GEOLOGICAL AND GEOCHEMICAL REPORT

by

J. M. Newell, P. Eng.
D. A. Jewett, B. Sc.

on surveys completed during August, 1972
on the
W. L. #1-32 MINERAL CLAIMS
surrounding Wicked Lake
in the
OMINECA MINING DIVISION, BRITISH COLUMBIA
56°N, 123°E, S.W.
(N.T.S. 94B/5E)
and held by
CORDILLERAN ENGINEERING LIMITED

November, 1972 94B/5E Toronto, Ontario

4141

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David Jewett

TABLE OF CONTENTS

ILLUSTRATIONS

INTRODUCTION

According to the published geological report (GSC Paper 69-11, Map 1232A, E.J.W. Irish) covering the Wicked Lake area, the Devonian carbonate sequence, which is the host rock of Lead-Zinc mineralization at Robb Lake, pinches out at Wicked Lake. In August, 1972, a preliminary geological mapping and geochemical rock and soil sampling program was undertaken to investigate several known rusty zones in the vicinity of the Devonian carbonate pinch-out.

LOCATION

The property is situated near the head waters of the Wicked River, approximately 16 miles north of Williston Lake and 56 miles west of the WAC Bennett Dam.

ACCESS

Access to the property is by helicopter from the nearest staging areas of Hudson Hope and Finlay Bay. A possible alternative method of access to the property is by road to the WAC Bennett Dam and from there to use water transportation up Williston Lake to the outlet of the Wicked River. Helicopter transport would be required from the outlet of the river to Wicked Lake.

OWNERSHIP

The claims are held by Cordilleran Engineering Limited.

REGIONAL GEOLOGY

The stratigraphy in the general vicinity of Wicked Lake consists of a Silurian-Devonian sequence on the west limb of the Bernard Anticline with Ordovician rocks thrust up against the Devonian rocks from the west by the Mount Burden Fault. The rocks have been grouped according to their ages and have not been divided into recognizable formations as has been done further north.

Lithology

Upper Devonian

Besa River Formation

These rocks are normally black to dark grey, fissile to thinly bedded shales. They are usually non-calcareous and contain pyrite.

Middle Devonian

This sequence is predominantly dolomite with varying degrees of silicification. Also, there is dense-medium crystalline limestone with fossiliferous sections. The rocks are light grey, grey, dark grey or light brown buff.

Silurian

These rocks are mainly dolomite, sandy dolomite and argillaceous dolomite. The rocks are grey to dark grey on the fresh surface, and weather light grey to buff.

Ordovician

The Ordovician is represented by grey to dark grey-brown, dense to medium crystalline, argillaceous, silty and sandy dolomite. This rock is very similar in appearance and fabric to the Silurian rocks.

PROPERTY GEOLOGY

The geology is complex and the lithologic units are somewhat similar, making it hard to distinguish the different formations. This problem is made more difficult by the precipitous nature of the hillsides which are also covered by dense alpine to rain forest vegetation near the valley bottom.

Rocks from the Middle Devonian and Ordovician have been identified on this property. Rocks of the Lower Devonian and Silurian do not outcrop due to the regional structure, or at least were not recognized. The geological and geochemical traverses were not run according to a grid but rather where traverses could be made allowing for safety and accessibility.

Lithology

Middle Devonian

One type of rock is light to medium grey limestone. Generally the limestone is dense but is occasionally medium crystalline, and also contains abundant fossils of Coelenterata and Brachiopoda. These rocks correlate with the Dunedin Formation as mapped to the north.

The Middle Devonian also includes light to medium grey dolomite which weathers medium to dark grey. This rock is dense, well-bedded to medium crystalline massive dolomite which may include thin beds of limestone with or without fossils. These rocks correspond to the Stone Formation as mapped to the north.

Lower Devonian and Silurian

These rocks either do not outcrop or were not recognized on this property.

Ordovician

The lithology is principally dense to medium crystalline, medium to dark grey dolomite. The dolomite weathers to a medium grey. Where the rocks are silty to sandy they weather buff. There are also beds of light grey calcareous shale to dark grey-black shale. These shales are highly fissile and slaty. Occasional beds of fossiliferous dolomite were observed.

STRUCTURE

The Mount Burden Fault strikes in a north-south direction dividing the property essentially in half. The beds on either side of the fault strike about 160° and dip on an average of 40° west. The Ordovician rocks on the west side of the fault are thrust up over the Devonian rocks on the east side. The vertical displacement is of the order of 2000-3000'. The surface trace of the thrust fault shows the fault to be dipping very steeply to the west. The Devonian rocks on the east side of the fault are part of the west limb of the Bernard Anticline which plunges southward.

MINERALIZATION

Three rusty pyritic zones were found on the claims.

The northern rusty zone (No. 1), lies on the north part of the claim group at the junction of claims W.L. 3 and W.L. 5. The next rusty zone (No. 2), a claim length south, lies along the boundary between claims W.L. 4 and W.L. 6. The third rusty zone (No. 3) is located in the south-west corner of the claim group. This zone is centered on claim W.L. 32 and extends into claims W.L. 19, W.L. 21 and W.L. 31.

The three rusty zones are on the up-thrust side of the fault. Although they are at the same elevation they do not appear to be in the same stratigraphic horizon.

In each rusty zone, the weathered surface is encrusted by a limonitic pyrite mat. In the more vuggy sections there is massive irregular pyrite with the occasional trace of chalcopyrite. The country rock, where discernible, appears to be a dense dark grey to black dolomite with veinlets of white secondary dolomite.

GEOCHEMISTRY

Approximately 218 soil and 28 rock samples were collected from the property during the follow-up program.

Samples were taken from shallow holes, dug with a mattock. Podsolic soil horizons exist but are not well developed. Where possible the 'B' soil horizon was sampled and, failing that, the 'C' horizon was substituted. The soils were derived from the talus slopes. No glacial deposits or transported soils were observed on the property.

All samples were placed in Kraft paper envelopes, dried in the field and shipped to the Bondar-Clegg and Company laboratory in North Vancouver for Cu, Pb and Zn analyses.

The analytical techniques are summarized as follows:

The samples are dried and sieved to -80 mesh and then a ½ gram portion is weighed out. This portion is digested with a hot LeFort Aqua Regia solution for three hours, then diluted to 20% acid concentration. The solutions are homogenized, then allowed a uniform settling period. Next, they are run by atomic absorption with constant comparisons with synthetic and matrix standards. The results are permanently recorded on chart paper.

The north rusty zone (No. 1), gives geochemical values up to 350ppm for Cu and 2750ppm for Pb. The middle rusty zone (No. 2), has values up to 810ppm Cu and 5450ppm Pb. The southwest rusty zone (No. 3), has values up to 320ppm Zn and 3600ppm Pb. A fourth geochemically anomalous area (No. 4) is the southeast corner of the claim group and has values up to 2400ppm Pb and 4800ppm Zn.

Combining the geochemical results from both sides of the thrust produces a two population distribution curve which confirms the geological mapping. A single population curve is produced by using only samples from either side of the fault which reinforces the geological interpretation of the two separate areas. As a result, anomalous geochemical values for the rocks and soils associated with the Devonian rocks are: Cu $>$ 29ppm, Zn $>$ 65ppm, Pb $>$ 66ppm; and, for the Ordivician rocks, Cu $>$ 34ppm, Zn and Pb $>$ 55ppm.

CONCLUSION AND RECOMMENDATION

The geochemistry in conjunction with the geology indicates that the area is anomalous in copper, lead and zinc. There are shown to be three copper-lead-zinc anomalous zones related to pyritic zones in dolomite and a fourth lead-zinc geochemical anomaly.

Further detailed soil and rock geochemical sampling should be carried out along with more detailed geological mapping. A packsack type of drill would also aid in sampling and determining the extent of the rusty zones.

APPENDIX

Statement of Qualifications

J. M. Newell, P. Eng., Texas Gulf, Inc., Vancouver.

D. A. Jewett, B. Sc., associate member of G.A.C., graduated from U.B.C. in 1967 with a B. Sc. in geology and has worked for Texas Gulf, Inc. as an exploration geologist since 1969.

JNewell

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

In the Matter of Assessment work carried out on the WL 1-32 Mineral Claims, situate at Wicked Lake, in the Omineca Mining Division.

I, John M. Newell

of #701-1281 West Georgia Street, Vancouver 5,

in the Province of British Columbia, do solemnly declare that during the period August 7-15th, 1972, I caused assessment work to be done on the W.L. Mineral Claims to the value of $7,243.43. The expenses were incurred as follows:-

Geological Mapping			
D.A.Jewett	7 days @ $65	$ 455.00	
R.H.Mann	7 days @ $55	385.00	
V.N.Kelly	2 days @ $85	170.00	$1,010.00
Geochemical Survey			
H.S.Mosher	7 days @ $25	175.00	
J.McVeigh	7 days @ $25	175.00	
218 geochemical analyses @ $2.20		479.60	
28 geochemical analyses @ $2.75		77.00	906.60
Room and Board			650.00
Transportation			
18.1 hours Allouette helicopter @ $210		3,801.00	
Fuel (JP-4)		575.83	4,376.83
Supervision, Report etc.			300.00
		Total	$7,243.43

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."

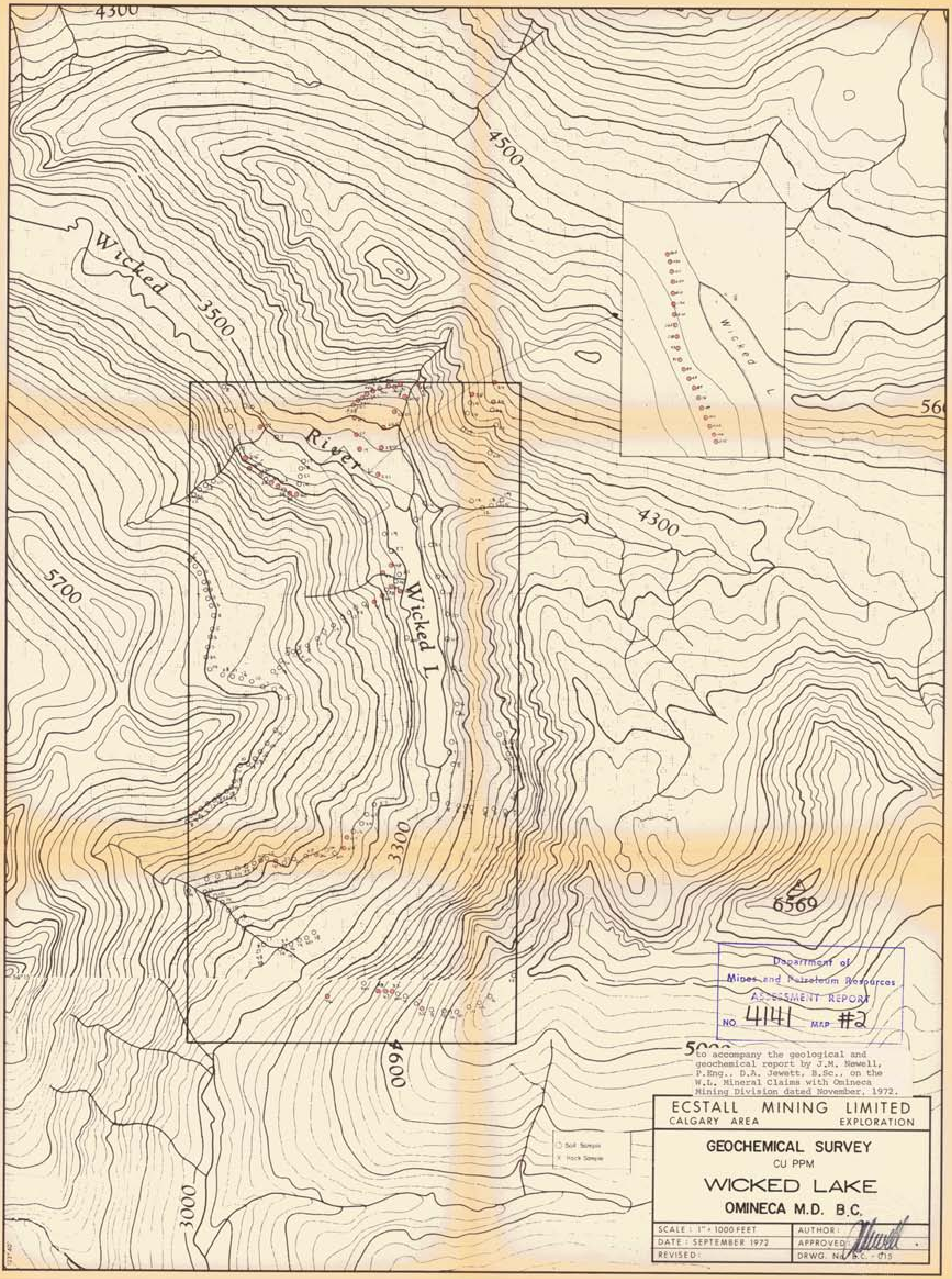
Declared before me at the City of Vancouver, in the Province of British Columbia, this 19 day of January 1973, A.D.

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

In the Matter of

Statutory Declaration

(CANADA EVIDENCE ACT)

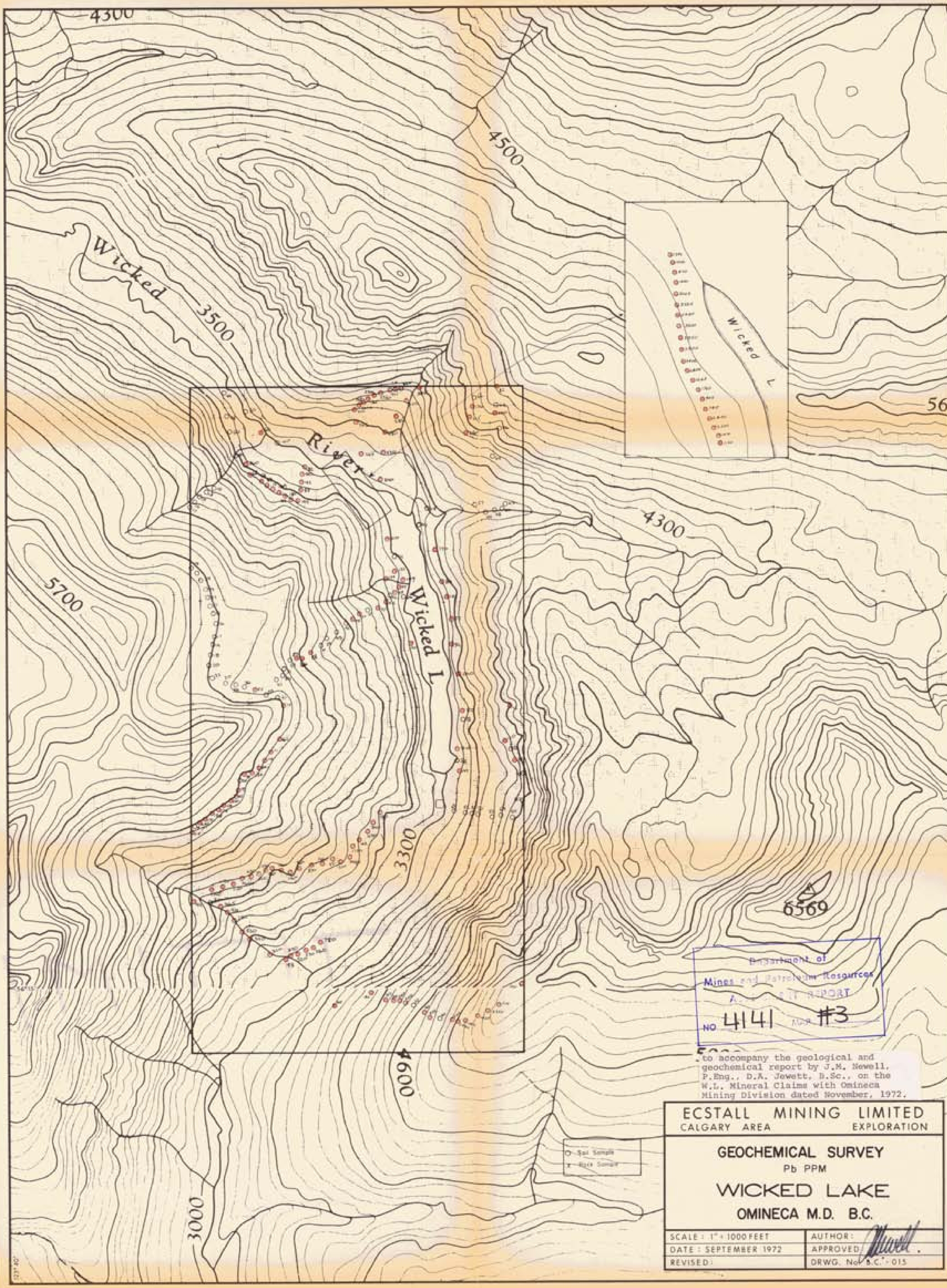


to accompany the geological and geochemical report by J.M. Newell, P.Eng., D.A. Jewett, B.Sc., on the W.L. Mineral Claims with Omineca Mining Division dated November, 1972.

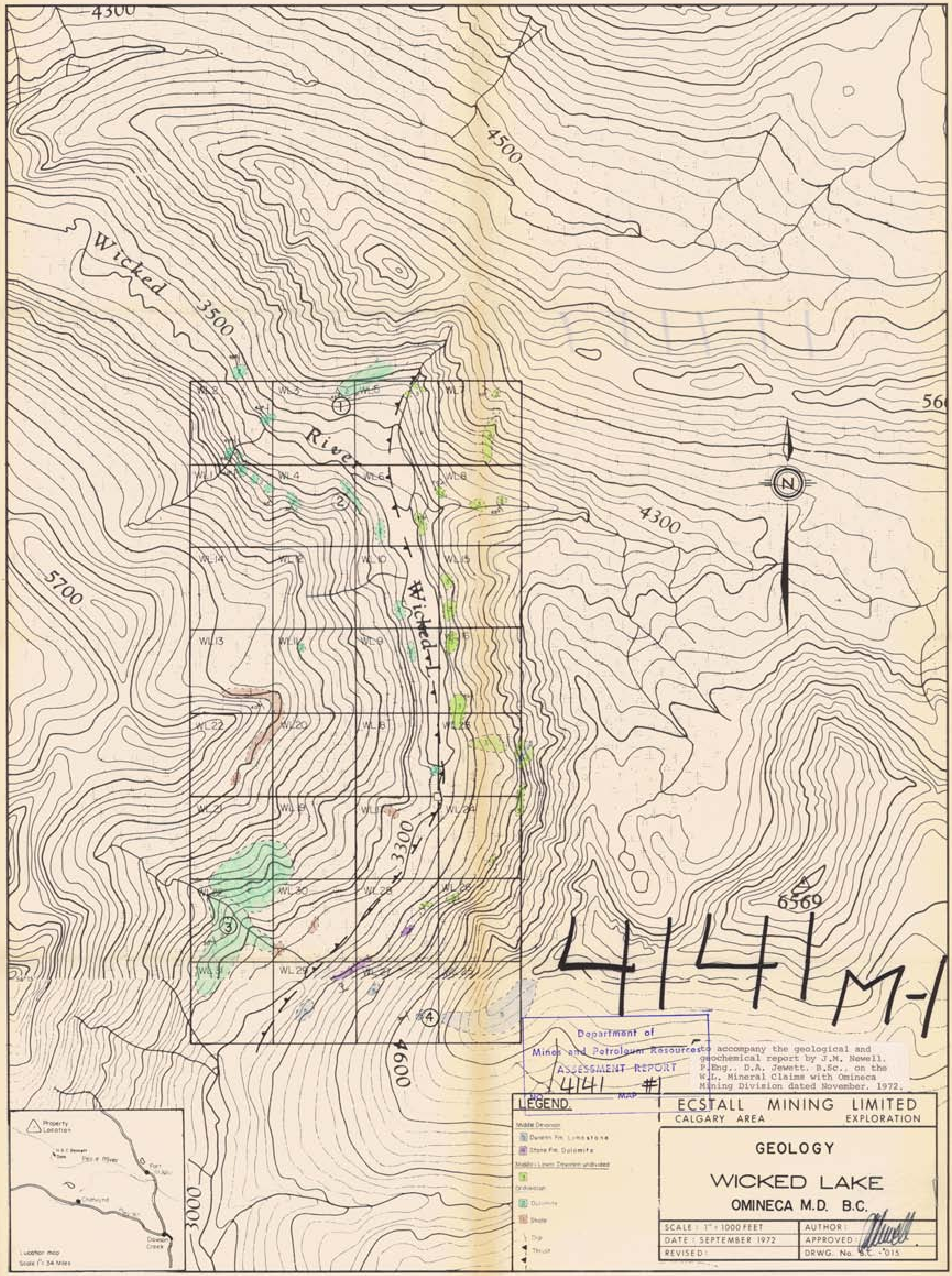
ECSTALL MINING LIMITED
CALGARY AREA EXPLORATION

GEOCHEMICAL SURVEY
CU PPM
WICKED LAKE
OMINECA M.D. B.C.

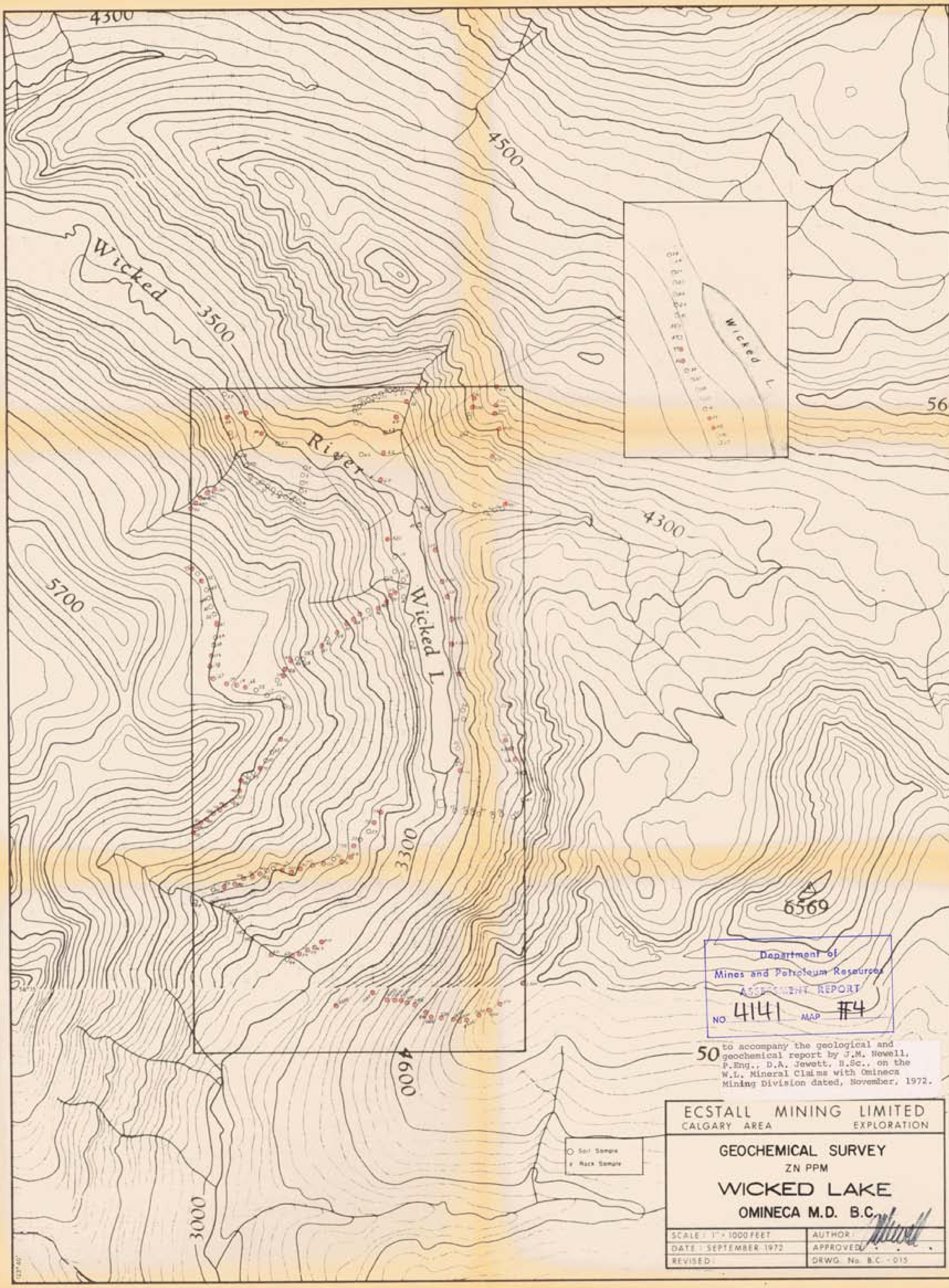
SCALE: 1" = 1000 FEET	AUTHOR:
DATE: SEPTEMBER 1972	APPROVED:
REVISED:	DRWG. No. B.C. - 015



4300
4500
Wicked
3500
River
Wicked L
5700
4300
3300
4600
3000
6569
Department of
Mines and Petroleum Resources
NO 4141 #3
to accompany the geological and geochemical report by J.M. Newell, P.Eng., D.A. Jewett, B.Sc., on the W.L. Mineral Claims with Omineca Mining Division dated November, 1972.
Soil Sample
Rock Sample
ECSTALL MINING LIMITED
CALGARY AREA EXPLORATION
GEOCHEMICAL SURVEY
Pb PPM
WICKED LAKE
OMINECA M.D. B.C.
SCALE: 1" = 1000 FEET
DATE: SEPTEMBER 1972
REVISED:
AUTHOR:
APPROVED:
DRWG. No. B.C. - 015



4300
4500
Wicked
3500
River
Wicked L.
5700
4300
3300
4600
3000
6569
WL 2
WL 3
WL 5
WL 7
WL 1
WL 4
WL 6
WL 8
WL 14
WL 12
WL 10
WL 15
WL 13
WL 9
WL 22
WL 20
WL 25
WL 21
WL 24
WL 30
WL 26
WL 29
N
4141 M-1
Property Location
Peace River
Dawson Creek
Location map
Scale 1" = 34 Miles
Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4141 MAP #1
to accompany the geological and geochemical report by J.M. Newell. P.Eng., D.A. Jewett. B.Sc., on the W.L. Mineral Claims with Omineca Mining Division dated November. 1972.
LEGEND.
Middle Devonian
Dunedin Fm. Limestone
Stone Fm. Dolomite
Ordovician
Dolomite
Shale
Dip
Thrust
ECSTALL MINING LIMITED
CALGARY AREA
EXPLORATION
GEOLOGY
WICKED LAKE
OMINECA M.D. B.C.
SCALE: 1" = 1000 FEET
DATE: SEPTEMBER 1972
REVISED:
AUTHOR:
APPROVED:
DRWG. No. B.C. - 015


4300
4500
Wicked
3500
River
Wicked L.
5700
4300
3300
6569
4600
3000
50
Wicked L.
Soil Sample
Rock Sample
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO 4141 MAP #4
to accompany the geological and
geochemical report by J.M. Newell,
P.Eng., D.A. Jewett, B.Sc., on the
W.L. Mineral Claims with Omineca
Mining Division dated, November, 1972.
ECSTALL MINING LIMITED
CALGARY AREA
EXPLORATION
GEOCHEMICAL SURVEY
ZN PPM
WICKED LAKE
OMINECA M.D. B.C.
SCALE: 1" = 1000 FEET
DATE: SEPTEMBER 1972
REVISED:
AUTHOR:
APPROVED:
DRWG. No. B.C. - 015