

PLANNING GROUP

167/30
22/2/60

COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS.

1960/4



SUMMARY OF ACTIVITIES OF RESIDENT GEOLOGISTS
NORTHERN TERRITORY, 1959

by

N.J. MacKay

SUMMARY OF ACTIVITIES OF RESIDENT GEOLOGISTS.

NORTHERN TERRITORY, 1959.

by

N.J. MacKay

Records 1960/4.

CONTENTS

	Page
STAFF	1
WATER SUPPLY INVESTIGATIONS	
General	1
Selection of Bore Sites	1
Alice Springs	2
Tennant Creek	2
METALLIFEROUS INVESTIGATIONS	
Mount Harris Tinfield	2
Maranboy Tinfield	2
Cosmopolitan Howley Mine	3
Mount ShoobridgeArea	3
General	3
GENERAL INVESTIGATIONS	
C.S.I.R.O. Survey, Alice Springs District	3
Limestone Deposits	3
Miscellaneous	3
OFFICE	3
REPORTS	4

1.

STAFF

The geological staff are officers of the Bureau of Mineral Resources, seconded to the Northern Territory Administration and based at offices of the Mines Branch at Darwin and Alice Springs. The staff consisted of the following:

<u>Darwin</u>	N.J. MacKay	- Senior Resident Geologist
	J. Hays	- Geologist Grade III
	W.F. McQueen	- Geologist Grade I (replaced by P.G. Dunn)
<u>Alice Springs</u>	N.O. Jones	- Geologist Grade III
	T. Quinlan	- Geologist Grade II
	G.R. Ryan	- Geologist Grade I (replaced by D.R. Woolley)

Staff changes during the year were:

G.R. Ryan resigned on 13th March.
D.R. Woolley commenced duty on 4th August.
P.G. Dunn commenced duty on 29th October.
W.F. McQueen was about to accept promotion at the end of the year.

WATER SUPPLY INVESTIGATIONS

General

Water supply work consisted mainly of (a) selection of bore sites for pastoralists, agriculturalists, and Government Departments, (b) investigations of underground water at Alice Springs and Tennant Creek, and (c) compilation of bore records.

The compilation of bore data and the plotting of bore locations on 4-mile maps was continued at Darwin and Alice Springs during the year. More bore samples were received than in previous years and this has assisted greatly in the preparation of reliable records.

A greater interest was shown in the Alice Springs area in the possibility of using ground water for irrigation. Information was given to the committee on the Northern Territory Agriculture on the distribution of suitable ground water.

Advice of the probable availability of ground water in many areas was given to Government Departments and pastoralists.

Selection of Bore Sites

Sites for water bores were selected for the following agencies:

Private Pastoralists

Argyle Downs
Elsby
Camfield
Limbunya
Maryvale
Epinarra
Ringwood

Drought Relief

Lilla Creek
McDonald Downs
Anningie
Pine Hill
Lucy Creek
Kulgara
Ooratippa
Willowra

Agriculture

Darwin area

Police Stations

Top Springs
Harts Range
Kulgera
Hatches Creek
Wollogorang

Stock Routes

Dry River
Phillipson

Alice Springs

Measurements of standing water levels in selected observation wells were continued throughout the year in both the Town and Farm Area Basins. Draw on the basins has increased considerably and there has been very limited recharge during the year.

Ten test bores in the Bent Tree and Slaughterhouse areas of the Town Basin were sited, logged, and sampled for the Department of Works. Information was obtained on 26 new private bores drilled in the basins. Maps of the basins were amended to include new information.

Tennant Creek

A diamond drilling programme was commenced by Mines Branch in August at Cabbage Gum Basin with the dual object of testing the extent and nature of the main aquifer (decomposed granitic gneiss) and of providing observation holes for Water Resources Branch. Drilling was supervised by the resident geologists, and 15 drill holes had been completed by the end of the year.

The main aquifer is more extensive than anticipated but its hydrological characteristics cannot be determined until pumping tests have been done by Water Resources Branch.

METALLIFEROUS INVESTIGATIONSMount Harris Tinfield

The geological survey of the Mount Harris Tinfield was completed and a report was prepared in Darwin. A zone, three miles wide and surrounding the Mary River lobe of the Cullen Granite, was outlined as favourable for prospecting for tin-bearing deposits. The cassiterite lodes were produced by hypothermal mineralisation associated with the Cullen Granite. They were followed later by brecciation and ferruginisation.

In the report suitable sites for a treatment plant were recommended and favourable prospecting areas were described.

Maranboy Tinfield

The diamond drilling programme at Maranboy was completed in November. Eleven drill holes, totalling 5,646 feet in length, were drilled on Anaconda and Osman leases. Results were discouraging and only three drill holes intersected quartz-tourmaline lode which could be classed as tin ore. A report and plans were prepared at the end of the year.

Native Settlements

Haasts Bluff
Arcyonga
Papunya

Pastoral Scheme

Delamere
Hidden Valley

Cosmopolitan Howley Mine

The third diamond drill hole intersected 10 feet of lode assaying 6.8 dwt gold per ton. The gold orebody at No. 5 Open Cut was shown to extend to a depth of at least 300 feet, and the drill holes indicated the grade of the primary ore to be 7 to 9 dwt gold per ton. A report on the drilling was compiled in Darwin.

Mount Shoobridge Area

The geology of this area was re-mapped late in the year. All the abandoned tin and copper workings were examined, and notes were prepared on the mineral occurrences.

General

N. MacKay and T. Quinlan attended the regional meeting of the A.I.M.M. at Tennant Creek in June. The resident geologists also kept in touch with exploration carried out by mining companies at Tennant Creek during the year.

GENERAL INVESTIGATION.

C.S.I.R.O. Survey, Alice Springs District

Reports on the geology, water resources, and mineral deposits of Central Australia were completed and forwarded to C.S.I.R.O. for inclusion in the report on the 1956-57 survey of the Alice Springs District.

Limestone Deposits

The availability of raw materials such as lime, gypsum, and clay, for the manufacture of cement at Darwin was investigated. A report was prepared on deposits near Darwin and Katherine.

Miscellaneous

Drilling was supervised at the new power house site in Darwin and at Manton Dam, 40 miles south of Darwin. Reports were made to Department of Works on each project.

Several quarries were examined at Alice Springs and geological advice was given when required.

Bulk samples of gypsum from the Titra Well area were forwarded to C.S.I.R.O., Melbourne for testing as to suitability for the manufacture of plaster in Alice Springs.

OFFICE

The libraries of technical reports at Darwin and Alice Springs were enlarged and kept up to date. Constant use of the libraries and bore records was made by oil and mining companies, Government Departments, and the general public.

N. MacKay and J. Hays attended meetings of the Petroleum Advisory Board during the year.

N. Jones attended the A.N.Z.A.A.S. Conference at Perth in August and presented a paper entitled "The Occurrence of Ground Water in Central Australia".

An illuminated mineral map of the Northern Territory was constructed and displayed at exhibitions in Darwin and Alice Springs.

Assistance and information were given to the public, mining and oil companies, and Government Departments, on geology, mineral deposits, and underground water supplies.

REPORTS

Reports written and completed during 1959 are listed below:

<u>B.M.R. Record No.</u>	<u>Title</u>	<u>Author</u>
1959/3	Preliminary geological report on new power house site, Stokes Hill, Darwin, N.T.	W.F. McQueen
-	Final geological report on new power house site, Stokes Hill, Darwin, N.T.	J. Hays
-	Geological investigation of the abutment area, Manton Dam, N.T.	J. Hays
1959/40	An outline of the geology of the Alice Springs district, N.T.	T. Quinlan
1959/77	An outline of the water resources of Central Australia	N.O. Jones and T. Quinlan
1960/2	The geology of the Mount Harris Tinfield, N.T.	J. Hays
1959/145	Final report on Diamond Drilling at Cosmopolitan Howley Mine, Brocks Creek, N.T.	W.F. McQueen
1960/3	Diamond Drilling at Maranboy Tinfield, N.T., 1958-1959	N.J. MacKay
1960/4	Summary of Activities of Resident Geologists, N.T., 1959.	N.J. MacKay

(N. J. MACKAY)
Senior Resident Geologist