Geophysical Report

MK 1-38 Claims

NTS SHEET 115-J-15

LAT. 62° 54'N

LONG. 138° 30'W

Norman W. Burmeister, P. Eng.

Work Completed:

September 2-7, 1978
April 25-26, 1979
May 13-22, 1979

090602

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $ 3,800.00

J a Morin

Resident Geologist or
Resident Mining Engineer

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

B.R. BAXTER
Supervising Mining Recorder

for Commissioner of Yukon Territory

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Summary

The MK claim group is located in the west-central Yukon within the Klondike Plateau physiographic province. The property is underlain primarily by Tertiary alaskite and Precambrian schist and gneiss. Strong regional structures are present in the area and are believed to traverse the claims. The geologic environment is favorable for the occurrence of granitic-type uranium deposits although no mineralization has been recognized on the claims as yet.

A ground radiometric survey was conducted over the property during portions of the 1978 and 1979 field seasons. Significant net uranium count anomalies associated with total count anomalies were detected on the southeastern and central portions of the property. It is recommended that the anomalous area be further explored by trenching and utilizing geochemical exploration techniques.

Introduction

The following report is based on a ground geophysical survey conducted on the MK 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 32.6 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, not uranium, and thorium have been made.

Property

The MK group is comprised of thirty-eight contiguous mineral claims located under the Yukon Quartz Mining Act as follows:

Claim	Grant No.	Location Date	Record Date
MK #1	YA 29723	May 13, 1978	May 26, 1978
MK #2	YA 29724	"	"
MK #3	YA 29725	"	"
MK #4	YA 29726	"	"
MK #5	YA 29727	"	"
MK #6	YA 29728	"	"
MK #7	YA 29729	"	"
MK #8	YA 29730	"	"
MK #9	YA 29731	"	"
MK #10	YA 29732	"	"
MK #11	YA 29733	"	"
MK #12	YA 29734	"	"
MK #13	YA 29735	"	"
MK #14	YA 29736	"	"
MK #15	YA 29737	"	"
MK #16	YA 29738	"	"
MK #17	YA 29739	"	"
MK #18	YA 29740	"	"
MK #19	YA 29741	"	"
MK #20	YA 29742	"	"
MK #21	YA 29743	"	"
MK #22	YA 29744	"	"
MK #23	YA 29745	"	"
MK #24	YA 29746	"	"
MK #25	YA 29747	May 14, 1978	"
MK #26	YA 29748	"	"
MK #27	YA 29749	"	"
MK #28	YA 29750	"	"

Claim	Grant No.	Location Date	Record Date
MK #29	YA 29751	May 14, 1978	May 26, 1978
MK #30	YA 29752	"	"
MK #31	YA 29753	"	"
MK #32	YA 29754	"	"
MK #33	YA 29755	May 18, 1978	"
MK #34	YA 29756	"	"
MK #35	YA 29757	"	"
MK #36	YA 29758	"	"
MK #37	YA 29759	"	"
MK #38	YA 29760	"	"

The property is elongate along a northwest by southeast trend and encompasses a total area of approximately 1,960 aces (793 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 92 miles (147 kilometers) southeast of Dawson and 85 miles (136 kilometers) northwest of Carmacks. The confluence of Britannia Creek and the Yukon River lies 15,800 feet (4,820 meters) on an azimuth of 212° from the southern corner of MK #32, which is in the south-central portion of the claim group. Co-ordinates for the approximate center of the property are Latitude 62° 54' N.), Longitude 138° 30' W.

Access to the MK claims can be gained by helicopter from Dawson or Carmacks, or by boat down the Yukon River from Minto and thence by foot 5 miles (8 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 pressence of thick brush in the valleys and trees on the slopes and ridges. Several helicopter pads have now been cut out to facilitate access to the claims.

The claim group is located within 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 3,100 feet (950 meters). Permafrost is present in the valleys and on the 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-Kluits' 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

Outcrop on the MK claim group are very sparse being restricted to the ridge tops, a few bluffs on the steeper slopes and along some of the creek banks. Three rock types have been recognized on the claims. These include coarse-grained alaskite, fine-grained alaskite, and a schist-gneiss assemblage.

Grey to pinkish-grey coarse-grained alaskite with abundant euhedral smoky quartz is the most common rock type on the claims. Geological reconnaissance in the area indicates the alaskite is elongated along a northwest-southeast trend and is probably a sill. This body is believed to be related to the Coffee Creek Granite stock, which lies to the east of the property, and is probably a late stage differentiate of that pluton. The smoky nature of the quartz is interpreted to be the result of radiation damage to the crystals.

Pink to red fine-grained alaskite occurs in scattered outcrops and as float near the central portion and at southeastern end of the claim group. The red and pink coloration is in part due to hematite staining. The quartz is smoky. This rock type is probably a phase of the more widespread coarse-grained alaskite. Little is known about the overall distribution of this alaskite due the lack of exposures. The highest net uranium count rates and total count rates are spacially associated with this rock type.

Discontinuous outcrops of muscovite-biotite-quartz schists and gneisses are present on MK 1, 2, 3, 5, 17, 18, 36 and 38. The assemblage includes a minor amount of amphibolite. These rocks are believed to be part of the Schist Gneiss unit of Templeman-Kluit. If such is the case, the contact between the Schist Gneiss and the Pelly Gneiss must be some miles south as shown by the GSC mapping.

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. A distinct linear aeromagnetic anomaly, interpreted from Geological Survey of Canada Map 4319 G, supports the existence of this structure.

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 located 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 ch aracteristic energy levels emitted during the radioactive decay of naturally occuring 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 MK 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 pressence 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 32.6 line miles (line kilometers) of radiometric surveying was carried out on the claim group. Radiometric readings were taken at 781 stations.

The survey was completed in two stages. The first field work was carried out between September 2, and September 7, 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 immediately south of eastern portion 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 May 13-22, 1979, by N. W. Burmeister. Access was by helicopter from Dawson and a camp was established on the central part of the claim group near survey line No. 15. A portion of the data reduction and base map preparation related to the survey was carried out in Vancouver, B. C. by N. W. Burmeister in the period April 25-26, 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 four levels of radiometric response.

Gamma radiation over the schist and gneiss unit is very low or negligible for uranium and thorium. Total count response is in the range of 1,000 - 1,500 cpm. There is little change in the response range over outcrop, permafrost or overburden in areas underlain by the schist-gneiss. The 1,000 - 1,500 cpm response level is thus interpreted to be essentially cosmic background.

Three levels of response are interpreted in the areas underlain by alaskite. In outcrop and shallow overburden areas, total count ranges from 2,500 to 3,500 cpm. Where the alaskite is covered by deep overburden or permafrost the response is reduced to 1,500 - 2,500 cpm due to masking of the alaskite related radiation.

Anomalous responses are interpreted to be total count rates of 3,500 cpm or greater which are coincident with or related to net uranium count rates of 20 cpm or greater. There are three such anomalous areas on the claim group.

Thorium responses are low and erratic on the property. No definite thorium anomalies were located during the survey.

Conclusion and Recommendations

The radiometric survey on the MK group of claims has successfully outlined three anomalous areas. The anomaly at the southeasternend of the grid is the largest and strongest. All three anomalies are believed to be related to some degree of bedrock uranium enrichment. It is not known at this time whether this enrichment is primary or secondary.

The masking effect of deep overburden or permafrost is shown to be substantial and widespread over the survey grid. These areas must therefore be considered to be incompletely prospected.

Further work should be carried out in the anomalous areas to determine the degree and character of uranium enrichment. Geochemical techniques (soil sampling) should be carried out to define targets for physical testing. A radon gas survey (alpha radiation) should be considered in addition to or in lieu of geochemistry in the anomalous areas and should be carried out in the deep overburden/permafrost covered portions of the property.

Respectfully submitted,

Norman W. Burmeister, P. Eng.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA N. W. BURMEISTER

NWB/mkb

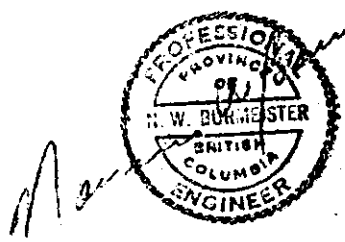
Statement of Expenditures

Wages:

N. W. Burmeister, P. Eng.
4634 Woodgreen Drive
West Vancouver, B. C.

September 2-7, 1978; April 25-26, 1979; May 13-22, 1979

18 days @$180/day	$3,240.00
Transportation:	
Helicopter: Dawson-Property-Dawson	640.00
Boat: Minto-Property-Minto	180.00
Camp costs and food	
16 days @$20/day	320.00
Instrument rental	
16 days @ $6/day	96.00
	$4,476.00



Certification

I, Norman W. Burmeister, of West Vancouver, B. C., Canada, do hereby certify that:

1. I am a consulting Geological Engineer residing at 4634 Woodgreen Drive, West Vancouver, B. C.

2. I am a graduate of the Colorado School of Mines in Golden, Colorado (Geological Engineering 1961)

3. I am a registered Professional Engineer of the Province of British Columbia, Registration No. 6651.

4. I have practised my profession for 18 years.

5. I am the beneficial owner of the mining properties described in this report.

6. This report is based on the results of work which was conducted by me personally and on the use of all available government reports and records.

Dated at West Vancouver, British Columbia this 15th day of January, 1980.

Norman W. Burmeister, Engineer, Eng.

PLATE I
LOCATION MAP

GAMMA-RAY RADIOMETRIC SURVEY

MK CLAIM GROUP

DAWSON M.D. YUKON TERRITORY

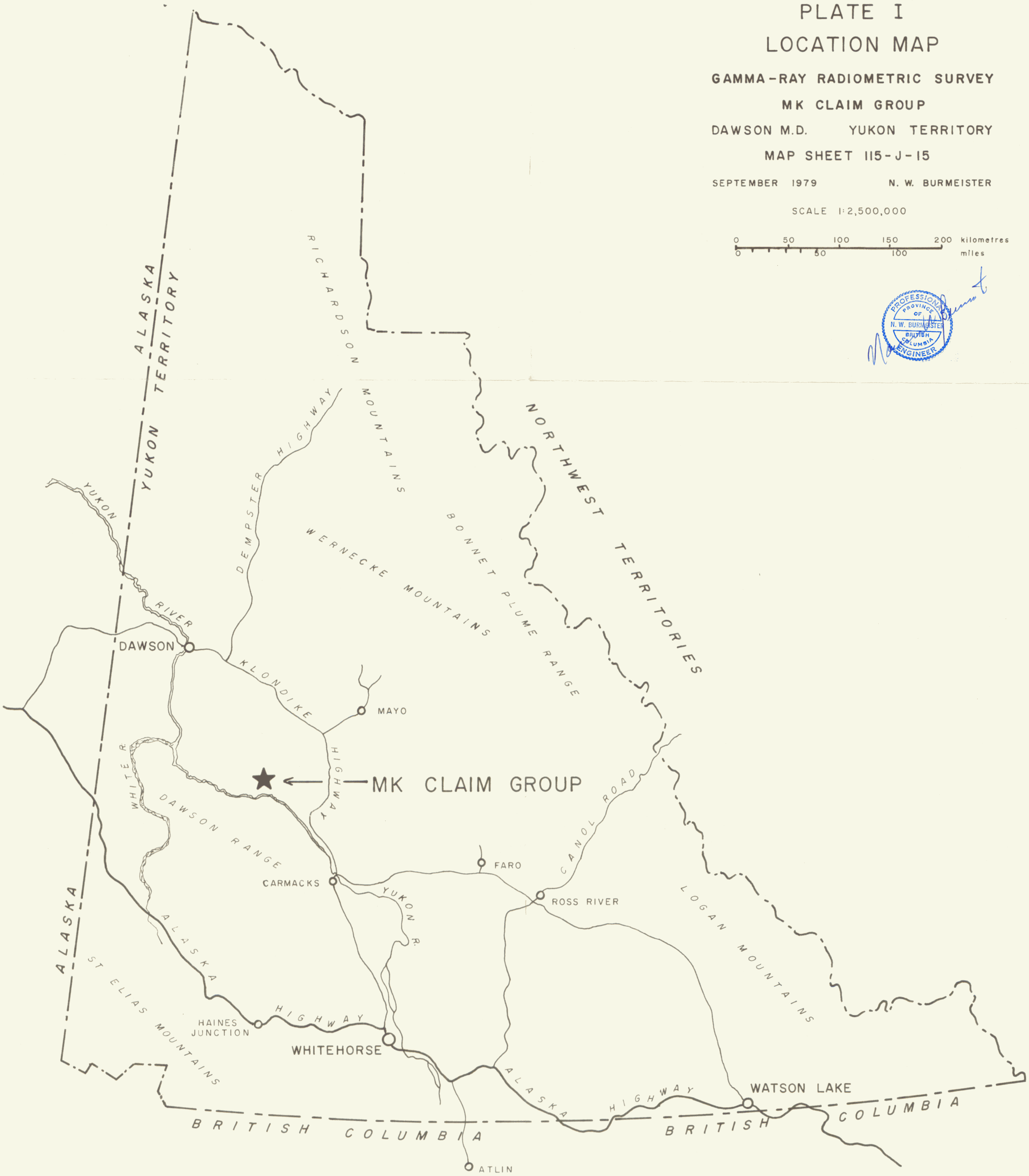
MAP SHEET 115-J-15

SEPTEMBER 1979 N. W. BURMEISTER

SCALE 1:2,500,000

0 50 100 150 200 kilometres

0 50 100 miles



MK 37 YA 29759
MK 38 YA 29760
MK 35 YA 29757
MK 36 YA 29758
MK 33 YA 29755
MK 34 YA 29756
MK 26 YA 29748
MK 25 YA 29747
MK 28 YA 29750
MK 27 YA 29749
MK 30 YA 29752
MK 29 YA 29751
MK 32 YA 29754
MK 31 YA 29753

MK 2 YA 29724
MK 1 YA 29723
MK 4 YA 29726
MK 3 YA 29725
MK 6 YA 29728
MK 5 YA 29722
MK 8 YA 29730
MK 7 YA 29729
MK 10 YA 29732
MK 9 YA 29731
MK 12 YA 29734
MK 11 YA 29733
MK 14 YA 29736
MK 13 YA 29735
MK 16 YA 29738
MK 15 YA 29737
MK 22 YA 29744
MK 21 YA 29743
MK 24 YA 29746
MK 23 YA 29745

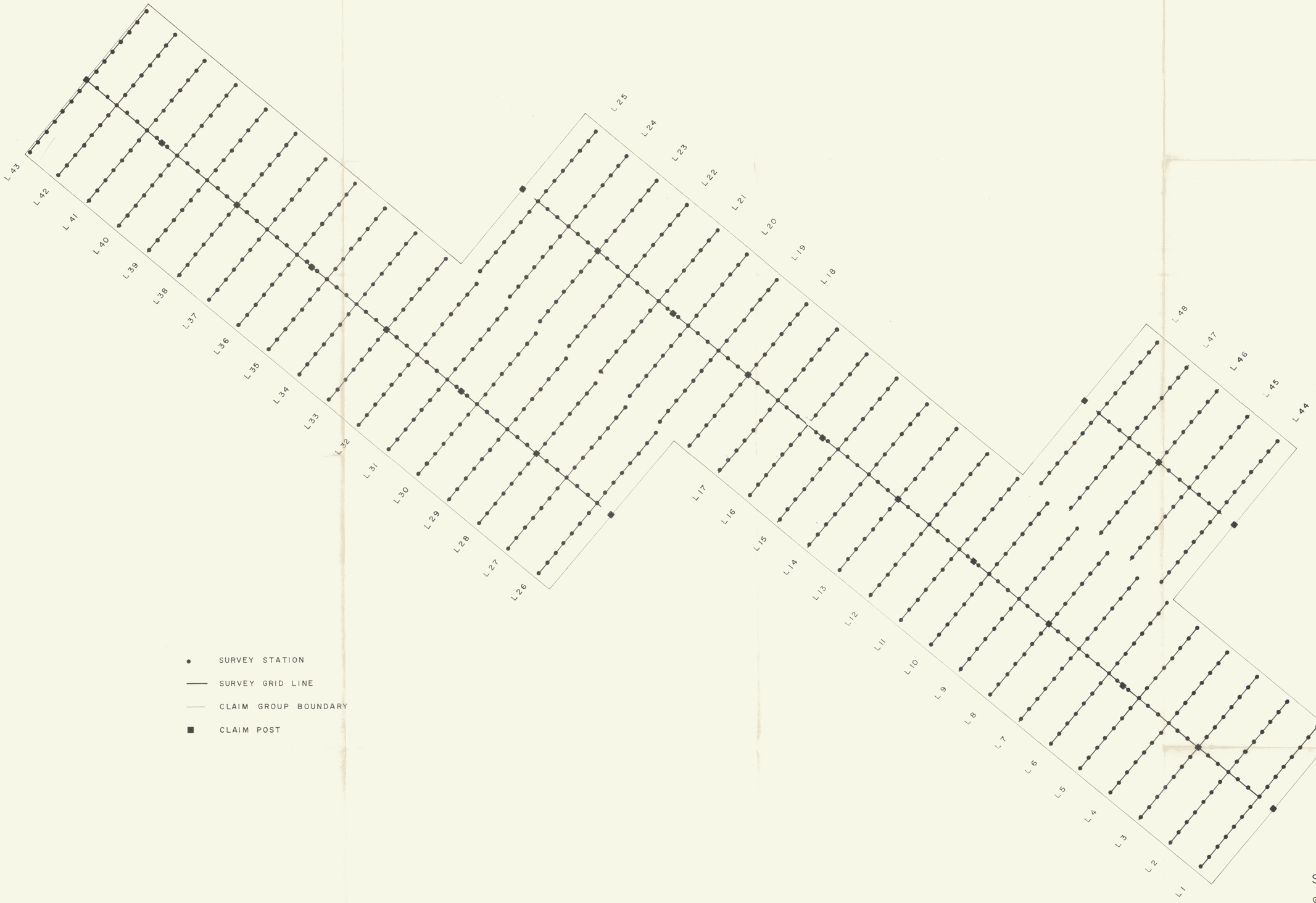
MK 17 YA 29739
MK 18 YA 29740
MK 19 YA 29741
MK 20 YA 29742

JUNCTION OF YUKON R. AND BRITANNIA C.K.
15,800 FEET AT 212°

TRUE NORTH

PLATE II
CLAIM MAP

GAMMA-RAY RADIOMETRIC SURVEY
MK CLAIM GROUP
DAWSON M.D. YUKON TERRITORY
MAP SHEET 115-J-15
SEPTEMBER 1979 N. W. BURMEISTER
SCALE: 1"= 600'



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

PLATE III

SURVEY GRID LAYOUT

GAMMA-RAY RADIOMETRIC SURVEY

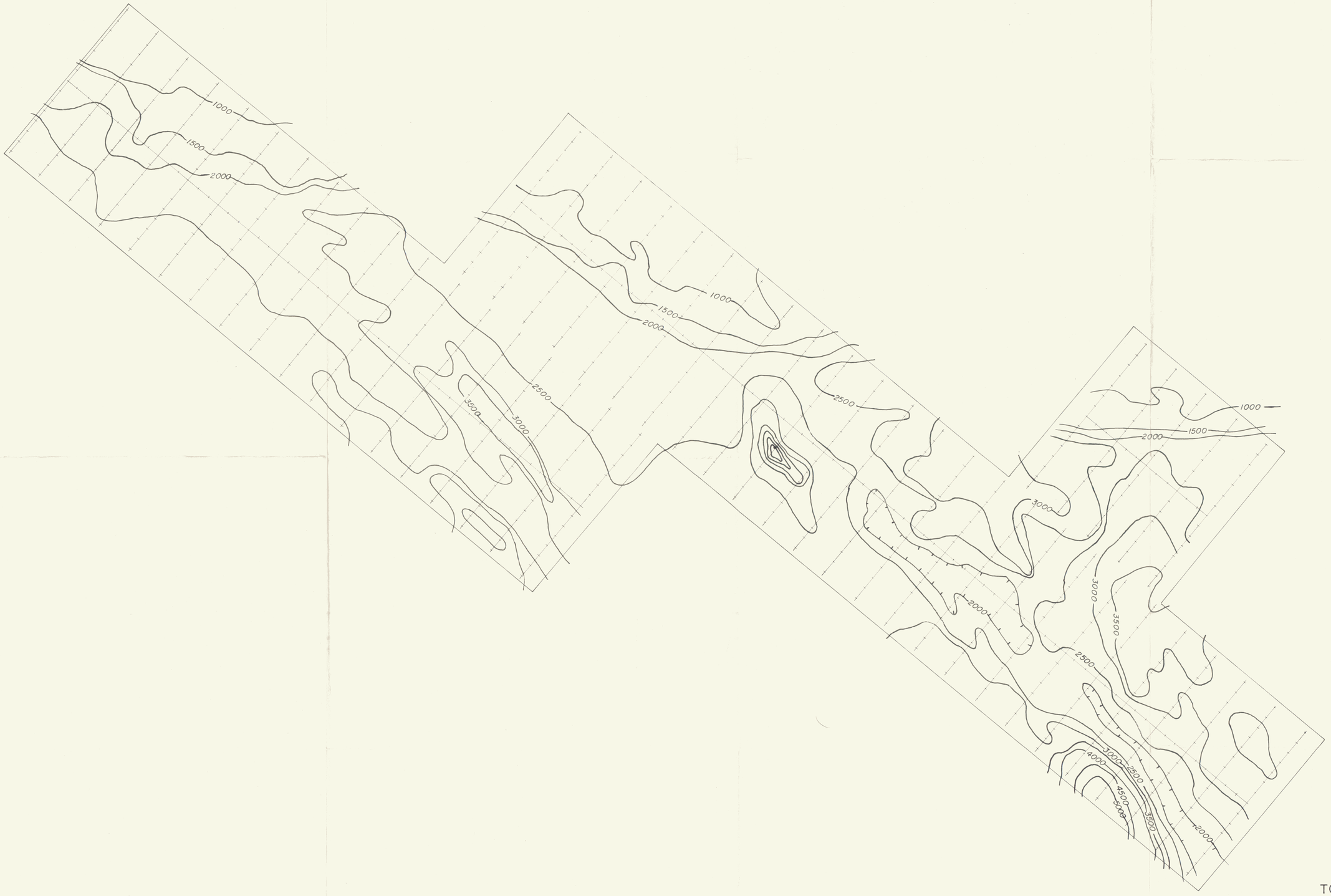
MK CLAIM GROUP

DAWSON M.D. YUKON TERRITORY

MAP SHEET 115-J-15

SEPTEMBER 1979 N. W. BURMEISTER

SCALE: 1"= 600'



CONTOUR INTERVAL 5000 CPM

PLATE IV

TOTAL COUNT PLOT

GAMMA-RAY RADIOMETRIC SURVEY

MK 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

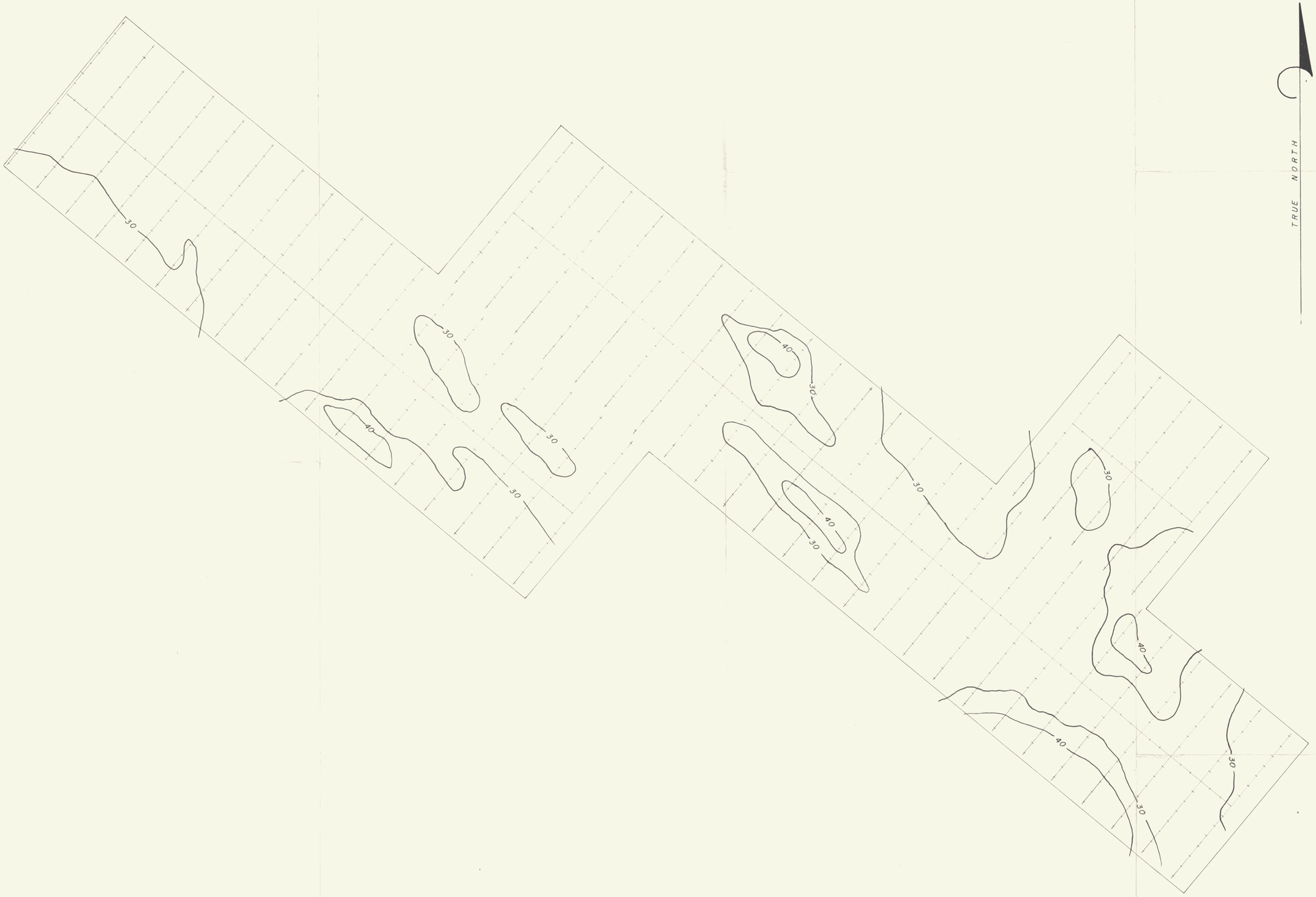
MK CLAIM GROUP

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

MK CLAIM GROUP

DAWSON M.D YUKON TERRITORY

MAP SHEET 115-J-15

SEPTEMBER 1979 N. W. BURMEISTER

SCALE 1"= 600'

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA N. W. BURMEISTER