4638

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4638 MAP

REPORT OF GEOLOGICAL, MAGNETIC AND GEOCHEMICAL SURVEYS - OUT #1, #5 and #11 CLAIM GROUPS

Stikine River Area

57°30' North - 131°00 West

LIARD MINING DIVISION, B. C.

Ed Kruchkowski

Erik Ostensoe

P I Conley

Prepared by: Ed. Kruchkowski
Erik Ostensoe
Supervised by: P. I. Conley, P. Eng.

for

HECLA OPERATING COMPANY, October 5, 1973

Copy No. 2

Reports of Geological, Magnetic and Geochemical Surveys

104G/10W

OUT #1, #5 and #11 GROUP MINERAL CLAIMS

Out, In

Located 5 to 6 miles north of Mess Lake

Stikine River Area

57°30' North - 131°00' West

Liard Mining Divison, B. C.

by

Ed Kruchkowski

Erik Ostensoe

P. I. Conley, P.Eng.

for

HECLA OPERATING COMPANY

Work done during June and July, 1973

Date of report - October 5, 1973

Copy No. 2.

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1) E. A. Ostensoe, Geologist
2) Ed Kruchkowski, Geologist
3) Ron Rayner, Field Assistant

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I SUMMARY

Employees of Hecla Operating Company worked on the Out #1, #5 and #11 groups of claims during June and July, 1973. Geological mapping, geochemical (soil) surveys and magnetic surveys were completed on a grid of cut lines established over the claims. The claims are located five to six miles northwest of Mess Lake in the Stikine River area of northern British Columbia.

The Out #1, #5 and #11 claim groups include forty-four "In" claims staked during 1971 and forty-four "Out" claims staked during 1972. The claim area is situated on the eastern edge of the Hickman Batholith and is underlain by granitic rocks and tuffaceous and crystalline andesite. Re-crystallized limestone that occurs east of "Johnnie Lake" has been distorted by shearing and flowage. Augite porphyry basalt occurs west of the lake and dacite dykes, sills and flows are present in the eastern portions of the claims.

Pyrite mineralization comprises two to five percent of an altered tuffaceous andesite unit near the west side of Johnnie Lake. Minor amounts of chalcopyrite and bornite have been found in shears and quartz veins at various places on the claim groups. Soil analyses for copper, molybdenum and arsenic give vague patterns of metal concentrations.

II INTRODUCTION

This SUMMARY REPORT describes work done during the 1973 field season on the Out #1, #5 and #11 claim groups. The claims are located in the Stikine River area of northwestern British Columbia on a plateau-like surface immediately west of Mess Creek and are approximately centered around a small lake known locally as "Johnnie Lake". "Windy Lake" is a local name for a small lake in the southwest part of the subject area. The settlement of Telegraph Creek is twenty-five miles north of the claims and the Schaft Creek exploration camp of Hecla Operating Company is fourteen miles to the south. The co-ordinates of the claim area are 57°30' north latitude and 131°00' west longitude and the area appears on NTS map sheet 104G, Telegraph Creek (H-73-1 and H-73-2).

During the summer of 1973, two campsites were occupied. The camps were serviced and moved by a Bell 47-G3B1 helicopter belonging to Vancouver Island Helicopters Limited and based at Telegraph Creek, B. C. Personnel and supplies were routed via the Schaft Creek camp which was serviced regularly by aircraft from Terrace and Smithers. A "Sportspal" canoe was used to facilitate work in the vicinity of Johnnie Lake. Daily radio contact was maintained with the Schaft Creek camp using a Spilsbury & Tindall SBX-10 transceiver.

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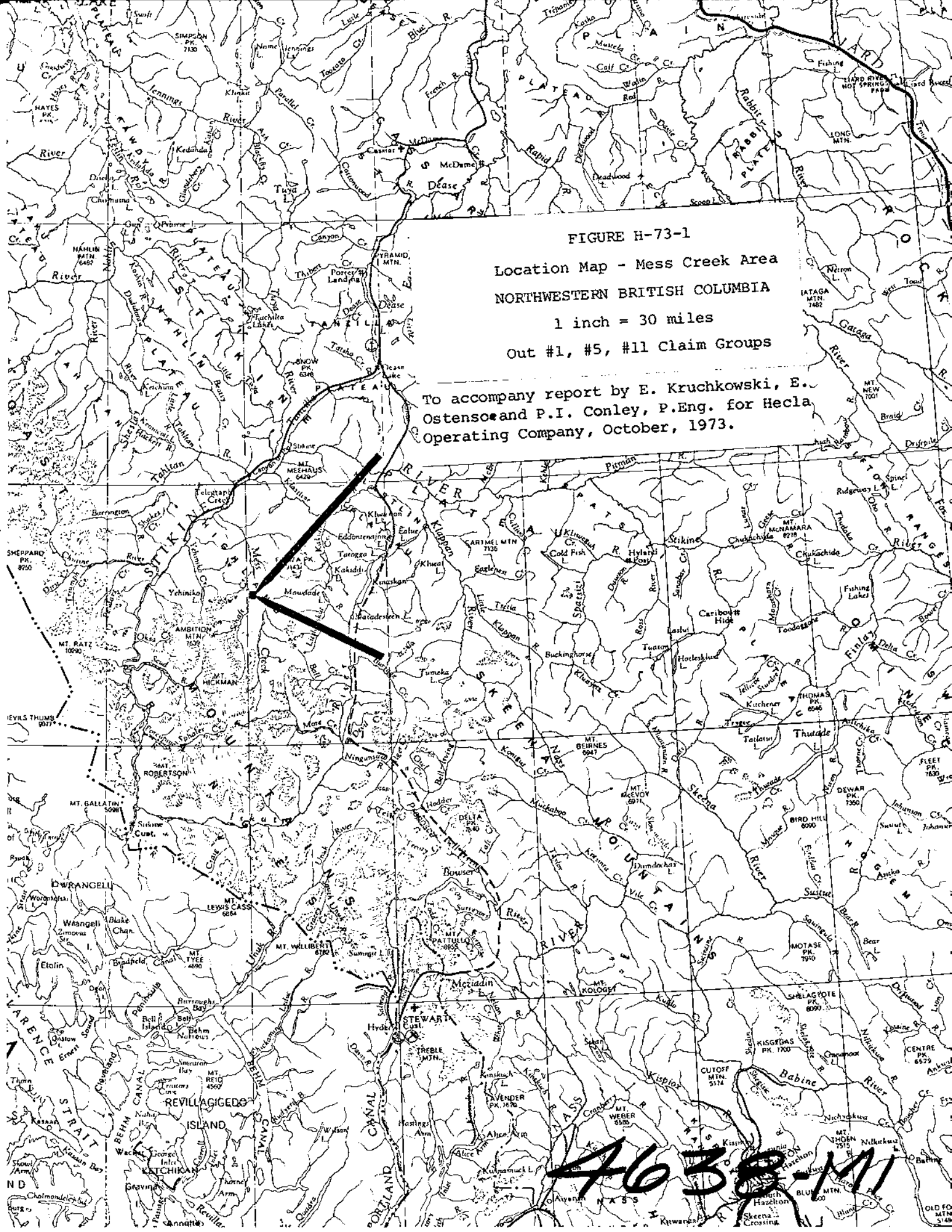

FIGURE H-73-1

Location Map - Mess Creek Area

NORTHWESTERN BRITISH COLUMBIA

1 inch = 30 miles

Out #1, #5, #11 Claim Groups

To accompany report by E. Kruchkowski, E. Ostenso and P.I. Conley, P.Eng. for Hecla Operating Company, October, 1973.

4638-M1

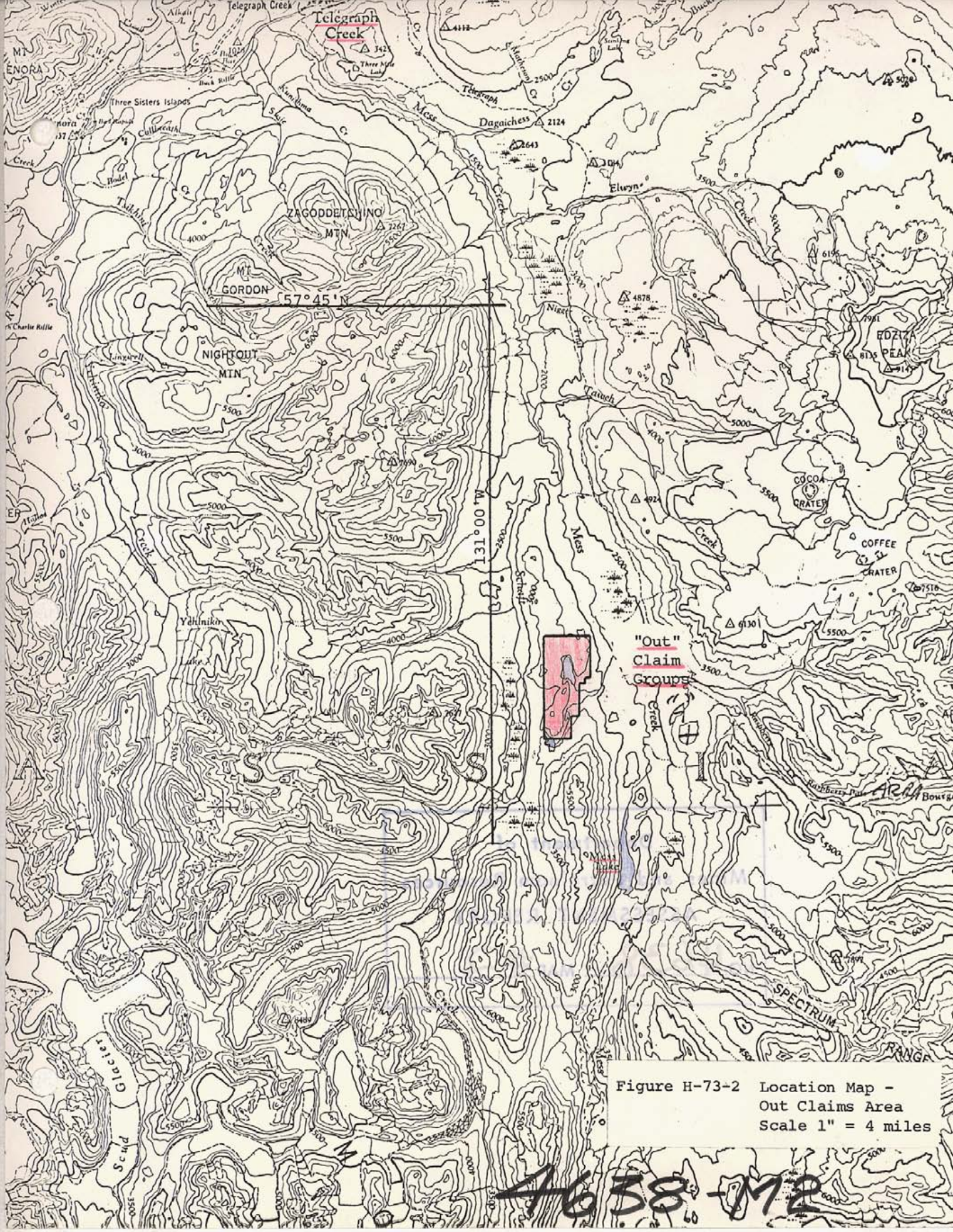

Figure H-73-2 Location Map - Out Claims Area Scale 1" = 4 miles

4688-M2

Highest elevations in the area mapped are about 3300' with relief up to about 300'. Two miles south of the claims the ridge between Mess Lake and "Skeeter Lake" valley rises to over 6000' elevation. Knolls and hills are gently rounded whereas the lower areas are generally flat and swampy.

The area lies east of the heavy precipitation zone of the Coast Mountains immediately in the rain shadow zone. Summers are warm and the winters are cold with snowfall to about 5 ft. Forest cover varies from mixed hemlock and spruce forests to jackpine and poplar stands. Alders and willow bushes dominate in swampy areas.

III CLAIMS AND WORK PERFORMED

Claims of the Out #1, #5 and #11 claim groups discussed in this report are listed in Appendix A and are illustrated in figure H-73-3. The claims in these groups include forty-four In claims, staked in 1971, and forty-four Out claims, staked in 1972.

Upon completion of initial claim staking in 1971, work commenced on the establishment of a grid of blazed and picketed lines to form a base for routine follow-up work. The grid and the technical work were continued during 1972 and 1973.

The main baseline was cut on bearing 355° and cross lines were cut from it at either 500' or 1000' intervals on bearings 085° and 265°. Parts of the claims included in the Out #1 claim group were surveyed by induced polarization techniques during the 1972 season.

To supplement previously cut grid lines and to extend the grid to the "Out" claims, approximately 92,500' of lines were cut during June, 1973: 46,400' on claims of Out #5 group and 46,100' on claims of Out #11 group. In addition, approximately seven miles of lines originally cut and picketed during 1971, were partially re-cut and re-picketed.

Using the cut grid for control, the eighty-eight claims included in the three claim groups were geologically mapped. Data was plotted on a geological plan at scale 1" to 400' (H-73-4). Some geological data from the 1971 work was incorporated into this map in order to supplement more recent mapping.

B-horizon soil samples were collected at 200' intervals on the newly cut lines (Out #5 and #11 claim groups) and at 100' intervals in some portions of the Out #1 claim group. In a few parts of the latter area, samples were taken at close spacing on compass lines parallel to the main grid lines. 508 soilsamples were analysed for copper, molybdenum and arsenic (figures H-73-7, -8, -9, respectively).

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Newly cut lines on Out #5 and #11 claim groups were surveyed using a McPhar M-700 fluxgate magnetometer.

Field work on the Out #1, #5 and #11 claim groups was done by Ed Kruchkowski and Erik Ostensoe, Geologists, assisted by Ron Rayner. P. I. Conley, P.Eng., Vice President and Manager of Hecla Mining Company of Canada Ltd., supervised the project. Harold Linder, Ph.D., P.Eng., in his capacity as consultant to Hecla, recommended the field program that commenced in 1971. Text of this report was prepared by Erik Ostensoe and Ed Kruchkowski. Maps were drafted by C. L. Cory.

IV REGIONAL GEOLOGY

The regional geological setting of the Mess Creek - Schaft Creek area is discussed by Souther (1, p.10 and 2, p.4). Briefly stated, he places the area in a triangle formed by the south edge of the Stikine Aruch, 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 (2, p.9) as latest Triassic to earliest Jurassic age. Sutherland Brown (3,p.49) gives it a Triassic age. Souther and Armstrong (4, p.172) illustrate a number of north-striking faults along the northwest rim of Bowser Basin. The following comment by Souther (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 post Early Tertiary time but in general escaped burial by volcanic flows of the Spectrum Range and Mt. Edziza Tertiary and recent volcanic events.

....4

1) Souther J.G. (1971-1) Geology and Mineral Deposits of Tulsequah Map Area, B.C., G.S.C. Ottawa, Memoir 362

2) (1971-2) Telegraph Creek Map Area, B.C., G.S.C. Ottawa, Preliminary Manuscript

3) Sutherland Brown, A. (1970) G.E.M., B.C. Dept. of Mines, Victoria

4) Souther, J.G. and Armstrong, J.E. (1966) North Central Belt of the Cordillera of B.C., in CIMM Special Volume 8.

V GEOLOGY OF OUT #1, #5 and #11 CLAIM GROUPS

a) Introduction

The geology of claims of the Out claim groups (Figure H-73-4) was determined by field mapping along grid lines and supplemented by systematic traverses of the areas between lines. An attempt was made to check all outcrops that could be found. A photo-mosaic plan was compiled by McElhanney Engineering Ltd. on scale of 1" = 1000' was used to help maintain field position.

The main rock types in the "Johnnie Lake" area are intrusive rocks of the Hickman Batholith and various andesitic rocks. Re-crystallized limestone occurs east of the lake and dacite flows, dykes or sills are present in the eastern parts of the claim group. Augite porphyry basalt occurs along the southwestern edge of "Johnnie Lake".

Feldspathization, varying in intensity from weak to strong, is a common alteration effect along the western edge of the claim groups. Epidotization and chloritization are also commonly noted. Specularite is locally abundant, generally in andesitic rocks. Minor amounts of pyrite and chalcopyrite have been found at various places on the claims. Trace amounts of galena and sphalerite were recognized in augite porphyry basalt. Shearing, jointing and foliation were noted in most of the outcrops that were mapped.

Outcrops are commonly glacially polished and rock exposures vary from large areas of total outcrop to very small scattered occurrences.

b) Intrusive Rocks

The main intrusive rocks present in the Out #1, #5 and #11 claim groups are related to the eastern limits of the Hickman Batholith. This Batholith occupies several hundred square miles in the area west of Schaft Creek. In the "Johnnie Lake" area, the granitic rocks are at the fringes of the main body or are outliers along the intrusive into volcanic rocks immediately east of the main body. A typical Hickman-type granitic rock in the area east of the lake is pink or reddish coloured granite or quartz monzonite that is coarse grained, weakly foliated and cut by a few fractures that are filled with quartz, calcite, chlorite or epidote. Mafic minerals comprise up to 15% of the rock and are mostly hornblende or biotite. They are frequently thoroughly chloritized. West of the lake the granitic rocks range in colour from grey to red. A strong foliation, generally striking about 310°, is usually present.

Andesite and granitic rocks are intimately mixed in many parts of the Out claims area. The extent of assimilation contamination and granitization along the contacts between these rock types varies greatly.

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Quartz and calcite veins are present in the granitic rocks and throughout the area. Specularite and chalcopyrite are frequently found in the quartz and mixed quartz calcite veins.

c) Andesite

Andesite and its altered equivalents are the most abundant rocks present in the Out claims area. It is possible to distinguish two varieties of andesite in the field: crystalline andesite and tuffaceous andesite.

The crystalline andesite is a massive holocrystalline rock that is virtually lacking in internal structures. Porphyritic equivalents are thought to represent intrusive phases of the crystalline andesite.

The tuffaceous andesite is a fragmental unit that may include ash deposits, thinly bedded flows and various waterlain pyroclastic members. The colour varies from light to dark green. Its main occurrence is immediately east of Johnnie Lake where it is strongly sheared, chloritic and somewhat calcareous. It contains small amounts of interbedded limestone, chert and a small number of crystalline andesite flows.

Textures and alteration of the andesite are influenced by the proximity of the outcrops to the Hickman Batholith and related intrusive bodies. A weakly developed feldspathization is pervasive in the area immediately east of "Johnnie Lake". West of the lake, a highly developed feldspathization results in a pink, fine grained rock containing quartz-calcite "eyes" and small hornblende crystals. Epidote is usually associated with jointing, shearing or with dyke emplacement. East of "Johnnie Lake" epidote occurs as rims surrounding blebs of pyrite. Chlorite is present on sheared surfaces in virtually all outcrops of andesite.

Dioritization resulting from invasion by the granite intrusions occurs in many parts of the Out claims. Dioritized andesite is commonly medium grained, weakly foliated and may be strongly xenolithic. Hornblende and coarse minette-type micas are characteristic of this phase. Some pegmatitic dioritized andesite was observed on Line 100N immediately east of Out #20 claim.

d) Basaltic Rocks

A rock tentatively identified as augite porphyry basalt occurs over a large area immediately west of Johnnie Lake. It is a heterogeneous unit, varying in colour from light to dark grey to almost black in some outcrops, with mafic phenocrysts, up to 15mm in length, in a fine to medium grained weakly chloritized crystalline matrix. Secondary biotite has been developed from augite(?) crystals. The unit is magnetic and some outcrops contain as much as 3% pyrite. Traces of galena and sphalerite were noted in calcite veinlets in pyrite rich outcrops. Thin bands of chalcopyrite occur erratically within the sheared portions of the unit.

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On the basis of its general appearance and apparent composition the basaltic unit has been tentatively correlated with the augite porphyry basalt unit recognized elsewhere in the Schaft Creek - Mess Creek area. A coarse grained diabasic dyke mapped on Out #24 claim and a basaltic dyke containing rounded "eyes" of calcite and zeolites mapped on In #85 claim appear to be typical of late basic intrusions found in the vicinity of granitic bodies.

e) Limestone

An ivory-white to grey-white coarsely crystalline limestone outcrops in the area immediately northeast of the north end of Johnnie Lake. This unit weathers to a distinctive blue-grey colour. Its total thickness is approximately 100' but individual bands vary from a few inches to a few feet in width. The limestone is interbedded with and overlies tuffaceous andesite and inclusions of very thinly bedded tuffaceous material are common. Lenses of chert are also present within the unit.

The limestone has been strongly deformed by plastic flowage in response to regional and local deformation. Coarse grained pink and white stringers of granite, ranging in width from 1" to 4' are abundant in the andesite close to the limestone occurrences. The granitic stringers do not invade the limestone.

Bedding attitudes recorded in the limestone unit are very erratic in response to the deformation but an overall northwesterly strike prevails. Dips aregenerally steep to the northeast.

f) Dacite

A multi-coloured dense, highly siliceous dacitic unit was mapped east of Johnnie Lake, particularly on Out #44 and #46 claims. This rock type is known to be abundant in the area southeast of the Out claim groups. Several of the Hecla geologists have worked with this unit in the last three years and have had difficulty with it. Textures and colours vary from outcrop to outcrop and its equivalent rocks have been described as rhyolites on occasion.

A cherty phase of the dacite has a distinct banding and dark rounded blebs of quartz in a shattered matrix. A porphyritic phase with rounded to subhedral "glassy" phenocrysts of quartz, up to 1/4" in diameter is more abundant. Both types of dacite contain cubic pyrite grains. Specularite is occasionally present.

g) Structural Geology

Structural features of the Out claims area have not been thoroughly analyzed. North and northwesterly trends dominate the area but quartz veins in the Out #1 group portion of the area exhibit a northeasterly orientation and a secondary northwesterly orientation. These directions reflect the main directions of shearing in that part of the area.

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On the basis of topographic features one might be tempted to propose a complex pattern of block faulting in the general "Johnnie Lake" area. The authors, however, have found no evidence of such block faulting in the course of their mapping.

VI MAGNETIC SURVEY

All newly cut lines on the Out #5 and #11 claim groups were surveyed during July, 1973, using a McPhar Model M-700 Fluxgate Magnetometer. Ron Rayner was the operator.

The magnetometer survey was carried out in usual fashion, including a procedure of looped traverses whereby magnetic observations were repeated at certain points on the grid on a daily or a more frequent basis. In addition a base station was established at the campsite on Out #15 claim. The base station was checked each morning and each evening. We were unable to obtain satisfactory and consistent check readings.

We have been unable to explain the inconsistencies of the magnetic survey and consequently have been unable to make use of the data obtained. The errors may be attributed to one or more of the following factors:

a) Malfunction of the magnetometer.

b) Rapid and erratic variation of the intensity of the earth's magnetic field in the general Stikine area during the month of July.

c) Improper procedures in operating the magnetometer.

VII GEOCHEMICAL SOIL SURVEY

a) Introduction

Where soil conditions permitted, soil samples were taken at 200' intervals on all newly cut grid lines on Out #5 and #11 claim groups. A total of 418 soil samples was collected from these groups. On the Out #1 group claims a program of re-sampling and more detailed sampling was carried out, with a total of 90 samples collected. All soil samples were analyzed for copper, molybdenum and arsenic contents (Appendix B).

Soil conditions in the Out #1, #5 and #11 group claims are variable as a result of

1) drainage

2) different soil types
   a) residual
   b) glacial till
   c) alluvium
   d) swamp.

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Swamps were not sampled. The B soil horizon is usually darkest red at the top and becomes lighter red at depth. Gritty textures are attributed to metallic salts in the soil but may also in part result from presence of partly weathered volcanic ash. The C soil horizon is distinctively yellow-grey in color and thus was easily eliminated from the soil samples.

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" below surface. A few ounces of B horizon soil was placed in a numbered kraft envelope which was shipped to Chemex Labs Ltd., North Vancouver, B. C. for analyses. Chemex Labs Ltd. employed standard techiques of geochemical analysis using the atomic absorption method for copper and molybdenum, and a colorimetric method for arsenic. Quality control in the laboratory was ensured by frequent reference to known standard solutions 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 230°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) pH of Soils

A LaMotte-Morgan soil testing set was used to determine the pH of soil samples taken. Preliminary testing of the soil using a Duplex Indicator gave an approximate pH of the soil. A more sensitive short range indicator was then used to achieve a more precise pH value. The error factor involved was plus or minus 0.2 pH.

pH values obtained varied from 4.6 to 7.2 (Appendix C). Values have varied from sample site to sample site without any readily apparent pattern. The pH values did not delineate zones of known sulphides. In an area of approximately 3% pyrite, pH values ranged from 4.8 to 5.6 but similar values were also detected in areas that were apparently completely barren of sulphide minerals.

The pH of the water in "Long Lake" is 7.2, a value somewhat higher than might have been expected in view of acid soil conditions in the adjacent areas.

c) Treatment of Geochemical Data

A popular and unsophisitcated treatment of geochemical soil data, designed to define "important" or anomalous samples among a much larger number of "unimportant" or average samples, is based on detecting samples that deviate from a normal distribution of a metal or metals in the soil. Provided that sufficient samples have been included in the data, normal distributions will plot as a straight

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line on a cumulative percent (or arithmetic probability) graph. Where abnormal amounts of a metal are present the mixed or multiple population will be indicated by departure from the straight line. Commonly, the lower portion of the graph will be straight, indicating a normal background distribution, but the upper portion will flatten, reflecting the number of higher than normal background values.

Background or the population mean is defined as the 50th percentile. The upper limit of normal background or threshold is defined as the 97.5 percentile, or that value that is exceeded by 2-1/2% of the total number of samples.

d) Copper

The cumulative frequency plot (figure H-73-5) of ppm copper in soils values from 1839 samples from the Out #1, #5 and #11 claim groups and adjacent areas indicates background value of 15ppm and threshold value of 23ppm. These values compare reasonably well with background and threshold values for copper in soil in areas both to the north and south of the subject area but are relatively low when compared to other areas of predominately andesitic rocks in British Columbia. This may be a result of prevailing acid soil conditions or possibly to dilution by glacially derived materials. The possible effect of volcanic eruptions in the Mt. Edziza and Spectrum ranges immediately to the east of the Out claims area should also be considered. Copper in soils values are plotted on Figure H-73-7 and have been contoured with an arithmetic interval of 40ppm.

Soil geochemistry failed to reflect copper mineralization that was located by reconnaissance mapping on Out #24 and Out #26 claims. West of "Johnnie Lake" sparce chalcopyrite mineralization associated with shearing and quartz-carbonate veinlets in augite porphyry basalt is delineated by an anomaly approximately 5000' in length and 1000' maximum width. Highest copper in soils obtained in this area is 300ppm. A broad area of anomalous copper in soils values extends southwesterly from the south end of Johnnie Lake for a distance of approximately 6000'. A north trending 600' wide zone of low copper values bisects the anomalous area. Elsewhere in the Out #1, #5 and #11 claim groups area, numerous small and low intensity anomalies have been indicated.

e) Molybdenum

Molybdenum values in soils vary very little in the subject area. No cumulative frequency plot was made due to variation in background values of from less than 1ppm to 2ppm. Contouring of 6ppm molybdenum in soils (Figure H-73-8) indicates a narrow anomalous zone, extending from Line 5S (Out #1 claim group) to Line 40N (Out #5 claim group), wherein soils anomalous in molybdenum were indicated by the soil sampling procedures.

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Figure H-73-5. Cumulative Frequency Plot - ppm Copper in Soils

Out Claims and nearby areas - 1839 samples

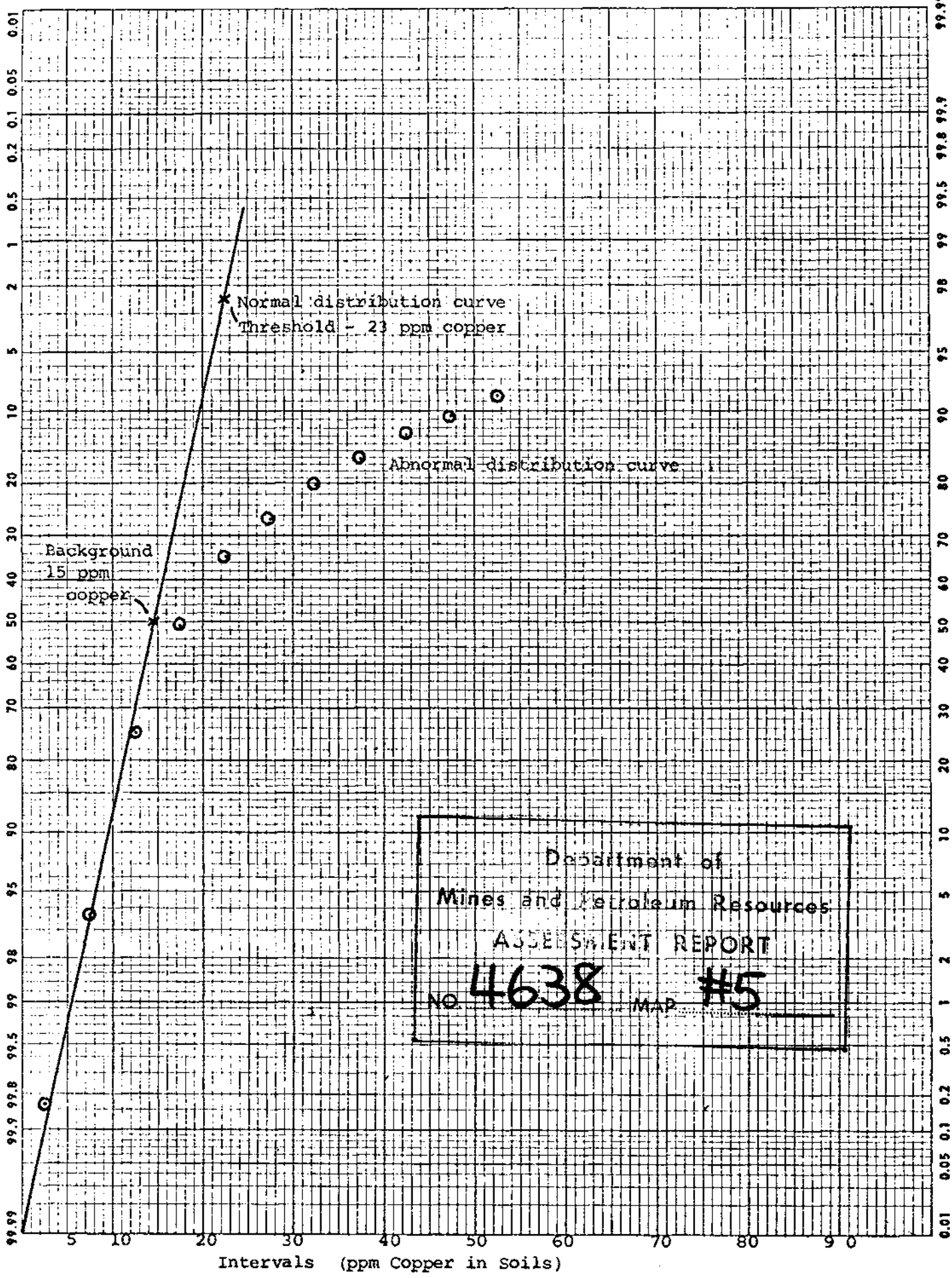

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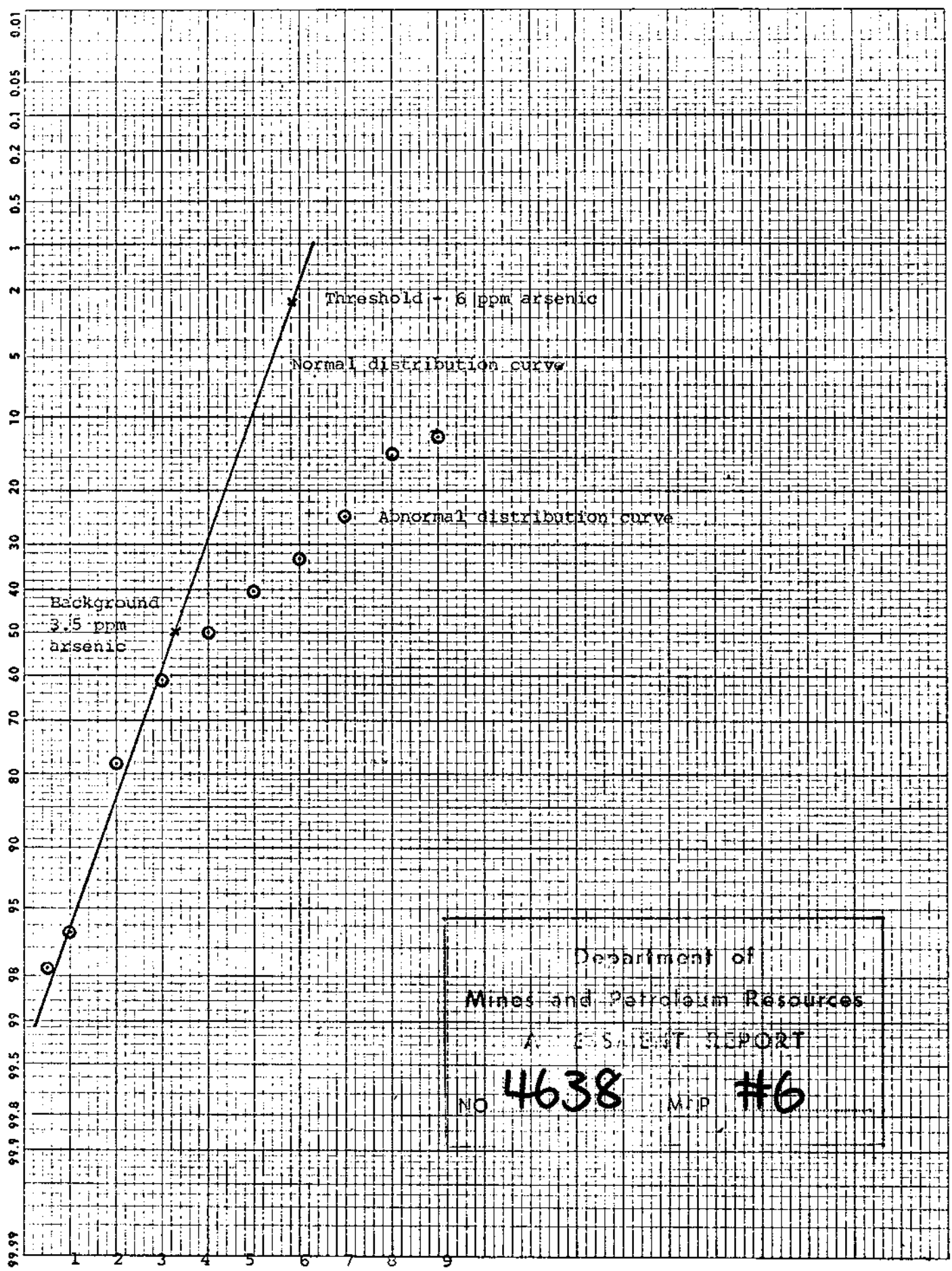
Figure H-73- 6 . Cumulative Frequency Plot - ppm Arsenic in Soils
Out claims and nearby areas - 1346 samples



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f) Arsenic

The cumulative frequency plot (figure H-73-6) of ppm arsenic in soils from 1346 samples from the Out #1, #5 and #11 glaim groups and adjacent areas indicates background value of 3.5ppm and threshold value of 6ppm. Analysis for arsenic was premised on the belief that that element, being somewhat active and relatively volatile, might serve as a guide to hydrothermal activity and thus would provide useful information in those parts of the Out claims area where outcrops are scarce.

Southwest of Johnnie Lake the arsenic pattern (figure H-73-9) coincides closely with that of outcrop distribution and coincidentally with known copper occurrences, but east of Johnnie Lake no such relationship is apparent. Further study is required prior to drawing conclusions regarding the usefulness of arsenic as an indicator element.

VIII DISCUSSION OF RESULTS OF 1973 FIELD WORK

The loss of the Magnetometer Survey information is not considered to be a serious loss. Partial magnetic data was already available as a result of work in the area in 1971. The following brief discussion of the Out #1, #5 and #11 claim groups area is a preliminary assessment of results obtained to date.

As a result of field studies, including geological mapping, prospecting and geochemical soil surveys, the area lying immediately to the west and southwest of "Johnnie Lake" is shown to be of continuing interest. Altered andesite and augite porphyry basalt are geologically favourable host rocks. The contact between these volcanic rocks and the granitic - quartz monzonitic members of the Hickman Batholith can be projected from available data. As shown on the geological map, minor copper mineralization has been found over a large part of the area. It is normally found in quartz and quartz-carbonate veins, often with small amounts of barite.

Patterns of copper in soils do not suggest the presence of significant areas of copper mineralization other than those already found by prospecting and geological mapping. Those parts of Out #5 and #11 claim groups lying east of Johnnie Lake are, however, shown to have little potential. Molybdenum is present in the area in very minor quantities. Arsenic may be a guide to hydrothermal acitivity but its failure to provide much useful information in the area immediately west of "Amoeba Lake" where copper in outcrop and soils is anomalous, tends to discredit its usefulness as an indicator element.

APPENDIX A

Claim Groups

APPENDIX A (1) Out #1 Claim Group

Name of Claim	Record Number
Out #1	68258
2	68259
3	68260
4	68261
33	68290
35	68292
In 5	52154
7	52156
8	52157
9	68249
10	68250
11	53193
12	53194
27	52158
28	52159
29	52160
30	52161
31	52162
32	52163
33	52164
34	52165
35	52166
36	52167
37	52168
38	52169
57	52188
58	52189
59	52190
60	52191
61	52192
62	52193
63	52194
64	52195

APPENDIX A (2) Out #5 Claim Group

Name of Claim	Record Number
Out #5	68262
6	68263
7	68264
8	68265
9	68266
10	68267
27	68284
28	68285
29	68286
30	68287
31	68288
32	68289
47	68304
48	68305
49	68306
50	68307
In 154	53304
156	53306
158	53308
173	52228
174	52229
175	52230
177	52232

APPENDIX A (3) Out #11 Claim Group

Name of Claim	Record Number
Out #11	68268
12	68269
13	68270
14	68271
15	68272
16	68273
17	68274
18	68275
19	68276
20	68277
21	68278
22	68279
23	68280
24	68281
25	68282
26	68283
40	68297
41	68298
42	68299
44	68301
45	68302
46	68303
In #160	53262
179	52234
181	52236
183	52238
185	52240
188	52243
199	52254
201	52256
203	52258
205	52260

APPENDIX B

Geochemical Soil Analyses

CHEMEX LABS LTD.

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

• CHEMISTS • GEOCHEMISTS • ANALYSTS • ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 18703
INVOICE NO. 7799
DATE RECEIVED Aug. 10/72
DATE ANALYSED Aug. 14/72

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
10S	13E	30	4
	14	472	11
	15	70	4
	17	33	3
	18	100	4
10S	19E	44	3
15S	11E	154	4
	12	96	3
	13	68	4
	15	18	3
	16	18	2
	17	28	2
	19	22	4
	20	26	2
	21	108	2
	23	102	2
	24	38	5
	25	51	2
15S	27E	64	3
20S	9E	231	2
	11	58	2
	12	58	3
	13	42	2
	15	62	1
	16	126	4
	17	74	2
	19	128	1
	20	50	2
20S	21E	41	2
25S	9E	24	1
	10	50	1
	11	42	2
	13	80	2
	14	40	1
	15	40	2
	17	36	2
	18	50	1
25S	19E	56	< 1
30S	BL00	31	1
30S	1E	18	< 1
Std. #24		56	16

CTA MEMBER CANADIAN TESTING ASSOCIATION

Certified by .....

CHEMEX LABS LTD.

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

• CHEMISTS • GEOCHEMISTS • ANALYSTS • ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 18704
INVOICE NO. 7799
DATE RECEIVED August 10/72
DATE ANALYSED August 14/72

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

ATTN:

SAMPLE NO.:	PPM Copper	PPM Molybdenum
30S 3E	22	2
4	28	2
5	26	1
9	34	2
10	56	3
11	92	1
12	114	1
13	92	1
14	34	1
30S 15E	16	1
30S 1W	28	1
3	64	3
4	18	2
30S 5W	16	2 2
35S BL00	40	6 5
35S 1E	48	3 2
3	58	3
4	80	1
5	28	2
7	21	2
8	12	2
9	10	1
11	48	1
12	63	1
35S 13E	106	2
35S 1W	94	3
4	16	3
35S 5W	13	2
40S 1E	52	2 2
2	13	1
3	20	1
5	28	2
6	12	2
7	18	1
9	13	1
10	138	1
11	22	1
40S 13E	26	< 1
40S 1W	24	2
40S 2W	70	8
Std.	56	16

CTA MEMBER CANADIAN TESTING ASSOCIATION

Certified by P. B. Woodley

CHEMEX LABS LTD.

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

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 18705
INVOICE NO. 7799
DATE RECEIVED Aug. 10/72
DATE ANALYSED Aug. 14/72

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
40S	3W	118	12
	5	24	3
	6	18	3
40S	7W	18	4
45S	1E	28	3
	3W	44	1
	13W	64	2
45S	14W	28	2
45S	1W	96	2
	2	68	2
	5	63	3
	6	28	5
	7	66	3
	9	189	3
45S	10W	220	1
50S	1E	66	2
	2	84	< 1
	3	63	1
50S	5E	154	2
50S	1W	31	2
	2	26	2
	3	38	2
	5	51	2
	6	155	2
	7	18	3
	9	325	3
	10	90	3
50S	11W	231	3
51S	9W	86	4
	10	1240	3
51S	11W	366	5
55S	1E	44	3
55S	3E	110	2
55S	4E	680	2
	5	28	6
55S	7E	13	3
55S	1W	70	2
	1+50	239	2
	2	22	3
	3	18	2
55S	5W	52	2
Std.	#24	56	16

CTA MEMBER CANADIAN TESTING ASSOCIATION

Certified by P. J. Woodley

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

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 18706

INVOICE NO. 7799

DATE RECEIVED Aug. 10/72

DATE ANALYSED Aug. 14/72

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
55S 6W	94	3
7	41	2
55S 9W	21	3
50+50S 1W	48	2
9	316	5
10	86	3
50+50S 11W	106	7
56S BLOO	206	2
56S 1W	325	2
60S 4E	34	2
5	20	3
6	104	2
7	13	2
60S 8E	20	3

CTA MEMBER CANADIAN TESTING ASSOCIATION

Certified by P. Woodley

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NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

CHEMEX LABS LTD.

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 24942

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

INVOICE NO. 9569

RECEIVED July 4/73

ANALYSED July 10/73

ATTN:

SAMPLE NO. :		PPM Copper	PPM Molybdenum	PPM Arsenic
10N	BL	20	1	8
	2E	25	2	5
	4	18	1	8
	6	148	< 1	8
	8	30	2	5
	10	20	< 1	5
	12	17	3	8
	14	27	2	3
	16	22	1	8
	18	33	2	8
	24	23	2	8
	26	25	1	3
	42	20	1	2
	44	31	1	< 1
	46	20	1	4
	48	21	1	2
	50	29	2	8
	52	22	1	< 1
	54	54	1	5
	56	29	2	6
	58	74	2	3
	60	26	2	4
	62	12	2	4
	64	15	1	3
	66	21	3	4
	68	37	1	8
	70	17	1	4
	72	10	2	3
	74	20	2	3
	76	16	2	2
	78	19	2	6
	80	16	2	2
	82	12	1	4
	84	20	1	3
	86	30	5	3
	88	40	< 1	8
	90	20	< 1	9
	92	36	1	8
	10N 94E	21	1	8
	20N 0E	44	10	2
	Std.	45	26	8

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY:

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 24943

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

INVOICE NO. 9569

RECEIVED July 4/73

ATTN:

ANALYSED July 10/73

SAMPLE NO. :		PPM Copper	PPM Molybdenum	PPM Arsenic
20N	2E	300	4	8
	4	77	1	6
	6	23	1	4
	8	29	2	5
	10	262	1	8
	12	26	2	8
	14	26	< 1	8
	16	27	4	6
	18	22	5	10
	40	50	1	8
	42	20	2	4
	44	20	1	8
	46	47	3	8
	48	42	1	< 1
	50	138	3	5
	52	103	1	2
	54	56	1	4
	56	25	2	5
	58	32	1	8
	60	35	3	3
	62	13	1	6
	64	12	< 1	6
	66	79	1	8
	68	14	1	8
	70	13	1	4
	72	45	1	6
	74	16	1	5
	76	12	1	2
	78	17	2	6
	84	13	< 1	8
	86	24	1	8
	88	24	< 1	9
	90	18	1	8
	92	16	1	4
	94	25	1	8
	96	26	5	6
20N	98E	19	4	5
30N	2E	41	1	4
	4	89	2	4
30N	6E	71	1	8
Std.		45	26	8

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Ken Thompson

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NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 24944

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

INVOICE NO. 9569

RECEIVED July 4/73

ATTN:

ANALYSED July 10/73

SAMPLE NO. :	PPM Copper	PPM Molybdenum	PPM Arsenic
30N 8E	20	2	8
10	133	1	8
12	32	3	6
14	29	1	13
16	37	2	8
18	40	1	9
38	15	3	8
40	13	< 1	8
42	14	1	4
44	18	1	8
46	13	1	6
48	29	2	9
52	26	1	6
54	26	1	5
56	15	< 1	6
58	16	1	4
60	28	2	8
62	16	< 1	4
64	15	1	8
66	14	1	8
68	13	< 1	8
70	16	1	8
72	15	2	4
74	20	2	6
78	16	1	4
80	20	2	5
82	16	1	6
84	22	2	8
86	24	3	5
88	20	1	8
90	20	1	6
92	29	1	6
94	2	< 1	3
96	19	1	7
98	38	1	9
30N 100E	31	1	7
40N 2E	16	2	7
4	14	3	4
6	56	1	8
40N 14E	30	4	8
Std.	47	25	8

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: G. Thompson

CHEMEX LABS LTD.

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CANADA
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AREA CODE: 604

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 24945
INVOICE NO. 9569
RECEIVED July 4/73
ANALYSED July 10/73

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

ATTN:

SAMPLE NO. :		PPM Copper	PPM Molybdenum	PPM Arsenic
40N	16E	20	2	6
	20	51	3	8
	34	No sample		
	36	11	1	6
	38	16	3	< 1
	40	70	4	6
	42	14	1	3
	44	21	1	4
	46	22	2	3
	48	26	1	6
	50	18	3	4
	52	18	1	4
	54	15	2	5
	56	27	3	2
	58	48	1	8
	60	16	< 1	2
	62	48	2	6
	64	32	2	9
	66	94	4	3
	68	68	2	4
	70	72	5	3
	72	15	3	3
	74	14	2	4
	76	58	2	2
	78	No sample		
	80	No sample		
	82	16	1	2
	84	21	1	5
	86	22	1	9
	88	18	2	8
	94	15	1	< 1
	96	24	2	6
40N	98E	35	1	8
45N	4E	77	2	6
	6	18	1	6
	8	30	1	6
	10	20	1	6
	12A	14	2	7
	12B	36	1	7
45N	14E	24	4	7
Std.		45	26	8

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY:

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NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 24946

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

INVOICE NO. 9569

RECEIVED July 4/73

ATTN:

ANALYSED July 10/73

SAMPLE NO. :	PPM Copper	PPM Molybdenum	PPM Arsenic
45N 18E	42	7	7
20	15	4	3
22	29	4	3
34	17	3	6
36	26	1	2
38	15	3	< 1
40	13	2	6
42	10	2	6
44	25	3	6
46	42	2	7
48	20	3	2
50	68	3	6
52	16	2	6
56	21	1	< 1
58	20	1	4
60	71	3	10
62	48	1	9
64	23	6	6
66	23	1	5
68	16	2	7
70	18	4	< 1
72	14	2	2
74	68	2	9
76	24	3	8
80E	21	3	10
4W	12	2	8
8	18	4	6
10	28	2	7
14	24	3	8
16	18	4	6
18	48	1	6
26	19	2	< 1
28	16	2	< 1
45N 30W	24	1	< 1
50N BLOO	38	2	8
2E	20	1	4
4	88	8	7
6	19	1	3
8	21	1	3
50N 10E	17	1	< 1
Std.	45	25	8

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY:

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 24947

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

INVOICE NO. 9569

RECEIVED July 4/73

ANALYSED July 10/73

ATTN:

SAMPLE NO. :	PPM Copper	PPM Molybdenum	PPM Arsenic
50N 12E	17	4	4
14	22	1	2
16	19	2	3
18	24	2	7
20	52	2	5
22	24	2	7
24	15	1	6
36	13	1	5
38	20	1	< 1
40	23	3	7
42	14	3	5
44	17	1	6
46	21	2	4
48	16	3	3
50	21	2	2
52	14	3	3
54	24	2	4
56	17	3	3
58	22	2	2
60	54	4	5
62	26	2	4
64	15	2	5
66	14	2	8
68	14	1	4
70	27	5	4
74	17	5	3
78	19	2	3
80	12	5	4
84	13	2	5
86	17	2	8
88	13	1	5
90	20	3	5
92	27	1	7
50N 94E	25	1	4
55N BL	30	3	< 1
55N 2E	27	3	4
4	21	3	5
6	22	2	3
8	23	2	3
55N 10E	74	2	7
Std.	46	26	8

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY:

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 24948

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

INVOICE NO. 9569

RECEIVED July 4/73

ATTN:

ANALYSED July 10/73

SAMPLE NO. :	PPM Copper	PPM Molybdenum	PPM Arsenic
55N 12E	39	3	4
14	42	2	4
16	42	8	4
18	40	4	7
20	27	4	4
22	63	2	7
34	17	1	3
36	21	1	3
38	24	4	5
40	18	4	8
55N 42E	14	2	8
55N 44N	22	2	2
55N 46E	17	2	5
48	28	3	4
50	16	2	7
52	16	4	7
54	4	1	5
56	28	3	4
58	34	1	6
60	19	1	5
62	36	2	5
64	38	3	8
66	53	3	< 1
68	104	2	8
70	34	5	4
72	28	4	4
74	50	3	3
76	68	3	3
78	15	1	< 1
55N 80E	27	3	8
55N 2W	28	2	4
4	96	1	5
6	23	2	5
8	19	1	3
10	23	1	7
12	19	1	2
14	36	2	6
16	30	1	3
18	49	1	5
55N 20W	19	1	4
Std.	46	25	3

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Stan Bodnar

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 24949

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

INVOICE NO. 9569
RECEIVED July 4/73
ANALYSED July 10/73

SAMPLE NO. :		PPM Copper	PPM Molybdenum	PPM Arsenic
55N	22W	16	1	3
	24	12	2	< 1
	26	17	2	2
	28	18	3	5
55N	30W	12	2	4
70N	BL00	38	1	5
70N	2E	13	1	5
	4	16	1	3
	8	24	2	8
	10	16	3	2
	12	12	2	3
	14	21	3	18
	16	14	1	6
	18	18	2	7
	20	17	1	6
	22	22	2	4
	28	14	2	3
	30	18	1	7
	32	14	1	7
	34	10	2	< 1
	36	20	3	< 1
	38	12	3	< 1
	40	34	1	5
	42	25	3	7
	44	15	3	5
	46	11	1	3
	48	10	2	< 1
	50	23	3	3
	52	19	3	3
	54	10	8	7
	56	13	2	8
	58	14	2	8
	60	16	2	8
	62	25	2	4
	64	17	2	< 1
	66	38	2	< 1
	68	14	5	< 1
	70	18	4	< 1
	72	14	8	5
70N	76E	19	7	7
Std.		46	26	8

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Ken Ammini

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 24950

INVOICE NO. 9569

RECEIVED July 4/73

ANALYSED July 10/73

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

ATTN:

SAMPLE NO. :	PPM Copper	PPM Molybdenum	PPM Arsenic
70N 78 E	24✓	7✓	3✓
80	31✓	2✓	3✓
82	78✓	3✓	4✓
84	101✓	1✓	5✓
70N 86E	25✓	1✓	7✓

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Elsie Sandberg

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 25285

TO: Hecla Mining Co. Of Can. Ltd.,
#2009 - 1177 W. Hastings St.,
Vancouver, BC

INVOICE NO. 9752

RECEIVED July 19/73

ATTN:

ANALYSED July 25/73

SAMPLE NO. :	PPM Copper	PPM Molybdenum	PPM Arsenic
L90N BL 00	16	2	4
L90N 2E	14	3	7
4	26	2	4
6	21	2	3
8	120	1	6
10	16	2	8
11	26	2	9
16	34	< 1	8
18	38	2	10
20	13	1	4
22	20	< 1	9
24	22	2	15
28	16	2	6
30	28	< 1	5
38	21	2	4
40	18	2	9
42	18	1	9
44	20	1	4
46	21	2	10
48	18	3	2
50	18	3	3
52A	22	3	3
52B	16	2	3
56	42	3	2
58	30	< 1	3
60	26	2	6
62	20	1	8
64	18	< 1	4
66	44	3	4
68	66	1	2
L90N 70E	22	< 1	3
L100N BL 00	30	1	2
L100N 2E	22	3	9
4	13	< 1	5
6	16	< 1	5
8	20	1	7
10	14	< 1	3
12	22	< 1	4
14	78	1	10
L100N 19E	22	< 1	6
Std.	44	26	9

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: B. E. Swaine

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

CHEMEX LABS LTD.

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 25286

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

INVOICE NO. 9752

RECEIVED July 19/73

ATTN:

ANALYSED July 25/73

SAMPLE NO. :	PPM Copper		PPM Molybdenum	PPM Arsenic
L100N 20E	21	<	1	10
22	31		1	5
24	13		1	10
26	14	<	1	3
28	21		1	2
30	13		2	6
32	22		1	8
34	20		1	7
36	21		2	6
38	14		1	7
40	14		2	4
42	12		1	5
44	12		1	4
46	10	<	1	4
48	16		1	9
50	28		2	10
54	13		2	2
56	22		1	5
58	18		1	7
L100N 60E	20		1	8
Std.	44		27	12

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: B. Kwarte

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NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 25304

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

INVOICE NO. 9753

RECEIVED July 21/73

ANALYSED July225/73

ATTN:

SAMPLE NO. :	PPM Copper	PPM Molybdenum	PPM Arsenic
0 30E	24	2	8
32	23	1	18
38	15	4	6
42	32	6	10
44	17	1	3
46	15	< 1	1
48	21	< 1	3
50	28	< 1	2
52	30	1	2
*54	19	< 1	1
58	15	1	6
60	28	1	7
62	19	2	4
64	16	3	7
66	16	1	4
68	18	< 1	4
70	18	1	8
74	18	2	6
76	15	< 1	5
80	45	< 1	6
82	26	2	4
84	21	2	5
86	25	1	10
88	34	2	4
90	21	2	8
0 92E	29	< 1	8
15S 28E	32	4	6
34	15	< 1	4
36	98	< 1	6
38	16	< 1	3
40	20	1	3
46	15	< 1	7
48	15	1	2
50	14	< 1	6
58	16	3	4
15S 60E	22	1	5
60S 9W	44	2	9
11	30	1	4
60S 13W	24	< 1	4
*56	25	< 1	6
Std.	46	26	9

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: B. Swaites

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NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 25305

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

INVOICE NO. 9753

RECEIVED July 21/73

ATTN:

ANALYSED July 25/73

SAMPLE NO. :	PPM Copper	PPM Molybdenum	PPM Arsenic
60S 17W	21	< 1	1
60S 19W	94	1	4
64S 17W	68	< 1	6
18	45	< 1	5
19	35	1	7
64S 20W	25	< 1	3
65S 1W	39	3	7
3	77	3	6
11	25	< 1	6
13	21	1	3
15	36	1	1
17	60	1	6
65S 19W	36	< 1	4
66S 20S W	42	< 1	5
17W	60	1	6
18	22	< 1	5
66S 19W	28	1	7
70S 30E	18	1	5
32	11	4	6
34	11	2	4
36	58	3	5
38	13	2	6
40	13	2	8
42	15	1	6
44	16	4	5
46	14	2	7
48	14	2	8
50	17	3	9
52	12	2	7
54	25	6	4
70S 56E	14	3	6
70S 15W	23	< 1	3
16	74	1	8
17	66	2	6
18	48	1	3
19	56	1	6
70S 21W	22	1	3
75S 1W	18	2	7
3	28	2	11
75S 19W	29	1	2
Std.	45	26	12

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: B. Lewis

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NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648
AREA CODE: 604

CHEMEX LABS LTD.

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 25306

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

INVOICE NO. 9753

RECEIVED July 21/73

ANALYSED July 25/73

ATTN:

SAMPLE NO. :	PPM Copper	PPM Molybdenum	PPM Arsenic
21W	69 ✓	2 ✓	7 ✓
80S 1E	31 ✓	2 ✓	8 ✓
80S 1W	26 ✓	3 ✓	11 ✓
3	82 ✓	2 ✓	62 ✓
5	32 ✓	1 ✓	9 ✓
80S 15W	49 ✓	3 ✓	7 ✓
85S 3W	32 ✓	1 ✓	4 ✓
5	18 ✓	2 ✓	6 ✓
13	164 ✓	4 ✓	6 ✓
85S 15W	42 ✓	1 ✓	3 ✓
Std.	46	26	9

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: B. Turaite

APPENDIX C

Soil pH Determinations

P.H. Results - Johnnie Lake June, 1973

LINE 10 N

B.L.00 - 5.6	58E - 4.8		
2E - 6.2	60 - 5.0		
4 - 6.0	62 - 5.2		
6 - 6.4	64 - 5.4		
8 - 6.0	66 - 5.2		
10 - 6.2	68 - 4.8		
12 - 5.2	70 - 5.4		
14 - 6.0	72 - 5.0		
16 - 6.2	74 - 5.2		
18 - 5.8	76 - 6.2		
LAKE	78 - 4.8		
24E - 5.2	80 - 5.2		
26 - 5.4	82 - 5.2		
LAKE	84 - 5.2		
40E - N.S.	86 - 6.2		
42 - 4.8	88 - 5.0		
44 - 5.0	90 - 5.2		
46 - 4.8	92 - 6.4		
48 - 4.8	94 - 5.0		
50 - 5.0	end		
52 - 5.0			
54 - 4.8			
56 - 4.8			

LINE 20 N

B.L.00 - 5.0	64E - 5.2		
2E - 6.4	66 - 6.8		
4 - 6.2	68 - 5.0		
6 - 6.2	70 - 5.2		
8 - 5.0	72 - 5.0		
10 - 6.2	74 - 5.0		
12 - 5.0	76 - 5.0		
14 - 5.4	78 - 4.8		
16 - 6.2	80 - N.S.		
18 - 6.2	82 - N.S.		
LAKE	84 - 5.0		
40E - 5.0	86 - 6.2		
42 - 4.8	88 - 5.2		
44 - 5.2	90 - 5.0		
46 - 5.0	92 - 5.0		
48 - 4.8	94 - 5.2		
50 - 6.0	96 - 5.4		
52 - 5.0	98 - 5.2		
54 - 4.8	end		
56 - 4.8			
58 - 5.0			
60 - 5.0			
62 - 5.4			

P.H. Results

Line 30N

2E - 6.2
4 - 6.6
6 - 5.2
8 - 4.8
10 - 5.8
12 - 5.0
14 - 5.6
16 - 7.2
18 - 5.4
LAKE
38E - 6.2
40 - 6.2
42 - 5.2
44 - 6.0
46 - 5.2
48 - 5.2
50 - N.S.
52 - 5.0
54 - 5.8
56 - 6.0
58 - 5.2
60 - 6.2
62 - 6.4
64 - 5.0
66E - 6.2
68 - 6.0
70 - 6.4
72 - 5.0
74 - 5.0
76 - N.S.
78 - 4.8
80 - 6.2
82 - 6.2
84 - 4.8
86 - 6.0
88 - 6.4
90 - 5.0
92 - 7.0
94 - 6.0
96 - 4.8
98 - 6.2
100 - 5.0
end

Line 40N

2E - 5.0
4 - 5.0
6 - 6.4
8 - N.S.
10 - N.S.
12 - N.S.
14 - 4.8
16 - 5.8
18 - N.S.
20 - 6.4
LAKE
36E - 6.0
38 - 6.4
40 - 5.0
42 - 5.0
44 - 6.2
46 - 6.2
48 - 6.2
50 - 5.2
52 - 5.2
54 - 4.8
56 - 5.4
58 - 6.2
60 - 5.8

LINE 40N continued

62E - 6.0
64 - 5.2
66 - 5.0
68 - 5.2
70 - 7.0
72 - 6.4
74 - 5.0
76 - 4.6
78 - N.S.
80 - N.S.
82 - 6.4
84 - 6.0
86 - 6.4
88 - 6.2
90 - N.S.
92 - N.S.
94 - 6.0
96 - 5.8
98 - 6.2
100 - N.S.

end

LINE 45N

2W - N.S.
4W - ~~N.S.~~ 6.4
6W - N.S.
8W - 6.0
10W - 5.2
12W - 6.2
14W - 5.2
16W - N.S.
18W - 5.2
20W - N.S.
22W - N.S.
24W - N.S.
26W - 6.0
28W - 4.8
30W - 5.8

end

LAKE
4E - 5.2
6E - 4.8
8E - 5.0
10E - 5.4
12E - 6.2
14E - 4.6
16E - N.S.
18E - 6.6
20E - 6.0
22E - 6.2
LAKE
34E - 5.0
36 - 6.6
38 - 5.2
40 - 5.0
42 - 6.2
44 - 5.2
46 - 6.2
48 - 5.2
50 - 5.0
52 - 5.0
54 - N.S.
56 - 5.0
58 - 5.2
60 - 5.0
62 - 5.4
64 - 5.0
66 - 5.4
68 - 5.2
70 - 5.0

LINE 45N continued

72E - 5.2
74 - 5.2
76 - 5.0
78 - N.S.
80 - 5.4
end

LINE 50N

BL 00 - 6.0
2E - 5.0
4 - 6.0
6 - 6.4
8 - 6.2
10 - 5.2
12 - 5.4
14 - 6.2
16 - 6.0
18 - 6.0
20 - 6.2
22 - 6.0
24 - 5.0
LAKE
36E - 6.0
38 - 4.8
40 - 5.2
42 - 5.0
44 - 5.0
46 - 6.4
48 - 5.0
50 - 5.4
52 - 5.0
54 - 5.0
56E - 5.2
58 - 5.2
60 - 5.2
62 - 5.0
64 - 6.2
66 - 6.0
68 - 6.2
70 - N.S.
72 - 5.2
74 - 5.2
76 - N.S.
78 - 6.2
80 - 5.0
82 - N.S.
84 - 6.0
86 - 5.8
88 - 6.2
90 - 6.2
92 - 5.0
94 - 6.4
~~96~~ end
~~98~~

LINE 55N

32W - 5.0	16E - 5.2	64E - 6.2
4W - 6.2	18 - 6.0	66 - 5.0
6W - 4.8	20 - 6.2	68 - 6.4
8W - 6.0	22 - 4.8	70 - 5.2
10W - 5.2	24 - N.S.	72 - 5.0
12W - 4.8	26 - N.S.	74 - 6.2
14W - 6.2	28 - N.S.	76 - 5.2
16W - 5.6	30 - N.S.	78 - 7.0
18W - 6.4	32 - N.S.	80 - 4.8
20W - 6.2	34 - 6.0	end
22W - 6.6	36 - 4.8	
24W - 6.2	38 - 5.0	
26W - 6.0	40 - 5.2	
28W - 6.2	42 - 4.8	
30W - 6.2	44 - 6.4	
end	46 - 5.2	
B.L.00 - 4.8	48 - 5.0	
2E - 5.8	50 - 4.8	
4 - 5.8	52 - 4.8	
6 - 5.0	54 - 5.0	
8 - 5.0	56 - 4.8	
10 - 5.2	58 - 5.0	
12 - 4.8	60 - 5.2	
14 - 5.2	62 - 5.0	

LINE 70N

BL 00	5.2	48E	4.8
2E	5.0	50	6.0
4	5.0	52	5.0
6	N.S.	54	5.0
8	6.4	56	5.0
10	5.0	58	5.0
12	4.8	60	6.4
14	5.0	62	6.6
16	6.2	64	4.8
18	4.8	66	6.0
20	5.2	68	6.2
22	5.0	70	4.8
24	N.S.	72	5.2
26	N.S.	74	N.S.
28	5.2	76	5.2
30	5.0	78	5.4
32	5.2	80	6.2
34	6.0	82	6.2
36	5.0	84	7.2
38	5.2	86	6.2
40	5.2	end	
42	5.2		
44	4.6		
46	4.8		

LINE 90N

BL.00 - 5.8	48E - 4.8
2E - 5.0	50 - 5.0
4 - 5.0	52 - 5.2
6 - 6.0	54 - N.S.
8 - 6.0	56 - 5.4
10 - 5.2	58 - 5.4
~~12~~ 11 - 4.8	60 - 5.0
14 - N.S.	62 - 5.8
16 - 5.8	64 - 5.2
18 - 6.0	66 - 5.2
20 - 4.6	68 - 5.0
22 - 5.0	70 - 5.2
24 - 5.2	end
26 - N.S.	
28 - 5.4	
30 - 4.8	
32 - N.S.	
34 - N.S	
36 - N.S.	
38 - 5.0	
40 - 6.2	
42 - 5.8	
44 - 5.0	
46 - 6.0	

LINE 100N

BL.00 - 6.0	48E - 6.0
2E - 6.0	50 - 6.2
4 - 4.8	52 - N.S.
6 - 5.0	54 - 5.0
8 - 5.2	56 - 6.0
10 - 4.8	58 - 5.8
12 - 6.0	60 - 4.6
14 - 6.2	end
16 - N.S.	
19 - 6.0	
20 - 5.0	
22 - 4.8	
24 - 6.0	
26 - 5.0	
28 - 5.0	
30 - 6.0	
32 - 5.2	
34 - 4.8	
36 - 5.2	
38 - 6.2	
40 - 5.0	
42 - 5.0	
44 - 5.2	
46 - 6.2	

APPENDIX D

Statements of Costs

APPENDIX D - Statement of Costs
1. Out #1 Claim Group

a) Summary of Costs

Field Costs			
i)	Wages and salaries	$1,574	
ii)	Geochemical Analyses	256	
iii)	Camp Operations and Supplies	350	
iv)	Move in and out	850	
Total field costs			$3,030
Office Costs			
i)	Wages and salaries	381	
ii)	Drafting Services	33	
iii)	Miscellaneous	10	
Total office costs			424
Total costs - Out #1 Claim Group			$3,454

b) Details of Costs

Field Costs

1)	Wages and salaries (22 day month)		
	Ed Kruchkowski, geologist, total of 15 days during July, 1973 15/22 x $800/mo.	$ 545	
	Erik Ostensoe, geologist and exploration supervisor, total of 5 days during June and July, 1973 5/22 x $1650/mo.	375	
	Ron Rayner, field assistant, total of 15 days during July, 1973 15/22 x $575/mo.	392	
	Sub total wages and salaries	1,312	
	Add 20% employee costs and benefits	262	
	Total Wages and salaries		$1,574
2)	Geochemical Analyses		
	90 samples prepared @ $0.20/sample	18	
	90 samples analysed @ $2.65/sample	238	
	Total		256
3)	Camp Operations and Supplies		
	35 man days @ $10/man day		350
4)	Move in and move out		850
Total field costs			$3,030

APPENDIX D - Statement of Costs
1. Out #1 Claim Group (cont'd)

Office Costs		
1) Wages and salaries		
Ed Kruchkowski, geologist, 3 days 3/22 x $800/mo.	$ 109	
Erik Ostensoe, geologist and exploration supervisor, 2 days 2/22 x $1650/mo.	150	
E. Steffens, secretary, 2 days 2/22 x $650	59	
Sub total wages and salaries	318	
Add 20% employee costs and benefits	63	
Total wages and salaries		$ 381
2) Drafting Services - C.L. Cory 6 hours @ $5.50/hr.		33
3) Miscellaneous secretarial and office supplies, ozalid printing, covers		10
Total Office Costs		424
Total Costs - Out #1 Claim Group		$3,454

APPENDIX D - Statement of Costs
2. Out #5 Claim Group

a) Summary of Costs

Field Costs			
i)	Wages and salaries	$1,467	
ii)	Geochemical Analyses	370	
iii)	Camp Operations and Supplies	360	
iv)	Move in and out	1,053	
Total field costs			$3,250
Office Costs			
i)	Wages and salaries	257	
ii)	Drafting services	27	
iii)	Miscellaneous	10	
Total office costs			294
Total costs - Out #5 Claim Group			$3,544

b) Details of Costs

Field Costs

1)	Wages and salaries (22 day month)		
	Ed Kruchkowski, geologist, total of 18 days during June and July 1973		
	18/22 x $800/mo.	$ 655	
	Erik Ostensoe, geologist and exploration supervisor 2 days during July 1973		
	2/22 x $1650/mo.	150	
	Ron Rayner, field assistant, total of 16 days during June and July 1973		
	16/22 x $575/mo.	418	
	Sub total wages and salaries	1,223	
	Add 20% employee costs and benefits	244	
	Total wages and salaries		$1,467
2)	Geochemical Analyses		
	130 samples prepared @ $0.20/sample	26	
	130 samples analysed @ $2.65/sample	344	
	Total		370
3)	Camp Operations and Supplies		
	36 man days @ $10/man day		360
4)	Move in and out - 1/2 cost of "Long Lake" camp		
	1/2 x $2,107		1,053
Total field costs			$3,250

APPENDIX D - Statement of Costs
2. Out #5 Claim Group (cont'd)

Office Costs		
1) Wages and salaries		
Ed Kruchkowski, geologist, 2 days 2/22 x$800/mo.	$ 73	
E. Ostensoe, geologist and exploration supervisor, 1-1/2 days 1.5/22 x $1650/mo	112	
E. Steffens, secretary, 1 day 1/22 x $650/mo.	29	
Sub total wages and salaries	214	
Add 20% employee costs and benefits	43	
Total wages and salaries		$ 257
2) Drafting services - C. L. Cory 5 hours @ $5.50/hr		27
3) Miscellaneous secretarial and office supplies, ozalid printing, covers		10
Total Office Costs		294
Total Costs - Out #5 Claim Group		$3,544

APPENDIX D - Statement of Costs
3. Out #11 Claim Group

a) Summary of Costs

Field Costs			
i)	Wages and salaries	$2,054	
ii)	Geochemical Analyses	470	
iii)	Camp Operations and Supplies	520	
iv)	Move in and out	1,053	
Total field costs			$4,097
Office Costs			
i)	Wages and salaries	211	
ii)	Drafting services	27	
iii)	Miscellaneous	10	
Total office costs			248
Total costs - Out #11 Claim Group			$4,345

b) Details of Costs

Field Costs

1)	Wages and salaries (22 day month)	
	Ed Kruchkowski, geologist, total of 25 days during June and July 1973	
	25/22 x $800/mo	$ 909
	Erik Ostensoe, geologist and exploration supervisor 2 days during June 1973	
	2/22 x $1650/mo.	150
	Ron Rayner, field assistant, total of 25 days during June and July 1973	
	25/22 x $575/mo	653
	Sub total wages and salaries	1,712
	Add 20% employee costs and benefits	342
	Total wages and salaries	$2,054
2)	Geochemical Analyses	
	165 samples prepared @ $0.20/sample	33
	165 samples analysed @ $2.65/sample	437
	Total	470
3)	Camp Operations and Supplies	
	52 man days @ $10/man day	520
4)	Move in and out - 1/2 cost of "Long Lake" camp	
	1/2 x $2,107	1,053
Total field costs		$4,097

APPENDIX D - Statement of Costs
3. Out #11 Claim Group (cont'd)

Office Costs

1)	Wages and salaries		
	Ed Kruchkowski, geologist, 2 days 2/22 x $800/mo	$ 72	
	E. Ostensoe, geologist and exploration supervisor, 1 day 1/22 x $1650/mo	75	
	E. Steffens, secretary, 1 day, 1/22 x $650/mo	29	
	Sub total wages and salaries	176	
	Add 20% employee costs and benefits	35	
	Total wages and salaries		$ 211
2)	Drafting services - C. L. Cory 5 hours @ $5.50/hr		27
3)	Miscellaneous secretarial and office supplies ozalid printing, covers		10
	Total Office Costs		$ 248
Total Costs - Out #11 Claim Group			$4,345

APPENDIX E

Statements of Qualifications

APPENDIX E. Statement of Qualifications

The professional qualifications of technical personnel engaged in the work reported on herein, who are not presently registered with the Association of Professional Engineers in the Province of British Columbia, are detailed below:

1. E. A. Ostensoe, B.Sc. (Hons.), Member: CIMM, Association of Exploration Geochemists; Geologist - completed B.Sc. Honours course at University of British Columbia in 1960 and course requirements of 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 south-eastern 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.

2. Ed Kruchkowski, B.Sc., Geologist - completed B.Sc. course at University of Alberta (Edmonton) in May 1972; in summers of 1969, 1971 and 1972 employed by Hecla Operating Company in Schaft Creek area as coresplitter, soil sampler and geologist respectively. In 1970 employed by consultant and assigned to projects in southeastern British Columbia. Employed by Hecla Operating Company as geologist since May, 1973 and assigned to projects at Mess Creek, B. C. and Bute Inlet, B. C. under the direction of Erik Ostensoe and P. I. Conley, P.Eng.

3. Ron Rayner, field assistant, completed high school and two years at Capilano Community College. Prior to 1973 had four summers experience in mineral exploration field work in British Columbia while employed by Silver Standard Mines Ltd., Asarco and Teck Corporation. Trained in field techniques of geochemistry, geophysics and geology. At present a student at University of Victoria.

N

OUT 11 Gp

OUT 5 Gp

OUT 1 Gp

IN 188 | IN 205 | OUT 19 | OUT 20

OUT 18 | OUT 17 | IN 203 | OUT 21 | OUT 22 | OUT 40

IN 185 | OUT 16 | OUT 15 | OUT 23 | OUT 24 | OUT 42 | OUT 41

IN 183 | IN 201

OUT 14 | OUT 13 | OUT 44

IN 181 | IN 199 | OUT 25 | OUT 26

OUT 46 | OUT 45

IN 160 | IN 179 | OUT 12 | OUT 11

OUT 27 | OUT 28 | OUT 48 | OUT 47

IN 158 | IN 177 | OUT 10 | OUT 9

OUT 8 | OUT 7 | OUT 29 | OUT 30 | OUT 50 | OUT 49

IN 156 | IN 175

IN 154 | IN 173 | IN 174 | OUT 6 | OUT 5 | OUT 31 | OUT 32

IN 28 | IN 27 | OUT 4 | OUT 3 | OUT 33

IN 30 | IN 29 | OUT 2 | OUT 1 | OUT 35

IN 5 | IN 32 | IN 31 | IN 58 | IN 57

IN 8 | IN 7 | IN 34 | IN 33 | IN 60 | IN 59

IN 10 | IN 9 | IN 36 | IN 35 | IN 62 | IN 61

IN 12 | IN 11 | IN 38 | IN 37 | IN 64 | IN 63

Mess Creek

Johnnie Lake

Windy Lake

4638

Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4638 MAP #3

OUT Claim Groups

Between Mess and Schaft Creeks
LIARD M. D.
Approximate location: 57° 33' N, 130° 55' W

To accompany reports
for Hecla Operating Company

Scale 1" = 1000 ft. (approx.) DWG. No. H-73-3
Drawn C. L. C.

OUT No. 11 GROUP

OUT No. 5 GROUP

OUT No. 1 GROUP

IN 188 IN 205 IN 203 IN 201 IN 199 IN 185 IN 183 IN 181 IN 179 IN 177 IN 175 IN 174 IN 173 IN 158 IN 156 IN 154 IN 28 IN 27 IN 30 IN 29 IN 31 IN 32 IN 5 IN 7 IN 8 IN 10 IN 12 IN 11 IN 13 IN 33 IN 34 IN 35 IN 36 IN 37 IN 38 IN 57 IN 58 IN 59 IN 60 IN 61 IN 62 IN 63 IN 64

OUT 20 OUT 19 OUT 18 OUT 17 OUT 22 OUT 21 OUT 15 OUT 16 OUT 24 OUT 23 OUT 40 OUT 41 OUT 42 OUT 44 OUT 26 OUT 25 OUT 45 OUT 46 OUT 14 OUT 13 OUT 11 OUT 12 OUT 27 OUT 28 OUT 47 OUT 48 OUT 9 OUT 10 OUT 7 OUT 8 OUT 30 OUT 29 OUT 50 OUT 49 OUT 32 OUT 6 OUT 5 OUT 31 OUT 3 OUT 4 OUT 2 OUT 1 OUT 33 OUT 35

100 N 90 N 80 N 70 N 60 N 55 N 50 N 45 N 40 N 30N 20N 10 N 0 5 S 10 S 15 S 20 S 25 S 30 S 35 S 40 S 45 S 50 S 55 S 60 S 65 S 70 S 75 S 80S 85 S 90 S

Long Lake
Duck Lake
Johnnie Lake
Amoeba Lake
Windy Lake
Base Line
CAMPSITE
TRAIL

N

LEGEND

- A 739 Andesitic Volcanic, Crystalline, Dark Green, May Include Dykes
- B 738½ Andesitic Volcanic, Tuffaceous, Ash, May be Fragmental Coarse Grained or Sedimentary Water Deposited Tuff, Fine Grained
- C 739½ Basic Intrusive, Augite Porphyry Basalt
- D 740½ Limestone, Light Grey / Cream, Siliceous
- E 736 Dacite, Rhyolite, Varicolored
- F 745 Intrusive, Quartz Monzonite, Pink, White, Coars to Medium Grain, Generally Foliated Granite
- G 743 Intrusive, Acid — Granite, Diorite Dykes
- H 744 Mineralized Quartz Vein or Shear

Sheeting, Lineation in Intrusives 20°
Bedding 60°
Jointing 50°
Faulting
Banding, Cleavage 40°
Shearing 40°
Q Quartz Veining
cp Chalcopyrite Mineralization
py Pyrite Mineralization
hm Hematite Mineralization
spec hm Specular Hematite Mineralization
feld Feldspathization, Feldspar Alteration
epi Epidote Alteration
mag Magnetic
dior Dioritized
ga Galena
sp Sphalerite
MOS_2 Molybdenite
Bo Bornite

4638

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4638 MAP #4

To accompany report by:
E. Kruchkowski
E. Ostensoe
P. Conley, P Eng August, 1973

HECLA OPERATING CO.

HICKMAN PROJECT

SCHAFT CREEK, B.C.

Out #1, #5 and #11 Claim Groups
Mess Creek Area, B.C.

GEOLOGY

Scale:	Date:	Drawn by:	DWG No.
1"=400'	Aug. 1973	C. L. C	H-73-4

OUT No. 11

GROUP

OUT No. 5

GROUP

OUT No. 1

GROUP

IN 188 IN 205 OUT 19 OUT 20 100 N

OUT 18 OUT 17 OUT 40 90 N

Long Lake

IN 185 IN 203 OUT 21 OUT 22 80 N

CAMPSITE

OUT 15 OUT 41 OUT 42 70 N

IN 183 OUT 16 IN 201 OUT 23 OUT 24

OUT 13 OUT 44 60 N

IN 181 OUT 14 IN 199 OUT 25 OUT 26 55 N 50 N

Duck Lake

OUT 11 OUT 45 45 N

OUT 12 OUT 46 40 N

IN 179

OUT 27 OUT 28 OUT 47 30N

IN 158 IN 177 OUT 9 OUT 10 OUT 48

Johnnie Lake

OUT 30 OUT 49 20N

IN 156 IN 175 OUT 7 OUT 8 OUT 29 OUT 50 10 N

IN 174 OUT 32

IN 154 IN 173 OUT 5 OUT 6 OUT 31 0

CAMPSITE

5 S

IN 28 IN 27 OUT 3 OUT 4 OUT 33

10 S

15 S

20 S

IN 30 IN 29 OUT 1 OUT 2 OUT 35

25 S

30 S

IN 5

35 S

IN 31 IN 58 IN 57

40 S

IN 32

45 S

IN 7

IN 8

50 S

IN 33 IN 34 Amoeba Lake IN 60 IN 59

CAMPSITE

55 S

60 S

IN 9

IN 10

65 S

IN 35 IN 61

70 S

IN 36 IN 62

75 S

IN 11

IN 12

80 S

IN 37 IN 64 IN 63

85 S

IN 38

90 S

IN 13

Windy Lake

Base Line

4638

177

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4638 MAP #17

To accompany report by:
E. Kruchkowski
E. Ostensoe
P. Conley, P Eng August, 1973

HECLA OPERATING CO.

HICKMAN PROJECT

SCHAFT CREEK, B.C.

GEOCHEMICAL SURVEY

Copper — ppm in Soils

Scale:	Date:	Drawn by:	DWG No.
1"=400'	Aug. 1973	C. L. C	H-73-7

OUT No. 11 GROUP

OUT No. 5 GROUP

OUT No. 1 GROUP

IN 188 IN 205 OUT 19 OUT 20 100 N

OUT 18 OUT 17 Long Lake OUT 40 90 N

IN 185 IN 203 OUT 21 OUT 22 80 N

CAMPSITE OUT 15 OUT 41 OUT 42 70 N

IN 183 OUT 16 OUT 24 OUT 23 IN 201

OUT 13 OUT 44 60 N

IN 181 OUT 14 IN 199 OUT 25 OUT 26 55 N 50 N

OUT 45 45 N

Duck Lake OUT 12 OUT 11 OUT 46 40 N

IN 179 OUT 27 OUT 28 OUT 48 OUT 47 30N

IN 158 IN 177 OUT 10 OUT 9 20 N

Johnnie Lake OUT 30 OUT 50 OUT 49

IN 156 IN 175 OUT 8 OUT 7 OUT 29 10 N

IN 174 OUT 32 0

IN 154 IN 173 OUT 6 OUT 5 CAMPSITE OUT 31

IN 28 IN 27 OUT 3 OUT 33 5 S

OUT 4 10 S

15 S

20 S OUT 35

IN 30 IN 29 OUT 1 OUT 2 25 S

30 S

IN 5 35 S

IN 32 IN 31 IN 58 IN 57 40 S

45 S

IN 8 IN 7 50 S

IN 34 IN 33 Amoeba Lake IN 60 IN 59 55 S

60 S IN 9

IN 10 65 S

IN 36 IN 35 IN 62 IN 61 70 S

75 S IN 11

IN 12 80 S

IN 38 IN 37 IN 64 IN 63 85 S

90 S IN 13

Windy Lake

Base Line

4638

MB

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4638 MAP #8

To accompany report by:
E. Kruchkowski
E. Ostensoe
P. Conley, P. Eng August, 1973

HECLA OPERATING CO.

HICKMAN PROJECT

SCHAFT CREEK, B.C.

GEOCHEMICAL SURVEY

Molybdenum – ppm in Soils

Scale:	Date:	Drawn by:	DWG No.
1"=400'	Aug. 1973	C. L. C	H-73-8

OUT No. 11

GROUP

OUT No. 5

GROUP

OUT No. 1

GROUP

IN 188 IN 205 OUT 19 OUT 20 100 N

OUT 18 OUT 17 Long Lake OUT 40 90 N

IN 185 OUT 22 OUT 21 IN 203 80 N

CAMPSITE OUT 15 OUT 41 OUT 42 70 N

IN 183 OUT 16 OUT 24 OUT 23 IN 201 60 N

OUT 44 55 N

IN 181 OUT 14 OUT 13 IN 199 OUT 25 OUT 26 50 N

OUT 45 45 N

Duck Lake OUT 12 OUT 11 OUT 46 40 N

IN 179

OUT 27 OUT 28 30N

OUT 48 OUT 47

IN 158 IN 177 OUT 10 OUT 9

Johnnie Lake 20N

OUT 30 OUT 50 OUT 49

IN 156 IN 175 OUT 8 OUT 7 OUT 29 10 N

OUT 32

IN 154 IN 173 IN 174 OUT 5 CAMPSITE OUT 31 0

OUT 6

5 S

IN 28 IN 27 OUT 3 OUT 33

10 S

OUT 4

15 S

20 S

25 S

IN 30 IN 29 OUT 1 OUT 2 OUT 35

30 S

IN 5

35 S

IN 32 IN 31 IN 58 IN 57

40 S

45 S

IN 8 IN 7

50 S

IN 34 IN 33 Amoeba Lake IN 60 IN 59

55 S

60 S

IN 10 IN 9

65 S

IN 35 IN 62 IN 61

70 S

IN 36

75 S

IN 12 IN 11

80S

IN 37 IN 64 IN 63

85 S

IN 38

90 S

IN 13

Windy Lake

Base Line

N

4638

M9

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4638 MAP #9

To accompany report by:
E. Kruchkowski
E. Ostensoe
P. Conley, P Eng August, 1973

HECLA OPERATING CO.

HICKMAN PROJECT

SCHAFT CREEK, B.C.

GEOCHEMICAL SURVEY

Arsenic—ppm in Soils

Scale:	Date:	Drawn by:	DWG No.
1"=400'	Aug. 1973	C. L. C	H-73- 9