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GEOPHOTO MINERALS REPORT NO. 1970/74

PRELIMINARY INVESTIGATION, WOLFRAM CREEK AREA, N.E. TAS.

E.L. 6/68

I.R. MORTIMORE

TEXINS DEVELOPMENT PTY. LTD.

INTRODUCTION

The area of interest lies some seven miles inland from Beaumaris and can be reached by a good road from the coast. It covers an area of approximately 3 square miles lying directly north of Scamander Development Company's Orieco Lease. Two smaller leases, granted to the same company, are to be found within the area surrounding two old mining properties, the Baden-Powell Mine and the Carson De Beers Mine.

The western part of the area is dominated by two N-S trending high ridges with steep E-W trending spurs. The gullies between these spurs drain into Wolfram Creek which in turn empties into the Scamander River further south.

The eastern part in contrast is one of gentle slopes where gullies, draining soft shale country, join the Nevada Creek flowing northwards to eventually join Constable's Creek.

The area has long been known for its occurrences of tin, wolfram and molybdenum associated with a mineralising "tin" granite lying to the north. Quartz veins carrying wolfram and minor molybdenite were worked on a small scale at the turn of the century at the mines mentioned above and at the Lutwyche Prospect. No accurate records of amount of ore removed exist but from the extent of the workings one must assume it was small.

Tin mineralisation occurs to the north-east of the area on the Loila Tier and to the south at the Pinnacle. At the Loila Tier Prospect where cassiterite occurs associated with a brecciated formation, New Consolidated Goldfields carried out a comprehensive investigation in 1967 before concluding that any chances of a large scale mining operation were slight and further expenditure not warranted. The Pinnacle Tin Prospect has also been extensively explored, terminating in percussion drilling by B.H.P. before final abandonment.

With this in mind, the present work is being concentrated on the central area around the old wolfram mines and is designed to delineate the extent of the mineralisation and its value.

GEOLOGY

The geology of the area is made up to two main units, the Silurian Mathinna Beds and the Devonian Tin Granite.

Silurian Mathinna Beds

The bulk of the Mathinna Beds is made up of monotonous, soft shales or slates ranging in colour from brown, green and purple to grey and black. They are exposed along the road cuttings and creek beds

covering wide areas such as the drainage basin of the Nevada Creek where the monotony is broken only be the occasional thin beds of siltstone.

They are found in the western part of the area to be interbedded with siltstones, indurated sandstones and massive white quartzites. Close to the contact with the granites, the rocks have been thermally altered with partial recrystallisation creating a spotted appearance. In certain localities as near the Lutwyche Prospect, directed stress appears to have played a part in the metamorphic sequence creating phyllitic type rocks.

Devonian Tin Granite

The granites form a belt running E-W across the northern part of the area with a wedge shaped bulge extending southwards and dipping gently beneath the Silurian cover at an angle around 30°. Further west the dip appears to be steeper. This wedge of granite is capped in two places by slates of the Mathinna Series.

The 'tin' granite is basically a leucocratic, medium grained rock composed of primarily quartz and orthoclase with varying amounts of andesine, biotite and muscovite. Tourmaline and topaz are common accessory minerals.

In the contact zone and particularly within the wedge shaped area, the granites are greisenised to varying degrees and quartz veining is extensively developed. These quartz and greisen veins are almost completely confined to the granites, only isolated veins extending into the metasediment cover and then only within a matter of a few feet of the contact.

Arsenopyrite, pyrite and occasionally chalcopyrite are often associated with the quartz particularly in the numerous small veins to be found in the granites to the east. In the central wedge shaped granite area the quartz and greisen is seen to carry varying amounts of wolfram and tourmaline.

STRUCTURE

The intrusion of the granite mass in Devonian times distorted the overlying Silurian strata crumpling them into tight isoclinal folds. Although a general strike of between 340° and 350° with a steep dip (80° to 90°) to the west, is evident, extreme variations of both strike and dip are a common feature of this area.

Stresses set up during the intrusion have resulted in well defined joint, cleavage and fault patterns.

In the competent siltstones and quartzites, two distinct joint sets are apparent, one parallel to the bedding planes, the other cutting obliquely across the bedding planes. Both sets are commonly associated with quartz veining. At the Lutwyche Prospect where the quartzite strata strike 350°, the joint directions are 350° and 65° with both sets of joints carrying quartz veins. The mineralization is mainly confined to those striking 65°.

The more incompetent shales have developed a cleavage parallel to the bedding, although in zones where faulting is in evidence, the cleavage is seen to strike obliquely across the bedding planes roughly parallel to the fault direction.

The area is extensively faulted but individual faults are generally small and of limited lateral extent. In certain instances the faults can be grouped together on the basis of common trend. In the vicinity of the Lutwyche Prospect, this trend appears to be between 300° and 310° while further west near the Baden-Powell Mine they strike 30°.

SUMMARY AND CONCLUSION

The Silurian strata in this area are undoubtedly underlain by graintes of Devonian age, the upper surface of this pluton being irregular in shape resulting in the formation of cupolas and apophyses. This is concluded when a regional study of the St. Helens - Scamander area is considered. The outlier of 'tin' granite at Constables Creek is a cupola exposed by the creek. These cupolas and apophyses are favourable for the localisation of any ores of magmatic genesis from the granite. The site of a buried cupola is likely to be represented on the surface as a zone of fracturing with quartz fissure fillings carrying mineralisation.

This has been found to be the case at the Aberfoyle and Storys' Creek tin and wolfram mines.

There appears to be a zone of fracturing extending southwards from the wedge of 'tin' granite in a NNW-SSE direction which possibly may represent the site of a roof pendant buried beneath the Silurian cover. Close to the granite/metasediment contact, veins developed in the slates are void of mineralisation but further south in the vicinity of the old mines there are numerous quartz veins up to 30 ins. wide carrying varying amounts of wolfram with minor molybdenite. Faults in the area have probably acted as channels by which emanations from the

solidifying magma, the volatile and more mobile constituents of the granite, have risen into the overlying Silurian beds, the mineralised veins being formed along existing joints as at the Lutwyche Prospect or along shear zones associated with the faults as is probably the case at the Baden-Powell Mine and the Carson De Beers Mine where the wall-rocks are slates.

The situation at Wolfram Creek is similar to that at the Aberfoyle and Storys' Creek Mines but on a much smaller scale. The veins at Wolfram Creek are generally inconsistent both in width and length, on the surface at least, but have not been tested at depth.

However, wolfram bearing veins can be seen over an area covering nearly $\frac{1}{2}$ square mile, and with the present high price of wolfram, cannot be ignored.

Scout geological work has now been done and stream sampling, on a closer spacing than was used in the original regional geochemical program, has been completed. The enclosed map outlines areas of interest on which further work should be directed. Analysis results of the present stream geochemical program may provide further areas of interest.

Future work should include the construction of grids over those areas of interest, followed by detailed mapping and soil geochemistry.

The area does not lend itself well to detailed mapping as the slopes are covered by considerable overburden and scree. However, sufficient information should be present to use, in conjunction with geochemical results, in the selection of possible drilling targets.

OCTOBER 6, 1970. IAN R. MORTIMORE.

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GEOCHEMICAL LABORATORY REPORT 962010

FIELD SHEET No.: 001423 PROJECT No. EL. 6/68 - TEXINS-WOLFRAM CK. AREA

LAB. SHEET No.: 468/1 SAMPLE TYPE: STREAM SED. DATE: 6th November, 1970

DATA BASE NO

SAMPLE No.		LAB. No.	Mo ppm	Bi ppm	Sn %	W ppm
W 1	5401	70-K-2015	20	15	BLD	BLD
W 2	2	70-K-2016	20	30	BLD	BLD
W 3	3	70-K-2017	20	10	0.05%	BLD
W 4	4	70-K-2018	15	5	BLD	BLD
W 5	5	70-K-2019	20	20	BLD	BLD
W 6	6	70-K-2020	15	10	BLD	BLD
W 7	7	70-K-2021	15	10	BLD	BLD
W 8	8	70-K-2022	15	10	BLD	BLD
W 9	9	70-K-2023	15	10	BLD	BLD
W 10	5410	70-K-2024	10	10	BLD	BLD
W 11		70-K-2025	10	10	BLD	BLD
W 12		70-K-2026	15	15	0.1%	BLD
W 13		70-K-2027	15	15	BLD	BLD
W 14		70-K-2028	15	5	BLD	BLD
W 15		70-K-2029	15	10	BLD	BLD
W 16		70-K-2030	15	10	BLD	BLD
W 17		70-K-2031	15	10	BLD	BLD
W 18		70-K-2032	10	BLD	0.05%	BLD
W 19		70-K-2033	10	BLD	BLD	BLD
W 20	5420	70-K-2034	20	15	BLD	BLD
W 21		70-K-2035	15	10	BLD	BLD
W 22		70-K-2036	15	5	0.05%	BLD
W 23		70-K-2037	10	BLD	0.05%	BLD
W 24		70-K-2038	10	BLD	0.05%	BLD
W 25		70-K-2039	20	10	BLD	BLD
W 26		70-K-2040	15	5	0.05%	BLD
W 27		70-K-2041	15	10	BLD	BLD
W 28		70-K-2042	15	5	BLD	BLD
W 29		70-K-2043	10	5	0.05%	BLD
W 30	5430	70-K-2044	15	10	0.1%	BLD
W 31		70-K-2045	15	10	BLD	BLD
W 32		70-K-2046	15	15	0.1%	BLD
W 33		70-K-2047	10	10	BLD	BLD
W 34		70-K-2048	10	5	0.05%	BLD
W 35		70-K-2049	10	5	BLD	BLD
W 36		70-K-2050	10	5	BLD	BLD
W 37		70-K-2051	15	10	BLD	BLD
W 38		70-K-2052	20	20	BLD	BLD
W 39		70-K-2053	20	15	BLD	BLD
W 40	5440	70-K-2054	20	20	BLD	BLD
W 41		70-K-2055	15	10	BLD	BLD
W 42		70-K-2056	BLD	BLD	0.05%	BLD
W 43		70-K-2057	15	5	0.08%	BLD
W 44		70-K-2058	10	BLD	BLD	BLD
W 45	5445	70-K-2059	10	BLD	BLD	BLD

METHODS:

Mo, Bi by GRC No. 2

W by GRC No. 4A

Sn by GRC No. 6A

B.L.D. = Below Limit of Detect

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. Gerlach

Chief Chemist

010

GEOCHEMICAL LABORATORY REPORT

FIELD SHEET No.: 001423 PROJECT No.: EL. 6/68 - TEXINS/WOLFRAM CK AREA

LAB. SHEET No.: 468/2 SAMPLE TYPE: STREAM SED. DATE: 6th November, 1970.

SAMPLE No.	LAB. No.	Mo ppm	Bi ppm	Sn %	W ppm
W 46 S446	70-K-2060	10	5	BLD	BLD
W 47 ↓	70-K-2061	10	BLD	BLD	BLD
W 48	70-K-2062	10	BLD	BLD	BLD
W 49	70-K-2063	15	5	BLD	BLD
W 50 S450	70-K-2064	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.

Chief Chemist Ray W. Yeabsley

011

GEOCHEMICAL LABORATORY REPORT 962012

FIELD SHEET No.: 001425 PROJECT No.: EL.6/68 - TEXINS/WOLFRAM CK AREA

LAB. SHEET No.: 468/3 SAMPLE TYPE: STREAM SED. DATE: 6th November, 1970

SAMPLE No.	LAB. No.	Cu ppm	Pb ppm	Zn ppm	Ag ppm
W 57 5457	70-K-2111	20	40	60	1
W 58	70-K-2112	30	50	85	1
W 59	70-K-2113	S A M P L E		M I S S I N G	
W 60 5460	70-K-2114	15	30	40	BLD
W 61	70-K-2115	10	30	40	BLD
W 62	70-K-2116	50	50	100	1
W 63	70-K-2117	55	60	105	1
W 64	70-K-2118	55	55	100	1
W 65	70-K-2119	5	20	15	BLD
W 66	70-K-2120	15	35	70	1
W 67	70-K-2121	15	30	60	1
W 68	70-K-2122	15	40	40	1
W 69	70-K-2123	30	50	40	1
W 70 5470	70-K-2124	15	30	50	1
W 71	70-K-2125	25	50	60	1
W 72	70-K-2126	25	35	60	1
W 73	70-K-2127	15	30	45	BLD
W 74	70-K-2128	20	40	55	BLD
W 75	70-K-2129	20	35	50	BLD
W 76	70-K-2130	10	30	25	BLD
W 77	70-K-2131	25	45	60	1
W 78	70-K-2132	15	35	45	BLD
W 79	70-K-2133	20	50	60	1
W 80 5480	70-K-2134	20	45	55	1
W 81	70-K-2135	15	40	45	1
W 82 5482	70-K-2136	20	55	50	1
W 96 5496	70-K-2137	15	50	30	1
W 97	70-K-2138	10	40	25	1
W 98	70-K-2139	10	35	30	1
W 99	70-K-2140	BLD	30	10	BLD
W100 5500	70-K-2141	10	35	20	1
W101	70-K-2142	10	25	25	BLD
W102	70-K-2143	30	45	75	1
W103	70-K-2144	25	40	60	1
W104	70-K-2145	20	40	60	1
W105	70-K-2146	20	35	50	1
W106	70-K-2147	10	30	35	BLD
W107	70-K-2148	40	50	130	2
W108	70-K-2149	30	40	65	1
W109	70-K-2150	35	40	100	1
W110 5510	70-K-2151	30	35	95	1
W111	70-K-2152	30	35	80	1
W112	70-K-2153	15	195	30	BLD
W113	70-K-2154	20	45	55	1
W114 5514	70-K-2155	10	55	25	BLD

METHODS:

Cu, Pb, Zn, Ag by GRC No. 1

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.

Chief Chemist Ray W. Gerlach

014

GEOCHEMICAL LABORATORY REPORT 962013

FIELD SHEET No.: 001425 PROJECT No.: EL. 6/68 - TEXINS; WOLFRAM CK. AREA

LAB. SHEET No.: 468/4 SAMPLE TYPE: STREAM SED. DATE: 6th November, 1970.

SAMPLE No.	LAB. No.	Cu ppm	Pb ppm	Zn ppm	Ag ppm
W115 5515	70-K-2156	BLD	30	10	BLD
W116 ↓	70-K-2157	20	35	50	1
W117 ↓	70-K-2158	15	40	50	1
W118 ↓	70-K-2159	15	35	30	1
W119 5519	70-K-2160	20	35	35	1
W 76A 5520	70-K-2161	2	20	20	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.

Chief Chemist

Ray W. Yerbury

013

GEOCHEMICAL LABORATORY REPORT 962014

FIELD SHEET No.: 001426 PROJECT No.: EL 6/68 - TEXINS/WOLFRAM CK. AREA

LAB. SHEET No.: 468/5 SAMPLE TYPE: ROCK DATE: 6th November, 1970.

SAMPLE No.	LAB. No.	Mo ppm	Bi ppm	W ppm	Sn %
RW 1	70-K-2162	10	540	4.30%	BLD
RW 2	70-K-2163	10	50	BLD	BLD
RW 3	70-K-2164	10	380	6.60%	BLD
RW 4	70-K-2165	5	100	200	BLD
RW 5	70-K-2166	120	170	BLD	BLD
RW 6	70-K-2167	20	10	BLD	BLD
RW 7	70-K-2168	BLD	5	BLD	BLD
RW 8	70-K-2169	15	55	BLD	BLD
RW 9	70-K-2170	5	5	BLD	BLD
RW 10	70-K-2171	10	95	BLD	BLD
RW 11	70-K-2172	BLD	BLD	BLD	BLD
RW 12	70-K-2173	10	585	1.1%	BLD

METHODS:

Mo, Bi by GRC No. 2

W by GRC No. 4A

Sn by GRC No. 6A

BLD= Below limit of detection

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Chief Chemist

Ray W. Gerlach

014

GEOCHEMICAL LABORATORY REPORT 962015

FIELD SHEET No.: 001424 PROJECT No.: EL.6/68 = WOLFRAM CREEK AREA

LAB. SHEET No.: 484/1 SAMPLE TYPE: STREAM SED. DATE: 26th November, 1970

SAMPLE No.		LAB. No.	Mo ppm	Bi ppm	W %	Sn %				
W 51	5451	70-K-2065	15	10	BLD	BLD				
W 52	2	70-K-2066	20	15	BLD	BLD				
W 53	3	70-K-2067	20	30	BLD	0.05				
W 54		70-K-2068	20	30	BLD	BLD				
W 55		70-K-2069	20	20	BLD	BLD				
W 56		70-K-2070	20	15	BLD	BLD				
W 57		70-K-2071	20	10	BLD	BLD				
W 58		70-K-2072	20	20	BLD	BLD				
W 59		70-K-2073	15	10	BLD	BLD				
W 60	5460	70-K-2074	20	10	BLD	BLD				
W 61		70-K-2075	20	10	BLD	BLD				
W 62		70-K-2076	20	20	BLD	BLD				
W 63		70-K-2077	25	20	BLD	BLD				
W 64		70-K-2078	20	20	BLD	BLD				
W 65		70-K-2079	20	10	BLD	BLD				
W 66		70-K-2080	20	15	BLD	BLD				
W 67		70-K-2081	20	15	BLD	BLD				
W 68		70-K-2082	15	10	BLD	BLD				
W 69		70-K-2083	20	15	BLD	BLD				
W 70	5470	70-K-2084	15	10	BLD	BLD				
W 71		70-K-2085	15	20	BLD	BLD				
W 72		70-K-2086	20	20	BLD	BLD				
W 73		70-K-2087	15	10	BLD	BLD				
W 74		70-K-2088	15	10	BLD	BLD				
W 75		70-K-2089	10	10	BLD	BLD				
W 76		70-K-2090	10	10	BLD	BLD				
W 77		70-K-2091	15	15	BLD	BLD				
W 78		70-K-2092	15	15	BLD	BLD				
W 79		70-K-2093	15	15	BLD	BLD				
W 80	5480	70-K-2094	15	15	BLD	BLD				
W 81		70-K-2095	15	15	BLD	BLD				
W 82		70-K-2096	15	15	BLD	BLD				
W 83		70-K-2097	10	10	BLD	BLD				
W 84		70-K-2098	15	15	BLD	BLD				
W 85		70-K-2099	15	10	BLD	BLD				
W 86		70-K-2100	10	10	BLD	BLD				
W 87		70-K-2101	10	10	BLD	BLD				
W 88		70-K-2102	15	10	BLD	BLD				
W 89		70-K-2103	10	15	BLD	BLD				
W 90	5490	70-K-2104	10	10	BLD	BLD				
W 91		70-K-2105	15	20	BLD	BLD				
W 92		70-K-2106	15	15	BLD	BLD				
W 93		70-K-2107	10	10	BLD	BLD				
W 94		70-K-2108	10	10	BLD	BLD				
W 95	5495	70-K-2109	10	10	BLD	BLD				
W 76A	5520	70-K-2110	10	10	BLD	BLD				

METHODS:

Mo, Bi by GRC No. 2
W by GRC No. 4A
Sn by GRC No. 6A
B.L.D. = Below Limit of Detection

D Laughney
for Chief Chemist

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Liola Tier Tin Prospect

Mineralised shear zone
Brecciated formation carrying cassiterite, arsenopyrite and pyrite

Leucocratic, medium grained granite with quartz and orthoclase the dominant minerals with minor biotite, muscovite and andesine and accessory tourmaline and topaz

Numerous small quartz veins carrying minor arsenopyrite and pyrite

Thermally altered spotted slates

Quartz vein (2' wide) carrying galena, pyrite, chalcopyrite and arsenopyrite

Quartz veins carrying pyrite chalcopyrite and arsenopyrite

Quartz and greisen 'floaters' carrying wolfram and tourmaline

Contact zone characterised by thermally altered spotted slates

Granites in contact zone, greisenised with quartz and greisen veins carrying wolfram

Quartz veining well developed but void of mineralization

Quartz veins extending northwards from Scamander lease carrying only trace wolfram

Shales with occasional ferruginous gossan 'floaters'

BADEN POWELL MINE

Quartz veins (up to 2'6 in width) carrying wolfram with minor molybdenite

Quartz vein (2' width) no mineralization

Quartzites
Numerous small quartz veins. No mineralization

Quartz veins (14" wide) carrying small amounts of wolfram

Small quartz veins carrying varying amounts of wolfram

CARSON DE BEERS MINE

Quartz veins (up to 2'6 wide) carrying wolfram

Quartz veins carrying Trace wolfram

Ferruginous gossans
Quartz floaters carrying wolfram

Quartz veins (up to 15' wide) carrying wolfram and minor molybdenite

Quartz veins) (up to 2'6 wide) carrying varying amounts of wolfram and pyrite

LUTWYCHE PROSPECT

Numerous small veins carrying wolfram and minor molybdenite

Ferruginous gossans

Wolfram Creek

Nevada Creek

Shales with occasional siltstones

Isolated ferruginous gossan 'floaters'

Ferruginous Gossan

THE PINNACLE 1267'

PINNACLE TIN PROSPECT

Quartz and quartzite 'floaters' carrying cassiterite

Dmt — DEVONIAN 'TIN' GRANITE

Sma — SILURIAN MATHINNA BED

SCAMANDER DEVELOPMENT COMPANY LEASES

W7 — STREAM SAMPLE POINT

RW12 — ROCK SAMPLE POINT

AREAS OF INTEREST — GEOLOGICAL BASIS

ESTABLISHED CONTACT — APPROX. POSITION

FAULT — PROBABLE FAULT

STRIKE AND DIP OF STRATA — VERTICAL

STRIKE AND DIP OF JOINTS — VERTICAL

STRIKE AND DIP OF CLEAVAGE

VEIN

SHAFT — PORTAL TO ADIT

WATER COURSE

ROAD OR TRACK

5 cm

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TEXAS INSTRUMENTS INCORPORATED
SCIENCE SERVICES DIVISION
GEOPHOTO RESOURCES CONSULTANTS
BRISBANE AUSTRALIA

DRAWN			TEXINS DEVELOPMENT PTY. LTD.
TRACED	B. PACEY	NOV. '70.	E.L.6/68 NORTH EAST TASMANIA
CHECKED			WOLFRAM CREEK AREA
GEOLOGIST			GEOLOGIC MAP
APPROVED			
SCALE 1 : 6,250			
REVISIONS			PROJECT — DRAWING NO. 1/140

015

W16-18