A PRELIMINARY REVIEW OF PRODUCTION FEASIBILITY

825547

UTICA MINE

OSOYOOS MINING DIVISION

BRITISH COLUMBIA

by

J.D. Guild, B.Sc.

and

M.C. Robinson, Ph. D., P. Eng.

WESTERN RESOURCES CONSULTANTS LTD.

White Rock, B. C.

March, 1973.

Prepared on behalf of

DANKOE MINES LTD.

1177 W. Hastings St.

Vancouver, B. C.

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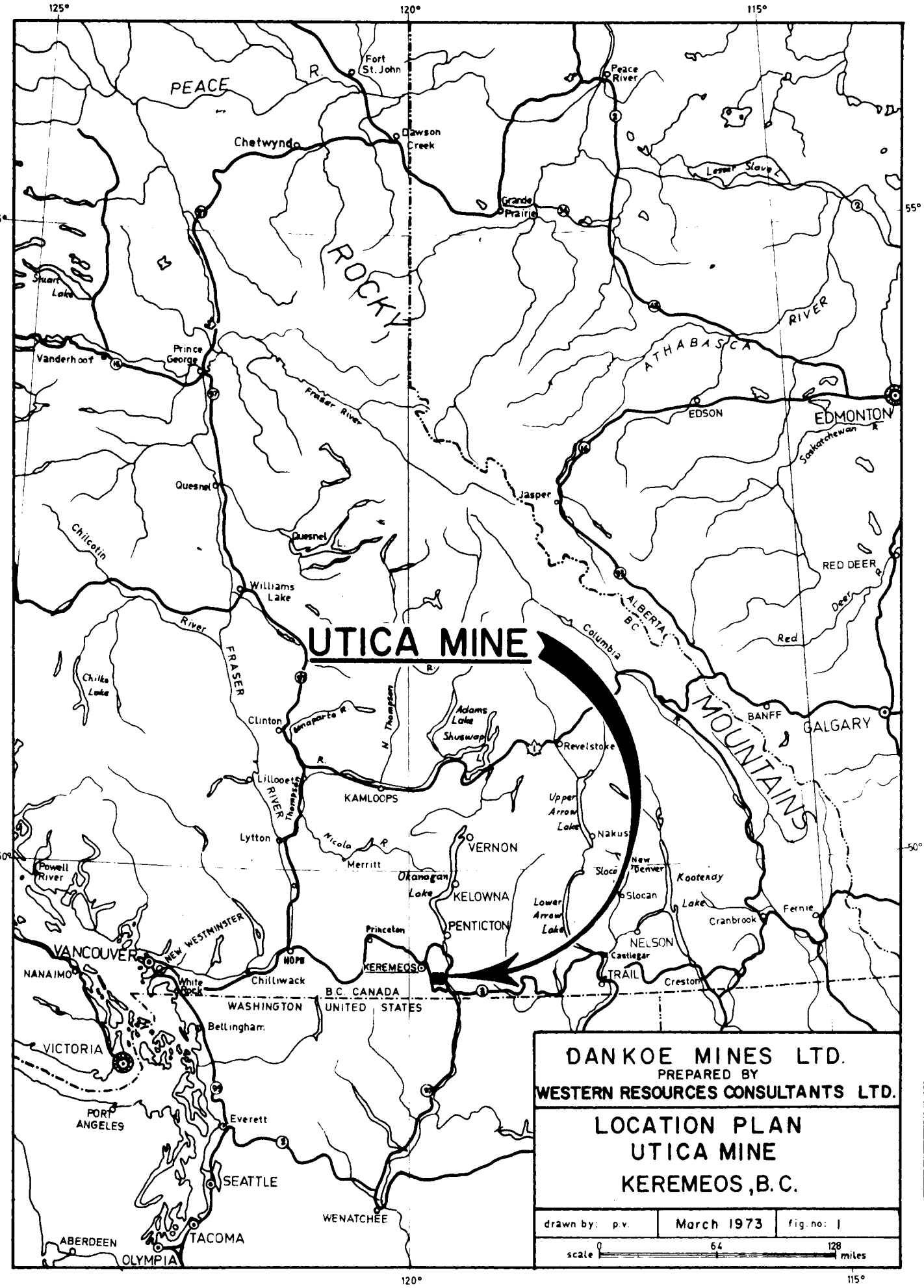
INTRODUCTION

General Statement.

The following report briefly describes the geology, the past underground silver production and the present indicated ore reserve and exploratory potential of the Utica Mining Property, Osoyoos Mining Division, south central British Columbia. The report has been written at the request of Dankoe Mines Ltd. of 1177 W. Hastings St., Vancouver, B.C., the present owner of the property.

It is concluded that, at or above current metal prices, the Utica property can support a silver producing operation. Such an operation will provide funds to assist in the cost of a required development and exploratory program designed to upgrade and add to present ore reserves. In particular, the program will define the potential of the property as it relates to recently recognized ore controls.


UTICA MINE
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LOCATION PLAN
UTICA MINE
KEREMEOS, B.C.
drawn by: p.v.
March 1973
fig. no: 1
scale 0 64 128 miles
125°
120°
115°
55°
50°
PEACE R.
Fort St. John
Peace River
Chetwynd
Dawson Creek
Grande Prairie
Lesser Slave L.
ROCKY
Stuart Lake
Vanderhoof
Prince George
Fraser River
ATHABASCA RIVER
EDSON
EDMONTON
Saskatchewan R.
Quesnel
Jasper
Chilcotin
Quesnel L.
Williams Lake
RED DEER R.
Deer
Red
ALBERTA
B.C.
Columbia
Chilko Lake
FRASER
River
Clinton
Bonaparte R.
N. Thompson R.
Adams Lake
Shuswap L.
Revelstoke
BANFF
CALGARY
MOUNTAINS
Lillooet
Thompson RIVER
KAMLOOPS
Upper Arrow Lake
Nakusp
Lytton
Nicola R.
VERNON
Merritt
Powell River
Okanagan Lake
Sloca
New Denver
Kootenay
KELOWNA
Slocan
Lower Arrow Lake
Lake
Fernie
Cranbrook
Princeton
PENTICTON
NELSON
Castlegar
VANCOUVER
NEW WESTMINSTER
HOPE
KEREMEOS
TRAIL
NANAIMO
White Rock
Chilliwack
Creston
B.C. CANADA
WASHINGTON
UNITED STATES
Bellingham
VICTORIA
PORT ANGELES
Everett
SEATTLE
WENATCHEE
ABERDEEN
TACOMA
OLYMPIA

A significant factor in the appraisal of the property is the existence of some six months' supply of ore on the "B" vein below 2422 level. This ore, which is higher than mine average grade, was made available to the operation by the driving of 2210, a new adit level, after the cessation of production at the property in March, 1970.

Location and Access.

The Utica Mine is located in South Central British Columbia in the Similkameen Valley, four miles north of the international boundary and some fourteen miles southeast of Keremeos, British Columbia (figure 1.). The mine concentrator and general office are situated beside highway number 3, which provides direct all-weather access to the property. The main underground workings at the mine range in elevation between 2210 and 3010 feet, and are connected to the concentrator by approximately one mile of mine access road.

Property.

The Utica mining property consists of over 100 located mineral claims and fractions covering the east and west flanks and top of Richter Mountain. The property was acquired by Dankoe Mines Ltd. in 1971 through a consolidation of the shares of the previous owner and operator, Utica Mines Ltd.

Geography.

The climate in the vicinity of the Utica property is hot and arid with the snow which occasionally falls during the winter months seldom staying at the mine elevation for more than a few days. Vegetation varies from cultivated hay meadows and orchards in the valley bottoms to sagebrush on the lower hills and pine forests above the 3500 foot elevation. The climate and proximity to established communities with related transportation and recreational facilities combine to make the mine location one of the most pleasantly situated in Canada.

History and Past Production.

The Utica property has had a long and varied history of development and intermittent production dating from the early 1900's. The earlier history is well outlined in a number of existing government and private reports and in the Annual Reports of the British Columbia Minister of Mines under the name The Horn Silver Mine. Total past production previous to the more organized operations by Utica Mines Ltd. consisted chiefly of direct shipping ore and amounted to 5,878 tons containing 682 ounces gold (0.116 ounces per ton); 249,090 ounces of silver (42.4 ounces per ton); 131 pounds of copper; 1471 pounds lead; 85 pounds zinc.

Utica Mines Ltd. commenced production on the property in August, 1967 and a continuous operation which included an ag-

gressive but intermittent exploration and development program was carried on until March, 1970, when low silver prices ($1.65 per ounce) forced the operation into temporary closure.

The following is a summary of mine production during this latter period:

Year	Tons Milled	Grade (ounces silver per ton)
1967	38,442	13.4
1968	128,652	9.3
1969	74,915	7.8
1970	est. 16,000	7.8
Total	258,009	9.3

Subsequent to the cessation of milling operations in March, 1970, the lower 2210 access adit, 2250 feet in length, was driven to its objective and the partial development of a new block of ore on "B" vein, below the 2422 level, was completed by a raise connection between 2210 and 2400 levels.

At the time of shutdown all mine, mill and surface operating equipment was carefully serviced and stored and a watchman was maintained on the property so that operations could recommence with a minimum of effort and expense when a more favourable economic climate once again prevailed.

The writer visited the property in August of 1972 and found the underground workings in much the same operational

state as they had been left with no major caving of the stopes or drifts.

Mine Development.

The most recent underground production operations on the Utica property were basically conducted from four adit levels; i.e. 3010, 2622, 2570 and 2422. The major amount of production came from the 2622 level, which is located in the most favourable position for stope access to the historically productive "A, N" vein system. The 2210 level, which was completed after milling operations had ceased, is located so as to provide mining access to the higher grade "B" vein which has been largely mined out between 2622 and 2422 levels but which extends into the floor of and below the 2422 level.

Ore handling facilities within the mine include a system of internal and external ore passes which feed to an underground loading pocket below the 2422 level from which ore was, in the past, trucked to the concentrator on a contract basis.

In addition, there are other adits and mine workings located on the hillside in the mine vicinity. These workings, which were not the subject of production during the Utica operations, are in some cases located on parallel vein systems and in others on the strike or dip extensions of the main mine vein system. The historical and geological significance of vein ex-

posures in many of these workings has not been fully integrated into a comprehensive understanding of the geology of the property.

Surface facilities existing and maintained on the property since closure include the following: a 450 ton per day jig-flotation concentrator, mine office, warehouse, engineering office, spectrographic assay laboratory, mine dry, machine shop, electric compressors, road maintenance equipment and an assortment of trucks and motor vehicles. The only surface facilities which would require attention in the early stages of renewed production would be the expansion of present mill tailings storage and the establishment of loading facilities for ore trammed on the 2210 level.

GEOLOGY

Regional Setting.

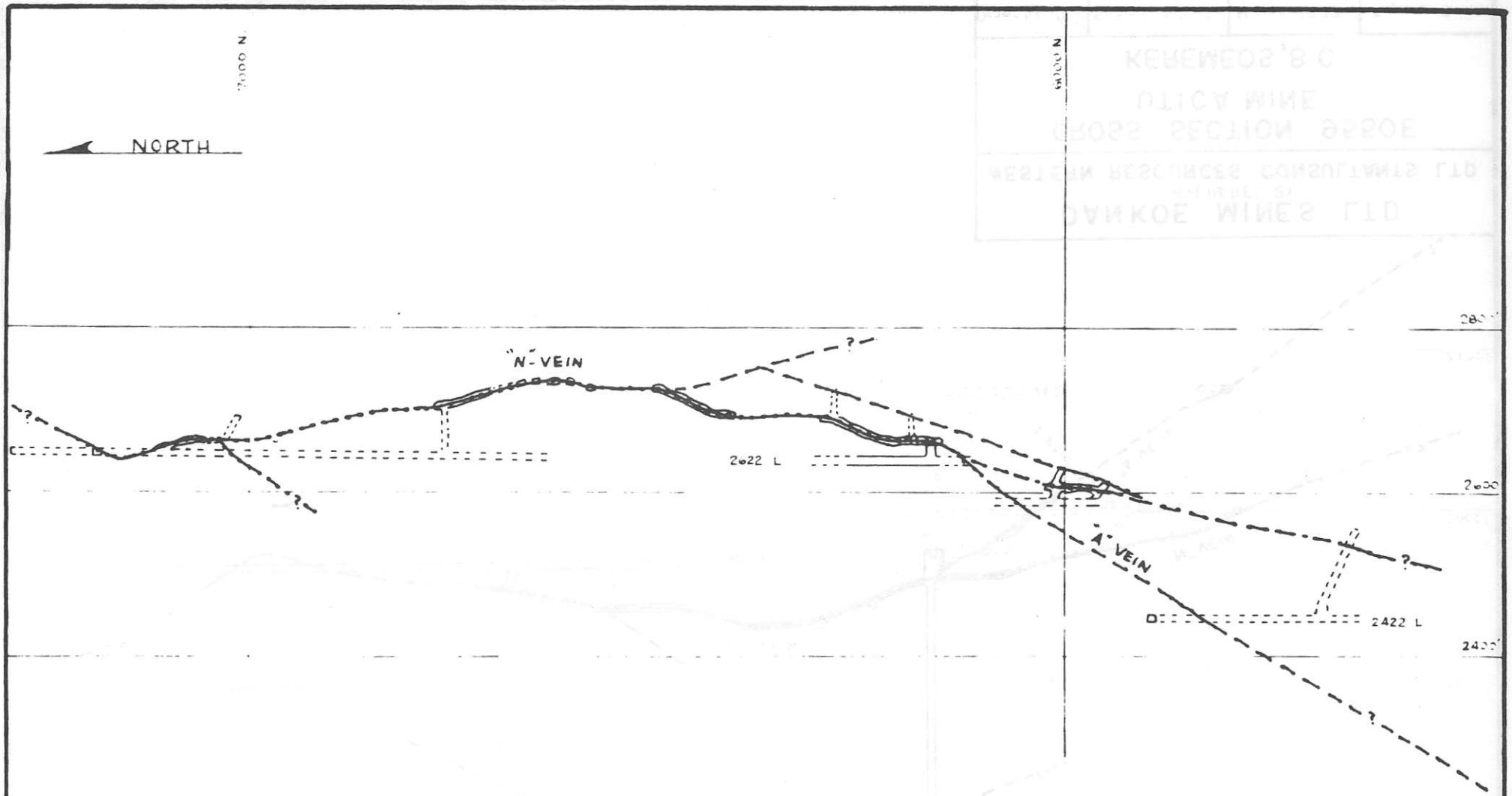
The Utica property lies in the Kruger syenite of Jurassic age, which forms a band about one mile wide trending east to southeast for four miles from the Similkameen Valley, then turns due south and widens to about three miles at the international boundary. It is bordered on the north and east by the older Kobau or Anarchist group of quartzites, schists and greenstones and on the south and west by a large mass of

younger granodiorite. Two to three miles east of the mine the syenite-granodiorite contact is offset to the left on two north-eastward striking faults. The old Fairview gold camp which lies about ten miles north of the mine occurs in the Koban rocks.

The Utica deposit consists of quartz veins, mineralized with sulphides in a shear zone within a highly mafic monzonite phase of the syenite. Irregular bodies and dykes of pyroxenitic hornblendite occur scattered throughout the monzonite. The monzonite-syenite extends one mile north - south through the mine area and crops out on the west side of the Similkameen Valley one and one-half miles from the mine. Occurrences of silver bearing quartz veins have been found in the syenite for distances of two miles east and one and one half miles west of the Utica mine workings.

Mine Geology.

The "N" vein, which is the main silver bearing structure of the Utica mine, strikes easterly to southeasterly and has an over-all dip of from 0 - 30 degrees to the south, although locally it rolls and dips as much as 15 degrees to the north, giving a pseudo anticline-synclinal pattern to the structure (figures 2. and 3.). The crests and troughs and the adjacent flanks of these structures have produced the best ore shoots in this vein system. The straight uniformly dipping section of vein are in



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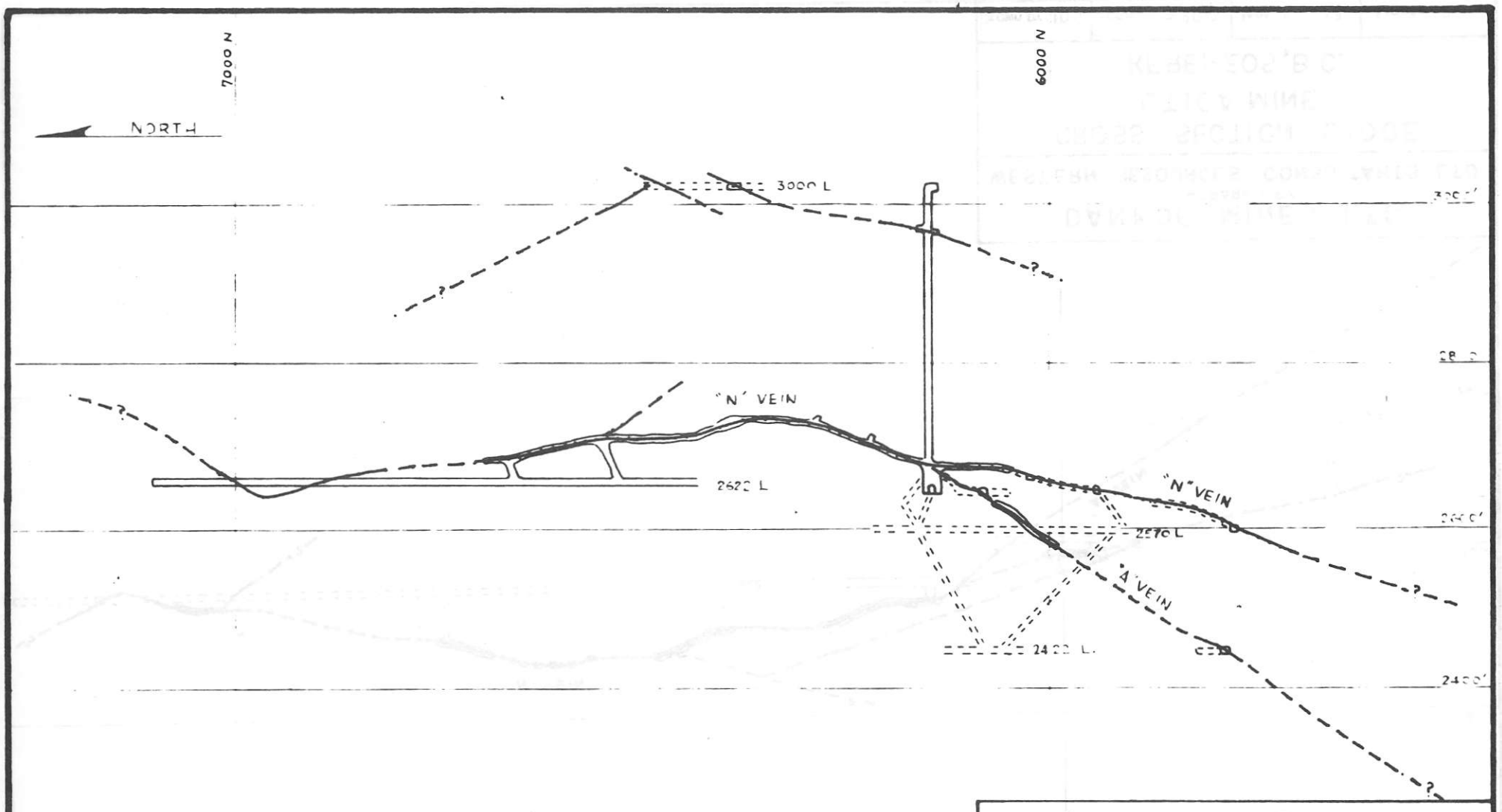
CROSS SECTION 9100E
UTICA MINE
KEREMEOS, B.C.

Drawn by JDG	Scale 1" = 200'	March 1973	Figure 2



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CROSS SECTION 9550E
UTICA MINE
KEREMEOS, B.C.

Drawn by JDG	Scale 1" = 200'	March 1973	Figure 3

general barren or low grade. They also tend to deteriorate horsetail and become erratic, stringery and difficult to follow away from the immediate flanks of these structures. It is difficult to correlate or identify with certainty any one particular structural roll across the east-west extent of the known vein system as northerly striking transverse faults with strike slip movements displace the junctures and rolls so as to complicate correlation. In general, however, the repetitious trap structures can be demonstrated over a dip length of some 500 feet and stoping has been carried out continuously along or near the crest of the main mine roll for greater than 2000 feet on strike.

The "A" vein, which is a strong and more steeply lying split off the bottom of the "N" vein, is productive near the juncture but becomes barren away from that juncture.

Both the "N" and "A" veins appear to terminate to the east against a northeasterly trending steeply dipping fault-dyke system. Within this disturbed zone a more recently discovered ore structure called the "B" vein occurs. The "B" vein is convergant at a low angle on strike with both the faults and the dykes but dips at 40 degrees to the east, whereas both the faults and dykes dip at 70 degrees to the east. The relatively high grade "B" vein has been explored and partially mined above the 2422 level but remains strong, going into the floor of that level and is indicated by diamond drill holes to contain reserves of ore below the level.

Other veins have been identified, partially explored and in some cases mined from the present mine working. The details of these veins, which do contain exploratory potential, are beyond the scope of this report.

The silver bearing veins of the mine occur as quartz-fissure veins with calcite forming a lesser gangue constituent. The veins range in width from a few inches to a maximum of twelve feet while the average approximates two feet. The greater widths generally represent two or more parallel veins or networks with some included country rock. The veins are sparsely and erratically mineralized with native silver, galena, argentite, tetra-hedrite, cerargyrite, pyrargyrite, pyrite, chalcopyrite and sphalerite. Gold assays appear to vary directly with the proportion of pyrite present. Utica operations assayed for silver only; however, there are sufficient gold and base metal credits to pay smelter and marketing charges.

The texture of the quartz varies from a solid milky variety to the highly friable, sugary, light grey material found in areas of supergene enrichment. The latter variety is generally vuggy with the vugs lined with tiny quartz crystals two to four millimeters in length. Native silver occurs both as thin wiry masses in the sugary quartz and as thin smear-like plates up to 25 millimeters in length along minute interstitial fractures within the massive milky quartz.

Two main sets of post ore faults occur in the mine. One set strikes northeasterly and the other northwesterly. Dips vary from 60 degrees west to vertical and occasionally steeply east. Movements along the faults appear to be small but due to the flat dip of the veins a small vertical offset gives a relatively large apparent horizontal displacement. The ten to twelve stronger faults cutting through the "N" vein system within the 2000 feet of exposed strike length are of sufficient magnitude to seriously effect mining. These faults are on the average of 200 feet apart and so in most cases divide the interfault vein panels into suitable stoping blocks.

ORE RESERVES

The latest ore reserve estimates calculated by the mine staff of Utica Mines Ltd. in March, 1970 are summarized by level as follows:

Measured Ore.

Level	Tons	Grade
2622 and Above	29,150	8.7 ounces silver/ton
2570 to 2622	7,850	8.3 " " "
2422 to 2570	7,500	8.7 " " "
Below 2422	26,750	17.0 " " "
Total Measured	71,250	11.7 ounces silver/ton

Indicated Ore.

Level	Tons	Grade
2622 and Above	43,550	6.4 ounces silver/ton
2570 to 2622	15,400	6.7 " " "
2422 to 2570	2,500	8.3 " " "
Below 2422	12,250	8.1 " " "
Total Indicated	73,700	6.8 ounces silver/ton

Possible Ore.

Level	Tons	Grade
2622 and Above	63,200	5.0 ounces silver/ton
2570 to 2622	6,000	5.1 " " "
2422 to 2570	4,000	6.5 " " "
Below 2422	6,000	6.5 " " "
3010 level	6,700	6.4 " " "
Total Possible	85,900	5.3 ounces silver/ton

Total Measured, Indicated and Possible Ore

230,850 Tons at 7.8 ounces silver/ton

In the above ore reserve estimates all vein widths have been expanded to a five foot mining width and a cut-off grade of 5.0 ounces silver per ton over five feet has been used.

The categories of ore reserves used above, i.e. Measured, Indicated and Possible are those that have been established on the property for the internal purposes of the company.

The Measured ore is in general that ore which lies im-

mediately adjacent to sampled stope or subdrift walls and faces. It also includes areas of vein which have been tested by a sufficient number of diamond drill holes to reasonably assure the presence of an ore shoot. The grades for measured reserves are derived either from chip sample averages or from diamond drill hole assays.

The Indicated ore includes that ore which lies beyond the measured along the strike or dip projections of the same vein. Grades for the indicated ore are related to the adjacent measured class but are tempered by judicious and conservative estimates based on experience.

The Possible ore includes that ore which may be expected to lie along projections of veins into areas of the mine which are untested. Tonnages are based on the ratio of productive to unproductive proportions found in known vein areas of equivalent size. These proportions have been then applied to untested areas of veins to arrive at tonnages. Grades are based largely on conservative guesses.

Under the definitions for ore reserves set forth in the Regulations Made Under the Securities Act, 1967, the measured ore tabulated above would fall largely into the category of probable ore; the indicated ore above would be classed as possible ore; and the possible ore above would not be included as ore reserve.

It should be pointed out that in an ore deposit such as that at the Utica Mine the establishment of ore reserves requires large amounts of stope development. The extremely erratic and "pockety" nature of the silver occurrences in the vein is such that predictions of tonnages and grades beyond a known stope wall or face is difficult. Only that ore which is contained in pillars or which is developed by a systematic series of subdrifts along the strike and dip of the vein can be assuredly relied upon.

However, production experience at the property has shown the vein systems to be remarkably persistent on both strike and dip. The interpolated expectation of silver concentrations based upon the established patterns of mineralization from stope records has, in the past, proven accurate in predicting the amounts and grades, if not the specific location, of ore shoots which are "turned up" in the normal processes of stope development.

Diamond drilling which was used quite extensively in the latter years of the Utica operation can be a useful exploratory tool. Vein intersections, due to the crumbly nature of the vein, are usually poorly preserved in the core and do not reflect the true vein widths or grade. There is usually, however, enough evidence preserved in the core to recognize the

vein and to judge whether or not it makes ore at the point of intersection.

EXPLORATORY POTENTIAL

The ore potential at the Utica mine can be summed up by saying that the main mine vein system appears to openly project, without apparent interruption, along strike both to the east and west and up and down dip to the north and south. The possibility of finding ore in these projected directions is considered good and the recently recognized ore controls, although not completely understood, can be utilized to reduce the exploratory risk involved.

The following is a generalized summary of the areas of the mine which warrant investigation.

a) "N" Vein System North Extension.

The "N" vein system projects openly to the north and repetitions of the ore controlling rolls in this vein can be expected. Three crosscuts covering a 1400 foot strike length were advanced about 700 feet north of the mined area in the few months prior to mine closure. Two of these crosscuts encountered silver bearing veins which are assumed to be extensions of the "N" vein. The east crosscut did not reach its objective. These crosscuts cover an area

of 1400 feet by 700 feet which could contain 100,000 tons of ore based on past mining experience. The potential of this area remains essentially untested. In addition, the "N" vein appears to continue, but is unexplored, to the north of these crosscut faces.

b) "N" Vein System South Extension.

The southern extension of the "N" vein has in the past received the most exploratory attention, with largely negative results. The conclusion has been accepted that ore shoots in the system are bounded by a vertical horizon marked by the 2570 level to the south. This conclusion is somewhat negative as the possibility of flattening rolls in the vein system further to the south remains an untested possibility. This possibility has in the past been disregarded partly due to a confusion in terminology between the "N" and "A" veins.

c) "N" Vein System East Extension.

The "N" vein system, as such, terminates to the east against the disturbed zone of faults and dykes which contains the "B" vein. To the east of this disturbed zone the "261" vein structure with similar

strike, dip and characteristic to the "N" system has been partially explored and locally mined. The "261" structure may be the fault displaced continuation of the "N" vein and as such projects openly to the east.

d) "N" Vein System West Extension

The "N" vein is closed to the west by topography. Vein outcroppings across the valley some 1000 feet to the west may represent projected continuations of the "N" vein and as such warrant surface exploration.

e) "B" Vein Extensions

The "B" vein is also open to exploratory projection in all dimensions, up dip and along strike to the north and south but most particularly down dip to the southeast. Definitive diamond drilling has established the down dip extension of "B" vein to the midway line between 2422 level and the newly established 2210 level. Below this point "B" vein remains essentially unexplored. The down dip projection of "B" vein, because of its higher than average silver values and its ready mining accessibility, constitutes a prime target for future exploration.

Other exploratory potentials exist in the vicinity of the present mine workings in the form of veins lying parallel to the main mine vein system. All of the recent development and exploration effort on the property has been centred on the latter so that, apart from the immediate walls, the areas above and below the system are essentially unexplored. Veins which may lie and indeed are intermittently indicated to lie in these areas; i.e. 3010, 3200 and 4000 levels, present large areas of potential for further exploration.

In addition the Utica claim block encompasses a very large tract of ground which is underlain by the monzonite mine host rock. The block has received very little documented exploratory attention. Much of the geology, the known vein exposures and old mine workings remain unmapped or sampled. Based upon the productive history of the mine vein system the property at large would appear to justify a more thorough surface investigation.

CONCLUSION

The Utica Mine was forced into temporary closure in March of 1970 when the then current silver price of $1.65 per ounce made much of the ore reserve available to the operation at that time marginal or uneconomic.

Continued development in the form of a new lower adit, driven after the mine closure, partially developed and basically made available to the operation "B" vein ore below the 2422 level. This ore which is indicated to be considerably higher than mine average grade is estimated to occur in sufficient tonnage to support a 300 ton per day operation for approximately six months.

The current improved level of the price of silver (peaking at $2.57 per ounce on March 1, 1973) if sustained would appear to justify the resumption of production at the Utica Mine. An assured price in this range would support an operation and provide the necessary base to assist in defraying the cost of the exploration and development program which is required to up-grade the present ore reserves and further define the ore potential of the property. Any improvement in the price of silver would provide a corresponding improvement in the profit margin of the operation.

The following steps should be incorporated in any contemplated plan to reactivate production at the Utica Mine:

1. An aggressive program of exploration and development centred initially on the northward projection of the "N" vein and on the down dip projection of the "B" vein.
2. The mining and milling of "B" vein ore from 2210 level on a small tonnage but selective basis to supplement the cost of the above exploration and development program.

3. The stockpiling of lower grade material produced by the development program. This material should be available in order that, at an opportune time, the concentrator can be operated at a 400 to 450 ton per day capacity and accept a lower grade mill feed.

4. A separate surface exploratory program conducted within the favourable host rock on the claim block with a view to assessing the economic potential of the property at large.

Respectfully submitted,

J.D. Guild, B.Sc.

M.C. Robinson, Ph.D., P. Eng.

CERTIFICATE OF QUALIFICATIONS

I, MALCOLM C. ROBINSON, of 1486 Everall Street, White Rock, British Columbia, DO HEREBY CERTIFY THAT:

1) I am a graduate of the University of British Columbia (B.A.Sc.), Queen's University (M.Sc.) and Princeton University (M.A., Ph.D.), and I have been practising in the fields of exploration geology, engineering and management over the past eighteen years.

2) I am a member of the Association of Professional Engineers of British Columbia.

3) I have no interest, direct or indirect, in the mining property described herein or in the securities of Dankoe Mines Ltd., nor do I expect to receive any such interest.

M.C. Robinson, P. Eng.

White Rock, B.C.

March, 1973.

CERTIFICATE OF QUALIFICATIONS

I, JOHN D. GUILD, of 13291 Woodcrest Drive, South Surrey, British Columbia, DO HEREBY CERTIFY THAT:

1) I am a practising geologist and have been actively engaged as a geologist over the past thirteen years.
2) In 1959, I graduated from the University of Alberta with the degree of B.Sc. in geology.
3) Since and prior to the time of my graduation, I have been employed as a geologist in several areas and projects including the following:
    a) 1956 - 58 Geologist, Eldorado Mining and Refining Limited, Eldorado, Saskatchewan.
    b) 1959 - 61 Geologist, H.G. Young Mines Ltd., Red Lake, Ontario.
    c) 1961 - 63 Geologist, Electrolytic Zinc Corp., Rosebery, Tasmania.
    d) 1963 - 64 Geologist, Giant Mascot Mines Ltd., Hope, B.C.
    e) 1964 - 66 Geologist, Craigmont Mines Ltd., Merritt, B.C.
    f) 1966 - 68 Manager, Arctic Gold and Silver Mines Ltd., Carcross, Yukon.
    g) 1969 - 70 Geologist, Utica Mines Ltd., Keremeos, B.C.
    h) 1970 - 73 Geologist, Western Resources Consultants Ltd., White Rock, B.C.

4) During the period February, 1969 to April, 1970 I was employed by Utica Mines Ltd. as mine geologist at the Utica Mine which is the subject of the foregoing report.

5) I have no interest, direct or indirect, in the mining property described herein or in the securities of Dankoe Mines Ltd., nor do I expect to receive any such interest.

J.D. Guild.

White Rock, B.C.,

March, 1973.