

REF. 1.13.2
1.13.3
3. 1.1

9th October, 1968.

ABERFOYLE HOLDINGS LIMITED - MINING DIVISION

TO - Manager (Copies to Messrs. Mason, Tester & Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDED 4.10.1968.

Lutwyche Exploration Project -

Pow Driving in a south easterly direction on 13 level was held up for a short period at about 58 feet from the Main X-Cut so that a minor vein displacement along a steeply dipping bedding fault could be resolved by drilling. An approximate throw of 9 feet on this fault reflected the pattern of reverse faulting encountered elsewhere on the 13 level Main X-Cut. At this stage operations were diverted to the north westerly drive where an advance of approximately 30 feet exposed a quartz vein averaging 12-14" in width with consistently good mineralisation of wolframite, moderate cassiterite, sulphides and showings of triplite. Driving has now been resumed on the south eastern end of the Hanging Wall Vein. Pattern wall testing, which commenced with AU13-10 drilled in a south westerly direction along section line OO was hampered by the continual breakdown of the E500 drill used.

D.D. AU13-8 was suspended at 215 feet due to operation difficulties ensuing from the intersection of a water flow at 212 feet. Tectonic structures recorded in this hole correspond well with those exposed in the 13 level drive and AU13-6.

D.D. AU13-9 advanced to 215 feet with an intersection of 3 inches of quartz at 156 $\frac{3}{4}$ feet and 6 inches at 162 $\frac{1}{4}$ feet.

Sampling along the sub-horizontal Link Vein continued southward in the main 13 level X-Cut and reached a point in the north west drive situated approximately 65 feet from the centre of the Main X-Cut.

X A survey of the collars of S17, S19, S20, S27, S28, S29 and S31, indicate an error in the original survey in the area of approximately 20 feet. However, doubt still exists as to the accuracy of the R.L. figures for these holes.

D.D. S30 progressed to a depth of 352 ft in broken ground without intersecting major veining.

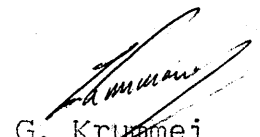
D.D. S31 reached a depth of 281 feet, intersecting only minor irregular distributed mineralised quartz veining.

Aberfoyle Mine -

Geological mapping was carried out in the 91DA Vein Complex Area (Co-ords 5860N, 1370E approx.) on 7 level and sublevel above 7 level to assist with the planning of mining operations in the area.

A more extensive mapping programme with a similar object was carried out on the double Eastern Vein (approx. co-ords 5300N, 1360E) on and between 8 and 9 level.

Several 1" : 40' X sections of the vein and fault systems of the Aberfoyle Mine were drawn up.


G. Krummei
Senior Geologist.

REF. 1.13.2
1.13.3
3. 1.1

25th September, 1968.

ABERFOYLE HOLDINGS LIMITED - MINING DIVISION

TO - Manager (Copies to Messrs. Mason, Stevenson, Tester
& Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDED 21.9.1968.

Lutwyche Exploration Project -

Daily inspection visits were made to the 13 Level drives. In the north westerly drive the attitude of the vein followed steepened up progressively through a series of rolls to a present dip of 45-50°. The pattern of mineralisation was still one of moderate to good wolframite in limited zones of varying strike length, with lesser cassiterite and varying amounts of sulphides, Kaolin, pinite and muscovite. Driving on this vein was temporarily suspended near section Line OO and sites for test drilling the hangingwall and footwall of the above vein were marked out, on section Line OO.

Driving in a south easterly direction on the Hanging Wall Vein for a distance of approximately 34 feet exposed a vein of a consistent structure, dipping at 45-55° S.W. So far, cassiterite, with a "spotty" distribution throughout, appears to be more prominent in this section of the vein, but scattered aggregates wolframite, sulphides, Kaolin, pinite and muscovite are also present. Both the hangingwall and the footwall of the vein are somewhat fractured.

All major quartz veins in the 13 level X-cut north of the collar of AU13-6 have now been sampled. Sampling of the sub-horizontal "Link Vein" has commenced.

D.D. Hole AU13-7 was extended to 500 ft inclined depth without intersecting aplite or granite. Only minor quartz veining, ranging from ¼"-2¼" and containing sulphides and sparse wolframite was intersected below 422 feet.

AU13-8, drilled in an easterly direction at -50° near the above hole, encountered a fault zone with compact gouge and cassiterite at 109 ft. A 7½" ? Aberfoyle type quartz vein with good coarse cassiterite was intersected at 187 ft. At 207'4" a 35" quartz vein (32" recovered) occurs with traces of sulphides and gangue minerals. The absence of good contacts does not permit accurate type identification of this vein. Drilling is currently being hampered by a flow of water at 212 ft from a fissure containing quartz.

On the surface prospect the collars of S17, S19, S20, S27, S28 and S29 were re-surveyed but results are not yet available.

S30 reached a depth of 30 ft with no significant intersections of veining.

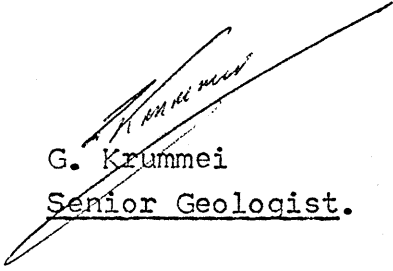
S31 attained a depth of 125½ ft with only minor intersections of mineralised quartz.

Data resulting from a geochemical survey carried out by Jessup over a portion of the south-east extension of the Lutwyche vein swarm were compared with known geology, topography and a surface self potential map of the area. This evaluation, which indicated an area of further interest, forms the subject of a separate short report.

Aberfoyle Mine -

Routine mapping and stope inspections were carried out on the lower levels of the Aberfoyle Mine.

Analyses of several specimens of wolframite from 8, 9, 11 and 13 levels carried out at the University of Tasmania showed increasing amounts of manganese with depth in the wolframite molecule.


G. Krummei
Senior Geologist.

REF. 1.13.2
1.13.3/
3. 1.1

ABERFOYLE HOLDINGS LIMITED - MINING DIVISION

TO - Manager (Copies to Messrs. Mason, Tester, Stevenson
& Glasson).
FROM - Senior Geologist.
SUBJECT - FORTNIGHTLY PROGRESS REPORT - FORTNIGHT ENDED 7.9.68.

The Dorset Dredge and the old John Bull Mine (cassiterite and minor wolframite in greisen veins and along joint planes in granite) near Derby in the Ringarooma area were visited. Daily inspection visits were made to the face of the 13 level north westerly drive. The Link Vein ? along which contour driving is taking place varied in width from 7-18" with generally moderate, intermittent wolframite and minor cassiterite with sulphides, pinite, muscovite and kaolin. The latter three minerals frequently occur in vughs and as vein selvages. The vein has a general low angle dip component to the S.W. quarter ($5-15^{\circ}$) with minor dip variations of greater magnitude due to locally developed "rolls".

Groove sampling of veining exposed in the main 13 level X-cut continues. Relevant vein intersections in S29 and AU13-7 were sampled and submitted for assaying.

D.D. AU13-7 reached 422½ feet. The results of the Tropari Survey of this hole to date are given at the end of this report. At 213¼' 24" of quartz with good, coarse cassiterite were intersected. A 14" intersection of quartz with good wolframite was made at 375'4". The contacts of both vein intersections were destroyed during drilling but projections suggest a possible correlation of the former vein with the north trending, 11" Aberfoyle type vein exposed on 13 level at 7500N, 2678E. The second major intersection may be the downdip equivalent of the Old Battery Type vein exposed at 7350N, 2547E. Alternatively, the latter intersection with associated narrower veining could reflect the presence of a minor vein system ahead of the face of the 13 level main X-cut. This interpretation would provide justification for an exploratory drill hole to test the ground ahead of the 13 level face.

However, the fact that either, or both of the above major intersections may be flat-dipping "Link Veins" must not be neglected.

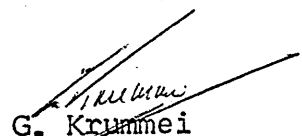
On Lutwyche surface S29 was completed at 400 feet without encountering major quartz veining. S30, the first of the holes in the deep drilling programme was sited and drilling will commence with the arrival of the B.W. wire line equipment.

At Aberfoyle Mine, routine geological mapping and stope examinations were carried out on 7, 8, 9 and 11 levels.

ADDENDA -

AU13-7 - TROPARI - SURVEY

CASING	-	0 - 100'		
at 0'	-	incl. -55°	Azimuth 45°	grid
at 200'	-	incl. -46°	Azimuth 54°	grid
300'	-	incl. -41°	Azimuth 56°	grid
400'	-	incl. -40°	Azimuth 56°	grid


G. Krummei
Senior Geologist.

ABERFOYLE HOLDINGS LIMITED - MINING DIVISION

TO - Manager (Copies to Messrs. Mason, Tester, Stevenson
& Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDED 24.8.1968.

One day was spent in the Cleveland area when the Magnet Mine was visited. Structures controlling mineralisation and the lithology of the mine were examined. A short paper was presented in Hobart at a one-day seminar on geological education.

Various aspects of the work at the Lutwyche prospect occupied most of the remainder of the period under review.

Driving along the main l3 level X-cut was completed and geological mapping of the area brought up to date. Only minor quartz veining was exposed in the latter end of the drive.

Driving in a north westerly direction commenced in the Hanging Wall Area, but due to the rolling nature and complexity of the vein structures the drive tended to drift in a northerly direction along a sub horizontal link vein 6-13", well mineralised with wolframite and lesser cassiterite. This drift has now been corrected.

AU13-7, the 1st of the underground exploratory D.D. on l3 level reached 122 feet.

Groove sampling of veining exposed in the main l3 level X-cut is in progress and the samples are in various stages of preparation and assay.

On Lutwyche Surface, S29 reached a depth of 372 feet with only minor quartz vein intersections which show a tendency to be grouped around the projected and extrapolated target intersections of the Hanging Wall Vein and Pay Vein. Of possible significance are a 1½" intersection of quartz at 340¼' with moderate cassiterite, 1" of quartz vein with sparse wolframite and trace cassiterite and 1½" quartz well mineralised with cassiterite at 349½'. Fragmentation of core in this drill hole is common, suggesting that the ground intersected is highly fractured and/or faulted. Core recovery remained satisfactory throughout. Access and sites for deep drilling at Lutwyche S.E. has been completed.

Routine geological mapping on 9 and 11 levels was carried out. Progressive logging of underground drill core with respect to structures, lithology and veining was carried out.


G. Krummei

30th July, 1968.

ABERFOYLE HOLDINGS LIMITED - MINING DIVISION

TO - Manager (Copies to Messrs. Mason, Tester, Stevenson & Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDED 27/7/1968.

Two days were spent at Cleveland Mine when the geology of the mine and environs were examined. Methods and procedures adopted for the collection of assay samples from underground at Cleveland as well as some aspects of mathematical and graphical treatment of assay data were discussed with the resident geologist. Relevant assay plans used by the mine staff were examined. On account of the proposed small sampling interval and complexity of vein structures at Lutwyche it is considered that assay plans on a scale of 1" : 20' would be most suitable for routine work in the underground exploratory and development stage at Lutwyche. Plans on a scale of 1" : 40' would be suitable for the presentation of summary weighted assay results, the exact number of samples or strike length of veining involved to be considered at a later stage. The current presentation of drill hole assay results on 1" : 100' plans and sections appear satisfactory and should continue to be used.

Drilling proposals to test the northwestern and southeastern strike extension at depth of the Lutwyche vein system were submitted. The sites were located and pegged in the field by theodolite, tape and compass ready for inspection by interested contractors. On l3 level drive a strong, Aberfoyle type quartz vein, 11 - 13" in width and dipping at 62 - 70° to the west was exposed at 2272 ft from datum. The vein, which probably correlates with the 10" intersection at 508' in AUL3-6, is well mineralised with large aggregates of marmatite, moderate wolframite (particularly along the vein contacts in the backs) minor cassiterite, sparse pinite and copper/iron sulphides. Two Lutwyche-type veins, dipping at 45-50° to the south-east and mineralised with cassiterite and wolframite occur in the footwall of the latter vein together with other minor veining. Although one of the Lutwyche-type veins appear in the hangingwall of the major Aberfoyle-type vein, the exact time relationship between the two vein systems remains obscure and is complicated by later faulting. A 42 gal/minute water bearing fault striking north-east, dipping at about 40° to the north-west and containing quartz veining on the fault plane was first exposed in the back at about 2280 ft from datum. At approximately 2350 ft from datum on the S.E. wall of the drive the fault is seen to intersect and slightly displace a 2-3" ? Lutwyche-type vein. The vein is

sparsely mineralised with cassiterite above, and moderately well mineralised below the fault. A pocket of cassiterite in aggregates or in single crystals occurs at and around the intersection of the two structures. Crystalline material of a similar nature was intersected at 512' in AU13-6.

At the Lutwyche surface prospect S28 was completed at 350'. The previously reported 6" Pay Vein intersection at 238 feet assayed at 3.56% Sn and 0.76% WO_3 . The following additional intersections were made, all of which correlate adequately with vein intersections in S17 as projected onto section 3 South :-

At	250'	2½"	0.40% Sn	0.02% WO_3
	278'	2¾"	0.44% Sn	3.14% WO_3
	318'	2"	0.08% Sn	0.03% WO_3
	319½'	2¾"	0.40% Sn	0.04% WO_3

After considerable initial delays resulting from a changeover of drilling machines and lack of suitable transport S29 has reached a depth of 6 feet in overburden.

Routine inspections of stopes and drives on 8, 9 and 11 level as well as routine core logging was carried out.

The final report and plans on the Gipps Creek drilling programme has been completed.

G. Krummei
Senior Geologist.

ABERFOYLE HOLDINGS LIMITED - (MINING DIVISION)

TO - Manager. (Copies to Messrs. Mason, Tester, Glasson
& Stevenson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDED 13TH JULY, 1968.

Discussions and field trips with the Chief Geologist took up the first week of the period under review, when the area south east of Lutwyche was examined to determine the best possible route of access for future diamond drilling. At the same time a portion of the area was assessed as to its suitability for a short geochemical orientation survey and self-potential survey.

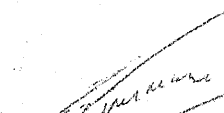
A proposal was submitted for three underground diamond drill holes to test for the presence and nature of the Hangingwall-Pay Vein Zone of mineralisation below the 13 level drive.

14 samples of typical Lutwyche vein material covering a wide range of both tin and wolfram trioxide content were submitted to the Department of Mines, Launceston for testing by X.R.F. Analyser. Agreement is poor between the values by the latter method and those obtained by wet assay at Aberfoyle. X.R.F. results are generally significantly lower both for % tin and % wolfram trioxide than values obtained by Aberfoyle wet assay.

S28, at the Lutwyche prospect reached a depth of 300 ft, intersecting a 6¼" sparsely mineralised quartz vein at 238 feet assaying at 0.56 c.m.u. over a stope width of 48". Minor quartz veining occurs in the footwall of the above vein between 250 and 300 ft. This entire zone correlates adequately with the Pay Vein zone of mineralisation intersected in S17.

On 13 level drive, a 13" vein of the Aberfoyle type and dipping about 70° to the south west was intersected at 2272 feet approximately from datum. It is well mineralised with marmatite, contains moderate amounts of wolframite and minor cassiterite. Its correlation with vein intersections is uncertain, but it may represent the 10" well mineralised vein intersection in AUL3-6 which was tentatively correlated with the Pay Vein of the Lutwyche vein system.

Enclosed are the comparative assay results.


G. Krummei
Senior Geologist

<u>Reg. No.</u>	<u>Sample No.</u>	<u>Aberfoyle</u>		<u>Mines Dept.</u>	
		<u>WO₃%</u>	<u>Sn%</u>	<u>WO₃%</u>	<u>Sn%</u>
681314	708	22.55	0.06	15.0	0.04
1315	709	1.58	5.50	0.62	4.64
1316	712	1.52	0.18	0.78	0.16
1317	717	3.45	0.88	1.43	0.68
1318	719	0.04	0.06	Nil	0.14
1319	721	0.09	5.30	0.10	4.16
1320	722	0.03	14.10	0.05	10.2
1321	726	0.05	1.10	0.35	0.73
1322	729	0.37	0.95	0.10	0.74
1323	730	0.64	0.07	0.22	0.07
1324	731	0.05	0.35	Nil	0.33
1325	735	1.17	0.04	0.97	0.05
1326	759	0.12	1.51	0.30	1.79
1327	801	13.81	1.25	11.0	1.05

3rd July, 1968

ABERFOYLE HOLDINGS LIMITED - MINING DIVISION

TO - Manager (Copies to Messrs. Mason, Stevenson, Tester & Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDED 29.6.1968.

Routine examination of stopes and development ends on 7, 8, 9 and 11 levels continued together with progressive logging of core from exploratory D.D. holes on 6 level.

715 feet of core from 9 and 11 levels were re-logged as part of the continuing structural and lithological re-appraisal of the Aberfoyle Mine.

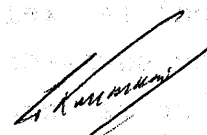
Driving from 13 level opened up an area of complex veining at about 2136' from datum. At the latter point a Lutwyche-type vein (?? Hanging Wall Vein) ranging from 5 - 11" dipping at an average angle of 30° to the South East was exposed. The vein carries good wolfram mineralisation, with lesser cassiterite, sulphides and pinite. The combined weighted results of 5 groove samples taken over the lower portions of the vein give a value of 2.35% c.m.u. over 48". The latter vein is intersected and slightly displaced by a 2-3" Old Battery Type Vein containing moderate amounts of wolframite and cassiterite. A sub-horizontal "Link Vein" of irregular width ranging from 2" to over 7" makes off the Lutwyche-type vein and was followed for a distance of 46 feet in a north easterly direction along the main 13 level drive. The "Link Vein" is affected by minor bedding-plane slip. The above observations confirm that the Ol Battery Vein system post-dates the Lutwyche vein system. No exposures elucidating the age-relationship between the Lutwyche/Aberfoyle or the Aberfoyle/Old Battery Vein systems have as yet been encountered.

Weighted results of 6 groove samples taken from the Old Battery Type Vein at about 2090' from datum give 0.95% c.m.u. over 48".

D.D.S28, the second of a series of shallow surface drill holes at the Lutwyche Prospect reached a depth of 106 feet. No significant vein intersections were made to date. The broken nature of the core appears to be the result of well developed jointing and minor faulting probably associated with the Kookaburra fault.

The detailed geological survey and associated topographic survey carried out over the south-eastern extension of the Lutwyche Prospect by Jessup and Fraser is nearing completion.

Survey work over the Lutwyche area by the Mine Surveyor and along the south-eastern fringe of the Lutwyche Prospect have revealed serious discrepancies in elevation and distance in plans of the present Lutwyche Prospect. These errors, if confirmed by the proposed gyrotheodolite survey of the Aberfoyle Mine, could have considerable effect on the accuracy of future work in the area, including mapping, diamond drilling and shaft sinking. A topographic re-survey of the area, either by one of the Mine Surveyors or by an outside contractor, is therefore thought to be necessary.


G. Krummei
Senior Geologist.

5. EXPLORATION.

Aberfoyle Tin N.L.

Geologist's Report
1/5 29.6.68.

5.1 Underground Drilling -

(a) Statistical Summary -

<u>D.D. Hole No.</u>	<u>Drill</u>	<u>Core</u>	<u>Present Footage</u>	<u>Advanced Footage</u>	<u>Remarks</u>
AU6-20	Kempe	EXT	99½'	76¼'	Completed.
AU6-21	Kempe	EXT	140'	140'	Completed
AU6-22	Kempe	EXT	96'	96'	In progress.
Total advance				<u>312¼'</u>	

(b) Log Summary -

D.D. AU6-20 - Completed at 99½ feet.

Orientation data to be given in next report. Intersected only minor quartz veining. 2½" of quartz with minor carbonate was encountered at 92¼ feet.

D.D. AU6-21 - Completed at 140 feet.

Co-ordinates and orientation to be given at a later date. Drilled to explore the footwall of known veining at the southern extremity of 6 level. The more important quartz vein intersections are:

- 23¼' - 2" quartz, mica selvage, trace wolframite.
- 34'3" - 3½" quartz, good mica selvage, sparse cassiterite, sulphides, trace wolframite.
- 46½' - 6½" intersected width quartz; broken core, good mica selvage.
- 49½' - 4¼" quartz, mica selvage, trace sulphides.
- 63½' - 4¾" intersected width quartz along bedding.
- 130' - 8" quartz vein, moderate cassiterite, thin mica selvage.

D.D. AU6-22 - Incomplete at 96 feet.

Co-ordinates and bearing to be given later.

Drilled in a westerly direction from 104DU area to test for the possible northward extension of 82DU veining which is displaced by a fault. Major intersections to date are $\frac{3}{4}$ " quartz with sulphides at 32 $\frac{1}{2}$ ' and 5" of quartz with good cassiterite along vein borders at 51'4".

5.2 Surface Drilling -

(a) Statistical Summary -

<u>D.D. Hole No.</u>	<u>Present Footage</u>	<u>Advanced Footage</u>	<u>Remarks</u>
S27	400'	171'	Completed
S28	106'	106'	In progress
Total advance		277'	

(b) Lutwyche Surface -

D.D. S27, the first of a series of short drill holes at the Lutwyche prospect was completed at 400 feet. The following major quartz veins were recorded in addition to numerous minor intersections :-

<u>Depth</u>	<u>Description</u>
251 $\frac{1}{4}$ '	- 2 $\frac{1}{4}$ " quartz vein, trace carbonate, pyrite, chlorite.
252 $\frac{1}{4}$ '	- 5 $\frac{1}{4}$ " approximately quartz vein, trace chlorite, pyrite carbonate. Assay : 0.1% Sn, 0.13% WO ₃ .
294 $\frac{1}{4}$ '	- 5 $\frac{1}{2}$ " quartz vein, good wolframite, sparse cassiterite; sulphides, carbonate; assay 1.25% Sn, 13.81% WO ₃ .
297 $\frac{1}{4}$ '	- 2" quartz vein, sparse sulphides, wolframite.

D.D. S28, the second short drill hole at the Lutwyche Prospect penetrated to a depth of 106 feet through broken ground possibly associated with the Kookaburra fault. Core recovery remained good.

5.3 Geological -

(a) Routine underground mapping and inspections of stopes on 7, 8, 9 and 11 levels as well as the 13 level drive was carried out. Several old drill holes from 9 and 11 levels were re-logged within the framework of the structural and lithological study of the Aberfoyle Mine.

(b) Detailed mapping of the surface geology to the south-east of the Lutwyche prospect continued.

REF. 3.1.1
1.2.4
3.2.7

ABERFOYLE TIN N. L.

TO - Manager. (Copies to Messrs. Mason, Tester, Glasson
& Stevenson)
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDED 15.6.68.

Routine examination and mapping of development ends on 7, 8, 9 and 11 levels continued. Sites for exploratory drilling from 6 and 7 levels were examined and selected. Core from an exploratory drill hole on 6 level was logged progressively.

Driving on 13 level exposed, at a distance of about 2090 feet from datum, a north-easterly striking quartz vein from 4-5½" in width and mineralised with cassiterite, wolframite, sulphides and pinite. The strike of the vein and its steep south-easterly dip suggest that it belongs to the "Old Battery" vein system which, as pointed out in a previous progress report, could provide additional mining targets at depth in the Lutwyche area. The width of the vein exposed in the 13 level drive is considerably greater than that of veins of similar trends exposed in surface outcrops. These latest findings draw attention to the "Old Battery" vein system and it may be necessary to re-examine and re-evaluate the work carried out at the Old Battery prospect.

D.D. S27, the first of a series of short diamond drill holes at the Lutwyche prospect was completed at a depth of 400 feet. An intersection of 5½" of quartz at 294 feet inclined depth assayed at 1.25% Sn and 13.81% WO₃ and correlates adequately with intersection of the "Pay Vein" in S17, S19 and S20. An attempt to co-ordinate the collar of S27 with reference a recent re-survey of Spiers Shaft revealed further inaccuracies in the previous survey work in the Lutwyche area. The latter inaccuracies are currently being checked.

Several cross sections and longitudinal sections incorporating information from the recently completed diamond drilling programme at Gipps Creek were draughted and the inferred ore reserves at Gipps Creek were calculated.

G. Krummel

Snr. Geologist.

17.6.68.

REF. 3.1.1

1.2.4 ✓

3.2.7

ABERFOYLE TIN N. L.

TO - Manager. (Copies to Messrs. Mason, Tester, Glasson
& Stevenson)

FROM - Senior Geologist.

SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDED 1.6.68

The greater part of the first week of the period under review was spent in discussion and on field trips with the Chief Geologist and consultant Geologist. Messrs. Jessop and Fraser, a geologist-surveyor team from A.T.D.P. were shown the area south-east of the Lutwyche Prospect and Mr. Jessop was introduced to the lithology and general geology of the area in which he is to carry out detailed geological mapping.

Work of an administrative nature involved the completion and revision of the annual budget for the geological section.

Routine inspection work of development faces on 8, 9 and 11 levels as well as mapping on 13 level continued as well as routine logging of underground diamond drill core from 6 and 9 levels.

S27 - The first of the short surface diamond drill holes at Lutwyche reached a depth of 229 feet with numerous intersections of minor quartz veins, many of which appeared to be controlled by bedding.

G. Krummel
G. Krummel
Snr. Geologist.

REF. 3.1.1.
3.2.7.
1.2.4.✓

8th May, 1968.

ABERFOYLE TIN N. L.

TO - Manager (Copies to Messrs. Mason, Tester, Stevenson
& Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT P/E 4.5.1968.


Routine geological mapping and inspection of development ends on 8, 9 and 11 levels were carried out.

135 feet of the newly exposed part of the Lutwyche drive were mapped. Two mineralized, narrow quartz veins were encountered between 95 and 100 ft from the starting point of the latest driving operations. The former vein trends to the northwest and dips to the south-west, while the latter vein has a northerly strike and shallow dip to the west. Both veins correlate with vein intersections made in AU13-6.

Two days were spent on detailed mapping and preparation of a short report on two sections of the Consolidated Lease areas at Gipps Creek which were found to overlap onto private land.

Progressive logging of core from underground and from G.C.S4 continued. Vein intersections were made in the latter drill hole which correlate with the "W" and "X-Y" veins of G.C.S1. Several narrow mineralized veins occur below the "X-Y" vein in G.C.S4. These veins appear to have no counterpart in G.C.S1.

The major part of the second week was spent on discussions with the Chief Geologist regarding completed, current and future projects.


G. Krummei
Senior Geologist.

5. EXPLORATION.5.1 Underground Drilling(a) Statistical Summary

<u>D.D.H.No.</u>	<u>Drill</u>	<u>Core</u>	<u>Present Footage</u>	<u>Advanced Footage</u>	<u>Remarks</u>
AU 8-31	Kempe	XRT	18½	18½	Completed.
AU 8-32	Kempe	XRT	20	20	Completed.
AU 9-28	Kempe	XRT	48	48	Completed.
AU 9-29	Kempe	XRT	142	142	Incomplete.
AU 9-30	Kempe	XRT	54½	54½	Incomplete.
AU11-9	E500	EXT	139	47	Discontinued.
AU11-10	E500	EXT	185	185	Completed.
AU11-11	Kempe	XRT	23	23	Completed.
AU11-12	Kempe	XRT	31	31	Completed.
AU11-13	Kempe	XRT	30	30	Completed.
AU11-14	Kempe	XRT	39	39	Completed.
Total footage advanced				685	

D.D. AU8-31 - Completed at 18½ feet.

Co-ordinates 5558N/1141E, bearing 18° grid, inclination : 0°

Drilled to investigate the downward continuation of veining from 5540N/1140E on 8 level. No quartz veining was intersected.

D.D. AU8-32 - Completed at 20 feet.

Co-ordinates 5559N/1137E, bearing 307° grid, inclination : -2°.

Drilled northwestward to investigate the downward, projected continuation of veining in the sub-level stope at 5590N/1140E on 8 level. Apart from minor quartz vein intersections up to ½" wide 5", 1½" and 1½" of country quartz with sparse chlorite, trace pyrite and country rock inclusions were intersected at 6 feet, 10 feet and 11 feet respectively.

D.D. AU9-27 - Corrected bearing : 276° grid, inclination +36°, drilled in a westerly direction from co-ordinates 5436N/1168E. Vein intersections were given in the previous period report.

D.D. AU9-28 - Completed at 48 feet.

Drilled in a south-easterly direction from co-ordinates 5759N/1188E on a bearing of 235° and declination of -1° to test the southward extension of known veining displaced by faulting.

2¼" of quartz with pinite was intersected at 22½ feet.

1½" of quartz with chlorite was cut at 23 feet.

D.D. AU9-29 - Incomplete at 142 feet.

Drilled horizontally on a grid bearing of 253° from co-ordinates 5671N/1200E to explore the hanging wall of major veining at 130DA. Numerous minor veins ¼" or less, as well as country quartz were intersected.

At 18½' - 4" quartz vein with sulphides, sparse cassiterite and good wolframite.

56½' - 3" quartz vein with mica, trace galena.

70½' - 1½" quartz vein with thin mica selvage, sparse chlorite

110½' - 1¼" " " " sparse marmatite, sparse carbonate.

142' - Stopped in quartz vein of unknown width, to be continued.

D.D. AU9-30 - Incomplete at 54½ feet.

Co-ordinates , bearing and inclination to be given at a later date.

Drilled in a westerly direction to test the southward extension of veining at the 134DA sub-level.

At 12' - 2½" quartz vein with chlorite.

25¼" - 2" intersected width quartz with chlorite.

D.D. AU11-9 - Stopped at 139 feet.

Co-ordinates 5479N/1203E, bearing 309° grid, inclination +2°.

Drilled on 11 level to test for the southward extension of known veining and to assist with the correlation of intersections in previous drill holes in the area. Stopped due to poor core recovery and difficult drilling in the Aberfoyle Fault Zone at 127 feet. Numerous minor quartz veins were intersected.

At 70½" - 14" intersected width country quartz.

109¾" - 1¼" quartz-carbonate vein with fragments of country rock

115¾" - 1" quartz vein, chlorite, pinite, arsenopyrite.

116'8" - 1" quartz vein good mica selvage.

117' - 2" quartz-carbonate vein.

127-133½" - Fragments of broken quartz vein. Bad drilling conditions.

D.D. AU11-10 - Stopped at 185 feet.

Co-ordinates 5694N/1404E, bearing 69° grid, declination -29°.

Drilled to explore the downdip continuation of veining at 150 DA. Aplite was intersected at 119 feet.

Summary of major intersections -

At 2½' - 13½" broken quartz vein.

9¼" - 4¾" broken quartz vein sparse chlorite.

52½" - 25" intersected width quartz vein, sparse carbonate, trace marmatite.

105¾" - 5¾" intersected width quartz vein, sparse marmatite, sparse carbonate.

138½" - 6½" quartz vein in aplite, sparse galena, marmatite, trace galena.

152¾" - 11" zone of patchy marmatite in aplite.

162½" - 2½" zone of patchy marmatite.

D.D. AU11-11 - Completed at 23 feet.

Co-ordinates 6037N/343E, bearing 262° grid, declination -1°.

Drilled in a westerly direction on 11 level to explore the downdip extension and hangingwall of quartz veining in the area of the Western Vein Fault at 153DU.

At 15½" - 10½" of quartz with mica selvage, trace marmatite, fluorite.

18¼" - 4½" quartz with good cassiterite, good marmatite; sparse chalcopryrite.

19¾" - 4¾" quartz vein, moderate cassiterite, sulphides, thin selvage.

D.D. AU11-12 - Completed at 31 feet.

Co-ordinates 5983N/849E, bearing 249° grid, horizontal.

One of a group of shallow drill holes to explore the hangingwall of 153DU on 11 level.

4½" quartz with sparse pyrite and chlorite was intersected at 27½ feet.

D.D. AU11-13 - Completed at 30 feet.

Co-ordinates 5986N/849E, bearing 218° grid, inclination horizontal.

Drilled on 11 level to test for veining in the hangingwall of 153DU.

9½" intersected width of quartz with trace of pyrite and chalcopyrite occurred at while at 20½" 5" of quartz with sparse pinitite and chlorite were intersected.

D.D. AU11-14 - Completed at 39 feet.

Co-ordinates 5989N/849E, bearing 276° grid, inclination : +1°.

Drilled on 11 level to find the downdip extension of 153DU.

At 28' - 2¼" of broken quartz with a good mica selvage and marmatite.

28'4" - 5¼" intersected width quartz with good mica selvage, trace fluorite.

28½' - 3½" intersected width quartz with moderate cassiterite.

31' - 8" intersected width quartz, sparse pyrite, sparse carbonate, sparse muscovite.

5.2 Surface Drilling.

(a) Gipps Creek.

Drilling of G.C.84 at Gipps Creek advanced 226 feet to the present depth of 323 feet in a coarse greisenized porphyritic granite.

Major quartz-vein intersections are quoted below :-

<u>Depth</u>	<u>Description</u>
106¼'	- 5¼" quartz-tourmaline vein, sparse chalcopyrite, sparse cassiterite.
113¾'	- 3¾" quartz-tourmaline-muscovite vein, sparse chalco - pyrite, sparse cassiterite.
116¼'	- 1¼" weak quartz-tourmaline vein, sparse chalcopyrite.
125¾'	- 9 feet zone of irregular chalcedonic quartz, white quartz, fragments of altered granite, trace pyrite, ? fault.
155¾'	- 1½" diffuse quartz-tourmaline-muscovite vein, trace cassiterite.
159¾'	- 4¾" approximately quartz-tourmaline vein, chloritic, moderate - good wolframite, trace pyrite, trace molybdenite.
176'	- 2½" quartz vein, good wolframite, pinitic at base.
186¼'	- 7½" quartz-tourmaline vein, trace pinitite, pyrite and muscovite.
226¾'	- 6½" quartz-pinitite rock and brecciated granite, sparse chalcopyrite, trace marmatite, trace wolframite.
256½'	- 4" approximately quartz-tourmaline vein, sparse wolframite, trace chalcopyrite.
287¼'	- 4" diffuse quartz-tourmaline vein, trace wolframite.
314'	- 2" quartz-tourmaline vein, sparse cassiterite, chalcopyrite, pinitite.
316¾'	- 3½" quartz-tourmaline vein, trace cassiterite, sparse cpy.
319¼'	- 5" quartz-tourmaline greisen vein, sparse cpy. pinitite.
324'	- 5" patch greisen, sparse-moderate wolframite.

(b) Proposals were submitted for a programme of 5 shallow surface drill holes to explore the upper portions of the known strike length of the Pay Vein Zone at the Lutwyche prospect.

5.3 Geological.

(a) Routine underground mapping and inspections were carried out on 8, 9, 11 and 13 levels. Mineralised quartz veins exposed in the recent extension of the Lutwyche drive were mapped. In the Gipps Creek area the northern part of consolidated lease 1094/67 and the south-western corner of consolidated lease 1104/67 were traversed in detail. The compiled information was used to put forward recommendations relating to the retention by A.T.N.L. of surface exploration rights in these areas.

(b) Geological mapping of the 20 sq. mile exploration licence area 11/67 was completed and the information, together with a short report is being compiled for presentation to A.T.N.L.

EF. 3.1.1
3.2.7
1.2.4/

23rd April, 1968.

ABERFOYLE TIN N. L.

TO - Manager, (Copies to Messrs. Mason, Tester, Stevenson & Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDED APRIL 20, 1968.


Underground inspections of stopes on 8 and 9 levels continued during the week before Easter. D.D. AU9-28, AU9-29 and AU11-9 and G.C.S4 were logged progressively. AU11-10 was sited and is currently being drilled, but the core has yet to be examined in detail.

A scan by P.I.F. of the remaining 120 feet of core of G.C.S3 was completed. The results of the scan were presented and discussed in a separate report.

Mapping by Mr. Linden of the Exploration Licence area 11/67 was completed and the results compiled on appropriate maps. A short, descriptive report, which also outlines areas of further interest, was drafted by Mr. Linden. In the context of the latter work and discussions with Mr. Linden, an area of abandoned workings in greisenized granite to the south of the Mammoth Prospect was visited. Hand-sorted boulders of green pinite-quartz rock and quartz veining derived from the workings were examined but were found to contain no visible tin or wolfram mineralisation.

A short visit was also paid to an area of weak and irregular quartz veining approximately $\frac{1}{2}$ of one mile to the east of Story's Creek. No indications of tin or wolfram mineralisation were seen in the quartz vein exposures examined.

Proposals for additional, shallow surface diamond drill holes in the Lutwyche area were drafted. The latter programme of diamond drilling is designed to explore the upper reaches of the Pay Vein system of quartz veins in the area.


G. Krummel
Senior Geologist.

9th April 1968

TO - Manager. (Copies to Messrs. Tester, Mason, Glasson & Stevenson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT - FORTNIGHT ENDED 6.4.68.

Routine underground mapping and inspections on 5, 6, 7, 8, 9 and 11 levels at Aberfoyle Mine continued and data for the positioning of underground exploratory diamond drill holes were collected.

Johnson's Adit at the Lutwyche Prospect was mapped on a scale of 1" = 100 feet. Mapping was impaired by the neglected, dust-covered state of the walls.

Progressive logging of drill holes AU9-23, 24, 25, 26 and 27, as well as AU11-9, G.C.S3 and G.C.S4 was carried out. Drill sections summarizing the lithologies and veining in G.C.S1, G.C.S2 and G.C.S3 were draughted and an attempt was made to correlate veining between G.C.S2 and G.C.S3. Quartz vein density appears to be dependent upon granite lithology and is greatest in a greisenized porphyritic granite. Sampling for assay of major vein intersection in G.C.S2 and G.C.S3 continued.

A scan by P.I.F. of the core of G.C.S3 at 1-foot intervals is in progress. A depth of 380 feet has been reached. No significant concentrations of tin have so far been detected in association with any of the lithological subdivisions of the granite tested, although several limited spot highs have been recorded. Results are being recorded graphically as testing progresses.

Plummer's, Brock's and the Ivanhoe Prospects were visited and examined in connection with the detailed surface mapping of E.L. area 11/67.

During a recent visit to Hobart discussions were held at the Geological Department of the University of Tasmania with Mr. D. Patterson and his supervisor, Dr. Solomon, regarding progress and results to date of Mr. Patterson's work on samples collected at Story's Creek. Thin sections of quartzite as well as quartz and cassiterite showing 2-phase fluid inclusions were examined.

Discussions were held with the Chief Chemist and the Metallurgist at the Department of Mines Analytical Laboratory, Launceston regarding methods of testing and accuracy used in the determination of molybdenum and copper employed at the laboratory.


G. Krummei

5. EXPLORATION.5.1 Underground Drilling. - Total footage drilled 745 feet.D.D. AU9-23 - Completed at 230 feet.

Advanced 177 feet during the period and intersected numerous minor quartz veining. The following major veins were noted :-

<u>Depth</u>	<u>Description</u>
86 $\frac{3}{4}$ '	- 23" barren quartz vein.
99 $\frac{1}{4}$ '	- 1 $\frac{1}{4}$ " quartz vein, trace chalcopryrite, pyrite.
101'	- 1 $\frac{1}{2}$ " " " , abundant pyrite, trace marmatite.
109 $\frac{1}{4}$ '	- 2 $\frac{1}{2}$ " intersected width quartz-mica-pyrite vein.
159'	- 1 $\frac{1}{2}$ " country quartz.
174 $\frac{1}{4}$ '	- 6" intersected width irregular country quartz.
179 $\frac{1}{2}$ '	- 1 $\frac{1}{4}$ " country quartz.
185 $\frac{1}{4}$ '	- 2 $\frac{1}{4}$ " country quartz.
191'	- 3" intersected width quartz vein. (1w)
216'	- 21" drusy quartz vein.

D.D. AU9-24 - Completed at 35 $\frac{3}{4}$ feet.

Drilled horizontally on 9 level from co-ordinates 5434N/1272E on a grid bearing of 219° to test for veining displaced by a fault. Only minor quartz veining was intersected.

D.D. AU9-25 - Completed at 92'4".Drilled on a main drive on 9 level from co-ordinates 5488N/1055E at an angle of -1° on a bearing of 225° grid to test downward and lateral continuation of known veining. 3'4" of quartz veining with sparse pinite were intersected at 6 $\frac{3}{4}$ '. 5" of country quartz occurred at 53 $\frac{1}{4}$ '. 3 $\frac{1}{2}$ " and 8 $\frac{1}{2}$ " of country quartz were intersected at 59 $\frac{1}{4}$ ' and 60 $\frac{1}{2}$ ' respectively. 7" int. width of quartz with good mica selvedge, sparse chalcopryrite and moderate pyrite were cut at 73 $\frac{3}{4}$ '.D.D. AU9-26 - Completed at 248 feet.

Co-ordinates 5398N/901E, bearing 145° grid, inclination -1°.

Drilled on 9 level to test the southward extension of veining intersected in AU9-22 and AU9-23. Veining appears to be poorly developed in the area intersected by the drill hole. 1 $\frac{1}{2}$ " quartz with trace pyrite and sparse marmatite was cut at 143 $\frac{1}{4}$ '.

D.D. AU9-27 - Completed at 100 feet.

Bearing 96° grid, inclination 436° . Co-ordinates to be given in the next report.

Drilled from a sub level above 9 level from co-ordinates to test the updip extension of veining intersected in AU9-22, AU9-23 and AU9-25. Apart from numerous minor quartz veins, $1\frac{1}{2}$ " (int. width) of quartz with arsenopyrite, trace pyrite and trace chlorite were intersected at $62\frac{1}{2}$ ". $2\frac{1}{4}$ " of quartz with good cassiterite was encountered at 66 feet. At $98\frac{1}{4}$ " 6" of quartz with chalcopyrite, marmatite and trace cassiterite were noted.

D.D. AU11-8 - Completed at 181 feet. The drill hole, which reached a depth of 181 during the previous period, was discontinued, since satisfactory correlation was established between major vein intersection in this drill hole and those in AU9-22 and AU9-23.

D.D. AU11-9 - Incomplete at 92 feet.

Co-ordinates and orientation to be given at a later date.

Drilled from the end of the main drive on 11 level in a north-westerly direction to test the southward extension of known veining.

$2\frac{1}{2}$ " of quartz with mica, fluorite and trace pyrite were intersected at $61\frac{1}{4}$ ". 14" of irregular country quartz veining was intersected at $70\frac{1}{2}$ ".

5.2 Surface Drilling.

Drilling at Gipps Creek continued to make good progress. G.C.S3 advanced 276 feet to a final depth of 500 ft. G.C.S4 reached a depth of 102 feet in altered, weathered porphyritic granite. Drilling on the latter site continues.

The main vein intersections are given below :- G.C.S3 -

<u>Depth</u>	<u>Description</u>
242 $\frac{3}{4}$ '	- $8\frac{1}{2}$ " quartz segregation with indistinct contacts. Assay $\angle 0.01\%$ Sn, 0.03% WO_3 .
249 $\frac{1}{2}$ '	- $2\frac{1}{2}$ " quartz vein, trace cassiterite.
250'	- 2" quartz vein, trace cassiterite.
267'	- 22" Greisen, sparse cassiterite, sparse chalcopyrite. Weighted assay 0.61% Sn, 0.52% WO_3 , 1.43% Cu, 0.11% Ag.
297 $\frac{1}{2}$ '	- 1" quartz vein, trace pyrite, trace molybdenite.
410 $\frac{1}{2}$ '	- $1\frac{1}{4}$ " quartz vein, pinite.
411 $\frac{1}{2}$ '	- 2" approximate quartz vein, sparse tourmaline.

G.C.S4 -

- 27 $\frac{1}{2}$ ' - $1\frac{1}{4}$ " approximate quartz-tourmaline vein.
- 63' - $1\frac{1}{2}$ " quartz-tourmaline vein.
- 67' - $1\frac{1}{2}$ " approximate quartz tourmaline muscovite vein.

Numerous intersections of chalcedonic quartz veins were made.

5.3 Geological.

- (a) Routine underground mapping and inspections were carried out on 5, 6, 7, 8, 9 and 11 levels.

Johnson's Adit at the Lutwyche prospect was mapped.

- (b) Satisfactory progress was made with the detailed geological mapping of the 20 sq. mile area held by SCTM.N.L. Exploration Licence 11/67. Extensions of the Lutwyche vein system to the south east have been indicated. Cassiterite-bearing quartz veins were found associated with the south easterly extension of the Kookaburra Zone of Fracturing. The presence of quartz veining to the north of the Rifle Range Prospect was recorded.

26th February 1968ABERFOYLE TIN N. L.

TO - Manager (Copies to Messrs. A.A.C. Mason, D. Tester,
K. Glasson & H. Stevenson)

FROM - Senior Geologist

SUBJECT - PROGRESS REPORT FOR FORTNIGHT ENDING 24TH FEB., 1968.

Drilling at Gipps Creek continued to make satisfactory progress. G.C.S2 was completed at 350 ft in granite, G.C.S3 drilled vertically from the latter site reached a depth of 157 feet.

Summary of log : G.C.S3 :

0 - 140' - Granite, porphyritic, partly greisenized.
Fault at 128 ft.

140 - 157' - ? diorite.

Vein intersections :

57½' - ¾" quartz vein, moderate tourmaline, sparse mica, moderate WO₃.

60½' - 5" approx. quartz-tourmaline vein, greisenized, sparse chalcopyrite.

80' - Quartz-tourmaline veins, sparse pinite, muscovite, trace cassiterite.

93¼' - Quartz-tourmaline vein, muscovite sparse-moderate wolframite, sparse chalcopyrite.

98' - 10" intersected width. Quartz-tourmaline vein, moderate muscovite.

107½' - 2'8" intersected greisenized quartz tourmaline vein, sparse chalcopyrite, pyrite, broken core.

133'4"-140' - ? contact quartz vein, scattered sparse pinite, tourmaline, trace cassiterite, ? galena, chalcopyrite.

140' - 9" trace ? molybdenite in ? diorite over width quoted.

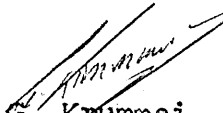
155'4" - 1¾" grey quartz vein with sparse-moderate cassiterite, streaks of pinite.

A large part of the period was devoted to the compilation and interpretation of the information accumulated during the Lutwyche re-logging programme. A geological progress report was prepared. Interpretation of the data permitted the formulation of a number of broad conclusions regarding the minerology, structure, veining and lithology and their mutual relationships at the Lutwyche prospect. But further geological work, both on a detailed and broader scale is required before the prospect can be viewed with optimism and confidence as a long-term mining prospect.

Such work could be conveniently divided into an early phase with the object of exploring in detail by further diamond drilling and underground driving, the continuity, variation in thickness and dip, grade and mutual relationships of the veins intersected in drill holes S14, S17, S19, S20, S21 and AUL3-6.

The second, long-term project would involve the determination of the entire strike length and down-dip extension of the veining associated with the Lutwyche Zone of Fracturing. Initially, such a programme could be carried out by surface drilling at regular intervals along the postulated strike of the vein zones, with detailed follow-up work as required.

At this stage, little is as yet known about the individual identity of the mineralized quartz veins at the Lutwyche prospect. It would therefore be more convenient for the purposes of further exploration and broader correlation to group veins into zones. Such zones of veining would provide more accurate targets for future exploration. All available geological information would have to be collected during any of the above stages of exploration.


G. Krummei
Senior Geologist.