

MINES

EXPLORATION

P.L.

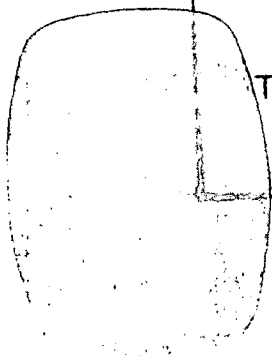
Final Report A.P. No 1540.

(Ranken ; Mt. Drummond)

OPEN FILE

MINES BRANCH  
GEOLOGICAL LIBRARY

THIS MAGAZINE IS NOT TO BE  
REMOVED OR DESTROYED



CR 666/18

P.D.

## CONTENTS

	Sect.
Letter to Mines Branch	1
Topographic Series	1

# MINES EXPLORATION PROPRIETARY LIMITED

(INCORPORATED IN THE STATE OF VICTORIA)

26

CABLE AND TELEGRAPHIC ADDRESS —  
"SOUTHERNLY", ADELAIDE, SOUTH AUSTRALIA

TELEPHONE — 76 7122

OFFICE — CORNER FITZGERALD RD., & FORBES ST.  
PASADENA, SOUTH AUSTRALIA

14960 'C/HA

PLEASE ADDRESS CORRESPONDENCE TO THE COMPANY AT  
P.O. BOX 11, CLOVELLY PARK, SOUTH AUSTRALIA

57

22nd September, 1966

The Director of Mines,  
Mines Branch,  
Northern Territory Administration,  
DARWIN. N.T.

Dear Sir, Final Report on Authority No. 1540, Northern Territory

## Introduction

Authority No. 1540, totalling 1909 square miles, covers the northwest and southwest portions of the Ranken and Mt. Drummond 4-mile sheet, respectively. The area was prospected for phosphates, target rocks being the Burton Beds, (Middle Cambrian). Alexandria Station provided a convenient depot for water, petrol and store requirements.

Access within that part of the Authority lying in the Ranken sheet is excellent, with flat open downs country, and tracks connecting the several widely spaced water bores. To the north of Alexandria Station the absence of tracks, rocky slopes and at times, dense bush makes access and location more difficult and less exact.

## Appraisal

Outcrop in that part of the Authority lying within the Ranken 4-mile sheet is practically non-existent. It is evident that the lithology attributed to the Burton Beds here, viz. siltstone, chert, calcarenite, coquinite and crystallised limestone, has been largely based on water well log information. Features prominent on aerial photographs are frequently unrecognisable on the ground; many merely reflect grass concentration and distribution which at the best can only vaguely be related to any under-lying lithology. Consequently, the recognition of the Burton Beds is a hazardous exercise, very much dependent on guess work.

Randal and Brown (B.M.R. Record 1962/55) consider the Burton Beds to be represented in this area by a "shaley facies" which follows the basement ridge of Mittiebah Sandstone about 8 miles south east of Alexandria Station, and a "limestone facies" further away from this ridge. Evidence for such a facies variation is scant. The position of the "shaley facies" is marked by a narrow belt of red soil, un-grassed and covered by anthills. The belt is however, distinctive and undoubtedly reflects some underlying rock type, but in the absence of any outcrop and well log information, the nature of that rock is unknown. The zone has some chert float, but this is ubiquitous, being formed in the mapped position of the "limestone facies". Rare laterite in the zone indicates some non-carbonate rock. Water well log information e.g. Alexandria No. 1, reveals many flint horizons within the limestone, and it is possible that some of this chert has been released through the solution of the limestone to produce float. It is likely, however, that most of the chert float represents completely replaced and silicified limestones, evidenced by preservation of limestone textures and rare silicified coquinites. The silicification is widespread over the position of the Burton Beds; it has obscured the nature of the rocks to the extent that there is little scope for predicting phosphate occurrences.

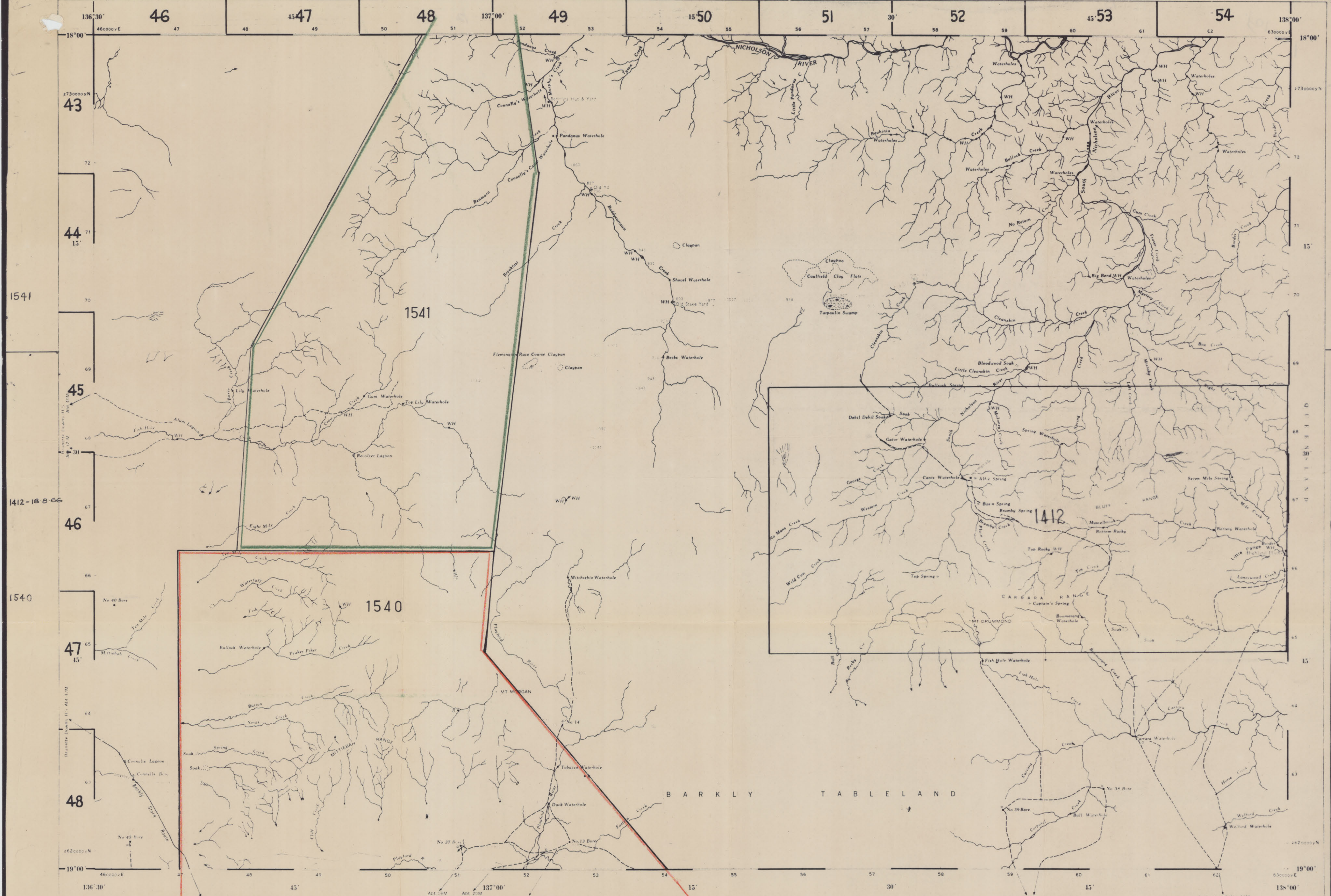
Silicification has also affected the Burton Beds in the northern half of the Authority. Lateritisation is less common, although it is particularly evident in mudstones in the vicinity of Duck Water Hole. Silicification has produced typical "greybilly" light-coloured, hard, massive, and frequently of brecciated appearance. West and northwest of Tobacco Water Hole, cliffs formed of "greybilly" are as high as 100', and only occasional "windows" of unaltered siltstones and sandstones occur at the cliff-base. No thick sections were exposed, so that our sampling did not cover any great stratigraphic thickness. None of these sediments gave phosphate values higher than 1%.

The absence of the biogenic chert-black shale-limestone assemblage commonly associated with phosphorite, the high degree of silicification and lateritization of surface rock exposures, and the low phosphate content of all rocks tested, is such that we do not wish to carry out any further work in the area.

Yours faithfully,  
MINES EXPLORATION PROPRIETARY LIMITED.

P.P. *B.H. Lewis*  
Chief Geologist

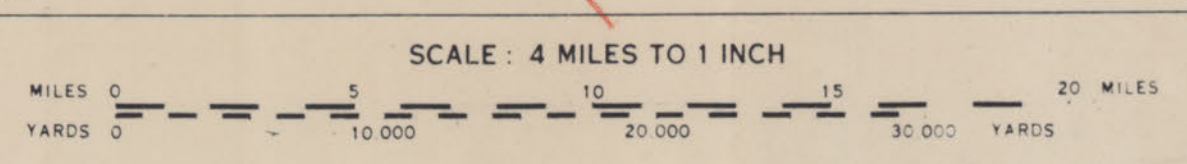




*AREA Applied For Bordered RED*  
*Adjacent A.P. Bordered GREEN*

INDEX TO ADJOINING SHEETS

WALLHOLLOW	CALVERT HILLS	WESTMORELAND
BRUNETTE DOWNS	MT DRUMMOND	LAWN HILL
ALROY	RANKEN	CANOOEWEL



Magnetic Declination at the centre of this map is 5°10' (approx) East of True North.

This provisional edition is distributed at this stage in order that topographic information of some practical value may be available for immediate use.

**48**  
E53 - 12 MOUNT DRUMMOND

CR 66/18 **AUTHORITIES TO PROSPECT**  
MINING BRANCH, N.T.A.