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DEPARTMENT OF MINES

South Australia

NORTH EAST URANIUM EXPLORATION

CROCKER WELL AREA.

PROGRESS REPORT FOR MONTH ENDING 19/2/'54.

By

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REPORT No. ^{GS/} C.W. 16.

MICROFILMED

S U M M A R Y.

Diamond drilling at Crocker East is continuing, and twelve holes of the total programme of twenty holes are now complete. Radiometric assays have been received for core samples from seven of the boreholes. The weighted average U_3O_8 content has been calculated for each borehole and varies from 0.09 lbs. U_3O_8 per long ton (Bore EC 9) to 2.7 lbs. (Bore EC 1). The overall weighted U_3O_8 content is 0.67 lbs. per long ton for a total sample length of 1,080 feet.

Estimates of ore grades based on geiger probe results are considerably higher and are at present being checked by the Geophysical Section.

On present indications, the original boring programme at Crocker East should be completed on approximately 19th March, 1954, but it now seems probable that several more holes will be necessary in the Main Eastern Prospect at least before a final appraisal can be made.

The cost of drilling during January was £2/6/11 per foot.

The discovery of scheelite and additional cobalt occurrences in calc-silicate rocks near the Ethudna Mines is reported, as well as further uranium prospects near Glenorchy Station and Crocker Well camp.

P L A N.

A detailed geological plan of the Crocker East Prospect (U.S. 268) accompanies this report. It is a composite plan at a scale of 100 feet to the inch of the whole of the known area of absite mineralisation, embracing the Main Eastern Prospect which is being tested by 9 boreholes, the Central Prospect (4 boreholes), the South-Western Prospect (4 boreholes) and the Western Prospect (3 boreholes).

The mineralised areas and boreholes are indicated on the plan.

C R O C K E R E A S T P R O S P E C T.

The programme of diamond drilling in the four separate prospects at Crocker East comprises twenty 150 ft. holes. Twelve boreholes have been completed, including all sites at the Main Eastern Prospect. Progress in the new year has been delayed by mechanical faults in each of the 3 plants, and more recently by the resignation of a drill operator. Only 2 drilling crews are at present operating in the area, and present indications are that the programme will be completed on about 19th March, 1954.

Boring to date has proven that absite mineralisation in this area is generally sporadic in distribution, occurring chiefly as disseminated pea-sized grains intergrown with rutile as replacements of biotite in fissures. Except for a narrow vein intersected in borehole E.C. 1, no local concentrations of absite have been found in fracture zones in contrast to the findings at the original Crocker Well Prospect. A wide variety of minerals have been found in association with the absite, including a highly radioactive mineral resembling davidite or polycrase, zeolite, pyrites, purple fluorite and

orthite.

Radiometric assays are to hand from seven boreholes, and the following weighted average assays are an indication of the grade of the deposit where tested to date:-

<u>BOREHOLE</u>	<u>TOTAL FOOTAGE</u>		<u>WEIGHTED ASSAY</u>
	Ft.	ins.	lbs/long ton U ₃ O ₈
EC 1	175	0	2.7
EC 2	149	0	0.11
EC 3	176	10	0.89
EC 4	149	11	0.11
EC 5	150	0	0.05
EC 6	150	0	0.15
EC 9	130	0	0.09

DRILLING PROGRESS - OROCKER WELL EAST.

BOREHOLE No.	COORDINATES	MAP REFERENCE	DRILLING PROGRESS	DRILLER	GEOLOGICAL LOG	RADIOMETRIC BOREHOLE LOG	DES- PATCHED FOR ASSAY	ASSAY RE- SULTS
EC 1	5200 N. : 4800 E.	MAIN	Completed at 175 ft.	Strempel No. 1	D. King	4/12/53	Yes	Recd.
EC 2	5200 N. : 4900 E.	EASTERN	Completed at 149 ft.	Strempel No. 2	M. Reyner	4/12/53	Yes	Recd.
EC 3	5150 N. : 4600 E.	PROSPECT	Completed at 177 ft.	Leschen No. 1	D. King	4/12/53	Yes	Recd.
EC 4	5100 N. : 4500 E.	PLAN U.S. 207	Completed at 150 ft.	Leschen No. 2	D. King	10/2/54	Yes	Recd.
EC 5	5250 N. : 4700 E.	OR	Completed at 150 ft.	Strempel No. 3	D. King	4/12/53	Yes	Recd.
EC 6	5200 N. : 4600 E.	PLAN U.S.	Completed at 150 ft.	Strempel No. 4	D. King	10/2/54	Yes	Recd.
EC 7	5200 N. : 4500 E.							
EC 8	5100 N. : 4400 E.		Completed at 150 ft.	Leschen No. 3	D. King	10/2/54		
EC 9	5150 N. : 4700 E.		Abandoned at 130 ft.	Serrao No. 1	D. King		Yes	Recd.
EC 10	4750 N. : 3900 E.	CENTRAL	Completed at 150 ft.	Strempel No. 5	D. King	10/2/54		
EC 11	3800 N. : 3800 E.	PROSPECT	Completed at 150' 9"	Leschen No. 5	D. King			
EC 12	4900 N. : 3800 E.	PLAN U.S. 207	Completed at 150 ft.	Leschen No. 4		10/2/54		
EC 13	4850 N. : 3900 E.	OR PLAN U.S.	Completed at 153 ft.	Strempel No. 6		10/2/54		
EC 14	3600 N. : 1300 E.	SOUTH-WESTERN						
EC 15	3550 N. : 1250 E.	PROSPECT						
EC 16	3550 N. : 1200 E.	PLAN U.S. 261						
EC 17	3600 N. : 1150 E.	OR PLAN U.S.						
EC 18	4300 N. : 1250 E.	WESTERN	In progress	Serrao No. 2				
EC 19	4350 N. : 1200 E.	PROSPECT	In progress	Leschen No. 6				
EC 20	4300 N. : 1150 E.	PLAN U.S. 260 OR PLAN U.S.						

These figures probably underestimate the true grade, as in almost all cases there is very poor core recovery in the fractured and mineralised rock.

Radiometric logging of completed boreholes was carried out on 9th February, 1954, by D. Pegum, Assistant Geophysicist, and the results indicate a grade consistently higher than 1 lb. U₃ O₈ per ton. The best values were usually found at shallow depth.

The Costing Section statement for the period 6th December, 1953, to 31st January, 1954, reveals an increase in drilling costs from £1. 19. 0 to £2. 6. 11 per foot.

EXPLORATION OF MINERALISED CALC-SILICATE METASEDIMENTS.

The discovery of interesting cobalt mineralisation in a narrow bed of metamorphosed limestone south-east of Ethindna Hill (Ethindna East Prospect), and the presence of the same bed adjacent to the old workings at the Ethindna (New Year Gift) Cobalt-Copper Mines, has instigated further detailed prospecting of this horizon. Results are as follow:-

(a) ETHIUDNA EAST COBALT:

A detailed geological map has been prepared of this area, and a site selected for one 150 ft. angled D.D. hole. The mineralisation at the surface outcrop occurs in shoots following the bedding along the northern limb of a tight N.E. - S.W. anticlinal drag-fold in calc-silicate rocks, and the borehole is designed to intersect this horizon at a depth of approximately 40 ft.

Additional prospecting in the vicinity of this deposit has resulted in the discovery of small amounts of cobaltite and glaucodot in the same bed one quarter mile east of the main prospect.

(b) OCCURRENCE OF SCHEELITE:

During a recent consultation with Enterprise Exploration geologists at Broken Hill, it was recognised that the altered limestones of the Plumbago area closely resemble lithologically the mineralised "Ettlewood Limestone" of the Broken Hill district. The writer was informed of the presence of scheelite as disseminations in the "Ettlewood Limestones" over extensive areas, and a subsequent reconnaissance of the calc-silicate bed in the Ethudna Mine area and Ethudna East Cobalt Prospect, using a U. - V. lamp, resulted in the discovery of small amounts of scheelite crystals.

Systematic testing for scheelite will shortly follow.

(c) ETHUDNA MINES:

A detailed geological map of the area containing the old cobalt-copper mines is in the course of preparation. Sampling and recommendations for drilling will follow.

ADDITIONAL URANIUM PROSPECTS.

During this period the field prospecting party discovered two new areas of uranium mineralisation.

1. Talbot Gum Creek Prospect: In this area, situated three miles S.E. of Glenorchy Station, there are ten separate occurrences of radioactive fissured granitoid rocks and migmatites stained with uranophane. The primary mineral has not been identified.

These occurrences strongly resemble the sporadic uranium mineralisation previously found near Windamerta Hill (Windamerta Prospect). Samples have been submitted for mineralogical examination, but no further field exploration is considered to be justified at present.

2. Camel Hump Prospect: Near the crest of a high
granitic hill 2 miles N.E. of the
Crocker Well camp, there is a large area of pegmatitic biotite
granite with moderate radioactivity intruding leucogranite
along shear zones. The radioactive rock appears identical
to the daviditic pegmatite at Mindemereeka Hill. Field
exploration is proceeding.

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DK:CO

1st March, 1954.