

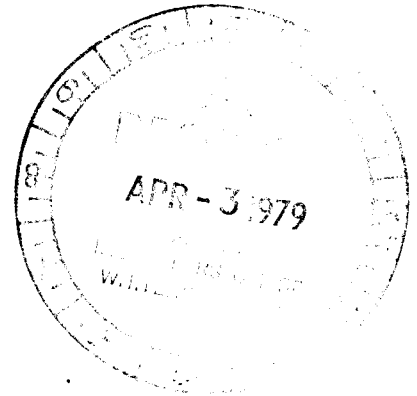


PROJECT 522

REPORT ON 1978 FIELD PROGRAMME
JOVE 1-132 CLAIMS

Lat. 15-N-9-10 Long.

C.J. RILEY GEOLOGIST



090447

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 \$22,300.00

R. L. Debicki
Acting. Geologist or
Assistant Mining Engineer

Considered as representation work under Section 31 of the Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder
Commissioner of Yukon Territory

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CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

1. The geology of the claim group follows the regional northwest-southeast trend.
2. A pattern of north-south structures at 45° to the regional trend is evident in both radiometrics and geochemistry.
3. The north-south geochemistry and radiometric anomalies are effected by the regional trend.
4. All major anomalies are associated with drainage basins which reflect the underlying north-south structural trends. They are slightly offset from present stream channels.
5. Slope orientation probably does not affect the geochemical and radiometric anomalies due to all slopes being exposed to approximately the same amount of sunshine.
6. Anomalies 7, 8 and 9 are probably caused by mass effect of rock exposed to the surface as felsenmeer.

RECOMMENDATIONS

1. Resistivity surveys should be carried out on Anomalies 1, 2 and 6 on a trial basis and expanded if underlying structures can be outlined.
2. Alpha Cup Radon surveys should be carried out on Anomalies 1 and 2 and extended to other anomalies if a pattern can be identified.
3. Bulldozer trenching should be carried out on Anomalies 1, 1A, 2, 4, 6, 11 and 13.
4. Diamond drilling is recommended on Anomalies 1 and 2.

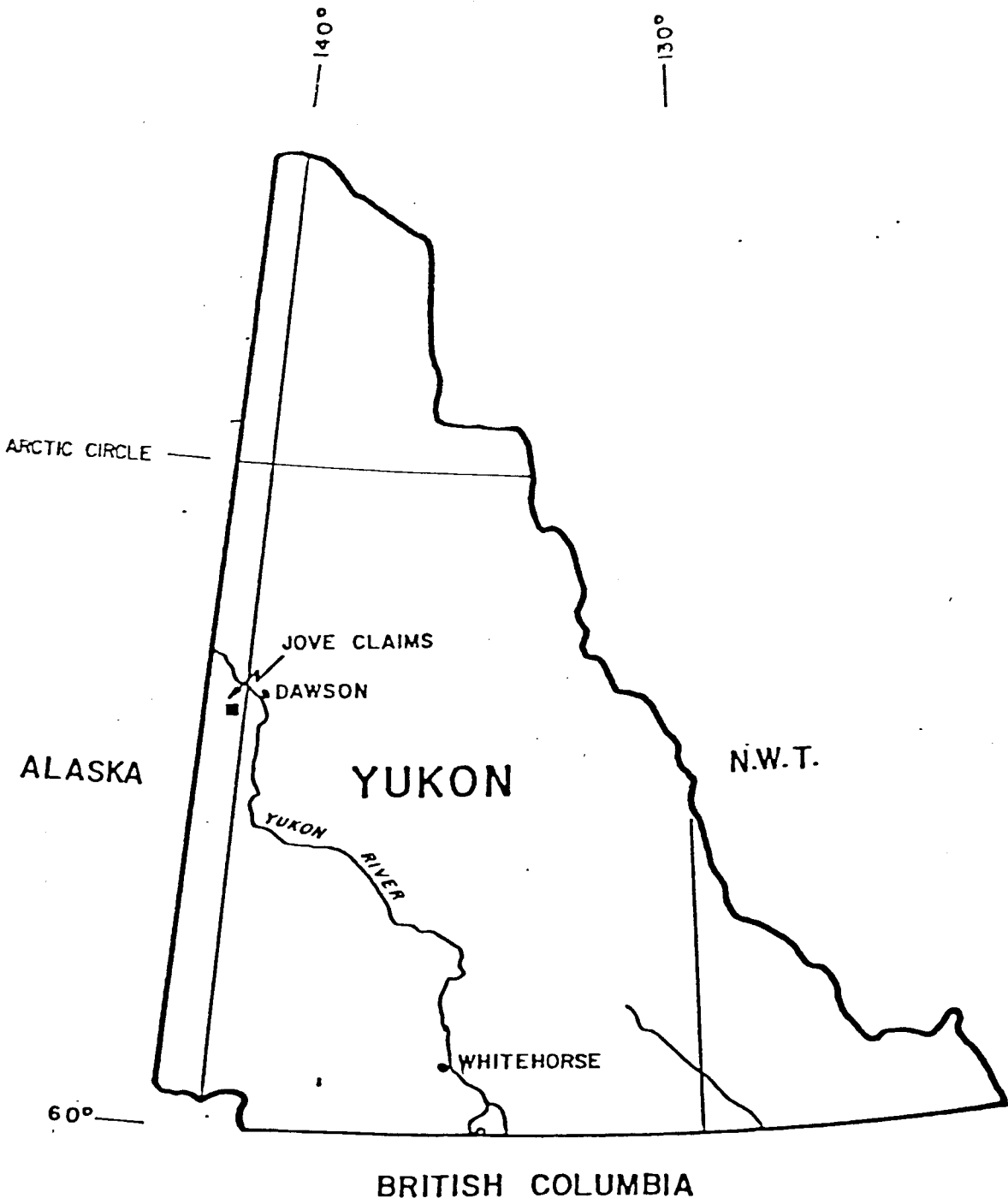


FIG. 1

ELDORADO NUCLEAR LIMITED
<p>LOCATION MAP</p> <p>JOVE CLAIMS</p> <p>(JOVE 1-16)</p>



1 - GENERAL

1.1 - INTRODUCTION

The Jove property consists of 132 contiguous claims located in the Dawson Range on the headquarters of Glazy Creek, approximately 40 kilometres west of the Yukon River and 20 kilometres east of the Yukon-Alaska border. The claim group is centered on $63^{\circ}44'$ latitude and $140^{\circ}31'$ longitude on claim sheets 115N/9 and 10.

Attention was drawn to this area by analysis of stream sediment data in 1977 from a previous survey which returned anomalous uranium values. The showing itself was located by airborne radiometric hounddogging by helicopter. Eight claims were staked and a semi-detailed geochemical and radiometric survey carried out. During the course of the survey, investigation of a nearby airborne anomaly instigated staking of a further eight claims.

In 1978, 116 new claims were staked as protection and the geochemical and radiometric surveys extended to cover a further 36 claims. In addition, rock chips were sampled from the C-horizon or felsenmeer to compile a geologic map.

1.2 - PREVIOUS WORK

The geology of the area was mapped by D.J. Tempelman-Kluit and reported in G.S.C. Paper 73-41, entitled "Reconnaissance Geology of Aishihik Lake, Snag and Part of Stewart River Map Areas, West-Central Yukon". A previous survey within the general Jove area located 40 samples greater than 12 ppm U with the highest reading 171 ppm U.

Eleven of these were on drainages from what is now the Jove showing and ranged from 6.0 to 171.0 ppm U. In 1977, an Archer-Cathro crew accompanied by an Eldorado geologist and Eldorado's District Geologist examined the area. The initial Jove showing was picked up by an airborne hounddogging radiometric survey and on the ground recorded 2,600 cps over a background of 170 counts. A seep at this location analyzed 57 ppb in water. In the immediate Jove area, twenty water samples were collected which ranged from 0.2 to 67.0 ppb. Thirteen of these analyzed greater than 5 ppb U. Thirty-six stream silts were collected in this same area, nineteen of which analyzed greater than 10 ppm U with the highest value being 308 ppm. A semi-detailed soil-geochemical survey and radiometric survey on a 100 metre grid located an anomaly centered on the original airborne high. Reconnaissance work in the area around the claims was carried out and an investigation of a second airborne anomaly close to the original claims returned soil values of 545, 765 and 935 ppm U. A further eight claims were staked to cover this occurrence.

1.3 - CLAIMS

Two groups of eight claims were staked at different times during 1977. In early June 1978, a further 116 claims were staked.

<u>CLAIM</u>	<u>GRANT NO.</u>	<u>DATE STAKED</u>
Jove 1-8	YA10220-27	07/06/77
JOVE 9-16	YA10756-63	27/09/77
JOVE 17-132	YA29892-31007	09/06/78

Sufficient assessment work has been accepted by the Mining Recorder on Jove 1-8 claims to keep them in good standing until 1983. Work has been carried out and a statement of expenditures submitted on Jove 9-132 sufficient to keep them in good standing until 1981.

2 - FIELD PROGRAMME

2.1 - INTRODUCTION

Work on these claims involved a radiometric survey and a geochemical soil sampling programme covering a total of 44 claims. In addition, geologic investigation was carried out over the claims in general and several reconnaissance lines of soil sampling extended beyond the grid.

As control for the surveys, compass-oriented slope-corrected chained baselines were established with stations at 100 metre intervals. Compass-controlled slope-corrected toposil lines were extended between baselines and 500M to the side with stations established at 100 metre intervals. Soil samples were collected at each station as well as rock chips from the C-horizon or from Felsenmeer. Radiometric readings were taken at 25 metre intervals along the lines. The geology of the group was compiled from these rock chip samples and traverses.

2.2 - LOGISTICS

This work was carried out by an eleven man party operating from a base camp at Ogilvie Island in the Yukon River. The field crew consisted of the following people:

<u>NAME</u>	<u>POSITION</u>
C.J. Riley	District Geologist
W.J. Olsson	Party Chief
E. Zaleski	Geologist
G. Troop	Senior Assistant
J. Pozzobon	" "
S. McAllister	Junior Assistant
B. Wilson	" "
B. Duncan	" "
M. Kozicki	Cook
V. Cobb	Pilot
J. Douglas	Engineer

Mobilization on June 14, 1978 of camp personnel and fuel was carried out by a riverboat chartered from Rudy Burian of Stewart River. The riverboat was used for supply of food and fuel to this camp during the course of the programme. Daily access to the claim group was by Hughes 500 helicopter attached to the party. Work was carried out between June 15 and June 29, 1978 inclusive.

This base camp was operated under Land Use Permit YB8J248 issued by the Renewable Resources Division of the Department of Indian and Northern Affairs.

2.3 - GEOLOGY

A number of traverses were made both on the claims and in the surrounding areas to determine the geology. Rock chips were collected when possible at each soil sampling station either from C-horizon or felsenmeer. No true outcrop has been located on the claim group but it is assumed that the felsenmeer and rock chips are relatively close to their original position.

A great deal of difficulty was experienced in distinguishing between feldspars in this area. This made distinction between quartz monzonite and granite extremely difficult. The solution to this problem was to stain feldspars. The method involving etching with hydrofluoric acid and staining with cobalt nitrate was utilized to stain K-feldspars yellow and leave plagioclases unchanged.

2.4 - RADIOMETRIC SURVEY

The radiometric survey was carried out by taking readings at ground level at 25 metre intervals along lines spaced 100 metres apart. Total count was recorded in counts per second. Instruments used were Scintrex BGS 1SL Total Count Scintillometers. Instrument readings were checked daily at a base station to ensure reliability between individual instruments. A contoured map of this survey is enclosed.

2.5 - GEOCHEMICAL SURVEY

Two orientation pits were dug and sampled to test various soil conditions on the grid. One pit was dug on a north-facing moss-covered slope underlain by permafrost and one was dug in a south-facing thawed slope. In addition, two old pits located on one of the geochemical anomalies were re-sampled and a new pit dug over a radioactive high on the same anomaly. No soil profiles were recorded in these latter pits. Where feasible, B-horizon soils were sampled during the survey. In some places over frozen ground, a certain amount of organic material had to be included to obtain a sample. Soils were analyzed for uranium by Chemex Labs Limited, North Vancouver, British Columbia, by standard fluorometric methods on a 0.25 gram sample of ashed doubly acidified -80 mesh fraction material.

3 - RESULTS

3.1 - GEOLOGY

No outcrop was located on the claims. In places, there are extensive fields of felsensmeer and these, plus rock chips collected from the C horizon soils have been used to compile a geologic map. Structure was impossible to determine directly and was inferred from topography and rock unit geometry.

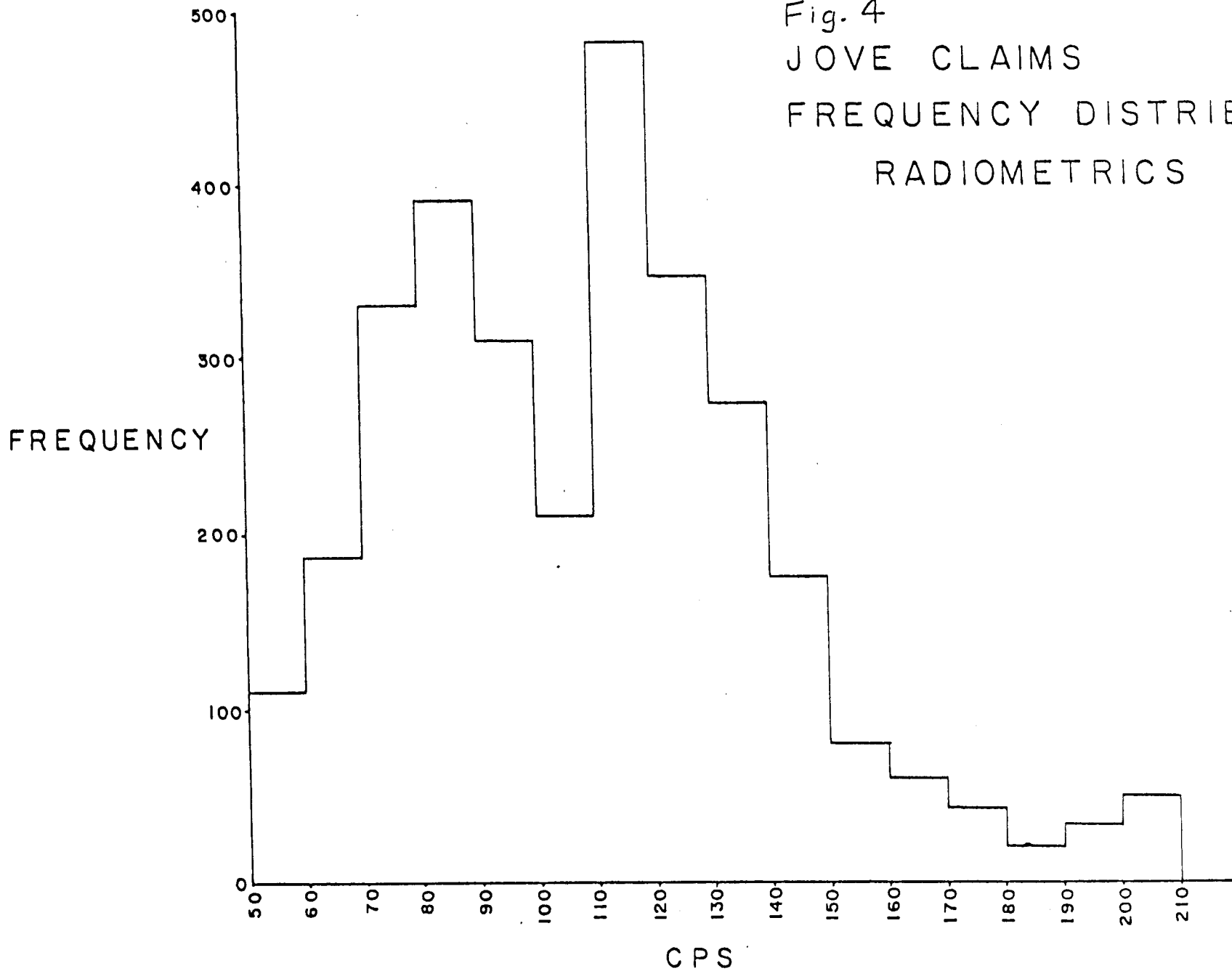
The area is underlain by foliated biotite granodiorite. It ranges from fine to coarse grained, has numerous augen phases, and locally contains up to 5% muscovite concentrated along foliation planes. More mafic gneiss with a higher biotite content and, in places, with amphibole, as well as biotite schist is included in this sequence. Very small pink garnets are concentrated in pegmatitic phases of the granodiorite. The local bedding or foliation direction follows the regional trend and is northwest-southeast.

The granodiorite is intruded by a quartz-monzonite-granite complex which appears to have an erratic and random distribution in both the grid area and its immediate surroundings. This pattern is typical of the extreme top level of an intrusive poking through the country rocks.

The intrusion varies between a true granite (quartz, microcline, K-feldspar, <5% biotite) and quartz monzonite (quartz, plagioclase, K-feldspar, <5% biotite). The granite and quartz monzonite vary in grain size and are anhedral to subhedral with most feldspar being fairly well developed while some is interstitial. Quartz in both phases is corroded and is blue to clear.

There does not appear to be a consistent relationship between the two phases of the intrusion. In most, the

Fig. 4
JOVE CLAIMS
FREQUENCY DISTRIBUTION
RADIOMETRICS



granite forms lenses and pods on the margins of the quartz monzonite. In some, the reverse is true. No actual contacts between the two phases were located.

The microcline of the granites is only rarely perthitic and all feldspars are white, which makes determination in hand specimens very difficult. The staining process used distinguishes between the Na and K-feldspars in these rocks very well. The process was simple and, with proper practice, safe. As there are no extremely critical parameters to this method, such as time, chemical concentration, etc., it is an excellent field method. Identification of feldspar in stained rock was 100% compared to 50% in unstained rock.

3.2 - RADIOMETRICS

A histogram of scintillometer readings indicates two populations with a distinct bimodal distribution. One population with a mean of 85 cps probably represents the granodiorite gneiss, and the other with a mean of 115 cps, the intrusive complex. Threshold for the granite-quartz monzonite is close to 100 cps. Anomalous values would appear to be greater than 185 cps. Contour intervals chosen were:

50 cps
75 cps
100 cps
125 cps
150 cps
175 cps
200 cps
100 cps intervals.

The pattern which evolves divides the grid into two areas. The southern two-thirds of the grid has two directional trends established by the radiometrics. One is northwest-southeast following the geological trend but a separate and stronger north-south component predominates. Strongly anomalous values appear to follow the latter trend rather than the regional one. Anomalies are centered at:

- 1 - 27N, 31W
- 2 - 28N, 40W
- 3 - 34N, 36W
- 4 - 23N, 51W
- 5 - 32N, 53W
- 6 - 39N, 49W

All of these anomalies tend strongly north-south and are distorted with an east-west component. The strongest is Anomaly 2 with a peak value of 550 counts per second. In addition, prospecting in this area located counts to a maximum of 3800 cps. Nine readings are greater than 200 cps. Anomaly 1 is next strongest with a maximum of 465 cps and 20 readings greater than 200 cps. Anomalies 3, 4 and 5 have single readings greater than 200 cps and Anomaly 6 has 3.

A broad east-west trend dominates the northern 1/3 of the grid but the northwest-southeast and north-south components can still be interpreted. Three anomalies are located within this zone:

- 7 - 43N, 44W
- 8 - 47N, 30W
- 9 - 45N, 25W

Anomaly 7 is approximately 700 by 600 meters in area with a peak value of 275 cps. Thirty-two readings are greater than 200 cps. This anomaly occupies a hilltop with extensive felsenmeer cover. Anomaly 8 has one reading greater than 200 cps and Anomaly 9 has three. These three anomalies are spatially related in that they follow and lie along the top of an east-west trending ridge.

3.3 - GEOCHEMISTRY

The geochemical values have a mean of less than 1 ppm U. Values of 15 and greater are considered to be anomalous. Contour intervals selected are:

2 ppm U
5 ppm U
10 ppm U
50 ppm U
100 ppm U
100 ppm U increments.

The lower contours were selected to help define trends.

Rocks from the grid and surrounding claim area have been analyzed for uranium with the following results:

granite: average of 36 samples - 2.9 ppm
maximum values - 9.0 and 11.0 ppm

quartz monzonite: average of 20 samples - 1.5 ppm
maximum values - 20.0 and 70.0 ppm
(not used in average)

granodiorite: average of 41 samples - 1.0 ppm
maximum values - 2.0 and 3.0 ppm

A rock chip recovered from a pit dug on a combined geochemical and radiometric anomaly, ran 220 ppm U. A rock chip collected from felsenmeer in 1977, in the area of this anomaly, ran 10 ppm U.

The geochemical map can be divided, as was the radiometric map, into two sectors. The northern one-third contains no anomalies. The southern two-thirds exhibits a strong north-south trend and a weak northwest-southeast trend distorting the north-south anomalies. Eleven geochemical anomalies are present and their numbering conforms with that of the radiometric anomalies.

- 1 - 27N, 31W
- 2 - 28N, 40W
- 4 - 23N, 51W
- 6 - 36N, 49W
- 10 - 25N, 46W
- 11 - 27N, 51W
- 12 - 41N, 47W
- 13 - 40N, 29W
- 14 - 34N, 43W
- 15 - 25N, 36W
- 16 - 27N, 27W

4 - DISCUSSION

ANOMALY 1 27N 31W

This anomaly has both radiometric and geochemical expression with good correspondance. The north-south strike of the anomaly is across the regional northwest-southeast trend of the geology and cuts across several rock types. For the most part, the anomaly is underlain by quartz monzonite with granite, granodiorite gneiss and basic gneiss also present.

The anomaly is in a very broad drainage basin, opening and descending to the south. The slopes are equally exposed to the sun, so permanently frozen-thawed terrane differences probably do not affect it.

ANOMALY 2 28N 40W

There is excellent correspondance between radiometrics and geochemistry for this anomaly. The underlying geology is a complex of quartz monzonite, granite and granodiorite gneiss trending northwest-southeast. The anomaly follows a north-south trend and cuts across all of these rocks. The anomaly is in a broad, open drainage basin and lies west of the channel, on a slightly elevated hump within the basin.

ANOMALY 3 34N 36W

Anomaly 3 is a radiometric anomaly and does not have a geochemical expression. It falls in an area with slightly elevated but not anomalous geochemical soil values, with one 14 ppm U, 200 meters north. It is probable that this anomaly represents an area of felsenmeer which, due to a mass effect of exposed rocks, has elevated the radiometrics.

ANOMALY 4 23N 51W

This area is different in that it has an east-west and a northeast-southwest trend and a linear, narrow expression. It cuts across basic gneiss, granodiorite and quartz monzonite and includes four anomalous values with a maximum of 36 ppm U.

This anomaly represents the Glazy Creek drainage. This drainage was found to be anomalous in the 1977 sampling and the confirmation in 1978 indicates a source of uranium to the west of the claim group.

ANOMALY 5 32N 53W

This is a radiometric anomaly with no geochemical expression. It has a peak value of 240 counts per second and is confined to a limited area.

ANOMALY 6 39N 49W

Anomaly 6 is apparent in both radiometrics and geochemistry. Peaks of the two types of anomalies are not coincidental but they have a good overall correlation. The geochem anomaly peaks at 34+50N, 49+00W and the radiometrics at 39+00N, 48+00W. Both anomalies are distorted by the northwest-southeast regional trend to the geology.

Anomaly 6 follows the drainage channel of a tributary of Glazy Creek. This is especially noticeable where the creek swings to the west and the geochemical anomaly follows it. This is not reflected in the radiometric anomaly.

ANOMALIES 7, 8 and 9

These anomalies make up the large radiometric trend in the northern portion of the grid. There is no geochemical anomaly associated with it. This radiometric

zone lies on the top of and along a hilltop and may be caused by uranium being flushed out of soils which have a deeper thaw level than on the slopes. Daughter products left behind would cause the gamma activity. It is more probable that it is due to the mass effect of boulders exposed here, as the hilltop has a large concentration of felsenmeer.

ANOMALY 10 25N 46W

Anomaly 10 is located at the junction of Glazy Creek and the tributary draining Anomaly 6. There is no radiometric expression and the anomalous values are located in the creek channels. They probably are silt rather than soil samples and the high uranium values are due to hydro-morphic concentration.

ANOMALY 11 27N 51W

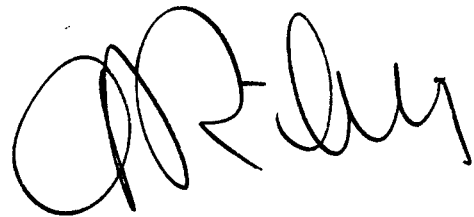
Anomaly 11 is a strong geochemical anomaly with little or no radiometric expression. The radiometrics in the area represent background quartz monzonite-granite levels. The anomaly has both north-south and northwest-southeast components and appear to be centered totally in quartz monzonite. The anomaly is surficial and as such, should be downgraded.

ANOMALIES 12, 13, 14, 15 and 16 25N-27N, 27W-47W

All of these anomalies are represented by single point geochemical values. They have no radiometric expression and all appear to lie on north-south or northwest-southeast striking trends. None are associated with drainage patterns.

SOIL PITS

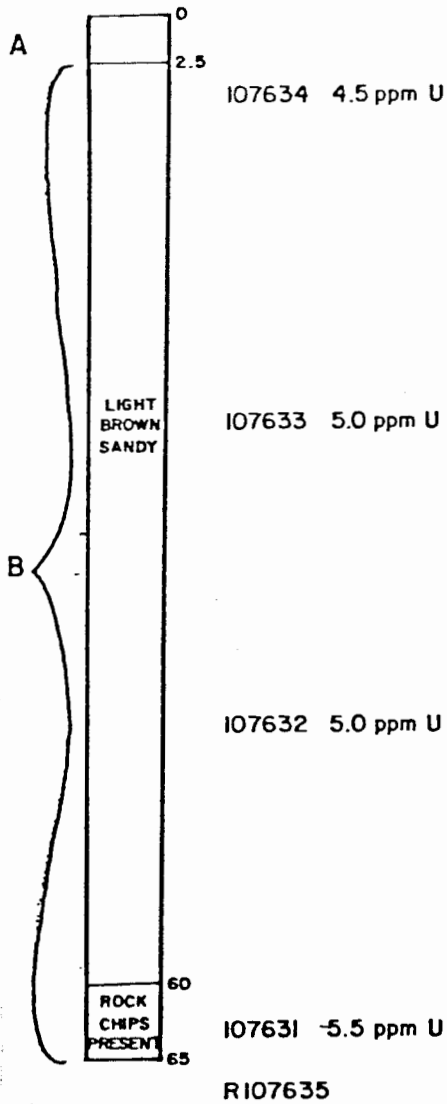
The low rolling nature of the countryside is such, that exposure to the sun is roughly the same in all areas of the grid. Pits #1 and #2, dug on gentle (15°) south and north-facing slopes, both had overstories of spruce and understories of moss, Labrador tea and grass. Pit #1 reached a depth of 65 centimeters and Pit #2, 31 centimeters before encountering frozen ground. The A-horizon in both cases reached the same depth, the B-horizon in Pit #1 had greater development than Pit #2 and more of the C-horizon was thawed in Pit #2. The geochem values were consistent in each pit. Pit #1 ranged from 4.5 to 5.5 ppm U with increasing depth. Pit #2 remained at 2.0 ppm U. The patterns in the two pits are similar enough that the question of thawed versus frozen slope can be neglected on the grid. This is also apparent in that both the northwest-southeast and north-south structural trends cut across all slope directions.

A handwritten signature in black ink, appearing to read 'R. L. M.', located in the lower right quadrant of the page.

PIT 1

OVERSTORY : SPRUCE

UNDERSTORY : MOSS AND GRASS



PIT 2

OVERSTORY : SPRUCE

UNDERSTORY : MOSS AND LABRADOR TEA

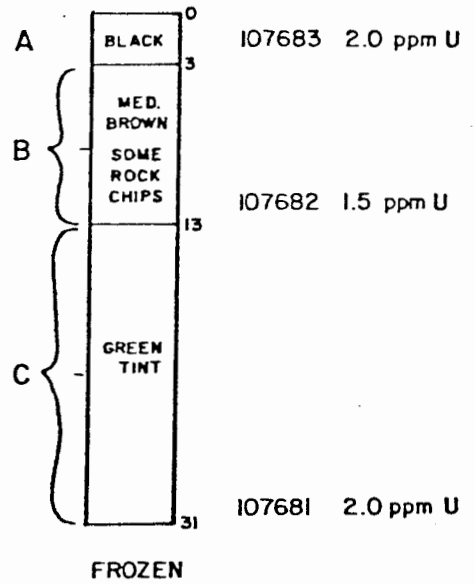


Fig. 3

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PROJECT 522

JOVE CLAIMS

ORIENTATION SOIL PITS

VERTICAL SCALE : 1 cm = 5 cm

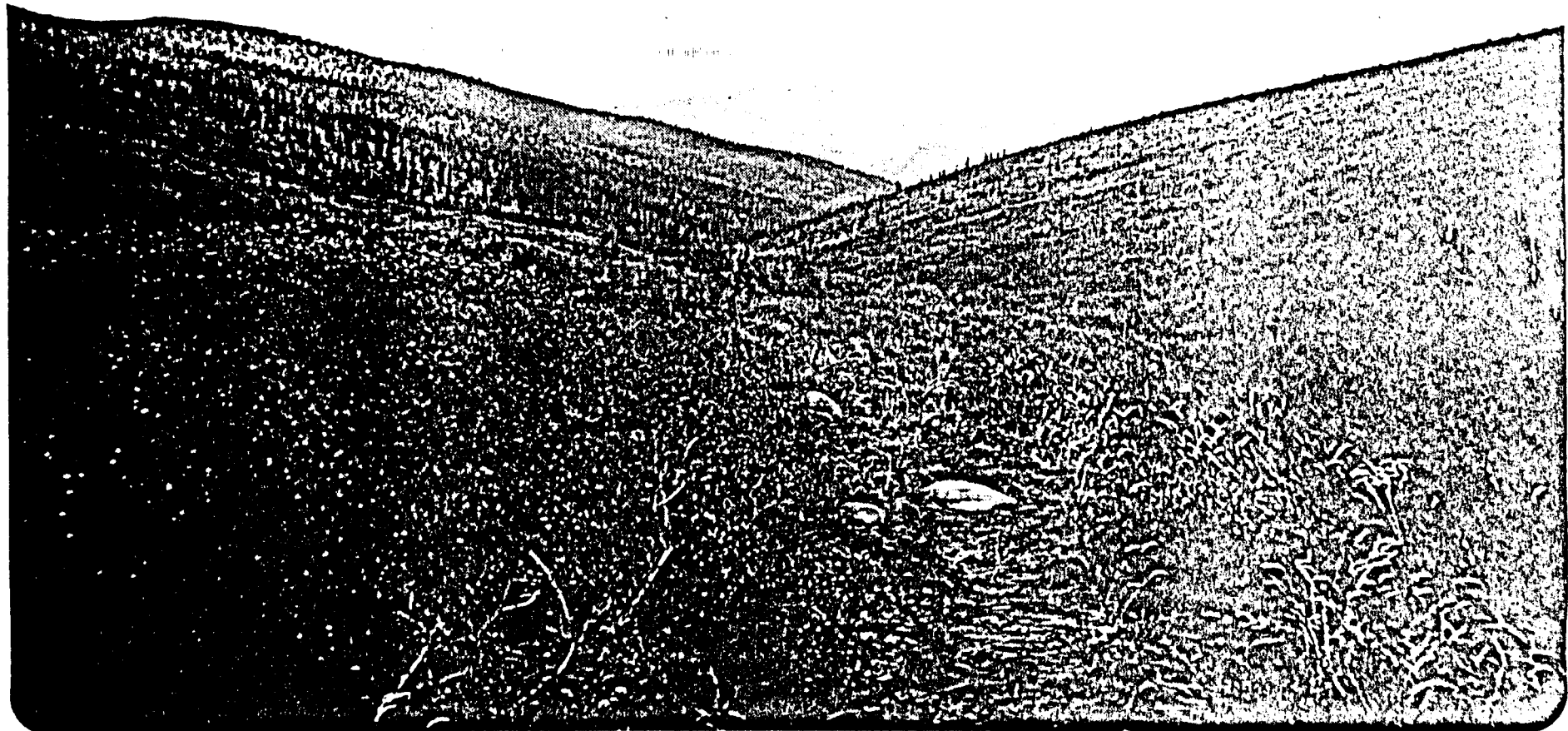


Fig. 4. View east down Glazy Creek from Old Cat Road.

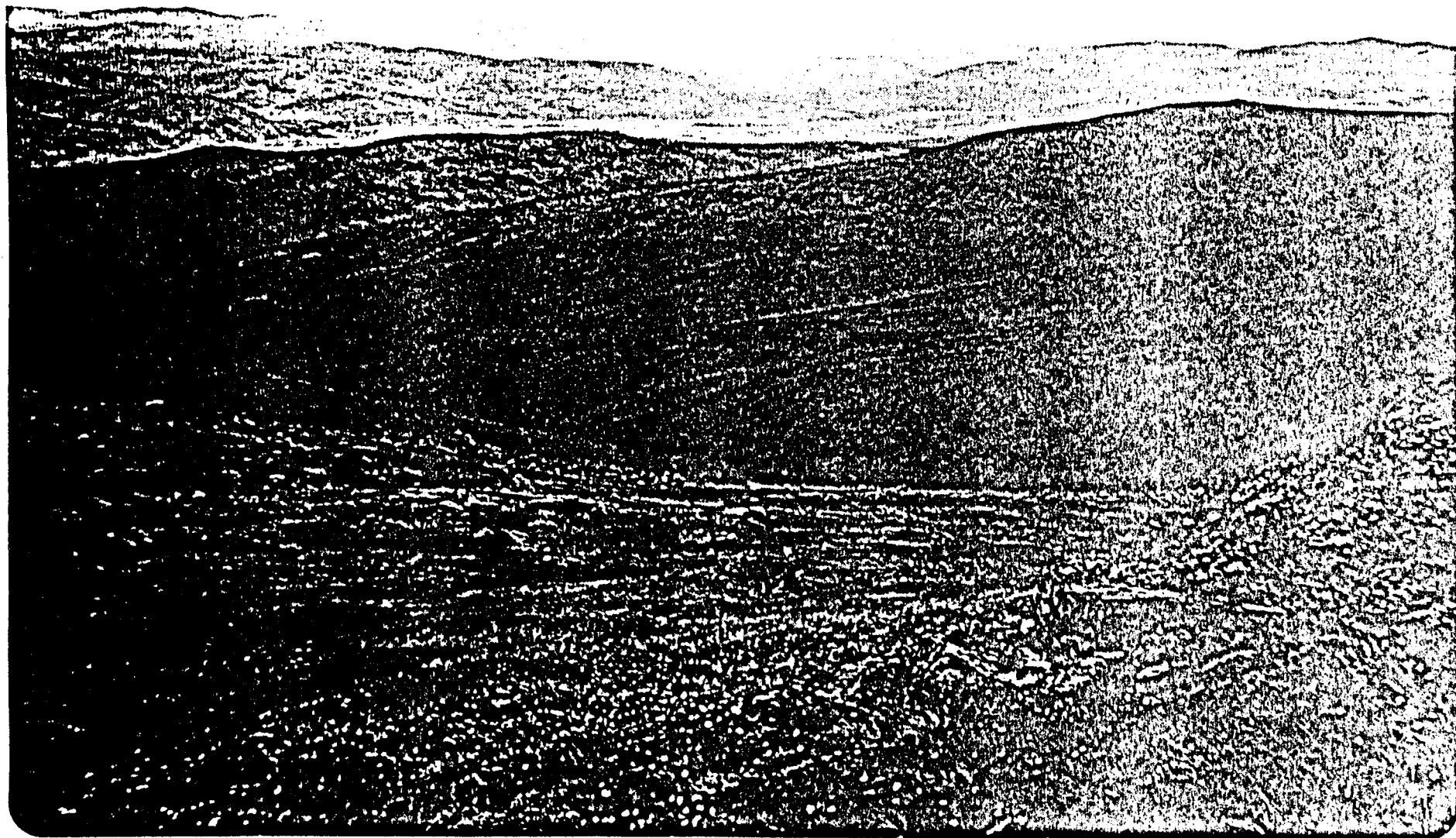


Fig. 5. View south across Glazy Creek. Anomaly 1 in centre depression.

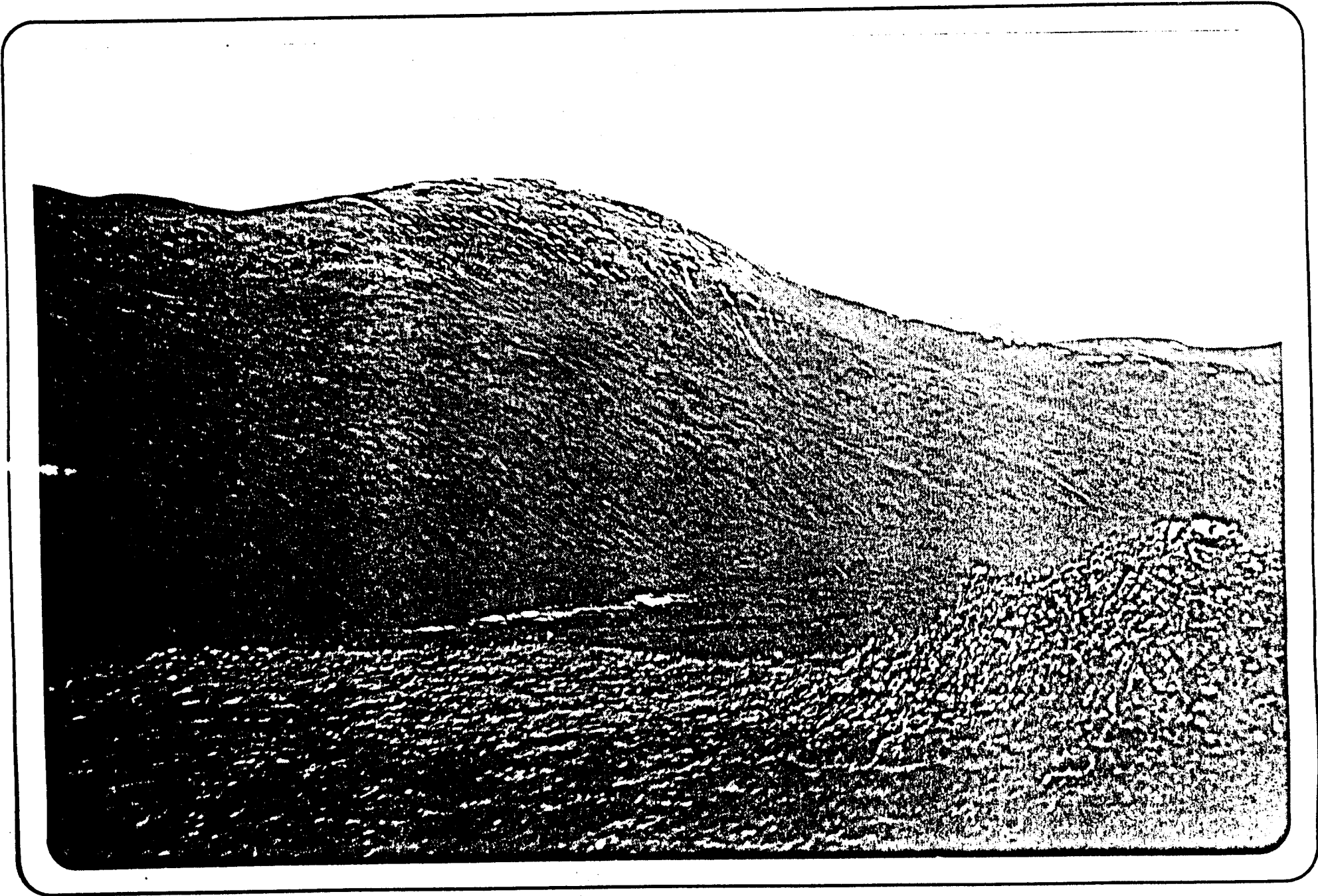


Fig. 6 . View north to headwaters of Glazy Creek.

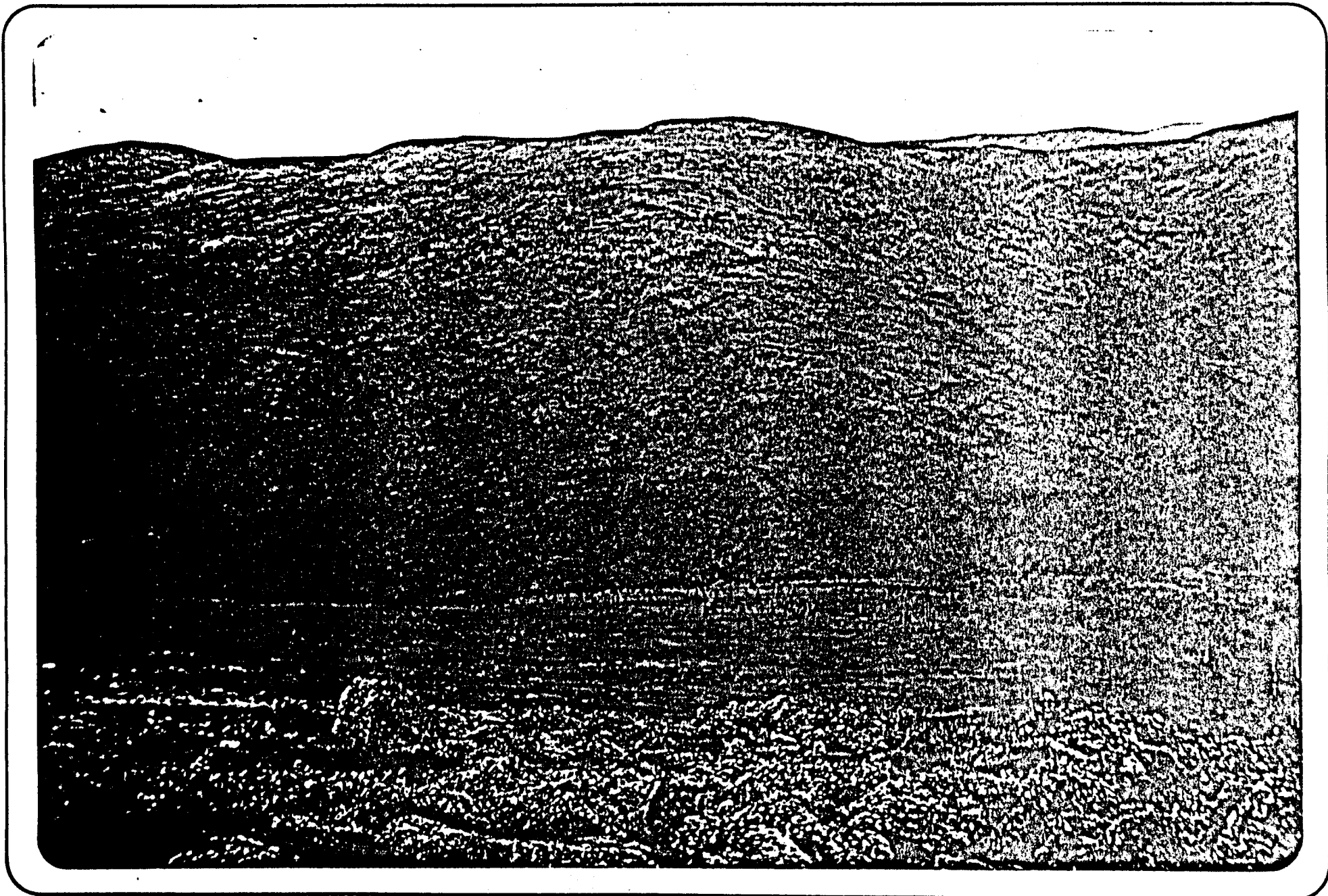


Fig. 7. View south across Glazy Creek. Anomaly 2 at centre left.

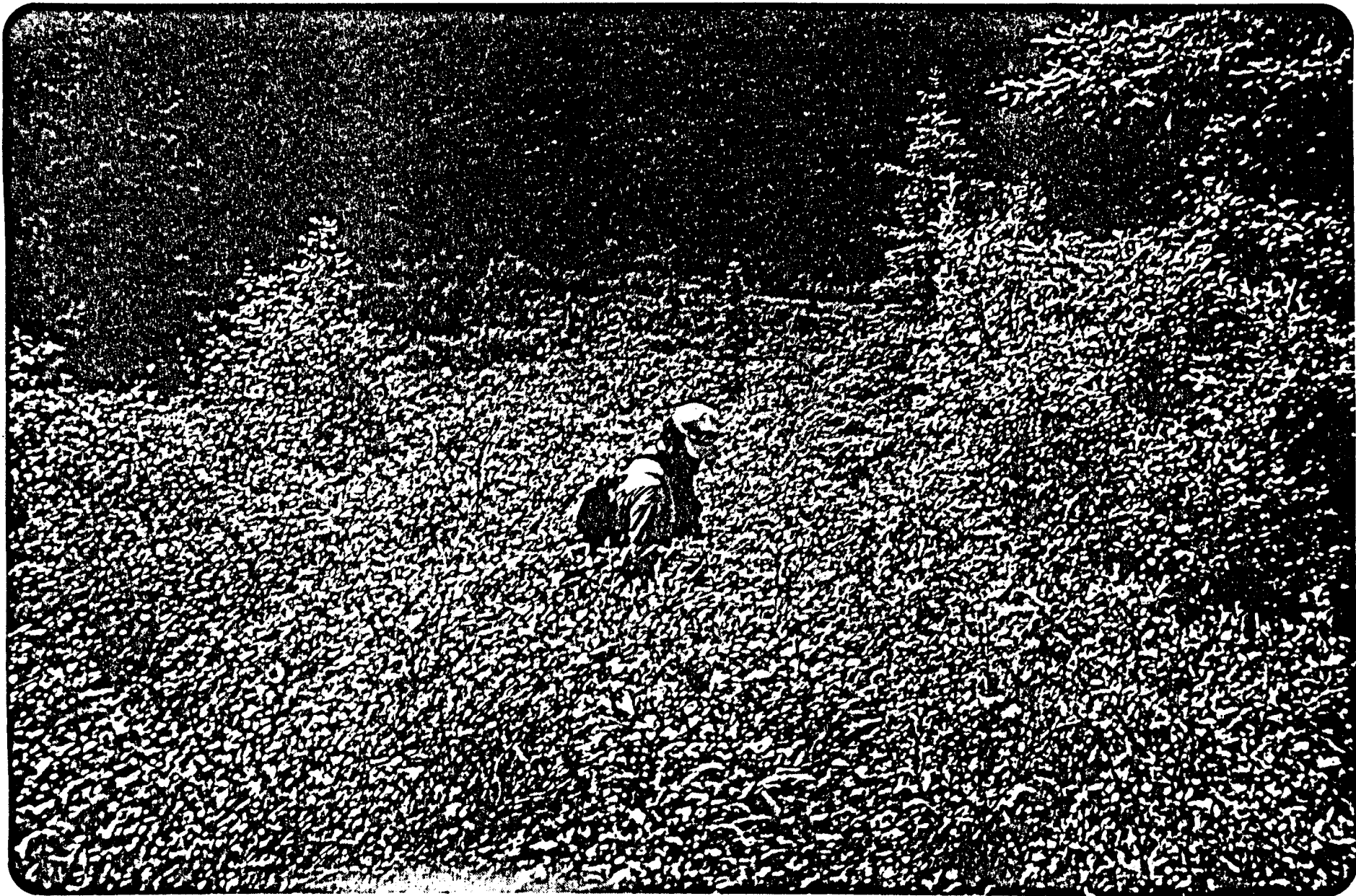
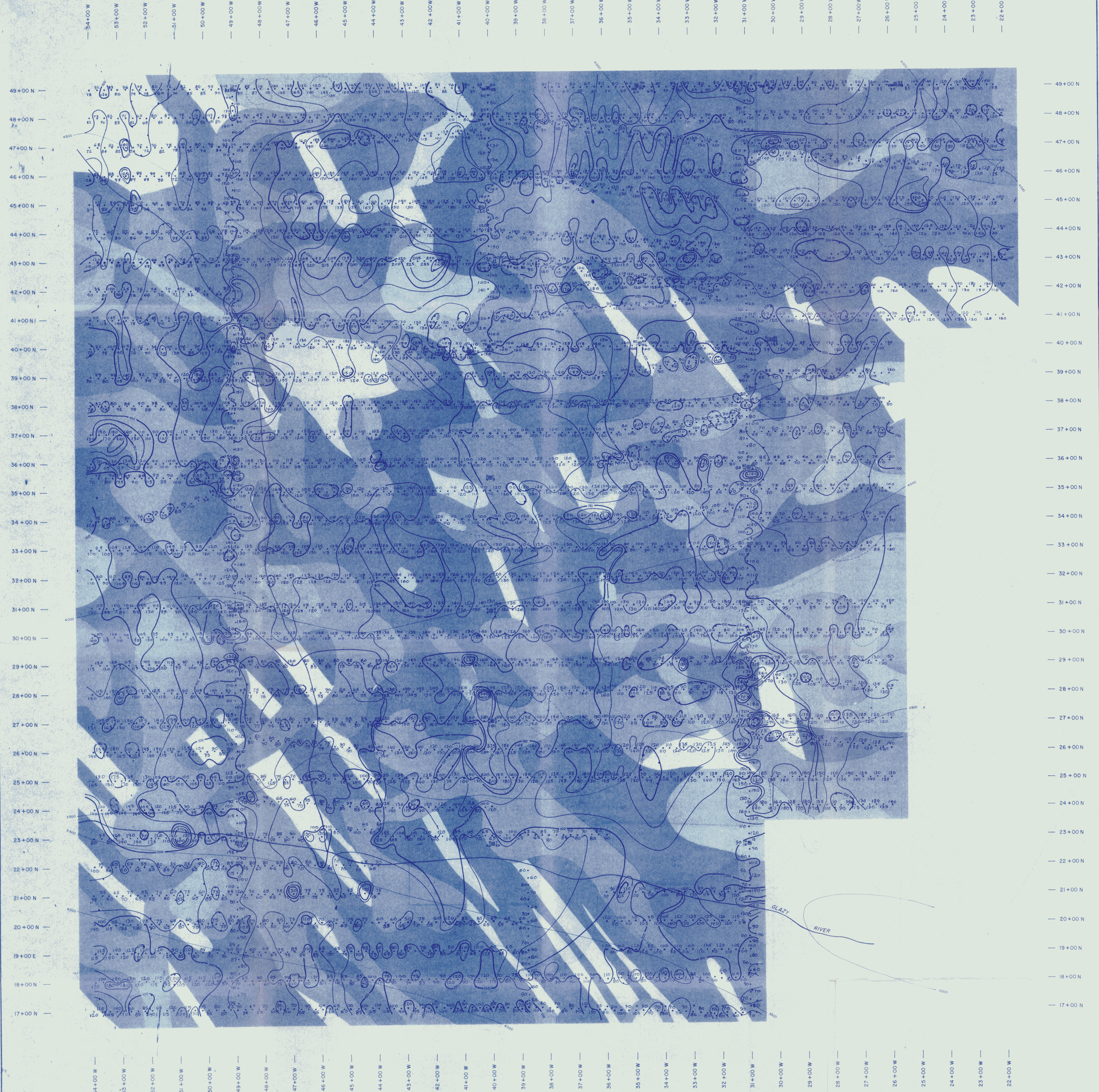


Fig. 8. Terrane on Anomaly 1.



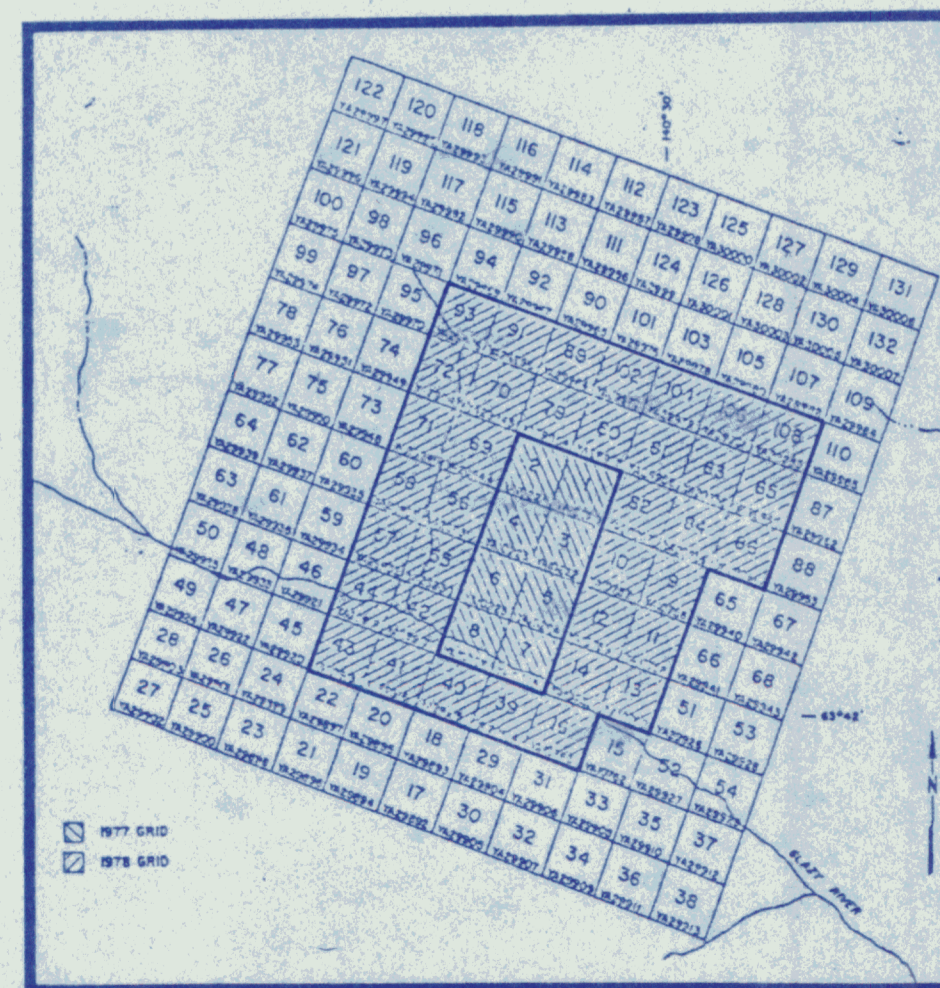
LEGEND

- GNEISS
- GRANITE
- QUARTZ MONZONITE
- GRANODIORITE
- PEGMATITE
- CLAIM POST
- TOPOGRAPHICAL CONTOURS

• 150 RADIOMETRIC VALUE IN COUNTS PER SECOND

CONTOUR INTERVAL

- 50 GAMMAS
- 75 GAMMAS
- 100 GAMMAS
- 125 GAMMAS
- 150 GAMMAS
- 175 GAMMAS
- 200 GAMMAS
- 225 GAMMAS



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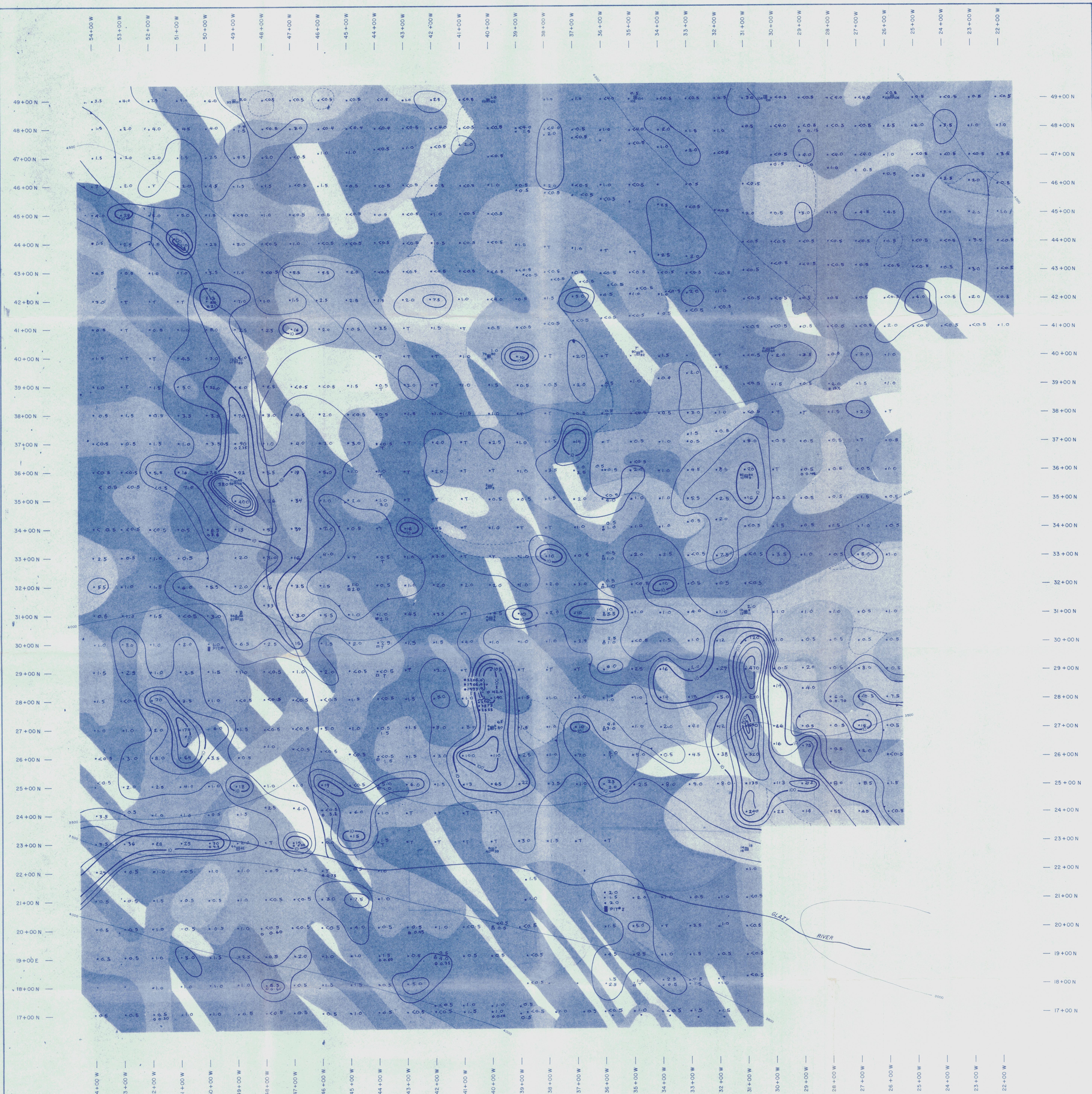
DAWSON MINING DISTRICT

JOVE GRID

RADIOMETRIC SURVEY

SCALE 1:5000

090447



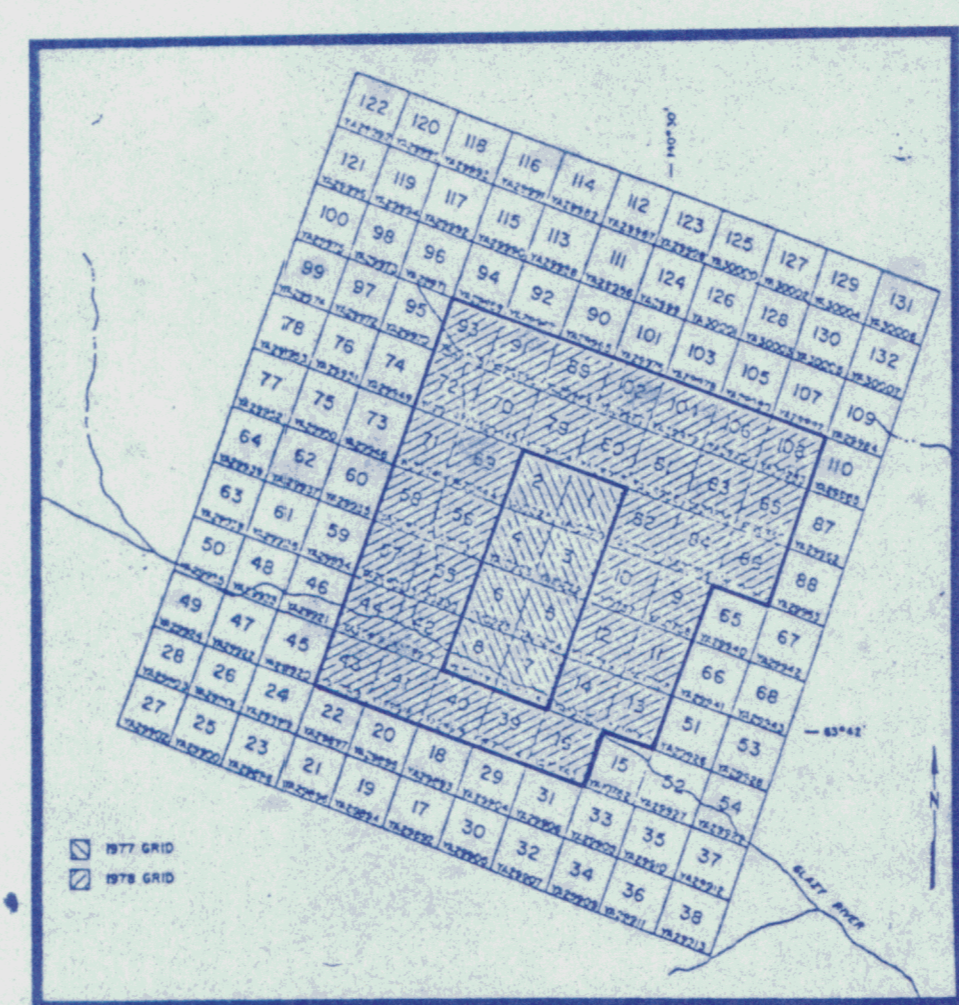
CONTOUR INTERVAL

2 ppm U
5 ppm U
10 ppm U
50 ppm U
100 ppm U
200 ppm U
300 ppm U
400 ppm U
500 ppm U

- GNEISS
- GRANITE
- QUARTZ MONZONITE
- GRANODIORITE
- PEGMATITE
- CLAIM POST
- TOPOGRAPHICAL CONTOURS

LEGEND

- 2.5 SOIL SAMPLE STATION & NUMBER (Uranium in ppm)
- * 2.5 WATER SAMPLE STATION & NUMBER (Uranium in ppb)
- x 2.5 SILT SAMPLE STATION & NUMBER (Uranium in ppm)
- 2.5 ROCK SAMPLE STATION & NUMBER (Uranium in ppm)
- T TRACE
- NS NO SAMPLE



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DAWSON MINING DISTRICT

JOVE GRID

URANIUM IN SOILS

SCALE 1:5000

690447