FRANCES CREEK IRON

MINING CORP. PTY. LTD.

Report on an Occurrence of Copper on 1745,
Authority to Prospect No. 1745,
Northern Territory.

CONTENTS

January 31, 1968.

Kenneth McMahon & Partners Pty. Ltd.

2. CONCLUSIONS AND RECOMMENDATIONS

From the results of the field survey and the soil analyses, the area is not considered promising.

It is recommended that the Mine Manager locate several exploratory wagon drill holes adjacent to the railway cutting to test the vein.

Should positive drilling results be achieved, it is recommended that a limited induced polarisation survey be carried out to locate further mineralisation.

1. SUMMARY

During the laying of the railway to Frances Creek, a thin vein carrying pyrite and chalcopyrite was observed, as a result, Authority to Prospect No. 1754 covering 17 square miles was taken out over the area.

Kenneth McMahon & Partners Pty. Ltd. were retained to report on the geology of the area and make further recommendations. A geologist visited the area on 20th and 21st November, 1967, and took a number of stream sediment samples which were assayed for copper and zinc. Results were poor, the highest values being 22 parts per million for copper and 49 parts for zinc. A small showing of malachite was located, a sample of which assayed 0.5% copper.

Recommendations are made for further work.

3. GENERAL GEOLOGY

The area of interest which is about seven miles south-west of the Frances Creek Iron Mine, lies along the contact of the Cullen Granite and the Burrell Creek Formation.

The Burrell Creek Formation is the upper member of the Finness River Group and is of Lower Proterozoic Age. At the contact it is represented by a fine-grained cordierite hornfels, which when fresh has a distinct purplish tinge. On weathered surfaces it has a marked spotted appearance, the spots being composed of a mixture of biotite and sericite and representing weathered cordierite porphyroblasts.

Further away from the granite this formation is represented by fissile shales which have only been slightly regionally metamorphosed.

Within 100 feet of the granite contact, magnesite can commonly be found in cracks in the cordierite hornfels. This probably represents the excess magnesium left over after the conversion of the siltstones to cordierite hornfelses.

The Cullen Granite is also of Lower Proterozoic age and on a regional scale appears as a composite intrusion ranging in composition from adamellite to granite.

In the area concerned it appears as a fairly coarse-grained pinkish biotite granite which occasionally contains very large phenocrysts of potash felspar.

4. ECONOMIC GEOLOGY

On visiting the railway cutting, it appeared that the vein carrying copper mineralisation had been covered by crushed fill used in the construction of the railway. No evidence of copper mineralisation was found in any part of the exposed cutting. The only recognisable mineralisation in the area was small amounts of magnesite in cracks in the cordierite hornfelses.

Quartz veining is present near the railway cutting and a small malachite showing was found associated with one of these veins about 400 yards north-west of the railway cutting. A sample of this was taken and assayed 0.5% copper. No other mineralisation was found in the area.

A series of sediment samples was taken from streams within a radius of $1\frac{1}{2}$ miles from the reported find (see map). In all cases the samples were taken within six inches of the surface, and wherever possible the finest grained sample was taken.

The samples have been analysed by Atomic Absorption for copper and zinc and results are tabulated below. (Sample 20 is a green clay found in the exposed granite face at the railway cutting).

Sample No.	Cu (p.p.m.)	Zn (p.p.m.)
1	11	21
2	18	20
3	16	25
4	13	20
5	11	18
6	14	21
7	14	20
8	14	23
9	18	22
10	22	25
11	18	28
12	6	11
13	4	8
14	6	13
15	11	21
16	6	12
17	9	29
18	4	19
19	8	20
20	13	49
Limit of Detection	2	1

FRANCES-CREEK IRON MINING CORP. PTY. LTD. (FIMCO)

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7th February, 1968.

The Director of Mines,
N. T. Administration,
DARWIN.

Dear Sir,

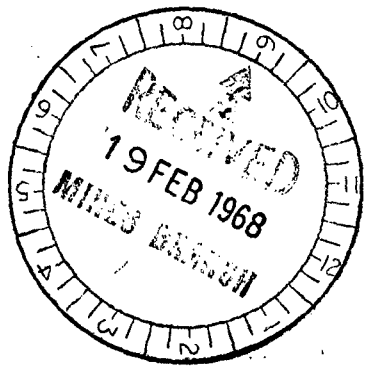
A. P. 1754.

Further to our letter of 16th November last, we have pleasure in enclosing report on occurrences of copper in respect of the above Authority to Prospect from Kenneth McMahon & Partners Pty. Ltd., Mining Consultants engaged by this Company.

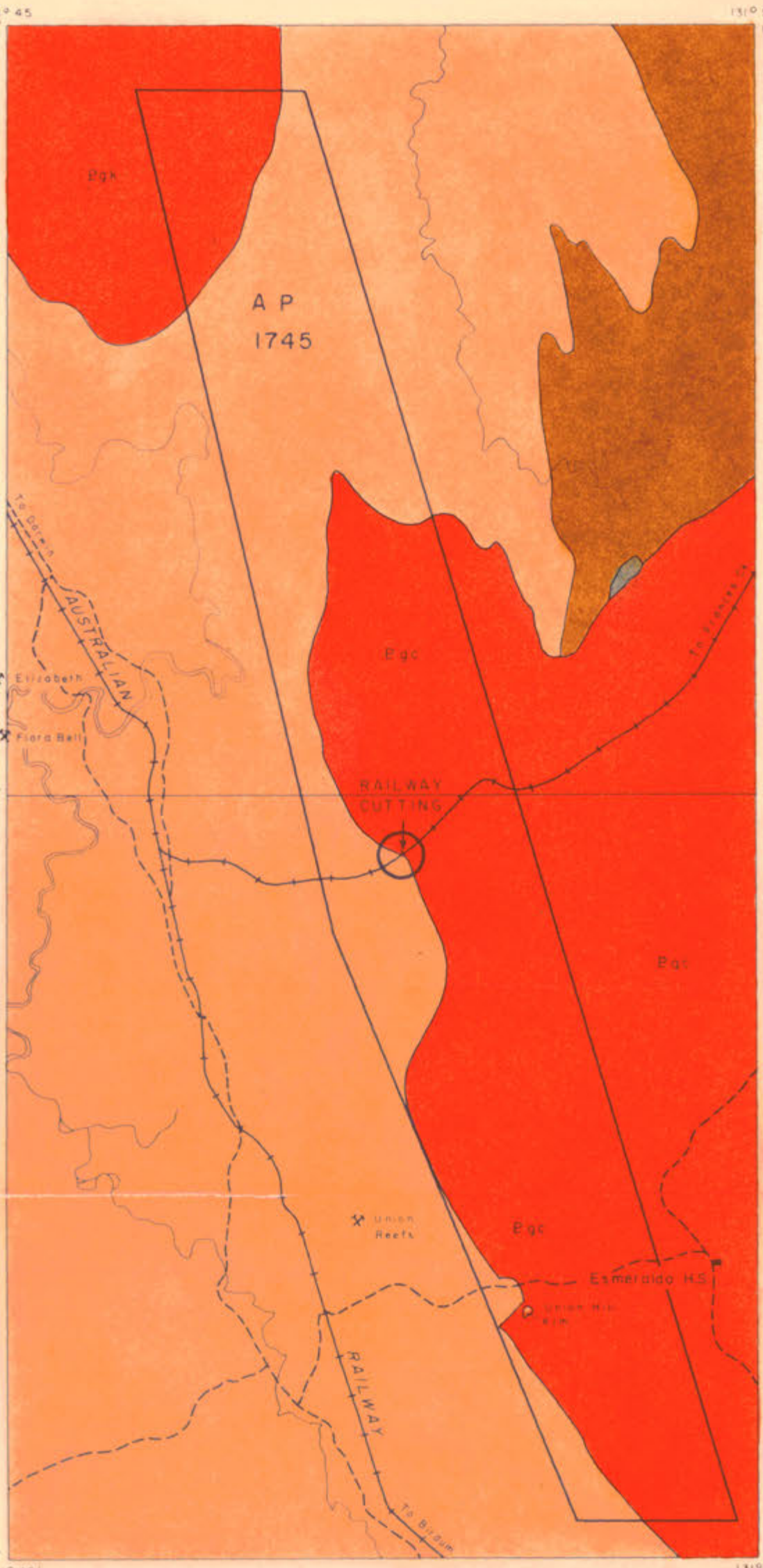
Yours faithfully,
FRANCES-CREEK IRON MINING CORP. PTY. LTD.

Neil M. Barrell
Managing Director

M1
M2
M6 R.9s.



131° 45'
13° 30'
131° 50'
13° 35'
13° 40'
13° 45'



REFERENCE

LOWER CRETACEOUS	Klm	Mullaman Beds — *Sandstone and conglomerate.*
LOWER PROTEROZOIC	Pgc	Cullen Granite — *Biotite hornblende granite.*
	Pgk	McKinlay Granite — *Biotite hornblende granite.*
		Altered basic intrusives
		Burrell Creek Formation — *Siltstone, greywacke, slate, hornfels.*
		Golden Dyke Formation — *Siltstone and chert.*

NOTE — Quaternary soil and alluvium not shown.

Geological boundary

Railway

Vehicle track

Creek

Boundary A.P.

N

0 1 2 3 4

SCALE OF MILES

FRANCES-CREEK IRON.

~~Wandaroo~~ Mining Co.

COPPER PROSPECT IN THE RAILWAY CUTTING NEAR FRANCES CREEK NORTHERN TERRITORY

SCALE 1mile = 1"

DATE FEB, 1968.

PLATE I

Kenneth Mc Mahon & Partners Pty Ltd.

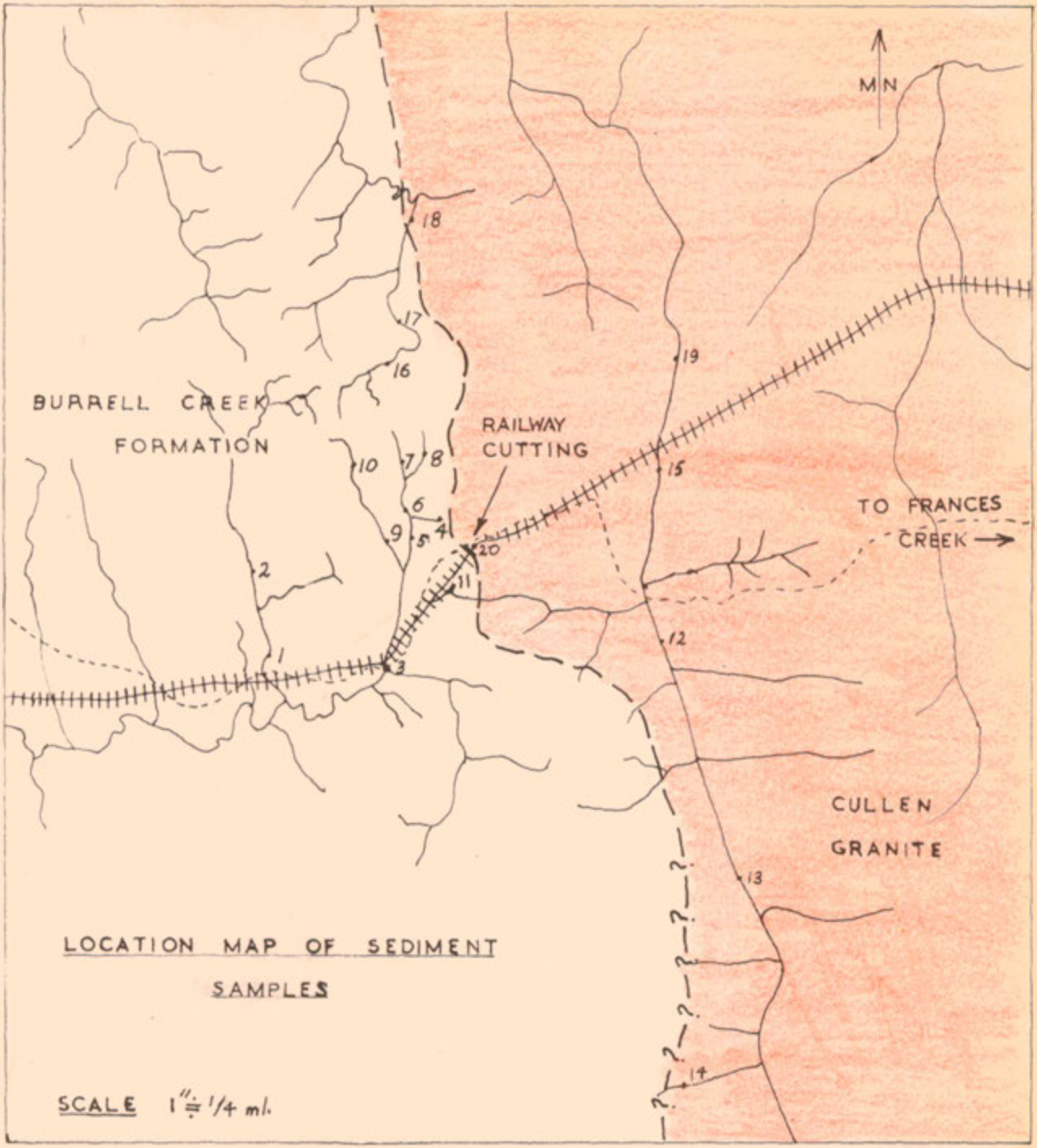

N
BURRELL CREEK
FORMATION
RAILWAY
CUTTING
TO FRANCES
CREEK
CULLEN
GRANITE
LOCATION MAP OF SEDIMENT
SAMPLES
SCALE 1" ≈ 1/4 mi.

Plate 2.