

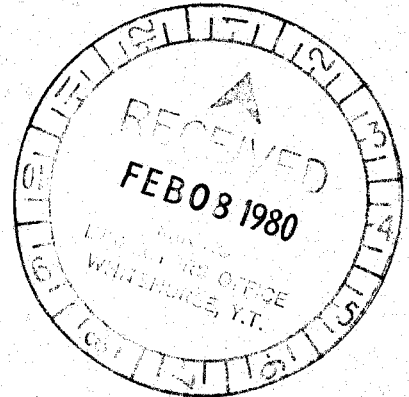
Geophysical Report

BRI 1-8, SUE 1-8, SB 1-8 Claims

NTS SHEET 115-J-15

LAT. 62° 52' N

LONG. 138° 30' W



Norman W. Burmeister, P. Eng.



Work Completed,

August 25-September 1, 1978

April 23-24, 1979

May 23-25, 1979

090514

This report has been examined by the Geological Evaluation Unit and is recommended to the Council of the Territory to be considered as representation work for the amount of \$ 6,200.00

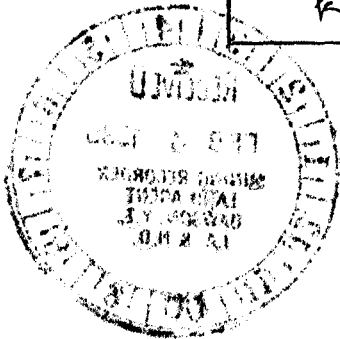
J. A. Main

Resident Geologist or  
Resident Mining Engineer

Considered as representation work under  
Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER  
Supervising Mining Recorder

Commissioner of Yukon Territory



115J-15

ASSESSMENT REPORTS

Dawson M.D.

MAP No.

TYPE OF WORK: Geophysical Report

REPORT FILED UNDER	Norman Burmeister	090514
DATE PERFORMED	April 23-Sept 7, 1979	DATE FILED: February 4'80
LOCATION - LAT.	62°52'N & 62°54'N	
LONG.	138°30'W & 138°30'W	
CLAIM Nos.	<del>W1111111</del> , Sue 1-8, BRI 1-8, SB 1-8	
WORK DONE BY	Norman W. Burmeister, P.Eng.	
WORK DONE FOR	Norman Burmeister	
REMARKS	The property staked in May 1978 includes three contiguous groups of claims, the BRI 1-8, SUE 1-8 and SB 1-8, which are 150 km southeast of Dawson. Metamorphic rocks that are probably Paleozoic, including	
	090514	

STAR PRINTING, WHITEHORSE

already have report on microfilm  
Original card above.

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### Summary

The BRI-SUE claim group is located in the west-central Yukon within the Klondike Plateau physiographic province. The property is underlain primarily by Tertiary alaskite which is believed to be related to the Coffee Creek Granite. A strong regional structure is projected onto the claims. The geologic environment is favorable for the occurrence of granite-type uranium deposits although no mineralization has been found on the claims as yet.

A ground radiometric survey was conducted over the property during portions of the 1978 and 1979 field seasons. Overall, radiometric response on the property is subdued. This is believed to be in part due to masking of gamma-radiation by overburden and permafrost which is widespread on the property. A series of low-magnitude uranium anomalies were detected on the claims. These anomalies should be followed up utilizing geochemical exploration techniques and trenching.

## Introduction

The following report is based on a ground geophysical survey conducted on the BRI-SUE-SB claim group and a study of available government reports and maps. The geophysical survey (radiometric) was completed as an appropriate first step of exploration on the claims as the area is believed to be a favorable geologic environment for the occurrence of uranium deposits. A discussion of the regional and local geology is made part of the report.

The survey was carried out over portions of all the claims in the group and involved the completion of 21 line miles of survey work. The geophysical method, procedure and results are discussed in the text of the report and radiometric results are presented as contour plots at a scale of 1"=600'. Contour plots for total count, net uranium, and thorium have been made.

Property

The BRI-SUE-SB group is comprised of twenty-four contiguous mineral claims located under the Yukon Quartz Mining Act as follows:

<u>Claim</u>	<u>Grant No.</u>	<u>Location Date</u>	<u>Record Date</u>
BRI #1	YA 29769	May 21, 1978	May 26, 1978
BRI #2	YA 29770	"	"
BRI #3	YA 29771	"	"
BRI #4	YA 29772	"	"
BRI #5	YA 29773	"	"
BRI #6	YA 29774	"	"
BRI #7	YA 29775	"	"
BRI #8	YA 29776	"	"
SUE #1	YA 29761	"	"
SUE #2	YA 29762	"	"
SUE #3	YA 29763	"	"
SUE #4	YA 29764	"	"
SUE #5	YA 29765	"	"
SUE #6	YA 29766	"	"
SUE #7	YA 29767	"	"
SUE #8	YA 29768	"	"
SB #1	YA 29777	"	"
SB #2	YA 29778	"	"
SB #3	YA 29779	"	"
SB #4	YA 29780	"	"
SB #5	YA 29781	"	"
SB #6	YA 29782	"	"
SB #7	YA 29783	"	"
SB #8	YA 29784	"	"

The property is elongate along a northwest by southeast trend and encompasses a total area of approximately 1,235 acres (500 hectares).

See Plate II - Claim Map

These claims are owned by Norman W. Burmeister, West Vancouver, B. C.

### Location, Access and Physiography

The property is situated in the Dawson Mining District of the Yukon Territory, approximately 95 miles (152 kilometers) southwest of Dawson and 82 miles (131 kilometers) northwest of Carmacks. The confluence of Britannia Creek and the Yukon River lies 23,300 feet (7,150 meters) on an azimuth of  $279^{\circ}$  from the western corner of SB #7, which is in the south-central portion of the claim group. Co-ordinates for the approximate center of the property are Latitude  $62^{\circ} 52' N.$ , Longitude  $138^{\circ} 30' W.$

Access to the BRI-SUE-SB claims can be gained by helicopter from Dawson or Carmacks, or by boat down the Yukon River from Minto and thence by foot 3 miles (5 kilometers) along game trails which follow the drainage from the property to the river. There are few natural helicopter landing sites in the area due to the presence of thick brush in the valleys and trees on the ridges and slopes. Two helicopter pads have been cut out in the central part of the claim group.

The claims are located within the Klondike Plateau physiographic province. Regionally this plateau is characterized by deep, narrow valleys separated by long smooth-topped ridges and the topography shows considerable similarity over large areas. The property occupies a portion of the unglaciated region of the Yukon and outcrop is very sparse, being restricted to ridge tops and stream cuts. Elevations on the claims range from 1,900 feet (600 meters) to 3,000 feet (920 meters). Permafrost is present in the valleys, swamps and on northerly-facing slopes.

## Geology

### Regional Geology

The regional geology of the Snag map sheet and adjoining areas in the west-central Yukon has been mapped by D. J. Templeton-Kluit and is described in Geological Survey of Canada Paper 73-41. Templeton-Kluit's mapping shows the area north of the Yukon River in the vicinity of the claim group to be underlain by Proterozoic and/or Paleozoic metamorphosed pelitic and igneous rocks which are included in the Yukon Group. The Yukon Group is here subdivided into the Pelly Gneiss and the Schist-Gneiss unit.

The Pelly Gneiss is described as an assemblage of grey to brown, fine-to-medium-grained, muscovite-biotite-quartz-feldspar schists and gneisses with strong pervasive foliation and poor development of compositional layering. In places quartzofeldspathic material in the form of sills and boudins has been introduced and makes up to 15 per cent of the volume of the rocks. Most of the unit has the mineralogical composition of a granodiorite to quartz diorite.

The Schist Gneiss unit is made up of nondistinctive muscovite-biotite quartzite and quartz mica schists and locally includes granodiorite gneiss and augen gneiss. Minor amounts of amphibolite and marble are interfoliated with the schists. The rocks are metamorphosed to biotite grade and have a well developed schistosity.

The GSC mapping shows a large stock of Coffee Creek Granite, which intrudes Yukon Group metamorphic rocks, lying to the east of the property. This pluton is described as a coarse-grained equigranular biotite granite to quartz monzonite which is believed to be Tertiary in age.

The metamorphic rocks of the area exhibit a well-developed northwestern structural trend. A large northwest trending synform has been mapped in the area and the axis lies a few miles north of the property. A major fault follows the northwest trend of the Yukon River in the northeastern part Snag map sheet and is probably responsible for the course of the river in this area. This structure may be an extension of the Teslin Lineament.

### Local Geology

Outcrops on the BRI-SUE-SB claim group are very sparse being restricted to ridge tops and along some creek banks. Two rock types have been recognized on the claim; coarse-grained alaskite and schist gneiss.

Grey to pinkish-grey coarse-grained alaskite with abundant euhedral smoky quartz underlies most of the claim block. The form of the alaskite is unknown but the body is believed to be related to the Coffee Creek Granite stock which, as mapped by the GSC, lies immediately northeast of the claim. The smoky nature of the quartz is interpreted to be the result of radiation damage to the crystals.

A few outcrops of muscovite-biotite-quartz schist and gneiss are present on the eastern portion of the claim group. The rocks are probably part of the Schist Gneiss Unit as described by Templeman-Kluit. The overall distribution of these metamorphic rocks on the property is unknown at this time as there is very little outcrop in the area.

The claim group straddles a strong lineament which is observable on the aerial photographs of the area. This lineament is believed to be a major structural break and may be related to an extension of the Teslin Lineament.

The alaskite has a high uranium background and is believed to be a favorable environment for the occurrence of granitic type uranium deposits. No uranium showings have been found on the claims to date.

## Geophysical Survey

### Description of Method and Equipment

The geophysical survey conducted on the property consisted of a ground three channel gamma ray radiometric survey. The basis of this geophysical method is the detection and measurement of gamma radiation of characteristic energy levels emitted during the radioactive decay of naturally occurring potassium, uranium and thorium and their daughter products. Measurements are made of the intensity of radiation at specific threshold energy levels. This data is resolved to determine the concentration of radiometrically effective uranium and thorium, and total gamma radiation at each station. Anomalies revealed by isorad plots of the collected data may be indicative of uranium or thorium mineralized zones or structures.

When gamma rays strike a thallium activated sodium iodide crystal, the rays interact with the crystal atoms and pulses of light are emitted. This phenomenon permits the detection and measurement of the gamma rays. A photomultiplier is optically coupled to the crystal detector and converts the light emissions to electrical pulses. The magnitude of the electrical pulses are related to the energy level of the intercepted gamma rays.

In practice the identification and measurement of uranium and thorium by gamma ray spectrometry is an indirect rather than a direct method. The strongest gamma radiations related to these elements are emitted by their characteristic daughter products, bismuth-214 for uranium and thallium-208 for thorium. These are the products which are measured by the method and so long as no loss or gain of material takes place, the decay products are present in a fixed proportion relative to the parent elements.

The instrument used for completion of the survey was a McPhar model TV-1 three threshold scintillometer which measures the spectral characteristics of gamma radiation from radioactive elements. The selective thresholds provide the capability to differentiate between gamma radiations emanating from uranium and thorium and provide quantitative information relating to each. The detecting element utilized by the TV-1 is a 1.25 by 1.0 inch thallium activated sodium iodide crystal which is hermetically sealed and internally mounted. Threshold values are 0.2 Mev ( $T_1$ -total count), 1.6 Mev ( $T_2$ -uranium plus thorium) and 2.5 Mev ( $T_3$ -thorium).

Readings provided by the TV-1 are in counts per minute. The  $T_1$  (total count) and  $T_3$  (thorium) readings can be used directly. Net  $T_2$  (uranium) count rates are obtained by subtracting 3.5 times the  $T_3$  count rate from the gross  $T_2$  count rate.

### Survey Procedure

The radiometric survey on the BRI-SUE-SB claim group was conducted over a grid established with a Brunton compass and Topolite chaining device. Existing claim lines were utilized as base lines. Northeast by southwest oriented grid lines were spaced at 600 foot (185 meter) intervals. Radiometric readings were taken at 200 foot (61 meter) intervals along the grid and base lines. (See Plate III - Survey Grid Layout)

The instrument was held at waist level and 10 second readings were taken and recorded for  $T_1$  (total count),  $T_2$  (uranium) and  $T_3$  (thorium). The presence of water, permafrost, or outcrop at or near survey stations was recorded with the radiometric readings. Calibration of the instrument was carried out at least twice daily.

A total of 21 line miles (33.5 line kilometers) of radiometric surveying was carried out on the claim group. Radiometric readings were taken at 506 stations.

The survey was completed in two stages. The first field work was carried out between August 25, 1978, and September 1, 1978, by N. W. Burmeister. Access to the area was gained by boat down the Yukon River from Minto thence by foot from the river to a camp established one mile west of the claim group. An equipment failure resulting from dropping the instrument prevented completion of the survey at that time. Field work was completed in the period from May 23, 1979, to May 25, 1979, by N. W. Burmeister. Access was by helicopter from Dawson to a camp established on a nearby claim group to the northwest. Data reduction and base map preparation was carried out in Vancouver, B. C., by N. W. Burmeister on April 23 and 24, 1979.

## Survey Results

Radiometric results are presented as contour plots at a scale of 1"=600'. See Plates IV, V, VI. The total count plot shows three levels of response.

Radiation over the alaskite is in the range of 1,500 to 2,500 in area of permafrost or deep overburden. In areas of shallow overburden or outcrop, total count response over the alaskite is in the range of 2,500 - 3,500 cpm. The schist gneiss unit underlies the easternmost portion of the grid and total count response drops to less than 1,500 cpm in this area.

Subtle net uranium count rate anomalies were detected on the northern portion of the grid. The general trend of these anomalies is northwest and southeast, however, this orientation may be somewhat biased by the grid layout.

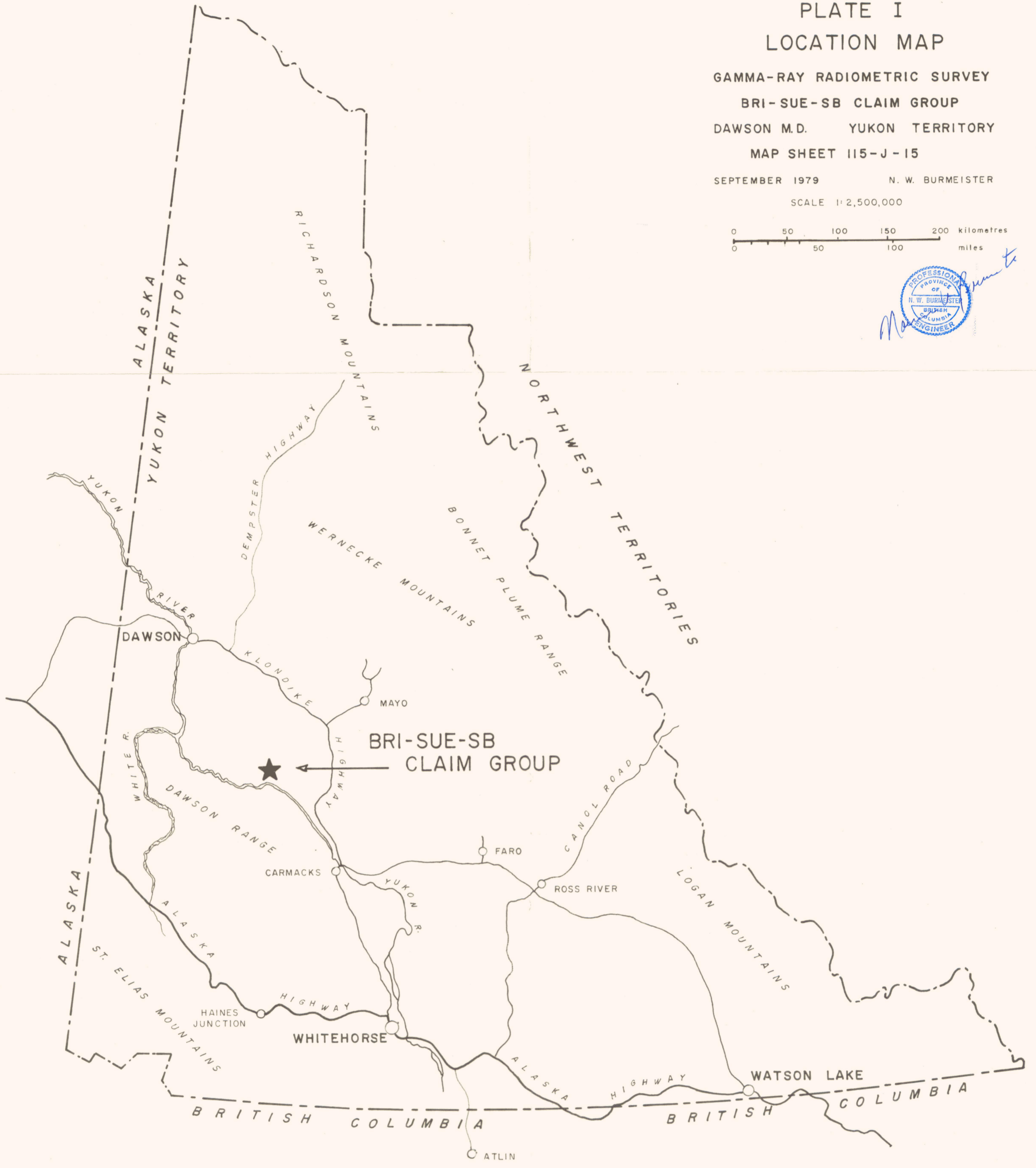
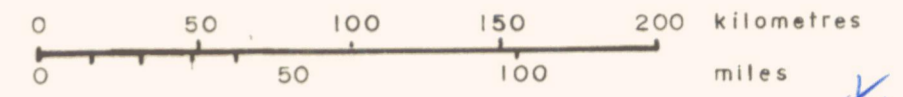
Thorium response is low and erratic throughout the area. No definite thorium anomalies have been interpreted.

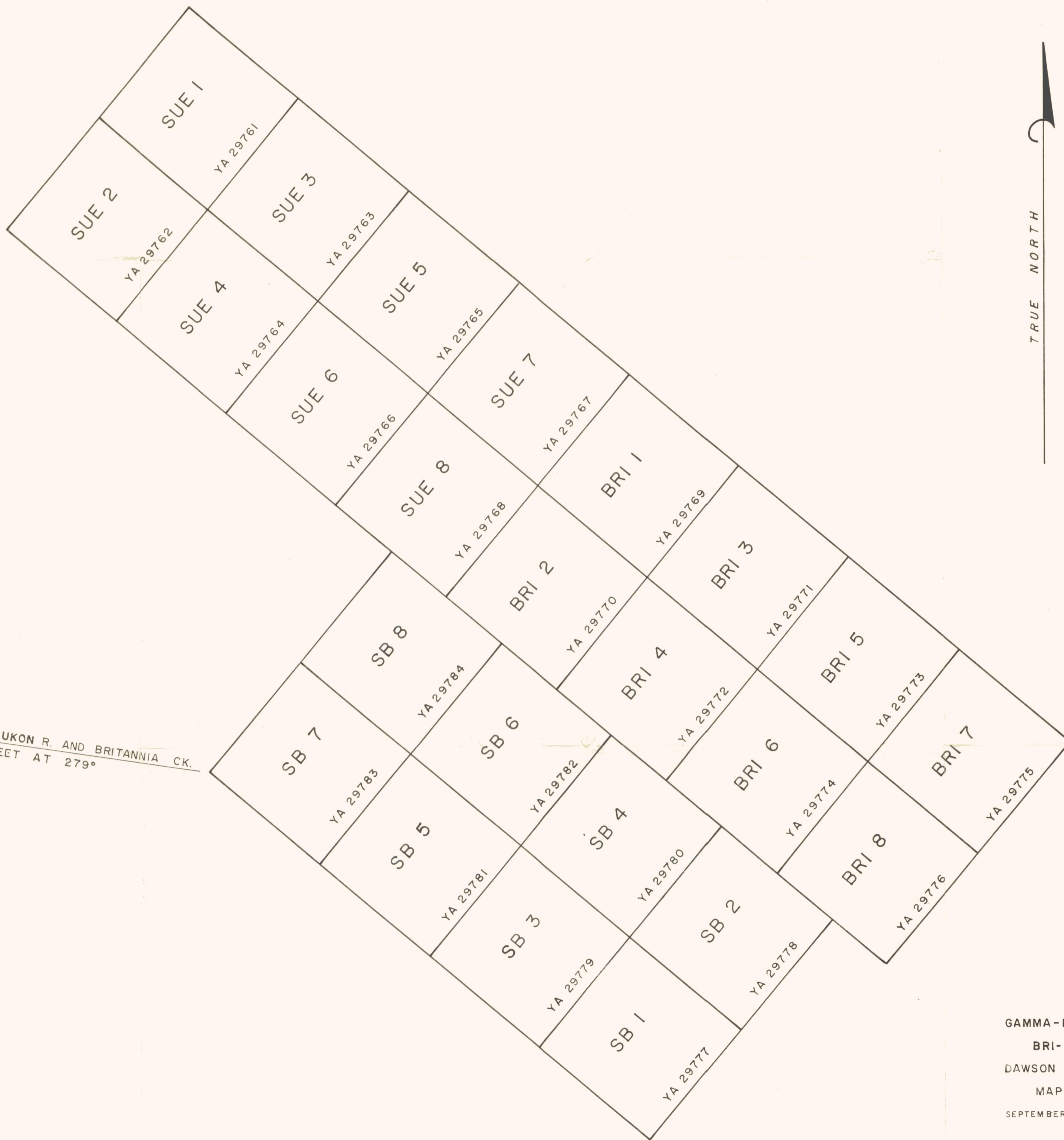
PLATE I  
LOCATION MAP

GAMMA-RAY RADIOMETRIC SURVEY  
BRI-SUE-SB CLAIM GROUP  
DAWSON M.D. YUKON TERRITORY  
MAP SHEET 115-J-15

SEPTEMBER 1979 N. W. BURMEISTER

SCALE 1:2,500,000





JUNCTION OF YUKON R. AND BRITANNIA CK.  
23,300 FEET AT 279°

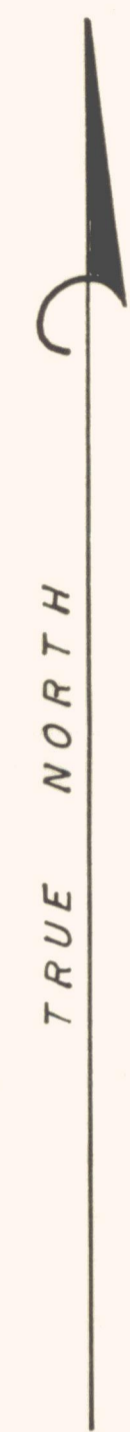
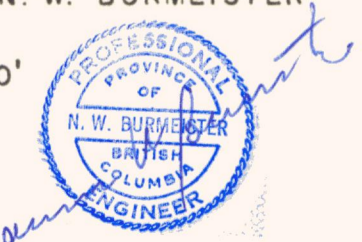


PLATE II  
CLAIM MAP

GAMMA-RAY RADIOMETRIC SURVEY  
BRI-SUE-SB CLAIM GROUP  
DAWSON M.D. YUKON TERRITORY  
MAP SHEET 115-J-15  
SEPTEMBER 1979

N. W. BURMEISTER,

SCALE: 1" = 600'





TRUE NORTH

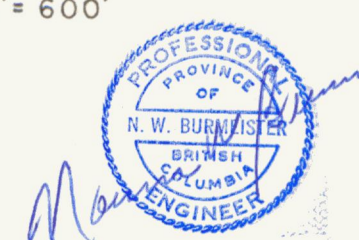
- SURVEY STATION
- SURVEY GRID LINE
- - - CLAIM GROUP BOUNDARY
- CLAIM POST

PLATE III  
SURVEY GRID LAYOUT

GAMMA-RAY RADIOMETRIC SURVEY  
BRI-SUE-SB CLAIM GROUP  
DAWSON M.D. YUKON TERRITORY  
MAP SHEET 115-J-15

SEPTEMBER 1979 N. W. BURMEISTER

SCALE : 1" = 600'





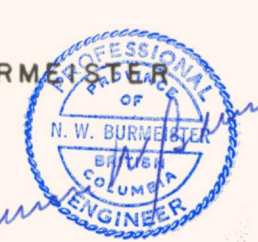
CONTOUR INTERVAL 500 CPM

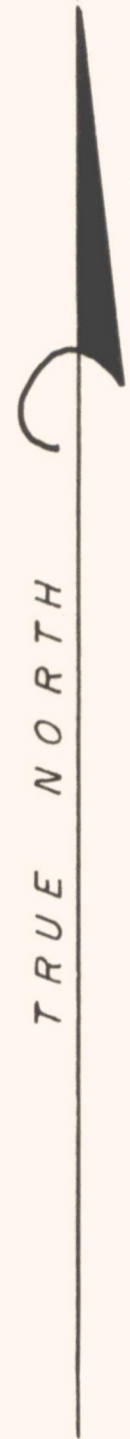
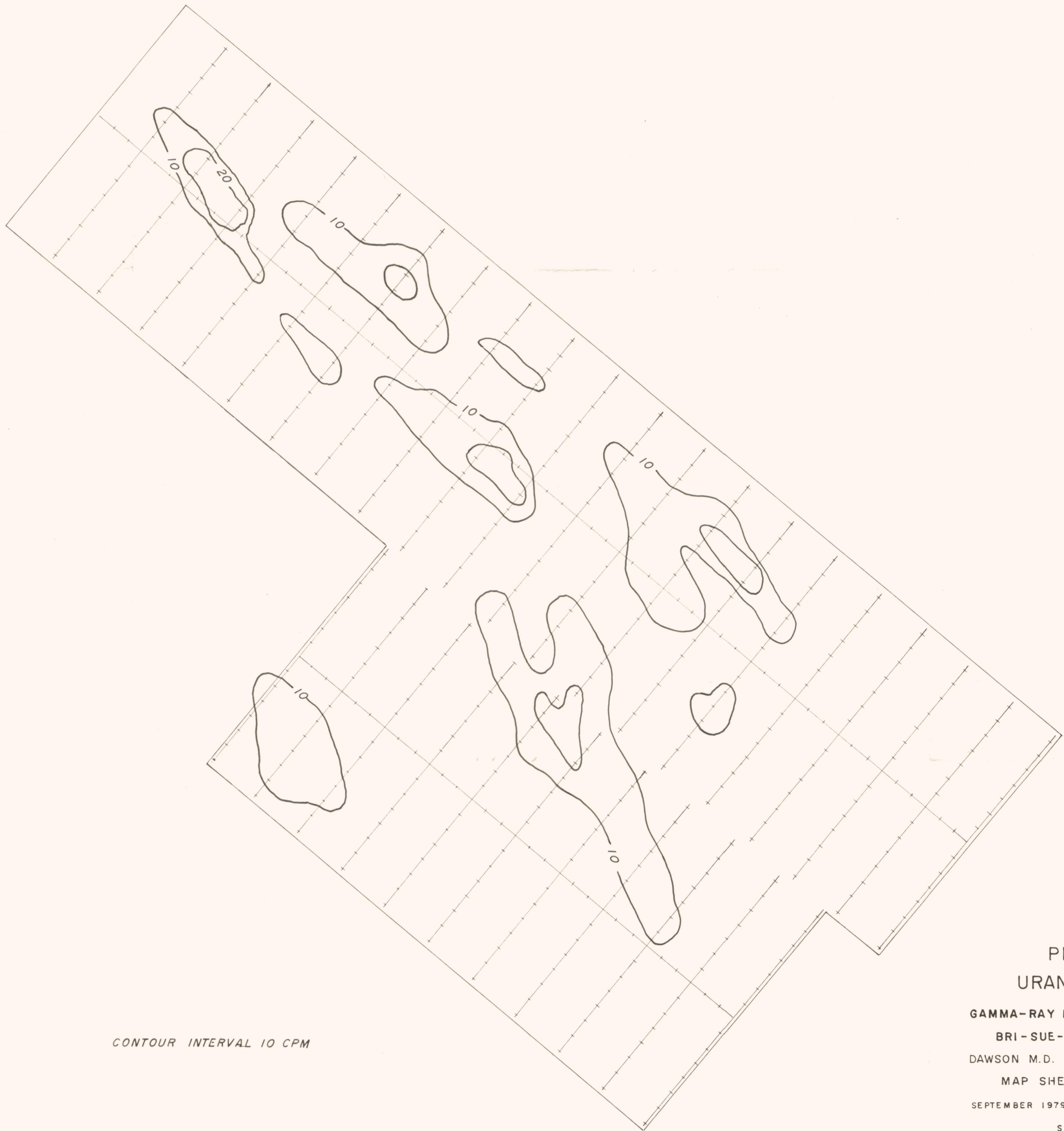
PLATE IV  
TOTAL COUNT PLOT  
GAMMA-RAY RADIOMETRIC SURVEY  
BRI-SUE-SB CLAIM GROUP  
DAWSON M.D. YUKON TERRITORY  
MAP SHEET 115-J-15

SEPTEMBER 1979

N. W. BURMEISTER

SCALE: 1" = 600'





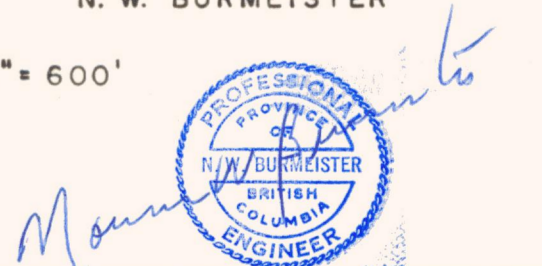
CONTOUR INTERVAL 10 CPM

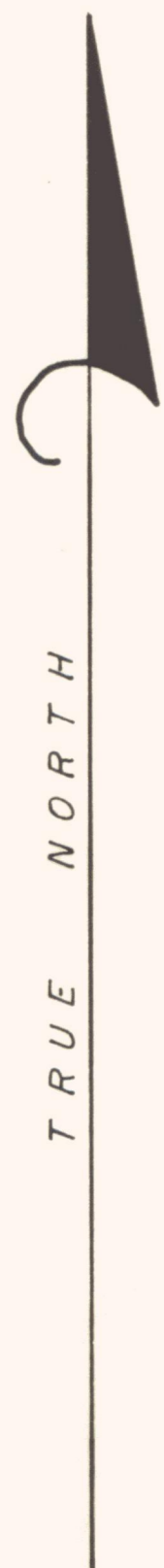
PLATE V  
URANIUM PLOT

GAMMA-RAY RADIOMETRIC SURVEY  
BRI-SUE-SB CLAIM GROUP  
DAWSON M.D. YUKON TERRITORY  
MAP SHEET 115-J-15

SEPTEMBER 1979 N. W. BURMEISTER

SCALE 1" = 600'





CONTOUR INTERVAL 10 CPM

PLATE VI  
THORIUM PLOT

GAMMA-RAY RADIOMETRIC SURVEY  
BRI-SUE-SB CLAIM GROUP  
DAWSON M.D. YUKON TERRITORY  
MAP SHEET 115-J-15

SEPTEMBER 1979 N. W. BURMEISTER

SCALE 1" = 600'

