824122

DEWAR CREEK PROJECT - 1973

82 F & K

By: Fred Chow
Jan. 1974

D E W A R C R E E K P R O J E C T

1 9 7 3

Submitted by:

Fred Chow
January, 1974

DEWAR CREEK PROJECT 1973

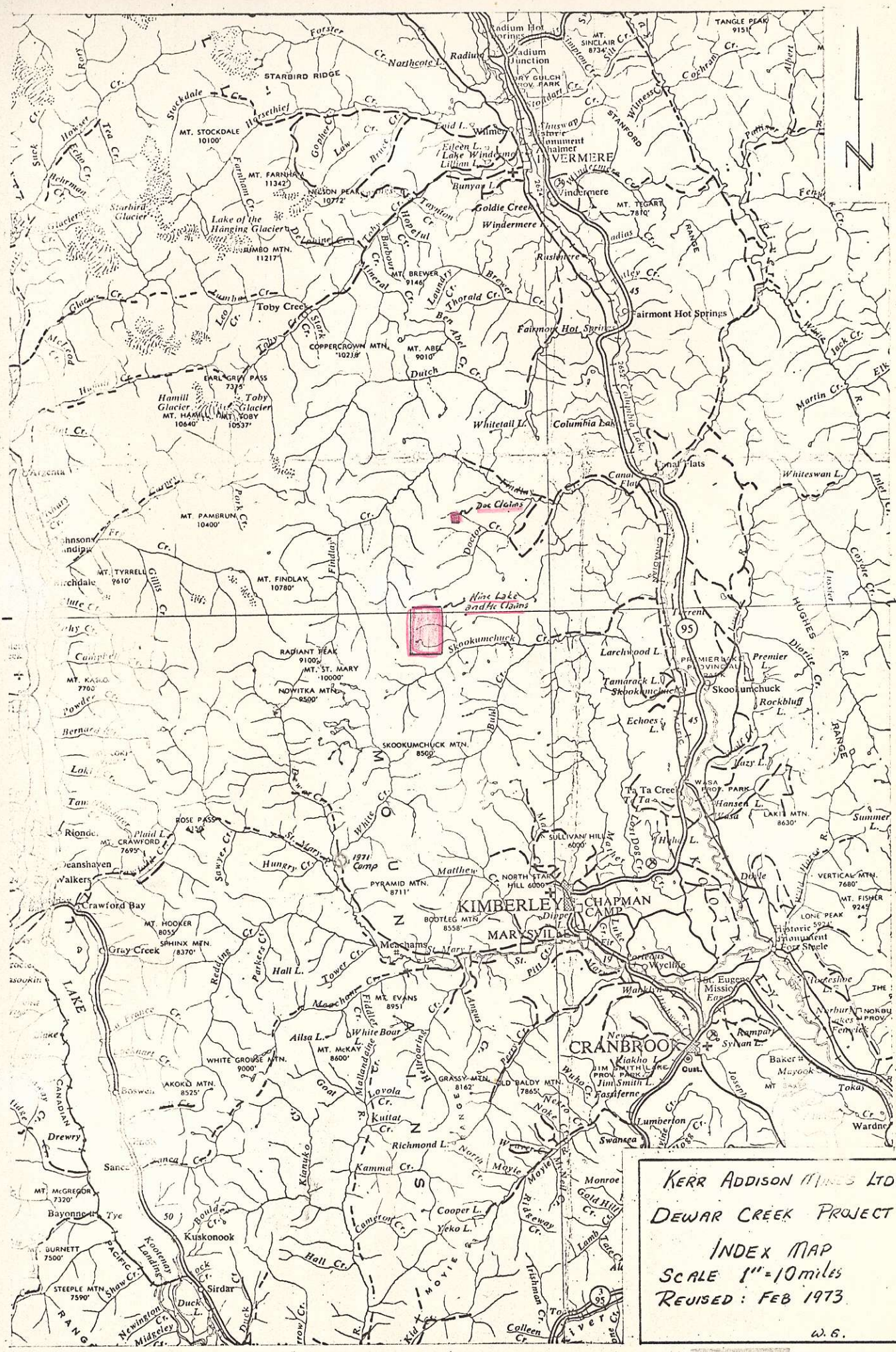
CONTENTS

DEWAR CREEK PROJECT, 1973

LIST OF MAPS AND FIGURES

Map No.	Title	Scale
	Index Map	1" = 10 miles
NINE LAKE AND MC GROUPS		
1 (revised/73)	Geological Plan, June-August, 1972	1" = 400'
NL-73-8	Greenland Creek Trenching, Nov. 9/73	1" = 400'
4D (revision)	(South half of) Geochemical Soil Survey - 1972; revised June & Nov., 1973 "Tungsten in Nine Creek Drainage Area"	1" = 400'
4E (revision)	(South half of) Geochemical Soil Survey - 1972; revised June & Nov., 1973 "Molybdenum Values along White Creek Batholith Contact at Nine Creek"	1" = 400'
NL-73-9	1971 Regional Geochemical Survey, showing Mo Distribution, June 1973	1" = ½ mile
NL-73-10	Claim Map of Nine Lake and Mc Groups, Jan. 14/74	1" = ½ mile
NL-73-11	Geological Plan, Mylar Overlay)	1" = ½ mile
NL-73-12	W Soil Geochemical Anomalies, Mylar Overlay)	
NL-73-13	Magnetic Anomalies, Mylar Overlay)	
NL-73-14	E.M. Anomalies, Mylar Overlay)	
DOC GROUP		
D-4C (revised)	Geochemical Plan (Pb), Jan/73 (revised Jan/74)	1" = 400'
D-73-5	Geological Plan, Oct/73	1" = 400'
D-73-6	Topographic Map, Sept. 24/73	1" = 400'
D-73-7	Rock Geochemistry, Sept. 24/73	1" = 400'
D-73-8	Claim Map of Doc Group, Jan. 14/74 revision	1" = ½ mile
Fig. No.		
NL-73-1	Trench No. 1, Geology, Rock Assay, Soil Profile Assay, Geochemical Dispersion	1" = 100'
NL-73-2	Trench No. 2, Geology, Rock Assay, Soil Profile Assay, Geochemical Dispersion	1" = 100'

Fig. No.	Title	Scale
NL-73-3	Trenches 5 and 6 and Pits 1-9, Geology, Rock Assay, Soil Profile Assay, Geochemical Dispersion	1" = 100'
NL-73-4	Fault Zone, Geology, Rock Assay, Geochemical Dispersion	1" = 100'
D-73-1	Geology, Longitudinal Section, Doc Claims, Oct/73	1" = 400'
D-73-2	Geology, Cross-section, Doc Claims, Oct/73	1" = 400'
D-73-3	VLF E.M. Profile, Line 1, Doc Claims, Sept/73	
D-73-4	VLF E.M. Profile, Line 2, Doc Claims, Sept/73	
D-73-5	VLF E.M. Profile, Line 3, Doc Claims, Sept/73	



KERR ADDISON MINES LTD

DEWAR CREEK PROJECT, B.C.

INDEX MAP

SCALE 1" = 10 miles

REVISED: FEB 1973

W.G.

I SUMMARY AND CONCLUSIONS

During the 1971 Dewar Creek Project, three groups of claims called the Mc 1-4, Nine Lake 1-84 and Doc 1-6 were staked. The claim blocks covered a Cu-Zn-Pb showing, an anomalous Zn silt geochemical area, and a galena occurrence with exceptionally high Pb values in soils and stream silts.

In 1972, a combined exploration program including mapping, magnetic and electromagnetic surveys and soil sampling were conducted to evaluate the three claim blocks. The surveys did not uncover any evidence for an economic mineral deposit on the Mc and Nine Lake claims. Because of rocky terrain, insufficient geophysical information was gathered on the Doc claims to supplement geochemical data but the claims were maintained by applying one year's assessment work. One year's assessment work was also filed on the four claims of the Mc group, plus forty claims of the Nine Lake group to allow for further study. All the other claims were allowed to elapse in September 1972.

Continued geochemical investigation through January and February of 1973 brought evidence of anomalous tungsten values in the silts and soils on the Nine Lake claims. The sequence of events that followed are:

1. Reassaying of silt and soil samples for W content.
2. (a) Partially delineated a geochemically anomalous W zone approximately 3000' x 6000' in area.

   (b) Another significant area with values of 400 ppm W plus was indicated.
3. Restaked 30 claims and staked 22 new claims.

The following information was gained from the bulldozer trenching:

1. Scheelite occurs as fracture filling in Moyie diorite sills and to a much lesser amount in Aldridge quartzites.
2. The fracture system is composed of two to five sets of fractures which vary from hairline cracks to $\frac{1}{2}$ inch seams and ranges from $\frac{1}{4}$ inch to about 14 inches apart.
3. Tungsten content within the rocks is below sub-grade, generally around 0.03% WO_3, with 10 to 20 foot sections assaying about 0.07% WO_3. The highest values obtained was 0.1% WO_3 across 80 feet from an outcrop of diorite adjacent to a fault. Samples of material within the seams contain 0.1% to 1.5% WO_3, and average about 0.6% WO_3.
4. Scheelite mineralization is weak but widespread, covering an area 200 feet to 1400 feet wide by 2600 feet long within the trenched area.
5. The source of the mineralization is unknown, but conceivably could derive from a limestone skarn horizon seated below the present surface.

II RECOMMENDATIONS

It is recommended that a diamond drilling program be carried out to probe for the source of the scheelite mineralization. The program should be designed to investigate W mineralization in a limestone horizon and/or in a favourable loci of fractures within the diorite sills. The writer proposes a two hole cross-sectional drilling program on each of Lines 31 NW and 26 NW near Trench No. 2 and Trenches 5 ond 6 respectively. Further drilling will depend on favourable results and geology.

The writer also recommends an early investigation of the W geochemical anomaly immediately north of the former Mc claims. This can be accomplished by visual examination, checked by ultra-violet lamp if possible, and followed by a soil geochemical survey. The Mo geochemical anomaly on the Nine Lake No. 12 claim should be investigated by examining the White Creek Batholith for favourable intrusive rocks and indicators of sulphide mineralization.

The Doc group and vicinity is also recommended for further exploration. Work should be directed towards the cause of geochemical anomalies, source and potential of mineralization. This can be accomplished by prospecting and mapping, assisted by soil geochemistry.

III INTRODUCTION

This report describes the exploration work done in 1973 on the Nine Lake, Mc and Doc mineral claim groups, plus a brief history of the Dewar Creek Project.

The Dewar Creek Project was launched in 1971 to prospect for large lead-zinc-silver sulphide replacement orebodies of the Sullivan Mine type, within the Pre-Cambrian Aldridge sedimentary formations. The program included an aeromagnetic survey, ground prospecting and geological mapping, plus stream silt sampling. Routine analyses for Cu, Zn and Pb were conducted and special assays for Mo, W and Sn were made on silt and soil samples from selected areas and locations. During the course of the project three groups of claims were staked; the Mc claims on a sulphide showing, the Nine Lake claims over a geochemically anomalous zinc area, and the Doc claims over galena mineralization traced by geochemistry. Mo, W and Sn from the selected sites were either low or considered insignificant upon examination.

A. NINE LAKE AND MC CLAIM GROUPS

During the 1972 season a combined program of geological mapping, electromagnetic and magnetic surveying plus soil geochemistry were carried out on the Mc claims and those which showed anomalous geochemical values in the Nine Lake group. The geophysical work did not show positive results. Numerous zinc geochemical anomalies were outlined but they were found to be caused by sphalerite mineralization present in minor amounts in scattered occurrences in small quartz veins in diorite sills.

The soil samples from a twelve claim block surrounding low, negative, E.M. anomalies were assayed for tungsten during the summer program. Four small, moderately anomalous (100-150 ppm W) zones within a weakly anomalous (50-100 ppm W) area were noted but these were not judged to be significant geochemical targets. Additional C.E.M. surveys were conducted on this area during the latter part of the 1972 season. Field tests using varying frequencies and coil separations were not completed due to electrical storms. The data was insufficient for a proper interpretation but results obtained did not indicate any E.M. anomalies.

In August and September 1972, assessment work was filed on the four Mc claims and on 40 of the 84 total Nine Lake claims to hold them in good standing for another year.

In January of 1973, a review of the magnetic and electromagnetic anomaly interpretations was made. One coincident E.M. and magnetic anomaly on claims Nine Lake Nos. 1 and 3, within a low Cu-Zn-Pb geochemical area was selected for tungsten investigation. The geochemical tests showed moderately to definitely anomalous tungsten values in the soils. Subsequently reassaying of the soil samples collected in 1972 and silt samples from 1971 were conducted step by step. Selected rock specimens collected during the past two seasons were also analyzed for tungsten content.

The regional geochemistry outlined an anomalous tungsten area within the Greenland Creek drainage system. The area is a bowl-like enclave surrounded

by mountains dividing Skookumchuck Creek and Doctor Creek. An area approximately 4000 feet NE-SW by 6000 feet NW-SE on the north side of Greenland Creek contained anomalous tungsten values ($\geq$ 100 ppm W). Within this area, definitely anomalous tungsten values (150-400 ppm W) occur in five separate zones ranging from 400 to 1200 feet wide by 1400 to 1800 feet long. On the south side of Greenland Creek one definitely anomalous zone occupies the south half of claim Nine Lake No. 2. Soil samples collected in 1971 from two adjacent claim location lines each assayed 150-450 ppm W over a continuous length of 3000 feet or better. These lines are approximately 2400 feet apart and lie along opposite sides of the mountain ridge immediately north of the former Mc group.

Rock geochemistry indicated tungsten mineralization in both the Moyie diorite sills and the Aldridge quartzites. A few rock specimens which fluoresced under the ultra-violet lamp showed scheelite along fracture planes.

Selected silt samples from Nine Creek, along the assumed White Creek Batholith contact, were analysed for Sn and Mo content. Sn values were found to be above normal but were not oonsidered anomalous. Mo values were found to be anomalous so a group of soil samples surrounding Nine Creek were reassayed. A small (200-300' by 1000') 80 ppm Mo anomaly appears on claim Nine Lake No. 12. Small isolated 40 ppm anomalies occur on claims 8 and 10.

In view of the anomalous tungsten geochemistry, 30 elapsed claims were restaked and 22 new claims were staked during April 1973. The Nine Lake Group now totals 92 claims and the Mc Group 4 claims. The latter claim group was allowed to elapse in August 1973.

Work done on the Nine Lake Group during the 1973 season consisted of 4 miles of access road and 2616 lineal feet of trenching, including pits. The work was started on July 4 and was terminated on August 23 due to forest closure.

B. DOC CLAIM GROUP

Work done during the 1972 field season included mapping and soil sampling surveys plus electromagnetic, magnetic and I.P. field tests. The mineralized zone gave no response to E.M. and mag surveys and showed poor results with I.P. due to poor grounding.

The results of the additional soil sampling extended the 1000 ppm Pb geochemical anomaly southwesterly to a total length of about 4200 feet with a width of 700 feet to 1000 feet.

Galena mineralization was found to occur in beds and veins within argillitic rocks of the Upper Aldridge formation. This unit was mapped as a probable remnant roughly 800 x 600 feet in extent.

Three claims were staked in April 1973 on the extension of the geochemical anomaly for protection.

During the last week of August 1973, a short program including I.P., E.M. (VLF), mapping and soil sampling was conducted. Work was not commenced earlier due to forest closure.

IV NINE LAKE GROUP - WORK DONE DURING THE 1973 YEAR

A. ACCESS ROAD

A Euclid 82-40 tractor with a 14 foot universal blade and a hydraulic ripper plus an operator was contracted from Camco Construction of Cranbrook, B. C.

A 4-mile, 4-wheel-drive vehicle road was built from the junction of Nine Creek and Greenland Creek to the trenching area on the property. The road was built on the northeast side of Greenland Creek. It rises 2160 feet from elevation 5470 feet to 7630 feet, with an average grade of about 10%, though most of the gain in elevation occurs along the last 1.5 miles of road at about 17-18% grade. The route traverses slide areas, talus slopes, creeks, and short sections of timber. Boulders and angular rocks are abundant but good fill is scarce and often located too far for bulldozing. Consequently, long sections of the road surface were not "topped".

It took one day to walk the bulldozer 30 miles into the base camp, then 19 days to complete the access road, including 4 days of lost time due to breakdown and route changes. About 20% of the dozer time was used in building culverts and drainage ditches. The writer supervised the road construction and was the swamper for the operator.

B. TRENCHING

Trenching was started on July 24 and completed on August 21, including rehabilitation of the trenches and disturbed areas. Five trenches totalling 2241 lineal feet, nine pits totalling 375 lineal feet, and 4500 feet of cat road were bulldozed. (See Map No. NL-73-8).

(1) Trench No. 1 (See Fig. NL-73-1)

Location: straddles common boundary of claims Nine Lake 58 and 59, between Lines 28 NW and 29 NW.

Bearing: 165^{o} - 345^{o}

Length: 600 feet

Av. Width: 14 feet

Av. Depth: 7 feet

Angle to Sediments and Contact: (approx.) 75^{o}

Dip of Diorite - quartzite contact: not observed

Rehabilitation Work: Nil

Trench No. 1 is located on a 400 ppm W soil geochemical anomaly, directly over its centre where a soil sample assayed 800 ppm W. The trenching exposed 230 feet of diorite, 225 feet of foot wall (south) quartzite, and 145 feet of hanging wall quartzite.

The best tungsten mineralization within the trench lies about 100 feet upslope (+25% grade) from the center of the anomaly. The 300 ppm contour forms an elongated shape downhill from the hanging wall of the diorite sill to about 650 feet below the foot wall of the sill. The geochemical values as shown on the geochemical plan, appear to decrease rapidly along the strike of the sill. This may be directly related to the amount of mineralization but is believed by the writer to be caused by deeper overburden and/or the dumping of transported material.

The diorite sill is a dark, fine-grained rock. Quartzites are light grey to light brown in color, fine-grained and thin to thick bedded sediments. The beds strike E-W and dip 25°-35° NE. The attitudes of the contacts were not observed.

Both rock types are fractured. The fractures vary from a fraction of an inch to a few feet apart. Fractures are more prominent in the dioritic rocks, with closer spacing and wider seams. They range from hairline fractures to one half inch seams, sometimes up to 3/4" in width. Fractures within the quartzites are generally "tight", but often range up to 1/32" in width. In Trench No. 1, the most pronounced fracturing and best tungsten mineralization occurs near the hanging wall of the 230 foot wide sill, between 105 feet to 215 feet from the foot wall. Nearly all the fractures in the diorite contain scheelite, but not so within the quartzite. There are six sets of fractures in the diorite and three sets in the quartzite. The spacing of each set varies from a fraction of an inch to 14 inches.

Fracture pattern within the <u>diorite</u> is tabulated below:

Sets	Bearing	Dip	Description
1	N 72° W	28° SW	$\frac{1}{4}$" fractures, prominent; sericite-calcite-quartz-scheelite mineralization.
2	N 44-52°W	77-82° SW	$\frac{1}{4}$-$\frac{1}{2}$" fractures, most prominent; as above mineralization.
3	N 22° W	60° SW	Hairline, prominent; quartz-sericite-calcite-scheelite.
4	N 4° E	55° W	Hairline, prominent; quartz-sericite-calcite-scheelite.
5	N 40° E	68° NW	Hairline, not prominent; quartz-sericite-calcite-scheelite.
6	N 53° E	42° SE	$\frac{1}{4}$-$\frac{1}{2}$" fractures, prominent; mineralization as Set No. 1.

There are less fractures within the quartzite formation and they are generally "tight". Three sets of fractures observed are as follows:

Sets	Bearing	Dip	Desoription
1	N 7° W	62° SW	Hairline fractures, no filling.
2	N 47° E	45° SE	1/8" fractures, prominent; quartz-scheelite.
3	N 76° E	48° SE	Hairline fractures, sometimes containing filling.

The fractures are chiefly filled with quartz and sericite. Sericite occurs in fine, powdery form and often as books of muscovite filling the entire seam. Calcite is common but varies greatly in volume. Associated minerals are scarce and these include pyrrhotite, sphalerite, chalcopyrite, and probably galena. Scheelite is the main economic mineral. It occurs as fine disseminations within the seams and fracture planes, rarely as large crystals, and never seen in large masses.

Rock samples taken every 10 feet along the trench assayed less than 0.05% WO_3. Thirteen samples over the "best looking" zone were reassayed at lower detection limits and were found to contain from nil to 0.07% WO_3, averaging approximately 0.03% WO_3.

The surrounding surface is covered by about 5% float material, composed of medium and large sized blocks of quartzite and diorite. A small talus slope lies to the east and below a diorite outcrop. A large talus slope containing 95% quartzite occupies the bottom of a ridge towards the north. The former contains tungsten in highly fractured diorite and the latter shows minor tungsten in less fractured diorite. Scheelite is not notable in the quartzite float rocks.

Six locations along the trench walls were selected for soil profile analyses. Two of these, over the foot wall section of the sill, showed constantly low W values within each soil horizon. Reasons for this are unknown. The soil profile uphill from the sill showed a slight increase in values (nil to 150 ppm W) with depth, but not high enough to indicate good W mineralization in the hanging wall sediments. The remaining three profiles, two over the diorite sill and one over foot wall quartzite at the lowest end of the trench, showed increasing W values with depth. Assays ranged from a low of 15 ppm W within the top of "B" horizon to a high of 800 ppm W at the bottom of the "C" horizon. The last three are classical examples of soil profile results over and downslope from mineralized zones, except for the extremely low W content in the soil within the top of the "B" horizon adjacent to a mineralized outcrop. (See Fig. NL-73-1).

(2) Trench No. 2 (See Fig. NL-73-2)

Location: northwesterly from the SE corner of claim Nine Lake No. 71, between Line 30 NW and 31 NW.

Bearing: 140° - 320° (south section) and 162° - 342° (north section)

Length: 826 feet (450' and 376' N)

Av. Width: 50 feet (S) and 30 feet (N)

Av. Depth: 8 feet (S) and 4 feet (N)

Angle to Sediments: 79^{o} to 87^{o}

Angle to Contact: 98^{o} to 105^{o}

Dip of Contact: not observed, probably northward into hill.

Rehabilitation Work: Berm pushed into sides of trench and edges levelled.

The south section of Trench No. 2 is located on a 300 ppm W anomaly and the north section is upslope from the anomaly. The trench exposed 450 feet of footwall quartzite and 366 feet of hanging wall diorite. The hanging wall of the sill is projected another 750 feet upslope towards the north.

The best tungsten mineralization within the trench lies between the 100 - 200 ppm W geochemical contour, about 400 feet upslope (+21% grade) of the 300 ppm W anomaly centre. Tungsten in the soil is derived mainly from the diorite sill and it has been moved far from its source by snow movement and soil creep.

The diorite and quartzite are similar to the rocks in Trench No. 1. Sediments strike N 53^{o} - 61^{o} E and dip about 25^{o} NW. Bearing of the diorite-quartz contact is about N 83^{o} E and dip is northward.

Fractures are abundant in both types of rocks though the diorite exhibits more prominent seams. The fractures consist of one to five sets with an average of three patterns and varies widely in distribution. They are generally "tight" fractures though wider ones often occur as 1/8 - 1/2" seams over short sections of the trench and 1/2 - 3/4" seams are found occasionally.

Attitudes of the fracture pattern within the diorite sill were not obtained, though up to five sets of fractures were noted in the well fractured zones.

Attitudes and descriptions of the fractures within the quartzite near the contact are as follows:

Set	Bearing	Dip	Description
1	N 12^{o} W	82^{o} SW	Hairline fractures, negligible W mineralization.
2	N 18^{o} E	83^{o} SE	Hairline fractures, negligible W mineralization.
3	N 25^{o} E	$64\text{-}77^{o}$ SE	Hairline fractures, negligible W mineralization.
4	N 36^{o} E	61^{o} SE	Hairline fractures, negligible W mineralization.

Set	Bearing	Dip	Description
5	N 51° E	43° SE	Hairline fractures, minor W mineralization.
6	N 60° E	54° SE	Hairline to 1/32", minor W mineralization.
7	N 83° E	74° SE	Hairline fractures, negligible mineralization.

Mineralization in Trench No. 2 is similar to that in Trench No. 1 though scheelite appears to be less. The best scheelite mineralization occurs within the diorite fractures 90 feet from the foot wall. Shorter sections (15-60 feet) of well fractured rock were found across the sill towards the hanging wall, but scheelite content was low and patchy although sericite, quartz and calcite are abundant. All the fractures within the quartzites are "tight" and a few contain minor amounts of quartz, sericite, calcite and scheelite. The entire trench was sampled at 10 foot sections. Assays by Coast Eldridge showed less than 0.05% WO_3 in all the samples. Ten samples from the "better looking" zone were check-assayed by Vancouver Geochemical Laboratories and these gave from 0.01% to 0.07% WO_3, averaging about 0.03% WO_3.

Surface float rock consists of a few scattered blocks of quartzite and diorite over the lower section (south) of the trench area. The upper area is 10-30% float covered, consisting of 70% quartzite and 30% diorite. Quartzite float increases northward. Part of the diorite float is likely frost-heaved from the sill directly beneath the surface. Most of the float rock is deposited by annual snow transport from the north and west side of the cirque.

Four sites along the trench were selected for soil profile sampling. Two locations over the diorite and one immediately below the foot wall of the sill all show increasing W values with depth. The latter assayed 600 ppm W at bedrock which confirms the visual estimate of better grade mineralization near the foot wall of the sill. The first two locations also showed increased W values to diorite bedrock though of a lower order (200-300 ppm W). The fourth site was located 480 feet downslope from the footwall of the sill. The lower part of the "B" horizon and the upper part of the "C" horizon contained roughly the same amount (300-400 ppm) of W, then dropped sharply to 20 ppm W in the lower part of the "C" horizon. Bedrock was not exposed at the site but is expected to be quartzite. The soil profile suggests material transport and subsurface dispersion. Soil creep along the bedrock plane may not have extended this far from the sill. The 20 ppm W value appears to be low because scheelite was noted in fractures in quartzite bedrock about 50 feet west. These conclusions are also based on visual examination of the soil horizons by ultra-violet lamp.

(3) Trench No. 3

Location: near southern boundary of claim Nine Lake No. 68, between Lines 31 NW and 32 NW.

Bearing: 142° - 322°

Length: 200 feet (bedrock exposed 78 feet)

Av. Width: 29 feet (bedrock exposed 16 feet)

Av. Depth: 10 feet (bedrock exposed 18 feet)

Angle to Sediments: approximately 90^{o}

Rehabilitation Work: Trench filled in and surface smoothed out.

Trench No. 3 is located on a 300 ppm W soil anomaly. Overburden is 18 feet deep. No W mineralization was found within the 78 feet of quartzite and/or siltstone bedrock exposed by bulldozing. The bedrock was rusty and "rotten".

The soil and included diorite float contained scheelite (lamping) to a depth of about 15 feet.

It is concluded that the soil geochemical anomaly was caused by mechanical transport of W bearing material from the east ridge. A quartzite talus with 3-5% diorite lies about 100 feet upslope from the trench. Scheelite in diorite fractures was noted by lamping the talus. The amount of "color" in the talus was considered minor.

(4) Trench No. 4

The proposed Trench No. 4 location is on a steep face of the cirque rim so no work was done. The source of the high geochem is believed to be from a diorite sill located immediately above and is probably the same source which caused the anomaly at Trench No. 3 location.

(5) Trench No. 5 (See Fig. NL-73-3)

Location: SE corner of claim Nine Lake No. 60, on Line 26 NW.

Bearing: 139^{o} - 319^{o}

Length: 275 feet

Av. Width: 16 feet

Av. Depth: 3 feet

Angle to Sediments: 133^{o}

Angle of Contact: 94^{o}

Attitude of Diorite-Quartzite Contact: not observed, probably same as sediments.

Rehabilitation Work: Berm pushed into sides of trench and edges levelled.

Proposed location of Trench No. 5 on Line 27 NW on claim Nine Lake No. 58 was found to be on the toe of a talus slope. It was moved westward to Line

26 NW on strike of a sill which was assumed to have given the high geochem on Line 27 NW. Two shallow pits on top of a hill were bulldozed to locate the quartzite-diorite (hanging wall) contact from where Trench No. 5 was started.

The trench is entirely within the sill. It is composed of dark, coarse-grained diorite in the upper section and partly medium-grained rocks in the lower section of the trench. The diorite composes 50% plus mafic, largely hornblende with biotite.

The rock does not appear to be as well fractured as the diorite in Trench Nos. 1 and 2. Three sets of fractures were mapped. Distribution of fractures vary across the width of the sill. In general, fracturing is more prominent near the hanging wall. Hairline fractures are the dominant type, wider ones with seams up to 1/8" are common but not numerous, and wider seams are rare. The fracture separation varies between 1-12", 8-12" and > 12" respectively.

Fracture patterns mapped in the area are as follows:

Sets	Bearing	Dip	Description
1	N 57° W	32° NE	Hairline fractures, prominent; quartz-sericite-calcite, scheelite, pyrrhotite and chalcopyrite.
2	N 17° W	70° NE	Hairline fractures, prominent; quartz-sericite-calcite, scheelite, pyrrhotite and chalcopyrite.
3	N 57° E	52° SE	Up to $\frac{1}{2}$",not numerous; sericite, quartz, calcite and scheelite.

Scheelite mineralization appears to be spotty and weak by visual examination and lamping methods but assay results show a slightly higher W content than rocks from Trenches 1 and 2. Pyrrhotite is common along the fracture planes and is occasionally disseminated within the diorite mass. Blebs of chalcopyrite are usually associated with pyrrhotite.

All the rock samples assayed less than 0.05% WO_3 except 2/20-foot sections which assayed 0.07 and 0.08% WO_3.

No soil sampling was conducted within the immediate area. Projection of the geochemical contours from Line 27 NW would place the values at 300-400 ppm W.

(6) Trench No. 6 (See Fig. NL-73-3)

Location: N boundary of claim Nine Lake No. 57, on Line 26 NW

Bearing: 148° - 328°

Length: 400 feet

Av. Width: 22 feet

Av. Depth: 5 feet

Angle to Sediments: approximately 90°

Angle to Contact: approximately 90°

Rehabilitation Work: Berm pushed into sides of trench and edges levelled.

Trench No. 6 is located about 400 feet upslope from a 300 ppm W anomaly. Trenching exposed 240 feet of diorite and 60 feet of foot wall quartzite. The centre of the 300 ppm anomaly is about 300 feet downslope from the diorite-quartzite contact.

The foot wall quartzite is fine-grained, grayish and reddish in color, with rusty bedding and fracture planes. The hanging wall diorite is a fine-grained, greenish dark colored rock. At footage 100 from the foot wall of the sill the diorite gradually changes to a medium-grained rock.

Fracturing is poor in the quartzite, poor to moderate in the diorite. Most of the fractures are "tight", a few wider seams up to $\frac{1}{2}$" in width occur in the diorite within the bottom 140 feet of the sill.

Scheelite content is generally low. A few short sections of slightly better mineralization occur in the diorite. Assays by Coast Eldridge show $< 0.05\%$ WO_3 except for one 20 foot section in diorite, 20-40 feet from the foot wall assaying 0.07% WO_3.

(7) Pit Nos. 1-9 (See Fig. NL-73-3)

Location: claims Nine Lake 58 and 60, on Line 26 NW.

Nine pits were bulldozed between Trenches 5 and 6. The diorite sill is approximately 1400 feet wide across this section. The size of these pits range between 20-70 feet in length, from 14-18 feet in width and 1.5-9 feet in depth. Aggregate length of these pits is 375 feet. Rehabilitation work performed included pushing the berm into the ends of the pits and levelling the surrounding surface.

The above section of ground lies within a geochemically low W (20 ppm) area.

Medium grained, dark colored diorite occurs in most of the pits and is usually accompanied by coarse and/or fine-grained varieties.

The diorites are well fractured except for the rocks in Pits 8 and 9 just north of Trench 6. The most prominent and best mineralized fractures strike NE-SW (35 to 65°) with dips between 29 and 80° SE. Widths of the seams vary from hairline to 3/8", the former occurring the most.

Fracture patterns in the pits are as follows:

Pit No.	Fracture Bearing	Dip	Description
3	N 78° W	28° NE	Hairline, minor occurrence.
	N 31° W	72° (NE or SW?)	Prominent, moderate mineralization.
	N 35° E	59° SE	Hairline, minor occurrence.
	N 36° E	29° SE	Hairline, prominent, mineralization not checked.
	N 48° E	61° SE	Most prominent, best mineralization.
6	N 30° W approx.	70° approx. (NE or SW?)	Hairline fractures.
	N 65° E	80° SE	Hairline to 1/8", quartz-calcite-pyrrhotite-scheelite, 2-4" separation.
4	SW-NE	?	Hairline to $\frac{1}{4}$"; quartz-calcite-scheelite.
8	SW-NE	?	Hairline; quartz-calcite.

Scheelite mineralization appeared to be weak under the ultra-violet lamp. Assays show less than 0.05% WO_3 in all the samples from the pits. Check assays on selective samples averaged about 0.049% WO_3 and indicated that the better values occur near the hanging wall of the sill. The rocks contain a higher W content than the soil samples indicated.

C. GEOCHEMISTRY

During May - June, 1973 an investigation was conducted on Sn and Mo content and distribution in the stream sediments of Nine Creek. This was prompted by unusually high (35+40 ppm) Sn values on two composite samples, tested for Sn interference on W analyses. Initial results for Sn assays did not show significant values so the investigation for Sn was not carried further. Anomalous Mo values were noted so soil samples bordering the White Creek Batholith were reassayed for Mo. Tungsten analyses were also done on samples not assayed previously.

The former tungsten geochemical picture (Map 8, Geochemical Plan - Tungsten, April 1973) was changed only slightly by the additional sample results. Two isolated high assays (300 ppm W) occur on claim Nine Lake No. 8. Background values along the intrusive contact south of Nine Creek are between 10-25 ppm W. (see June and Nov. 1973 revision of Map No. 4D, 1972, "Geochemical Soil Survey, Tungsten in Nine Creek Drainage Area").

Mo geochemistry indicates anomalous (> 20 ppm Mo) soils south of Nine Creek, on claims 8, 10 and 12. Within the area are at least four moderately anomalous (40 ppm) zones, ranging from 200 feet wide by 700 - 1400 feet long. Definitely anomalous values greater than 60 ppm Mo form small highs except for the area on claim Nine Lake No. 12 which encompasses a zone 200-300 feet wide by 1000 feet long. The highest soil value was 100 ppm Mo. Regional Mo background value bordering the batholith is between 1 - 6

ppm Mo. (See Map NL-73-9 "1971 Regional Geochemical Survey, Showing Mo Distribution", June 1973; also Map 4E (South Half of) Geochemical Soil Survey, 1972; revised June and November 1973, "Molybdenum Values Along White Creek Batholith Contact at Nine Creek".

Leuco quartz monzonite rocks of the White Creek Batholith probably underlie the entire area south of Nine Creek. The claims where the Mo geochemical anomalies occur are covered by talus and large angular monzonite float with varying amounts of fine soil. No alteration or mineralization was noted. No detail geology of the intrusive rocks have been mapped.

Based on the geochemical results and their direct relationship to the batholith, the area warrants a thorough examination for possible economic Mo and/or W mineralization.

A few changes have been made on contouring and projection of the tungsten geochemical trend within the area between Greenland Creek and Nine Creek (see Map No. 4D, 1972, "Geochemical Soil Survey, Tungsten in Nine Creek Drainage Area").

The 800 x 3000 foot anomaly (100 ppm W) on claims B.A. Nos. 7, 9 and 11, and the 1300 ppm W geochem high on claim Mc No. 1, plus the 2800 foot long anomalous (100-450 ppm W) soil line on claims Nine Lake No. 74, 76 and 78 are believed to be caused by dispersien of W from one source. This source is likely an area on the mountain ridge where a diorite sill cuts across claims B.A. Nos. 14, 16 and 18. Another source for W could be from a shear zone, similar to the quartz breccia shear reported on the Val claims, two miles southwest. A N-S shear zone striking southward would extend onto the N-S linear features as outlined by magnetic and electro-magnetic anomalies on the Mc No. 1 claim. A third source could be W from a skarn zone, developed within limey horizons of the Aldridge sedimentary formation, in close contact with late intrusive activity of the White Creek Batholith. The border of the known intrusion is approximately 5000 feet SE, on claim Nine Lake No. 6.

The Nine Lake claims are mainly within steep mountainous terrain and high snowfall country. Under these conditions the dispersion of W is governed by particle transport and gravity, plus the masking effect of country rock being transported and dumped by snow movement. Soil profile analyses of Trenches 1, 2 and Pit 3 show a low W content in the top of the "B" horizon (0.5-1.0 foot depth approx.), high W in the bottom of the "B" horizon, and then increasing W values with depth over or immediately below (elev.) the mineralized zone. The top of the "C" horizon varies between 1.5 to 3 feet. For ease in sampling to locate the mineralized zone, the writer suggests collecting the soil samples from the bottom of the "B" horizon. For selecting the final target, "C" horizon samples should be collected and their results used for determination.

As mentioned in the 1971 Dewar Creek Project Report, the regional geochemical survey indicated a concentration of anomalous metal values within the drainage areas of Doctor and Greenland Creeks. This region definitely stands out as a geochemioally anomalous area, an environment which produces moderately to definitely anomalous values in Pb, Zn, Cu, W, Mo and Sn. To date, the known facts are: low grade galena in quartz

mineralization within argillic rocks on the Doc claims, and low grade scheelite with sericite mineralization filling fractures in diorite sills on the Nine Lake olaims. The types of mineralization found to date are not encouraging but more research and exploration work involving geochemistry, geology, and diamond drilling are recommended.

D. GEOLOGY

The claims are underlain by the known Aldridge quartzite formations and a sequence of Moyie diorite sills. This assemblage of rocks lie within an embayment of the White Creek Batholith which borders the south and east side of the property. The batholith is a multiphase intrusion in which the rocks vary in composition from a border phase granodiorite to a core of quartz monzonite. Large and small plugs of pegmatite with dikes of the same composition occur within the claim group. They are likely formed during the last stages of intrusive activity of the batholith.

Two major faults have been mapped in the area and others have been traced over a short distance. The importence of these and other faults are unknown at present. An apparent domed structure appears within claims B.A. No. 22-23 and Nine Lake Nos. 32 and 34. The dips of the sedimentary beds form a circular ring around the inferred outline of a pegmatite mass. Evidence of faulting and folding was feund around the perimeter.

Although the batholith has been mapped as having vertical walls, it probably possesses tongues which intrude into the sediments. The airborne Elsec magnetometer survey suggasts a tongue-like body, with approximately the same magnetic intensity as the main intrusive mass, jutting westward near the NE corner of the claim block. (See Map No. 1, 1972, Geological Plan of Mc and Nine Lake Group, revised; also see Map No. 7 and 8, 1971, Aeromagnetic Survey, Finlay Creek - E½/Dewar Creek - E½/Canal Flats - W½). The B. C. Minister of Mines Report, 1938, mentioned a porphyritic granite bordering the south boundary of the Silver Key property. This is where the airborne survey has indicated an intrusive tongue. The presence of younger granitic intrusions nearby would favour the deposition of tungsten mineralization.

A small crescent-shaped airborne anomaly with approximately the same magnetic intensity as the batholith is locatad on claims Nine Lake Nos. 1, 3 and 92. This anomaly is coincident with the ground mag and E.M. plus soil W anomalies. This anomaly was reported by the writer, in the Dewar Creek Project Report, 1972, as being caused by pyrite and pyrrhotite within a fault or shear. Similar sulphide mineralization with added scheelite in a skarn zone is also probable. The size and shape of both the airborne and ground magnetic anomalies do not suggest an intrusive tongue from the batholith in this vicinity.

Leuco quartz monzonite and pegmatite intrusions are non-detectable magnetically within the area.

E. MINERALIZATION

Scheelite is the most abundant economic mineral known on the Nine Lake property. Chalcopyrite is a minor mineral associated with scheelite. Tin (as cassiterite ?) is present, likely in small quantities, occurring in quartz veins but little is known about it. Molybdenum has been detected in stream sediments along Nine Creek and in the soils towards the south. It is accompanied by tungsten though the latter values are not as anomalous as other areas within the property. The significance of their association is unknown at present.

The main type of W mineralization occurs as fracture filling. The second mode of occurrence, not common, are narrow skarn bands in sediments along the Moyie diorite sills.

Scheelite is more abundant and more widespread in the Moyie diorite sills than in the quartzites. Mineralization is by hydrothermal deposition and therefore favors the sills which are more easily fractured than the sediments.

Accompanying scheelite as fracture filling are the following minerals in order of decreasing amounts: sericite, quartz, calcite, pyrrhotite and chalcopyrite. Sericite often occupies the entire space within the fractures.

Other types of tungsten mineralization have been found in the immediate area of the property. These are diopside-garnet skarn zones in limey sediments near the mouth of Nine Creek and the mouth of Greenland Creek; quartz-filled shear zones and quartz veins within sediments on the Val Group located 3 miles SW; and limestone-skarn zones near diorite-quartzite contacts on the Molly Group located 4 miles SW. The limestone-skarn horizon on the Molly Group would lie stratigraphically between Greenland Creek and the trenched area on the Nine Lake claims.

The dioritic rocks within the trenched area are weakly to highly fractured. Tungsten mineralization generally varies directly with the amount and size of fractures. Most of the rock samples from the trenches have assayed less than 0.05% WO_3, a few gave assays from 0.07 to 0.08% WO_3. The average content of tungsten within the sills has been estimated at about 0.03% WO_3. The best grade obtained on the property was about 0.10% WO_3 over 85 feet near a fault on claim Nine Lake No. 71, between Line 31 NW and 32 NW at about 46 N station. Selected samples of fracture filling material contain 0.1% to 1.5% WO_3, averaging about 0.6% WO_3.

F. CONCLUSIONS

From an economic standpoint, scheelite within skarn zones is the most desirable type of mineralization. It is also the most common mode of occurrence in North America. Scheelite in fractures within diorite sills could be important if a well mineralized fracture system was developed. There is an excess of carbonate within the fractures for the formation of additional scheelite. Hopefully, the source of the carbonate and tungsten is from a

limestone skarn horizon. If so, the economic potential for a tungsten deposit is greatly enhanced.

It is recommended that a drilling program be launched to probe for the existence of a limestone-skarn horizon. The drilling should be planned to also investigate the possibility of better scheelite mineralization of the fracture filling type. The source of the significant soil W values on claims B.A. Nos. 14, 16 and 18 should be investigated by geological examination and lamping if possible. Two diamond drill holes each on Line 31 NW and 26 NW, near Trenches 2 and 5-6 respectively, are proposed for cross-sectional drilling. (See Appendix for cost estimates).

V DOC MINERAL CLAIM GROUP

A. I. P. SURVEY

Due to rocky soil over the survey area the electrode resistance was found to be too great to proceed with the I. P. survey. The addition of salt water solution on the ground did not lower the resistance to an acceptable level.

B. VLF ELECTROMAGNETIC SURVEY

A VLF E.M. survey was carried out on claims Doc No. 2 and 7 using a Scintrex SE-80 receiver tuned to the Seattle, Washington station transmitting at 18.6 KH_z. Approximately 5500 lineal feet was surveyed on east-west lines 1, 2 and 3. Dip angle readings were taken at 100 foot intervals along each line.

No definite anomalous values (peaks in the profile bounded usually by a zero crossover) were indicated. Areas of surface lead mineralization were noted and plotted on the profile to check the response. (See Figures D-73-3, 4 and 5).

The response on Line 1 was quite erratic with the surface lead mineralization being undetected except for the westerly mineralized area; however, this is questionable.

On Line 2 the topographic effect was quite pronounced with even small elevation changes causing minor fluctuations. This topographic effect on VLF instruments is a problem commonly encountered in mountainous regions and must be taken into account in the interpretation. A slight response occurred around 6E on Line 2, however this is due partially to very shallow overburden and numerous mineralized veinlets.

The Line 3 profile shows little change except in the area of surface lead mineralization. This peak, though not intense, probably represents a response over the small lead mineralized veins. Topography on this line as well as the previous line had an effect as seen by the rise in values from west to east.

The VLF survey could not be continued on other lines due to the hazardous conditions presented by strong winds, poor visibility and 8 to 12 inches of snow.

C. GEOLOGY

All the mapping done in 1973 was confined to the known outcrop areas along the ridge on claims Doc Nos. 2 and 7. The band of dark argillites in which most of the galena mineralization occurs has been mapped as a 30-40 foot thick bed overlying green and brown quartzites. The argillite bed appears to be a remnant of the upper argillite member of the Upper Aldridge division. The unit is estimated to be about 300-400 feet below the younger Creston Formation. (See Figures D-73-1 and 2). Spots of galena mineralization were seen in narrow veins within the quartzites but these were minor occurrences.

The argillitic member could reappear downslope on claims Doc Nos. 4 and 6 if folding or thickening of the beds or a change in attitude had taken place. This would definitely explain the cause of the geochemical anomalies on those two claims.

D. GEOCHEMISTRY

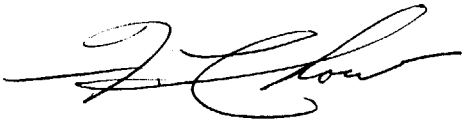
The additional soil sampling west of claims Doc Nos. 2 and 3 had confined the galena mineralization to the argillites. No work was done to investigate the geochemical anomaly on claims Doc Nos. 4 and 6. This anomaly appears to be caused by similar mineralization as on Doc No. 2. Whether the anomaly is caused by the same source should be investigated.

The anomalous Pb values found in the soils over a one mile length of the north facing hillside, 1 to 2 miles downstream from the Doc claims should be investigated. The dispersien pattern appears to be downslope towards the creek, thus suggesting a source to the south rather than transport of material eastward from the Doc claims.

E. CONCLUSIONS

The Pb mineralization on claims Doc No. 2 appears to be a small tonnage and is too low-grade to be economical. Other targets in the area are likely caused by similar types of mineralization, though the grade and tonnage may be significant to be economic. Further exploration should be done to evaluate the targets over the geochemically anomalous areas.

It is recommended that one geologist plus an assistant prospect and map the anomalous areas. Work should be concentrated within the areas showing 100 plus ppm Pb in the soils, located 1 to 2 miles downstream from the Doc claims. Doc No. 4 and 6 claims should be examined for favourable geological structures and mineralization. This work is estimated to take about one month, and should be conducted during July - August when weather is best for prospecting. A lower camp can be set up at Doctor Creek to work the first area, about 1 to 2 miles from the mouth of the tributary (Kurts Creek). (See Appendix for cost estimates).



FC/rb

F. Chow

VI STATUS OF MINERAL CLAIMS

As of December 31, 1973 the standing of the Dewar Creek Project mineral claims are as follows: (See Map Nos. NL-73-10 and D-73-8).

No. of Claims	Name of Claims	Status of Claims	Anniversary Date
4	Mc	Allowed to elapse August, 1973	
(16)	Nine Lake	Held in Scott Boyd's name	April 7-9, 1974
(20)	B.A.	Held in Cameron Lee's name	April 26-27, 1974
8	Nine Lake	Purchased by Kerr Addison	April 8, 1975
8	B.A.	Purchased by Kerr Addison	April 26-27, 1975
40	Nine Lake	Held (continuously) by Kerr Addison	Sept. 2 & 7, 1975
6	Doc	Held by Kerr Addison	Sept. 28, 1974
3	Doc	Held by Kerr Addison	April 12, 1975

Presently, Kerr Addison Mines directly holds 56 claims on the Nine Lake Group and 9 claims on the Doc Group, a total of 65 claims (underlined above). Kerr Addison also holds indirectly 36 mineral claims (bracketed above) which will expire in April, 1974. Tentative plans are to allow the 36 claims to elapse and to re-stake next summer if warranted.

APPENDIX

1974 EXPLORATION COST ESTIMATES
FOR PROPOSED WORK ON DEWAR CREEK PROJECT

NINE CREEK GROUP

Road Repair:		
Replanking bridges, labour and material	$ 400	
D-6Cat for 60 hrs. @ $30.00	1,800	
	$ 2,200	$ 2,200
Diamond Drilling:		
3400' BQ @ $13.00/ft.	$44,200	
Mobilization	2,500	
Demobilization	1,800	
6 x 6 Truck Rental (hauling 23 drums diesel fuel & 23 drums stove oil)	1,000	
Tractor Rental	1,000	
Camp Construction	800	
Building Supplies (2 diamond drill tents, 1 office tent)	600	
	$51,900	$51,900
Board (Kerr) 2 men @ $10/day for 40 days	$ 400	
Wages (Kerr) 2 men for 40 days	2,200	
Transportation and motel expenses	300	
	$ 2,900	$ 2,900
Assaying 120 samples @ $7.00	840	$ 840
		$57,840
Contingencies @ 10%		5,784
		$63,624

DOC GROUP AREA

Wages 1 Geologist for 1 month @ $750.00	$ 750	
1 Geologist assistant for 1 month @ $550.00	550	
Camp Supplies for 1 month	500	
Transportation and motel expenses	300	
Assaying 150 @ $2.00/ea.	300	
	$2,400	$2,400
Contingencies @ 10%	240	240
		$2,640