

2nd July 1969

ABERFOYLE LIMITED.

TO - Manager (Copies to Messrs. Tester and Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR PERIOD ENDED 28.6.1969

1. LUTWYCHE EXPLORATION PROJECT

1.1. Underground Exploration - 13 level driving.

Driving on an Old Battery Type Vein to the N.E. off 13 level, S.E. drive advanced 34½'. The course of the vein is somewhat erratic but generally north-easterly. The vein maintained its near vertical dip along the strike length exposed and showed moderate tin-wolframite-sulphide mineralisation. A bedding fault previously exposed in the 13 level S.E. drive displaces the vein by minor amounts. Vein width diminished progressively from 12-3" in the most recent exposure. The drive is now heading for an area of quartz veining, intersected at 180 feet in AU13-15.

Driving along strike to the south west on the same vein advance 82 feet and was temporarily halted when the steeply dipping vein pinched out. Test drilling intersected 5½" of quartz veining with cassiterite and wolframite approximately 80 feet ahead of the present SW drive face.

Rising on section line IS advanced 122 feet along vein from commencement on a well developed 11-13" vein and subsequently on its hangingwall echelon. Both veins show areas of good wolframite and lesser cassiterite mineralisation, with abundant sulphides as well as pinitite, muscovite and kaolin. The average dip of this vein system near 13 level is 40° and increases to about 50° in the upper part of the rise. This brings the vein in line with a 10¾" quartz intersection in S21.

1.2. Underground Drilling -

<u>D.D.Hole No.</u>	<u>Co-Ords.</u>	<u>Direction</u>	<u>Dip</u>	<u>Depth</u>	<u>Comment</u>
AU13-34	7926N/2359E	47°	0°	249½'	Pattern hole on section 3N
AU 13-35	6915N/2394E	131°	-1°	123'	Vein test
AU13-36	7195N/2532E	148°	0°	155½'	Vein test
AU13-37	7568N/2723E	137°	0°	143'	Vein test

AU13-34 - The last of the current pattern drill holes was completed at 249½ feet. Several mineralised veins were intersected, but were not noted in last months reports -

- 124' - 4½" quartz with sulphides. Assay 0.17%Sn, 0.15%WO₃.
 161½' - 8" intersected width quartz, good sulphides, sparse cassiterite. Assay 0.72%Sn, 0.10WO₃.
 167¼' - 3¾" quartz, good wolframite, sparse pyrite. Assay 0.01%Sn, 4.12WO₃.
 181¼' - 11½" IW (?2½" T.W) quartz, marmatite, chalcopyrite, sparse cassiterite. Assay 1.32%Sn, 0.08%WO₃.

Several 16W intersections of probably country quartz were made between 210 - 224 feet.

AU13-35 - Drilled south-easterly to test for strike continuity of an Old Battery Type Vein currently being explored by driving. Only two minor vein intersections were made outside the target area.

AU13-36 - Drilled south-easterly to confirm negative results from AU13-35. 5½" of quartz with cassiterite and wolframite was intersected in the target area about 80 feet ahead of the present S.W. drive face.

AU13-37 - Drilling is in progress to test for the possible presence of Old Battery Type veining about 200 feet ahead of the present N.E. drive face. The following intersections were made to date -

- 20' - 4½" approx. quartz with pinite.
 128¾' - 3¼" quartz vein with good cassiterite.
 138-1/3' - 2½" quartz vein, moderate wolframite.

The drill hole must be brought to completion before the significance of the latter two drill holes can be assessed.

1.3. Surface drilling -

S36 was drilled to a final depth of 1,400 feet. A zone of generally narrow, sparsely mineralised, mostly "Lutwyche Type" quartz veining was defined between approximately 919 and 1,345 feet. Veining in this zone is generally less well developed than that in the same zone intersected in S34 and S35, and reflects the gradual deterioration of veining in a north-westerly direction indicated by 13 level development. The projected path of the 13 level N.W. drive lies in the hanging wall portion of this zone of veining.

A detailed appraisal of the drilling results in the north western part of the Lutwyche Area is now being undertaken.

2. ABERFOYLE MINE -

Routing geological mapping, core logging and geological appraisal continued. Sampling of cassiterite for fluid inclusions studies has been completed.

20/5/1969

ABERFOYLE LIMITED.

TO - Manager (Copies to Messrs. Tester and Glasson).
 FROM - Senior Geologist.
 SUBJECT - PROGRESS REPORT FOR PERIOD ENDED 31st MAY, 1969.

1. LUTWYCHE EXPLORATION PROJECT.1.1 Underground Exploration - 13 level driving.

Driving in the north-west advanced 80 feet close to a water bearing fault. Veining exposed encompassed a series of narrow 1-3", sparsely mineralised, complex, Lutwyche-type structures. In the south east drive, exploratory driving commenced on an 15-18" Old Battery Type Vein, with advances of 38½ feet S.W. and 15 feet N.E. The dip of this vein varied about the vertical. Tin-wolfram mineralisation, though generally scattered, was consistent. The drive to the N.E. exposed a 6" Lutwyche type vein and a 4" Aberfoyle type vein, each carrying cassiterite-wolframite-sulphide mineralisation. The latter vein may correlate with the Pay Vein exposed in the main 13 Level X-cut.

Grouting equipment is being assembled and a team of men was picked for training in grouting techniques for the purposes of -

- a) Sealing off high pressure water flows on 13 level to ease the load on pumping installations and to permit resumption of drilling of a number of exploratory holes on 13 level.
- b) On 13 level to seal off water courses ahead of drives etc. for safer penetration by mining crews.
- c) Stoppage of major water flows at Aberfoyle and Storeys Creek Mines.

1.2 Underground Drilling -

<u>D.D.Hole No.</u>	<u>Section Line</u>	<u>Direction</u>	<u>Depth</u>	<u>Comment</u>
AU13-20	5S	S.W.	101½'	Completed.
AU13-31	6S	S.W.	102½'	Completed.
AU13-32	6S	N.E.	320'	Completed.
AU13-33	3N	S.W.	94'	Suspended.
AU13-34	3N	N.E.	250'	Completed.

AU13-20 - Extension of this drill hole did not locate veining which would correlate with 12" of mineralised quartz intersected in AU13-31.

AU13-31 - 12" possible true width mineralised quartz at 91½' may correlate with the "Pay Vein" in the 13 level main X-cut.

AU13-32 - Only minor, intermittent veining was intersected.

225½' - 10½" approx. true width quartz - possibly country quartz. Assay 0.01%Sn, 0.04%WO₃.

AU13-33 - Intersected sparse, scattered, minor veining in the hangingwall of the N.W. drive and was stopped by a moderate flow of water at high pressure at 93½'.

AU13-34 - Generally minor veining to date. 4½" of quartz with sulphides was cut at 124½'.

1.3 Surface drilling -

S36 reached a depth of 1042 feet. 5½", 4" and 9" of barren quartz occur at 449', 724' and 741' respectively. Indications of mineralised quartz veining appear from 919' with 2¾" quartz with muscovite. Further veining occurs at 958' (2" with cassiterite) and 1015' (4" with chlorite). Intersection angles indicate that these intersections are "Lutwyche" type veins.

2. ABERFOYLE MINE -

Routine geological mapping, core logging, and geological interpretations continued. An underground exploratory diamond drilling programme for 1969/1970 was drawn up. The main object of this programme is to define the extent of the Double Eastern Vein system as well as the southern, northern and downdip limits of the Western Vein. Normal development drilling is also catered for.

* { Some difficulty is being encountered in reading filling temperatures of fluid inclusions in cassiterite from Aberfoyle Mine due to their minute sizes. However, several results to date reflect filling temperatures of the order of 400°C.


G. KRUMMEI

Senior Geologist.

REF. 3.1.1
1.13.2
1.13.3

19th May, 1969

ABERFOYLE LIMITED

TO - The Manager (Copy to Messrs. Tester & Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR PERIOD ENDED 3.5.1969.

1. LUTWYCHE EXPLORATION PROJECT.

1.1 Underground Exploration

13 Level driving - Driving to the S.E. advanced 75' to enable a drilling base to be established on section line 6S. Initially, driving was guided by a narrow, quartz-kaolin-pinite-carbonate-muscovite vein. Driving proceeded on a compass bearing where the latter fissure faded and changed strike direction. A 4" Aberfoyle type vein and a 4½" Old Battery type vein with sparse cassiterite and showings of marmatite were exposed. The latter vein was shown to be a complex structure consisting of a split dipping 45° N.W. off a "type vein" with a vertical or very steep dip to the S.E.

On completion of the drill chamber driving was resumed in the N.W. end and advanced 59½' on complex, generally narrow vein structures, with variable content of Sn, WO₃, sulphides and gangue. The latter structures showed a broad "en-echelon" (predominantly, but not exclusively right-hand) arrangement.

Several polished sections of Lutwyche ore material were briefly examined under the microscope.

1.2 Underground Drilling

<u>D.D.Hole No.</u>	<u>Section Line</u>	<u>Direction</u>	<u>Depth</u>	<u>Comment</u>
AU13-19	00	N.E.	270	Water; stopped.
AU13-29	2N	N.E., -30°	56	Completed; water.
AU13-30	2N	N.E., +19	88	" no water.
AU13-31	6S	S.W.	50½	To be extended.
AU13-32	6S	N.E.	166	In progress.

Information from AU13-19, 25, 27, 28 and 29 defined in the footwall of the N.W. drive an approximate E.-W. trending, water channel dipping at 59°S. Negative results in AU13-28 indicate that this channel does not extend ahead of the projected course of the drive. However, a change in strike of this channel or offshoots from it could still present a water hazard ahead of the N.W. drive.

AU13-31 - Intersected only country quartz and is to be extended to trace strike continuity of Aberfoyle/Old Battery-type veining exposed in the S.E. drive between sections 5S and 6S.

AU13-32 - Pattern test hole into the footwall of the S.E. drive on section 6S intersected only sparsely developed, narrow veining to date.

At 56½' - 1¼" quartz vein, sparse muscovite.

136½' - 3¼" intersected width quartz, trace pyrite.

157' - 2¾" intersected width quartz vein, vuggy, traces of pinite and muscovite.

1.3 Surface Drilling

S35 was completed at 980' without intersecting additional major quartz veining. The zone of mineralised veining in S35 appears narrower than its correlative in S34.

S36, sited on section 12S to test the downdip extension of veining cut in S35, advanced 264 feet. The drill hole is expected to enter the target zone of veining at about 900'.

2. ABERFOYLE MINE

Routine geological mapping continued, but exploratory drilling capacity, which was aimed at defining southerly extensions to the Western Vein Fault series of vein, was somewhat reduced. This was due to mechanical difficulties and manpower re-allocations.

40 scale fact sections of vein geology and faulting at 100-foot intervals across the Aberfoyle Mine have been completed and are in use.

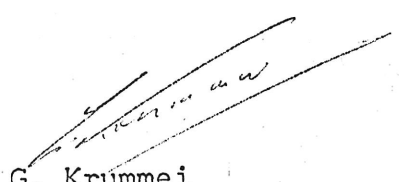
Samples of crystalline cassiterite were collected from various areas of the mine in order to investigate the trend of the geothermal gradient of the Aberfoyle Vein System using fluid inclusions in cassiterite. This work is carried out in liaison with Dr. M. Solomon of the Geology Department, University of Hobart. It is hoped to

- (a) relate any patterns which may arise from this investigation to known structural, lithological or mineralogical features of the Aberfoyle vein system.
- (b) to evaluate any successful outcome of this study in terms of possible usefulness as a prospecting tool for the search of "blind" lode systems and aplite in the mine area.
- (c) Usefulness of this method for regional prospecting using study material from outcrop and diamond drill holes.

This study may be supplemented at a later date by investigations of the lateral and vertical distribution of trace elements (especially cobalt) in pyrite of primary origin.

3. SURFACE EXPLORATION - E.L. 11/67

Tin values for the stream sediment samples from E.L.11/67 extension are now available. Concentrations of tin in the stream sediments in the area are generally low. The highest incidence of tin (20 ppm) occurs in conjunction with high Cu (33 ppm) and high Zn (565 ppm) in an area along strike to the S.E. of the Lutwyche prospect. This association of elements suggests that detailed geological mapping may be required in the latter area before the right to prospect in the E.L. 11/67 S.E. extension is relinquished. A comprehensive report on areas for future exploration in E.L.11/67 has been prepared.



G. Krummei
Senior Geologist.

REF. 3.1.1
1.13.2
1.13.3

ADERFOYLE LIMITED.

28th April, 1969.

TO - Manager (Copy to Messrs. Tester & Glasson).
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR PERIOD ENDED 5.4.1969.

1. Lutwyche Exploration Project

1.1 Underground Exploration

13 Level driving - Exploratory development driving was resumed in the S.E. drive and advanced 43½ feet, initially following a ¼-½" fracture lined with quartz, carbonate, muscovite, clay and very minor sulphides. This structure appears to be a termination of a minor Lutwyche-type vein. At 28' (approx.) a 4-7", Sn/WO₃-bearing, Aberfoyle type vein dipping 35° W. was exposed. At 43' a 4-5" vein striking N.E. has a dip of 45° to the north west.

The rise on section 13 advanced to 30' and an ore chute is being installed.

1.2 Underground drilling

Excavations on a large drill chamber was completed. Pattern drilling continued in the N.W. drive.

<u>D.D. Hole No.</u>	<u>Section Line</u>	<u>Direction</u>	<u>Depth</u>	<u>Comment</u>
AU13-25	1N	NE	177½	Water; suspended
AU13-26	2N	SW	161	Completed.
AU13-27	2N	NE	65	Water; suspended
AU13-28	2N approx.	345° grid	103½	Water test negative.

AU13-25 - Intersected frequent minor mineralised quartz veining. At 177½' a high pressure water area prevented further drilling.

70¼' - 2¼" quartz, sparse muscovite; Assay 0.03% Sn, 0.05% WO₃.
91¾' - 3½" quartz, good marmatite; Assay 0.05% Sn, 0.02% WO₃.
135¾' - 3¼" quartz, pinite, wolframite; Assay 0.06% Sn, 4.46% WO₃.

Hydrogeology - At 177½' - 380 p.s.i. partial pressure; flow 60 gals/min.

AU13-26 - Only 2 significant veins were intersected.

6' - 5½" quartz, sparse sulphides; Assay 0.03% Sn, 0.03% WO₃.
94¾' - 5¼" intersected width quartz, good cassiterite; vein associated with zone of water flow at 3 gals/min.

An expected water zone at about 140' was not intersected.

AU13-27 - Intersected strong water flow at high pressure at 65' (p.s.i. 370. partial pressure, 100 gals/min. minimum) which prevented further drilling.

AU13-28 - Co-ords. 7824N, 2402E approx. bearing 345° grid, horizont. Collared to test for water ahead of the current 13 level N.W. drive face and along strike from the intersections in AU13-25 and AU13-27. The hole is virtually dry.

1.3 Surface drilling

S35 is now at 968 feet and has defined a zone of generally narrow, mineralised veining $\frac{1}{2}$ -2" between 670-920'. Intersection angles indicate that most of the veins could belong to the "Lutwyche" type, lying within a zone which is somewhat narrower than that intersected in S34.

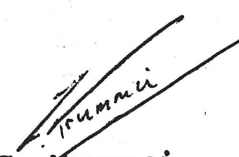
2. Aberfoyle Mine

Routine underground mapping and core logging continued. Drilling on 9 level south continued, but provided no conclusive evidence for the presence of the Western Vein in the extreme south of the mine.

The compilation of "40-scale" fact sections of veining and faults at the Aberfoyle Mine is virtually completed.

3. Surface Exploration - E.L.11/67

High concentrations of zinc and an increase in the ppm content of copper were noted in samples from an area directly along strike to the SE from the Lutwyche zone of veining in the extension to E.L.11/67 to the east. Results for tin are still awaited and will have to be compared with Cu/Zn values before a full appraisal of their geochemical significance can be made.


G. Krummei
Senior Geologist.

ABERFOYLE LIMITED

TO - Manager (Copies to Messrs. Mason, Tester & Glasson)
FROM - Senior Geologist.
SUBJECT - PROGRESS REPORT FOR PERIOD ENDED 8.3.1969.

1. Lutwyche Exploration Project.1.1 Underground Exploration -

13 Level driving - No driving progress was recorded as crews were employed on sump cutting and drill chamber excavation for deep drilling in the area 6935N/2385E. Initial rise-cutting on section line 1S advanced 25 feet. A well developed vein 14-17" maximum with cassiterite, wolframite and sulphides and dipping 37-41° is seen in the N.W. wall. In the S.E. wall the vein structure is complex, consisting of a series of short, sub-parallel sheeted, mineralised quartz layers and splits, frequently connected by narrow "tails"; widths range from 2-8". The average dip of this zone approximates the vein dip on the N.W. wall.

1.2 Underground Drilling -

<u>D.D. Hole No.</u>	<u>Section Line</u>	<u>Direction</u>	<u>Depth</u>	<u>Comment</u>
AU13-22	3S	N.E.	281½	Completed.
AU13-23	S.E.Drive face	S.E.	102½	Water test.
AU13-24	1N	S.W.	72½	

AU13-22 - Completed at 281½ feet. Did not intersect postulated water zone penetrated by AU13-15 and AU13-21. Veining is generally poor and does not relate very closely to veining in the main X-Cut nearby.

Additional major intersections are -

247¼' - 2½" intersected width quartz, with muscovite, trace cassiterite.

266¼' - 2¾" intersected width quartz, wolframite, sparse sulphide. Assay 0.06% SN, 0.04% WO₃.

AU13-23 - Drilled E.S.E. from the face of the S.E. drive (7166N, 2716E) to test for a water zone projected from AU13-21 and AU13-15. A trickle of water under high pressure was intersected in an area between 64 and 78 feet, close to the target area.

Several minor quartz veins were encountered.

45½' - 7¾" (calc. true width) quartz vein with marmatite, pinite. Assay 0.05% Sn, 0.04% WO₃.

AU13-24 - Completed at 72½ feet.

A Pattern drill hole to the south west on section line 1N which intersected only sparse quartz veining; indicating only minor development of quartz veining in the hangingwall of the N.W. drive to date.

7' - 2¾" intersected width quartz, trace muscovite to date.
50½' - 2" quartz; vuggy.

1.3 Surface Drilling -

<u>D.D. Hole No.</u>	<u>Present Footage</u>	<u>Comment</u>
S34	1002	Completed.
S35	367	In progress.

S34 - Completed at 1002 feet on section line 7N.

Further vein intersections were made within the zone of mineralised veining penetrated last month. Widths range from 2¼"-14", and tin/wolfram assays are generally low. Details in Manager's report period ending 8.3.1969.

The major intersections are -

817½' - 6½" quartz vein. 0.07% Sn, 0.02% WO₃.

825' - 14" intersected width quartz. 0.17% Sn, 0.02% WO₃.

925½' - 5½" quartz vein. 0.03% Sn, 0.03% WO₃.

Hydrogeology - standing water level in drill hole on 5.3.69
346' below collar of diamond drill hole.

The extension of this zone of veining at about the same R.L. to the N.W. will be tested by S35.

S35 - In progress at 367 feet.

No significant veining has been intersected to date and drilling continues.

2. Aberfoyle Mine.

Routine underground mapping and core logging continued. Drilling on 9 level south indicated the southward continuity of the Western Vein Fault structure and associated quartz veining. Mineralisation appears to be poor. The draughting of 40 scale fact sections of veining and faults at 200' intervals across Aberfoyle Mine is in progress. These will assist in structural studies, the layout of future diamond drill programmes and mining planning.

Surface Exploration -

The central portion of the Rifle Range Prospect was mapped by Mr. Eshuys and his findings were summarised in note form. The detailed mapping, which is survey controlled did not reveal any major "in situ" veining, though unmineralised quartz float is very common in the area. The mapping is incomplete in the N.W. and S.E. of the area due to Mr. Eshuys' departure from the field.