COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS.

1955/10

REPORT ON THE GEOPHYSICAL INVESTIGATION

of the

A.B.C.RESERVATION

NEAR KATHERINE, NORTHERN TERRITORY

by

J.B. MISZ

no to be allowed.

REPORT ON THE GEOPHYSICAL INVESTIGATIONS

of the

A.B.C. RESERVATION

NEAR KATHERINE, NORTHERN TERRITORY

by

J.B. MISZ

CONTENTS

PLATES

SUMMARY.

This report concerns the application and results of a portion of the Geophysical investigations at the ABC Uranium Prospect, Katherine, N.T.

Considerable radiometric gridding of favourable structures and horizons was completed. Only the small portion done on foot is considered in this report. No significant anomalies were obtained. The volcanic horizons appear to possess a characteristic high background count with random specimens assaying from .004 to .013 per cent eU_3O_8.

A considerable seasonal variation in surface radioactivity, especially noticeable in connection with the prospect, was observed. Radioactivity appears to be appreciably lower at the end of the wet season than at the end of the dry.

No definite magnetic or self-potential anomalies are associated with the prospect proper. A prominent 600 gamma negative anomaly extends for over a mile in the "B" Volcanic horizon, passing within a few hundred feet of the prospect. The anomaly is caused by an inversely polarized dolerite dyke.

The dyke is seemingly faulted at both ends at a volcanic-sandstone contact. At the eastern end, the anomaly does not occur beyond a prominent regional fault. A few hundred feet westwards the dyke appears to be displaced in such a manner as to be duplicated locally. The edonomic significance of the dyke lies in its possible role as an ore trap, especially where displaced.

INTRODUCTION.

The ABC Prospect, Katherine, N.T., was discovered in September, 1953, by A. B. Clarke, a geologist of the Bureau of Mineral Resources engaged on regional studies. Since that time, with the exception of the wet period between January and April, 1954, geophysical operations in connection with the prospect have been continuous and have consisted of the following:

1. Surface radiometric gridding of the prospect proper. (See "Geological Plan, ABC Uranium Prospect" by Gardner & Jones, Scale 100 feet equals one inch.)

2. Radiometric gridding of all pits and costeans. (See "Preliminary Report on ABC Prospect" by H.O. Jones, B.M.R. Records 1954/10)

3. Radiometric logging of all drill holes. This amounted to over 2,500 feet of logging. (Results have been incorporated in "Geological Report on the ABC Prospect." by Gardner, et al.)

4. Radiometric gridding of geologically favourable structures in the vicinity of the prospect. (Discussed below.)

5. Car-borne radiometric gridding of other, more extensive areas. (Geophysical aspects will form the subject of a report to be issued at a later date by J.A. Barlow, geophysicist in charge of the survey. Geological aspects are treated in "Inspection of Anomalies Indicated by a Car-Borne Radiometric Survey of the ABC Reservation," by D.E. Gardner. B.M.R. Records 1954/54.)

6. Self-potential and magnetic investigations of the prospect and nearby favourable structures. (Discussed below.)

7. General radiometric reconnaissance work undertaken on a number of occasions at the request of the geologists at the prospect, results of which are embodied in the various reports dealing with the ABC Area.

Location and Access

The prospect is situated 11 miles north-north-east of Katherine, N.T. and is reached by a road open to all vehicles during the dry season, and probably open during a portion of the wet to light four wheel drive transport.

GEOLOGY.

The ABC Uranium Prospect is situated near the south end of a synclinal basin in rocks of the Mt. Callaman (Buldiva) Group. These consist of alternating horizons of volcanic and sandstone. The former are intermediate to basic, frequently amygdular, and form relatively flat valleys in which good outcrops are scarce. By contrast, the more resistant sandstones constitute prominent ridges. They are conspecuously cross-bedded, and contain thin, interbedded mudstone layers.

The basin is elongated northwest-southeast, with a length of seventeen miles and a maximum width of nine miles. It is somewhat assymetrical, dips being steep on the eastern edge and generally flat on the west (15-30 degrees.)

The Mt. Callanan Group has in the past been regarded as Upper Proterozoic, but recent regional studies may necessitate a re-evaluation of the age of these, and perhaps other formations, in the Darwin-Katherine Region.

Immediately beneath the Mt. Callanan rocks are the Edith River Volcanics and associated Phillips Creek sandstone. These may or may not be conformable with the Mt. Callinan Group. Unconformably beneath the Edith River Volcanics is the Brocks Creek Group of Lower Proterozoic age. These sediments are characterized by strong folding with a northerly trend.

Diorite intrusives penetrate the Brocks Creek rocks some eight miles south-east of the prospect. The nearest granite is the transgressive Cullen Batholith (Lower Proterozoic) approximately 20 miles west of the ABC Reservation. Dykes, both acidic and doleritic, form the only

intrusive rocks in the immediate vicinity of the prospect. A prominent swarm of the doleritic type crosses the south end of the Mt. Callanan Basin. The silicious variety is associated with the Uranium mineralization and may, in actual fact, be largely or wholly an acidic tuff.

A capping of Cretaceous Mulleman sediments covers the centre of the basin, and Cambrian limestone and sandstone (Daly River Group) dipping gently south-west occur twelve miles south of the prospect.

Post-Mt. Callinan faulting is a prominent feature of the regional geology. One major fault offsetting the southern tip of the basin passes 300 feet to the east of the ABC Prospect, and is considered to have a possibly major role in the emplacement of the uranium.

For a comprehensive discussion of the regional and detail geology the reader is referred to "The ABC Prospect." by Gardner et al, "The ABC Prospect - Regional Investigations." by Gardner, et al., etc.

RADIOMETRIC INVESTIGATIONS

In addition to exploratory radiometric work, detailed grids were completed in three areas. All traverses were run by compass and pacing from chain and compass baselines. This fact should be borne in mind in connection with the plates of this report, as the postion of geological and topographical features shown is determined by these paced traverses combined with interpolation from air photographs, and hence positioning errors must certainly exist. However, the reconnaissance nature of the work did not justify more accurate measurements.

Background for the grids is the lowest reading obtained over the soil-covered volcanics. This is approximately twice the absolute background of the instruments used. (Harwell "Carpet-sweeper" 1011/066 and Hallross Scintillometer 939/354.) Thus the volcanic horizon has an "inherent" radioactivity which seldom falls below 1½ - 2 times absolute background and occasionally amounts to as much as 4 - 5 times absolute background.

Six rubble samples from six widely spaced localities in the "B" Volcanic (those in which the prospect occurs) giving surface counts of 3 - 5 times background each assayed approximately .01% eU_3O_8. Ten other samples picked at random from volcanic rubble and outcrops assayed between .005 and .008% eU_3O_8. A similar condition was found to apply to the Edith River Volcanics where examined.

It should be noted in connection with this empirical fact that slightly radioactive volcanics rocks are common - so frequent are they, in fact, that many geologists make a standard practice of examining areas near certain types of uranium prospects for volcanic rocks whose small radioactive mineral content could have been transported by groundwater and deposited in adjacent rocks with favourable precipitation or circulation characteristics.

Another point that must be remembered when considering radiometric grids, especially when that consideration is of a quantitative nature, is the often considerable variations in the strength of surface radioactivity with seasons of the year. For example, at the conclusion of the 1953 Field season off-scale geiger readings were common in the costeaned area of the ABC Prospect. Near the end of the wet season, however, not a single off-scale reading could be obtained. It is not to be expected that off-scale readings of the previous magnitude will occur once again at the end of the 1954 dry season, but it seems well-established that a detectable increase in surface radioactivity has occurred during the rainless period.

Thus it appears that solution followed by transportation of the disolved uranium both downwards and as surface run-off takes place during the wet season, whereas in the dry months an opposite tendency exists, and uranium is deposited near the surface by rising solutions. This is in accord with the equilibrium conditions at the ABC Prospect which show a universal enrichment in uranium relative to radium in near surface material.

Grid 1: The proximity of the ABC Prospect to a major fault (See Plate 1) is suggestive of a relation between the two. The volcanic rocks, in which mineralization occurs, are completely soil-covered in the vicinity of the fault, so a radiometric grid was done to locate any areas of higher than normal radioactive s soil that might be indicative of mineralization at bedrock. (See Plate 2).

The inset location map taken from Plate 1 and accompanying Plate 2 shows the position of the grid with respect to the Prospect and the major fault. Traverses were placed at 50 foot intervals along the baseline, which very roughly corresponds in position to the fault. Twenty miles of traverse are contained in the grid.

Readings of up to twice background (4 times absolute background) represent only variations in the inherent background radioactivity of the volcanic and little economic importance can be attached to them. It is noticeable that the level of this inherent background is highest where the soil cover is thinnest: viz., adjacent to sandstone contacts and near volcanic outcrops.

Neglecting these variations, the area in the vicinity of the fault is remarkably lacking in anomalies. The only ones occur at the Prospect and on traverses 2500, 2650 and 2700.

The small anomaly on traverse 2500 could not be located after the "wet". The anomalies on traverses 2650 and 2700 were barely over 2 times background on very deep alluvium. Detail investigations, including shallow pitting, failed to reveal increased radioactivity. Shallow drill holes would be required to reach bedrock. An interesting feature (probably a coincidence.) is the correspondence of these anomalies in position to a prominent negative magnetic anomaly (see below).

It must be emphasized that the lack of anomalies revealed by this grid by no means indicates the definite absence of uranium mineralisation. The area is entirely soil-covered, much of it deeply, and unless capillary processes brought traces of uranium to the surface above a bedrock deposit (which is not an unreasonable possibility) no anomaly would be recorded regardless of the size of the deposit.

Grid 2: A second grid was placed over the continuation to the south-east beyond the fault of the volcanic horizon inwhich the ABC Prospect occurs. The apparent horizontal displacement of the horizon is approximately one mile (See Plate 3). Traverses were again placed at 50-foot intervals along the baseline, and the grid was made in a manner similar to that of grid 1 described above. It was intended to read the traverses both to the east and to the west of the baseline. However, the gridding was done in December, 1953, and only the readings to the east of the baseline were completed before heavy rains made the area inaccessible.

At the beginning of the 1954 field season car-borne geiger equipment was made available, so traversing west of the baseline was incorporated inthe car-borne programme, as the latter is much quicker than walked traversing. As stated in thenintroduction of this report, the results of the car-borne work will presumably formthe subject of a separate document. Added interest is given to the car-borne results in that several air-borne scintillometer anomalies exist in the Edith River Volcanics immediately west of the regional fault to the west of the base-line of grid 2.

Referring to Plate 3, it is once again evident that the strongest radioactivity is associated with areas of thinnest soil cover or areas of actual outcrop. Infact, with respect to this grid, it might be said that radiometric readings in effect map the relative alluvium depth.

Thorough detailed radiometric investigation of the anomalies shown, followed by ultraviolet examination and pitting to bedrock, (which was generally less than two feet below the surface,) failed to reveal increased mineralization.

The volcanic rock here is strongly amygdular, the amygdales consisting of a strikinglynbright green mineral, which at first glace is suggestive of a copper alteration product (but is not.)

It can only be concluded that the anomalies result fromm outcrop or near outcrop of the volcanics enabling the horizon's inherent radioactivity to be detected. Assays of samples range from .005 to .012% eU_3O_8. One small spot on an outcrop west of the baseline gave a reading of 8 times background, but no mineralization was visible and the reading was only over a few inches of fresh volcanics.

Grid 3: A grid was started over an area extending 1000 feet to either side of the fault offsetting the volcanic horizon in which the ABC Prospect occurs 5 miles north-west of thenProspect. However, at the request of senior officers of

the Geophysical Section, this grid was not completed. As it has since been included in a car-borne survey, the area will not be further discussed in this report, except to note that an anomaly of 5 times background on outcropping volcanic was located, samples from which assayed from .007 to .012% eU_3O_8. A 2 times background anomaly was recorded by the car-borne equipment over this outcrop.

In summation, no important anomalies were evidenced by the foot gridding over favourable structures in the ABC region. Additional areas had been marked for gridding, such as the intersection of the fault adjacent to the prospect and the same volcanic horizon on the eastern rim of the basin, in addition to detailed examination of the axis of the syncline at the southern end of the basin. The extension of this axis to the south-east is a zone of copper and gold mineralization. (Carpentaria, Maude Creek, etc.) and hence a most favourable one for prospecting. With the arrival of car-borne equipment, however, these projects were transferred to the car-borne party.

SELF-POTENTIAL INVESTIGATIONS

Although no surface evidence of sulphide mineralization at the ABC Prospect existed, six test self-potential traverses in two directions were placed across the radioactive area.

Field readings were made in November, 1953, when the ground was driest. Careful weighting of readings from multiple holes (well-watered) was required to obtain a reasonable pattern as shown in Plate4. A 100 millivolt negative anomaly appears on the north-west portion of the centre north-west-south-east traverse. This negative is confirmed by the most northwesterly northeast traverse.

The anomaly has been tested incidental to drilling investigations of the Prospect with negative results. It had been recommended that no drilling specifically to test the self-potential indication should be done until additional self-potential work was completed after the beginning of the "wet", when readings would be more reliable. As stated above, such extreme manipulation of the readings already obtained was necessary (because of excessive variations in adjacent holes), that the resultant profiles of Plate 4 cannot be relied upon.

A 2000 foot self-potential traverse was run across the regional fault adjacent to the Prospect to test the possibility of an associated anomaly. (See Plate 5). Similar difficulties to those noted above were again evident. No anomaly occurred.

A self-potential traverse beginning 100 feet east of the drill hole investigating the magnetic anomaly described below, and extending 800 feet across the magnetic anomaly on a bearing of 332 degrees was read to determine whether or not a self-potential anomaly occurs in conjunction with the magnetic anomaly. (See Plates 6 and 7 for location of the magnetic anomaly and drill hole. The self-potential traverse has been omitted to preserve the clarity of expression of the more important magnetic anomaly).

Readings onthis traverse were made in October, 1954, following several rain storms. Only one hole was required at each station, and a smooth curve resulted. A 15 millivolt negative anomaly occurs 150 feet north of the magnetic anomaly. It is very small and can be satisfactorily explained by surface conditions.

It must be remembered, as with all self-potential work, that lack of an anomaly does not definitely preclude the occurrence of sulphide at depth, nor does occurrence of an anomaly indicate the definite presence of sulphide.

MAGNETIC INVESTIGATIONS

The prospect proper was crossed by both a north-south and an east-west magnetic traverse, both of which were long traverses concerned primarily with regional investigations, (See Plates 5 and 6). No anomalies are associated with the mineralized area.

Two 2000 foot magnetometer traverses were placed across the regional fault immediately east of the prospect, (See Plate 5). No useful anomalies occur. The reason for the very local 75 gamma anomaly on the southernmost traverse 300 feet east of the fault is not apparent. Deep alluvium completely masks the bedrock. The anomaly appears unimportant, but, when convenient, should be checked for extent.

A test of the possible value ofmthe magnetometer in mapping sandstone-volcanic contacts was most desirable, as, if successful, the method would be an invalueble aid in mapping contacts beneath the widespread alluvium, viz. the doubtful one enclosing the area labeled "sandstone rubble" on Plate 4; thencontacts of unknown nature (low dip or steeply faulted) of the sandstone lenses shown five hundred feet west of the prospect on Plate 2; and, in view of the blockfaulted nature of the prospect, mapping of other blocks in the alluvium covered valleys might involve sandstone-volcanic contacts, and are of importance in determining the structural environment of the mineralized area.

Test magnetic traverses were accordingly made across the sandstone-volcanic contact 2000 feet north of the prospect, at which point the adjacent sandstone and volcanic would have their maximumthicknesses. Although a slight magnetic contrast between the rather pure quartz sandstone and the intermediate-basic volcanics was expected, none was detected. During the tests, however, a 150 gamma negative anomaly that could be correlated over a number of adjacent traverses was noted to exist in the volcanic 200 feet south of the contact.

To investigate the anomaly further and to locate any others that might exist, four 3000 foot north-south traverses were run across the full width of the volcanic valley in the vicinity of the Prospect (See Plate 6).

These revealed a 700 gamma negative anomaly 1000 feet from the northern sandstone-volcanic contact. This anomaly was traced to the east and west for a total distance of 1½ miles. The following features were pertinent to an interpretation of the anomaly:

1) At both its eastern and western ends the anomaly, though unbroken in between, disappears as it approaches sandstone. This may well be due to faulting with displacement of the feature causing the anomaly. Such is almost certainly the case at the eastern end where the regional fault constitutes the sandstone-volcanic contact. There is also good evidence that strike faulting occurred along the sandstone-volcanic contact westwards from the Prospect. The ending of the anomaly to the west as it approaches the sandstone is good evidence for this faulting. Additional support for this hypothesis is furnished by the presence of a small spring on the sandstone-volcanic contact at the point "B", which is also precisely on the projection of the magnetic anomaly.

2) At both the eastern and western ends of the anomaly, prominent valleys exist in the sandstone on the projection of the magnetic anomaly. This is not a situation entirely favourable to the interpretation proposed above but does not contradict it.

3) Throughout most of its length, the shape of the magnetic curves indicate either:

a) a narrow dyke-like body with paramagnetic expression and dipping steeply south, or

b) a narrow dyke-like body with diamagnetic expression and dipping flatly to moderately south.

4) The detail work near the eastern end of the anomaly (see traverses A,B,C,D,E,F Plate 7,) indicates a vertical to possibly even north dipping diamagnetic body. An apparent change of dip from south to north with increasing proximity to the sandstone is thus evidenced, although it may be an illusion produced by the faulting described below. Such a change would be the logical result of dragging along the major fault marking the sandstone-volcanic contact.

5) Traverse 2 shows a peculiar flattening, and apparent change of direction of the anomaly from north-east to south-east occurs at peg 3. Study of the detail traverses of Plate 7 reveals, however, that the change of direction is not real, and that both the flattening and the apparent change of direction appear to result from a change of dip combined with faulting of the anomalous dyke. The latter would seem to have resulted in an overlap, producing two close, parallel anomalies, the northern one beginning near "C" and strengthening westwards until it is the sole anomaly (traverse 4), while the southern anomaly begins near "G" and strengthens towards the east becoming dominent near "A".

6) To test the above, traverses "H" and "J" were done with both vertical and horizontal intensity magnetometers. Results appear to confirm the interpretation made above.

The anomaly is found only on the soil-covered volcanic flats, and not a single outcrop or topographic peculiarity exists to suggest its cause. The only evidence was furnished by the regional geology. As previously mentioned under "Geology", a northeast-southwest swarm of dolerite dykes sweeps across the southern end of the Mt. Callanan syncline. No expression of these occurs in the volcanic horizons because both are easily weathered. Where cutting sandstone, the dykes form narrow rubble-covered valleys, in which outcrops of dolerite are rare. Hence the dykes are not easily mapped, and may often be confused with weathered shear zones.

Thus the only hypothesis which could be suggested to account for the magnetic anomaly was the existence of a dolerite dyke, and this dyke would have to be inversely polarized - a not uncommon phenomenon. Depth calculations by several methods indicated the anomaly (line of poles) to be of the order of 100 feet below the surface, meaning that its actual top probably reaches the surface of the bedrock, which was buried beneath 30-40 feet of alluvium.

It was decided that a drill hole should be sunk on the anomaly for the following reasons:

1) To determine definitely the true cause. The anomaly passes within a few hundred feet of the mineralized area, and is one of the few mappable features of the volcanic valley.

2) Even if the anomaly were caused by a dolerite dyke, the dyke might well have constituted an ore trap either where overturned adjacent to the regional fault, where faulted into overlap, or at its closest proximity to the ABC Prospect.

A drill hole was sited as shown on Plate 7, bearing 332 degrees, diping 45 degrees, and designed to intersect the anomaly in a manner to test the overlap hypothesis. (A vertical hole would not accomplish this.) It was predicted from the magnetic data that the anomalous body would be first contacted at a hole depth of approximately 125 feet, that volcanic or a shear zone would be encountered in the vicinity of 220-250 feet, that the hole would then penetrate additional dolerite and finally emerge into volcanic at approximately 325 feet.

The log of the drill hole agrees well with these figures. Dolerite was first encountered at 129 feet. Volcanic replaced dolerite in the hole at 229 feet. The hole was continued to 240 feet and abandoned, which was unfortunate as it had not traversed the postulated shear or even proven the offset. The magnetic profiles, considered in the light of the drill hole to 240 feet, however, make the overlap extremely likely. In addition, as the offsetting shear was not traversed, the potentialities of the structure as a mineralization trap have not been tested. An additional 20 to 30 feet would have sufficed to secure this information.

CONCLUSIONS

The walked radiometric grids revealed no significant anomalies. Walked grids were not undertaken after the arrival of car-borne apparatus. The latter undertook survey of a large area, including some most interesting structures.

No significant self-potential anomalies occur although

it is possible that one might exist adjacent to the prospect. The locale has been thoroughly drilled, and hence the anomaly has been tested with negative results.

A long magnetic anomaly confined to the "B" Volcanic Horizon, and reaching a maximum of 700 gammas, is caused by an inversely polarized dyke whose only economic value lies in its potential as a trap for mineralization. The dyke dips south except near the regional fault north-east of the prospect, where it may dip locally north. Here it seems to be faulted so as to form two parallel, adjacent dykes, and this may be responsible for the apparent north dip. The full possibilities of this structure as a trap were not investigated.

No magnetic anomalies are connected with the ABC Prospect itself, or with the regional fault immediately to the east.

APPENDIX: GEOLOGICAL LOG OF DRILL HOLE M1

Compiled by R. Britten

(This is the hole which tests the magnetic anomaly).

0-30'0"	Rubble and alluvium
30'0"-52'0"	Highly weathered amygdular intermediate-basic volcanic. Weathered products include thin veins of soft, silvery mineral fibrous across the veins. These veins have a shallow dip of 10-20 degrees.
52'0"-60'0"	Brownish red amygdular volcanic. Amygdales of silica, barite, chlorite.
60'0"-89'0"	Amygdular intermediate volcanic.
89'0"-110'0"	Amygdular basic volcanics. Amygdales of silica, chlorite, some zeolite.
110'0"-127'0"	Intermediate to basic amygdular volcanic, slightly altered in places with abundant chlorite.
127'0"-128'0"	Silicified volcanic at contact of dolerite intrusive.
128'0"-129'0"	Altered (chloritized) amygdular volcanic. (Intrusive contact zone.).
129'0"-170'0"	Dolerite or other fine grained intermediate rock.
170'0"-182'0"	Finely crystalline trachy-andesite containing pink felspars and probably hornblend. (Non-amygdular).
182'0"-229'0"	Light grey non-amygdular dolerite or other intrusive rock, slightly chloritized in places.
229'0"-240'0"	Amygdular basic to intermediate volcanic.

PLATE I

N

EDITH RIVER

CREEK

SEVENTEEN MILE

RIVER

KATHERINE

30
35
21
18
10
40
20
20
25
18
5
?
50
45
20

ABC Prospect

Area of Inset Location Map

Miles
0 1 2 3 4

- Alluvium
- Mullaman Group
- Daly River Group
- Leight Creek Formation
- Buldiva Sandstone E
- Buldiva Volcanic D
- Faults
- Buldiva Sandstone C
- Buldiva Volcanic B
- Buldiva Sandstone A
- Edith River Volcanics
- Phillips Creek Formation
- Brocks Creek Group
- Dolerite Dikes

GEOLOGICAL PLAN
VICINITY OF ABC PROSPECT
KATHERINE N.T.

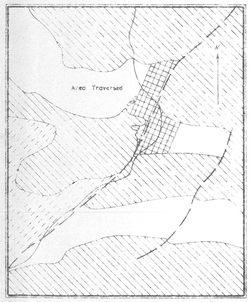
DRAINAGE APPROXIMATE

GEOLOGY BY RATTIGAN & CLARK

DRAWN BY J. B. MISZ

(Buldiva is now called Mt. Callanan)

PLATE 2



Location Map Inset Plate 1 Scale 2" = 1 Mile

ABC PROSPECT, KATHERINE, N.T.
RADIOMETRIC TRAVERSES

INSTRUMENT: RATEMETER No. 1011/066

J. B. MISZ DECEMBER 1953

Traced & Drawn by J.B. Misz

ABC PROSPECT, KATHERINE, N.T.
RADIOMETRIC TRAVERSES

INSTRUMENT: HALROSS SCINTILLOMETER NO. 939/354

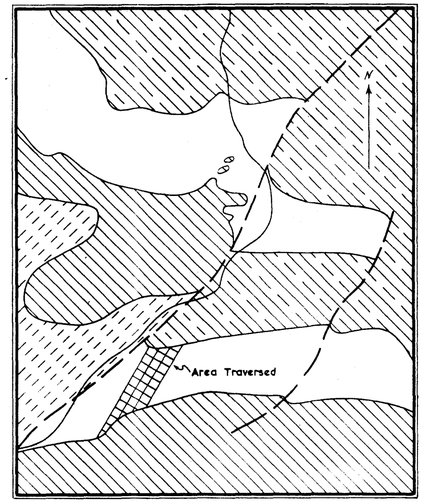
OCTOBER 1953
J. B. MISZ
J.B. MISZ

PLATE 3

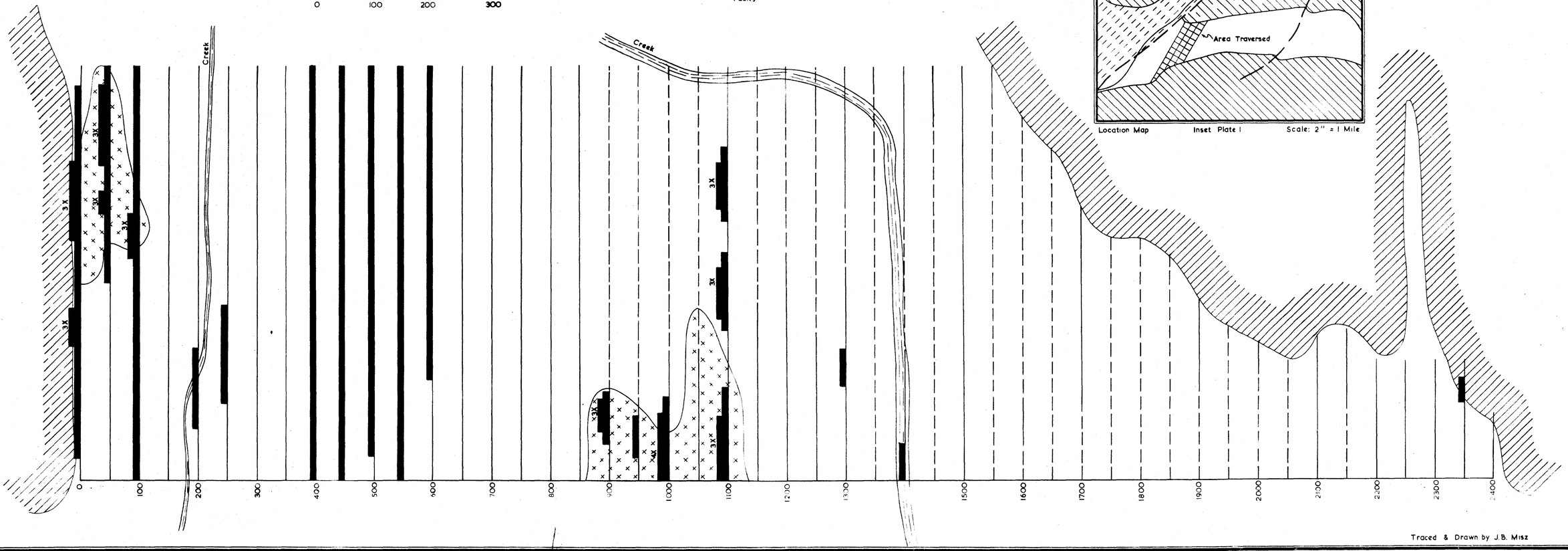
- 1-2 X Background Along Traverse
- 2-2½ X Background Along Traverse
- 2½-3 X Background Along Traverse
- Over 3 X Background Along Traverse

- Alluvium
- Buldiva Sandstone C
- Buldiva Volcanic B
- Buldiva Sandstone A
- Edith River Volcanics
- Faults

Feet
0 100 200 300

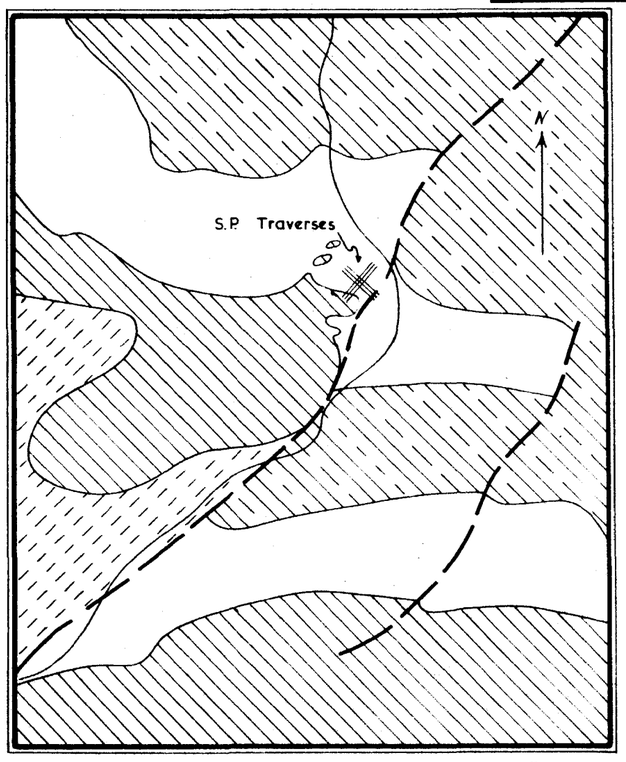


Location Map Inset Plate I Scale: 2" = 1 Mile



Traced & Drawn by J.B. Misz

PLATE 4



Location Map Inset Plate I 2" = 1 Mile

N

Costeans

Rubble

Sandstone

Area of

Feet
0 100 200

+100 -100

-100

Millivolts

+100

Alluvium

Buldiva Sandstone C

Buldiva Volcanic B

Buldiva Sandstone A

Edith River Volcanics

Fault

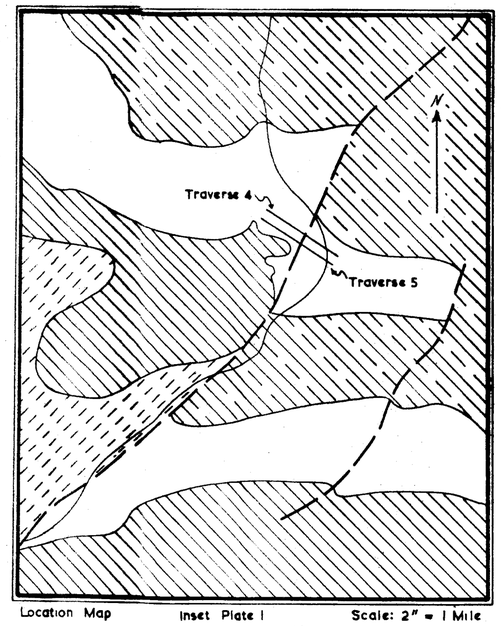
ABC PROSPECT, KATHERINE, N.T.
SELF-POTENTIAL TRAVERSES

INSTRUMENT: S.P. METER No. 2201/1

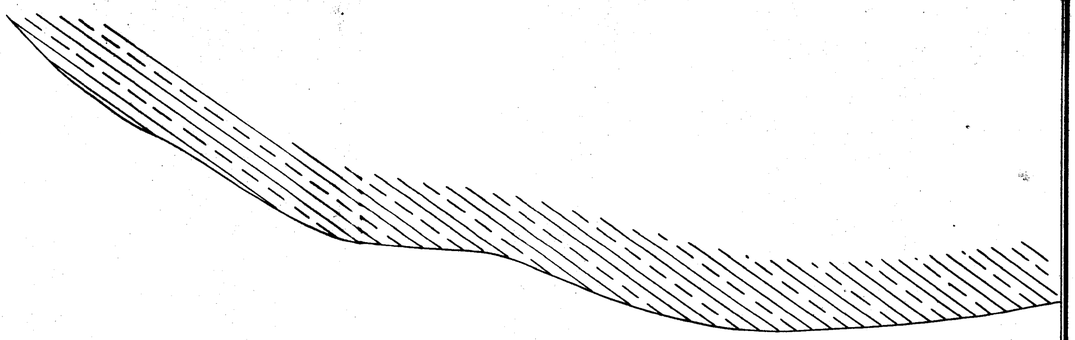
J.B. MISZ DECEMBER 1953

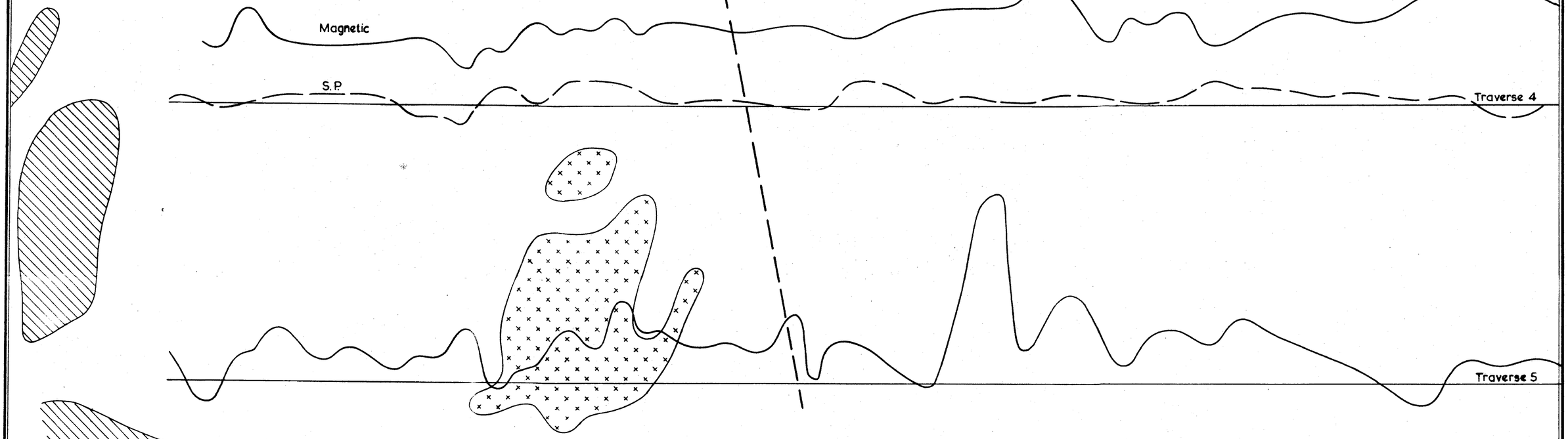
Traced & Drawn by J.B. Misz

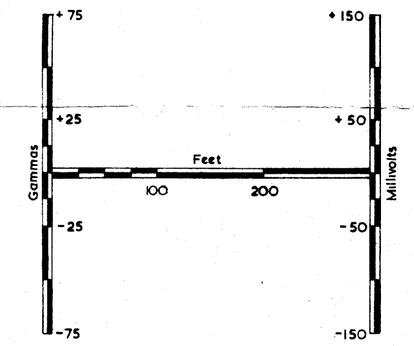
PLATE 5



Location Map Inset Plate 1 Scale: 2" = 1 Mile







- Alluvium
- Buldiva Sandstone C
- Buldiva Volcanic B
- Buldiva Sandstone A
- Edith River Volcahics
- Fault

ABC PROSPECT, KATHERINE, N.T.

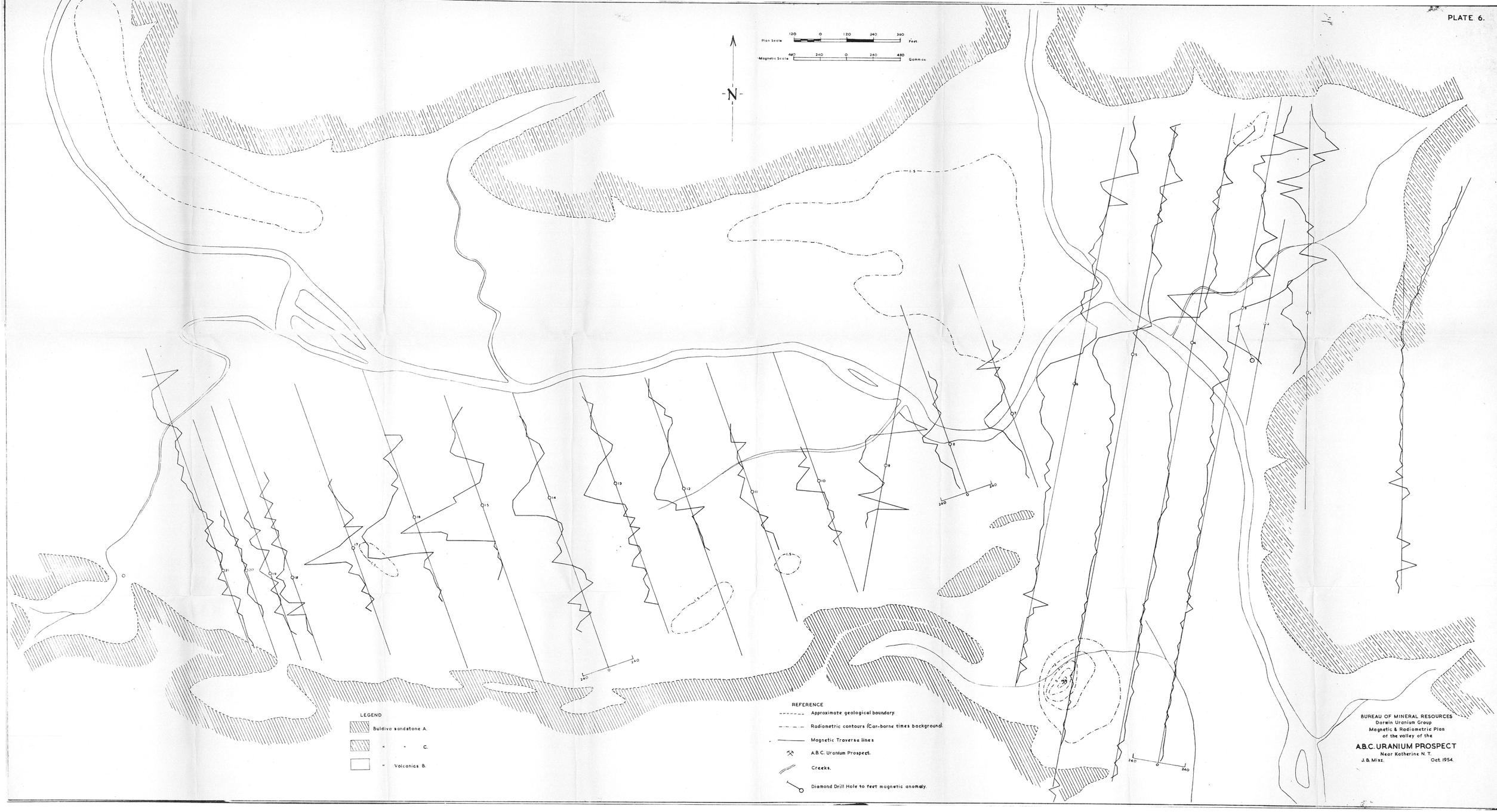
MAGNETIC & SELF-POTENTIAL TRAVERSES

INSTRUMENTS: WATTS VERTICAL MAGNETOMETER NO.69106
S.P. METER NO. IR2201

NOVEMBER 1953
J.B. MISZ

Traced & Drawn by J.B. Misz

PLATE 6.


Plan Scale 120 0 120 240 360 Feet.
Magnetic Scale 480 240 0 240 480 Gammas.
N
LEGEND
Buldiva sandstone A.
" " C.
" Volcanics B.
REFERENCE
Approximate geological boundary.
Radiometric contours (Car-borne times background).
Magnetic Traverse lines.
A.B.C. Uranium Prospect.
Creeks.
Diamond Drill Hole to feet magnetic anomaly.
BUREAU OF MINERAL RESOURCES
Darwin Uranium Group
Magnetic & Radiometric Plan
of the valley of the
A.B.C. URANIUM PROSPECT
Near Katherine N. T.
J. B. Misz. Oct. 1954.

N

Traverse 2.

(See inset) H G F E D C B A

(See inset) J

4

(Peg 2 see Plate 6.)

Drill hole bearing 334° dip 45° hole depth = 240'

I

-200 +200

-200 +200

INSET.

PLATE 7.

J

H

-200 +200

-200 +200

REFERENCE

Vertical Intensity Variations.

Horizontal Intensity Variations.

Gammas +300 +200 +100 - 100 - 200 - 300

Feet 50 100 150

BUREAU OF MINERAL RESOURCES

Darwin Uranium Group

Detailed Magnetic Traverses

At

A.B.C. URANIUM PROSPECT

Instruments used: Watts Vertical Magnetometer No. 69106

Watts Horizontal Magnetometer No. 71599.

J. B. Misz. August 1954.