DEPARTMENT OF MINES

SOUTH AUSTRALIA

GROUND SCINTILLATION SURVEY OF DEAD HORSE BAY URANIUM PROSPECT.

by

I. A. MUMME

February 25, 1955.

Supplement to
Geophysical Report 3/55.

39/37.

G.S. 252.

D.M. 204/55.

DEPARTMENT OF MINES

SOUTH AUSTRALIA.

BRANCH — GEOLOGICAL SURVEY.

REPORT NO.

SUPPLEMENT TO — GEOPHYSICAL REPORT NO. 3/55.

SUBJECT — GROUND SCINTILLATION SURVEY OF DEAD HORSE BAY URANIUM PROSPECT.

D.M. 204/55.

- BY -

I. A. MUMME

ASSISTANT GEOPHYSICIST.

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- SUMMARY -

Ground scintillometer gridding and reconnaissance work was carried out by the writer at Dead Horse Bay Uranium Prospect, and an isorad plan prepared. Owing to the large amount of soil cover in the area and the weathered nature of the outcrops, the writer recommends that further investigations be carried out at the prospect.

- INTRODUCTION -

This prospect was discovered by C. A. Sykes of 16 Pym Street, Croyden Park, while prospecting in the area with a geiger counter for uranium mineralization.

Radioactive specimens were assayed at the Parkside laboratories and the presence of uranium confirmed by radiometric ratio tests.

The prospect is situated approximately 1.1 miles north of Pine Point and occurs in a bay known locally as "Dead Horse" bay.

- PREVIOUS GEOPHYSICAL AND GEOLOGICAL WORK -

No detailed geological work has been conducted in this area, however regional mapping has been carried out by officers of the Mines Department and incorporated in the structural geology Map of South Australia.

Essentially the basement rocks are lower precambrian in age and have undergone varying stages of dynamo-thermal metamorphism.

These rocks have been intruded by batholiths, bosses and associated dykes of porphyry in upper precambrian or lower palaeozoic time introducing copper and uranium minerals.

Some basic dykes can be seen near Pine Point. Unconformably above these are, in part, cambrian to ordovician limestones and shales.

The surface is covered by soil and travertine.

- METHODS USED -

A base line 400 feet long was laid out in a direction of 6° East of True North, and a sketch plan of the area prepared.

Scintillometer traversing was carried out by the writer, the readings corrected for drift, and an isorad plan prepared.

- INTERPRETATION -

The purpose of this survey was to map variations in surface radioactivity at Dead Horse Bay Uranium Prospect as an aid in determining the type of uraniferous deposit present.

The radioactive anomaly designated as RA1 on the accompanying plan occurs as yellow encrustation of a secondary uranium salt in fractures in clay, and fractured siliceous argillaceous rocks.

Radioactive anomaly RA2 occurs on the cliff face in weathered rock similar to that occurring at RA1.

Minor radioactive anomalies RA3, 4 and 5 occur on the beach and the nature of them is obscured by the large amount of sand, gravel and boulders strewn over the beach.

No copper mineralization can be seen in the radio-active areas although a floater of travertine speckled with malachite was located on the beach. This may be foreign to the area.

Only secondary uranium mineralization was observed at this prospect and the rocks exhibiting radioactive properties are themselves strongly weathered.

The nature of the occurrence suggests that the uranium mineralization is either —

On what evidence?

1. Syngenetic and occurring in lower Precambrian metamorphic rocks or on kaolinized aplites or porphyries.

2. Epigenetic and introduced from adjacent porphyry intrusions into Precambrian metamorphics.

- RECOMMENDATIONS -

Owing to the large amount of soil cover (both transport and residual) in the area inspected, and the weathered nature of the uraniferous material exposed, it is not possible to assess the potential of the prospect and the writer recommends the following investigations be undertaken —

(1) Mineralogical determination of the uranium mineral and for minerals present.

(2) Petrological study of the rock type in which encrustation of the yellow uranium mineral occurs.

(3) Chemically test the radioactive specimens for thorium minerals.

(4) Opening up of the radioactive anomalies by shallow shaft sinking or costeaning.

(5) Geological mapping of the area be carried out.

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I. A. MUMME.
ASSISTANT GEOPHYSICIST.

Associated Drawing:

US 495.

N

SCRUB

SCRUB

BEACH

BEACH

RA1

RA2

RA3

RA4

RA5

400

350

300

250

200

150

100

50

25

50

35

25

25

35

50

100

50

35

25

25

35

25

35

0

BASE LINE
BRG. 6° E. OF T.N.

GULF

ST. VINCENT

LEGEND

LESS THAN 25 C.P.S.

25 C.P.S. AND LESS THAN 35 C.P.S.

35 C.P.S. " " " 50 C.P.S.

50 C.P.S. " " " 100 C.P.S.

100 C.P.S. " " " 200 C.P.S.

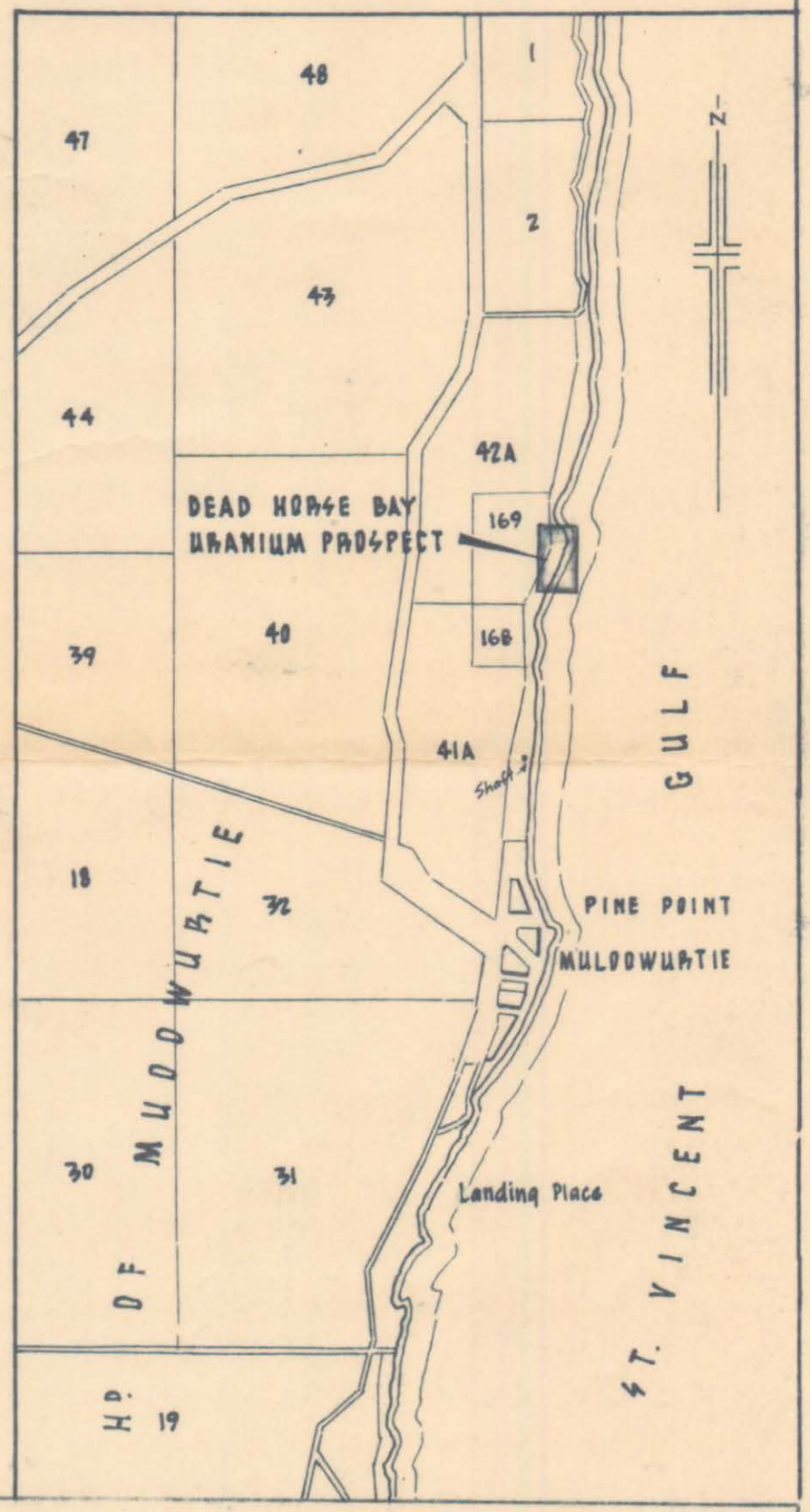
RADIO-ACTIVE ANOMALY RA5

SCALE

FEET 0 20 40 80 120 160 200 FEET

LOCALITY PLAN

SCALE - 40 CHN. TO 1 INCH



S.A. DEPARTMENT OF MINES

DEAD HORSE BAY
URANIUM PROSPECT

No.	Amendment	Exd.	Date

Approved	Passed		Scale: 40' to 1"
Director		Drn. K Tcd. Ckd. R.R. Exd.	US495 Date 21·2·55