAMPLE No.	LAB. No.	Cu ppm	Cu ppm Av	Mo ppm	Mo ppm Av	Bi ppm	Bi ppm Av	W %	W % Av
280'-290'	70-D-672	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
		BLD		BLD		BLD			
290'-298'9"	70-D-673	15	15	20	20	BLD	BLD	BLD	BLD
		15		20		BLD			
134'-144'	NO LAB. NO.	BLD	BLD	20	20	10	10	BLD	BLD
		BLD		20		10			

METHODS:

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

924025

D. Loughrey
for Chief Chemist

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001172 PROJECT No.: EL6/68

LAB. SHEET No.: 261/6. SAMPLE TYPE: DDH Core 3 DATE: 11th May, 1970.

SAMPLE No.	LAB. No.	Sn % Av.
10'6"-13'	70-D-624	BLD
13'-23'2"	70-D-625	BLD
23'2"-33'4"	70-D-626	BLD
33'4"-43'6"	70-D-627	BLD
43'6"-47'6"	70-D-628	BLD
47'6"-53'	70-D-629	0.05
53'-54'	70-D-630	BLD
54'-57'2"	70-D-631	BLD
57'2"-64'	70-D-632	BLD
64'-74'	70-D-633	BLD
74'-76'6"	70-D-634	BLD
76'6"-78'6"	70-D-635	BLD
78'6"-85'5"	70-D-636	BLD
85'5"-93'5½"	70-D-637	BLD
93'5½"-95'5½"	70-D-638	BLD
95'5½"-97'6"	70-D-639	BLD
97'6"-99'6"	70-D-640	BLD
99'6"-104'	70-D-641	BLD
104'-109'	70-D-642	BLD
109'-114'	70-D-643	BLD
114'-119'	70-D-644	BLD
119'-124'	70-D-645	BLD
124'-134'	70-D-646	BLD
144'-154'	70-D-647	BLD
154'-159'	70-D-648	BLD
159'-164'	70-D-649	BLD
164'-174'	70-D-650	BLD
174'-184'	70-D-651	BLD
184'-194'	70-D-652	BLD
194'-195'	70-D-653	BLD
195'-202'	70-D-654	BLD
202'-204'	70-D-655	BLD
204'-212'	70-D-656	BLD
212'-214'	70-D-657	BLD
214'-219'	70-D-658	BLD
219'-224'	70-D-659	BLD
224'-234'	70-D-660	BLD
234'-237'	70-D-661	BLD
237'-239'	70-D-662	BLD
239'-244'	70-D-663	BLD
244'-247'	70-D-664	BLD
247'-250'	70-D-665	BLD
250'-254'	70-D-666	BLD
254'-259'	70-D-667	BLD
259'-264'	70-D-668	BLD
264'-270'	70-D-669	BLD

METHODS:

924026

D. Longley

for Chief Chemist

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001172 PROJECT No.: EL6/68

LAB. SHEET No.: 261/7. SAMPLE TYPE: DDH Core 3. DATE: 11th May, 1970.

SAMPLE No.	LAB. No.		Sn %						
270'-275'	70-D-670		BLD						
275'-280'	70-D-671		BLD						
280'-290'	70-D-672		BLD						
290'-298'9"	70-D-673		BLD						
134'-144'	NO LAB NO.		BLD						

METHODS:

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

924027

D. Laughrey

for Chief Chemist

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 006423-28 PROJECT No.: EL.6/68 - CONSTABLES CREEK D.D.H. 4

LAB. SHEET No.: 695/1 SAMPLE TYPE: D.D.H. CORE DATE: 28th July, 1971.

SAMPLE No.	LAB. No.	Mo ppm	W %	Sn %
24'0"- 28'0"	71-G-55	10	BLD	BLD
28'0"- 34'0"	71-G-56	10	BLD	BLD
34'0"- 39'0"	71-G-57	BLD	BLD	BLD
39'0"- 44'0"	71-G-58	BLD	BLD	BLD
74'6"- 77'3"	71-G-59	BLD	BLD	BLD
77'3"- 81'6"	71-G-60	40	BLD	BLD
95'0"- 98'0"	71-G-61	BLD	BLD	BLD
98'0"-104'6"	71-G-62	BLD	BLD	BLD
124'6"-129'6"	71-G-63	BLD	BLD	BLD
129'6"-134'6"	71-G-64	BLD	BLD	BLD
144'6"-149'6"	71-G-65	BLD	BLD	BLD
149'6"-154'6"	71-G-66	BLD	BLD	BLD
154'6"-157'0"	71-G-67	BLD	BLD	BLD
157'0"-159'0"	71-G-68	BLD	BLD	BLD
159'0"-162'0"	71-G-69	BLD	BLD	BLD
172'0"-175'0"	71-G-70	BLD	BLD	BLD
266'0"-270'0"	71-G-71	BLD	BLD	BLD
308'0"-313'0"	71-G-72	BLD	BLD	BLD
313'0"-318'0"	71-G-73	BLD	BLD	BLD
318'0"-321'0"	71-G-74	BLD	BLD	BLD
365'0"-370'0"	71-G-75	BLD	BLD	BLD
370'0"-375'0"	71-G-76	BLD	BLD	BLD
375'0"-381'10"	71-G-77	BLD	BLD	BLD

METHODS:

Mo by G.R.C. No. 102
W by G R.C. No. 104
Sn by G.R.C. No. 105
B.L.D. = Below Limit of Detection
(Limit of Detection = Sn 0.01%/W 0.05%)

924028

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

Ray W. Gardner

Chief Chemist

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 006429 PROJECT No.: EL.6/68 - CONSTABLES CREEK D.D.H. 4

LAB. SHEET No.: 695/2 SAMPLE TYPE: DDH SLUDGE DATE: 28th July, 1971.

SAMPLE No.	LAB. No.	Mo ppm	Bi ppm	W ppm	Sn %
0'0"- 13'6"	71-G-78	5	BLD	BLD	BLD
13'6"- 34'0"	71-G-79	15	BLD	BLD	0.03
34'0"- 44'0"	71-G-80	15	20	BLD	0.03
55'0"- 65'0"	71-G-81	15	BLD	BLD	0.03
65'0"- 75'0"	71-G-82	5	BLD	BLD	0.04
75'0"- 84'6"	71-G-83	5	BLD	BLD	0.04
84'6"- 94'6"	71-G-84	5	BLD	BLD	0.04
94'6"-104'6"	71-G-85	5	BLD	BLD	0.02
104'6"-114'0"	71-G-86	5	BLD	BLD	0.03
114'0"-124'0"	71-G-87	5	BLD	BLD	0.04
124'0"-134'0"	71-G-88	5	BLD	BLD	0.03
134'0"-144'0"	71-G-89	5	BLD	BLD	0.04
144'0"-154'0"	71-G-90	5	BLD	BLD	BLD
154'0"-165'0"	71-G-91	5	BLD	BLD	0.05
165'0"-175'0"	71-G-92	5	BLD	BLD	0.03
195'0"-205'0"	71-G-93	30	BLD	BLD	0.02
205'0"-215'0"	71-G-94	20	BLD	BLD	BLD
215'0"-225'0"	71-G-95	20	BLD	BLD	BLD
225'0"-235'0"	71-G-96	15	BLD	BLD	0.03
235'0"-245'0"	71-G-97	15	BLD	BLD	BLD
245'0"-255'0"	71-G-98	20	BLD	BLD	0.02
255'0"-275'0"	71-G-99	15	BLD	BLD	0.03
275'0"-285'0"	71-G-100	5	BLD	BLD	0.03
285'0"-295'0"	71-G-101	5	BLD	BLD	0.08
295'0"-305'0"	71-G-102	5	BLD	BLD	0.02
305'0"-315'0"	71-G-103	5	BLD	BLD	0.04
315'0"-325'0"	71-G-104	5	BLD	BLD	0.03
325'0"-345'0"	71-G-105	10	BLD	BLD	0.02
345'0"-355'0"	71-G-106	10	BLD	BLD	0.03
355'0"-365'0"	71-G-107	5	BLD	BLD	0.03

METHODS:
Mo, Bi by G.R.C. No. 2
W by G.R.C. No. 4
Sn by G.R.C. No. 5
B.L.D. = Below Limit of Detection

924029

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

Chief Chemist

GEOCHEMICAL LABORATORY REPORT

009

FIELD SHEET No.: 006430-34 PROJECT No.: EL.6/68 - CONSTABLES CREEK - D.D.H. 5

LAB. SHEET No.: 716/1 SAMPLE TYPE: CORE DATE: 20th August, 1971.

SAMPLE No.	LAB. No.	Mo ppm	W %	Sn %
26'0"- 27'6"	71-H-45	10	BLD	0.02
27'6"- 30'2"	71-H-46	5	BLD	0.05
006430 30'2"- 31'0"	71-H-47	BLD	BLD	0.01
31'0"- 34'0"	71-H-48	BLD	BLD	BLD
34'0"- 39'0"	71-H-49	BLD	BLD	0.02
43'0"- 47'4"	71-H-50	70	BLD	0.05
47'4"- 52'6"	71-H-51	5	BLD	0.01
79'0"- 82'2"	71-H-52	5	BLD	0.05
006431 88'0"- 90'0"	71-H-53	5	BLD	0.04
90'0"- 92'6"	71-H-54	5	BLD	BLD
92'6"- 98'0"	71-H-55	10	BLD	0.01
98'0"-101'3"	71-H-56	BLD	BLD	0.02
101'3"-107'0"	71-H-57	BLD	BLD	BLD
110'6"-114'6"	71-H-58	BLD	BLD	BLD
138'0"-142'6"	71-H-59	5	BLD	BLD
006432 155'0"-157'0"	71-H-60	BLD	BLD	BLD
160'0"-162'6"	71-H-61	5	BLD	BLD
162'6"-167'0"	71-H-62	10	BLD	BLD
167'0"-170'0"	71-H-63	5	BLD	BLD
170'0"-175'0"	71-H-64	10	BLD	BLD
175'0"-177'0"	71-H-65	BLD	BLD	BLD
006433 177'0"-182'0"	71-H-66	50	BLD	BLD
207'0"-209'0"	71-H-67	BLD	BLD	BLD
217'0"-220'0"	71-H-68	BLD	BLD	BLD
225'6"-230'6"	71-H-69	10	BLD	BLD
006434 237'6"-239'0"	71-H-70	10	BLD	BLD
247'0"-249'0"	71-H-71	5	BLD	BLD

METHODS:

Mo by G.R.C. No. 102
W by G.R.C. NO. 104
Sn by G.R.C. No. 105
B.L.D. = Below Limit of Detection

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

924030

Chief Chemist

ARW ✓

DRM ✓

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 006430-36 PROJECT No.: EL. 6/68 - CONSTABLES CREEK - D.D.H. 5

LAB. SHEET No.: 716/2 SAMPLE TYPE: CORE DATE: 20th August, 1971.

SAMPLE No.	LAB. No.	Mo ppm	W %	Sn %
280'6"-283'6"	71-H-72	5	BLD	BLD
006434 298'0"-304'0"	71-H-73	5	BLD	BLD
305'0"-310'6"	71-H-74	BLD	BLD	BLD
318'0"-321'6"	71-H-75	5	BLD	BLD
324'6"-329'0"	71-H-76	BLD	BLD	BLD
006435 329'0"-332'3"	71-H-77	5	BLD	BLD
332'3"-337'0"	71-H-78	BLD	BLD	BLD
337'0"-339'0"	71-H-79	5	BLD	0.07
388'9"-390'0"	71-H-80	BLD	BLD	BLD
006436 394'9"-399'0"	71-H-81	5	BLD	BLD
399'0"-403'3"	71-J-82	BLD	BLD	BLD

METHODS:

924031

NATA

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

Chief Chemist

Ray W. Ferguson

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 006437 PROJECT No.: EL.6/68 - CONSTABLES CREEK D.D.H. 5

LAB. SHEET No.: 738/1 SAMPLE TYPE: SLUDGE DATE: 2nd September, 1971.

SAMPLE No.	LAB. No.	Mo ppm	Bi ppm	Sn %	W ppm
0' - 7'	71-H-83	15	10	0.03	BLD
7' - 13'	71-H-84	10	5	0.03	BLD
13' - 19'	71-H-85	10	5	0.04	BLD
19' - 23'6"	71-H-86	10	5	0.03	BLD
23'6"- 34'	71-H-87	10	10	0.03	BLD
34' - 43'	71-H-88	10	10	0.04	BLD
43' - 52'	71-H-89	20	55	0.02	BLD
52' - 63'	71-H-90	15	30	0.04	BLD
63' - 73'	71-H-91	10	10	0.03	BLD
73' - 79'	71-H-92	BLD	10	0.03	BLD
79' - 82'	71-H-93	10	60	0.04	BLD
82' - 98'	71-H-94	10	25	0.02	BLD
98' -118'	71-H-95	20	40	0.03	BLD
118' -128'	71-H-96	20	25	BLD	BLD
128' -138'	71-H-97	20	75	0.02	BLD
138' -147'	71-H-98	15	15	0.03	BLD
147' -159'	71-H-99	10	5	0.04	BLD
159' -169'	71-H-100	10	10	0.03	BLD
169' -177'	71-H-101	15	30	0.03	BLD
177' -187'	71-H-102	10	5	0.03	BLD
187' -207'	71-H-103	10	5	0.03	BLD
207' -219'	71-H-104	10	10	0.04	BLD
219' -231'	71-H-105	BLD	5	0.04	BLD
231' -250'	71-H-106	10	10	0.02	BLD
250' -264'	71-H-107	10	5	0.03	BLD
283' -298'	71-H-108	BLD	5	0.06	BLD
298' -315'	71-H-109	10	5	0.03	BLD
315' -337'	71-H-110	10	BLD	0.03	BLD
337' -357'	71-H-111	10	BLD	0.04	BLD
357' -375'	71-H-112	BLD	5	0.05	BLD
375' -385'	71-H-113	BLD	5	0.05	BLD

METHODS:

Mo, Bi by G.R.C. No. 2
Sn by G.R.C. No. 5
W by G.R.C. No. 4
B.L.D. = Below Limit of Detection

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

924032

for Chief Chemist

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GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No. 006438 PROJECT No.: EL.6/68 - CONSTABLES CREEK D.D.H. 5

LAB. SHEET No.: 738/2 SAMPLE TYPE: SLUDGE DATE: 2nd September, 1971.

SAMPLE No.	LAB. No.	Mo ppm	Bi ppm	Sn %	W ppm				
385' - 394'	71-H-114	BLD	5	0.03	BLD				
394' - 403'	71-H-115	10	BLD	0.05	BLD				

METHODS:

This laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of registration.

924033

D Langley

for Chief Chemist

APPENDIX 2:

EXTRACT OF BILLITON PROGRESS REPORT (Report No. 84-2218, Ruxton 1984).

Mathinna Beds

Mathinna sediments surrounding the granite are hornfelsed. Recrystallized - very hard and may contain large "leopard-lite" spots. Spotting not always present in contact sediments.

Original lithologies siltstones and shales - bedding fairly common striking NW and dipping to the SW. Joints simmilar orientation to those in the underlying granite (see stereonet).

Granite/sediment contact - locally steeply dipping. S tributary of Constables Creek contact trends 137° 86° SW dip. On the Western arm of Constables Creek contact between 50° to 60° dip.

Axis of the granite ridge infered to be NNE to SSW since:

1) Granite window elongate NNE - SSW.
2) Greisenization is common in the apical zones of granite cupolas - sparce elsewhere - at Echo the trend is NNE - SSW from North to South prospects.
3) Granite exposed in the western arm of Constables Creek shows little variation towards the sediment contact. Varies from medium grained to fine/medium grained granite.

3) Mineralization

Gross Setting/Dimensions

Two dominant zones of Mineralization.

North Echo - WNW trending greisen lodes - zone of about 160m to 200m long and 50m wide close to the top of the granite. Individual lodes traceable for 160m upto 8m deep (Groves 1972) with widths upto 2m across.

Wolframite and molybdenite distribution is very patchy. Mineralization occurs in quartz veins which are bounded by siliceous and muscovite granitic lode margins.

South Echo - Series of shallow pits - pretty spaced out, largest pit about 15 to 20m long and 1 to 1.5m across. Dominantly wolframite - very patchy. Mineralization in central quartz veins flanked by muscovite granite lode margins - siliceous lodes not common here.

Lode veins consisting of muscovite (some siliceous alteration) and central quartz veins upto 30cm across (some upto 1m across - rare) occur in the granite window. Generally thin and not mineralized away from the granite contact. All lode veins trend NW or WNW.

Veins/lodes thin rapidly with depth below the granite contact. 50m below contact veins very confined - no depth potential.

Greisenized fluids pooled/ponded at the granite sediment contact.

Mineralogy

Muscovite Lode - Quartz/muscovite greisen - may contain biotite in places - muscovite replaces feldspar (and biotite) - quartz is primary.

Siliceous Lode - Dominantly quartz - primary crystalline quartz plus a siliceous matric of granular quartz - minor muscovite. Grades into the muscovite lode.

Central Quartz Vein - Dominantly vein quartz with minor muscovite. Contains bladed wolframite and molybdenite.

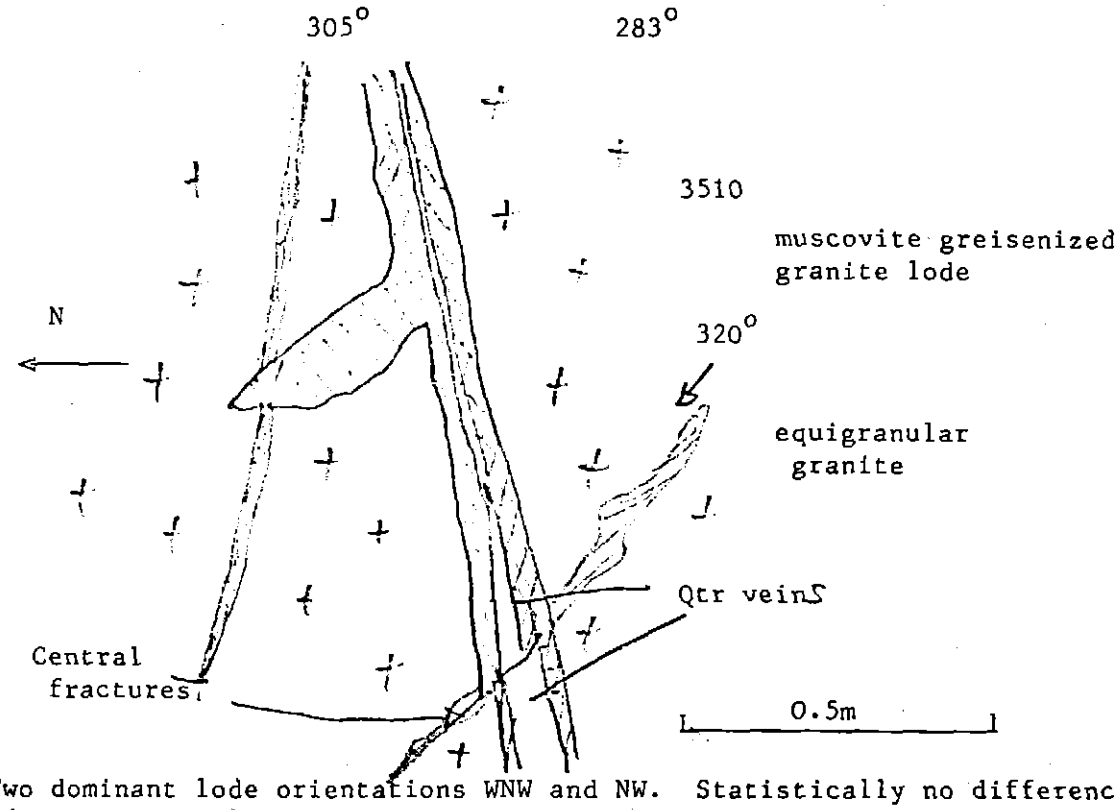
Occassionaly a central tournaline fill is present generally <2cms across.

Some lode veins may contain marginal shearing of the host granite (rare).

Quartz centre and sheared margin.

Horizontal/gently dipping stickensides on quartz veins also.

Distribution of lode very irregular - always related to fractures or joints. ⊕ Lode veins therefore altered joint surface! ⊕



Two dominant lode orientations WNW and NW. Statistically no difference (see stereonet).

5 cm

Drilling Results

North Echo - DDH1 - 138m depth assays low - rockchips from dump upto 15.1% WO_3, 0.1% Mo and 0.58% Bi.

DDH2 - 65m depth maximum values of 0.1% WO_3, Sn maximum 0.1%, Mo 750ppm.

Narrow vein in DDH1 0.7m at 0.29% Sn depth of 130m - only intersection

South Echo - DDH3 - (-45° to 041°) 90m. Vein of 0.2% WO_3, 0.18% Bi - assay values generally low. Obtained WO_3 values from the greisenized granite.

DDH4 - (-45° to 185°) 130m depth, drilled to test soil anomaly Mo upto 90ppm. Granite kaol mize, Fe rich near surface. Minor Py, chalcopyrite on joints. Maximum values Mo 40ppm, 0.08% Sn, 20ppm Bi.

DDH5 - (-45° to 007°) 135m depth. Drilled from Mathinna Beds. (Previous Cobra Rock drilling gave results of 0.65% WO_3, 0.18% Bi).

5m of fg granite - siliceous too passes into biotite granite secondary chloritic alteration of biotite.

Peak rock assays 0.08% Sn, 70ppm Mo. Very patchy.

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ECHO PROSPECT

ROCK CHIP

ROCK NO./LOCATION TYPE	Au	Sn	WO_3	Mo	As	Cu	Pb	Zn	Bi	
6818 East side of granite window Greisenized granite	< 0.05	55	25	14	410	46	20	12	160	
6817 E. side of granite window Fresh granite, Equig. Bi	< 0.05	8	<10	16	24	8	<4	6	6	
6818 E. side of granite window. Greisen vein & Qtr vein, cass?	< 0.05	1.41%	35	16	140	12	12	6	6	<
6819 E. side of granite window. Greisen & Qtz vein	< 0.05	38	30	210	28	10	<4	32	170	<
6820 E. side of granite window. Greisen vein.	< 0.05	22	1550	40	< 2	6	4	10	480	<
6821 South Echo. Chl/Im rock - greisenized.	< 0.05	340	25	< 4	44	10	8	250	26	<1
6853 South Echo. Qtz/fg tourm vein & Greisen.	< 0.05	950	40	< 4	70	48	8	38	10	<1
6854 South Echo. Greisen & Qtz vein siliceous.	< 0.05	24	910	4	5	8	8	16	120	<1
6855 North Echo Pits. Greisen and Qtz veins siliceous.	< 0.05	26	180	125	90	20	10	22	360	2
6856 North Echo Pits. Qtz vein & Mo.	< 0.05	< 4	2650	1.06%	2050	14	700	4	1400	173
12451 Western Creek. Qtz vein & greisen minor Fe.	< 0.05	580	30	4	230	36	20	70	12	2

	Sn	WO_3	Mo	Bi	Ag
South Echo	1.41%	1550	210	480	
North Echo		2650	1.06%	1400	173

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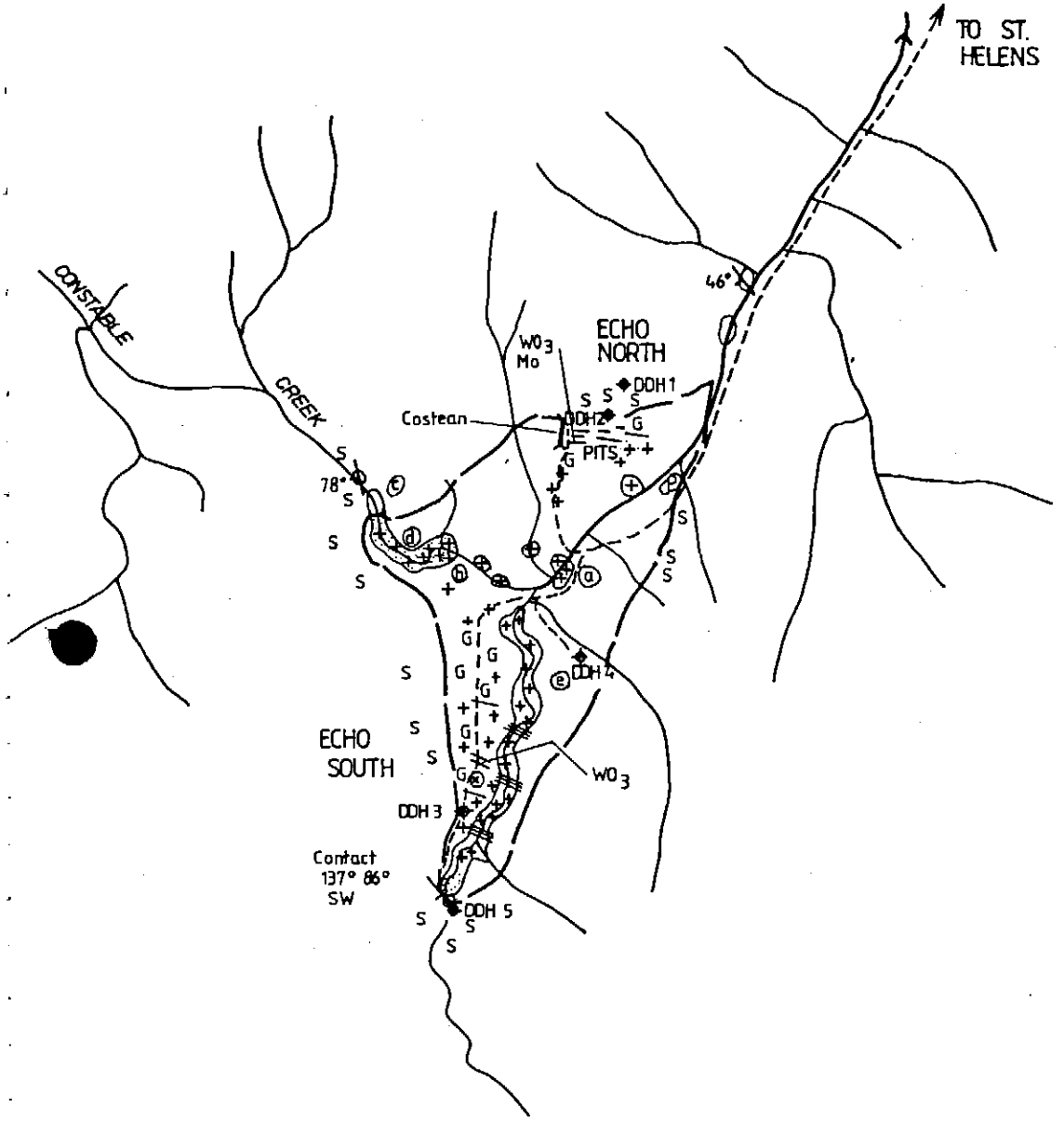
924039



LEGEND

S S	MATHINNA BEDS
+ +	MEDIUM GRAINED GRANITE
P	PORPHYRITIC GRANITE
+ +	FINE GRAINED GRANITE
	MINERALIZED LODES
G	GREISENIZATION
DDH 1	DRILL HOLES
⑪	FIELD NUMBER

N

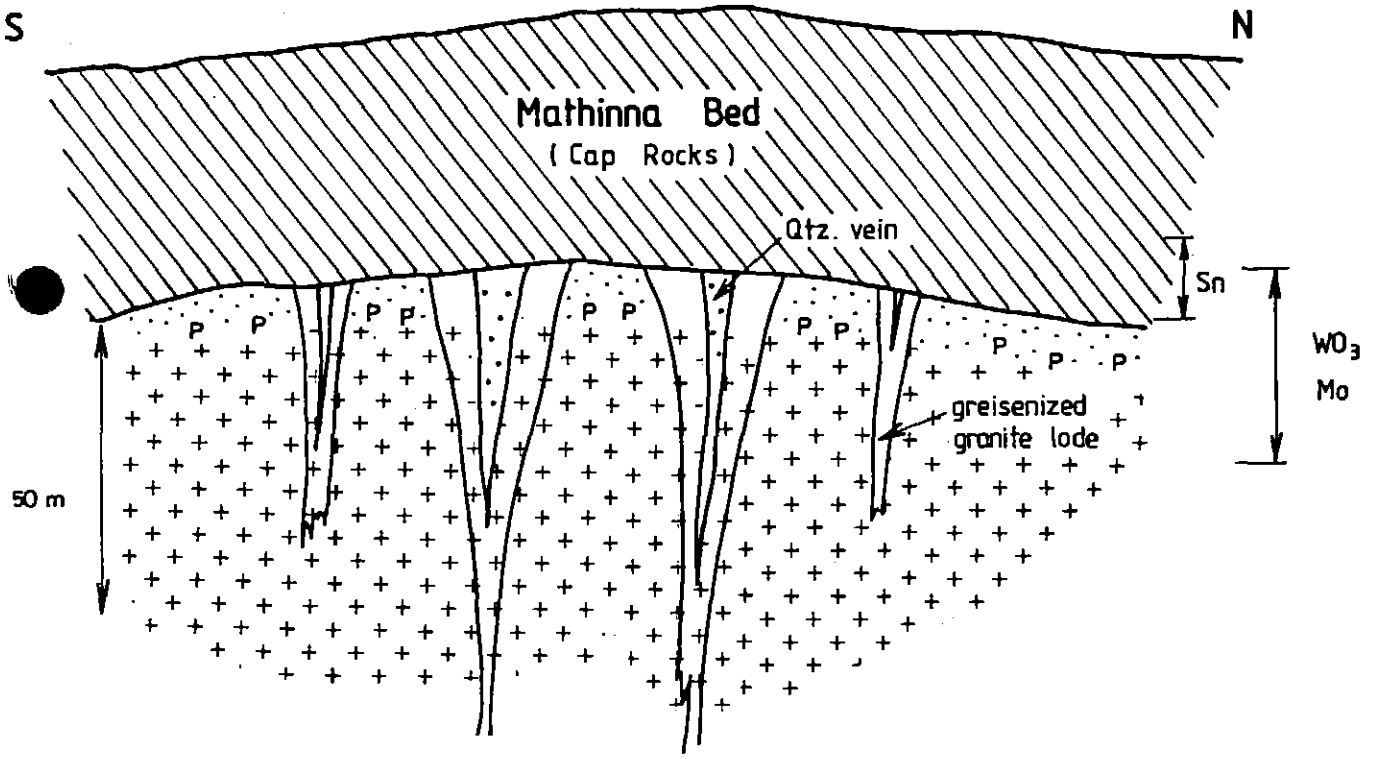
The Shell Company of Australia Limited
METALS DIVISION

E.L. 12/78 SCAMANDER
ECHO PROSPECT
(RUN 7 No. 146)

SCALE 1:15000	DATE 24-10-83
AUTHOR P.A.R.	DRAWN J.L.L.
OFFICE D'PORT	REP.No.
DRG.No. D'LHO2558	FIG.No.

924040

ECHO PROSPECT



LEGEND

- FINE GRAINED GRANITE
- P P PORPHYRITIC GRANITE
- CHILL PHASES
- + + MEDIUM GRAINED EQUIGRANULAR BIOTITE (MINOR MUSCOVITE) GRANITE

The Shell Company of Australia Limited METALS DIVISION	
E.L. 12/78 SCAMANDER ECHO PROSPECT DIAGRAMMATIC SECTION	
SCALE	DATE 24-11-83
AUTHOR P.A.R.	DRAWN J.L.L
OFFICE D'PORT	REP.No.
DRG No. D/LH02/515	FIG.No. 2