DEPARTMENT OF MINES
SOUTH AUSTRALIA

Report on

MANGANESE DEPOSIT

MINERAL CLAIM 1621, NARINA STATION, OUTSIDE COUNTIES

(Mrs. V.M.M. Lyford)

by

L. G. Nixon
Geologist

MINERAL RESOURCES SECTION

CONTENTS

Map No.	Title	Scale
S 2667	Manganese Deposit, Mineral Claim 1621, Narina Station 26 miles north-east of Blinman V.M.M. Lyford.	1" = 60 chains.

Rept. Bk. No. 51/147
G.S. No. 1886
D.M. 351/51

14th December, 1960.

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(Mrs. V.M.M. Lyford)

1. ABSTRACT

Small rich lenses of manganiferous minerals occur in Cambrian sediments near the northern boundary of M.C. 1621. Reserves in the lenses are limited to a few tons. Because of lack of reserves, the isolated position of the claim, the rugged nature of the terrain and the tough dense massive rock through which the road is to be located; road construction costs are expected to be high and out of proportion to the value of the manganese ore in sight. No recommendation is made to support the application for a road to be made to the claim.

2. INTRODUCTION

Following a request by Mrs. Lyford for assistance in construction of a road to the above manganese claim, (located on the top of a bold bluff of limestone, approximately 1 mile southerly from Narina Station, on the western side of the road to Blinman, which is approximately 26 miles to the south westerly) a geological inspection over the claim was carried out on 1/11/60. Samples collected from the mineralised area were submitted to A.M.D.L. and the laboratory results are appended to this report.

An earlier attempt to visit the claim was abandoned when heavy rains made the road impassable.

3. GEOLOGY

The general geology of the area is outlined on the Cadnia sheet of the Geological Atlas 1 mile series, showing a broad synclinal fold of Cambrian sediments occupying the centre of the sheet and dislocated by E-W trending faults. The lease is located on the eastern side of the fold.

Manganiferous minerals including pyrolusite and psilomelane occur along the bedding planes in certain of the limestone horizons, and is fairly common in this stratigraphic position in the northern Flinders Ranges.

The beds dip 22° towards 235°, and near the northern boundary of the lease are puckered into a small synclinal structure forming a distinct lode like feature of irregular width along a bearing of 050° parallel to the main joint system as seen on the air photographs. Three isolated small rich lenses of high grade manganese occur along this structure; shallow pits have been dug on two of these lenses to depths of between 18 ins. and 24 ins. where pieces of country rock appear in the walls and floors.

From this brief inspection it is inferred that the manganese oxides which occur along bedding planes in certain horizons in the limestone formation have been concentrated in portions of a small synclinal fold, probably associated with a joint fracture forming small rich superficial pockets of manganese ore.

Because of the rugged terrain, the isolated position of the claim, the tough dense massive type of rock through which the road must be cut and the probability of high construction costs and the small size of the deposit no recommendation is made supporting the application for assistance for a road to be made to the claim.

4. CONCLUSIONS

Varieties of manganese oxides occur in a small synclinal structure in limestone sediments of Cambrian age as rich isolated comparatively small lenses of shallow depth.

Reserves are limited to a few tons or tens of tons and are inadequate to justify the construction of a road through rugged terrain in such an isolated region.

No recommendation is made to support the applicant's request for assistance in the construction of a road to the claim.

14/12/60
LGN:AGK

L.G. Nixon - Geologist
MINERAL RESOURCES SECTION.

APPENDIX A PETROLOGICAL REPORT

AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

REPORT OF INVESTIGATION

YOUR REFERENCE:	L.G.N.28-31/60. (P553-556/60).
MATERIAL:	Rock Samples
LOCALITY:	L.G.N. 28-30/60: Narinna Stn. 1 m. S.W. of homestead Grid J 5.
DATE RECEIVED:	9th November 1960. L. Nixon, Department of Mines.
INFORMATION REQUIRED:	Identification of mineral and components and rock types.

RESULTS

P553/60. (L.G.N.28/60) (T.S. 7181, P.S. 6075).

The sample consists almost entirely of pyrolusite and quartz. The quartz occurs as interlocking grains of fine sand grade, and the sample appears to have originally been a sandstone which has undergone impregnation by fine pyrolusite. A trace of a carbonate mineral is also present.

P554/60. (L.G.N.29/60) (T.S. 7180, P.S. 6076).

These samples consist of limestone which has been impregnated with pyrolusite. The limestone has been recrystallised and consists of interlocking anhedral crystals of calcite. Some areas have not undergone complete recrystallisation, and here the limestone consists of very fine calcite with some organic material. These fossil remains are possibly sponge spicules and are largely replaced by cryptocrystalline silica.

Pyrolusite is confined to the crystalline portions of the rock, and occurs as masses of fine radiating needle-like crystals.

P555/60. (L.G.N.30/60) (T.S. 7182, P.S. 6077)

This is also a sample of limestone into which oxides of manganese and iron have been introduced. Two different types of limestone are visible, one of which is very rich in organic remains and the other which contains no evidence of organic material.

The organic limestone contains abundant fossil remains which appear to be sponge spicules, bryozoa and perhaps echinoid spines. The calcite in these has been Recrystallised and some have undergone partial replacement by amorphous and cryptocrystalline silica. The matrix consists of very fine calcite. The non-organic type of limestone consists of fine calcite, recrystallised in parts. There is a definite break between the two types. This also is evident in hand specimen and may represent a penecontemporaneous erosional break. Manganese and iron oxides have been introduced and occur as fine pyrolusite and limonite respectively. Some has been introduced along the line of weakness due to the boundary between the two rock types and stands out as a resistant band on the weathered surface of the hand specimen. The oxides have also been introduced along parting planes in the remainder of the specimen and have spread out in typical dendritic form.

Investigated by: R. A. Both

Officer in Charge Mineralogy & Petrology Section: A.W.G. Whittle

(Sgd.) A. Whittle

L. Wallace Coffer
DIRECTOR

30th November, 1960.

APPENDIX B

CHEMICAL & SPECTROGRAPHIC ANALYSIS

AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

REPORT OF ANALYSIS

YOUR REFERENCE:	AS UNDER
DATE RECEIVED:	9th November, 1960. L. Nixon Dept. of Mines.
METHODS OF EXAMINATION:	Chemical and Spectrographic Analysis.

RESULTS

Mark *	A 1692/60	A 1693/60
Manganese Oxide (MnO_2)	21.2%	57.2%

Mark *	Approx. concentration	A1692/60	A1693/60
Mihor	1 - 10%	Al,Ca,Si,Fe	Ca, Si,Fe
Heavy Trace	0.1 - 1%	Ba	Al
Trace	0.01 - 0.1%	Pb,V,Ti,Cr, Sr.	Sr, Ba,Cr.
Faint Trace	10 - 100 ppm.	Ni, Co.	V,Ni,Co,Pb
Very Faint Trace	1 - 10 "	B	Ti, Mo

Other elements not detected at limits quoted in accompanying table except alkalies which were not sought.

Locality: A1692/60. Narinna Station, 1m. S.S.E. of H/S.)
A1693/60 " " " " " ")

Spectrographic Analysis by: A. B. Timms
Analysis by: S.A. Alexander & K.J. Heinrich
Officer in Charge Analytical Section: T. R. Frost.

(Sgd.) Thomas R. Frost
L. Wallace Coffer
DIRECTOR

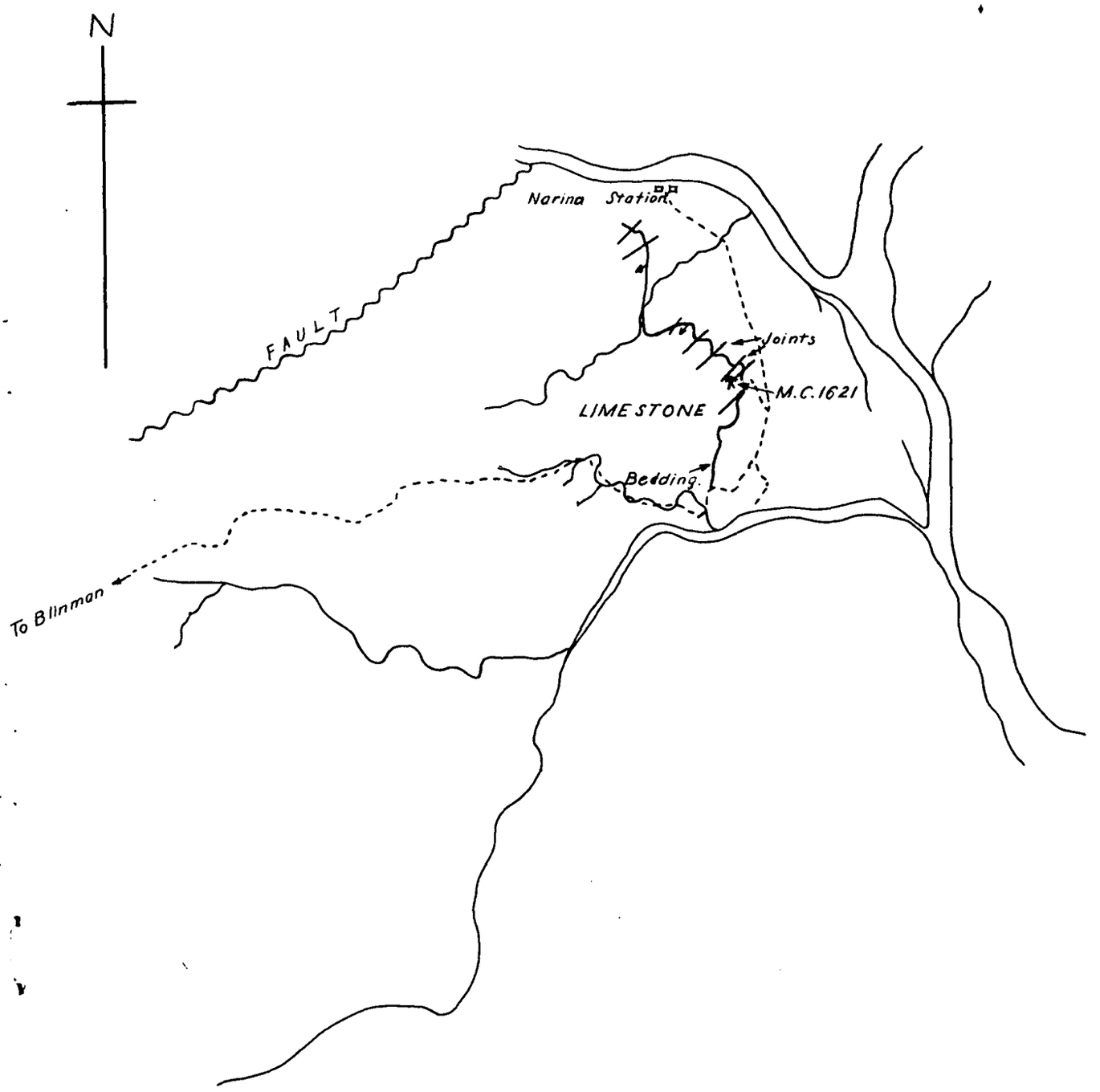
23rd November, 1960

SPECTROGRAPHIC ANALYSES

Detection-Limit Concentrations of Elements

D.C. Arc Excitation

ELEMENT	%	P.P.M.	ELEMENT	%	P.P.M.
Ag	0.00005	0.5	Na	0.00005	0.5
Al	0.0002	2	Nb	0.003	30
As	0.01	100	Nd	0.001	10
Au	0.001	10	Ni	0.0002	2
B	0.001	10	Os	0.005	50
Ba	0.0002	2	P	0.02	200
Be	0.0005	5	Pb	0.0002	2
Bi	0.0005	5	Pd	0.001	10
Ca	0.0002	2	Pr	0.001	10
Cd	0.001	10	Pt	0.005	50
Ce	0.04	400	Rb	0.0001	1
Co	0.0002	2	Re	0.01	100
Cr	0.0001	1	Rh	0.001	10
Cs	0.0002	2	Ru	0.001	10
Cu	0.00005	0.5	Sb	0.002	20
Dy	0.001	10	Sc	0.0002	2
Er	0.001	10	Si	0.002	20
Eu	0.001	10	Sm	0.05	500
Fe	0.0005	5	Sn	0.001	10
Ga	0.0003	3	Sr	0.0001	1
Gd	0.02	200	Ta	0.01	100
Ge	0.0002	2	Tb	0.001	10
Hf	0.01	100	Te	0.02	200
Hg	0.01	100	Th	0.01	100
Ho	0.001	10	Ti	0.001	10
In	0.0001	1	Tl	0.0001	1
Ir	0.005	50	Tm	0.001	10
K	0.0002	2	U	0.02	200
La	0.001	10	V	0.0005	5
Li	0.0001	1	W	0.005	50
Lu	0.001	10	Y	0.001	10
Mg	0.0002	2	Yb	0.001	10
Mn	0.001	10	Zn	0.0025	25
Mo	0.0005	5	Zr	0.001	10



To accompany report by L.G. Nixon.

S.A. DEPARTMENT OF MINES					
Approved Director	Passed	Drn. Tcd. C.F. Ckd. Exd.	MANGANESE DEPOSIT M.C. 1621 Narina Station 26 miles N.E. of Blinman (Outside Counties) V.M. LYFORD.	D.M. Req.	Scale 60 chains to 1 inch S 2667 Co. Date 13-12-60.