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COMMONWEALTH OF AUSTRALIA.

[redacted]

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS.

RECORDS.

1954/24

RADIOACTIVE SURVEYS KATHERINE - DARWIN AREA

REPORT ON ACTIVITIES, APRIL, 1954.

by

J.H. Lord.

DARWIN. N.T.

RADIOACTIVE SURVEYS KATHERINE - DARWIN AREA.

REPORT ON ACTIVITIES - APRIL, 1954.

C O N T E N T S. Page.

ADMINISTRATIVE SECTION:

STAFF.

Movements:-

J. Moore, drill foreman, returned from leave on 16th April.

F. Frankovich, geologist, departed for New Zealand on 20th April.

R. Brittain, geologist, arrived in Darwin on 25th April.

W. Rae, drill superintendent, arrived in Darwin on 29th April.

Resignations:-

E.A. Gailer, storeman, resigned on 2nd April.

T. Ward, drill helper, resigned on 28th April.

Additions:-

F.F. West, Crusher feeder, commenced duty on 20th April.

J.W. Kerr, drill helper, commenced duty on 22nd April.

T.H. Dickson, storeman, commenced duty on 27th April.

Note: Movements of the regional party under B. Walpole are not included.

OFFICE ACCOMMODATION.

The completion of the new offices has been delayed through the shortage of minor, yet essential, items such as light fittings and ridge capping. The offices should be completed within two weeks.

HOUSING.

One two-bedroom house became available on 9th April. This was allocated to Mr. J.B. Firman, geologist, but the power has not yet been connected to the house.

Three other houses appear to be complete, but they have not yet been passed by the Department of Works.

The roads have been constructed to the site of the next 12 houses at Fannie Bay, but the builder has not yet commenced operations.

Furniture:

Some cane furniture and mattresses arrived during the month.

WINNELLIE STORE AND LABORATORY.

Equipment is now being distributed to the Regional Party. During the month one storeman resigned and the other has been ordered south for leave by the medical officer. As a result no-one in the store has a knowledge of the correct store's procedure.

About three months ago, it was recommended that a stores' clerk be appointed to Winnellie. A decision is required urgently.

The laboratory continued to operate satisfactorily and 120 radiometric assays were completed during the month. Twenty-two instruments were repaired for private persons and the Bureau.

TRANSPORT.

All major work has been completed on the vehicles. They are now being painted.

VISITORS.

Mr. John Webb of the Atomic Energy Commission arrived in Darwin on 19th April. He has been assisted with the arrangement of his itinerary and accompanied to Adelaide River, Edith River, Yenberrie and the A.B.C. Prospect.

TECHNICAL SECTION.

EDITH RIVER PROSPECT.

The bore hole F1 at Deposit F was continued from a depth of 166 feet to 230 feet where it was stopped. Preparations were made for the drill to be moved to the A.B.C. Prospect.

The silicified zone was intersected at a depth of 172 feet (see PLATE II). Although there was considerable core loss at this depth, the silicified zone is not as well defined as at the surface.

The hole was probed without any noteworthy results (see PLATE III). The sludge assays in the vicinity of the lode were:-

Depth (feet).	Assay % eU_3O_8.
170 - 175	.007
175 - 180	.005
180 - 185	.005
185 - 190	.005
190 - 195	.008
195 - 200	.007

The results of the probing of bore hole A1 at Deposit A are shown graphically on PLATE III. The background count was 100 per minute and three anomalies are shown on the log at 63, 135 and 204 feet showing 400, 550, and 1,100 counts per minute respectively. The only sludge assay results of note were:-

Depth (feet).	Assay % eU_3O_8.
200 - 205	.023
205 - 210	.026
210 - 215	.010

Although the results are not encouraging, it is recommended that the drilling programme at Edith River be completed when drills are available.

At Deposit F, the next hole, as set out on Dr. H.N. Fisher's programme, should be depressed to cut the quartz reef at a depth of 250 feet instead of 150 feet, to ensure that the primary zone is encountered If the results of this hole are no better than those of hole F1, the third hole on the programme should be abandoned.

At Deposit A, it is recommended that a second and final hole

be located approximately 100 feet north of the shaft to intersect the shear-zone at a vertical depth of 250 feet.

A complete geological and geophysical report will be prepared on the Edith River drilling when the future programme is decided.

A.B.C. PROSPECT.

At the end of March geophysical assistants were able to enter this Prospect, but cyclonic rains early in April made the road impassible until the last week of the month.

The geophysicists have continued the radioactive gridding which was interrupted by the onset of the wet season.

On 28th April it was found possible to reach the Prospect with normal transport and the establishment of a camp for the proposed drilling was commenced.

The road, which is in a very poor condition, needs further attention.

ADELAIDE RIVER PROSPECT.

Mr. J. Lennox, a member of a week-end prospecting party, discovered radioactivity approximately 1½ miles south of Adelaide River post office on 13th March. Early in April Geologist Frankovich inspected the area (for report - see APPENDIX I). Shortly afterwards, a prospector, continuing a small costean near the original discovery, uncovered torbernite which gave an assay value of 1.88% eU_3O_8 on a grab sample submitted to the radiometric laboratory.

The area was inspected again and a check sample (see APPENDIX I - report by Miss and Lord), which was taken over a width of 18 inches assayed 3.24 % eU_3O_8. Torbernite was present on fracture planes and disseminated throughout the rock. Since the inspection the costean has been extended and torbernite is identifiable easily over a width of six feet. Very little work has been done along the strike, but a sample from a small hole 100 feet south of the original find assayed 0.59 % eU_3O_8.

The host rock is a partially decomposed arkosic sandstone appearing to be tuffaceous in places, rather than a greywacke as stated in the original examination. There is a thin quartz reef present which appears to strike parallel to the schistosity and some specks of gold were recognised in it. Remenants of sulphide minerals occur frequently.

The associated slates are not radioactive but about 150 feet north-east of the original discovery and separated from it by the slates, is a brown argillaceous sandstone, which gives surface counts up to 16 times background. Some flakes of torbernite have been identified in this rock and an assay of a portion of the outcrop showed 0.098% eU_3O_8.

A radiometric grid of the area has been commenced. It is intended to grid the prospect before it is disturbed too much by prospecting operations.

The area is being prospected under option by Uranium Development and Prospecting N.L.

NEW FINDS.

The return of the monsoonal rains during April, with rainfalls up to 27 inches, has made most tracks impassable again and caused a re-growth of grass. It will be a few weeks before prospectors can

move freely through the country.

There weretwenty-seven Authorities to Prospect held at the end of April, with forty applications pending. Although there has been a decrease of two in the number of Authorities held, there is an increase of 23 in the number of applications pending. This denotes the increase in activity in the area during the last month. The size of individual Authorities applied for has increased and soon there will be few areas available which are suitable for prospecting.

The only find of importance was near Adelaide River, as previously described.

The following persons are known to be actively engaged on development work:-

Brock's Creek Uranium Co. N.L. (formerly Territory Uranium Syndicate) has continued the incline shaft to a depth of 37 feet. A drive is now being cut from the bottom of the shaft.

Uranium Development and Prospecting N.L., has continued the vertical shaft on Deposit E at Edith River to a depth of 76 feet. The shaft at Deposit A has been deepened to 95 feet.

Uranium Oxide N.L., at Yenberrie, are sinking three prospecting shafts on the shear where the original discovery was made. The shafts are about 75 feet apart and are down to depths of 25, 7 and 25 feet from north to south respectively. There has been considerable caving of the shafts due to the recent rains. The best count that could be obtained in the shafts was 4 to 5 times background.

REGIONAL PARTY.

Geologist K.G. Smith arrived in Darwin on 27th April to make the necessary preparations for the arrival of the main party who are expected on 5th May.

6th May, 1954.

J.H. Lord.

APPENDIX I.

INSPECTION OF AN APPLICATION FOR AUTHORITY TO PROSPECT NO. 74 SOUTH OF ADELAIDE RIVER.

Access:

Three tenths of a mile south of the 73 mile peg on Stuart Highway turn west. Travel one mile due west and just south of highest mountain in vicinity is location of discovery.

Topography.

High, north-south trending, stony ridges.

Geology:

The area consists of north-south trending metasediments folded into steeply south pitching anticlines and synclines. These rocks consist of interbedded coarse conglomerates, slates, micaceous greywackes, arkosic sandstones, with probable tuffaceous beds.

Radioactivity:

An area about 200 feet by 20 feet registered two times background with a maximum within this area of twenty times background in a shallow pit. The radioactivity appears to be associated with a fine-grained micaceous greywacke rubble in soil.

Conclusions:

The high count observed in the pit emanates from rubble in soil moved down slope from the source rock. A costean should be dug up the slope to locate the radioactive rock "in situ". Additional costeans should be dug across the long axis of the radioactive "high". This is a new discovery of radioactive material, and the first found in this rock type in this part of the N.T. An authority to prospect should be granted.

3rd April, 1954. F. Frankovich.

FURTHER INSPECTION AUTHORITY TO PROSPECT NO. 74.

As the result of a sample of rock submitted by the applicant, Mr. Lennox, which had been uncovered after Mr. Frankovich's visit and assayed 1.88% eU_3O_8, the above area was visited to check the origin of such a rich sample.

The small costean, (3 feet long with a maximum depth of 2½ feet), where the sample originated was located and similar material to the sample rich in torbernite, was identified. Although the costean is small, torbernite in a soft micaceous greywacke can be found over a width of nearly two feet. The costean should be deepened and extended.

Radioactivity:

The following points are worthy of note:

(1) The material from which the sample assaying 1.88% was obtained is in situ, i.e. is from the bedrock.

(2) The only visible uranium mineralization is in the base of the small pit from which the rich sample was taken. Some 150 feet north-east of this pit is a 1 foot deep trench in which a reading of 16 times background was obtained. Near the latter a narrow, elongated, partially decomposed rubbly outcrop shows readings of 3 times to 20 times background.

(3) The greywacke host rock contains interbedded slate and conglomerate. The greywacke was examined over a width of 300 feet (the beds are nearly vertical) and found to be 2 to 4 times background throughout this width. A 15 foot shale band in the center of the pitted area reads only background (50 counts per minute.)

About 1000 feet north of the prospect, readings of 8 times background were recorded on a slightly lateritized greywacke outcrop. Once again adjacent slate showed only background. The greywacke between this spot and the prospect (1000 feet) reads 2 to 4 times background. Hence it would appear that background for the greywacke is 2 to 4 times the background of adjacent sediments. Such a situation was previously noticed in the Waterhouse Area.

Samples for assay were taken from all locations mentioned.

Conclusions:

This area is a most promising prospect and is worthy of detailed prospecting together with geological and geophysical work. It may prove to be a find of major importance.

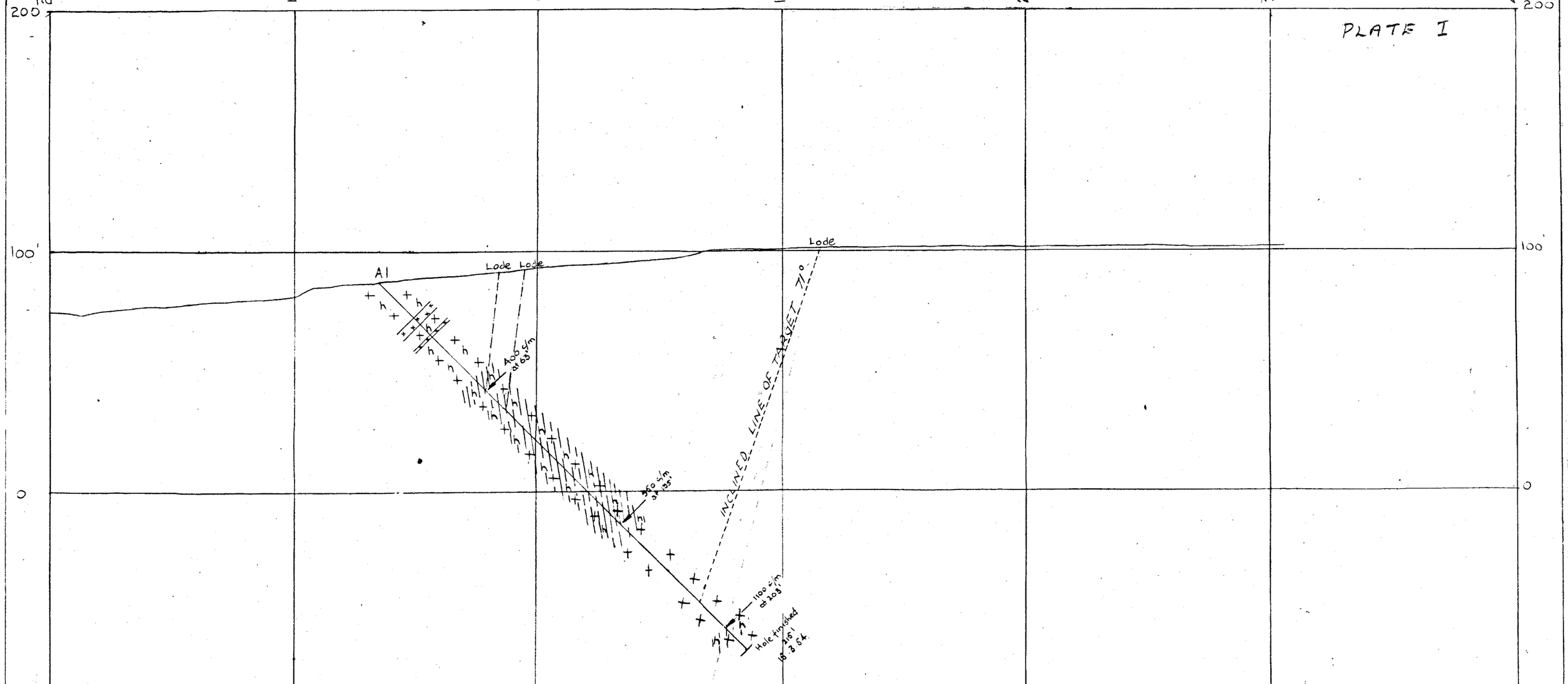
8th April, 1954.

J.B. Misz.
J.H. Lord.

APPENDIX II URANIUM COMPANIES AND SYNDICATES OPERATING IN NORTHERN TERRITORY - 30. 4. 1954.

Name.	Local Representatives or Geologist.	Southern Connections.
Austral Uranium Co.,N.L.	H.W.G. Good.	
Australian Mining and Smelting Co Ltd.	H. Brennan	Zinc Corp.
Brock's Creek Uranium Co. N.L.	E. McDonald.	
Enterprise Exploration Co.Pty.Ltd.	H. Brennan	Zinc Corp.
Gold Mines of New Guinea		
Hidden Valley Mining Syndicate.	W. Power.	
North Australian Uranium Corporation.	E. Becker A.D.M. Bell.	
Northern Mines Development N.L.	K. Summers.	Dr. Garretty.
Northern Territory Prospecting and Development Co.Ltd.		Hopkins.
Northern Uranium Development N.L.	Fisher Barrett.	Mott.
Red Ned Gold Mine N.L.	J.S. Higgins.	
Rio Tinto Company.	C. Pegg.	
Uranium Corporation of Australia Pty. Ltd.		Rye Park Scheelite.
Utinium	Pitman	
Uranium Mines N.L.	W. Keys.	H.J.C. Connelly.
Uranium Oxide N.L.	Jensen.	Austral Mining Co. Poseidon N.L. Pioneer Mines.
Uranium Prospecting and Development N.L.	Coxon & Macdonald.	Drummond.
Y.M.C. Syndicate.	Young, Maslin & Cousins.	

PLATE I



LEGEND

- Fine grained granite
- Coarse grained granite
- Shearing & Hematization

EDITH RIVER PROSPE

DEPOSIT A

Cross Section through Drill Hole A1

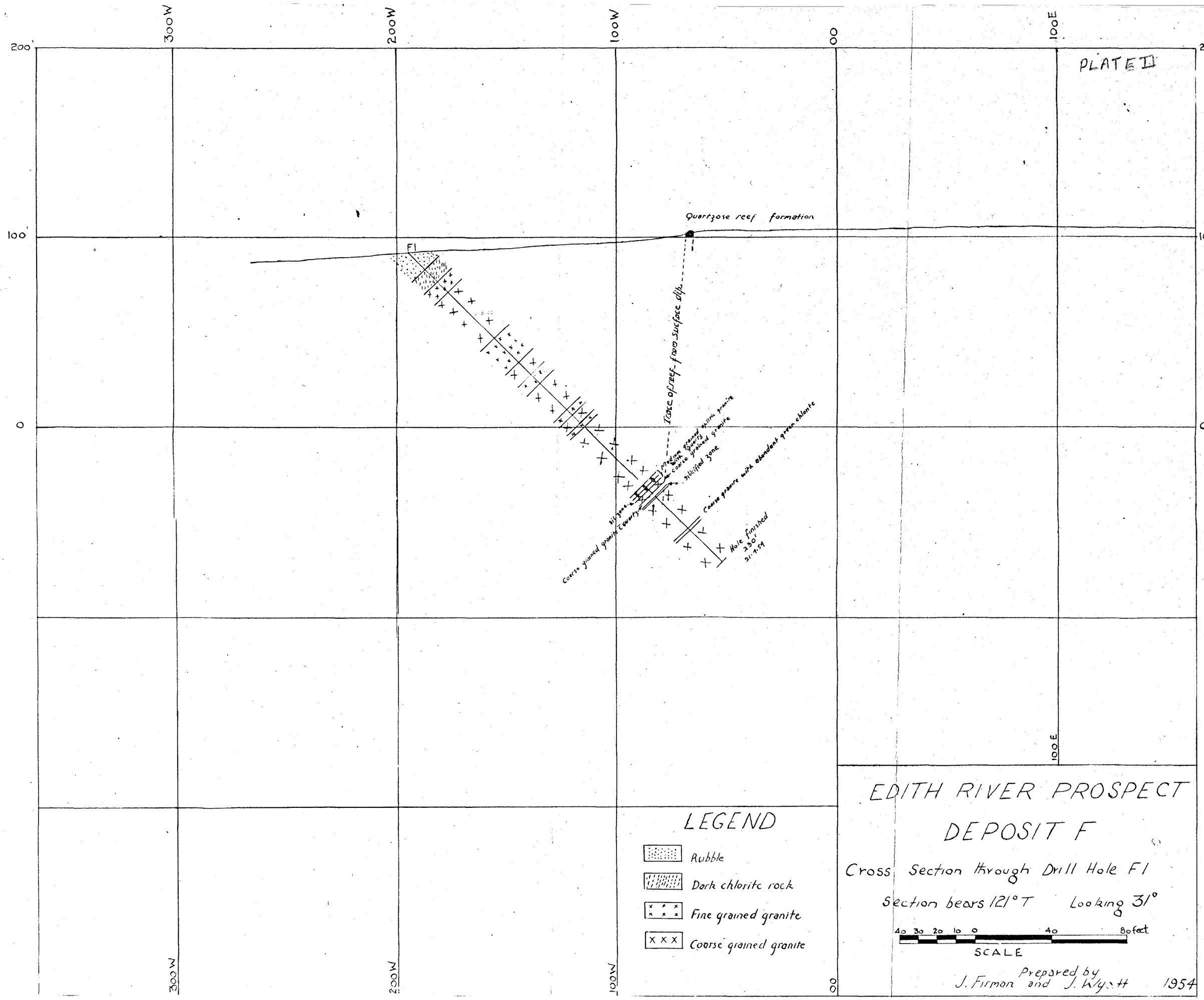
Section bears 98°30'T Looking 8°30'

40 30 20 10 0 40 80 feet

SCALE

Prepared by
J. Wyatt Feb. 1954.

PLATE II



LEGEND

- Rubble
- Dark chloritic rock
- Fine grained granite
- XXX Coarse grained granite

EDITH RIVER PROSPECT

DEPOSIT F

Cross Section through Drill Hole F1

Section bears 121° T Looking 31°

40 30 20 10 0 40 80 feet

SCALE

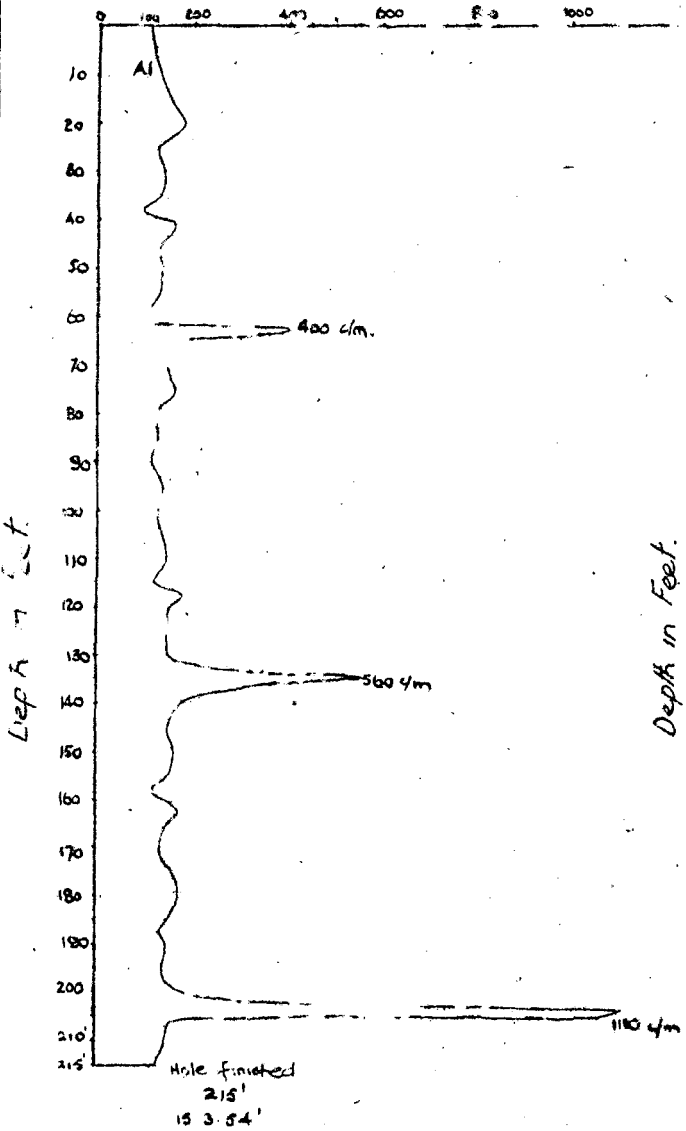
Prepared by J. Firman and J. Wyatt 1954

PROBE RESULTS

EDITH RIVER PROSPECT

DRILL A1

c/m on E.A. 191 Type Probe



DRILL F1

c/m on E.A. 191 Type Probe

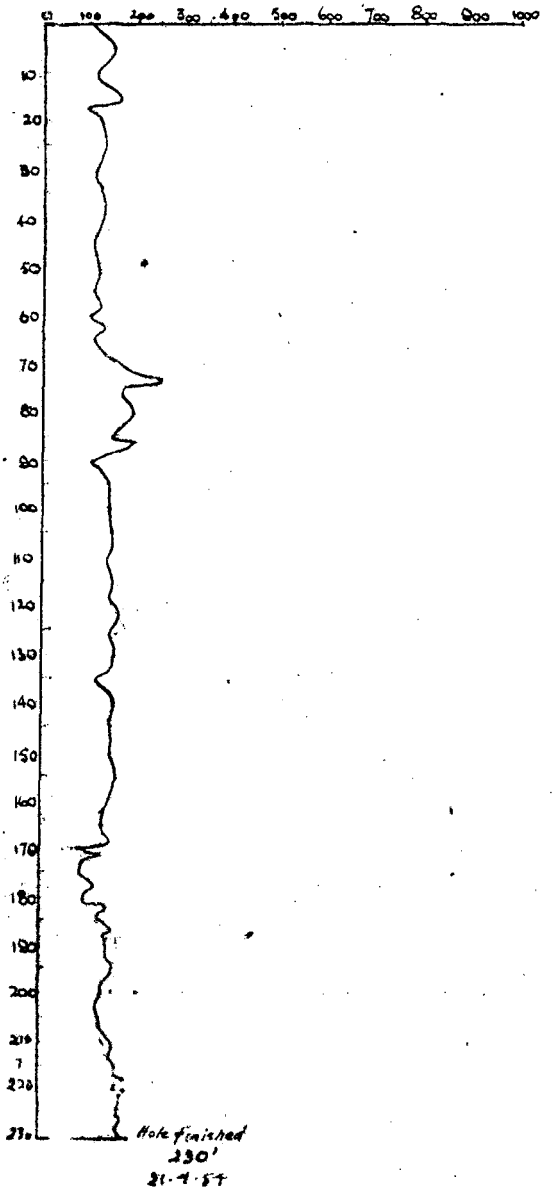


Plate V Prepared by J Firman and J Wyatt 1954