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COMMONWEALTH OF AUSTRALIA.

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

RECORDS.

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RADIOACTIVE SURVEYS KATHERINE - DARWIN AREA, NORTHERN TERRITORY.

REPORT FOR QUARTER ENDING 31ST MARCH, 1954.

by

J. H. LORD.

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SUMMARY.

Operations of the Radioactive Section have been restricted during this quarter due to the "wet" season and lack of staff.

Drilling operations at the Ella Creek Prospect were completed and operations commenced at the Edith River Prospect. No encouraging results were disclosed at either prospect.

Other work has been limited to inspection of reported new discoveries and geophysical work in the Rum Jungle area.

DARWIN OFFICE.

The Darwin office of the Radioactive Section continued its work in the Sydney Williams' Hut in the Larrakeyah military area. The new offices have been commenced and should be completed by the end of April.

The Staff based in the Darwin office during the quarter consisted of:-

J.H. Lord, Senior Geologist.

J.B. Misz, Geophysicist - Grade III.

B.C. Thomas, Clerk.

(Mrs.) M.J. Olle, Typiste.

A draftsman arrived in Darwin on 9th March but he resigned early in April. When staff arrives for the field season the operation and efficiency of this section will be affected adversely if another draftsman is not appointed shortly.

The volume of administrative work handled by the office is increasing rapidly, and the appointment of additional qualified clerical assistance to handle stores, salaries and accounts is a necessity.

Many requests are received at the Darwin office for advice on all phases of uranium prospecting from prospectors, syndicates and companies. The Senior Geologist spends much time attending to these enquiries.

STAFF.

Field operations, in all phases, have been restricted by lack of staff. For the greater part of the quarter only one geologist and one geophysicist have been available, except for the Darwin office staff.

J.D. Wyatt, geologist, resigned on 26th March and was replaced by J.B. Firman. F.J. Frankovich visited Canberra for two months during this quarter.

I.A. Mumme was recalled to Melbourne at the beginning of March which left only three geophysical assistants to conduct the field work under the direction of J.B. Misz.

Two drillers only were available during this quarter, both of whom resigned during March. One replacement arrived at the end of March.

J.H. Lord visited Melbourne and Canberra for a week during March to discuss the present and future operations of the Radioactive Section.

HOUSING.

One house only has been completed for occupation by the Bureau during this quarter. The department of Works continues to give optimistic estimates for the completion of the houses, but no house has yet been completed on the numerous dates specified. Six houses of the original eight are yet to be completed.

Although funds for furnishing seven houses were made available to the Department of Works at the beginning of December, 1953, only a few items have arrived. It was necessary to ~~lean~~ camp equipment to the occupant of the house made available this quarter.

Northern Territory Administration made an unfurnished flat available to the Senior Geologist, who had been forced to live at a hotel for three months.

If married staff appointed to Darwin cannot leave their families in the south until houses are available, it may be necessary to permit them to stay at Brodribb camp.

WINNELLIE STORE.

The repairs and additions to this store were completed during January. This permitted the equipment to be sorted and the store to be rearranged. It has been recommended that the store's organisation could be improved greatly by the employment of a store's clerk and one storeman instead of two storemen as at present.

The equipment, returned by last season's field parties, has been checked and repaired where necessary, and made ready for issue.

All vehicles used by the geologists last season were left in Darwin for overhaul and repairs instead of being returned to Adelaide. This work has been done by the mechanics at Winnellie. All vehicles will be painted before the commencement of the field season.

LABORATORY.

The temporary radiometric laboratory, established at Winnellie store, commenced operations at the beginning of February. As interested persons become aware of its existence the amount of work handled will increase. During March fifty-five assays and twenty-six absorption tests were completed.

The laboratory, also, has been repairing instruments for prospectors and companies, as well as for the Bureau. During March fifty-one instruments were repaired. This may not be a true indication of future work, because the "wet" season has caused the failures of most instruments. However, this may be counteracted during the "dry" season by increased activity in the field.

FIELD OPERATIONS.

The field operations of the Radioactive Section have been greatly restricted during this quarter, because of the lack of staff, as already mentioned, and also because of the "wet" season. Many localities have been inaccessible or covered with thick tall grass.

Prospectors and companies have been affected similarly, although horses have been used by some to move into areas where tracks are impassable.

Keen interest in uranium has continued throughout the "wet" season and an average of twenty-nine Authorities to Prospect have been held throughout the quarter. However, three companies only have been engaged in development work.

Ella Creek Prospect.

Operations at this Prospect ceased when drilling was stopped on 15th January.

The first hole, E1, was completed at a depth of 300 feet. Probing disclosed a zone of radioactivity between 80 and 160 feet with a maximum of 3,000 counts per minute at 133 feet. Radiometric assays of the sludges confirmed this slight radioactivity, the results being:-

110 to 120 feet	0.016% eU_3O_8 .
120 " 135 "	0.024% " .
135 " 145 "	0.015% " .

The second hole, E2, was drilled on the surface anomaly to a depth of 28 feet. Probing disclosed radioactivity throughout, with counts up to 1800 per minute. Sludge assays showed the following values:-

4 to 6 feet	0.018% eU_3O_8 .
6 " 15 "	0.012% " .
15 " 21 "	0.016% " .

The third hole, E3, was completed at a depth of 319 feet. Probing disclosed a zone of radioactivity between 70 and 140 feet with readings up to 2,200 counts per minute. The following sludge assays confirmed this slight radioactivity.

45 to 80 feet	0.015% eU_3O_8 .
80 " 135 "	0.024% " .
145 " 170 "	0.015% " .

Pyrite occurred in the carbonaceous shales, which were encountered at a depth of 273 feet and continued to the end of the hole.

During the drilling it was suspected that the radioactivity might be due to a mineral other than uranium. After the completion of the drilling the following information was supplied by the Geophysical Section, Melbourne:-

"From the results of absorption tests, and the low uranium content as determined by the fluorimeter, it is considered that the radioactivity in these samples is substantially due to thorium."

It can be concluded only that the radioactivity encountered in the drilling at Ella Creek was produced mainly by thorium, and no further work is warranted. The reservation held by the Bureau should be released.

Edith River Prospect.

Drilling at Edith River on Deposits A and F (see "The Edith River Uranium-Bearing Area" by N.H. Fisher, Plate II) commenced early in February.

One hole was drilled at Deposit A to a depth of 215 feet. Hematised sheared quartz was encountered between 202 and 205 feet, which gave a count of 1,100 per minute on probing and the sludge assayed 0.023% eU_3O_8 .

The hole at Deposit F on site A, as planned by N.H. Fisher, had been drilled to a depth of 166 feet when drilling was suspended due to the lack of staff. The target should be encountered within the next

20 feet. Probing to date has not disclosed any radioactivity of note.

Operations at Deposit F will recommence shortly as a replacement driller has arrived.

A.B.C. Prospect.

This Prospect was inaccessible from the beginning of the quarter until the last week in March. Subsequent rains have made the track impassable except for landrovers.

No work was done, until the geophysicists returned to the Prospect on 29th March to continue the work interrupted by the "wet" season.

The Department of Works has not yet completed the grading on the track.

Rum Jungle Area.

The geophysicists carried out the following work in the Rum Jungle area:-

- a) Investigated the aerial magnetic anomaly south-west of Brown's Prospect.
- b) Magnetic and self-potential investigations at Mt. Fitch.
- c) Investigated the possibility of following the slate and limestone contact over soil-covered areas.

New Discoveries.

All reported new discoveries have been checked, but none has disclosed any great potentiality.

The Mines' Branch of Northern Territory Administration requested the Radioactive Section to inspect a number of areas for which applications had been submitted for Authorities to Prospect. On some of the areas no radioactivity could be located, while on others there was sufficient to warrant more prospecting.

RESERVATIONS.

The following reservations were held by the Bureau throughout the quarter:-

Locality.	Area (Square Miles.)
Hundred of Colton - Frazer Prospect	1
Hundred of Cavanagh - Ella Creek Prospect	4
Hundred of Goyder	Entire Area.
Coronation Hill	147
Mt. Shoobridge	5
A.B.C. Prospect	252

The Bureau has requested the Mines' Branch to reduce the area of the Coronation Hill and A.B.C. Reserves to 30 and 36 square miles as from 1st April, 1954.

REPORTS ISSUED.

Preliminary Report on Diamond Drilling at Ella Creek Prospect, N.T. by J.D. Wyatt.

Preliminary Report on Radiometric Bore-Logging and Assaying, Ella Creek,
N.T. by I.A. Mumme.

April, 1954.

J.H. Lord.