4661

KENNCO EXPLORATIONS, (WESTERN) LIMITED

REPORT

ON

SILT AND ROCK GEOCHEMICAL SURVEY

NUP NO.'S 1, 2, 3, 4 & 5 GROUPS

(NUP Mineral Claims 24,26,31-54,59-64,69-78,82,
85-88,118-126,139,140,155,157,164,166,168)

Situated 15 miles west of Turnagain Lake,
Liard Mining Division,
British Columbia

Latitude 58°18'N; Longitude 129°35'W

by

R.W. Stevenson, P.Eng.

July 6 to August 8, 1973

September 27, 1973

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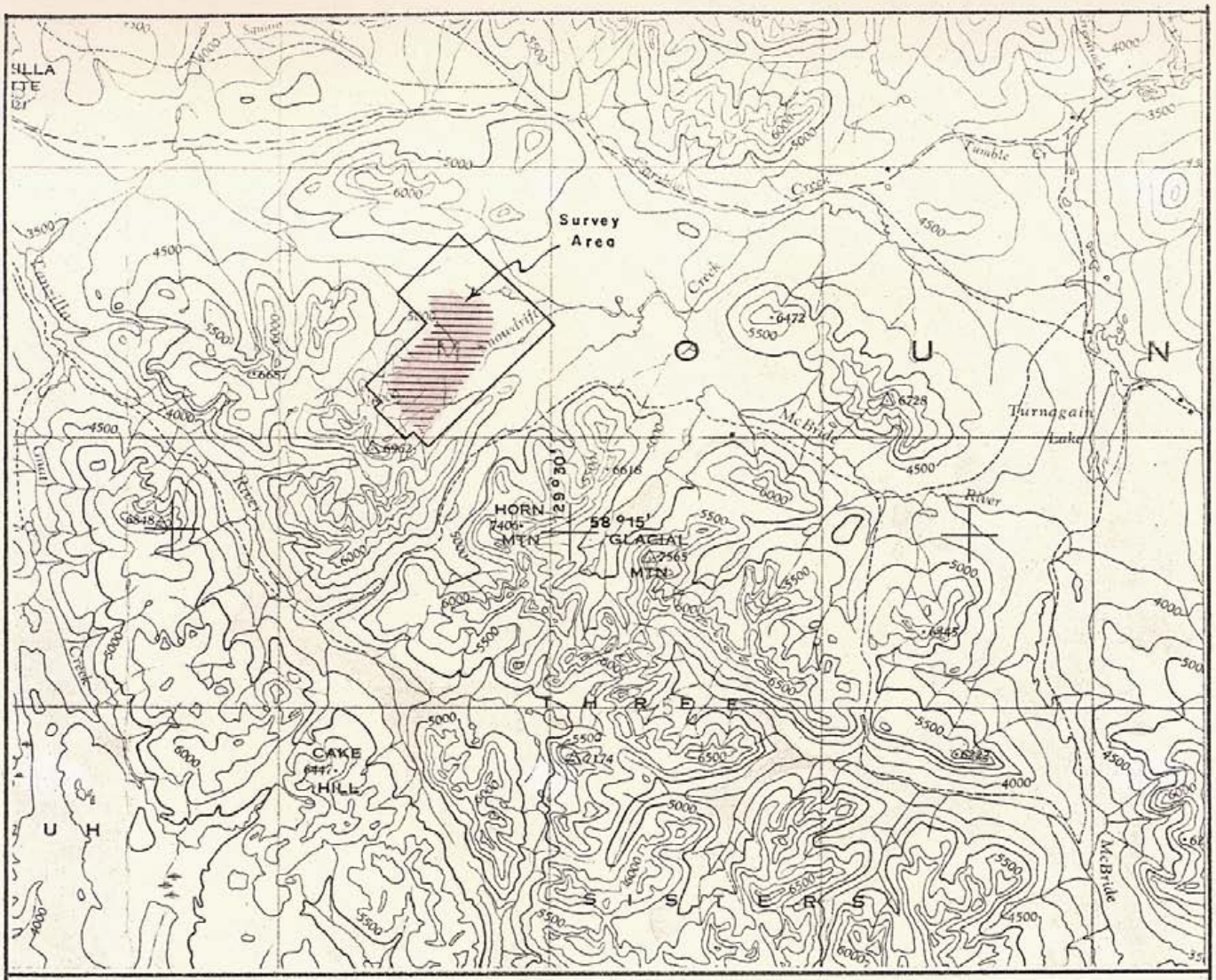

Kennco Explorations (Western) Limited

Nup Claims

Situated 15 miles west of Turnagain Lake
Liard M. D., B. C.

Latitude 58° 18' N; Longitude 129° 35' W

Location Map

R. H. Stevenson

Scale: 1: 250,000

Date: Sept. 28, 1973

INTRODUCTION

The mineral property discussed in this report is 15 miles west of Turnagain Lake, at the headwaters of Snowdrift Creek. The exploration work described herein consisted of a silt geochemical survey, accompanied by a preliminary rock geochemical survey. The objective of the silt survey was to search for well mineralized areas beneath the extensive drift cover. The purpose of the rock sampling was to obtain information on the background metal content of weakly mineralized areas; this would aid in the interpretation of the silt survey results.

The personnel employed are listed in the Statement of Costs Incurred. The work was done under the supervision of R.W. Stevenson, P.Eng.

LOCATION AND ACCESS

The property is situated at Latitude 58°18'N; Longitude 129°35'W, about 20 miles southeast of the town of Dease Lake. It is at the headwaters of Snowdrift Creek, 15 miles west of Turnagain Lake. Most of the property drains into Snowdrift Creek, which is part of the Arctic Watershed; however, the west margin of the property drains into the Tanzilla River, which drains into the Stikine River and Pacific Watershed. Most of the property slopes down gently to the north, at elevations ranging from 4600' to about 5500'. Near the south edge of the property, the topography is more rugged, and elevations locally exceed 6500'.

Vegetation on the lower part of the property is characterized by broad expanses of mountain alder (Alnus tenuifolia). Scrub alpine fir (Abies lasiocarpa) grows in small patches, but does not form a significant portion of the vegatation cover. Several species of willow (Salix) occur in small shrubby clumps in wet areas. Grass grows in open areas among the mountain alder; a deep layer of moss is associated with the alpine fir. With increasing elevation, the mountain alder becomes stunted, and eventually gives way entirely to sparse grass.

There is considerable swamp near the northeast margin of the property. The steep slopes near the south margin of the property are well drained. The intervening area slopes gently but consistently to the north; however, the drainage pattern is frequently interrupted by the old beds of ice-edge streams and melt-water channels. There are rapid variations between swamps, moderately well drained knolls, and boulder patches. Recent local streams are not deeply incised. The beds of old melt-water channels commonly have a U-shaped cross-section, a few feet deep and a few tens of feet across.

There were two modes of access to the property. Frontier Helicopters Limited had a Bell 206-A helicopter based at Dease Lake, a 25-minute round trip flight to the property. This was generally used in flying personnel or fragile technical equipment to the property. A Bombardier Muskeg tractor was used for weekly supply trips to reach the Stewart-Cassiar road, 15 miles to the northwest of the property. The latter was also extremely useful in moving equipment and personnel on the property.

SILT GEOCHEMICAL SURVEY

Silt Survey Field Work

Sample Site Control

Sample sites were plotted in the field, on air photos having a scale of 1" = 2640'. Each sampling traverse was started from a point which could be identified easily on the topographic map. Sample site locations were plotted by pace and compass until another easily identifiable checkpoint was reached. In areas where grid lines had been cut and chained, these were used as an additional guide. The plotted sample points were transferred in the office to an air photo mosaic at a scale of 1" = 1250'. That was used to compile the base map used in this report.

Silt Sample Collection

In general, the samples were taken at 400 foot intervals on the main stream, depending on where suitable silt could be found. More detail was added by sampling some of the side streams.

Samples were taken from "active" material; that is under flowing water, either in streams or seepages. The samples were taken with a shovel. Fine-grained silt was selected. Care was taken to avoid high organic material, and well washed clay.

The sample site and number were then plotted on the field air photo. A note was made of the sample number; the width, depth, and speed of flow of the stream; the type of sediment sampled; and any perculiarities of nearby drainage, such as above or below a pond or swamp.

Packaging

The samples were placed in 3" X 4 1/2" brown paper envelopes on which the sample numbers had been marked. These were closed with a triangular triple fold. (The bags are not anomalous in trace metals).

Sample Preparation

The samples were taken to base camp, and partly air-dried. The samples were then shipped to our laboratory in North Vancouver, where they were oven-dried at 80°C and sieved through an 80-mesh size stainless steel screen. (These sieves do not show noticeable wear even after several thousand samples have been sifted). The minus 80 mesh fraction was collected for all the analyses involved.

Analysis

The samples were analysed in the North Vancouver laboratory of Kennco Explorations, (Western) Limited, under the supervision of H.R. Goddard, laboratory manager. Total extraction from a weighed sample is achieved by digestion with concentrated nitric acid and 70% perchloric acid. Determination of the Cu, Mo, Zn, Pb, Ag, Co, Ni content is made by aspiration in a techtron AA5 Atomic Absorption Spectrophotometer. To determine the gold content, a weighed sample is digested in aqua regia, filtered, and the gold removed by solvent-solvent extraction in an organic solvent, MIBK (methyl-isobutyl-keytone). This is aspirated in the Techtron AA5.

Interpretation

The purpose of the silt survey was to search for well mineralized areas beneath the extensive drift cover. The configuration of streams made this a practicable goal. Each silt sample site is marked on the map by a small open circle.

Sample stations that are considered to be background are uncoloured. Sample stations that are considered to be only weakly anomalous are coloured yellow; those that are anomalous are coloured red. There is one exception to this. On the molybdenum map, samples that are exceptionally anomalous are coloured mauve. The weakly anomalous levels vary somewhat with the size of the stream and the drainage area. For example, a value of 300 ppm Cu would be only weakly anomalous in a small seepage, but would be definitely anomalous in a large stream.

Molybdenum is anomalous in varying degree over most of the property. Only at the extreme south margin of the property does molybdenum approach the regional background of 1 or 2 ppm Mo. On the south half of the property, a number of streams and seepages outline an anomalous area centered on Nup 44, 46, 69, 71 mineral claims. On the north half of the property the streams are generally strongly anomalous in molybdenum. This must reflect widespread molybdenite mineralization, but the extreme values over so broad an area suggests that some molybdenum concentrating mechanism is operative. It is probably related to the relatively poor drainage in the area. Krauskopf (1955) noted that molybdenum enters into life processes very readily, and unoxidized organic debris is commonly enriched in molybdenum. Kuznetsova, et al, (1961) explored the possibility that molybdenum could be concentrated from acidic bog waters by natural organic sorbents of the humic acid type. More recently, numerous researchers have addressed themselves to the investigation of this phenomenon.

Copper is generally co-anomalous with molybdenum on the south half of the property. Zinc, and to a lesser extent lead, are anomalous in the same area, but appear to be peripheral to the source of the copper anomaly. A few samples are weakly anomalous in silver, and in cobalt. Gold, and nickel are not anomalous on the property.

ROCK GEOCHEMICAL SURVEY

Rock Survey Field Work

Sample Site Control

Sample sites were plotted in the field on air photos having a scale of 1" = 2640'. In areas where grid lines had been cut and chained, these were used as an additional guide. The sample points were transferred in the office to an air photo mosaic at a scale of 1" = 1250'. That was used to compile the base map used in this report.

Sample Collection

The frequency of sampling was determined by the availibility of outcrop, and by changes in lithology.

Sample chips about 1" to 2" were taken with a standard prospector's hammer. About four pounds of these chips were collected from an area up to about 50' in diameter at each sample site.

The sample site and number were then plotted on the field map, and a note made of sample number, line location, and rock type.

Packaging

Each sample was placed in a 12" X 18" plastic sample bag. The sample number was written on both sides of the bag, and the top tied with string.

Sample Preparation

The samples were shipped to our laboratory in North Vancouver. Particular care was taken to avoid contamination in the preparation of these samples, because the analyses were to be done in parts per million. The sample was primary crushed to 1/4" mesh; secondary crushed to minus 10 mesh; dried; and then pulverized to minus 100 mesh. The pulverizer was flushed with "clean" rock after each sample. The average analysis of this cleaning rock is as follows:

7	ppm Cu
0	ppm Mo
30	ppm Zn
4	ppm Pb
0.3	ppm Ag
0.00	ppm Au
10	ppm Co
10	ppm Ni

Analysis

The samples were analysed in the North Vancouver laboratory of Kennco Explorations, (Western) Limited under the supervision of H.R. Goddard, laboratory manager.

The analytical procedures used on the rock samples were the same as those used on the silt samples. These are described in the section on the Silt Geochemical Survey.

Interpretation

The purpose of the rock geochemical survey was to examine the trace metal content of the various rock units that are peripheral to the silt sample area as an aid in the interpretation of the silt sample results. Some of these rocks are weakly mineralized. In order to achieve the necessary precision, the samples were analysed as geochemical samples in parts per million, rather than being assayed to the nearest 0.01%.

The rocks sampled are described as follows:

Sample No.	Rock Type	Remarks
S 39612	f. gr. andesite	Finely disseminated pyrite. Some silicification.
S 39613	f. gr. basalt	Pyrite, disseminated and along fractures.
S 39614	hybrid andesite	Pyrite, disseminated and along fractures. Some silicification.
S 39615	felsite	Strong quartz-sericite alteration. Minor pyrite.
S 39616	felsite	Intense quartz-sericite alteration. Minor pyrite.
S 39617	felsite	Intense quartz-sericite-argillite alteration. Minor pyrite. (Molybdenite?)

Sample No.	Rock Type	Remarks
S 39618	felsite	Intense quartz-sericite-argillite alteration. Minor pyrite. (Molybdenite?)
S 39619	granodiorite	Quartz veining. Minor pyrite, molybdenite, and lesser chalcopyrite.
S 39620	granodiorite	Quartz veining. Minor pyrite.
S 39621	granodiorite	Quartz veining. Minor pyrite; rare molybdenite.
S 39622	granodiorite	Quartz veining. Minor pyrite; rare molybdenite.
S 39623	granodiorite	Quartz veining. Minor pyrite; rare molybdenite.
S 39624	granodiorite	Quartz veining. Minor pyrite; rare molybdenite and chalcopyrite.
S 39625	granite	Quartz veining. Chloritic alteration. Minor pyrite and chalcopyrite.
S 39626	granodiorite	Quartz veining. Minor pyrite.

Molybdenum is moderately to strongly anomalous in most of the samples exhibiting quartz veining on Nup 67, 121-124 mineral claims. It is only marginally anomalous in the intensely altered felsite on Nup 76 claim.

Copper is weakly anomalous in one pyritic basalt sample, and strongly anomalous in a granodiorite sample exhibiting sparse chalcopyrite. Zinc, and to some extent lead, silver, cobalt and nickel have an elevated level in the intermediate volcanics at the south end of the property. Gold is not anomalous. Molybdenite from the quartz veining in granodiorite presumably contributes to the molybdenum in silt anomalies on the north half of the property. The volcanics in the south may elevate the zinc, lead, and cobalt content of the sediments very slightly.

Vancouver, B.C.
September 27, 1973

R.W. Stevenson, P.Eng.

REFERENCES

KRAUSKOPF, K.B., 1955: Sedimentary Deposits of Rare Metals: Econ. Geology, 50th Anniv. Vol., p. 411-463.

KUZNETSOVA, V.V. and SAUFOV, A.A., 1961: Possible Forms of Occurrence of Molybdenum and Rhenium in Coals of Middle Asia: Geochemistry, no. 9, p. 822-829.

STATEMENT OF COSTS INCURRED

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
TO WIT:

In the Matter of a silt and rock geochemical survey done on Nup No. 1, 2, 3, 4, and 5 Groups of mineral claims in July and August of 1973.

I, R.W. Stevenson for Kennco Explorations (Western) Limited

of Vancouver

in the Province of British Columbia, do solemnly declare that the cost incurred on assessment work on the Nup No. 1, 2, 3, 4 and 5 Groups were as follows:

WAGES & BOARD SILT SAMPLING			
R.W. Stevenson	July 18	@ $65.00 + $10.00	$ 75.00
J. Nuppunen	July 18	@ $40.00 + $10.00	$ 50.00
D.A. Yeager	July 6, 10-14	@ $32.00 + $10.00	$ 252.00
R.S. Lopaschuk	July 6, 14,17,18; Aug. 8	@ $24.00 + $10.00	$ 170.00
D.R. MacKay	July 6, 14,17, Aug. 8	@ $23.00 + $10.00	$ 132.00
WAGES & BOARD ROCK SAMPLING			
G. Davies	July 28-30	@ $40.00 + $10.00	$ 150.00
Silt sample bags	175 X 4¢		$ 7.00
Analysis:	43 silt samples for Cu, Mo, Zn, Pb, Ag, Co, Ni		$ 180.60
	132 silt samples for Cu, Mo, Zn, Pb, Ag, Co, Ni, Au		$ 818.40
	15 rock samples for Cu, Mo, Zn, Pb, Ag, Co, Ni, Au		$ 101.25
Typing & Drafting of report			$ 110.00
			$2,046.25

Amount spent on Nup No. 1 Group	$ 205.00
2 "	$ 818.00
3 "	$ 239.00
4 "	$ 648.00
5 "	$ 136.25
	$2,046.25

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City of Vancouver, in the Province of British Columbia, this 1 day of October 1973, A.D.

R.W. Stevenson

A Commissioner for taking Affidavits for British Columbia or
A Notary Public in and for the Province of British Columbia.
Sub-mining Recorder

N

Lake

159 Fr.

160 Fr.

161 Fr.

162 Fr.

163 Fr.

Creek

Snowgritt L.

Lake

L.

LEGEND

- ○ Silt sample
- △ Rock sample
- Strongly anomalous
- Anomalous
- Weakly anomalous

To accompany silt and rock geochemical survey report by R. W. Stevenson, P. Eng., on the Nup No. 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept. 27, 1973.

R. W. Stevenson

All Metal Values in P. P. M.

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination
Nup Claims
Liard M. D., B. C.

Silt & Rock Geochemical Survey
Molybdenum in Silt & Rock

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 1
DRAWN BY:	DATE: 20/9/73	SCALE:	
TRACED BY:	DATE:	1" = 1250'	
REVISIONS:			

N

Lake

Creek

Snowdrift L.

159 Ft.

160 Ft.

161 Ft.

162 Ft.

163 Ft.

L.

LEGEND

○	Silt sample
△	Rock sample
100+	Strongly anomalous
32-99	Anomalous
10-31	Weakly anomalous

4661

All Metal Values in P.P.M.

To accompany silt and rock geochemical survey report by R.W. Stevenson, P. Eng., on the Nup No. 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept. 27, 1973.

R. W. Stevenson

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination

Nup Claims

Liard M.D., B.C.

Silt & Rock Geochemical Survey

Molybdenum in Silt & Rock

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 1
DRAWN BY:	DATE: 20/9/73	SCALE:	
TRACED BY:	DATE:	1" = 1250'	
REVISIONS:			

N

Lake

Creek

Snowdrift L.

L.

159 Fr.

160 Fr.

161 Fr.

162 Fr.

163 Fr.

LEGEND

○	Silt sample
△	Rock sample
>320	Anomalous
140 - 319	Weakly anomalous

All Metal Values in P.P.M.

To accompany silt and rock geochemical survey report by R.W. Stevenson, P. Eng., on the Nup No. 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept. 27, 1973.

R.W. Stevenson

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination
Nup Claims
Liard M.D., B.C.

Silt & Rock Geochemical Survey
Copper in Silt & Rock

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 2
DRAWN BY:	DATE: 20/9/73	SCALE:	
TRACED BY:	DATE:	1" = 1250'	
REVISIONS:			

4661
M2

N

Lake

Creek

Snowdrift L.

159 Fr.

160 Fr.

161 Fr.

162 Fr.

163 Fr.

L.

LEGEND

- ○ Silt sample
- △ Rock sample
- >420 Anomalous
- 200-419 Weakly anomalous

4661
M3

All Metal Values in P.P.M.

To accompany silt and rock geochemical survey report by R.W. Stevenson, P. Eng., on the Nup No. 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept. 27, 1973.

R.W. Stevenson

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination
Nup Claims
Liard M.D., B.C.

Silt & Rock Geochemical Survey
Zinc in Silt & Rock

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 3
DRAWN BY:	DATE: 20/9/73	SCALE: 1" = 1250'	
TRACED BY:	DATE:		
REVISIONS:			

N

Lake

Creek

Snowdrift Li.

159 Fr.

160 Fr.

161 Fr.

162 Fr.

163 Fr.

L.

LEGEND

- ○ Silt sample
- △ Rock sample
- >82 Anomalous
- 23-81 Weakly anomalous

All Metal Values in P. P.M.

To accompany silt and rock geochemical survey report by R. W. Stevenson, P. Eng., on the Nup No. 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept. 27, 1973.

R. W. Stevenson

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination
Nup Claims
Liard M. D., B. C.

Silt & Rock Geochemical Survey
Lead in Silt & Rock

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 4
DRAWN BY:	DATE: 20/9/73	SCALE: 1" = 1250'	
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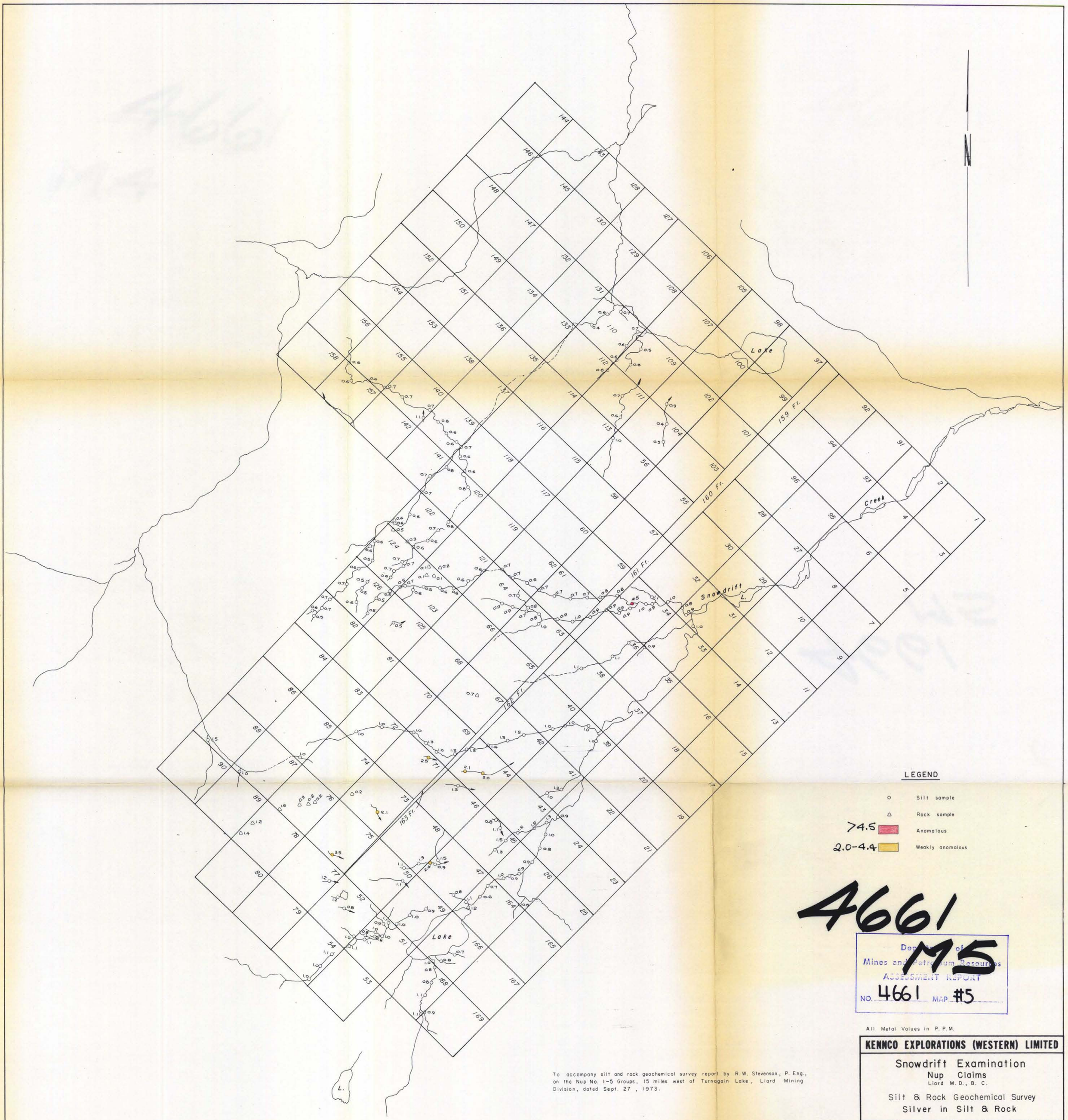
REVISIONS:			



LEGEND

- ○ Silt sample
- △ Rock sample
- >4.5 Anomalous
- 2.0-4.4 Weakly anomalous

4661

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4661 MAP #5

To accompany silt and rock geochemical survey report by R.W. Stevenson, P. Eng., on the Nup No. 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept. 27, 1973.

R. W. Stevenson

All Metal Values in P.P.M.

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination
Nup Claims
Liard M.D., B.C.

Silt & Rock Geochemical Survey
Silver in Silt & Rock

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 5
DRAWN BY:	DATE: 20/9/73	SCALE:	
TRACED BY:	DATE:	1" = 1250'	
REVISIONS:			

N

Lake

Creek

Snowdrift L.

159 Ft.

160 Ft.

161 Ft.

162 Ft.

163 Ft.

L.

LEGEND

- Silt sample
- Rock sample
- Anomalous
- Weakly anomalous

4661
M6

All Metal Values in P.P.M.

To accompany silt and rock geochemical survey report by R.W. Stevenson, P. Eng., on the Nup No. 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept. 27, 1973.

R. W. Stevenson

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination
Nup Claims
Liard M.D., B.C.

Silt & Rock Geochemical Survey
Gold in Silt & Rock

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 6
DRAWN BY:	DATE: 20/9/73	SCALE:	
TRACED BY:	DATE:	1" = 1250'	
REVISIONS:			

LEGEND

- Silt sample
- Rock sample
- none — Anomalous
- 42+ — Weakly anomalous

4661
M7

All Metal Values in P.P.M.

To accompany silt and rock geochemical survey report by R.W. Stevenson, P. Eng., on the Nup No. 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept. 27, 1973.

R. W. Stevenson

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination
Nup Claims
Liard M.D., B.C.

Silt & Rock Geochemical Survey
Cobalt in Silt & Rock

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 7
DRAWN BY:	DATE: 20/9/73	SCALE: 1" = 1250'	
TRACED BY:	DATE:		
REVISIONS:			

N

Lake

Creek

Snowdrift L.

L.

159 Fr.

160 Fr.

161 Fr.

162 Fr.

163 Fr.

LEGEND

- ○ Silt sample
- △ Rock sample
- Anomalous
- Weakly anomalous

4661

MB

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4661 MAP #8

To accompany silt and rock geochemical survey report by R.W. Stevenson, P. Eng., on the Nup No. 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept. 27, 1973.

R. W. Stevenson

All Metal Values in P.P.M.

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination
Nup Claims
Liard M.D., B.C.

Silt & Rock Geochemical Survey
Nickel in Silt & Rock

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 8
DRAWN BY:	DATE: 20/9/73	SCALE:	
TRACED BY:	DATE:	1" = 1250'	
REVISIONS:			

N

Lake

159 Fr.

160 Fr.

Creek

161 Fr.

Snowdrift L.

162 Fr.

163 Fr.

Lake

L.

LEGEND

○ Silt sample

△ Rock sample

To accompany silt and rock geochemical survey report by R.W. Stevenson, P. Eng., on the Nup No 1-5 Groups, 15 miles west of Turnagain Lake, Liard Mining Division, dated Sept 27, 1973.

R. W. Stevenson

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M9

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4661 MAP #9

KENNCO EXPLORATIONS (WESTERN) LIMITED

Snowdrift Examination
Nup Claims
Liard M.D., B.C.

Silt & Rock Geochemical Survey
Silt & Rock Sample Sites

DATA BY: R.W.S.		N.T.S. 104 I-6	PL. NO.: 9
DRAWN BY:	DATE: 20/9/73	SCALE:	
TRACED BY:	DATE:	1" = 1250'	
REVISIONS:			