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REPORT ON THE SELECTION OF A BORE SITE FOR THE POLICE STATION  
AT HATCHES CREEK, N.T.

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by

G.R. Ryan

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REPORT ON THE SELECTION OF A BORE  
SITE FOR THE POLICE STATION AT HATCHES CREEK,  
NORTHERN TERRITORY

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1. Locality Map
2. Geological Map showing the location of the proposed bore site for Hatches Creek Police Station, Hatches Creek, Northern Territory.

## INTRODUCTION

The Hatches Creek Police Station is at the south end of the Wolfram Field in the head waters of the Frew River. (Plate 1.)

A supply of water for the Police Station was previously pumped from Kangaroo Hole, 300 yards to the south east, and reticulated to it from a high level tank. This supply failed because of the lack of rain during the last summer, and water is being carted several miles.

At the request of Mr. M. Bracewell (Water Use Branch, N.T.A.), a visit was made to the area on 5th-6th May, 1958 to select a site for a water bore as close as possible to the police station.

## GEOLOGY

The area in the vicinity of the Police Station is underlain by volcanic rocks of (?) Upper Proterozoic age dipping to the south-east. Sedimentary rocks of a similar age crop out in ridges, 200 to 300 feet in height,  $\frac{1}{4}$  mile to the north-west and  $\frac{1}{2}$  mile to the south-east of the Police Station.

The volcanic rocks are approximately 1,700 feet thick and consists of numerous individual flows of acid porphyries with intercalated lenses of hard quartzite ranging from 20 to 400 feet in length along their strike. The continuation of these lenses at depth is not necessarily dependant on their length, and their presence below the surface cannot be detected. The lavas are intensely jointed and have been altered to hornfels by low grade regional metamorphism.

The sedimentary rocks, to the north-west and to the south-east of the Police Station are very hard, light grey, well jointed quartzites with interbedded lenses of sandstones and conglomerate. These rocks dip to the south-east at 55 degrees to 75 degrees and have been strongly jointed and faulted.

A north-easterly trending zone of large, steeply dipping transcurrent faults and associated shatter zones which are of considerable width, cross Hatches Creek at a point to the west of the Police Station. At this point the fault zone is covered by coarse river alluvium, estimated to be no thicker than 30 feet.

## BORE SITE SELECTED

Mr. Bracewell suggested that the first attempt should be as close to the Police Station as possible, within an area of radius 1,000 feet.

Volcanic rocks, only, crop out within this radius; except for a small faulted block of quartzite on the east bank of Hatches Creek, about 600 feet north-west of the Police Station (Plate 2). This block is too hard to be drilled and it is doubtful if it continues below the water table.

A site was therefore selected at 800 feet west of the Police Station and 1200 feet north-west of the tank which supplied the station (Plate 2). The bore was sited in alluvium and so placed that if a supply is not obtained from the alluvium, the hole can be continued in an attempt to obtain water from the under-lying volcanic rocks which are strongly faulted in this area.

Depth to water is expected to be 30 feet to 40 feet. At the B.X.B. Mine to the west (Plate 2) the level of water in the shaft was estimated to be 30 feet below the level of the adjacent creek. The depth of water in a well north of Goat Hole

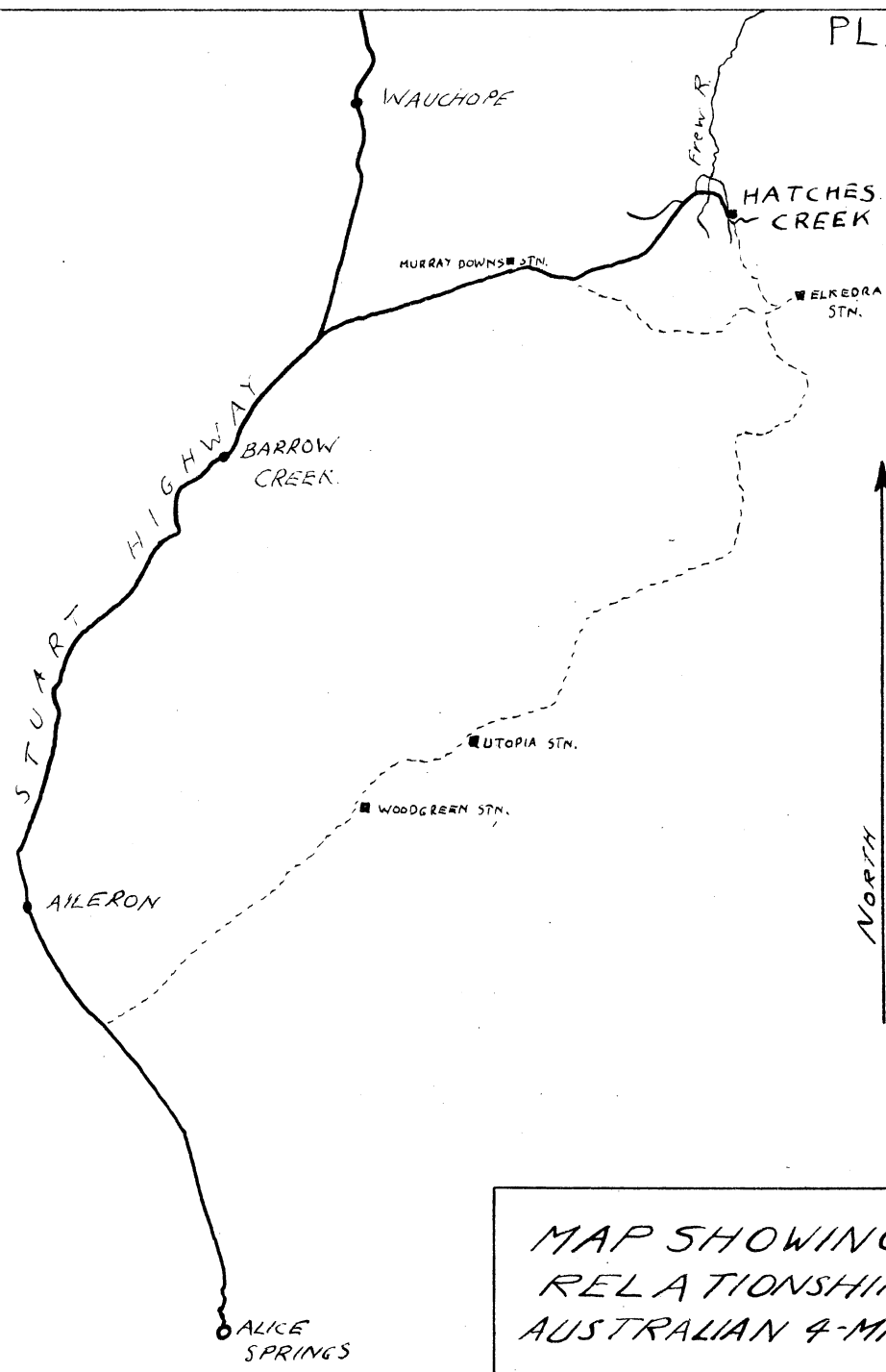
(Plate 2.) is also about 30 feet below the level of the bed of Hatches Creek at that point.

Water obtained from similar volcanic rocks in the mines and in a bore west of the Police Station is unsuitable for human consumption. However recharge from Hatches Creek can be expected to reduce the salinity of the water in the volcanic rocks at the proposed site.

#### CONCLUSIONS

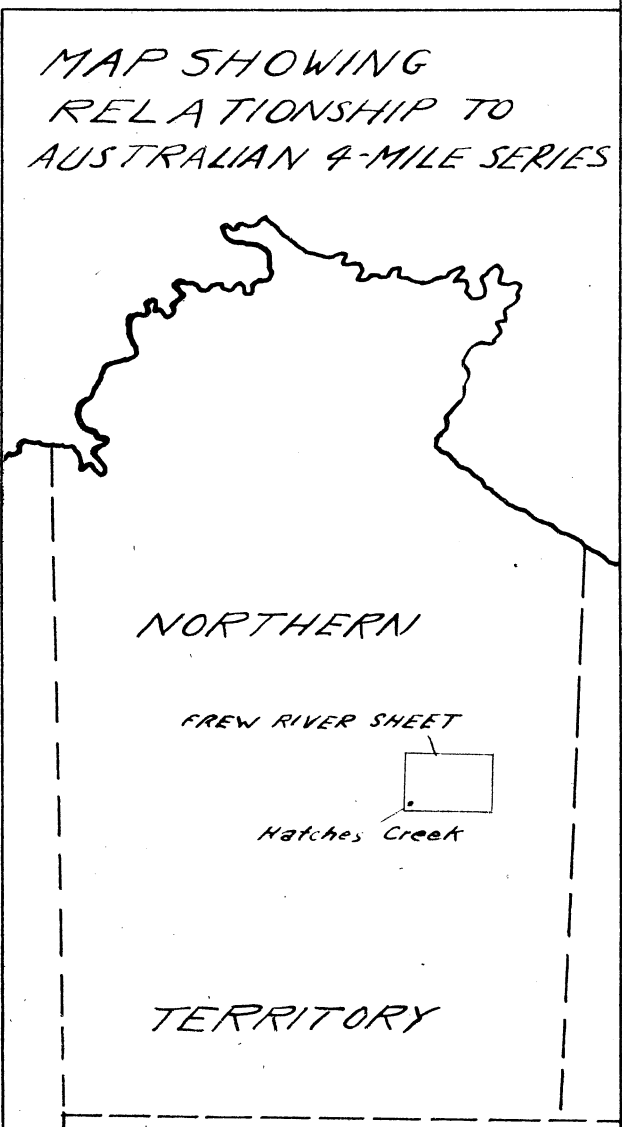
If boring is unsuccessful at the selected site, the selection of a second site will depend on information obtained. It will be necessary to know the depth and nature of the alluvium and the salinity and the supply of any water that is obtained. It should then be possible to determine whether a second bore should be drilled in alluvium, or in volcanic rock, or if an attempt should be made to obtain water from the sedimentary rocks. Detailed examination will be required to select a suitable site in the sedimentary rocks, and this site will be some distance from the Police Station.

(G.R. Ryan)  
Resident Geologist.



LOCALITY MAP

Scale. 1 inch : 32 miles





REFERENCE

- ..... Boundary of outcrop
- Geological boundary
- 60° Dip and strike of bedding
- Fault
- Fault concealed
- ||||| Volcanic rocks
- Quartzite
- ||||| Sandstone and greywacke
- ||||| Siltstone, volcanic rocks
- Proposed bore site
- Well - not equipped
- Well caved
- ✕ Mill
- ✕ Mine
- Water hole
- Water course
- Track

GEOLOGICAL MAP SHOWING  
PROPOSED BORE SITE FOR  
HATCHES CREEK POLICE  
STATION, HATCHES CREEK,  
NORTHERN TERRITORY.

Scale. 1 inch: 1/4 mile