'79-#48-#7160

REPORT ON
THE FOLLOW-UP STREAM SEDIMENT
AND SOIL SURVEY ANOMALY 5C
KETTLE RIVER AREA, BRITISH COLUMBIA
FOR KELVIN ENERGY LIMITED
CALGARY, ALBERTA

BARRI

PART 6 OF 9

7160

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ANOMALY 5C

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SUMMARY

On September 14th, 1978, Barringer Magenta conducted a follow-up survey on a stream sediment anomaly (5C) outlined during an earlier survey (Lahti, 1978). A total of 21, 76 and 16 stream sediment, soil and rock chip samples respectively were collected on the Win 7, 9 and 10 claims staked by Kelvin Energy Limited in 1978. Composite stream sediment samples were collected every 100 metres, soil samples were collected from the B horizon (± 20 cm.) every 40 metres, and rock chip samples were taken where outcrops allowed.

All samples were analysed for uranium (fluorimetric), copper, lead, zinc, nickel and silver (atomic absorption). Interpretation of the results was based on the evaluation of individual raw data maps using threshold, and anomalous levels determined empirically from frequency histograms. The geochemical features were also evaluated with respect to amplitude, size and geological setting.

None of the geochemical features found were thought to reflect economic mineralization and no further work is recommended on this anomaly.

1. INTRODUCTION

1.1 GENERAL STATEMENT

The mineral claims referred to in the report (Dwg. 208-42-201 - see back cover of report) were staked by Kelvin Energy during 1978. Claim Statistics are given in Table 1 below.

TABLE 1

CLAIM STATISTICS

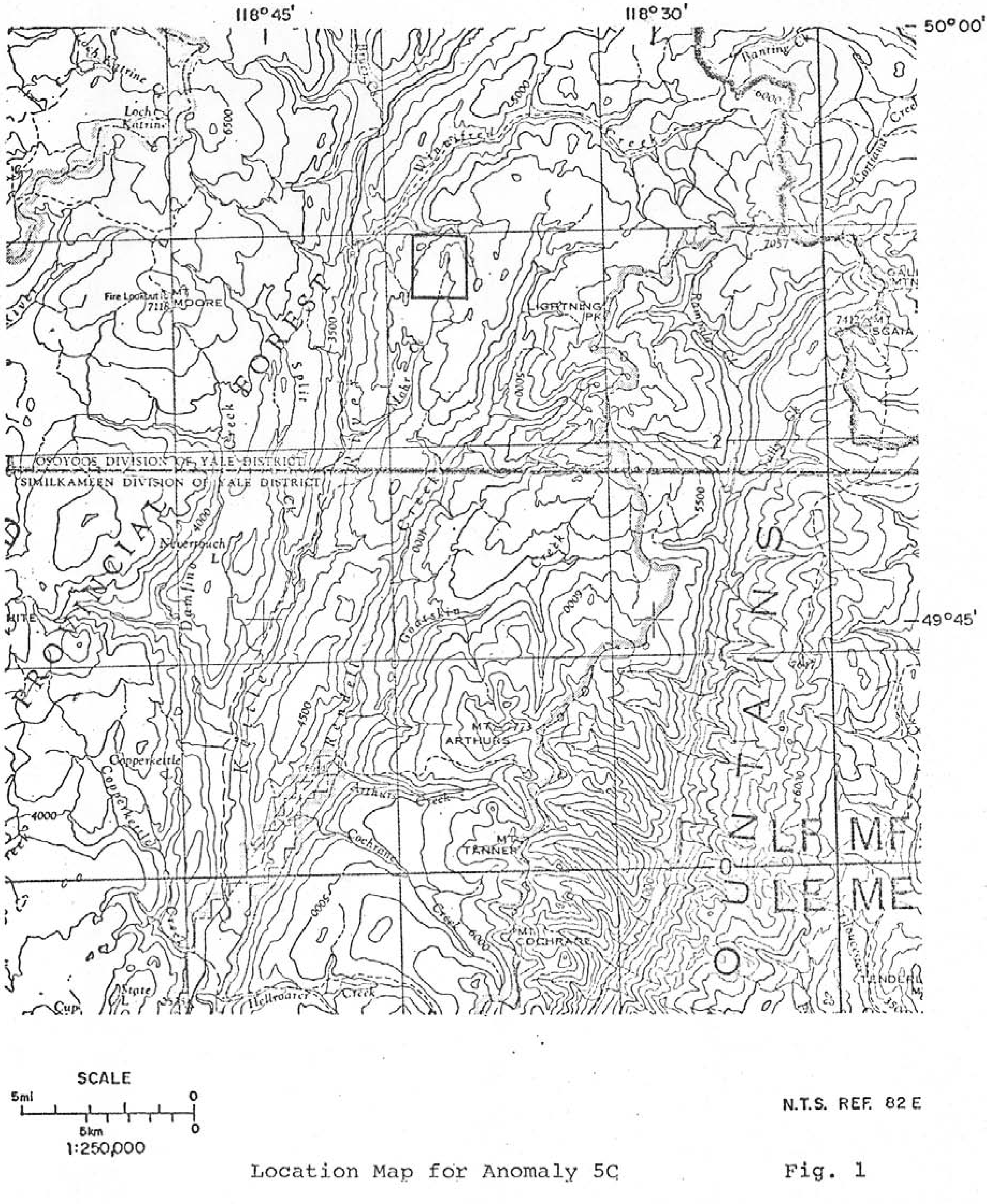
Claim Name	Units	Tag No.	Date of Record	Record Number	Mining Division
Win 7	20	37645	May 24/78	444	Vernon
Win 9	20	37647	May 24/78	446	Vernon
Win 10	20	37648	May 24/78	447	Vernon

One day was spent collecting detailed stream sediment samples, rock chip and soil samples on four east-west lines. The objective of the survey was to verify a single sample uranium anomaly discovered during the semi-detailed stream sediment survey (Lahti, 1978). Uranium, copper, lead, zinc, silver and nickel were determined in all samples. The multi-element approach was used to see if any of the base metals correlated with the anomalous uranium values and to assist in differentiating between various phases of the Nelson granitic rocks.

1.2 LOCATION AND ACCESS

Anomaly 5C is located four kilometres east of the Kettle River road in the headwaters of Mohr Creek at longitudes 118° 38' and latitude 49° 54' (Fig. 1).

The area is fairly remote with the closest bush road located two kilometres to the northwest. The area can best be reached by helicopter.



Location Map for Anomaly 5C

Fig. 1

2. GEOLOGY

All of the area examined at anomaly 5C is underlain by Nelson granites, diorite and monzonite intrusives (Little, 1957). These rocks are deformed by extensive faulting, shearing and jointing. They also vary in composition from biotite-hornblende rich gneiss to a true granite. Contacts between the different phases of the Nelson rocks are gradational. The gradational changes are not only detected by changes in biotite-hornblende content but also in the trace element concentration (Table 2). The more mafic rocks of the bedrock have higher concentrations of lead, nickel, copper and zinc while the more acid rocks are richer in silver and uranium. The single quartz, albite pegmatite sample appears to be enriched in uranium (6 ppm) and depleted in copper, lead, zinc, silver and nickel. Pegmatites are ubiquitous in this area and vary in width from centimetres to over one metre. These pegmatites are uranium rich with respect to the country rock (Table 2).

TABLE 2

ROCK CHIP DATA FOR ANOMALY 5C

(ppm)

Sample Number NLFR	Location	U	Cu	Pb	Zn	Ag	Ni	Rock Description
16	Line 3 at NLFS-685	1.0	19	14	88	1.0	18	Biotite-hornblende granite gneiss
16	Line 1 at NLFS-661	.8	10	16	71	.6	14	Biotite-hornblende granite gneiss
18	Line 2 at NLFS-668	3.0	15	9	65	.2	6	Biotite-hornblende granite gneiss
143	Line 4 at NLFS-693	.6	7	13	85	.6	12	Granite gneiss (with biotite)
144	Line 4 at NLFS-689	6.2	9	7	7	<.2	4	Quartz Feldspar pegmatite (480 cps)
145	Line 4 at NLFS-704	1.4	6	12	72	.4	6	Granite gneiss

The high potassium and uranium content in the pegmatite sample in Table 2 is reflected in a high total radiation (480 cps) which is about six times the background level (75 cps).

There are several large north-south faults in the area with the largest occurring in the centre of the soil grid. Some of the uranium and base metal anomalies occur along this centrally located fault.

No significant surficial deposits or any plateau basalts were found, but the search was not exhaustive.

3. TOPOGRAPHY, CLIMATE, DRAINAGE, VEGETATION, SOIL

3.1 TOPOGRAPHY

This anomaly is located near the top of an old peneplain at an approximate elevation of 1,660 metres. The terrain is characterized by small hills and valleys (probably fault controlled) which have a pronounced north-south trend. The maximum local relief is 75 metres.

3.2 CLIMATE

The climate is wet and cool with frost, snow and hail occurring during any month of the year. During the summer, the temperature is generally cool, 10-20° C, but July and August have temperatures which can exceed 30°C. Snow remains under the fir trees until the middle of June.

3.3 DRAINAGE

The streams within the survey area flow to the south. The steep rocky valley sides and the straightness of the stream indicate that they are fault-controlled. Most of the stream samples originate from springs, flow all year and have a gentle gradient. The streams are torrential in the spring carrying large amounts of sediment in suspension. However, during the summer with a much reduced flow rate, fine sediments and sand accumulate on the stream bed.

3.4 VEGETATION

The area is densely forested with firs and alders along stream and swamps. Stands of new-growth pines are found along rocky knolls and ridges.

3.5 SOILS

The considerable differentiation of soil type is related to the large variation in elevation. In addition to the effect of elevation, restricted drainage provides the greatest influence on soil development. In the large valleys of low elevation, the soils have a 5-15 cm. thick litter horizon and partially decomposed organic matter. The A_2 or leached horizon is not always present. Below this is a well developed B_1 and B_2 horizon whose colour is variable and dependent on the ground water movement within the soil horizon and on the underlying rock type. The usual colour is dark reddish brown but in areas with a large amount of organic matter accumulated in the B horizon the soil has a greyish tone.

In well drained forests the soil can develop a thick (10 cm), white leached A_2 zone. The colour of the B horizon of these soils varies from a light reddish brown to bright yellow. Olive green or mottled soils are rarely encountered.

4. GEOCHEMISTRY

4.1 GENERAL STATEMENT

Twenty-one (21) stream sediment, 76 soil and 6 rock chip samples were collected during a limited follow-up survey. The follow-up program evaluated further the amplitude and extent of a one point uranium anomaly identified during the semi-detailed stream sediment reconnaissance survey (Lahti, 1978). All samples were analysed for uranium, copper, lead, zinc, silver and nickel. Information on the analytical techniques and sample collection procedures can be found in Appendix III. The un-named streams have been numbered to facilitate the discussion of the geochemical results.

4.2 RESULTS

Maps (scale 1:10,000) with location and sumber number were prepared for soil-rock chip and stream sediment samples. Claim boundaries and claim names are found on all maps. All base maps were prepared from an enlargement of a part of NTS map 82E/15E (scale of 1:50,000).

The results for uranium, copper, lead, zinc, silver and nickel are listed in Appendix IV. The soil and rock chip sample results were plotted on three maps (Dwgs. 208-42-202, 204, 205) (scale, 1:10,000); a uranium raw data map; a copper-lead-zinc map and a silver-nickel map, respectively. The stream sediment results are plotted on two maps (scale 1:10,000); a uranium raw data map and a copper, lead, zinc, silver and nickel map (Dwg. 208-42-202, 203).

4.3 INTERPRETATION

4.3.1 General Statement

To aid the interpretation, two sets of frequency histograms (Fig. 2 and 3) were used; one set derived from the soil sample data and the other derived from the semi-detailed regional stream sediment sampling, respectively (Lahti, 1978). The 21 sediment samples collected during this survey are inadequate to characterize the individual element populations so histograms prepared from regional semi-detailed sampling were used. Threshold and anomalous values were determined empirically from the histograms and are summarized in Tables 3 and 4.

TABLE 3

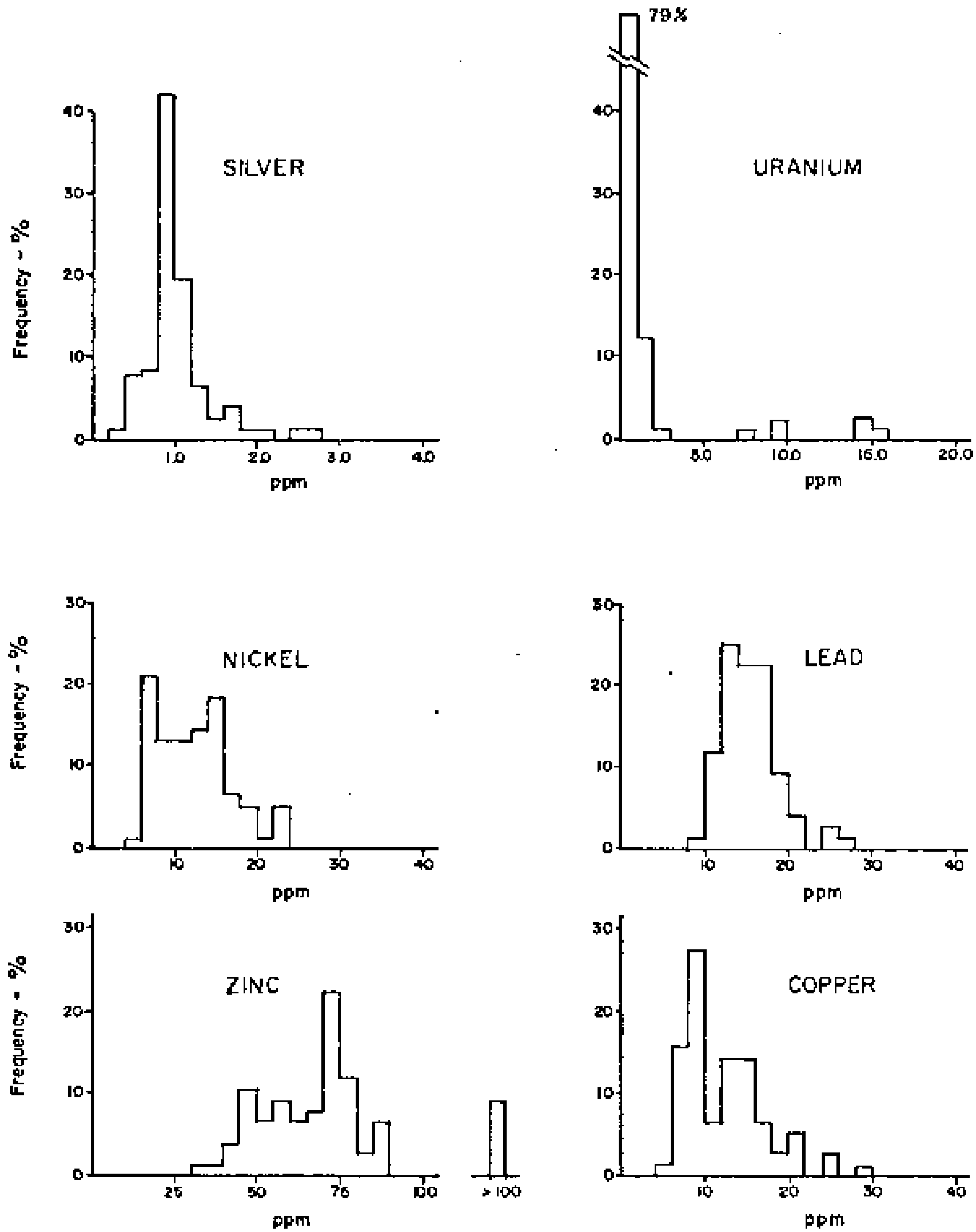
THRESHOLD AND ANOMALOUS LEVELS FOR Cu, Pb, Zn, Ag, Mo and U IN STREAM SEDIMENTS (After Lahti, 1978)

Element	Threshold (ppm)	Third Order Anomalous (ppm)	Second Order Anomalous (ppm)	First Order Anomalous (ppm)
Copper	20	21 - 24	25 - 40	> 40
Lead	28	---	29 - 40	> 40
Zinc	65	66 - 85	86 - 100	>100
Silver	2.2	---	2.3 - 3.0	> 3.0
Uranium	8.0	8.1 - 13.0	13.1 - 20	> 20

TABLE 4

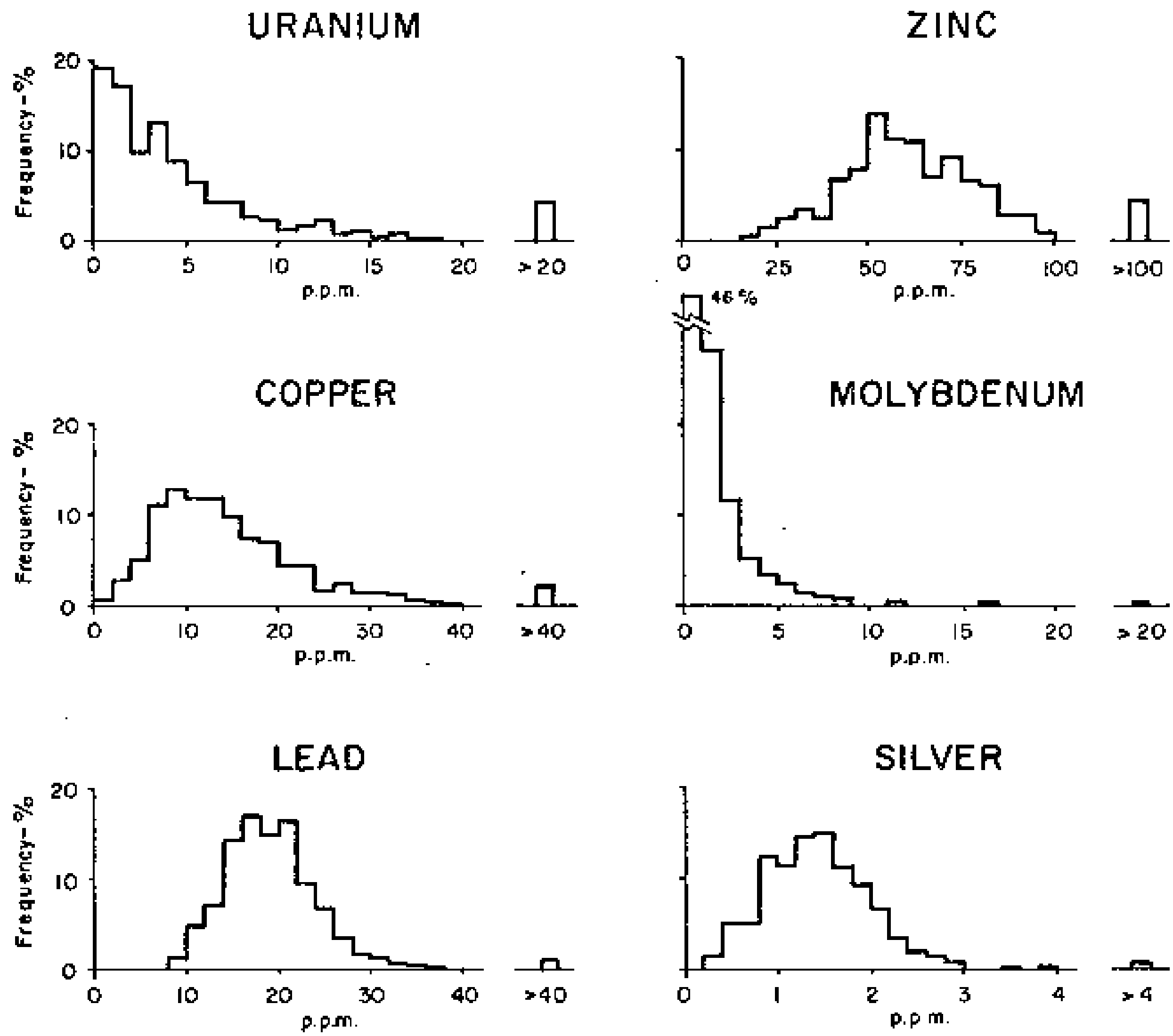
THRESHOLD AND ANOMALOUS LEVELS FOR U, Cu, Pb, Zn, Ag and Ni IN SOIL SAMPLES

Uranium	2.0	2.1 - 4.0	4.1 - 8.0	> 8.0
Copper	12	13 - 18	19 - 36	> 36
Lead	22	23 - 36	37 - 48	> 48
Zinc	65	66 - 85	86 - 100	>100
Silver	1.4	---	1.5 - 3.0	> 3.0
Nickel	12	13 - 22	23 - 33	> 33



FREQUENCY DISTRIBUTION OF SILVER, URANIUM, NICKEL, LEAD, ZINC AND COPPER IN SOILS ANOMALY 5C, MOHR CREEK AREA.

FIG. 2



REGIONAL
FREQUENCY DISTRIBUTION OF
URANIUM, ZINC, COPPER,
MOLYBDENUM, LEAD AND SILVER
IN STREAM SEDIMENT SAMPLES

(AFTER LAHTI, 1978)

FIG. 3

In addition to histograms and raw data maps, geological information and data from six rock chip samples were used in the interpretation. None of the uranium or base metal features discovered during the stream sediment and soil sampling follow-up work were considered to be significant enough to warrant classification and no interpretation maps were made.

4.3.2 Uranium

The stream sediment follow-up survey shows a long low level anomaly on stream 2 which commences 100 metres downstream from the source (Dwg. 208-42-202). The values remain at about 12-13 ppm (third order anomalous) until 500 metres downstream where the uranium value increases to 18.2 ppm. This is slightly south of the location where a 24 ppm uranium value was discovered during the semi-detailed stream sediment survey (Lahti, 1978). The Geological Survey of Canada also detected greater than 20 ppm uranium along this stream (open file 409, 1976).

The uranium values gradually decrease again to 12 ppm just above the junction of stream 4 flowing from the northeast. Stream 4 has background values of 3.8 and 3.4 ppm (Dwg. 208-42-202). Two small streams, 1 and 3, that are sub-parallel to stream 2 have values of 8.6 and 6.2 that are third order anomalous and background respectively.

It appears that the central section of stream 2, station NLF 205 to NLF 210 has several small weak sources of uranium such as uraniferous pegmatites.

Four east-west soil traverses about 1 kilometre long bracket the upper section of the stream (Dwg. 208-42-202). More than 91 percent of the values range from .2 to 2.0 ppm uranium and only 7 values exceed the threshold value of 2.0 ppm. (see Table 3) The distributions of anomalous uranium in soils is very erratic with most of the higher values on the east side of the stream. One pegmatite sample on the east end of Line 4 gave a value of 6.0 ppm uranium which is more than 2 to 3 times the normal background range of .2 to 2.0 ppm. The erratic distribution of the soil results indicate a number of small sources such as pegmatites, faults, or shears. On the basis of the geological, geochemical and geophysical information available, no further work is warranted.

4.3.3 Copper

Stream 2 which has only a few second and third order copper values has the highest value occurring at NLF 206, the site of the highest uranium value. Stream 3 (Dwg. 208-42-203) just to the east, has a value of 25 ppm at NLF 206. With the limited stream sediment data, it is impossible to outline any definitive trends but there appears to be a high copper background in the central section of the stream and to the east.

The soil survey reveals a similar pattern to uranium. Most of the anomalous copper values occur east and south of stream 2. (No first order copper values were detected during the soil survey.) This high copper background extends in a northwest-southeast direction crossing stream 2 near the end of Line 2 and extending past soil sample NLFS-645 on Line 1.

The copper in the soil and stream sediment appear to reflect a change in rock type. Small, weakly mineralized shears or pegmatites are the most probable cause. It is unlikely that the second and third order anomalous copper values are related to economicl copper mineralization.

4.3.4 Lead

The salient features of the stream sediment lead results are the single second order value (Dwg. 208-42-203) located at the source of stream 2, and the sharp increase in lead concentration at NLF 206 which extends down to the junction of stream 4 to the main tributary of Mohr Creek. These low order anomalous lead values appear to be reflecting small sources which cut across the stream or possible weak mineralization along the suspected fault. It is unlikely that any of the low level lead values are indicative of economic mineralization.

The soil lead results exhibit an almost normal distribution (Fig. 2) with only three values exceeding the threshold of 24 ppm. The third order anomalous values are widely scattered and have no economic importance. The lead values do not show any trends that might reflect different zones within the Valhalla intrusive rocks. The lead results are not encouraging and no further work is recommended.

4.3.5 Zinc

The distribution of stream sediment zinc values (Dwg. 208-42-203) shows a general high background level with the southern part of stream 2 consistently 3 to 4 times the regional threshold of 65 ppm. The uniformly high values suggested a widespread source such as lithological change rather than a localized source such as mineralization.

The soil zinc results show a similar element distribution pattern to uranium and copper (Dwgs. 208-42-202 and 205). There is a weakly anomalous region with isolated highs which extends from NLFS-645 on Line 1 south to the centre of Line 4 (Dwg. 208-42-204). Like copper and uranium, the zinc reflects a lithological change, small weakly mineralized shears or pegmatites as being the most probable source. No further work is recommended unless additional geological, geophysical work, etc. becomes available.

4.3.6 Silver

The follow-up stream sediment values along stream 2 are all below the threshold value (2.2 ppm) except for NLF-214 just above the exit into stream 4 (Dwg. 208-42-203).

The distribution of soil silver values reveal an erratic elevated background commencing at NLFS-645 on Line 1 (Dwg. 208-42-205) and extending south to east of stream 2 on Line 4. This pattern follows that of uranium, copper and zinc and has no economic significance.

4.3.7 Nickel

There is a relatively strong nickel anomaly on stream 2 at NLF-204 about 200 metres above the uranium-copper-zinc anomaly at NLF-206 (Dwg. 208-42-203). The nickel value at NLF-204 is about three times the threshold value of 12 ppm. A well developed dispersion train has developed, extending south for 800 metres. The probable source is a mafic dyke or a hornblende-biotite rich phase of the Nelson Unit (Little, 1957).

Nickel concentrations in the soil (Dwg. 208-42-205) indicate a northwest-southeast trend cutting across stream 2 following the same distribution patterns as uranium, copper, zinc and silver. The low third and second order anomalous values are not thought to be related to significant mineralization.

5. CONCLUSIONS

1. The second and third order anomalous uranium values in stream 2 appear to be caused by several small weak sources of uranium such as uraniferous pegmatites or compositional changes in the Nelson intrusive rocks. These weak anomalies are not thought to be of economic significance. The six rock samples collected within the survey area indicates a quartz feldspar pegmatite and a granite gneiss, both with a high background uranium concentration.
2. Zinc, lead and copper values show a similar pattern to uranium and most likely originate from the same or adjacent source.
3. Nickel has formed a well developed dispersion train from a source suspected of being related to mafic dykes or to a mafic phase of the Nelson intrusive complex.
4. Silver does not have any notable features in the stream sediments.
5. Uranium, copper, nickel, silver and zinc soil results show a distinct northwest-southeast trend which, like the sediment samples, probably reflects an enrichment of these elements in pegmatites, shears or a variation in composition of the Nelson intrusive rocks, none of which have any economic importance.

6. RECOMMENDATIONS

Unless additional geological, geophysical or other information becomes available which alters the conclusions drawn in this report, no further work is recommended on this anomaly.

REFERENCES

1. Department of Energy, Mines and Resources and British Columbia Ministry of Mines and Pet. Res. (1977): Regional Stream Sediment and Water Geochemical Reconnaissance Data, Southeastern British Columbia (NTS 82), Open File 409 (NGR-S-76).

2. Lahti, H. (1978): Private report on the Semi-Detailed Stream Sediment Sampling Survey, Kettle River Area, British Columbia. Prepared by Barringer Magenta for Kelvin Energy Limited.

3. Little, H.W. (1957): Geology of Kettle River (East Half), Geological Survey of Canada, Map 6-1957.

APPENDIX I

STATEMENT OF QUALIFICATIONS

I, Howard Reino Lahti of Toronto, do certify that:

1. I graduated from the University of New Brunswick, Fredericton, New Brunswick in May, 1978 with a Doctor of Philosophy in Geology (Applied Geochemistry).

2. I graduated from the University of New Brunswick with a B.Sc. in Geology in 1968 and M.Sc. in Geology (Applied Geochemistry) 1971.

3. I have worked with Barringer Magenta Limited of Toronto, Ontario since June 1975 as a geologist/geochemist.

4. I have worked as a geologist, geochemist or attended university since 1964.

5. I am a Member of the Association of Exploration Geochemists.

Howard Lahti

H.R. Lahti, Ph.D.
Geologist-Geochemist
Barringer Magenta Limited

APPENDIX II

ASSESSMENT REPORT

a) Days Worked:

Supervisor: H. Lahti, September	1 day
Junior Sampling Assistant:	
D. Pyke, September	1 day
Junior Sampling Assistant:	
J. Backer, September	1 day
Prospector:	
C. Wainwright, September	1 day

b) Cost of Wages:

Supervisor: $220 x 1 =	$ 416.00
Junior Sampling Assistant: $96 x 1 =	$ 96.00
Junior Sampling Assistant: $50 x 1 =	$ 50.00
Prospector: $50 x 1 =	$ 50.00
	$ 416.00

c) Food and Accommodations:

i) Eidelweiss Motor Hotel crew of 4, food only	$ 50.00
ii) Vernon Lodge (H. Lahti) 1 night plus food	$ 40.00
	$ 90.00

d) Instrument Rental:

2 Exploranium Model GR-101A Scintilometer, $225/month =	$ 149.00

e) Geochemical Analysis:

i)	Rock Chip Samples @ $8.90/sample	
	U, Cu, Pb, Zn, Ag, Ni	
	$8.90 x 6 =	$ 53.40
ii)	Stream Sediment Samples @ $7.30/sample	
	U, Cu, Pb, Zn, Ag, Ni	
	$7.30 x 21 =	$ 153.30
iii)	Soil Samples @ $7.30/sample	
	U, Cu, Pb, Zn, Ag, Ni	
	$7.30 x 75 =	$ 547.50
		$ 754.20

f) Transportation:

Helicopter Support, $399.30/hour	
$399.30 x 3.6 hours =	$ 1,437.40

g) Cost of Report Preparation:

i)	Drafting and Compilation	
	Compilation: P. Lawrence	
	1 day @ $80/day =	$ 80.00
	Data Graphics: M. Herz	$ 100.00
	Drafting: R. Marcroft	$ 160.00
ii)	Report Writing	
	H. Lahti, 2 days @ $220/day =	$ 440.00
		$ 780.00

h) Miscellaneous:

Telephone, telex, miscellaneous	
material, xerox, shipping charges =	$ 300.00

TOTAL COSTS INCURRED	$ 3,927.67

APPENDIX III

1. Stream Sediment Sampling

All follow-up stream sediment samples were collected by hand from several locations (within 20 metres) to make a composite sample.

About 500 grams of material was placed in a high wet-strength Kraft sample packet (6 cm. x 9 cm.). To mark the location of the sample site, a water proof pen was used to print the sample number on a one metre length of fluorescent orange flagging tape. Samples were collected every 100 metres with the distance estimated by pacing. Airphotos and topographic maps at a scale of 1:50,000 were used to assist in locating sample sites.

1.2 Soil Sampling

The soil sample was collected by using a grub-hoe. The soil sample was collected from the "B" horizon generally from a depth of ± 20 cm. Approximately 250-500 grams were placed in high wet-strength Kraft paper bags (6 cm. x 9 cm.). The sample traverses were placed 500 metres apart approximately perpendicular to the drainage and samples were taken every 40 metres. The traverses were surveyed by pace and compass with the sample site marked by a metre length of fluorescent orange flagging tape with the distance and/or sample number marked on with waterproof marking pen. The whole length of the traverse was blazed using orange flagging tape.

1.3 Rock Chip Sampling

In conjunction with the soil sampling, rock chip samples were occasionally taken along the soil traverses. The rock chip sample consists of 3 to 5 rock chips collected from an area of approximately 50 to 100 m^2. Approximately 250 grams of material was placed in high wet-strength kraft paper packets (6 cm. x 9 cm.).

2. LABORATORY TECHNIQUES

Stream sediment analyses were done at the Barringer Magenta Limited laboratory, Rexdale, Ontario. The samples were first over dried at a temperature of 45°C. The samples were then sieved through an 80 mesh nylon screen. A .500 gram portion of this was placed in a glass test tube and perchloric acid was added. The test tube was then placed in an aluminum heating jocket and heated for 4 hours. After cooling and diluting to the final volume, the solution then was directly aspirated into a Varian Techtron atomic absorption spectrophotometer where the concentration of copper, lead, zinc, silver and molybdenum were read directly in ppm.

The uranium was determined fluoriemtrically by using the following procedure. A .250 gram sample was weighed into a glass test tube and 5 ml. of nitric acid was added. The samples were digested on a sand bath for 2-1/2 hours. After cooling and diluting to the final volume an aliquot of solution was pipetted onto a platinum dish and evaporated to dryness. Flux was added to the dish fused with the sample. After cooling, the disc was then compared with fresh standards using a Jarrell-Ash Fluorometer.

The limit of detection for copper, lead, zinc, silver, molybdenum and uranium are 1, 1, 1, .2, 1 and .2 respectively.

Rock chip samples were first put through a jaw crusher, pulverizer and a -200 mesh nylon sieve before they were ready for the same treatment as that given for the soil sample analysis.

APPENDIX IV

Analytical Data For

Cu, Pb, Zn, Ag, Ni, U

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Sample Number	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	U ppm				
NLF-200	17	36	130	.8	10	1.2				
201	20	18	92	1.0	11	12.8				
202	20	21	91	.8	13	13.2				
203	21	18	110	1.0	13	13.6				
204	22	21	135	1.0	44	11.2				
205	21	20	130	1.0	22	15.2				
NLF-206	25	36	175	1.8	23	18.2				
207	19	29	290	1.2	20	14.2				
208	23	30	235	1.6	17	14.2				
209	22	27	260	1.2	16	17.2				
210	16	30	225	1.4	18	11.2				
211	17	38	245	1.6	16	9.6				
212	17	34	250	2.0	15	12.2				
213	16	35	270	1.6	15	11.6				
214	21	33	245	2.4	14	12.0				
215	14	20	150	1.0	14	3.8				
216	8	22	250	1.4	8	5.2				
217	10	24	190	1.6	8	8.2				
218	20	24	255	2.0	15	3.2				
219	25	15	81	1.2	13	8.6				
220	12	29	84	1.0	6	6.2				
NLR 57	3.4	18	18	76	1	2.1				
58	5.0	14	22	91	1	2.1				

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Sample Number	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	U ppm				
636	8	14	58	1.0	10	0.4				
637	10	13	60	1.0	11	0.4				
638	9	12	55	0.8	9	0.4				
639	8	11	49	1.0	8	0.2				
640	8	12	47	1.0	8	0.4				
641	8	22	70	1.4	8	0.2				
642	10	12	54	1.0	9	0.2				
643	9	14	50	1.0	10	<.2				
644	9	12	49	1.2	9	0.4				
645	21	20	40	2.6	15	14.6				
646	11	18	115	1.0	14	0.4				
647	11	11	74	1.4	19	0.6				
648	13	11	80	1.0	24	1.8				
649	15	25	125	1.4	20	0.4				
650	14	16	76	1.2	20	1.2				
651	11	16	50	1.0	11	0.2				
652	19	18	170	1.8	15	1.4				
653	16	14	57	1.2	12	0.4				

Sample Number	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	U ppm				
NLFS-654	21	15	60	1.0	15	1.2				
655	14	16	75	1.0	13	0.6				
656	13	17	65	1.0	12	2.8				
657	14	13	55	1.0	12	0.6				
658	10	15	50	1.0	11	0.4				
659	19	19	74	1.6	15	15.0				
660	15	17	71	1.0	15	0.6				
661	14	14	60	1.2	13	0.6				
662	9	25	75	1.2	13	1.0				
663	10	13	62	1.0	13	0.6				
664	7	14	34	1.0	7	1.2				
665	11	12	43	1.0	8	0.6				
666	10	14	52	1.2	9	0.2				
667	10	16	57	1.0	10	0.4				
668	10	16	64	1.2	10	0.4				
669	9	14	54	1.0	7	0.6				
670	10	17	64	1.2	10	0.4				
671	10	14	78	1.0	8	0.4				
672	9	17	72	0.8	11	0.2				
673	13	18	83	1.0	18	0.2				
674	21	22	145	1.8	23	9.2				
675	15	15	73	1.0	16	0.2				
676	14	15	72	1.0	16	0.2				
677	13	15	72	1.0	12	0.2				
678	10	18	65	0.8	12	0.2				
679	17	17	80	1.0	15	0.2				
680	10	17	72	1.0	14	0.4				

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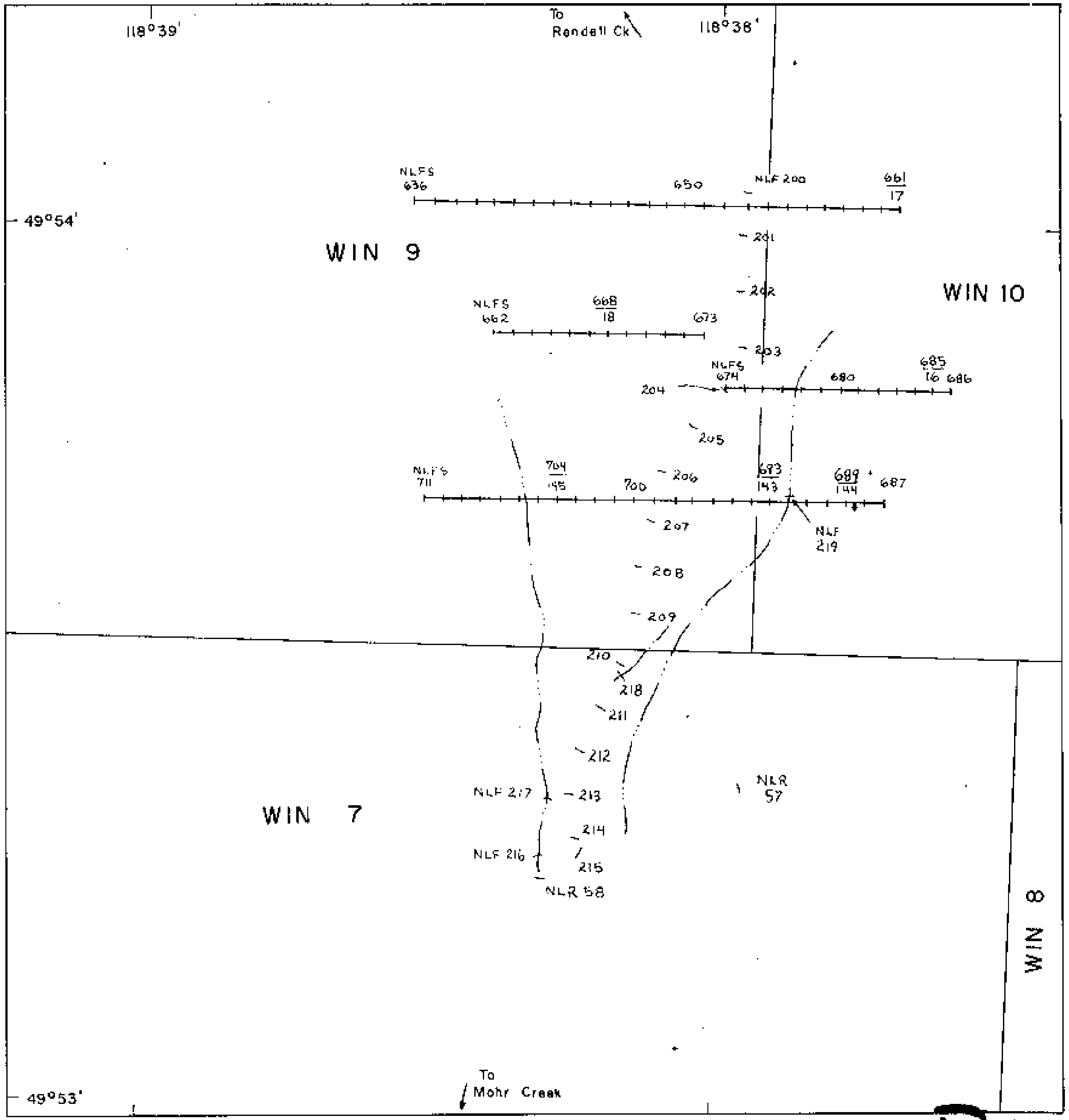
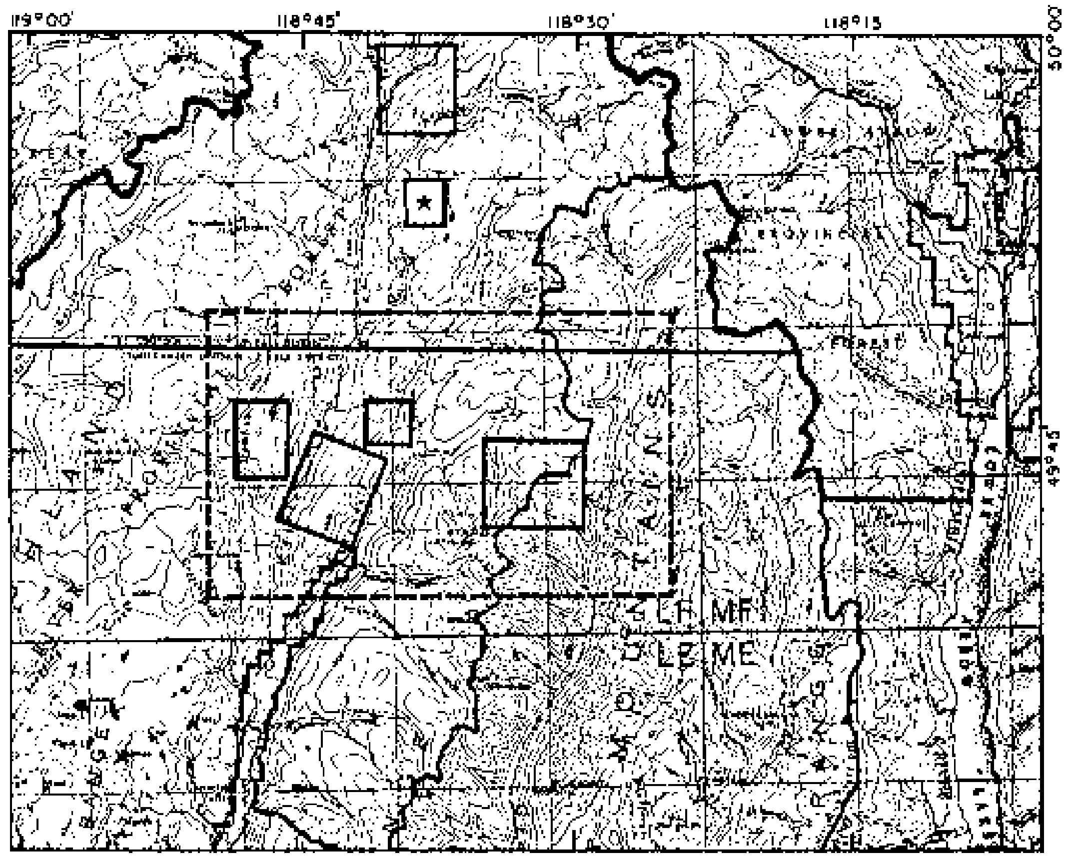
Sample Number	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	U ppm				
NLFS-681	22	17	70	1.4	13	9.6				
682	16	19	78	1.2	17	7.8				
683	18	18	75	1.0	16	0.6				
684	17	19	80	1.2	14	0.2				
685	15	16	76	1.0	13	0.6				
686	15	17	75	1.2	15	0.4				
687	14	16	70	1.0	16	0.8				
688	29	20	89	2.2	23	2.0				
689	15	17	75	1.2	18	0.8				
690	25	18	88	1.8	22	1.8				
691	16	19	80	1.0	17	0.6				
692	15	16	69	1.4	14	0.2				
693	15	16	66	1.2	15	0.4				
694	14	17	90	1.2	17	1.4				
695	25	18	135	2.0	23	0.8				
696	18	19	84	1.6	20	1.4				
697	8	14	79	1.2	13	0.4				
698	18	28	140	2.8	16	15.2				
699	8	15	90	1.0	8	0.2				
700	7	14	155	0.8	8	0.8				
701	8	13	70	0.6	8	0.6				
702	10	21	75	0.8	11	2.0				
703	8	16	71	0.6	8	0.2				
704	7	12	45	0.4	6	0.2				
705	5	13	75	0.8	7	0.2				
706	9	13	48	0.6	16	0.4				

Sample Number	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	U ppm				
NLPS-707	7	15	90	0.6	8	0.2				
708	10	14	60	0.6	8	0.6				
709	11	13	73	0.6	9	0.2				
710	10	14	50	0.8	8	0.2				
711	9	10	41	0.8	7	0.2				
NLFR-16	19	14	68	1.0	18	1.0				
17	10	16	71	0.6	14	0.8				
18	5	9	65	0.2	6	3.0				
143	7	13	85	0.6	12	0.6				
144	9	7	7	<.2	4	6.2				
145	6	12	72	0.4	6	1.4				





LOCATION MAP 1:500,000

N

A

LEGEND

Soil 8 / Rock 12 — Line or sampled stream with Sample number

Soil 18/25 Rock — element value in p.p.m.

JIM 8 — Claim boundary with name and number

Surveyed and compiled by
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Toronto, Canada

PART 6 OF 9

MINERAL RESOURCES ...
ASSESSMENT REPORT
7160

KELVIN ENERGY LIMITED
KETTLE RIVER AREA, B.C.

GEOCHEMICAL SURVEY

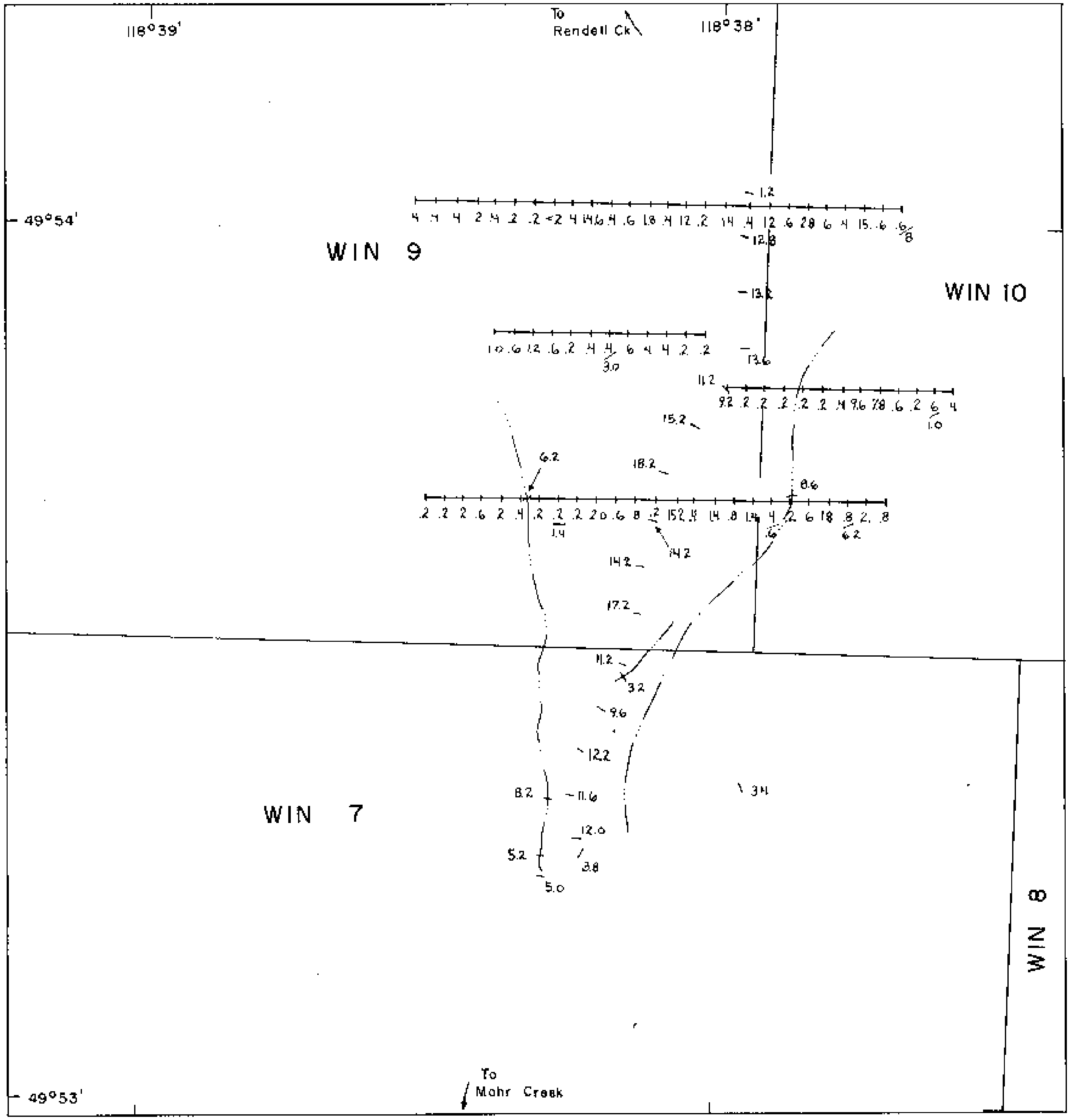
ANOMALY 5C
SOIL TRAVERSE FOLLOW-UP

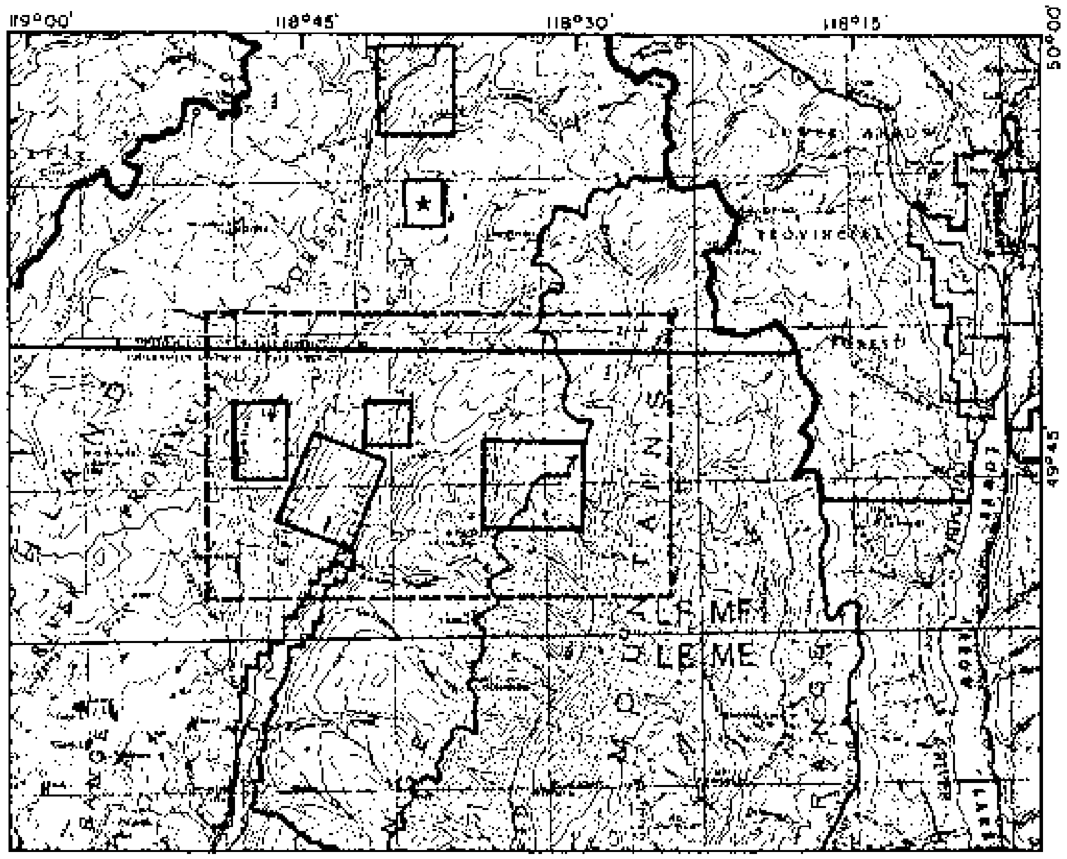
STREAM & SOIL SAMPLE
LOCATION & NUMBER

SCALE 1:10,000

FEET 0 1000 2000 3000
METRES 0 250 500 750 1000

AUGUST-SEPTEMBER 1978
N.T.S. REF. 82-E 15 E





LOCATION MAP 1:500,000

PART 6 OF 9

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
7160

N
A

LEGEND

Soil 8, Rock 12 — Line or sampled stream with
Sample number

Soil 18, Rock 2.5 — element value in p.p.m.

JIM 8 — Claim boundary with name and number

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KELVIN ENERGY LIMITED
KETTLE RIVER AREA, B.C.

GEOCHEMICAL SURVEY

ANOMALY 5C
SOIL TRAVERSE FOLLOW-UP

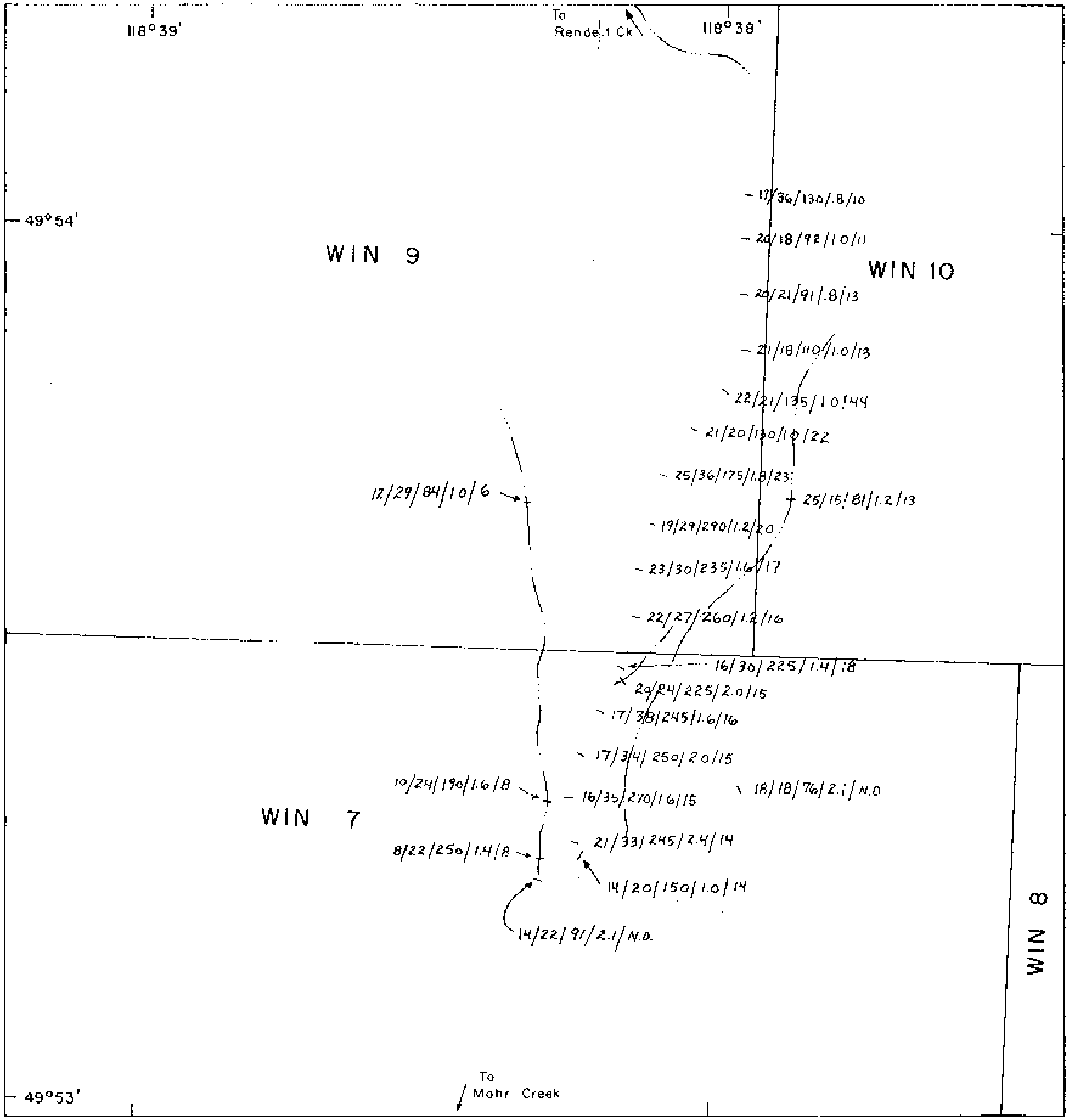
STREAM & SOIL URANIUM DATA

SCALE 1:10,000

FEET 0 1000 2000 3000

METRES 0 250 500 750 1000

AUGUST-SEPTEMBER 1978
N.T.S. REF. 82-E 15 E



N

A

LEGEND

Line or sampled stream with

21/33/245/2.4/25 element value in p.p.m. for Cu/Pb/Zn/Ag/Ni

JIM 8 Claim boundary with name and number

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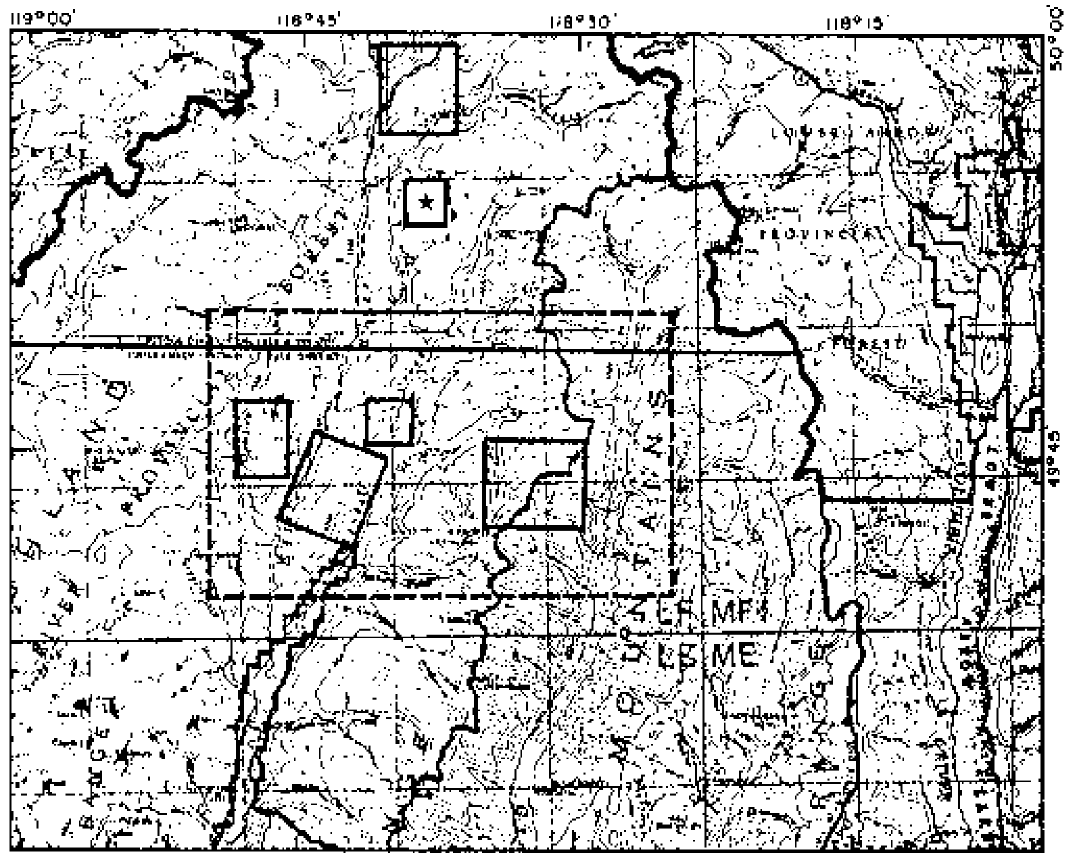


LOCATION MAP 1:500,000

PART 6 OF 9

7160

KELVIN ENERGY LIMITED
KETTLE RIVER AREA, B.C.

GEOCHEMICAL SURVEY

ANOMALY 5C
STREAM SEDIMENT FOLLOW-UP

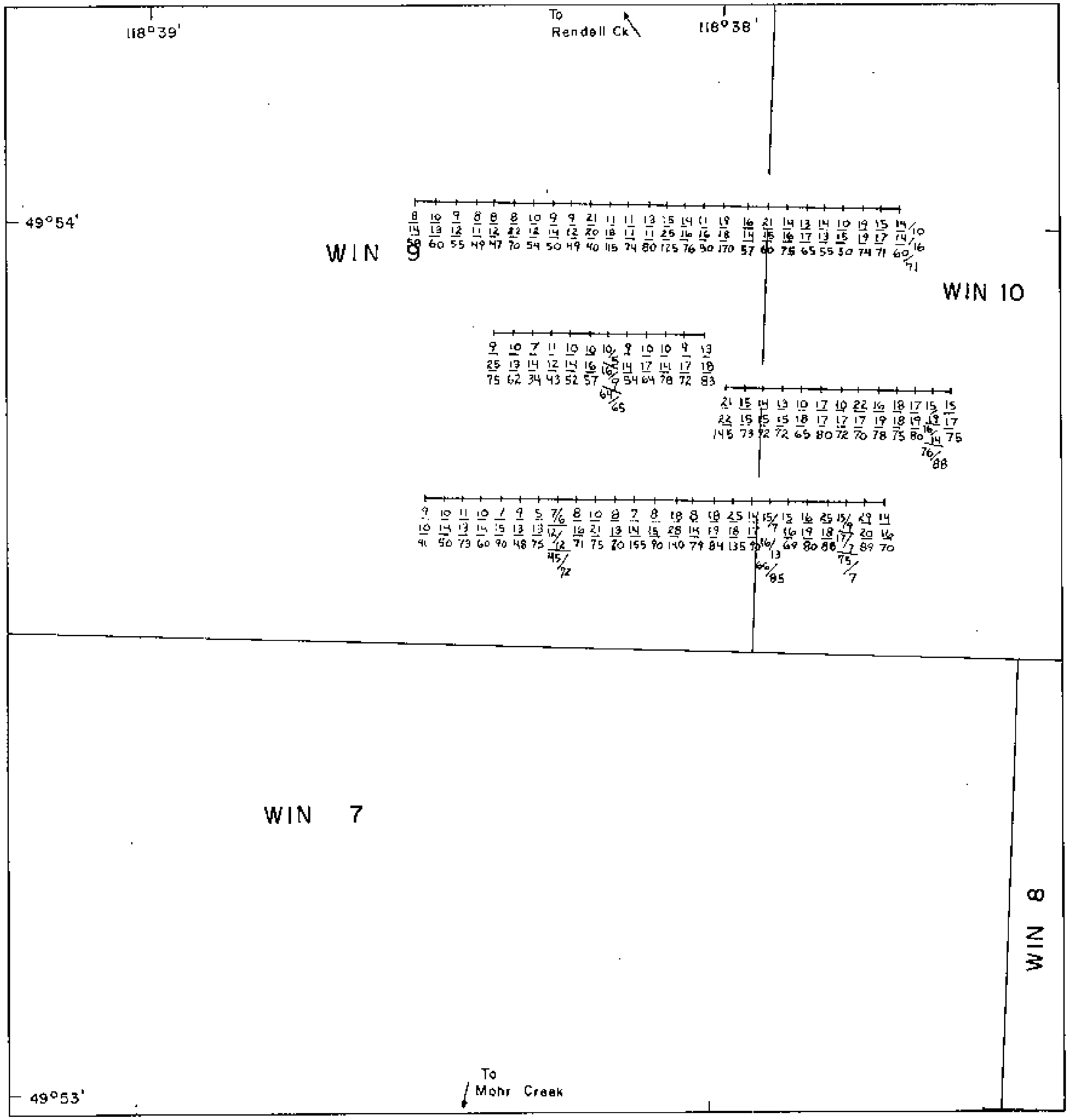
COPPER/LEAD/ZINC/SILVER/NICKEL

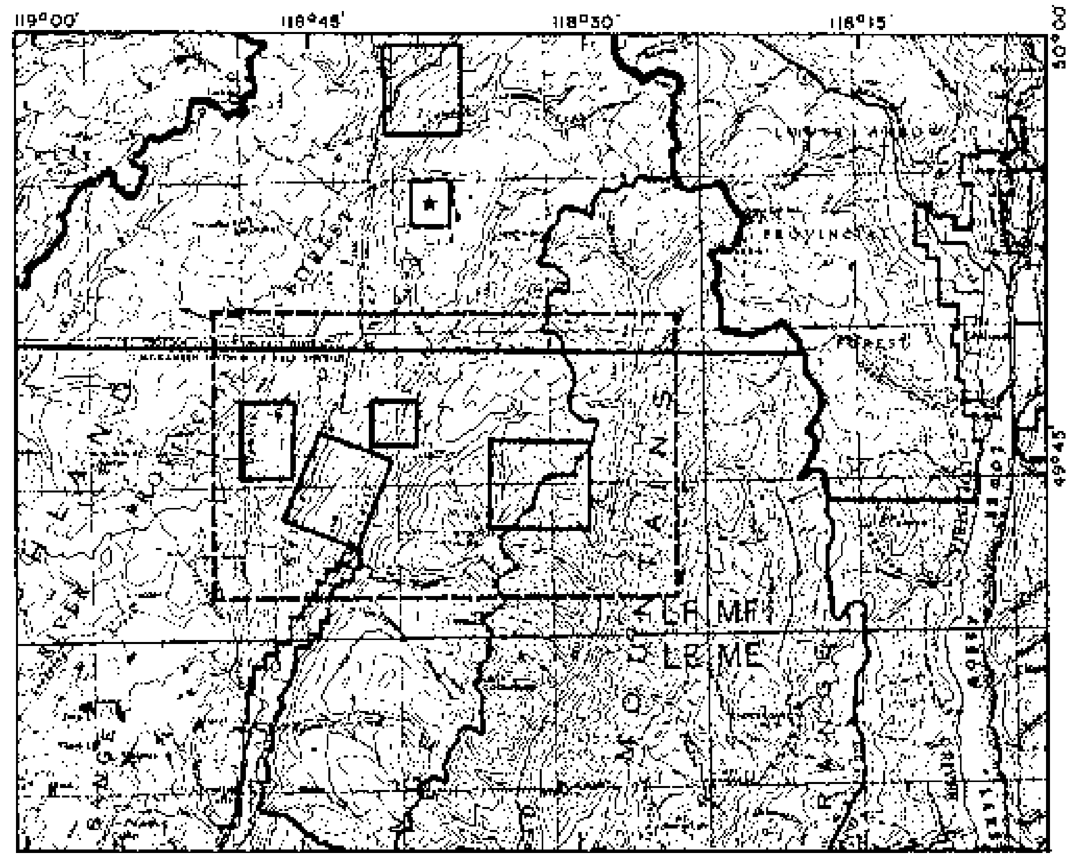
SCALE 1:10,000

FEET 0 1000 2000 3000

METRES 0 250 500 750 1000

AUGUST-SEPTEMBER 1978
N.T.S. REF. 82-E 15E





LOCATION MAP 1:500,000

PART 6 of 9

7160

KELVIN ENERGY LIMITED
KETTLE RIVER AREA, B.C.

GEOCHEMICAL SURVEY

ANOMALY 5C
SOIL TRAVERSE FOLLOW-UP

COPPER LEAD ZINC IN SOILS

SCALE 1:10,000

FEET 0 1000 2000 3000

0 250 500 750 1000 METRES

N

A

LEGEND

Soil 8 / Rock 12 — Line or sampled stream with Sample number

Soil 18 / Rock 25 — element value in p.p.m.

JIM 8 — Claim boundary with name and number

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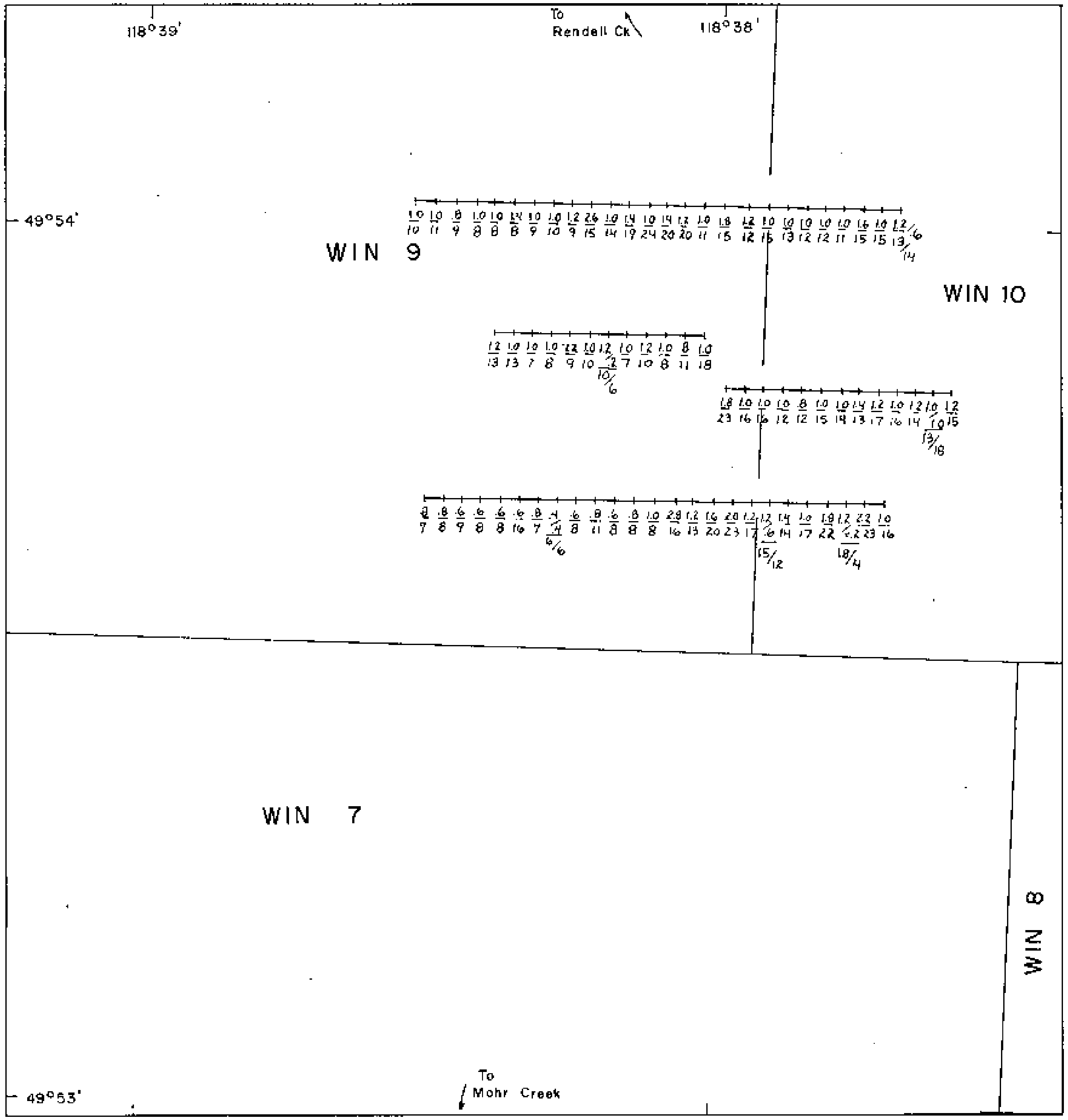
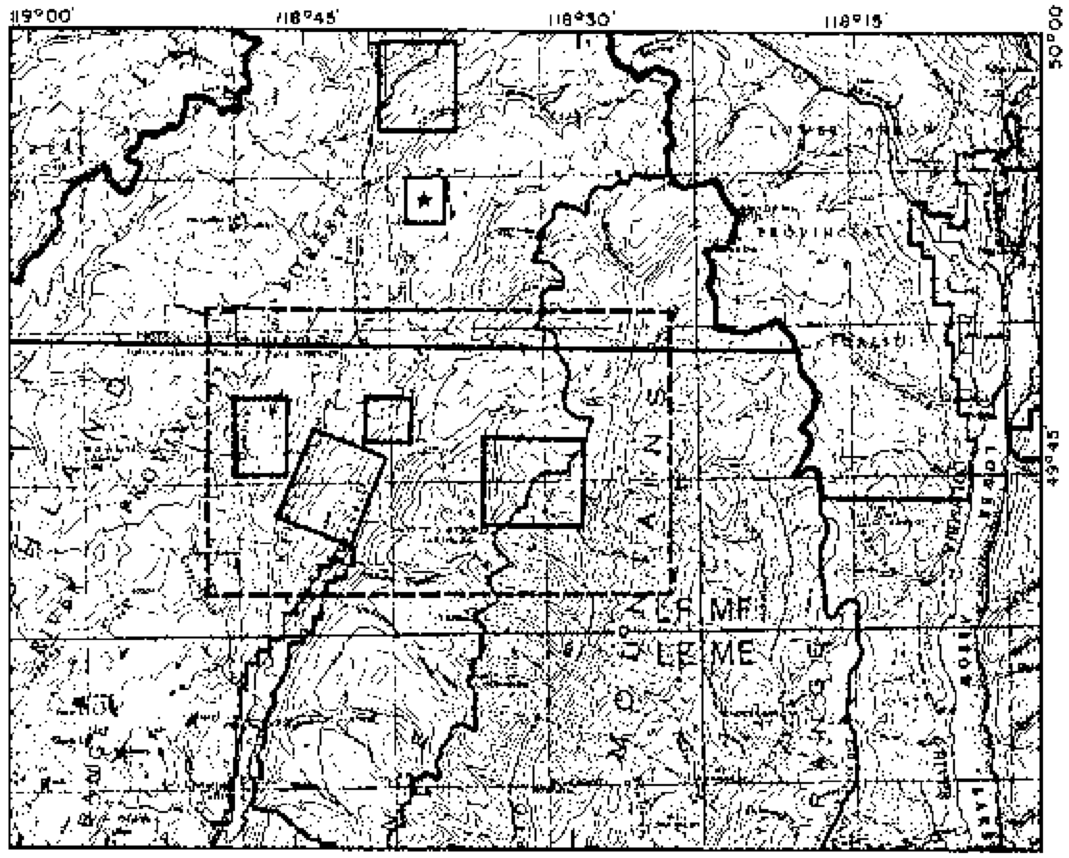
N.T.S. REF. 82-E 15 E

DRG. 208-42-204





LOCATION MAP 1:500,000

PART 6 OF 9

7160

KELVIN ENERGY LIMITED
KETTLE RIVER AREA, B.C.

GEOCHEMICAL SURVEY

ANOMALY 5C
SOIL TRAVERSE FOLLOW-UP

SILVER NICKEL IN SOILS

SCALE 1:10,000

FEET 0 1000 2000 3000

METRES 0 250 500 750 1000

LEGEND

Soil / Rock — Line or sampled stream with Sample number

Soil / Rock — element value in p.p.m.

JIM 8 — Claim boundary with name and number

N

A

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N.T.S. REF. 82-E 15 E