COMMONWEALTH OF AUSTRALIA.

MINISTRY OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS.

RECORDS.

1953/29

CRATER LINE INVESTIGATION, RUM JUNGLE, N.T.

by

P. H. Dodd.

CANBERRA

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SUMMARY.

The Crater Line consists of a series of rock exposures outcropping in an arcuate pattern around the southwestern flank of the Rum Jungle granite. The exposed rocks are believed to represent part of the Brocks Creek group of Lower Proterozoic age. The Crater formation, the major mappable unit in the line of exposures, consists of metamophosed clastic rocks totalling approximately 1500 feet in thickness.

Significant radioactivity is restricted to three stratigraphic zones within the Crater formation. These have been mapped and are designated Crater Pebble Beds, Number One Pebble Bed, and Number Two Pebble Bed. Number One Pebble Bed appears to contain the most significant anomalies. The radioactivity is restricted to conglomerate beds. There may be a genetic relationship to the greater permeability formerly localized in the conglomeratic zones. The radioactivity is not localized by tectonic structures such as folds, faults, or changes in dip.

No source of the radioactivity has been identified. The radioactivity probably emanates from members of the uranium disintegration series. The uranium has been leached from the surface exposures by severe weathering. Exposed rocks must exceed eight times normal background throughout a minimum length of twenty-five feet to be classed as a significant anomaly. Four areas containing significant anomalies and deserving further investigation were found along the Crater Line. The potential of the Crater Line as a source of uranium cannot be estimated at this time. If the anomalies represent former uranium deposits then several orebodies could be discovered by further exploration. Laboratory investigation of the exposed radioactive rock as well as unweathered cores from depth under the anomalies is required to determine the source of the radioactivity before extensive field investigations are warranted. Core drilling of an anomaly in Area "B" is recommended to obtain information about the unweathered and, perhaps, unleached radioactive rock. If uranium or radioactivity equivalent to ore grade is found then detailed radiation surveys and extensive core drilling will be desirable.

INTRODUCTION.

Location.

The area discussed in this report is located in the hundred of Goyder, County of Palmerston, about fifty-five miles south of Darwin, N.T. It consists of an arcuate strip ranging in width from 1600 to 2000 feet approximately seven miles in length. This strip generally parallels the North Australian Railway (Darwin-Birdum) from a point three quarters of a mile north of Rum Jungle siding to a position about three quarters of a mile north of Batchelor Airfield. It then parallels the Batchelor road and extends to the east as far as the Adelaide River road.

Previous Investigation.

The first radioactive anomaly in this area was discovered in June, 1951, by Matheson and Dyson near the present site of the Crater Prospect, adjacent to a bomb crater from which the name was derived, and from which the sequence of rocks has received the name Crater formation. The line of exposures along the strike of these rocks is called the Crater Line. This area was mapped in a reconnaissance programme in 1951 by various members of the Rum Jungle Party of the Breau of Mineral Resources on photographs with a scale of approximately 1200 feet to the inch. A detailed geological map prepared by N. J. Mackay, and a radiometric survey made by Dyson, cover the locality of original discovery adjacent to the Crater Prospect (Mackay, 1953). The area is also described in the general report on Rum Jungle investigations during 1951 and 1952 (Matheson, 1953). Two diamond drill holes, 110 and 154 feet deep, were completed in July, 1952, to test the Crater Prospect anomaly. Core recovery was ten to twenty percent and only one zone produced sludge samples assaying as much as 0.01% equivalent uranium oxide.

Method of Mapping.

The base map for this report was prepared from photographs of the Darwin-Pine Creek series, Survey Number 1176, June, 1951. The map scale is approximately one inch to 1250 feet, the scale of the contact prints on which the mapping was done. The orientation, crude control, and grid system were transposed from the inch to the mile military maps. Rock unit boundaries were drawn on the photos and later traced onto the base map together with roads and drainages. Points of more detailed observations were pricked through the photos and numbered on the reverse side to correspond with notes in a field book. The data from the field book has been summarized on the map. Point locations, rock boundaries, and tracks are located within one tenth of an inch on the photographs; basic radial lines were used to orient and tie adjacent photographs. Maximum distortion amounts to abound three tenths of an inch from one photograph to the next, the maximum occurring along the side lap. Therefore, maximum planimetric distortion within the map should be on the three hundred feet per mile with relatively greater accuracy between adjacent points, probably about 100 to 150 feet. The detailed radiometric survey of Area B, prepared by W. Compston, is controlled by a grid based on tape measurements from a base line. The origin of the base line is assumed, and the bearing is determined by compass at the origin station. Accuracy of control should be within two feet in the hundred. The radioactivity was recorded by a number 1011 portable rate meter using B-5 tubes (Carpet Sweeper).

GEOLOGY OF THE CRATER LINE.

Stratigraphy and Lithology.

In the Rum Jungle district the rocks of the Crater formation and the metamorphosed sediments stratigraphically above and below are believed to represent the Brocks Creek Group of Lower Proterozoic age (Noakes, 1949). In the area mapped the Crater formation is underlain stratigraphically by a light grey, fine to medium-grained quartzite about 400 feet thick. Below this are schistose slates and recrystallized limestones (dolomitic?) for which thicknesses and other relationships are unknown because of poor exposure, granitization, or absorption into the Rum Jungle granite. The rocks stratigraphically above the Crater formation are quartzite, slate, and limestone in ascending order. The upper and lower contacts of the Crater formation are not precise, both being quartzitic grit and quartzite contacts. Metamorphism and superficial deposits obscure the contacts.

The Crater formation which is from 1000 to 1500 feet in thickness has been subdivided into members on the basis of lithologic differences. From the bottom up the members are:

1. The Basal Grit is 100 to 150 feet in thickness and is a fine to coarse grit weathering to a light tan or orange-brown. Sericite is common, especially in the slightly sheared portions adjacent to the granite.

2. The Hematitic Boulder Conglomerate is thirty-five to one hundred feet in thickness and is composed of lenses of pebble, cobble, and boulder conglomerate. The pebbles, cobbles, and boulders are of grey and black quartzite, and a finely banded, highly folded siliceous hematitic rock bearing a field classification of "iron formation". Grit and sand-size quartz, quartzite, and hematite particles fill the interstices;

the cement is silica and specularite. The pebbles and boulders are sub-angular to rounded with a tendency toward ellipsoid shapes resulting from dynamic metamorphism. It is believed that the hematite was derived from the "iron formation" sediments and that it has been redistributed and recrystallized by metamorphic processes. This member is the most easily recognized unit and is persistent throughout the Rum Jungle district forming an excellent stratigraphical marker.

3. The Crater Pebble Beds are fifty to one hundred feet in thickness usually separated from the Hematite Boulder Conglomerate by a few feet of sheared sericitic grit. The pebbles are unevenly distributed in lenses zero to twenty feet thick in a bedded matrix of coarse grit. Most of the pebbles are less than three inches in diameter and represent the same lithologies present in the boulder conglomerate. Specularite is often present but is not as prominent as in the Boulder Conglomerate. This is the member in which the Crater Prospect is located. It is commonly slightly radioactive.

4. The Upper Grit rests on the Crater Pebble Beds and is gradational with them. It is a sequence of coarse clastic rocks ranging from sandstone through grit to pebble conglomerate. Portions of this zone are quartzitic and cross bedded. The pebble conglomerate beds appear to hold closely to two distinct stratigraphical positions, Number One Pebble Bed about 350 to 400 feet above the Boulder Conglomerate and Number Two Pebble Bed approximately 900 to 1000 feet above the Boulder Conglomerate. Neither of these pebble beds have been recognized west of the Fettler's camp but this may be due to cover. East of the 01,000E grid line the beds appear to be nearly continuous within the area mapped. Small gaps are probably present. Number One Pebble Bed ranges in thickness from zero to fifteen feet and Number Two Pebble Bed ranges in thickness from zero to ten feet where they have been observed. An average thickness might be six feet. The pebbles range in size from one-quarter to three inches in diameter and are sub-angular to rounded with good sphericity. The modal size is estimated to be between one-half and one inch in diameter. The largest percentage of pebbles is quartzite, a lesser percentage is of "vein" quartz, and a few pebbles are ferruginous slate (iron formation). The relative percentages of each pebble type changes along the beds. More often than not specularite is present and much of the cementing material is believed to be iron oxide and silica forming a quartzite conglomerate. These pebble beds are usually slightly radioactive.

<u>Structure.</u>

The Crater Line crops out in an arcuate pattern around the southwestern and southern flank of an area known to contain granitic type rocks. The form of the granitic rocks is essentially unknown. The accepted hypothesis is that the Rum Jungle granite emplacement domed the metamorphosed sediments thus causing the radial pattern of dips away from the granitic area. The pre-granite structure is unknown as well as the form of the granite. There is an alternative hypothesis that structures essentially similar to those observed today existed prior to granite emplacement. The granite may prove to be a series of small intrusive bosses with surrounding granitized haloe. If the latter hypothesis were correct, it would be better to visualize the area discussed in this report as being located on the south limb of a large anticline which is steeply plunging westward. The adjacent syncline to the north would then be represented by the "embayment area" of the Rum Jungle district.

Disregarding such interpretive data, the facts remain that all of the beds observed dip westerly on the west and southerly on the south side. The amount of dip ranges from a low of 40 degrees to vertical. Changes in dip are both common and sudden along strike. The most abrupt changes were observed at faults.

Small tight folds were commonly observed. Some of the folds may be interpreted as dragging along faults. However, similar folds exist without evidence of faulting.

Numerous faults were observed and mapped. Most of the faults have small displacements of 25 to 200 feet. These can be interpreted as either dip slip or strike slip movements. One fault having an apparent displacement of 1100 feet on the surface would require 2250 feet of vertical movement to accomplish the offset by dip slip movement. This might be questioned. A radial pattern to the faulting is demonstrated by the mapping. The faults are more numerous and of greater displacement on the southwestern portion of the Crater Line (the axial zone of the plunging anticline?). Fifteen of the twenty-one faults offset the beds on the east side of the fault to the south. This could be accomplished by either strike slip movement in this direction or, if the dip of the beds is considered, by upward movement of the blocks to the east.

RADIOACTIVITY.

Relationship of Radioactivity to Stratigraphy and Lithology.

From observations made to date it can be stated that all radioactivity in excess of twice normal background, using a portable Austronic counter, is restricted to three stratigraphic zones. These are the Crater Pebble Beds, Number One Pebble Bed, and Number Two Pebble Bed, all units of the Crater formation as defined in this report. Also, it can be stated that wherever these units were tested with a counter radioactivity in excess of normal background was registered. A great percentage of the exposed rocks of these units registered twice normal background (100 counts perminute). Instrument readings from twenty to twenty-six times background (1000 to 1300 counts per minute) were noted in several localities (see map). The radioactivity is not homogeneously distributed throughout the rock even within small areas. Spots one or two feet in diameter may exceed the radioactivity in the surrounding rock tenfold.

As the significant radioactivity is restricted to the three conglomeratic units of the Crater formation, it can be stated that the radioactivity is localized in conglomerate. In the less restricted and more poorly defined Crater Pebble Beds low values of radioactivity were observed but the activity was widely disseminated. The Number One Pebble Bed, which is characteristically well defined, restricted in thickness variation, and better sorted, is also the unit with the most promising anomalies. In this unit anomalies of nine and ten times background attain a continuous strike length of fifty to one hundred feet. The Number Two Pebble Bed, which is often thinner and possibly less continuous than Number One Bed, contains some of the highest radioactive spots, but the anomalous values seldom extend more than five or ten feet in length.

Radioactivity and Structure.

No evidence of tectonic structure localizing the zones of radioactivity has been observed to date. There is a tendency for the stratigraphical top of the pebble beds to be slightly more radioactive than the bottom of the beds. Observed anomalies bear no fixed relationship to crests, limbs, or troughs of the minor folding of the beds. The anomalies are located in zones of intermediate dip, neither the steepest nor flatest dips are known loci of major anomalies. This is probably coincidence. Anomalies do not appear to be located on or adjacent to faults which offset the beds. In several localities where minor faults were filled with quartz veins the radioactivity appeared to diminish as the veins were approached and the quartz was barren. This would seem to indicate that the silica vein emplacement removed some of the material responsible for the radioactivity, in which instance the quartz is post radioactive mineral, or that the silica prohibited the introduction of the radioactive material. The former hypothesis is favoured.

Radioactivity and Mineralogy.

No radioactive minerals have been identified in the field. No fluorescence attributable to radioactive minerals has been observed. In a report of laboratory investigation of some samples of the more radioactive rock, November 17, 1952, W. B. Dallwitz lists the following heavy minerals other than hematite: zircon, monazite, ilmenite (?), anatase, cassiterite(?), leucoxene (?). In the summary Dallwitz states "Although this work has been essentially qualitative, the quantities of zircon and monazite obtained in the separations are quite insufficient to account for even the small degree of radioactivity shown by the sample. The fact that the radioactivity was reduced by about half through washing off the finer material shows that, either the radioactive substance is comparatively light and easily powdered, or that decomposition-products or uranium are contained in hematite, quartz, or mica. No fluorescing minerals were noted in the rock". To date the laboratory has failed to identify the source of radioactivity.

Source of the Radioactivity in the Crater Conglomerates.

No source for the radioactivity in the Crater formation has been identified. The following comments are the best estimate of the situation from the information at hand.

Specimen number R81/52 (see map), assay number 4111, was radiometrically assayed and found to contain 0.077% equivalent uranium oxide. Another portion of the same specimen was concentrated by panning to about one eighth of the volume. It was radiometrically assayed (no. 4112) and found to contain 0.45% equivalent uranium oxide. Dyson made absorption tests (betagamma ratio) and concluded on this scanty evidence that the radioactivity comes from the uranium series.

The only uranium minerals identified at the surface in the Rum Jungle district have been phosphates of uranium. The lithology of the Crater formation conglomerates does not appear favourable for abundant phosphate. Phosphate minerals are not mentioned in the laboratory reports; therefore, secondary uranium minerals should not be expected at the surface.

Uranium minerals are generally believed to be among the more soluble minerals found in nature, and uranium is readily transported in either alkaline or acid waters. It is postulated that uranium was once present in the radioactive rocks now exposed at the surface. It is believed that the long and rigorous weathering of the exposed rocks had leached out the uranium. How much of the uranium daughter products has also been removed cannot be estimated at this time. The conclusion is that the radioactivity comes from residual daughter products of the uranium series, probably radio-colloids intimately mixed with and absorbed onto the iron oxide. It has been recommended that alpha plates be used for autoradiograph studies of the alpha tracks as a possible method of verification. Also concentrated leach products from a large volume of sample might be tested with the fluorimeter for traces of uranium.

Significant Anomalies.

A question which cannot be conclusively answered at this stage of knowledge is "what is a significant anomaly?". Therefore, certain arbitary criteria have been used to classify radioactive anomalies found in the Crater formation. We are relatively sure that the very soluble uranium minerals are not in chemical equilibrium in the present surface environment of Crater rock exposures. If uranium were once present, it has probably been removed by natural leaching processes. How daughter products behave in this weathering environment is not known. They also might be expected to be partially leach but to a much lesser extent than the parent uranium.

Even assuming seventy-five percent leaching of the daughter products, and this may prove to be an excessive estimate, it would require radioactivity equivalent to about 0.03% uranium oxide to make an anomaly interesting for exploration and possible mining. If we assume the seventy-five percent leaching of daughter products and a 0.03% equivalent uranium oxide cut off, then the parent uranium once present, prior to leaching, would be in the order of 0.12% uranium oxide, close to the minimum ore grade. It is believed that an outcrop must register at least nine times normal background, and probably somewhat higher, on a geiger counter to contain 0.03% equivalent uranium oxide. If in the future we find that less complete leaching of daughter products has taken place in the weathering environment, then a higher standard for significant anomalies will be established.

The width and length of an anomaly required to make it significant would necessarily depend on the grade. However, at this time it does not seem advisable to consider lengths of less than twenty-five feet of minimum grade as significant. This is especially true where drilling will be used to explore the anomaly as smaller anomalies could not be assumed to extend downward sufficiently to assure intersections at depths imposed by the weathered zone.

Anomalies Requiring Further Investigation.

Four areas of anomalies were mapped in this reconnaissance programme which require further investigation. These areas have been designated A, B, C, and D and are indicated on the map of the Crater Line.

Area A, located at coordinates 39,000N-03,000E, consists of three small exposures of Number One PebblesBed. Each cropping is about fifteen to twenty feet long and four to ten feet wide intermittently exposed along a distance of 700 to 800 feet. The Austronic counter indicated radioactivity eight to twenty times background. Two specimens, (of the most radioactive rock in the area) numbers R78/52 and R79/52, gave radiometric assays of 0.05% eU_3O_8 and 0.06% eU_3O_8 respectively.

Area B, located at coordinates 38,160N-04,750E, consists of five groups of anomalies in Number One Pebble Bed each exceeding nine times background. W. Compston made a detailed radiometric survey of the area over a strike length of 1600 feet. Spot counts up to twenty times background were noted, but this area is most significant for one hundred foot lengths of continuous radioactivity nine times background with ten to fifty foot lengths of twelve and fourteen times background. The dip of the beds is 50-60 degrees to the south. This area is particularly suitable for immediate testing because of the ease of accessibility and possibility of developing a local supply of drilling water.

Area C, located at coordinates 38,900N-07,900E, is a zone in Number One Pebble Bed 600 feet long which contains one anomaly eight to sixteen times background seventy feet long, one anomaly of seven to sixteen times background fifty feet long, and another anomaly of seven times background fifty feet long. The beds dip 65-70 degrees south. This area is also easily accessible by the Batchelor Gold Prospect track. Water for drilling would be available about one mile distant in Coomalie Creek.

Area D, located at coordinates 39,400N-09,200E, is a zone in Number One Pebble Bed 150 feet in length with a seven to sixteen times background anomaly. The conglomerate bed forms a "reef" five to six feet wide standing five to fifteen feet above the surrounding rocks on a ridge and dips 70 degrees to the south. This locality must be investigated further to determine ease of access and water supply. It is believed that no great problems in exploration would be encountered.

CONCLUSIONS AND RECOMMENDATIONS.

Conclusions.

The following conclusions have been drawn from the geological investigation of the Crater Line:

1. Significant radioactivity is restricted to three stratigraphical zones within the Crater formation. These have been mapped and are designated Crater Pebble Bed, Number One Pebble Bed, and Number Two Pebble Bed. Number One Pebble Bed appears to contain the most significant anomalies.

2. The radioactivity is restricted to conglomerate beds. There may be a genetic relationship to the greater permeability once localized in these beds.

3. The radioactivity does not appear to have been localized by tectonic structures such as folds, faults, or change in dip.

4. No source of the radioactivity has been identified to date. The radioactivity probably emanates from daughter products of uranium. The uranium has been leached from the surface exposures by severe weathering processes.

5. It is believed that to be classed as a significant radioactive anomaly exposed rocks must exceed eight times normal background throughout a minimum length of twenty-five feet.

6. Four areas were found along the Crater Line which can be classified as containing significant radioactive anomalies. These anomalies deserve further investigation

7. The potential of the Crater Line as a source of uranium production cannot be estimated at this time. No uranium has been found in the rocks of the Crater Line. However, the density of significant radioactive anomalies lends weight to the opinion that if the radioactivity stems from partially leached members of the uranium series, and if it represents former uranium deposits, then several uranium orebodies could be discovered by further exploration of the Crater Line radioactive anomalies.

Recommendations.

Further work on the radioactive anomalies of the Crater Line is strongly recommended. This work is divided into two types, laboratory investigation and field investigation.

Recommendations for laboratory work are:

1. Chemically analyse portions of specimens R73/52, R81/52, and the pan concentrate from R81/52 for uranium and thorium.

2. If negative results are obtained from the chemical analyses, leach portions of specimens (R73/52 through R81/52), concentrate the leach product into a wafer for fluorimeter determination of trace amounts of uranium.

3. Make alpha plate autoradiographs to determine the source of radiation and if possible the identity of the source.

4. Make complete petrographical and mineralogical investigations of specimens and similar investigations of any drill cores. Electron microscopic work and spectroscopic analyses are recommended as a phase of the mineralogical investigations.

5. It is imperative that every effort be made to determine whether or not uranium or uranium decomposition products are causing the radioactive anomalies before extensive and expensive field investigations can be properly planned and executed.

Recommendations for field work are:

1. Test the radioactive anomaly located 125 feet south of the base peg of the detailed survey of Area B (see detailed map). The Number One Pebble Bed dips 55 degrees south at this point. Two to four holes will be required depending on the results. Vertical drill holes of NX or BX size are recommended to assure reasonable core recovery and large samples. The vertical hole will test more of the interesting zone than a hole normal to the dip. The favourable zone should be tested at a depth of 100 feet below the surface. This depth is believed to be below the water table and perhaps below the zone of rigorous weathering. If the 100 foot test indicates the presence of uranium or an appreciable increase in equivalent radioactivity then 200 foot intersections are recommended to assure sampling of the bed below the zone of oxidation and weathering. Complete laboratory investigations of the cores should be made as outlined above.

2. If the first anomaly tested produces uranium or the radioactivity increases to the equivalent of ore grade then further testing of this anomaly by drilling will be necessary. Also testing of adjacent anomalies in Area B will then be warranted.

3. If one or more of the Area B anomalies contain uranium or radioactivity equivalent to ore grade then detailed radiometric surveys of Areas A, C, and D should be made with a scintillometer to locate testing sites for core drilling.

4. The best sites should be tested below the weathered zone by core drilling. Favourable answers from the laboratory investigations of the cores will require laying out a general exploration programme for the known anomalies and further prospecting of the favourable zones of the Crater formation throughout the Rum Jungle district.

5. If at any time the source of the radioactivity is discovered to be other than uranium series elements then the programme recommended here should be discontinued. Discovery of submarginal uranium deposits will require policy decisions before continuing the work.

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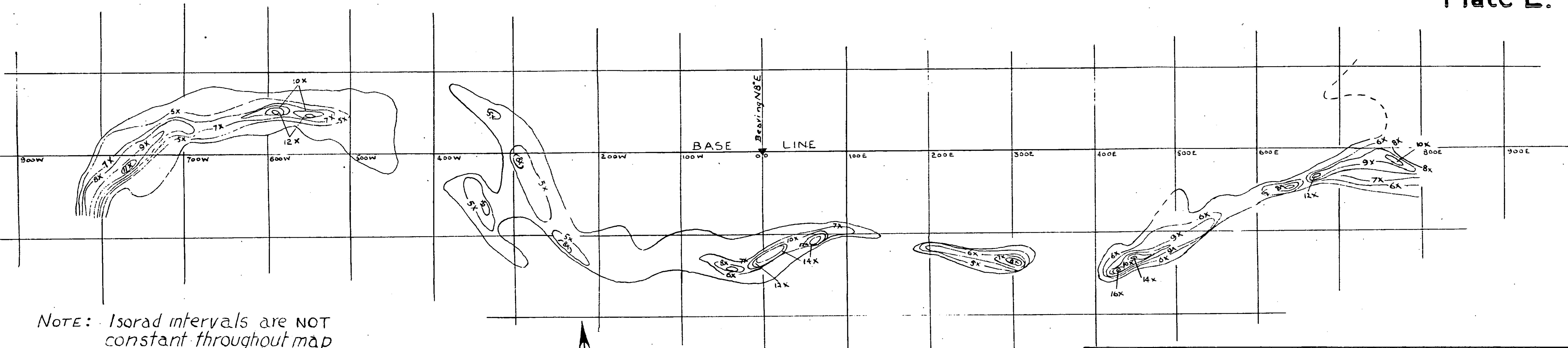
Mackay, N.J., 1953 : Crater Prospect, 1951. Bur.Min.Res., Geol.Records Rept. 1953/28.

Noakes, L.C., 1949 : A Geological Reconnaissance of the Katherine-Darwin Region, N.T., Bur.Min.Res., Bull. 16.


Plate I.
GEOLOGICAL PLAN
CRATER GRIT FORMATION
SOUTH FLANK OF RUM JUNGLE STRUCTURE
NORTHERN TERRITORY, AUSTRALIA.
SCALE
Feet 0 1000 2000 3000 4000 5000 6000 Feet
REFERENCE
BROCKS CREEK GROUP?
LIMESTONE
QUARTZITE
CRATER GRIT
QUARTZITIC GRIT AND SANDSTONE
HEMATITIC BOULDER CONGLOMERATE
CRATER PEBBLE BEDS
NUMBER ONE PEBBLE CONGLOMERATE
NUMBER TWO PEBBLE CONGLOMERATE
RED SCHIST
GRANITE - intrusive fine grained
DOLERITE
QUARTZ VEINS
FAULT - DEFINITE
FAULT - APPROXIMATE
FAULT - DOUBTFUL
SHEAR ZONE
SAMPLE REGISTER NUMBER
SAMPLE ASSAY NUMBER
R74 #4110 - 0.05 % eU3O8 RADIOMETRIC ASSAY VALUE
R73 - 600 c/m
SPOT - 1150 c/m
NUMBER + VALUE OF SPECIMEN IN COUNTS PER MINUTE - AUSTRONIC RADIOACTIVITY AT SPECIMEN LOCALITY
AREA "D" - 150' - 7-8X AREA DESIGNATION - LENGTH IN FEET - TIMES NORMAL BACKGROUND
NOTE
Geology + Planimetry From Air Photos SVY 1176 DARWIN-PINE CREEK - June 1951 Uncontroled Mosaic - Compiled for preliminary reconnaissance map only. MILITARY GRID APPROXIMATE - From the 1:63,360 military sheets
GEOLOGY BY P.H. DODD 1952.
TRUE NORTH
MAGNETIC NORTH
45 000N
43 000N
41 000N
39 000N
37 000N
GIANT'S FAULT ZONE
TO BROWNS
TO WHITES
BORE HOLE
FETTLER'S CAMP
FETTLER'S CAMP PROSPECT
AREA "A" - 15' exposed patches 8-20X
R78 - #4109 - 0.05 % eU3O8
R79 - #4110 - 0.06 % eU3O8
R74 - 400 c/m
SPOT - 800 c/m
R81 #4111 - 0.077 % eU3O8
Pan Concentrate - #4112 - 0.45 % eU3O8
NORTH AUSTRALIAN RAILWAY
CRATER PROSPECT
DETAIL SHEET - MACKAY
R73 - 600 c/m
SPOT - 1150 c/m
R76 - 400 c/m
SPOT - 1200 c/m
R75 - 225 c/m
SPOT - 1100 c/m
R77 - 200 c/m
SPOT - 1300 c/m
AREA "B" RADIOACTIVE ZONE
DETAIL SHEET - W. COMPSTON
AREA "C" - 70' 8-16X; 50' 7-16X; 50' 7X
AREA "D" 150' 7-16X
GOLD PROSPECT
TO STUART HIGHWAY
TO ADELAIDE RIVER
COOMALIE CREEK
BATCHELOR AIRFIELD
NT47-16

Plate 2.



APPROXIMATE NORTH.

NOTE: Isorad intervals are NOT constant throughout map area. All values are relative readings on #1011 portable rate meter - B-5 tubes (carpet sweeper)

5X = Times background.

RADIOMETRIC SURVEY
AREA "B" CRATER LINE

Scale 1" = 100'

DRAWN BY W. COMPSTON -

RUM JUNGLE, N.T., AUSTRALIA - 1952.

NT47-17