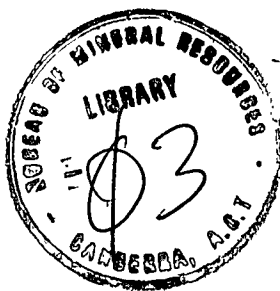


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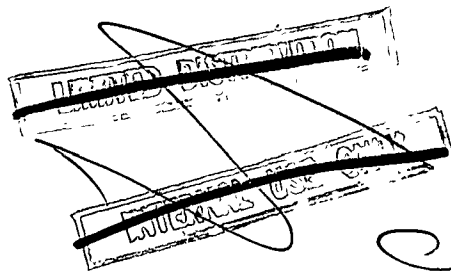
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SUMMARY OF RESULTS OF INVESTIGATIONS AT RUM
JUNGLE AND FERGUSSON RIVER
DURING 1950.

Records No. 1951/7

By



H.J. Ward.

*Cleared
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PLATES

1. GEOLOGICAL SKETCH MAP OF WHITE'S DEPOSIT

Scale: 1 inch = 40 ft.

2. WHITE'S WORKINGS SECTION THROUGH No.2 SHAFT

Scale: 1 inch = 40 ft.

3. WHITE'S WORKINGS SECTION THROUGH Nos. 1 & 3 SHAFTS

Scale: 1 inch = 40 ft.

4. GEOLOGICAL MAP OF DYSON'S FIND

Scale: 1 inch = 50 ft.

5. DYSON'S FIND, EAST-WEST SECTION THROUGH No.1 SHAFT.

Scale: 1 inch = 20 ft.

Plates 4 and 5 have not been supplied in the hardcopy of record 1951/7.

INVESTIGATIONS AT RUM JUNGLE, 1950

Field work at Rum Jungle commenced on 18th May and terminated on 15th November. The greater part of the field season was spent in detailed geological and geophysical examination and testing of:-

- (a) White's Deposit
- (b) Dyson's Find
- (c) Mt. Fitch Radioactive Area
- (d) Brown's Workings
- (e) Brown's Extended.

(a) WHITE'S DEPOSIT.

This deposit was found by prospector J.M. White in 1949. Detailed geological and radiometric investigations together with costeaning has shown that three lines of secondary uranium mineralisation are present in graphitic schists and slates which strike N 80°E and dip 80°N. The three lines of secondary uranium mineralisation have been called the "North", "Middle" and "South" lines. /st

"North Line". The "North Line" which is in graphitic slates is approximately 75 feet long and three feet wide. Two shafts, No.1 shaft (53 ft. VD) and No.3 shaft (12 ft. VD) were sunk on this line which was found to extend vertically downwards for 15 feet in No.1 shaft and 10 feet in No.3 shaft. The uranium-bearing slates are synclinally folded in No.1 shaft and are terminated by a fault which strikes N 40°E and dips 50°E in No.3 shaft. The average grade of the ore exposed in the shafts is 0.3% U₃O₈ by Geiger assay. The indicated ore is 450 tons 0.3% U₃O₈.

"Middle Line". The "Middle Line" is approximately 100 feet long and its width ranges from 5 feet to 15 feet. Cross-cutting to the south from the bottom of No.1 shaft to intersect this line stopped when within four feet of the line. A diamond drill hole (W.D.F.) shows that sulphide occurs over a width of five feet about 70 feet below the surface. Apart from one sample containing approximately 1% U₃O₈ no assay results are available.

"South Line". Radiometric work in 1949 discovered a soil-covered area of high radioactivity situated about 200 feet to the west-south-west of No.1 shaft. A costean exposed secondary uranium minerals and a shaft (No.2) was sunk to a depth of 45 feet. At the bottom of the shaft a drive was extended to 14 feet to the east. A fault which strikes N 60°W and dips 60°E, passes through the shaft and appears to have displaced the ore bearing horizon. Radiometric assays of sludge samples from diamond drill hole (W.D.A.) underneath No.2 shaft indicates that ore varying from 1.9% U₃O₈ to 3.5% U₃O₈ over a width of approximately 25 feet may possibly occur between the 45 feet and 90 feet levels. A drill hole (W.D.C.) 25 feet to the west did not encounter uranium mineralisation. Drill hole W.D.B. 50 feet to the west of No.2 shaft indicates that uranium ore varying from 0.6% U₃O₈ to 3.2% U₃O₈ may occur over a width of 10 feet between the 20 feet and 43 feet levels. Results of drill hole W.D.E. 25 feet north-east of W.D.A. are comparable to those obtained in W.D.A. These sludge assays are not completely reliable as a guide to width and grade of ore but they do give an indication of the position of mineralised zones at depth.

In No.2 shaft primary uranium ore is found within 28 feet of the surface. The average grade of ore in the oxidised zone is 0.5% U₃O₈. The grade of the primary ore over a width of 5 feet between the 28 feet and 45 feet levels is about 1.5%. The true width of uranium mineralisation in the

shaft has yet to be determined by cross-cutting. The following amounts of ore are estimated to have been removed from the shaft and drive:- 60 tons 0.5% U₃O₈ from the oxidised zone and 70 tons 1% U₃O₈ from the primary zone. The accurate estimation of indicated and inferred ore in the Rum Jungle uranium prospects is difficult, because of the irregular distribution of the uranium minerals. The fact that the mineralisation is irregular does not, of itself necessarily mean that the deposit is of small value as this feature was noted at the important Shinkolobwe and Great Bear Lake deposits and is characteristic of uranium ores. However, it does mean that, until further underground exposures of the deposits are available, estimates of ore reserves may be inaccurate.

At White's Prospect, four drill holes and a shaft have tested the south lode over a length of 100 feet, and all except one drill hole intersected uranium-bearing ores. It seems unlikely that ore extends far east of the easternmost drill hole (W.D.E.) but it is probable that the lode extends at least for some distance west of the westernmost hole (W.D.B.). The work carried out thus indicates that uranium mineralisation extends over a length of 100 feet but it appears likely that there is considerable variation in grade over this distance. Drill holes have indicated lode widths from 10 to 20 feet.

Radiometric assays of drill sludges have yet to be completed and until this is done grade estimates are unsound. However, the grade indicated by field tests is of the order of one per cent U₃O₈. The ore in the secondary zone appears to contain approximately 0.5% U₃O₈.

The amount of work carried out so far does not permit an estimate of the grade of the primary ore to be made at this stage.

(b) DYSON'S FIND.

Dyson's Find is situated about one mile to the north-east of White's Deposit. The rocks of the area are graphitic schists, slates and quartzites which strike N 20° W and dip 30° - 60° east. The area was discovered by Mr. D. Dyson during a reconnaissance Geiger Muller traverse. A costean 42 feet long exposed secondary uranium mineralisation in three seams, each of which is three to four feet in width; no copper minerals are present, all seams gave readings greater than 50 counts per minute on Ratemeter type 1011, which indicate that the grade of the ore is greater than 1%. Some samples assayed 5% U₃O₈.

Three other costeans were bulldozed in the area, one to the south and two to the north of the original costean. Results indicate that the lode system extends over a length of 130 feet though individual seams may be considerably shorter.

A shaft was sunk on the westernmost seam exposed in the first costean (see sketch cross-section) to a vertical depth of 53 feet. At approximately 21 feet from the surface, the zone of mineralisation dipped out of the shaft at approximately 30 degrees to the east. Sinking was continued and another seam dipping about 30 degrees to the east was encountered. At the cessation of operations in November, the zone of primary mineralisation had not been reached.

Complete sampling results are not yet available but experience on the field suggests that the average grade of U₃O₈ of the secondary ore possibly exceeds 1% U₃O₈.

(c) MT. FITCH RADIOACTIVE AREA.

In 1949, prospector J.M. White drew attention to copper mineralisation at Mt. Fitch and in 1950 geological and radiometric work in the northern portion of the area showed that radioactivity occurs over a distance of 600 feet. The uranium mineralisation occurs near the junction of silicified graphitic slates with a limestone bed. Two costeans, several postholes, three diamond drill holes and one shaft (20 feet V.D) tested the deposit. In the southern portion of the area a shaft was sunk to test a small area of radioactivity. The shaft was sunk vertically for 10 feet and then 21 feet to the west on an underlay of 60 degrees.

The testing showed that very low-grade uranium mineralisation was present but results were not sufficiently encouraging to warrant further work at present.

(d) BROWN'S WORKINGS.

The presence of secondary copper minerals in graphitic schists and slates drew attention to the area. Geological mapping and radiometric investigations showed that uranium mineralisation was present in graphitic schists over a distance of 200 feet. The uranium appears to be confined to two seams up to 2 feet in width. An old shaft situated in this area of radioactivity was cleaned out to a depth of 34 feet with a view to testing the prospect, but owing to the necessity of carrying out more urgent work, the testing had to be postponed.

(e) BROWN'S EXTENDED.

Brown's Extended is situated approximately halfway between Brown's Workings and White's Deposits. The area was located by radiometric traverses along a graphitic schist - limestone junction. A bulldozed costean did not reveal signs of extensive mineralisation but further work is warranted.

INVESTIGATIONS AT FERGUSSON RIVER 1950.

Radioactive minerals were reported from the Fergusson River, situated 21.7 miles by car south of Pine Creek on the Stuart Highway. The deposit is 35 feet to the east of the road. At the surface torbernite occurred in a joint plane over a length of 20 feet and a width of 6 to 12 inches. Copper staining was also present. A shaft was sunk to a depth of 20 feet and a 2-inch vein containing pyrite and chalcopyrite was exposed. This primary material is radioactive but has not yet been assayed. The known deposit is small and is apparently low in grade. However, there is scope for further investigation in the area along the junction of the basic lavas and granitised rocks in which the deposit is situated.

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