

REPORT TO THE
DAKOTA ENERGY CORPORATION
OF VANCOUVER, B.C.

ON
ASSESSMENT WORK ON
THE MIN CLAIM
NEAR MINNIE LAKE
NICOLA MINING DIVISION, B.C.

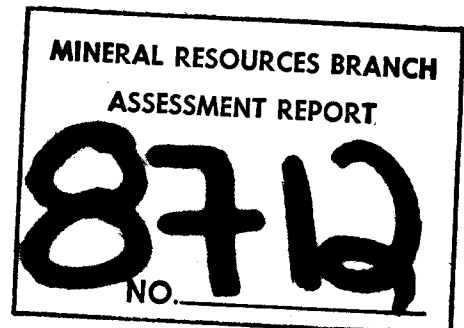
92 I / 1 W
50° 01' N 120° 21' W

BY
SHERWIN F. KELLY, P. ENG.

DECEMBER 19, 1980

VOLUME I

TEXT



part 1
of 2

REPORT TO DAKOTA ENERGY CORP.
ON ASSESSMENT WORK
ON THE MIN CLAIM

TABLE OF CONTENTS

VOL. I

SUMMARY.....P. 1
INTRODUCTION.....P. 2
LOCATION AND ACCESS.....P. 2
CLAIMS.....P. 3
GEOCHEMICAL SURVEY.....P. 4
SAMPLE ANALYSIS.....P. 5
MAPPED RESULTS.....P. 6
SUMS EXPENDED.....P. 8
COST STATEMENT BY DAVID MARK.....P. 9
CERTIFICATE OF QUALIFICATIONS.....P. 10

MAPS BOUND IN REPORT

LOCATION MAP, FIG. 1.....facing P. 2
CLAIM MAP, FIG. 2.....facing P. 3
CLAIM MAP WITH SURVEY AREA,
FIG. 3.....facing P. 5

MAPS AND DATA BOUND IN VOL. II

GEOCHEMICAL DATA

COPPER ANOMALY MAP

MOLYBDENUM ANOMALY MAP

REPORT TO DAKOTA ENERGY CORP.
ON ASSESSMENT WORK
ON THE MIN CLAIM
NEAR MINNIE LAKE
NICOLA MINING DIVISION, B.C.
BY
SHERWIN F. KELLY, P. ENG.

SUMMARY

A geochemical soil survey was made on two adjoining mining claims, the Min claims, one of nine and the other of six units, in the Nicola Mining Division, B.C., between Oct. 15 and 30, 1979. The fifteen units are located on the Douglas Plateau about 32 km in a straight line ESE of Merritt, B.C. The claims are accessible by car from Merritt, via the Merritt-Kamloops Highway (#5), the Pennask Lake gravel road turn-off and then the Wasley Creek dirt road turn-off, for a total of about 49 km from Merritt to the SW corner legal post of the 9-unit Min claims. The 6-unit Min claims adjoins the latter on the east. These claims are owned by the Dakota Energy Corp. of Vancouver, B.C., which paid for the work performed.

The area of the claims is found on the Merritt sheet of the NTS maps at the scale of 1:125,000 4 km east of Minnie Lake. The claim co-ordinates are roughly $50^{\circ}01'$ N latitude and $120^{\circ}20'$ W longitude.

The sampling lines of the grid run N-S, spaced 100 m apart, with sampling intervals of 30 m on each line. The grid covers the 3x2 unit claim completely, plus two units of the 3x3 unit claim adjoining on the west and half or more of the two units lying against them on the west.

A total of 854 samples was taken from the B soil horizon and shipped to Bondar-Clegg in Vancouver, for analysis. The field work was undertaken by V.L. Paulger & Associates, of Vancouver, on a contract basis. That firm hired Mr. Lorne McClelland, of Merritt, an experienced exploration man and contractor, to carry out the line-cutting and sampling. He was also the original staker of the claims.

The samples were tested for copper and molybdenum and the results were analysed, correlated and drafted by Geotronics Ltd. of Vancouver. Their maps of the copper and molybdenum anomalies accompany this report. Background for copper was found to be 14 ppm and for molybdenum, 1 ppm. Sub-anomalous threshold value (not quite anomalous but interesting) for copper is 24 ppm and for molybdenum 3 ppm. Anomalous values for copper are 40 ppm or more, and 4ppm or higher for molybdenum. Molybdenum values go as high as 10 ppm and copper up to 145 ppm. Copper anomalies are more abundant than molybdenum ones, but they often coincide in location.

The contour map of copper values shows a striking tendency for the anomalous zones to group in the north and west areas of the map, occupying the NW portion of the east group of Min claim units and all of the adjoining two units and two fractions of units surveyed in the west group of Min claim units. In this latter portion especially, the sub-anomalous threshold contours are noticeable for their wide extension. Several molybdenum anomalies coincide with copper ones, and one exists by itself.

In the eastern part of the survey area, there are some easterly and northeasterly alignments of anomalies suggestive of mineralised vein or dike formations. The more irregular distribution of anomalies in the west portion, suggests disseminated mineralisation with local concentrations.

Mineralisation of the above types could be anticipated in the bedrock of this area. The bedrock here consists of grey to pink granodiorite to quartz diorite of the Pennask batholith, part of the Coast Intrusives of Jurassic to Cretaceous age. Outcrops of grey quartz diorite a short distance west of Line O, exhibit fine fractures, spaced inches apart, occupied by quartz veinlets which may carry copper and molybdenum sulphides. At the Brenda Mine, 18 miles southeast and also in the Pennask batholith, mineralisation of similar bedrock occurs in faults and fractures, in the form of separate grains, bunches and platy networks of chalcopyrite, pyrite and molybdenite, occupying quartz or quartz-microcline veins and veinlets in the fractures.

The geochemical anomalies merit further investigation, particularly in the light of the results of an induced polarisation survey carried out by Geotronics Ltd. and reported on under date of Dec. 10, 1980 by David G. Mark, geophysicist.

The details of expenditures are set forth in a statement by Geotronics Ltd. attached hereto.

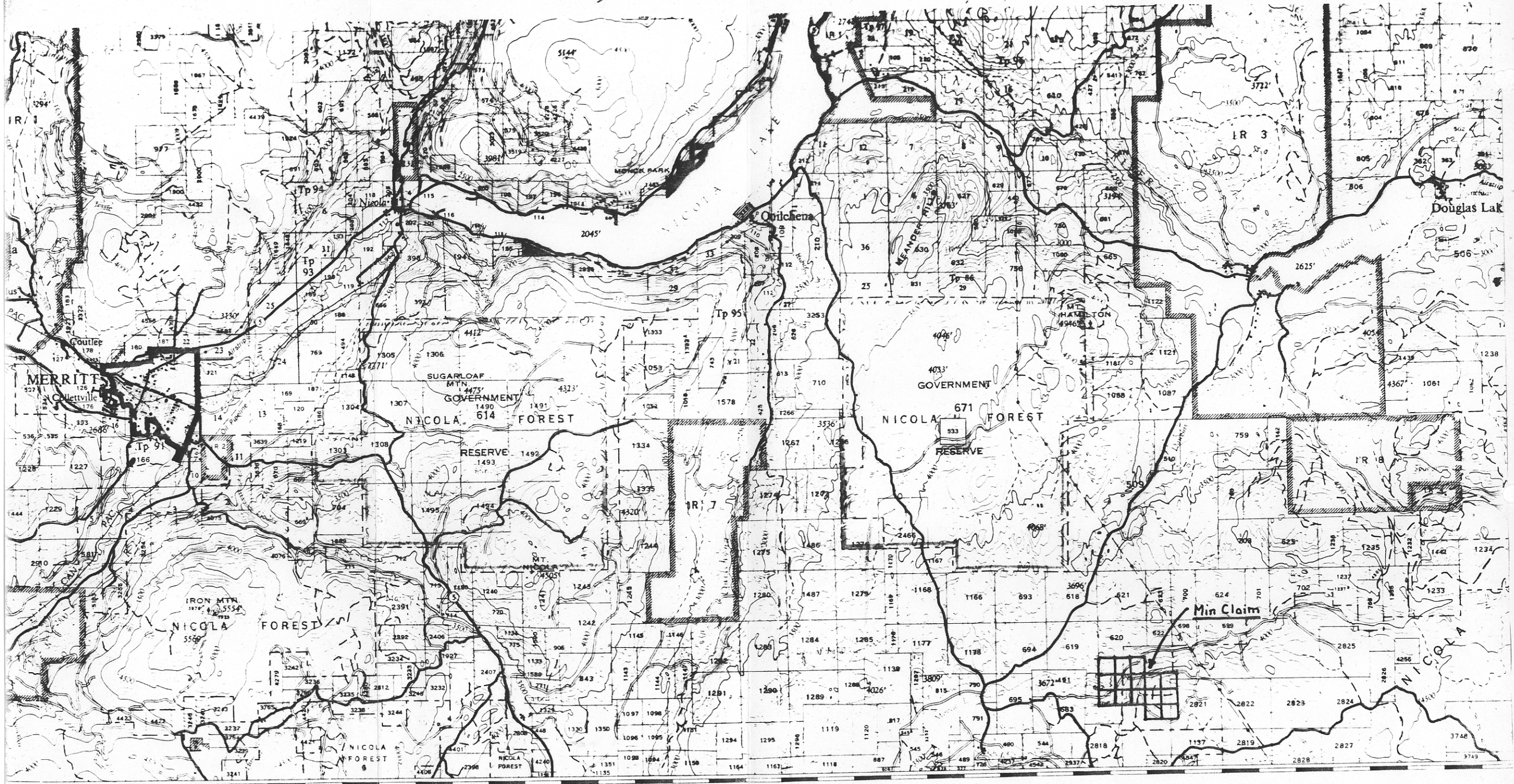
INTRODUCTION

The following report on the results of the soil sampling for copper and molybdenum on the two, adjoining Min claims near Minnie Lake, Nicola Mining Division of B.C., is prepared at the request of the Dakota Energy Corp., of Vancouver, B.C., owner of the claims. This request follows the implementation of the recommendations for geochemical and geophysical surveys of the property, as set forth in my "Report to the Dakota Energy Corporation of Vancouver, B.C., on the Min Claim near Minnie Lake, Nicola Mining Division, B.C." dated October 22, 1979.

LOCATION AND ACCESS

The Min group of 15 claim units, is located on the Douglas Plateau at an elevation of about 1,200 m, in the SW corner of the SE quarter of map 921/SE of the NTS maps. This is the Merritt Map at the scale of 1:125,000. The claim co-ordinates are approximately 120°20' west longitude and 50°01' north latitude. The claim group is about 32 km ESE in a straight line from Merritt. The location is shown on the map Fig. 1, facing this page.

The claims are readily accessible by car from Merritt.



45'

To Princeton - 44 miles

10'

15'

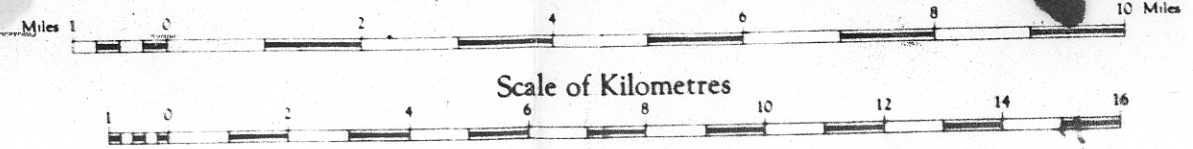
Min Claim
Fig. 1
Index Map

MERRITT

BRITISH COLUMBIA

Part 1
92

Scale 1:125,000 or 1 Inch to 2 Miles approximately



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8712

Highway 5 (to Kamloops) is followed for some $24\frac{1}{2}$ km to a gravel road turn-off just past Quilchena, marked Paradise Lake and Pennask Lake. The Pennask Lake road is then followed for about 23 km to the Wasley Creek turn-off. One km along this road it goes through a wire fence at a cattle-guard. The total distance is nearly 49 km. About 8 m southwesterly from the cattle-guard, the legal post of the first-staked Min claim stands beside the fence. It is the SW corner of that first, 3x3 units claim. The second-staked, 2x3 units claim lies along the east side of the first one.

The claim area is criss-crossed by logging and forestry roads.

CLAIMS

The Min claim group of nine units (3x3) with the legal corner post at the SW corner, as mentioned above, was staked on June 29, 1979 by Lorne McClelland of Merritt and recorded by him in the Nicola Mining Division office in Merritt on July 23, 1979 with Record No. 665. The second Min claim of six units (2x3) was staked by Lorne McClelland on Sep. 23, 1979 and recorded by him on Sep. 26, 1979 in the Merritt office of the Nicola Mining Division, with Record No. 733. The legal corner post of this second group is at its NW corner and stands beside the perimeter post 3E, 2N, of the first group. The units extend two east and three south from the legal corner post of the second group.

The Claim Map, Fig. 2, faces this page.

Lorne McClelland transferred both Min claims to Marshall Bertram by Bill of Sale No. 2872, dated Oct. 31, 1979. On Nov. 7th, 1979, Marshall Bertram conveyed them to Dakota Energy Corp. by Bill of Sale No. 2873.

About 900 m west of the two posts (legal corner post of the 6-unit Min claim and perimeter post 3E 2N of the 9-unit Min claim) mentioned above, an iron survey peg marks the mutual corner of land lots 620, 696 and 697. It is some 30 m west of the access road at about 1.3 km northeasterly along that road (the Wasley Creek road) from where it enters the Min claim at the cattle-guard in the wire fence. The land lots lie to the north and west and Nicola Provincial Forest land lies to the east and south, of that

survey peg.

The geochemical survey for copper and molybdenum, herein reported on, was conducted in the area to the east and south from the above-mentioned survey peg.

GEOCHEMICAL SURVEY

A geochemical soil survey for molybdenum and copper was conducted on a grid covering a large portion of the Min claim holdings. The units covered were:-

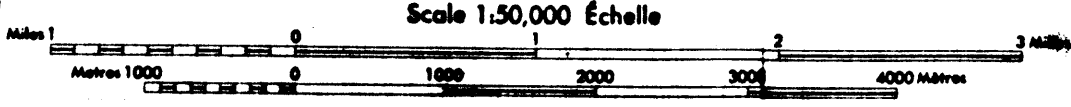
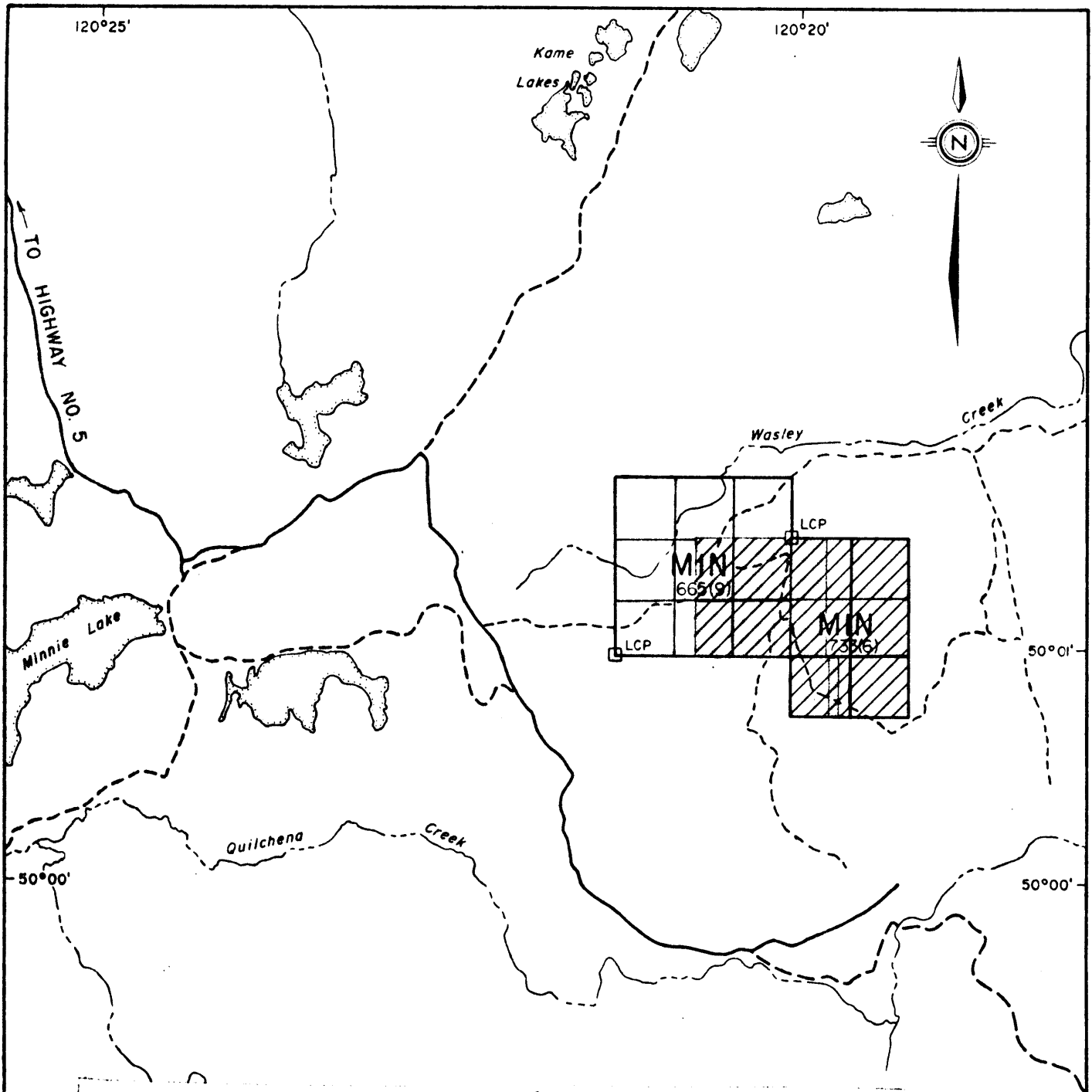
Of the 9-unit Min claim staked in June, 1979, approximately half ($E\frac{1}{2}$) of unit 1N 2E, and approximately half ($E\frac{1}{2}$) of unit 2N 2E, and all of units 1N 3E & 2N 3E;



Of the 6-unit Min claim staked in Sept. 1979, all of the six units.

The units not covered by the soil survey lie north and west of the iron survey peg. They occupy portions of land lots 697, 620, 682 and 696, lying on the north and the west boundaries of this portion of the Nicola Provincial Forest. Those lots are owned by the Douglas Lake Cattle Co. and carry the rights to sub-surface base mineral deposits. Gold and silver are reserved to the Crown, however, so operations for those metals could be conducted in such areas. The units covered by the soil sampling, lying east and south of the survey peg, are within the boundaries of the Nicola Provincial Forest, where valid stakings give the right to both base and noble metal deposits.

The grid lines run N-S at intervals of 100 m with sampling locations every 30 m along each line. The lines run south from about the north boundary line of the Nicola Provincial Forest. This corresponds with the north boundary of units 2N 2E and 2N 3E in the 9-unit Min claim and the north boundary of units 1S 1E and 1S 2E in the 6-unit Min claim (the north boundary of the claim). The lines are 1000 m long in the west (9-unit) claim and 1500 m long in the east (6-unit) claim.

The grid lines were actually laid out from two, E-W Base Lines and the stations numbered N and S from each Base Line. For the west claim, the B. L. follows the north boundary of units 1N 2E and 1N 3E, ending at the boundary between the 9-unit and



-  I.P. SURVEY AREA
-  GEOCHEMICAL SURVEY AREA

With modifications by
Sherwin F. Kelly, P.Eng.

GEOTRONICS SURVEYS LTD			
DAKOTA ENERGY CORPORATION			
MIN CLAIMS			
MINNIE LAKE AREA, NICOLA M.D., B.C.			
CLAIM MAP			
WITH SURVEY AREA			
Drawn By: Altair	Date: Nov., 1980	Job No: 80-34	Scale: 1:50,000
		Figure No: 3	

120°25'

the 6-unit claims. The stations were numbered north and south from the B.L., the lines extending 500 m north and 500 m south. The B.L. was 900 m long, nine lines being run off it.

At the 6-unit claim, the B.L. was moved 500 m south, to follow the south boundary of units 2S 1E and 2S 2E. It extends 1,000 m, the full width of this Min claim. Ten lines were run off it, extending 1,000 m north and 500 m south.

The lines were numbered consecutively, from west to east. Line 0 was located 100 m east of the iron survey peg, so no samples were taken along the west boundary line of the forest reserve. Line 8 occurs at the boundary between the 9-unit and 6-unit Min claims. Line 18 corresponds with the east boundary of the 6-unit Min claim.

The Claim Map With Survey Area, Fig. 3, facing this page, shows the location of the grid in the claim group.

Samples of soil from the B horizon were taken from holes dug 8 in. to 16 in. deep, at thirty metre intervals along each line, for a total of 854 samples. These were packaged in kraft paper bags and shipped to Bondar-Clegg, in Vancouver, for analyses.

The field work, of line-cutting and sampling, was undertaken on a contract basis by V.L. Paulger & Associates, of 789 W. Pender St., Vancouver, B.C. That firm hired Mr. Lorne McClelland, of Merritt, a contractor experienced in drilling and exploration work, to do the line-cutting and sampling. The costs involved and the time of the work are set forth in the statement by Dakota Energy Corp., attached hereto.

SAMPLE ANALYSES

The 854 samples shipped to Bondar-Clegg, were subjected to hot aqua regia dissolution and atomic absorption analysis. The results are set forth in their reports 20-176 and 20-202, copies of which accompany this report. Analyses were made for copper and molybdenum, numerous anomalous readings for both being recorded.

MAPPED RESULTS

The results reported in parts per million (ppm) by Bondar-Clegg, are entered on two maps accompanying this report, one for copper and one for molybdenum. They are in a pocket of the second volume of this report, which also carries the Bondar-Clegg returns.

The geochemical figures were analysed, plotted and contoured by Geotronics Surveys Ltd., under the general direction of Mr. David Mark, geophysicist. It is the Geotronic maps which are submitted herewith.

According to David Mark, of Geotronics Ltd., the copper values were treated by grouping the ppm figures in logarithmic intervals of 0.1 and then calculating the cumulative frequency values for each interval. The mean background value for copper was taken at the 50% level, equal to 14 ppm. The term "sub-anomalous threshold" was introduced to designate the minimum value that is not considered anomalous but is still important as an indicator of mineralisation. The value adopted was one standard deviation from background, 24 ppm which is contoured on the map with a broken line. The anomalous threshold value, at two standard deviations from background, is 40 ppm. This value and higher ones at 70 and 115 ppm, are contoured with solid lines.

The molybdenum values were selected by visual examination of the analytical reports. Background was determined to be 1 ppm, sub-anomalous threshold was fixed at 3 ppm and anomalous threshold at 4 ppm. The 3 ppm contour is a broken line and the contours of 4, 5, 7 and 9 ppm are solid lines.

The cumulative frequency values for copper show a break close to the anomalous value, indicating a greater than normal number of high copper values, a usual result in areas of sulphide mineralisation. Soil copper values go as high as 145 ppm and molybdenum up to 10 ppm.

The contoured copper anomalies are labelled by letters A to F. The molybdenum anomalies are also labelled, in accordance with their correlation with the copper ones. In addition, there is a molybdenum anomaly marked G, unrelated to a copper one.

To the above, I add my own comments on the mapped results. The copper anomalies are noticeably concentrated in the western

portion of the survey area and in the adjoining northwestern part of the east block of Min claims, the one of 6 units (2x3). In the western part (the southeast units in the 9-unit Min claim) the copper anomalies show a random distribution and the sub-anomalous threshold contours meander over a considerable area. This gives the impression that the underlying, causative mineralisation may be of a disseminated type exhibiting frequent local concentrations. To the east, in the 6-unit claim, the principal anomalies lie in two linear groups, one striking northeasterly and the other easterly. These linear groups may well be related to mineralised vein or dike formations, possibly emanating from the area of presumably disseminated mineralisation on the west.

The above speculations about the possible types of bedrock mineralisation, are consistent with the available data on the bedrock in this area. The region is underlain by the Pennask batholith, a grey to pink intrusive, granodiorite to quartz diorite, of the Coast Intrusives, Jurassic to Cretaceous in age. At the Brenda Mine, 18 miles southeast and also in the Pennask batholith, mineralisation in this intrusive occurs in faults and fractures, in the form of separate grains, bunches and platy networks of chalcopyrite, pyrite and molybdenite which occupy quartz or quartz-microcline veins and veinlets in the fractures. The molybdenite, however, tends to occur largely in subsidiary, cross fractures; spectacular, platy molybdenite is sometimes found in veinlets in altered wall rock.

Surface oxidation and leaching extend to variable depths, sometimes to 20 ft. and more below bedrock surface. Consequently, samples from pits and trenches and by shallow, X-ray drilling may yield unrepresentatively low assays. This situation might also result in lowered geochemical soil values.

Outcrops are not abundant in the Min claim area, but where observed the grey quartz diorite exhibits fine fracturing often occupied by quartz veinlets. A few hundred feet west of Line 0 there are some showings in which the exposed quartz diorite is intersected by fine fractures carrying quartz veins with scattered chalcopyrite and molybdenite.

The geochemical results on this property exhibit an interesting

array of copper anomalies, several of them coinciding with molybdenum anomalies. The area deserves continued exploration.

SUMS EXPENDED

The amounts expended on the above-described geochemical survey, are detailed on the following page by David G. Mark, Director of Dakota Energy Corp. (the number of samples was inadvertently under-estimated by 10). The total amount was \$7,600, to be applied to the 15 units of the Min claim in satisfaction of 4 years' assessment work, as set forth in the "Statement of Exploration and Development" filed in the Vancouver office of the Sub-Recorder on July 23, 1980, by David Mark.

Respectfully Submitted



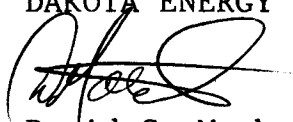
Sherwin F. Kelly, P. Eng.
Geophysicist and Geologist

P.O. Box 277
Merritt, B.C.
Dec. 19 1980

I, DAVID G. MARK, director of Dakota Energy Corporation certify that the soil geochemistry survey carried out over the MJN Claim Group, Nicola M.D., B.C. between the dates of October 15 and 30, 1979 was done to the value of the following:

Crew costs (grid preparation & Soil sampling)	\$ 3,550.00
Board and room, 2 men at \$.70/day 10 days	700.00
Truck rental and gas, 10 days at \$50/day	500.00
Survey supplies	160.00
Sample Analysis, 844 samples at \$2.30/sample	1,940.00
Report	<u>750.00</u>
	\$ 7,600.00

Respectfully submitted,
DAKOTA ENERGY CORPORATION


David G. Mark,
Director

CERTIFICATE OF QUALIFICATIONS

I, Sherwin F. Kelly, P. Eng., residing at the Adelphi Hotel in Merritt, B.C., certify that:-

(1) I am a registered Professional Engineer in the Province of British Columbia.

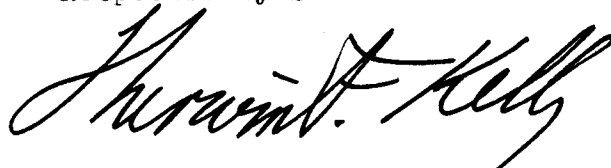
(2) I received the degree of Bachelor of Science in Mining Engineering from the University of Kansas in 1917. I pursued graduate studies at the University of Kansas, University of Toronto, and at the Universite de Paris (the Sorbonne) and Ecole des Mines in Paris. I received my instruction in geophysics from Prof. Conrad Schlumberger of the Ecole des Mines.

(3) I have practised as a geophysicist and geologist in Europe, North Africa, North, Central and South America and the Caribbean, since 1920. My work has principally been as a consultant since 1936.

(4) I am the author of the accompanying "Report to Dakota Energy Corporation of Vancouver, B.C., on Assessment Work on the Min Claim Near Minnie Lake, Nicola Mining Division, B.C." dated December 19, 1980.

(5) I have no interest in the claim group and no interest in the company holding the claims, nor do I anticipate receiving any such interest.

Respectfully Submitted



Sherwin F. Kelly, P. Eng.
Geophysicist and Geologist.

Box 277
Merritt, B.C.
Dec. 19, 1980