3845

Report of

Geological, Geochemical and Magnetometer Surveys

IN #1 Claim Group, Northwest of Mess Lake,

Liard Mining Division

57°30'N - 131°00'W

Map Sheet 104G-NE

by

Gordon D. House, B.A.(Mod)

and

Erik Ostensoe, B.Sc.

for Hecla Operating Company

Supervised by P.I. Conley, P.Eng.

July 27 - October 2, 1971

Date of Report: December 20, 1971.
Revised August 1, 1972

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MAPS

I SUMMARY

Employees of Hecla Operating Company worked on the In #1 Group claims from July 27 to October 2, 1971. Geological mapping, geochemical (soils) surveys and magnetic surveys were completed on a grid that was established over most of the claim block. The claims are located about five miles northwest of Mess Lake in the Stikine area of northern British Columbia.

The In #1 group claims are on the eastern margin of the Hickman batholith and are underlain by granitic, monzonitic and dioritic intrusive rocks and by tuffaceous and crystalline andesitic volcanic rocks. Structure is poorly known but appears to be dominated by north and northeasterly striking faults. All rocks present are assumed to be of Mesozoic age.

Throughout British Columbia the contact of Coast Intrusions with Mesozoic, and particularly Triassic, age volcanic rocks is a favorable area for copper deposits. Several minor occurrences of copper sulfides were examined in the north half of the area during 1971. In general, the areas of known mineralization can be correlated with magnetic and geochemical patterns.

II INTRODUCTION

This Summary Report describes the work carried out during the 1971 field season on claims of the In #1 group, located on a plateau immediately east of Schaft Creek about 26 miles south of Telegraph Creek and 12 miles north of the Liard Copper property of Hecla Operating Company, at 57°30'N/131°W on NTS Map Sheet 104G, Telegraph Creek. (figure H-71-I)

FIGURE H - 71 - 1

Location Map

NORTHWESTERN BRITISH COLUMBIA

1" = 30 Miles

WINDY LAKE MAP AREA

To accompany report by GD House, E. Ostensoe, & P. I, Conley, P.Eng.

December 1971

Access to the property was by helicopters belonging to Vancouver Island Helicopters Ltd. based at Schaft Creek camp. Personnel and supplies were routed via Schaft Creek camp which was serviced regularly by aircraft from Terrace and Smithers. Daily radio telephone contact was maintained with Schaft Creek camp using a Spilsbury and Tindall SBX-10 transceiver.

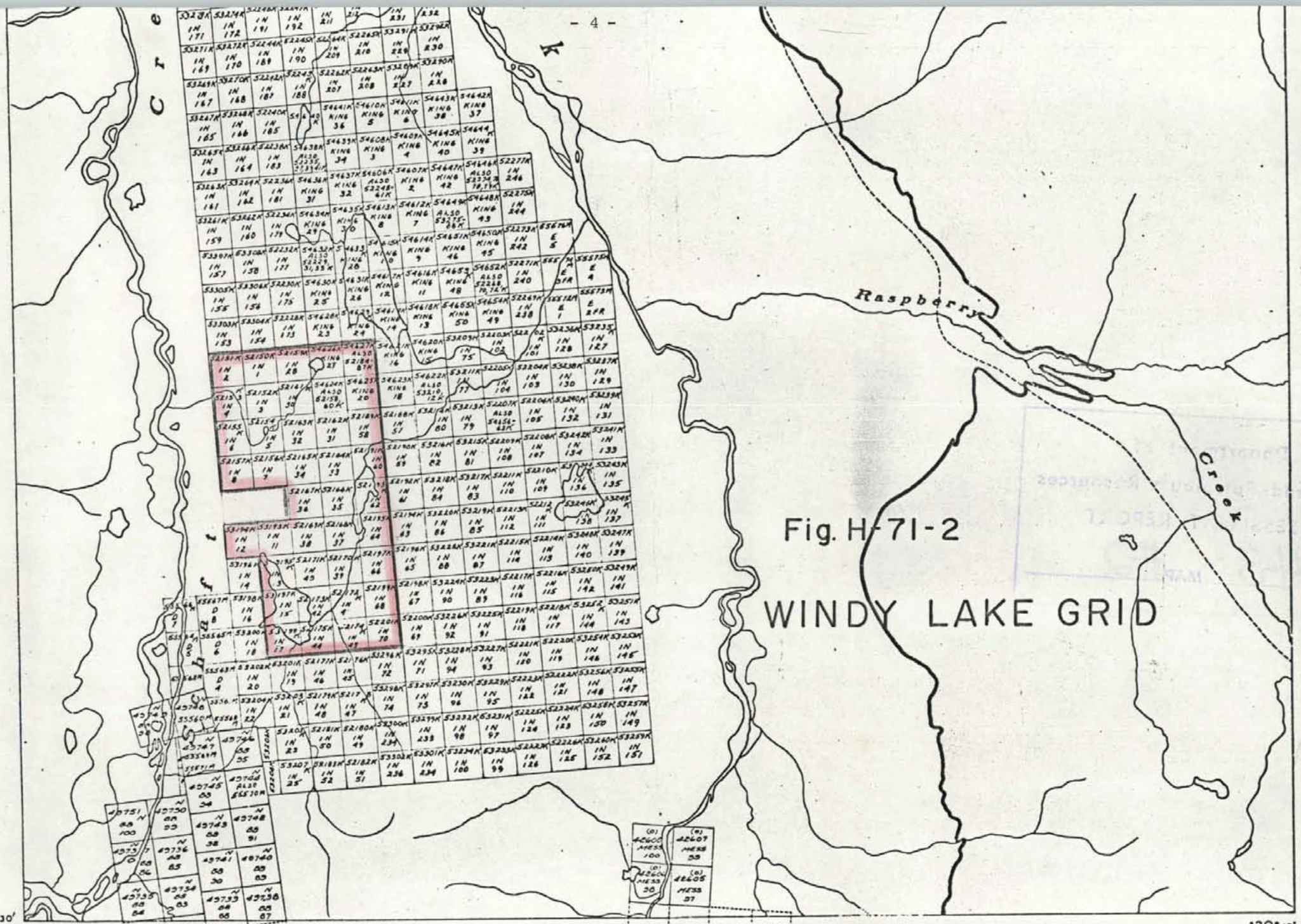
Elevations in the area mapped range from 3,000' above sea level in the lakes and swamp areas to 3,800' El. on the glacially rounded knolls to a maximum of about 5,100'. Immediately south of the claim block the ridge between Mess Lake and Skeeter Lake valley rises to over 6,000' el. The knolls and hills are steep sided, whereas the lower areas are generally flat and swampy with development of tussocks of clump grass in muskegs.

Climactically, the area lies between the heavy precipitation zone of the coastal mountains and the rain shadow zone of the dry interior. Summers are warm to hot, and the winters are cold with snowfall to about five feet.

Vegetation varies from black swamp spruce to jackpine and poplar, with alders and willow bushes in damper areas. The hills and knolls are generally open with spruce, jackpine and poplar. The lower more swampy areas have heavy stands of black spruce with willow and alder.

III CLAIMS

Claims of the In #1 claim group discussed in this report are listed in Appendix A and are illustrated in figure H-71-2. For convenience in the field and in this report, the area is referred to as the "Windy Lake" area.


Raspberry
Creek
Fig. H-71-2
WINDY LAKE GRID
57°30'
131°00'
LIARD MINING DIVISION
TO SOUTH SEE MAP 104G/7W
130°45'
57°30'

IV PREVIOUS WORK

Prior to 1971 the entire Mess Creek and Schaft Creek area was prospected several times by self-employed prospectors and on behalf of various mining companies. Hecla geologists made several traverses in the Windy Lake area in the previous several years. During the early part of the 1971 season a Hecla prospecting party camped at "Windy Lake" and prospected the area.

Following claim staking in mid-July 1971 a decision was taken to evaluate the "Windy Lake" area and in late July the program herein described commenced.

V FIELD WORK - 1971

The "Windy Lake" grid on the In #1 claim group consisted of a picketed base line on bearing of 175°, 12,500 feet long. Cross lines at right angles were cut at 500 foot intervals and extended approximately 2,800 feet to the east and to the west. At either end of the cross lines claim location lines were brushed out and chained to provide additional grid control. A total of 137,900 feet of cross line was cut in the period July 27 to September 9. Slope corrections were applied as necessary to all chainages.

During the period August 13 to September 9, geological mapping was carried out over the entire Windy Lake grid. A geochemical soil survey and a magnetometer survey commenced on September 15 and were completed on October 2.

The field work was done by: Gordon D. House, B.A.(Mod) and Erik Ostensoe, B.Sc. geologists, David Colley, geological technician, Don Bartell, Al Sauve, Paul Dombrovski, Chuck Beaulieu Linecutters and Frank Gyenis, field assistant.

Field work was supervised by P. I. Conley, P.Eng., Vice President and Manager of Hecla Mining Company of Canada, Limited. Harold Linder, Ph.D., P.Eng. in his capacity as consultant to Hecla, recommended the program of field work and assisted in its completion. This report was assembled from various sources, including field notes, inter office memoranda and preliminary reports. Final text was organized by Erik Ostensoe. Maps were prepared by C. L. Cory.

VI REGIONAL GEOLOGY

The regional geological setting of the Mess Creek - Schaft Creek area is discussed by Souther (1971-1, page 10 and 1971-2 page 4). Briefly stated, he places the area (Figure H-71-1) in a triangle formed by the south edge of the Stikine Arch, the east side of the Coast Crystalline Belt and the northwest side of the Bowser Basin. Granitic rocks of the Coast Crystalline Belt "exhibit a long complex history of emplacement, extending from early Mesozoic to Tertiary time" the Hickman Batholith, a major element in the area under discussion, is dated by Souther (1971-2, page 9) as latest Triassic to earliest Jurassic age. Sutherland Brown (p.49) gives it a Triassic age. Souther and Armstrong (p.172) illustrate a number of north-striking faults along the northwest rim of Bowser Basin. The following comment, (Souther 1971-2, p.21) is particularly apt with respect to the Mess Creek - Schaft Creek area:

"The Triassic and Lower to Middle Jurassic terrain is broken into a mosaic of fault-bounded blocks between which there is little structural continuity. The structural style of any given block is determined largely by the competency of the rocks within it."

Regional geological work by Hecla geologists supports the concept that Mess Creek valley and the "Start Lake - Skeeter Lake valley" a few miles south of the subject area, are occupied by major faults. The area west of Mess Creek was apparently uplifted and eroded in past Early Tertiary but time in general escaped burial by volcanic flows of the Spectrum Range and Mt. Edziza Tertiary and Recent volcanic events.

VII GEOLOGY OF WINDY LAKE AREA

a) Introduction

Field mapping in the Windy Lake area was hampered by lack of outcrops in some of the key parts of the grid. In particular very little information was gained in the heavily wooded northwest-most portion or in the marshy section east of the base line between lines 35 south and 95 south.

Main rock types (Figure H-71-3) are acid intrusive rocks of the Hickman Batholith, and varieties of andesitic volcanic rocks. An occurrence of porphyritic augite rich intrusive was mapped southwest of Windy Lake. Banding in volcanic rocks and lineations in intrusive rocks were recorded, as were various shearing, jointing and faulting structures. Quartz veins are prominent close to the base line at 55S. Minor quantities of sulfide minerals were noted and magnetite in small amounts is widely distributed. Alteration is not prominent, being restricted to a few areas of feldspathization and accessory amounts of epidote. A dominant greenschist facies metamorphism pervades the area.

Major structural elements have been included on the geology map (Map H-71-3). These are inferred from mapping and photo-geological interpretation.

b) Andesitic Volcanic Rocks

The above heading refers to virtually all the non-acidic intrusive rocks in the Windy Lake area. Two distinct types of andesite have been recognized 1) crystalline and 2) tuffaceous. The "crystalline andesites" were mapped throughout the grid area and are dark colored holocrystalline, rather massive rock units that probably represent flows as well as feeders (dykes and sills). Tuffaceous andesites are similarly widely distributed and include clastic rocks of subaqueous and sub-aerial origins. Coarse lapillae tuffs and ash deposits of argillaceous

texture are the extremes of this unit but most occurrences suggest simply an accumulation of volcanic material in which primary structures have been erased by subsequent events, including faulting and intrusion. Alteration, particularly the development of chlorite, is prominent. Feldspathization is less common but is strongly developed in a few outcrops.

c) Acidic Intrusive Rocks

Intrusive rocks underlie much of the western portion of the Windy Lake area. A lobe of intrusive material projects across the north end of Windy Lake to east of the base line. The dominant intrusive rock type is pink and white coarse grained, holocrystalline, granoblastic granodiorite or quartz monzonite. It is believed to be a marginal phase of the Hickman Batholith.

Metasomatic and possibly thermal effects of the intrusion of the batholith include widespread alteration and assimilation near the contact such that in some areas the contact is difficult to define.

Small outcrops of relatively unaltered diorite, intrusive into andesite, were mapped north of line 25S. Similar diorite was mapped in areas close to the Windy Lake grid and suggest a post-Hickman intrusive episode.

d) Basic Intrusive Rocks

A distinctive basic rock type, apparently intrusive into the andesites and characterized by coarse grained textures and pyroxene phenocrysts, has been correlated with the Augite Porphyry Basalt that occurs to the south in the Skeeter Lake - Start Lake and Liard Copper areas. At 22+50E on Line 15S the augite porphyry basalt is clearly a dyke or sill. Immediately west of the south end of Windy Lake a coarse grained, strongly foliated, pyroxene schist originated as an equivalent rock type.

e) Quartz Veins

A few quartz and quartz carbonate veins were mapped, particularly in the "wedge" of crystalline andesite between L35S and L55S. This area, as discussed in another section of this report, has anomalously high quantities of heavy metals.

f) Structural Geology

A north to northeasterly structural grain pervades the northern half of the Windy Lake grid. The main structural elements recorded were shearing and jointing. Bedding is rare due to the massive nature of the rock types and to mashing by events subsequent to deposition. A structural trend dominates the southern part of the grid where coincidentally bedding is more prominent. Major structures as shown on Map H-71-III are inferred from topography, outcrop information and photo-interpretation of dominant linear patterns. Just south of Windy Lake a mountain range that extends north from Start Lake is rather abruptly terminated and although conclusive evidence is not at hand an important east-west structure may exist.

VIII GEOCHEMICAL SOIL SURVEY

a) Introduction

Soil samples were taken where suitable soil conditions prevailed on the Windy Lake grid. Ideally the spacing would have been at 200 foot intervals on lines 500 feet apart. 589 soil samples were analysed as follows:

589 for copper, molybdenum, lead and arsenic
293 for zinc
14 for silver

Samples were taken using standard methods. A mattock was used to chop through roots and organic soils to expose the "B" soil horizon - a reddish brown granular textured layer usually found from 4 to 12 inches below surface. A few ounces of "B" horizon soil was placed in a numbered kraft envelope which was air-dried for a few days then shipped to Chemex Labs Ltd., North Vancouver, B. C. for analyses. Chemex Labs

Ltd. employed standard techniques of geochemical analysis using the atomic absorption method for copper, molybdenum, lead, zinc and silver and a colorimetric method for arsenic. Quality control was ensured by frequent reference to known standards prepared for the purpose. Upon receipt at the laboratory, samples were dried at 80°C for 24 hours, then sieved to -80 mesh in stainless steel and nylon sieves. A 2 to 3 hour perchloric acid - nitric acid digestion of 0.5 grams of sample at 203°C was followed by dilution with distilled water to 25 mls. volume. Techtron atomic absorption spectrometers and a Bausch and Lomb Spectronic 20 colorimeter were employed.

b) Copper

Using a cumulative percentage plot of copper analyses, background was indicated at 32 ppm. Values above 90 ppm were considered anomalous. Figure H-71-4 on scale 1" = 400 ft. depicts distribution of copper in soils. Contour interval is 50 ppm.

A broad zone of soils with anomalous values in copper extends from the northeast corner of the grid near Johnnie Lake southwesterly to the northeast side of Windy Lake. Within this trend copper concentrations range from six to ten times background values.

c) Molybdenum

On the basis of cumulative percentage plots of analyses, a background value of 3 ppm and an anomalous level of 6 ppm molybdenum in soils were determined. Only very minor zones of enhanced molybdenum are indicated by the contoured plot, Figure H-71-5. The small anomaly on L00S that extends to 14W on L10S may be significant. Contour interval is 1 ppm.

d) Lead

Lead content of soils was found to be quite uniform with a background of about 30 ppm and maximum observed, 84 ppm.

A northeasterly trending anomalous lead zone extends from Johnnie Lake to about L55S (Figure H-71-6). Contour interval is 5 ppm. Closer attention to pH of soils might have been useful in interpreting the pattern.

e) Arsenic

Arsenic was selected for analysis as a possible path-finder element with respect to base metal occurrences. 10 ppm background and 30 ppm anomalous levels were indicated. Figure H-71-7 indicates the same anomalous zone southwest of Johnnie Lake as was revealed by plots of copper and lead. The area southeast of Windy Lake contains minor occurrences of arsenopyrite which are in turn reflected in the soils. Contour interval is 10 ppm up to 50 ppm then is 50 ppm.

f) Zinc

Only 293 samples, from Lines 00S to 55S, were analysed for zinc. Background is 140 ppm and maximum values are above 350 ppm. On Figure H-71-8 the pattern of zinc distribution in soils is not clearly defined although the dominant heavy metals trend southwest of Johnnie Lake is repeated. Contour interval is 20 ppm.

g) Silver

Silver analyses obtained were insufficient to permit evaluation. Values were 0.5 ppm or less.

IX MAGNETIC SURVEY

a) Introduction

The Windy Lake grid was surveyed using a McPhar Model M700 fluxgate-type magnetometer, serial number 6811. Operator was D. Colley. A total of 28.4 line miles of grid was surveyed.

A control station was established and the instrument was re-set to a constant reading each day. Diurnal variations were checked by repeating readings at certain points (usually at the base line) several times daily. Corrections were applied when significant variations occurred. Readings were taken at 100 foot intervals on grid lines spaced 500 feet apart.

Before plotting (Figure H-71-9) a factor of 3000 gammas was added to each observed value. The illustration is thus a plot of relative susceptibility rather than absolute. Contour interval is 200 gammas.

b) Discussion of Magnetic Survey

With few exceptions, most parts of the Windy Lake grid exhibit only minor variation in magnetic susceptibility from a background of about 3000 gammas. A broad anomalous magnetic trend extends east-northeasterly across the northern one-third of the grid. A second but weaker trend is elongated in a southerly direction parallel to an close to the base line to 265S. These trends correlate poorly with both geology and soil geochemistry.

The prominent pattern of "high" magnetic susceptibility expressed near and just east of the baseline from L10S to L30S is related to magnetite bearing diorite and tuffaceous andesite.

X DISCUSSION AND CONCLUSIONS

Geological mapping confirmed that the claims of In #1 group straddle the contact of the Hickman batholith with andesitic volcanic rocks. The monzonitic intrusion has an irregular contact possibly as a result of block faulting. The zone of stress and weakness at the batholith margin has also been the locus of intrusion of dioritic rocks.

Northerly-striking faults, as suggested by the strong Mess Creek and Skeeter Lake - Schaft Creek topographic linears, are confirmed by geological mapping but are not of great consequence with respect to local geology. Evidence of east-west striking faults that terminate the north end of the mountain range between Mess Lake and Schaft Creek was found but insufficient work was done to determine their nature and significance, if any.

The soil analyses indicated a northeasterly-trending zone between Johnnie and Windy Lakes anomalous in copper, zinc, lead and arsenic and coincident with a magnetic anomaly of moderate intensity. Geological mapping in this area showed a fragmental tuff horizon with minor diorite bodies, magnetite mineralization and small amounts of chalcopyrite.

At the south end of the grid soils slightly anomalous in molybdenum, arsenic and lead are related to outwash fans of streams that drain an area in which faulting is accompanied by incipient pyritization and minor amounts of arsenopyrite.

Further work including more detailed soil sampling in the northeastern part of the grid is recommended. Induced polarization surveys should be considered.

REFERENCES

Souther, J.G. and Armstrong, J.E., 1966, North Central Belt of the Cordillera of British Columbia, in Tectonic History and Mineral Deposits of the Western Cordillera, C.I.M.M., Special Volume 8.

Souther, J.G., 1971-1, Geology and Mineral Deposits of Tulsequah Map Area, British Columbia, Geological Survey of Canada, Memoir 362.

1971-2, Telegraph Creek Map Area, British Columbia, Geological Survey of Canada, preliminary manuscript.

Sutherland-Brown, A., 1970, Geology Exploration and Mining in British Columbia, B. C. Department of Mines and Petroleum Resources.

APPENDIX A

LIST OF CLAIMS

APPENDIX A

LIST OF CLAIMS

Name of Claim	Record No.
In # 1	52150
2	52151
3	52152
4	52153
5	52154
6	52155
7	52156
8	52157
11	53193
12	53194
13	53195
15	53197
17	53199
27	52158
28	52159
29	52160
30	52161
31	52162
32	52163
33	52164
34	52165
35	52166
36	52167
37	52168
38	52169
39	52170
40	52171
41	52172
42	52173
43	52174
44	52175

LIST OF CLAIMS
(Continued)

Name of Claim	Record No.
In # 54	52185
56	52187
58	52189
60	52191
62	52193
64	52195
66	52197
68	52199
70	52201

APPENDIX B

GEOCHEMICAL ANALYSES

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648

CHEMEX LABS LTD.

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16390
INVOICE NO. 6040
DATE RECEIVED Sept. 2, 1971
DATE ANALYSED Sept. 7, 1971

TO: Hecla Mining Co. of Canada Ltd.,
#2009 1177 W. Hastings St.,
Vancouver, B.C.

SCHAFT CREEK PROJECT

ATTN: Mr. P. Conley Mr. E. Osterc...

SAMPLE NO.:		ppm Copper	ppm Molybdenum	ppm Silver	ppm Lead
00S/	26W	20	0	123	24
	24	80	0	70	24
	22	28	0	63	18
	20	285	5	83	33
	18	22	1	72	18
	16	28	1	113	20
	14+50	13	0	92	18
	14	76	17	92	24
	12	18	0	95	18
	10	18	6	63	18
	8	26	6	44	16
	6	31	9	83	18
	4	20	1	80	22
	2W	31	9	56	24
	COEL	18	3	65	20
	2E	40	1	167	24
	4	51	1	75	24
	6	33	0	123	26
	8	52	0	130	24
	10	20	0	120	20
	12	30	7	51	18
	16	33	0	89	26
	18	40	1	158	35
	20	41	3	83	26
	22	24	0	72	20
	24	16	0	154	24
00S/	26E	94	0	70	18
5S/	26W	18	0	58	16
	24	18	0	80	20
	22	28	1	83	18
	20	14	0	89	18
	18	18	2	83	20
	15	26	11	60	18
	13	38	0	58	20
	4	51	1	58	20
	2W	24	0	86	20
	8E	20	0	98	20
	10	24	0	107	22
	11	22	0	70	20
5S/	12E	26	1	123	28
	Std	54	17	72	20

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Certified by Jeel D. Emery

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TELEPHONE: 985-0648

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16390

INVOICE NO. N/C

DATE RECEIVED

DATE ANALYSED Sept. 10/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B. C.

ATTN: Mr. P. Conley

SAMPLE NO.:	PPM Arsenic	PPM Silver
00S/20W	6	
16	7	
14	6	
10	5	
8	2	
6	4	
2W	2	
2E	3	
4	8	
6	8	
8	7	
10	1	
12	6	
18	45	< 0.5
24	9	
00S/26E	1	
5S /25W	< 1	
10E	< 1	
14	50	< 0.5
16	30	< 0.5
18	18	
20	18	
22	12	
5S /24E	1	
L10S/27+18W	3	
8W	5	
8E	< 1	
10	22	
12	20	
14	95	< 0.5
16	9	
18	20	
19	10	
20	50	< 0.5
22	7	
L10S/24E	12	
L15S/5W	< 1	
L15S 2W	7	
8+50E	12	
15S 12E	20	

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SCHAFT CREEK PROJECT

ATTN: Mr. P. Conley Mr. E. Ostenson

SAMPLE NO.:	ppm Copper	ppm Molybdenum	ppm Zinc	ppm Lead
5S/ 14E	62	3	134	39
16	64	1	130	26
18	36	3	116	22
20	24	2	150	22
22	22	3	120	24
24	18	2	100	20
5S/ 26E	34	1	53	18
L10S/ 27+18W	50	3	49	20
14	36	4	86	18
12	20	4	56	16
9	50	2	53	16
8	42	2	107	26
6	31	1	83	20
2	14	0	75	20
1W	38	0	53	22
BL 00	42	1	65	24
1E	22	0	75	22
4	14	0	75	18
7	50	0	86	20
8	14	0	120	18
10	66	0	154	35
12	22	0	368	84
14	320	6	154	35
16	22	0	130	28
18	52	1	113	20
19	33	0	123	18
20	26	1	400	44
22	26	0	113	20
24	18	1	138	30
26	28	0	65	20
L10S/ 27+50E	20	2	83	20
L15S/ 24W	30	0	83	20
22	46	0	56	18
20	14	0	70	24
18	8	0	60	20
17	34	0	60	18
12	14	0	68	18
9	20	0	56	20
6	31	0	60	20
L15S/ 5W	12	0	104	20
Std	52	16	72	20

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#2009 1177 W. Hastings St.,
Vancouver, B.C.

ATTN: Mr. E. Ostensoe SCHAFT CREEK PROJECT

SAMPLE NO.:		ppm Copper	ppm Molybdenum	ppm Zinc	ppm Lead
L15S/	2W	13	0	116	22
	BL C0	7	0	72	18
	2E	12	1	89	20
	4	16	0	68	20
	6	12	0	60	22
	8+50	20	0	162	24
	12	112	1	116	26
	14	56	1	116	22
	16	18	0	182	26
	18	106	2	107	24
	20	42	0	80	20
	22	94	6	480	84
	24	74	1	134	30
	26	104	0	72	30
L15S	28E	30	3	89	22
L20S/	26+34W	374	3	86	24
	26	44	0	38	16
	24	90	1	58	22
	22	20	1	78	18
	20	14	0	98	20
	18	12	0	83	18
	17	10	1	78	22
	13	22	0	95	24
	12	20	1	83	24
	4	13	0	116	24
	2W	12	0	58	26
	BL 00	8	0	113	26
	2E	12	0	130	26
	4	12	0	80	24
	6	12	0	70	24
	8	14	1	92	28
	10	64	0	72	26
	12	31	0	158	28
	14	22	0	146	26
	16	173	0	182	21
	18	94	0	104	28
	20	50	2	107	26
	22	20	0	68	28
	24	33	0	78	26
L20S/	26E	16	0	130	26
	Std	52	16	72	20

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Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B. C.

ATTN: Mr. P. Conley

SAMPLE NO.:	PPM Arsenic	PPM Silver
L15S/14E	5	
16	10	
18	30	
22	300	< 0.5
24	30	
26	20	
L20S/26+34W	7	
24	7	
4	4	
B.L.00	2	
2E	3	
10	10	
12	5	
14	3	
16	30	
18	45	< 0.5
L20S/20E	20	
L20S/26E	3	
L25S/20W	8	
16	6	
6	15	
4W	3	
2E	3	
8	12	
10	7	
12	6	
14	6	
16 ? 18	55	0.5
18	15	
24	3	
L25S/25E	6	
L30S/25+81W	5	
L30S/16W	< 1	
14	4	
4	3	
L30S/ 2W	5	
L30S/2E	2	
4	8	
8	8	
L30/S12E	25	

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16393

INVOICE NO. 6040

DATE RECEIVED Sept. 2/71

DATE ANALYSED Sept. 7/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver. B. C.

"Schaft Creek Project"

ATTN: Mr. E. Ostensoe

SAMPLE NO.:	PPM Copper	PPM Molybdenum	PPM Zinc	PPM Lead
L20S 27E	20	0	92	20
L20S 28E	18	0	49	22
L25S 25+41W	28	0	53	18
24	26	0	56	20
22	21	0	78	18
20	80	0	72	20
18	20	0	80	18
16	64	1	104	24
15	30	0	42	20
6	100	0	60	20
4	13	0	130	20
2W	14	0	92	20
BL00	13	0	83	24
2E	12	0	116	18
3+50	12	1	100	20
7	10	0	89	24
8	26	0	150	26
10	40	0	177	26
12	56	0	78	20
14	30	1	162	22
16	56	0	255	26
18	40	0	123	28
20	33	0	92	22
22	18	0	60	20
24	52	0	98	22
L25S 25E	88	1	63	24
L30S/25+81W	108	0	56	20
24	16	0	56	16
22	28	0	44	16
20	12	0	70	20
16	12	0	113	20
14	56	0	49	20
12	31	0	65	20
10	12	0	83	22
8	14	2	100	20
6	18	1	80	22
4	16	0	113	24
2W	80	0	95	24
BL 00	21	0	98	22
L30S/2E	26	1	204	26
Std. #24	54	16	75	20

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16394
INVOICE NO. 6049
DATE RECEIVED Sept. 2, 1971
DATE ANALYSED Sept. 8, 1971

TO: Hecla Mining Co. of Canada Ltd.,
#2009 1177 W. Hastings St.,
Vancouver, B.C.

SCHAFT CREEK PROJECT

ATTN: Mr. P. Conley, Mr. E. Ostensoe

SAMPLE NO.:		ppm Copper	ppm Molybdenum	ppm Zinc	ppm Lead
L30S/	4E	24	0	182	30
	6	10	0	95	22
	8	26	0	182	26
	10	30	0	86	22
	12	78	0	98	24
	14	24	0	167	28
	16	20	0	110	22
	18	21	1	162	26
	26	14	1	70	22
	28	16	0	70	22
L30S/	28+92E	14	0	65	20
L35S/	25+70W	18	3	116	24
	25	21	2	100	20
	20	14	0	107	20
	18	28	0	120	20
	16	330	0	36	20
	14	66	0	116	24
	12	60	0	116	22
	10	20	0	80	20
	8	16	0	89	24
	6	16	0	107	20
	4W	12	0	68	20
	BL 00	74	2	172	28
	2E	168	0	327	60
	4	51	0	475	52
	6	34	0	600	72
	8	18	0	187	22
	10	16	0	113	20
	12	20	0	150	22
	14	21	0	104	22
	18	28	0	60	22
	20	46	0	49	20
	22	12	0	92	22
	24	12	0	70	20
	26	12	0	68	20
	28	18	0	83	20
L35S/	28+60E	16	0	83	18
L40S/	25+40W	42	0	65	14
	24	13	0	120	20
L40S/	22W	20	0	158	18
	Std	54	16	72	20

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Certified by B.L. Twaites

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CANADA
TELEPHONE: 985-0648

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16394
INVOICE NO. N/C
DATE RECEIVED Sept
DATE ANALYSED Sept. 10/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B. C.

ATTN: Mr. P. Conley

SAMPLE NO.:	PPM Arsenic	PPM Silver
L30S/14E	20	
16	6	
L30S/ 18E	3	
L35S/25+70W	7	
20	1	
18	2	
16	2	
14	5	
12	2	
6	7	
BL00	500	< 0.5
2E	45	
4	95	< 0.5
6	45	< 0.5
8	7	< 0.5
10	3	< 0.5
12	2	
L35S/ 18E	7	
L40S/24W	< 1	
L40S/22W	5	
18	1	
16	2	
12	2	
8	3	
6	1	
3	40	
2	7	
1W	3	
2E	2	
6	2	
10	6	
12	5	
20	6	
23	2	
24	4	
26	2	
L40S/29+10E	2	
L45S/26W	3	
24	1	
L45S/ 22W	1	

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16395
INVOICE NO. 6049
DATE RECEIVED Sept. 2, 1971
DATE ANALYSED Sept. 8, 1971

TO: Hecla Mining Co. of Canada Ltd.,
#2009 1177 W. Hastings St.,
Vancouver, B.C.

SCHAFT CREEK PROJECT

ATTN: Mr. P. Conley, Mr. E. Ostensoe

SAMPLE NO.:		ppm Copper	ppm Molybdenum	ppm Zinc	ppm Lead
L40S/	20W	18	0	92	18
	18	70	0	65	18
	16	100	0	100	20
	14	21	0	65	16
	12	14	0	123	20
	10	40	0	70	20
	8	13	1	130	22
	6	18	2	197	24
	3	100	14	264	46
	2	48	2	247	31
	1W	14	10	177	48
	2E	14	0	110	18
	4	13	0	78	18
	6	10	0	130	18
	8	38	0	83	20
	10	330	1	86	22
	12	68	0	83	20
	14	12	0	58	16
	16	24	0	72	22
	18	26	0	58	18
	20	14	0	113	20
	23	24	1	204	22
	24	14	2	107	20
	26	14	1	134	18
	28	31	0	98	28
L40S/	29+10E	18	1	110	16
L45S/	26W	60	1	72	20
	24	14	0	104	20
	22	12	0	113	20
	20	31	0	113	26
	19	22	0	89	22
	18	24	1	92	20
	8	136	0	107	28
	6	120	0	123	28
	4	60	0	204	30
	2W	66	0	123	26
	BL00	60	1	182	33
	1E	24	2	172	31
L45S	4	20	1	95	24
L45S/	6E	22	0	75	20
	Std	54	17	75	22

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16395

INVOICE NO. N/C

DATE RECEIVED

DATE ANALYSED Sept. 10/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver. B. C.

ATTN: Mr. P. Conley

Schaft Creek

SAMPLE NO.:	PPM Arsenic	PPM Silver
L45S/20W	2	
8	2	
6	4	
4	1	
2W	2	
BL00	3	
L45S/ 1E	1	
L50S/27+33W	2	
22	1	
20	2	
16	1	
14	4	
12	2	
10	7	
8	7	
4 W	3	
BL00	2	
2E	4	
L50S/15E	2	
~~L55S/25+05W~~	12	
24	4	
14	1	
12	2	
10	1	
8	3	
6	2	
4	4	
2W	3	
BL00	6	
4E	8	
6	45	< 0.5
10	5	

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TELEPHONE: 985-0648

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16396
INVOICE NO. 6049
DATE RECEIVED Sept. 2, 1971
DATE ANALYSED Sept. 8, 1971

TO: Hecla Mining Co. of Canada Ltd.,
#2009 1177 W. Hastings St.,
Vancouver, B.C.

SCHAFT CREEK PROJECT

ATTN: Mr. P. Conley, Mr. E. Ostensoe

SAMPLE NO.:		ppm Copper	ppm Molybdenum	ppm Zinc	ppm Lead
L45S/	8E	18	0	72	20
	10	14	0	60	20
	12	20	0	46	20
	14	12	0	100	31
	16	14	0	83	24
	22	28	0	42	16
	24	14	0	100	22
L45S/	26E	14	0	70	20
L50S/	27+33W	14	1	187	24
	26W	20	3	100	24
	24	14	1	75	16
	22	33	1	107	20
	20	31	2	113	22
	18	26	0	86	24
	16	38	0	120	22
	14	90	0	86	20
	12	22	2	162	22
	10	92	2	104	26
	8	230	2	123	46
	6	28	1	113	26
	3	30	1	83	22
	2W	30	1	98	24
	BL 00	40	0	154	26
	2E	42	2	116	24
	4	48	0	63	20
	6E	50	0	49	14
	8E+50	18	2	95	22
	10E	10	0	89	20
	12	34	0	68	22
	14	31	0	75	18
	15	18	0	113	24
	24	30	0	70	16
	26	22	1	63	18
L50S/	28E	16	0	63	20
L55S/	25+85W	92	1	78	24
	24	148	0	83	18
	22	26	0	56	18
	20	22	0	95	18
L55S/	19+40W	26	0	80	16
	Std	52	17	75	20

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16397
INVOICE NO. 6049
DATE RECEIVED Sept. 2, 1971
DATE ANALYSED Sept. 8, 1971

TO: Hecla Mining Co. of Canada Ltd.,
#2009 1177 W. Hastings St.,
Vancouver, B.C.

SCHAFT CREEK PROJECT

ATTN: Mr. P. Conley, Mr. E. Ostensoe

SAMPLE NO.:	ppm Copper	ppm Molybdenum	ppm Zinc	ppm Lead
L55S/ 16W	24	0	75	20
14	13	0	123	22
12	28	0	104	20
10	28	0	104	18
~~8~~	~~60~~	~~0~~	~~100~~	~~22~~
6	84	0	98	24
4	76	0	98	24
2W	24	0	123	22
BL00	48	0	104	22
~~2E~~	~~20~~	~~0~~	~~83~~	~~18~~
4	154	0	158	33
6	687	4	70	26
7	16	2	95	22
10	74	2	70	20
~~22~~	~~42~~	~~0~~	~~65~~	~~20~~
24	12	0	53	18
28	13	0	68	18
L55S/ 29+12E	24	0	86	20
Std	52	16	75	20

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TELEPHONE: 985-0648

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16750

INVOICE NO. 6327

DATE RECEIVED Oct. 8/71

DATE ANALYSED Oct. 13/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B. C.

ATTN: Mr. P. Conley (Schaft Creek)

SAMPLE NO.:	PPM Copper	PPM Molybdenum	PPM Lead	PPM Arsenic
L60S BL	22	0	22	3
4E	34	0	16	4
6	114	2	20	3
8	18	3	20	3
24	34	0	16	6
26	13	0	6	2
28+50	34	0	14	5
L60S 30E	36	0	16	8
L60S 2W	28	0	14	5
4	18	7	16	2
6	28	4	16	4
8	26	0	18	5
10	52	0	22	8
12	40	1	18	6
14	28	1	12	3
16	14	1	16	7
18	88	0	20	8
20	28	0	20	2
22	28	0	22	4
24	20	0	18	2
L60S 25+16W	26	0	20	5
L65S BL	21	3	28	4
2E	20	0	18	3
4	18	1	18	5
6	13	1	20	4
8	20	1	22	7
10	22	0	16	6
24	36	0	18	7
26	22	0	20	10
L65S 27+35E	10	0	22	7
L65S 2W	41	1	22	5
4	16	0	20	5
8+40	28	1	18	2
10	24	3	14	3
12	62	5	22	6
14	22	2	22	3
16	52	0	20	8
18	24	1	28	9
20	62	0	20	7
L65S 22W	20	0	20	4
STd. #24	54	16	22	4

MEMBER CANADIAN TESTING ASSOCIATION

Certified by Glen Arnanson

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CANADA
TELEPHONE: 985-0648

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16751

INVOICE NO. 6327

DATE RECEIVED Oct. 8/71

DATE ANALYSED Oct. 13/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B. C.

ATTN: Mr. P. Conley (Shaft Creek)

SAMPLE NO.:	PPM Copper	PPM Molybdenum	PPM Lead	PPM Arsenic
L65S 24W	50	0	22	3
L65S 25+20W	26	0	76	4
L70S 4E	22	0	16	7
6	12	1	18	3
8	6	1	12	2
18+50	21	0	12	4
20	22	0	20	9
24	20	2	18	7
L70S 26E	20	1	20	10
L70S 5+65W	7	0	12	5
8	22	1	16	3
10	18	0	16	2
12	22	0	20	3
14	16	2	20	3
16	52	1	22	5
18	63	0	22	5
20	116	0	20	4
22	20	1	24	3
L70S 24+10W	14	1	20	2
L75S BL	20	1	20	8
2E	16	0	18	6
4	20	1	16	7
7	66	1	18	7
8	33	1	20	5
10	10	1	12	3
16+30	28	0	16	7
22	18	5	18	7
L75S 24E	16	3	20	4
L75S 2W	270	2	16	10
4	20	2	22	10
8	20	2	16	4
10	20	1	14	9
11	20	1	16	9
18+40	40	1	16	4
20	63	2	22	4
22	34	1	20	5
L75S 23+10W	52	1	16	5
L80S BL	48	1	18	7
2E	36	2	22	9
L80S 4+50E	21	2	16	5
Std. #24	52	16	20	6

MEMBER
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ASSOCIATION

Certified by Ron Armanini

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NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16752

INVOICE NO. 6327

DATE RECEIVED Oct. 8/71

DATE ANALYSED Oct. 13/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B. C.

ATTN: Mr. P. Conley (Schaft Creek)

SAMPLE NO.:	PPM Copper	PPM Molybdenum	PPM Lead	PPM Arsenic	pH
L80S 6E	8	1	10	3	
8	18	3	18	6	
11+20	33	1	20	18	7.0
18	12	0	14	4	
20	70	1	24	15	7.4
23+70	21	0	16	5	
L80S 30E	18	2	18	10	
L80S 2W	34	1	16	8	
4	62	1	35	30	
6	38	1	20	8	
8	40	0	20	10	
10	28	0	16	9	
12	28	1	26	12	
14	26	2	16	7	
16	189	1	16	10	
18	14	1	16	3	
24	122	2	22	5	
L80S 28W	41	1	16	7	
L85S BL	34	1	20	8	
2E	20	3	20	4	
4	18	0	18	3	
6	12	0	14	4	
12	10	0	18	6	
14	7	1	18	8	
16	26	0	30	7	
L85S 26E	26	0	18	6	
L85S 2W	21	2	20	4	
4	206	0	22	12	
6	14	1	16	8	
8	18	0	20	7	
10	18	0	18	8	
12	12	0	20	7	
14	76	0	26	6	
16	14	0	16	7	
L85S 24W	53	2	22	12	
L90S 2E	20	0	14	7	
3+75	24	0	16	7	
6	22	0	14	7	
10	12	1	18	7	
L90S 12E	13	0	20	9	
Std. #24	52	16	22	3	

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ASSOCIATION

Certified by Glen Arnanson

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16753
INVOICE NO. 6327
DATE RECEIVED Oct. 8/71
DATE ANALYSED Oct. 13/71

TO: Hecla Mining Co. of Can. Ltd.,
SKe: 2009 - 1177 W. Hastings St.,
Vancouver. B. C.

ATTN: Mr. P. Conley (Scheft Creek)

SAMPLE NO.:		PPM Copper	PPM Molybdenum	PPM Lead	PPM Arsenic
L90S	14E	13	1	18	7
	15+85	12	1	22	9
	17+25	12	0	16	4
	20	31	0	16	7
	21+30	13	1	20	6
	24	28	0	18	8
	26+30	18	1	20	9
L90S	28E	13	1	16	8
L90S	2W	12	0	16	6
	4	20	0	18	4
	6	22	0	20	8
	8	14	0	18	7
	10	24	1	26	9
	12	24	0	16	7
	14	33	0	20	9
	22	34	0	18	6
L90S	24W	44	1	20	4
L95S	BL	24	1	18	10
	2E	52	0	18	9
	8	14	1	18	9
	10	20	0	20	18
	12	14	0	18	12
	14	16	1	20	9
	18+40	18	1	18	7
	20	13	0	24	7
	22	80	0	20	4
	24	10	2	16	3
	26	21	2	24	10
	28	16	1	22	7
L95S	30E	33	1	28	8
L95S	2W	16	0	24	7
	4	10	0	18	4
	6	28	0	20	6
	22+30	38	0	26	8
L95S	24W	22	0	22	7
L100S	8E	13	1	20	7
	10	33	0	22	7
	12	14	0	20	6
	14	10	2	22	6
L100S	10E	72	2	54	20
STd. #24		54	16	22	4

MEMBER CANADIAN TESTING ASSOCIATION

Certified by Glen Ammanini

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NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16754
INVOICE NO. 6327
DATE RECEIVED Oct. 8/71
DATE ANALYSED Oct. 13/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B. C.

ATTN: Mr. P. Conley (Schaft Creek)

SAMPLE NO.:	PPM Copper	PPM Molybdenum	PPM Lead	PPM Arsenic
L100S 18E	14	3	24	15
20	362	3	24	10
22	31	1	22	7
24	16	0	22	10
26	14	1	26	4
28	10	0	22	4
31+80E	33	0	16	3
00+80W	38	0	20	10
2	21	1	18	10
4	22	0	20	10
6	7	0	16	5
L100S 25W	14	0	24	10
L105S BL	82	3	37	40
6E	21	0	18	7
8	38	0	22	10
10	14	0	10	5
12	51	0	22	18
14	20	0	20	10
16	18	2	20	6
18	20	2	22	7
20	38	4	24	8
22	16	4	22	9
24	34	5	22	7
26	13	2	26	12
28	24	0	22	7
30	56	1	26	15
31+82E	26	2	24	18
24W	56	1	22	25
26	24	0	22	20
L105S 28W	21	1	28	18
L110S 2E	76	2	35	40
6	50	3	30	30
8	22	2	22	15
10	21	4	28	10
12	12	1	20	4
14	13	1	22	8
15+40	21	1	22	18
18	12	0	24	8
20	7	1	20	3
L110S 22E	24	1	24	20
Std. #24	52	17	20	8

MEMBER
CANADIAN TESTING
ASSOCIATION

Certified by Glen Armanini

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648

o CHEMISTS o GEOCHEMISTS o ANALYSTS o ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16755
INVOICE NO. 6327
DATE RECEIVED October 8/71
DATE ANALYSED Oct. 14/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B. C.

ATTN: Mr. P. Conley (Schaft Creek)

SAMPLE NO.:	PPM Copper	PPM Molybdenum	PPM Lead	PPM Arsenic
L110S 24E	28	1	30	10
26	16	0	20	20
28	24	0	24	20
30	6	0	12	3
32E	42	0	22	10
2W	66	0	26	30
4	102	0	33	35
6	62	0	30	35
8	50	7	28	70
10+40	13	0	20	4
20	36	0	16	5
L110S 22W	50	1	22	30
L115S BL	51	3	20	20
2E	41	3	24	35
4	66	2	48	50
6	36	13	20	18
8	34	9	20	20
10+60	46	3	31	25
12	22	1	26	20
14	28	3	26	30
16	31	5	26	20
18	66	7	20	5
20	21	1	22	4
22	46	1	24	20
24	72	0	22	20
26	18	1	18	5
28	14	0	22	12
31+15E	74	0	28	18
2W	40	0	22	25
4	31	0	22	15
6	60	0	22	30
8	13	0	18	10
11	63	1	30	55
15	12	0	20	7
17	10	0	20	7
21	13	0	22	10
23+55	24	4	18	15
L115S 25W	60	2	20	50
L120S BL	21	1	18	12
L120S 2E	52	2	22	150
Std. #24	52	15	22	5

MEMBER
CANADIAN TESTING
ASSOCIATION

Certified by Glen Ammann

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648

o CHEMISTS o GEOCHEMISTS o ANALYSTS o ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16756
INVOICE NO. 6327
DATE RECEIVED Oct. 8/71
DATE ANALYSED Oct. 14/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B.C.

ATTN: Mr. P. Conley (Schaft Creek)

SAMPLE NO.:	PPM Copper	PPM Molybdenum	PPM Lead	PPM Arsenic	pH
L 120S 4E	50	1	22	30	
5+88	56	0	18	15	
6+30	76	2	37	40	
10	24	1	33	18	
12	34	1	30	30	
14	42	0	33	25	
16	46	2	28	8	
18	24	1	31	12	
20	16	0	20	10	
22	68	2	50	30	
24	16	1	22	8	
28	6	0	16	4	
30	6	0	14	4	
L 120S 31+90E	33	0	28	15	
L 120S 2W	42	0	16	10	
2+50	86	0	31	30	7.4
4	13	0	16	18	
6	54	1	20	7	
8	60	0	22	4	
10	60	1	20	7	
12	13	0	18	5	
14	64	0	18	5	7.2
16	18	0	20	7	
18	8	0	16	3	
20	78	1	28	30	
21	62	0	28	30	
22	13	1	18	8	
L 120S 24+50W	8	2	20	8	
L 125S BL	10	3	24	8	
4E	20	3	24	25	
6	10	3	24	10	
8	34	6	26	25	
10	21	4	24	5	
12	13	2	22	3	
14	34	6	39	15	
16	34	4	30	17	
17	58	2	30	12	
20	56	3	28	12	
L 125S 30E	21	4	18	5	
L 125S 2W	31	2	22	10	
Std. #24	52	16	22	4	

MEMBER
CANADIAN TESTING
ASSOCIATION

Certified by Glen Amanini

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648

o CHEMISTS o GEOCHEMISTS o ANALYSTS o ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 16757

INVOICE NO. 6327

DATE RECEIVED Oct. 8/71

DATE ANALYSED Oct. 14/71

TO: Hecla Mining Co. of Can. Ltd.,
Ste. 2009 - 1177 W. Hastings St.,
Vancouver, B.C.

ATTN: Mr. P. Conley (Schaft Creek)

SAMPLE NO.:		PPM Copper	PPM Molybdenum	PPM Lead	PPM Arsenic
L125S	4W	8	0	14	3
	6	13	1	20	3
	8	22	1	18	2
	10	14	1	16	2
	12	28	1	20	2
	14	28	0	20	2
	18+60	7	0	12	2
	20	8	0	22	3
L125S	24+30W	60	0	24	20

MEMBER CANADIAN TESTING ASSOCIATION

Certified by

APPENDIX C

STATEMENT OF COSTS

STATEMENT OF COSTS

A. SUMMARY

Field Expenditures

1. Wages and Salaries	$ 2,557.00
2. Camp Operations	999.00
3. Equipment Rentals - magnetometers	840.00
4. Geochemical Analyses	1,622.65
5. Miscellaneous and Incidental Supplies Consumed	100.00
Total Field Expenditures	$ 6,118.65

Office Expenditures

1. Wages and Salaries	994.00
2. Drafting Services	400.00
3. Miscellaneous, secretarial, supplies, printing	150.00
Total Office Expenditures	$ 1,544.00
Total Expenditures In #1 Group	$ 7,662.65

B. DETAILS OF EXPENDITURES

Field Expenditures

1. Wages and Salaries

G.D. House, Aug.13 - Sept. 9, 27 days @$950/mo	$ 855.00
E. Ostensoe, Aug.26, Sept. 18,19, 3 days @$1170/mo	117.00
Art Dahl, Aug.13 - Aug.20, 8 days @$525/mo	140.00
D. Colley, Sept.15 - Oct.2, 18 days @$575/mo	345.00
F. Gyenis, Sept.22 - Oct.2, 10 days @$20/day	200.00
D. Bartell, Aug.1 - Aug.20, 20 days @$600/mo	400.00
C. Beaulieu, Aug.6 - Aug.20, 15 days @$600/mo	300.00
P. Dombrovski, Aug.26- Aug.30, 5 days @$600/mo	100.00
A. Sauve, Aug.26 - Aug.30, 5 days @$600/mo	100.00
Total	$ 2,557.00

2. Camp Operations

111 man days @ $9.00/man day	999.00

STATEMENT OF COSTS
(Continued)

3. Equipment Rentals		
Two Magnetometers (McPhar M-700 type) and Rustrac Recorder, 40 days @ $21.00/day		$ 840.00
4. Geochemical Analyses		
Sept. 7 - 160 samples analysed for Cu Mo Zn Pb	$388.80	
Sept. 8 - 137 samples analysed for Cu Mo Zn Pb	332.91	
Oct. 15 - 289 samples analysed for Cu Mo Pb As	900.94	1,622.65
5. Miscellaneous and Incidental Supplies Consumed		100.00
Total Field Expenditures		$ 6,118.65

Office Expenditures

1. Wages and Salaries	
G.D. House, period Oct. 19-31, 10 days @$950/mo	$ 317.00
E. Ostensoe - total of 10 days @ $1170/mo	390.00
D. Colley, period Oct.25 - Nov.15, 15 days @$575/mo	287.00
	$ 994.00
2. Drafting Services	
C.L.Cory, 10 days (80 hrs.) @ $5.00/hr.	400.00
3. Miscellaneous, secretarial, printing, supplies	150.00
Total Office Expenditures	$ 1,544.00
Total Expenditures In #1 Group	$ 7,662.65

APPENDIX D

STATEMENT OF QUALIFICATIONS

APPENDIX D - Statement of Qualifications

The field work for this report was done by G. D. House and E. A. Ostensoe, geologists, and David Colley, Art Dahl and Frank Gyenis, field assistants, whose qualifications are outlined below. Lines were cut by Al Sauve, Don Bartell, Paul Dombrovski and Chuck Beaulieu. Drafting was by C. L. Cory.

1. G. D. House, B.A. (Mod.), AMIMM, Geologist - completed B.A. (Mod.) at Trinity College, Dublin, Eire, in 1961. Employed as a geologist by: (a) Roundtower Minerals Ltd., from March 1962 through June 1963 in Ireland; (b) Denison Mines Ltd., from August through October 1963, in Ireland; (c) Ghana Geological Survey from November 1963 through March 1965 in Ghana; (d) Newmont Mining Corporation of Canada Ltd. from June through August 1965, at Alice Arm, B.C.; (e) Alrae Engineering Ltd. from September 1965 through January 1970 on contracts in British Columbia, Yukon, N.W.T. and Saskatchewan; (f) Hecla Operating Company from April 1970 through December 1971 on projects in Yukon and at Schaft Creek area, B.C.; (g) at present a student (M.Sc. program) at University of Alaska, College, Alaska.

2. E. A. Ostensoe, B.Sc.(Hons.), Geologist - completed B.Sc. Honours at University of British Columbia in 1960 and course requirements for M.Sc. at Queen's University in 1966; employed by Newmont Mining Corporation of Canada Ltd., under direction of Dr. G.W.H. Norman, P.Eng., from May 1960 through August 1964 as field geologist in Granduc Mine area, B.C., by Mount Billings Venture in Southeastern Yukon in summer 1965, by Scud Venture (Asarco) in Iskut River area, B.C. in summer 1966 and by Granduc Mines, Limited (NPL) and Hecla Mining Company of Canada Ltd. from October 1966 to present as Chief Geologist and Exploration Supervisor under the direction of P. I. Conley, P.Eng.

3. David Colley - geological technician - student in geological engineering and applied mathematics at University of British Columbia and University of Victoria, employed by Amax Explorations in summers of 1969 through 1971 as field assistant, and geochemical sampler and by Hecla Operating Company from September through December 1971.

4. Art Dahl - field assistant - first year student at Vancouver City College. No applicable previous field experience.

5. Frank Gyenis - field assistant - no applicable previous field experience.

Overall supervision of the field work reported on herein was provided by Philip I. Conley, P. Eng., whose qualifications are outlined below:

Philip I. Conley, P. Eng. - Granted degree of B.S. Geology (University of Idaho, 1943); employed by American Smelting & Refining Company, Wallace, Idaho and Vancouver, B.C., May 1946 through December 1964, in positions, successively, of Geological Engineer, Resident Mine Geologist, Exploration Geologist, Senior Geological Engineer and Chief Geologist, Canada and Northwestern U.S. Exploration Division; employed by Hecla Mining Company of Canada Ltd., Vancouver, B.C., December 1964 to present date, Vice President and Manager. Responsible for direction of all mineral exploration and development work of the company in Canada.

B.L.

IN 153 | IN 154 | IN 173 | IN 174 | IN 193 | JOHNNIE LAKE IN 194

0S

IN 1 | IN 28 | IN 27 | IN 54

5S

10S

IN 3 | IN 30 | IN 29 | IN 56

15S

20S

25S

IN 5 | IN 31 | IN 58

30S

35S

IN 32 | IN 33 | IN 60

40S

45S

IN

50S

55S

IN 9 | IN 35 | IN 62

60S

65S

IN 36

70S

IN 11

75S

80S

IN 37 | IN 64

85S

IN 38

IN 13

90S

95S

WINDY LAKE

IN 39 | IN 66

100S

IN 15 | IN 40

105S

110S

IN 41 | IN 68

115S

IN 42

IN 17

120S

125S

Cliff Face

thin bedded

LEGEND

8	739	Andesitic Volcanic, Crystalline, Dark Green, May Include Dykes
7	738½	Andesitic Volcanic, Tuffaceous, Ash, May be Fragmental Coarse Grained or Sedimentary Water Deposited Tuff, Fine Grained
6	739½	Basic Intrusive, Augite Porphyry Basalt
5	740½	Limestone, Light Grey / Cream, Siliceous
4	740	Limestone, Dark Grey, Crinoidal, Bioclastic
3	745	Intrusive, Quartz Monzonite, Pink, White, Coarse to Medium Grain, Generally Foliated
2	743½	Intrusive, Acid — Granite, Diorite
1	744	Mineralized Quartz Vein or Shear

- Sheeting, Lineation in Intrusives
- Bedding, Dip, Strike, Vertical
- Jointing, Dip, Vertical
- Faulting, Dip, Vertical
- Banding, Cleavage, Dip, Vertical
- Shearing, Dip, Vertical

Q Quartz Veining
cp Chalcopyrite Mineralization
py Pyrite Mineralization
hm Hematite Mineralization
spec hm Specular Hematite Mineralization
feld Feldspathization, Feldspar Alteration
ep Epidote Alteration
mag Magnetic
Fault Linears
Lithological Contact

To accompany report by GD House, E. Ostensoe & PI Conley, P. Eng. Dec. 20, 1971

Claim Post —— location verified

3845 M-3

HECLA OPERATING CO.

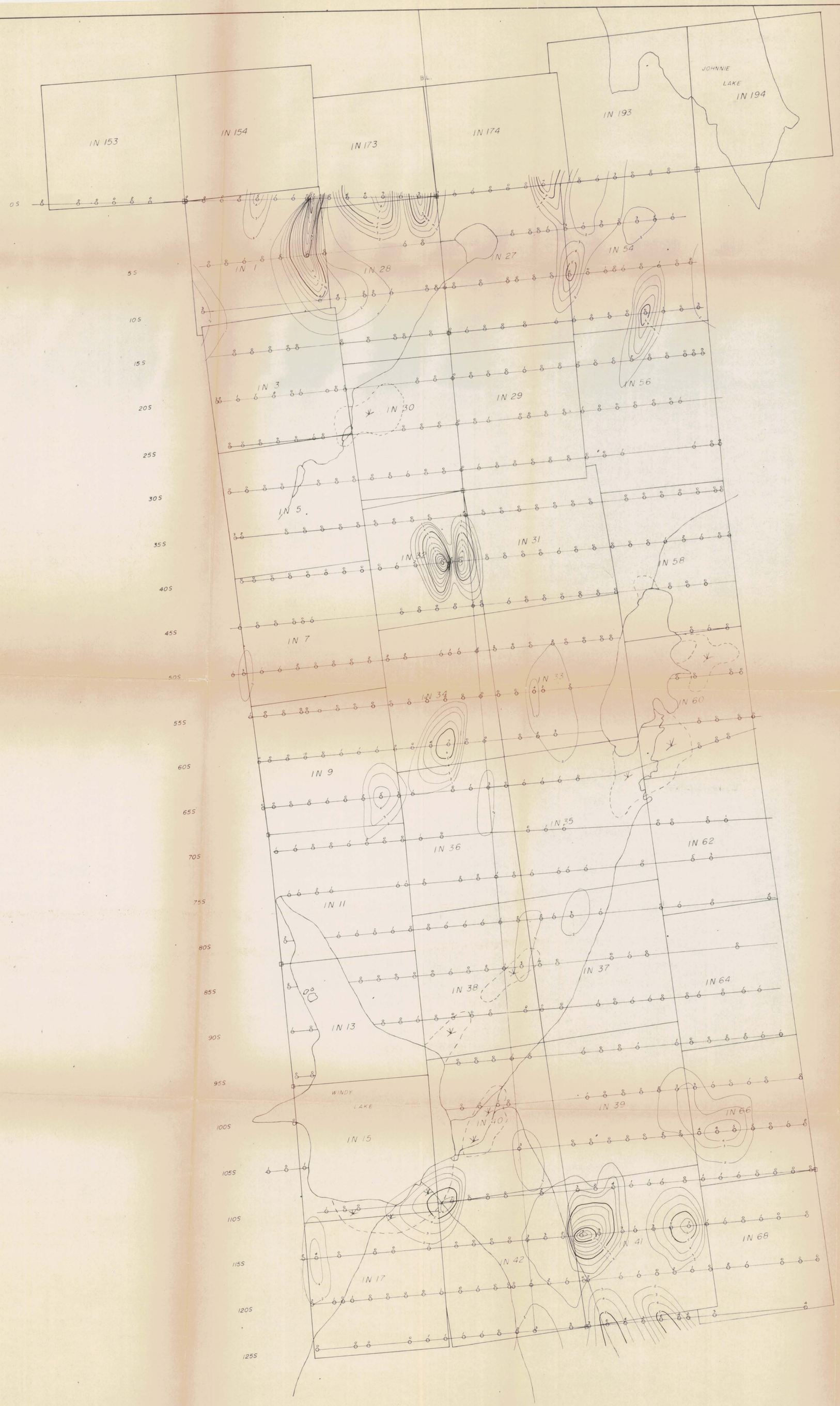
HICKMAN PROJECT

SCHAFT CREEK, B.C.

GEOLOGY

Windy Lake Grid

Scale:	Date:		DWG No.
1"= 400'	DEC./71		H-71-3



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3845 MAP #5

To accompany report by GD House, E. Ostensoe and PI Conley, P.Eng. Dec 20, 1971

Claim Post ——— location verified

HECLA OPERATING CO.

HICKMAN PROJECT

SCHAFT CREEK, B.C.

GEOCHEMICAL SURVEY

Molybdenum in ppm

WINDY LAKE GRID

Scale	Date		DWG No.
1"=400'	DEC./71		H-71-5

IN 153
IN 154
IN 173
IN 174
IN 193
JOHNNIE LAKE
IN 194
BL.
0S
5S
10S
15S
20S
25S
30S
35S
40S
45S
50S
55S
60S
65S
70S
75S
80S
85S
90S
95S
100S
105S
110S
115S
120S
125S
IN 1
IN 28
IN 27
IN 54
IN 3
IN 29
IN 56
IN 5
IN 31
IN 32
IN 58
IN 7
IN 34
IN 60
IN 9
IN 35
IN 62
IN 36
IN 37
IN 64
IN 13
WINDY LAKE
IN 15
IN 66
IN 41
IN 68
IN 42
IN 17

To accompany report by GD House, E. Ostensoe and PIConley, P.Eng. Dec. 20, 1971

Claim Post ——— location verified

HECLA OPERATING CO.

HICKMAN PROJECT

SCHAFT CREEK, B.C.

GEOCHEMICAL SURVEY

Copper in ppm

WINDY LAKE GRID

Scale	Date		DWG No.
1"=400'	DEC./71		H-71-4

IN 153
IN 154
IN 173
IN 174
IN 193
JOHNNIE LAKE
IN 194
B.L.
0S
5S
10S
15S
20S
25S
30S
35S
40S
45S
50S
55S
60S
65S
70S
75S
80S
85S
90S
95S
100S
105S
110S
115S
120S
125S
IN 1
IN 28
IN 27
IN 54
IN 3
IN 30
IN 29
IN 56
IN 5
IN 32
IN 31
IN 58
IN 7
IN 33
IN 34
IN 60
IN 9
IN 35
IN 36
IN 62
IN 11
IN 37
IN 38
IN 64
IN 13
IN 39
IN 66
WINDY LAKE
IN 15
IN 40
IN 41
IN 68
IN 17
IN 42

To accompany report by GD House, E. Ostenso & PI Conley, P. Eng Dec. 20, 1971

Claim Post —— location verified

HECLA OPERATING CO.

HICKMAN PROJECT

SCHAFT CREEK, B.C.

GEOCHEMICAL SURVEY

Lead in ppm

WINDY LAKE GRID

Scale	Date		DWG No.
1"=400'	DEC./71		H-71-6

IN 153
IN 154
IN 173
IN 174
IN 193
JOHNNIE LAKE
IN 194
IN 1
IN 28
IN 27
IN 54
IN 3
IN 30
IN 29
IN 56
IN 5
IN 31
IN 32
IN 58
IN 7
IN 33
IN 34
IN 60
IN 9
IN 35
IN 36
IN 62
IN 11
IN 37
IN 38
IN 64
IN 13
WINDY LAKE
IN 39
IN 40
IN 66
IN 15
IN 41
IN 42
IN 68
IN 17

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3845 MAP #7

To accompany report by GD House, E. Ostensoe & PI Conley, P. Eng. Dec. 20, 1971

Com Ant —— location verified

HECLA OPERATING CO.

HICKMAN PROJECT

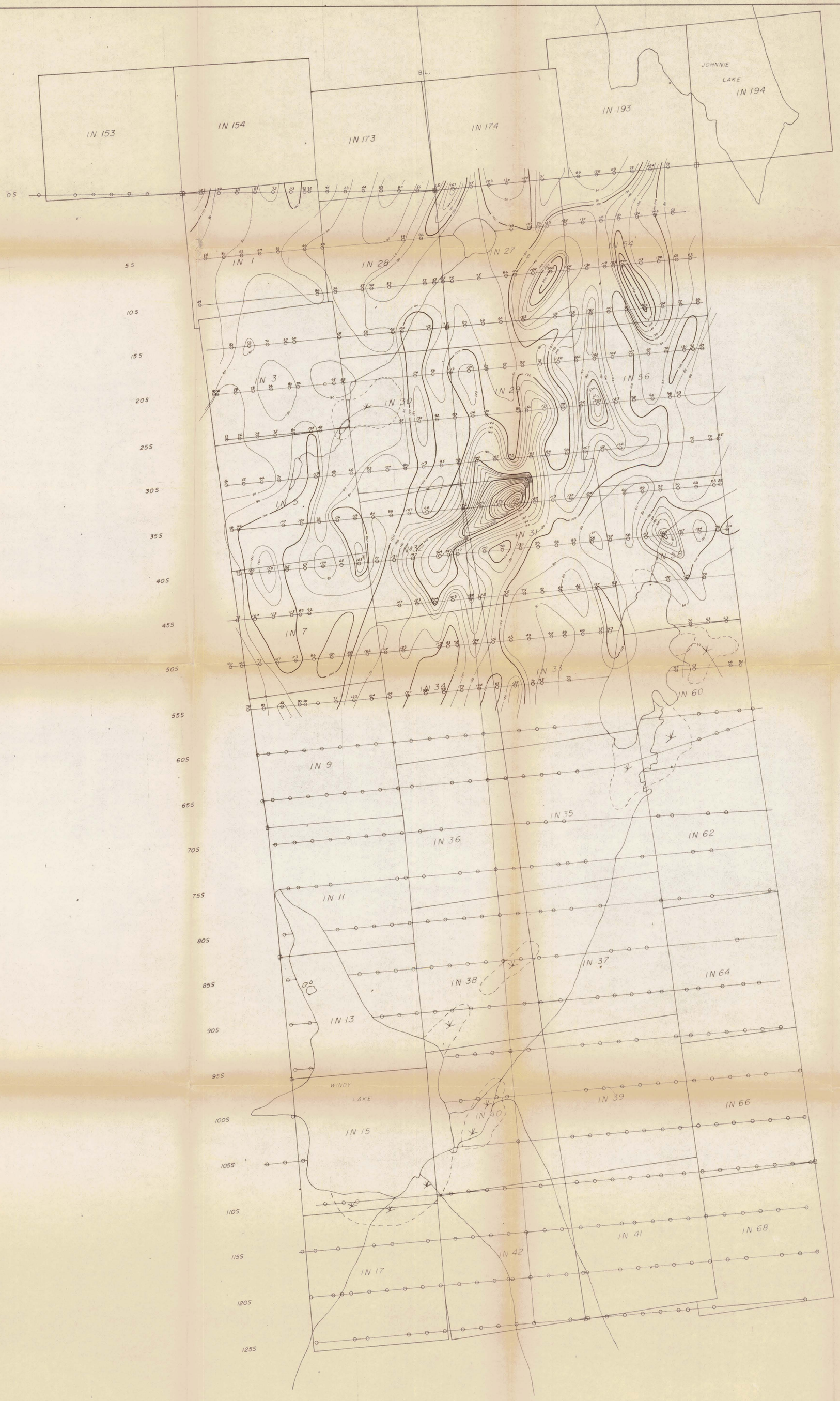
SCHAFT CREEK, B.C.

GEOCHEMICAL SURVEY

Arsenic in ppm

WINDY LAKE GRID

Scale:	Date:		DWG No.
1"=400'	DEC./71		H-71-7



To accompany report by G. D. House, E. Ostensoe & PI Conley, P. Eng. Dec. 20, 1971

Claim Post —— location verified

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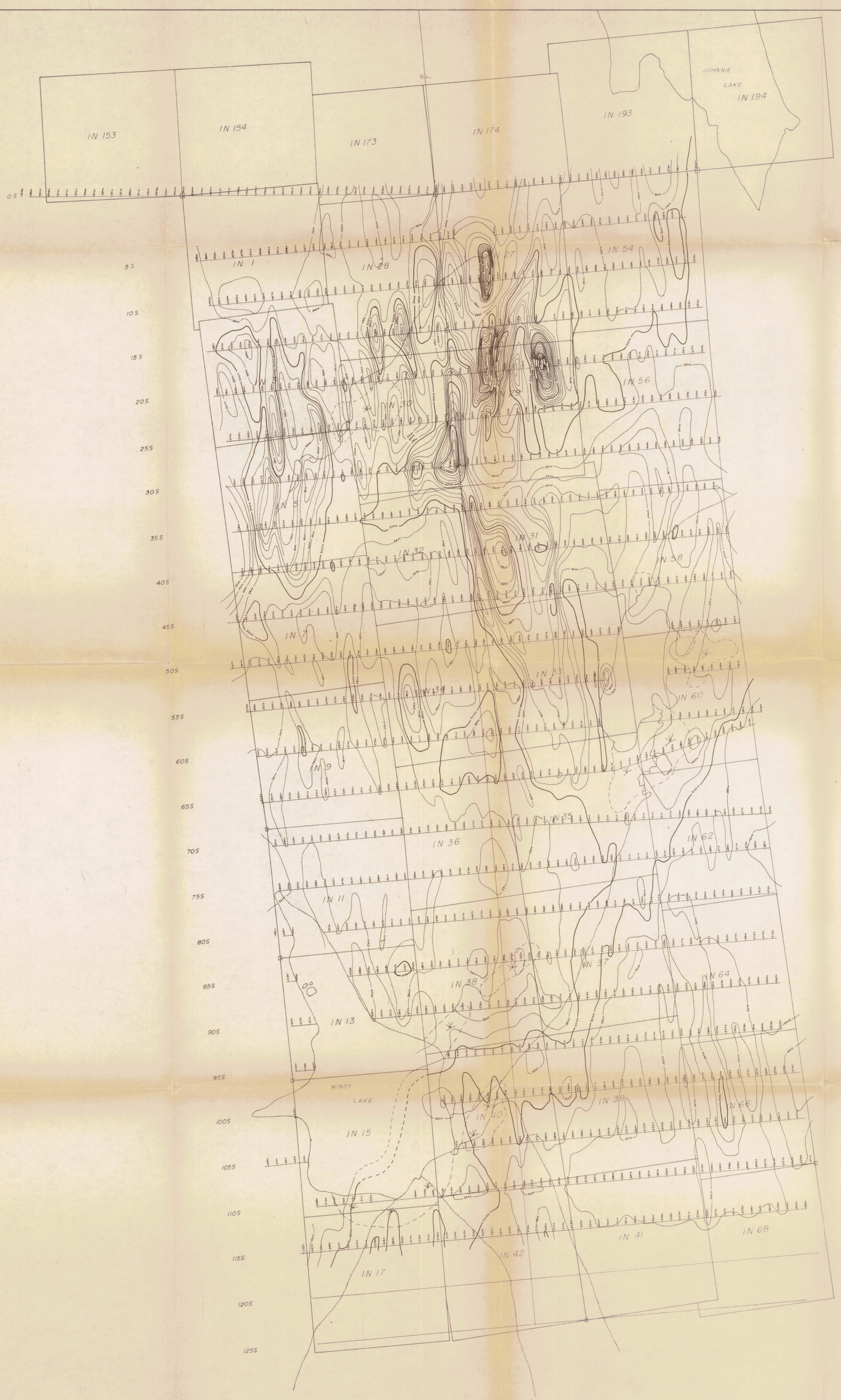
SCHAFT CREEK, B.C.

GEOCHEMICAL SURVEY

Zinc in ppm

WINDY LAKE GRID

Scale:	Date:		DWG No.
1"=400'	DEC./71		H-71-8



To accompany report by GD House, E. Ostensoe & PI Conley, P. Eng. Dec. 20, 1971

Claim Post —— location verified

HECLA OPERATING CO.

HICKMAN PROJECT

SCHAFT CREEK, B.C.

MAGNETOMETER SURVEY

Contour Interval: 200 Gammas

WINDY LAKE GRID

Scale:	Date:		DWG No.
1"=400'	DEC./71		H-71-9