

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 3182 MAP

REPORT ON GEOCHEMICAL SURVEY

ASH GROUP

Similkameen Mining Division

B.C.

located at

49 degrees 23 min. North Lat.
120 degrees 50 min. West Long.

92 H / 7 W

3182
for

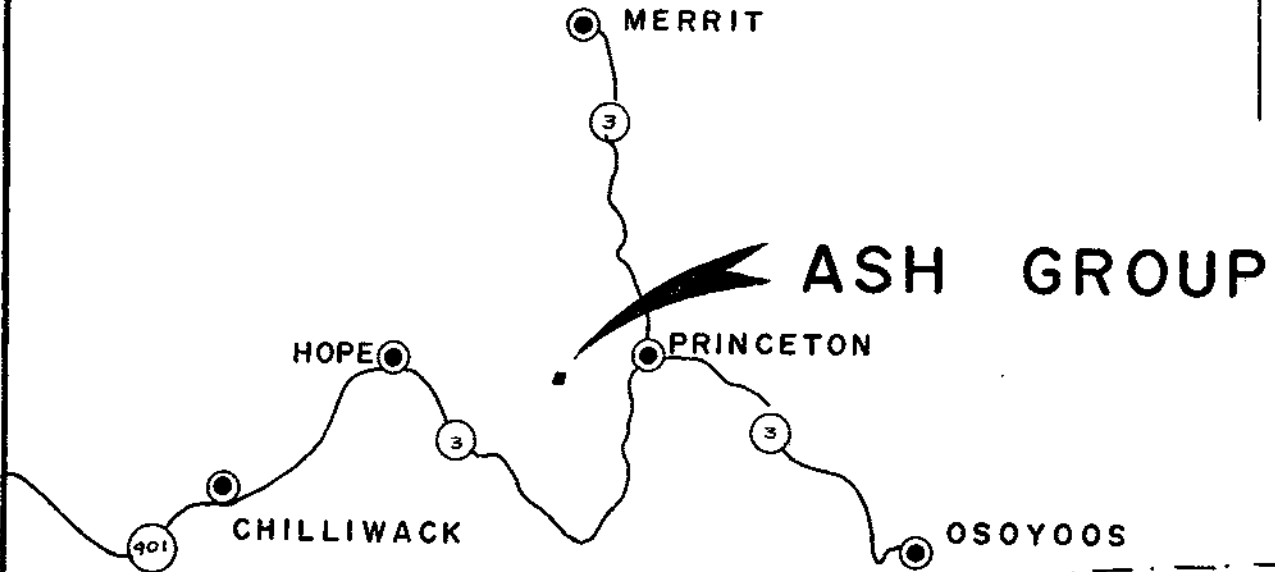
Hanna Mining Co.
1200 West Pender
Vancouver, B. C.

by

A. R. Bullis, P. Eng.
BULLIS ENGINEERING LTD.

2nd August, 1971

BRITISH COLUMBIA



WASHINGTON

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3182 MAP #1

LOCATION MAP
ASH GROUP
SIMILKAMEEN
MINING DIVISION

TABLE OF CONTENTS

	<u>Page</u>
1 1 Location Map	Frontpiece
Introduction	1.
Location & Access	2.
Property	3.
2 2 Claim Map	
Topography & Climate	4.
Geology of Area	5.
Soil Sampling Programme	8.
Results of Programme	10.
Comments	11.
Cost of Survey	13.
Personnel Involved in Survey	14.
Copies of Soil Analysis	
References	
Certificate	
3 3 Map of Soil Survey	Back Pocket

REPORT ON GEOCHEMICAL SURVEY

ASH GROUP

Similkameen Mining Division

B.C.

INTRODUCTION

Hanna Mining Co. Ltd., under an option agreement with Copper Range Exploration Co. Inc., initiated a geological study and geochemical programme to test a limited area on the Ash Group of mineral claims.

Bullis Engineering Ltd., carried out the study and provided field crews for the geochemical programme. The geochemical work was confined to an area that covered parts of Mineral Claims Ash #11 (Record Number 25484H) and Ash #12 (Record Number 25485H). The field work was carried out during the period 2nd July to 14th July, 1971.

The soil samples were analysed by Vancouver Geochemical Laboratories Ltd., 1521 Pemberton Ave., North Vancouver.

LOCATION & ACCESS

The Ash and Hol Group of Mineral Claims are situated in the Similkameen Mining Division; the co-ordinates of the centre of the group are approximately:

49 degrees 23 minutes North Latitude

120 degrees 50 minutes West Longitude

The area is shown on N.T.S. Sheet 92 H/7. The property is located on the north-west flank of Granite Mountain, one mile north-west of Wells Lake, at an elevation of 5,000 to 5,400 feet above sea-level.

The town of Princeton lies about twenty air miles east of the property.

Access to the area is via Highway #3 from Princeton, for nine miles, to the road that leads up Whipsaw Creek. The road follows Whipsaw Creek to its head waters and then leads onto the summit of Skaist Mountain at elevation 6,200 feet.

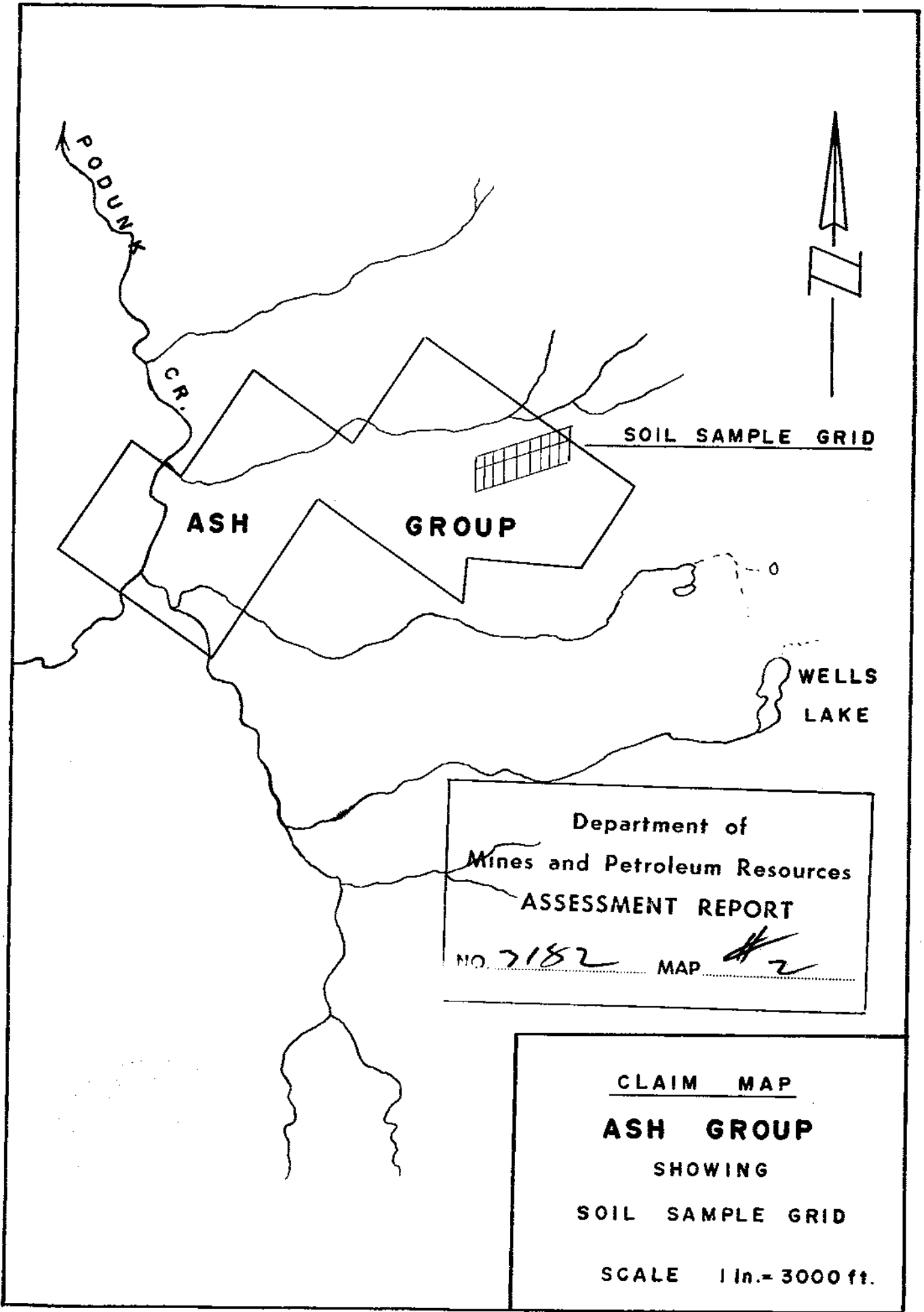
A poor access road, suitable for four-wheel drive vehicles only, leads along the top of Skaist and Granite mountains to Wells Lake. The total distance from Highway #3 to Wells Lake is approximately thirty miles.

PROPERTY

The Ash Group of Mineral Claims form a contiguous block of Claims. The Group consists of the following Mineral Claims:

<u>NAME</u>	<u>RECORD NUMBER</u>
Ash 1	25474
Ash 2	25475
Ash 7 to 14 inclusive	25480 to 25487
Hol 4	25525
Hol 6	25527
Hol 8	25529
Hol 9	25530
Hol 11	25532
Hol 28 to 33 inclusive	25549 to 25554

The Ash Group of claims is held by location by Copper Range Exploration Co. Ltd., Suite 755, 1199 West Pender Street, Vancouver.



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 7182 MAP # 2

CLAIM MAP
ASH GROUP
SHOWING
SOIL SAMPLE GRID
SCALE 1 in. = 3000 ft.

TOPOGRAPHY AND CLIMATE

The property is located near the eastern flank of the Cascade Mountain Range, on the northern extension of Granite Mountain which is a long, flat-topped ridge that extends in a north-west direction. The elevation of Granite Mountain ranges to 6,300 feet above sea level and the mountain is dissected by creeks that flow into the Tulameen River on the west and into Granite Creek on the east. The headward erosion of the creeks has formed shallow east-west valleys, or passes, across Granite Mountain that are 5,300 to 5,500 feet in elevation.

The main mass of the Cascade Range lies to the west of the property beyond the Tulameen River where the mountains are generally rugged, deeply dissected masses rising to elevations of 7,500 to 8,000 feet.

The interior plateau, which lies to the east of Granite Mountain, forms a gently undulation upland that has been eroded by the Tulameen and Similkameen Rivers and their tributaries into deep, steep-sided valleys.

The climate, typical of the interior plateau, varies from semi-desert at Princeton in the valley of the Similkameen River, to temperate or alpine at the summit of Granite Mountain. Precipitation in the valleys is light and it is moderate at

Wells Lake. Most of the precipitation comes as snow; in late winter at higher elevations snow cover can be six to ten feet deep.

The river valleys, in the vicinity of Princeton, are sparsely timbered with yellow pine, aspen and poplar and much of the valley is open range land. The forest cover increases with elevation; good stands of pine, hemlock and spruce exist to an elevation of 5,500 feet, where the forest gives way to open alpine meadows.

GEOLOGY OF AREA

The Ash Group of claims lies wholly within the "Eagle Granodiorite Body" which was named and described by C. Camsell in 1913 and, briefly, redefined by H.M.A. Rice in 1946. The Eagle Granodiorite is a long, narrow belt of paragneiss and related Coastal intrusives that extends in a north-west direction from the U.S. border to beyond the Tulameen River Valley.

The rock is schistose-to-gneissic with the trend of the foliation more-or-less parallel to the boundaries of the "Eagle Granodiorite" belt. Lit-par-lit injection by thin sills of granite and/or granodiorite accompanied by silicification has converted the original tuffaceous sediments and volcanic flows to gneiss and schist. Swarms of narrow sills

and dykes of potassium-rich rock have invaded the Eagle granodiorite in three directions; the most pronounced direction is parallel to the major trend of the gneissosity. Finally, extensive pegmatite intrusion or injection has been accompanied by milky-white "bull" quartz that appears as veins and masses within the gneiss. The Eagle Granodiorite complex has been subjected to forces that have produced regional metamorphism; contorted gneiss and drag-folds are common throughout the area. Late dykes of andesite and syenite-porphry have cut the complex but they are only minor constituents of the complex.

Mineralization, found in the gneissic rock near Wells Lake, consists of disseminated pyrite and minor chalcopyrite localized along the narrow, potassium-rich sills and dykes. The gneiss is fresh looking in outcrop and in rock trenches and it is evident that rock alteration does not accompany the sulfide mineralization. The mineralization is sparse and does not penetrate the wall rock beyond the sills and dykes.

Several "bull-quartz" veins were examined in the vicinity of Wells Lake and at the Copper Range Exploration trenches. The quartz is invariably accompanied by sericite-rich pegmatite; neither the pegmatite nor the quartz veins have regular, well-defined walls and they seem to be large

discontinuous masses of irregular shape. The apparent trend of the zones is north-south but this observation could not be confirmed. The "bull-quartz" veins contain molybdenite and ferrimolybdenite in fractures and slip-planes with minor disseminated pyrite and chalcopyrite in the gneiss and porphyry surrounding the "bull-quartz" bodies.

Copper Range Explorations Inc., Ltd. took stream-sediment samples throughout the area that were analysed for molybdenum and copper. Coincident, above-average values for both metals were located in an area that extends from Wells Lake to the vicinity of the Copper Range trenches. The area described above was examined and the author concludes that the cause of the stream-sediment anomalies is the disseminated copper mineralization, associated with the narrow potassium-rich sills, and the molybdenum found within the "bull-quartz" veins.

The soil sampling programme was conducted in the vicinity of the large "bull-quartz" occurrences that were trenched by Copper Range Exploration Inc. Ltd.

SOIL SAMPLING PROGRAMME

The grid, on which the soil samples were taken, was established on Claims Ash #11 and Ash #12. The Base Line was run along the access road that leads to the Copper Range bulldozed trenches. The Base Line was surveyed by Brunton compass and chain; pickets were placed at intervals of two-hundred feet along the road on a general bearing of North forty-five degrees East. Compass bearings were taken between adjacent pickets and plotted on the plan. Cross-lines were cut and flagged from each Base Line picket (station) on a bearing of North and South (Astronomical) for a distance of four hundred feet to the north and six hundred feet to the south.

Samples were gathered at one hundred foot intervals along the Cross-lines; the position of each sample was recorded and flagged in the field. (No correction was made for slope distance because the gentle dip of the mountain-side over the grid area would not appreciably alter the dimensions of the grid on the plan).

Soil samples were taken by digging below the humus layer by means of a shovel and trowelling a small portion of the "B" layer into paper bags, especially designed for soil

samples.

The location of the sample was marked on the bag and recorded in the field notes. Drainage and soil conditions were noted at each sample location.

The samples were submitted to Vancouver Geochemical Laboratories Ltd., located at 1521 Pemberton Ave., North Vancouver, B.C. The samples were dried, ground and sifted to minus 80 mesh. A one-quarter gram sample was then digested in a cold 0.5 Normal Hydrochloric acid solution for four hours. The solutions were analysed for copper and molybdenum by atomic adsorption, using a Techtron AA4 instrument. The supervising chemist was L. Nicol and the work was checked by C. Chun.

The analytical data was plotted on the accompanying plan on a scale of one hundred feet equals one inch. The soil sampling grid was "tied" to the claim corner, which is common to Ash #9, #10, #11 and #12 Mineral Claims, by a compass and chain survey to the claim post. The bulldozed trenches that were dug by Copper Range Exploration Co. in the immediate vicinity of the claim post are also shown on the plan.

RESULTS OF PROGRAMME

The copper content of the soil is, generally, less than 15 parts per million, with the bulk of the samples falling within the range 2 to 30 P.P.M. Eighteen samples, out of a total of 219 samples, have a content greater than 70 P.P.M. Six samples contain more than 225 P.P.M. of Copper and could be considered of interest. The positions of the six samples are however not confined to any particular area but are widely distributed on the grid. If only those samples containing more than 70 P.P.M. are considered, then it is noteworthy that six of these, or one third, are located on Lines 12 and 14 and most lie north of the Base Line. Two "high" readings, i.e. greater than 225 P.P.M. lie adjacent to one another on Line 0. The area is directly down-slope from the east end of the trenches bulldozed by Copper Range where sparse copper mineralization was noted in the rock.

The molybdenum content of the soil is very low; out of a total of 219 samples, molybdenum was "not detected" in 194. The balance of the samples contain 1 to 2 P.P.M. of molybdenum. The samples that do report molybdenum are randomly scattered over the grid area; although concentration is apparent, eighteen samples are located in an area on Lines 0 to 10, close to the

large "Bull Quartz" veins. The molybdenum content of the "Bull Quartz" is noticeably greater than that of the country rock.

COMMENTS

The soil-sampling survey has failed to disclose any anomalous zones in which more than three adjacent samples have a copper content greater than 70 P.P.M.

The two high samples on Line 0 are directly related to the area of trenching done by Copper Range.

The isolated high reading of 888 P.P.M. in copper on Line 4 is close to a narrow "Bull Quartz" vein, exposed on the road, in which copper mineralization is apparent.

The isolated high readings of 650 P.P.M. in copper on Line 20, is close to a large outcrop and talus slide in which pegmatite was noted. The high copper content is due, probably, to mechanical mixing of small rock particles containing chalcopyrite with the soil.

The other isolated high copper readings are probably due to: one, the proximity of "bull quartz" veins or; two, mechanical mixture of copper bearing rock particles with the soil.

The molybdenum content of the soil is insignificant; low readings were obtained near the "bull quartz" outcrops that contain visible molybdenum mineralization and, therefore, no conclusions can be drawn from the results obtained.

Respectfully Submitted

AR Bullis

A. R. Bullis, P. Eng.

BULLIS ENGINEERING LTD.

2 Aug. 1971
DELTA, B.C.

COST OF SURVEY

Wages - 3 men for 2 weeks	-	\$ 805.00
Field Expenses:		
Food, Hardware, Supplies	-	\$ 205.30
Office Expenses:		
Drafting - Report preparation	-	\$ 46.00
Vehicle Rental	-	\$ 317.16
Laboratory Analysis		
120 Samples	-	\$ 186.00
Engineer's Fees & Supervision	-	\$1,000.00
		<hr/>
TOTAL	-	\$2,559.00

Credit Claimed (as per "Affidavit on Application
for Certificate of Work" dated 21st July, 1971,
filed with Mining Recorder, Similkameen M.D.

- \$2,489.30

PERSONNEL INVOLVED IN SURVEY

Bullis Engineering Ltd., of 1318 - 56th Street, Delta, B.C. supplied the personnel for the geochemical (soil-sampling) programme as well as providing technical supervision during the programme.

The geological investigation and report was prepared by A. R. Bullis, P. Eng.

The field crew consisted of:

A. R. Bullis, P. Eng., Supervisor.

R. H. Bullis, 5858 - 16th Ave. Delta.

A. G. Cook, 1091 Laburnum Rd. Victoria.

A. M. Bullis, 5215 Saratoga Drive. Delta.

The field crew were on the property from 2nd July until 13th July, 1971.

The soil-sample analysis was carried out at the Vancouver Geochemical Laboratories Ltd., 1521 Pemberton Ave., North Vancouver, under the supervision of Mr. Conway Chun.

REFERENCES

Memoir 243, G.S.C., Dept. of Mines & Technical Surveys,
by: H.M.A. Rice.

Unpublished Geology & Soil Sampling Maps,
by: Copper Range Exploration Inc. Ltd.

CERTIFICATE OF QUALIFICATIONS

I, Albert Ralph Bullis, do hereby certify:

1. I am a practising Geological Engineer, with residence at 5215 Saratoga Drive, Delta, B.C.
2. I am a graduate in Applied Science of the University of British Columbia.
3. I have been practising my profession since 1952.
4. I am a member of the Association of Professional Engineers of British Columbia.
5. My report is based on the field work carried out under my personal supervision during the period 2 to 14 July 1971 and from the study of the reports and information listed under references.
6. I have no interest, directly or indirectly, in the "Ash Group" of mineral claims nor in the securities of Copper Range Explorations Inc. Ltd. or Hanna Mining Co.

ARBullis

2nd August, 1971
DELTA, B.C.

A. R. Bullis, P.Eng.

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE NORTH VANCOUVER, B.C., CANADA TELEPHONE 604-988-2172

GEOCHEMICAL ANALYTICAL REPORT

REPORT No. 71-44-004 DATE July 28, 1971
SAMPLES SUBMITTED BY A.R. Bullis COMPANY Hanna Mining Co.
SHIPPED VIA Delivered FROM _____
REPORT ON 120 samples for Ex Cu & Ex Mo DATE SAMPLES ARRIVED July 16, 1971
* * *

COPIES OF THIS REPORT SENT TO:

- (1) Vancouver Office
- Mr. A.R. Bullis
- (2) Bullis Engineering Ltd.
- Suite 206, 1318 - 56th Street,
- (3) Delta, B.C.
- Mr. A.G. Jones - Vancouver Office

TRANSMITTED BY:

Mail

"

"

SAMPLES SIFTED OR GROUND TO -80 MESH WEIGHT USED 0.25 g
FINAL VOLUME 10 ml ALIQUOT USED n/a
* * *

METHOD OF ANALYSIS: Instrumental - Atomic Absorption

EXTRACTION: Cold 0.5 M HCl leach for 4 hours

DETECTION: Techtron AA4

SAMPLES ASSIGNMENT: (a) PREPARED SAMPLES: filed
(b) REJECTS: ~~discarded~~ returned
* * *

ANALYST(S) W. L. & L. N. TYPIST hi.

SUPERVISING CHEMIST L. Nicol CHECKED BY C. CHUN

COSTS:

Remarks: nd = none detected

SHIPPING CHARGE	\$ ---
SAMPLE PREPARATION	\$ 24.00
ANALYSIS	\$ 162.00
OTHER	\$ 76.50
TO T A L	\$ 262.50
Deducted	
due to	
overpayment	
	\$ 109.50

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE NORTH VANCOUVER, B.C. CANADA TELEPHONE 604-988-2172

COMPANY Hanna Mining Co. REPORT No. 71-44-004 PAGE 1 OF 4

MARKING	ExMo	ExCu
C/R LO 4+00N	1	2
3	nd	225
2	nd	375
1+00N	1	6
0+00	nd	15
1+00S	nd	6
2	1	8
3	nd	17
4	nd	6
5	nd	7
C/R LO 6+00S	nd	21
C/R L2 4+00N	nd	82
3	nd	9
2	nd	11
1+00N	nd	9
0+00	nd	21
1+00S	nd	8
2	nd	7
3	nd	6
C/R L2 4+00S	nd	7

MARKING	ExMo	ExCu
C/R L2 5+00S	nd	6
C/R L2 6+00S	nd	11
L4 4+00N	nd	4
3	2	5
2	1	7
1+00N	1	18
0+00	nd	7
1+00S	1	888
2	nd	30
3	nd	5
4	nd	7
5	nd	6
L4 6+00S	2	13
L6 4+00N	2	7
3	nd	5
2	nd	6
1+00N	nd	9
0+00	1	36
C/R L6 1+00S	1	8

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE NORTH VANCOUVER, B.C. CANADA TELEPHONE 604-988-2172

71-41-004

COMPANY Hanna Mining Co. REPORT No. PAGE 3 OF 4

MARKING	ExMo	ExCu		
C/R L14 2+OON	nd	130		
1+OON	nd	40		
0+00	nd	71		
1+OOS	nd	22		
2	nd	83		
3	nd	6		
4	2	450		
5	nd	10		
L14 6+OOS	nd	17		
L16 4+OON	nd	12		
3	nd	11		
2	nd	19		
1+OON	nd	6		
0+00	nd	27		
1+OOS	nd	33		
2	nd	19		
3	nd	6		
4	nd	5		
5	nd	7		
C/R L16 6+OOS	nd	19		

MARKING	ExMo	ExCu		
C/R L18 4+OON	1	17		
3	nd	87		
2	nd	10		
1+OON	nd	6		
0+00	1	7		
1+OOS	nd	11		
2	nd	290		
3	nd	5		
4	nd	21		
5	nd	5		
L18 6+OOS	nd	6		
L20 4+OON	nd	4		
3	nd	5		
2	nd	6		
1+OON	nd	6		
0+00	nd	650		
1+OOS	1	6		
2	nd	6		
C/R L20 3+OOS	nd	7		

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE

NORTH VANCOUVER, B.C. CANADA

TELEPHONE 604-988-2172

71-44-004

COMPANY Hanna Mining Co.

REPORT No. _____

PAGE 2 OF 4

MARKING	ExMo	ExCu		
C/R L6 2+00S	nd	8		
3	nd	9		
4	nd	19		
L6 6+00S	nd	9		
L8 4+00N	nd	8		
3	nd	4		
2	nd	78		
1+00N	nd	73		
0+00	nd	57		
1+00S	1	175		
2	1	22		
3	nd	28		
4	nd	475		
5	nd	8		
L8 6+00S	nd	9		
L10 4+00N	1	3		
3	nd	4		
2	1	73		
1+00N	1	34		
C/R L10 0+00	1	29		

MARKING	ExMo	ExCu		
C/R L10 1+00S	1	61		
2	nd	11		
3	1	13		
4	1	10		
5	nd	10		
L10 6+00S	nd	9		
L12 4+00N	nd	97		
3	nd	12		
2	nd	18		
1+00N	nd	9		
0+00	nd	16		
1+00S	nd	14		
2	nd	8		
3	nd	9		
4	nd	7		
5	nd	4		
L12 6+00S	nd	10		
L14 4+00N	nd	4		
C/R L14 3+00N	nd	145		

REMARKS



ASH 9 M.C.

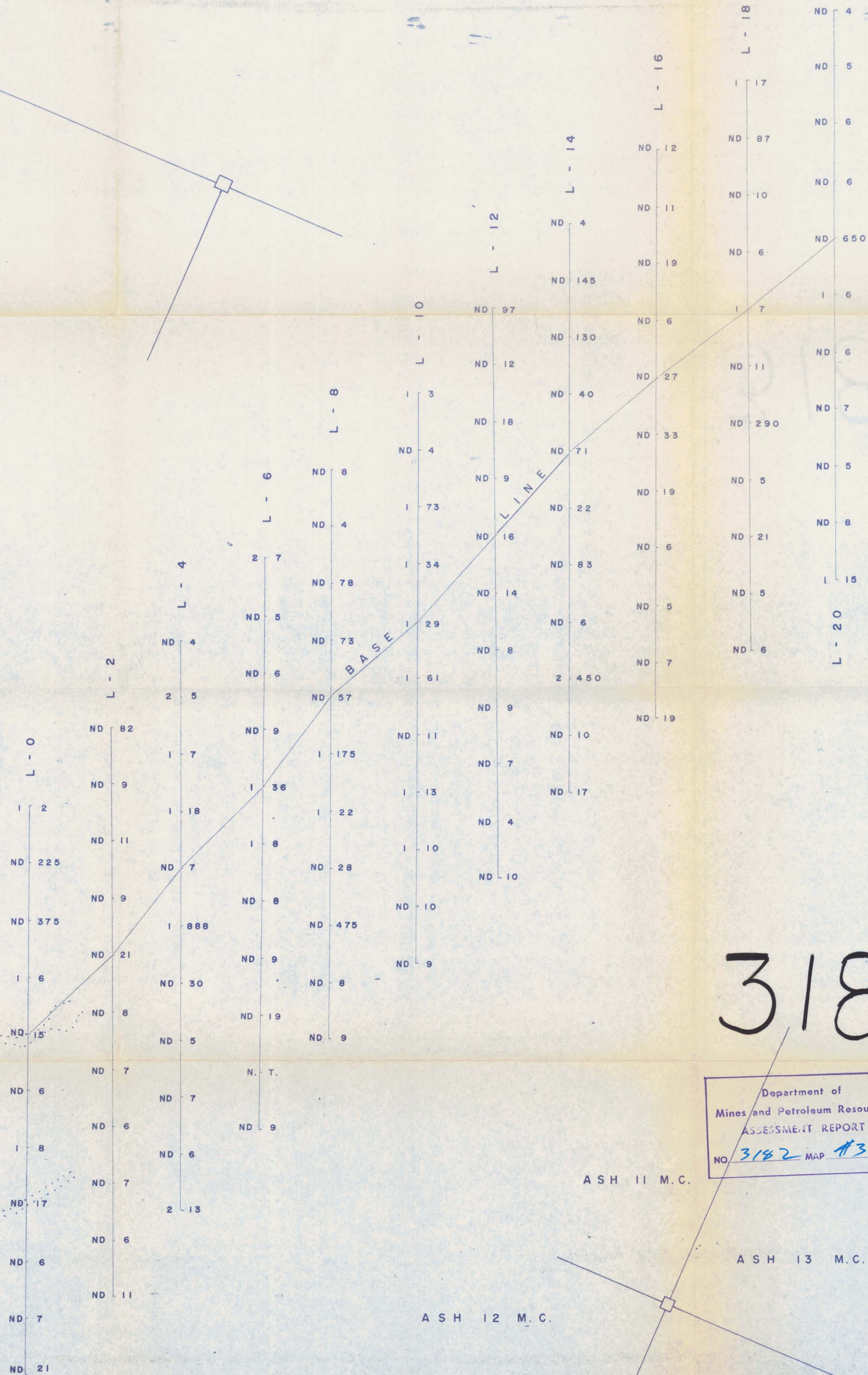
COPPER RANGE TRENCHING

ASH 10 M.C.

ASH 11 M.C.

ASH 13 M.C.

ASH 12 M.C.



3182

LEGEND

Mo	Cu
1-71	
ND-5	

M-3

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3182 MAP #3

5 = 5 P.P.M.
ND = Not Detected
N.T. = Not Taken

GEOCHEMICAL SURVEY
ASH GROUP
SIMILKAMEEN MINING DIVISION
B. C.

SCALE: 1 in. = 100 ft.

To Accompany a Report by A.R. Bullis, P. Eng.
August 1971