



**PRELIMINARY ASSESSMENT  
AND  
RECOMMENDED WORK PROGRAM**

**KUSK #1-11 CLAIMS**

**CARIBOO MINING DIVISION  
BRITISH COLUMBIA**

**FOR  
NIRVANA OIL AND GAS LTD.**

**JANUARY 10, 1984**

**T. NEALE, B.Sc. T.G. HAWKINS, P.GEOL.**

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NIRVANA OIL & GAS LTD.

SOURCE AND APPLICATION OF FUNDS FOR THE  
PERIOD JANUARY 1, 1984 - APRIL 30, 1984

FUNDS ON HAND AT BEGINNING OF PERIOD	\$21,031.50
Income - Sale of Oil & Gas	1,286.81
Sale of shares - 20,000 @ .25¢	5,000.00
From Kusk Acct	<u>9,000.00</u>
	\$36,318.31

APPLICATION OF FUNDS

Administration Expenses

Advertising & Promotion	\$ 4,725.83	
Auto	954.69	
Bank charges	26.30	
Office expenses	100.14	
Office services	2,560.00	
Legal and Audit	736.79	
Miscellaneous	420.00	
Rent & Telephone	2,716.48	
Transfer Agent	1,190.50	
Travel	848.59	
Transfer from spec acct	<u>9,000.00</u>	\$23,279.32

Exploration Expenses

Engineering Reports and Consulting	\$ 4,200.00	
General Exploration & Dev	1,925.00	
Ladysmith Minerals	300.00	
Kusk Special project	<u>150.00</u>	\$ 6,575.00

FUNDS ON HAND AT END OF PERIOD	<u>\$ 6,463.99</u>
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APPROVED BY THE BOARD OF DIRECTORS

THIS 30th DAY OF April 1984.

DIRECTOR: *G. Kohari*

DIRECTOR: *M. Havel*



## SUMMARY

The Kusk claim groups, located 115 km east-northeast of Williams Lake, are underlain mainly by Upper Triassic phyllites of the Takla Group in the core of the Crooked Lake Syncline.

The Cariboo region is a very important gold-producing area. At least 1.2 million ounces of lode gold and 800,000 ounces of placer gold have been mined. The Frasergold property adjacent to the Kusk claims is reported to contain 11 million tons of 0.04 to 0.05 oz/ton Au and Dome Mines Ltd.'s QR deposit contains 950,000 tons grading 0.21 oz/ton Au. Many other new gold prospects in the Quesnel Trough are currently being explored and are showing very good results. In addition, porphyry copper/gold mineralization occurs at the Cariboo Bell deposit (100 million tons of 0.37% Cu and 0.015 oz/ton Au) and closer to the Kusk claims, at the EN/EM property; and porphyry molybdenum mineralization occurs at the Boss Mountain mine nearby.

A "knotted phyllite" layer occurring on the Frasergold property which contains the gold deposit mentioned above, is believed to continue onto the Kusk property. Over 20 km of the favourable horizon is potentially present on the Kusk claims. Previous brief geochemical soil surveys have produced encouraging results. Excellent potential exists for higher grade concentrations of remobilized gold in the structurally disturbed area at the nose of the syncline.



A systematic exploration program in three phases is recommended. Phase I consists of soil sampling and geological mapping and lithogeochemistry over most of the property. Phase II will follow up results of Phase I, with detailed soil sampling and IP surveys over the anomalies located during Phase I, and trenching and rock sampling on the best anomalies. Given positive results from Phase II, an initial diamond drilling program of about 3000 feet would constitute Phase III. The estimated total cost of all three phases is \$342,000, to be spent over approximately four months.

The Nirvana Oil and Gas Ltd. portion of that expenditure would, therefore, equal \$171,000 by virtue of the 50-50 joint venture agreement with Roddy Resources Inc.



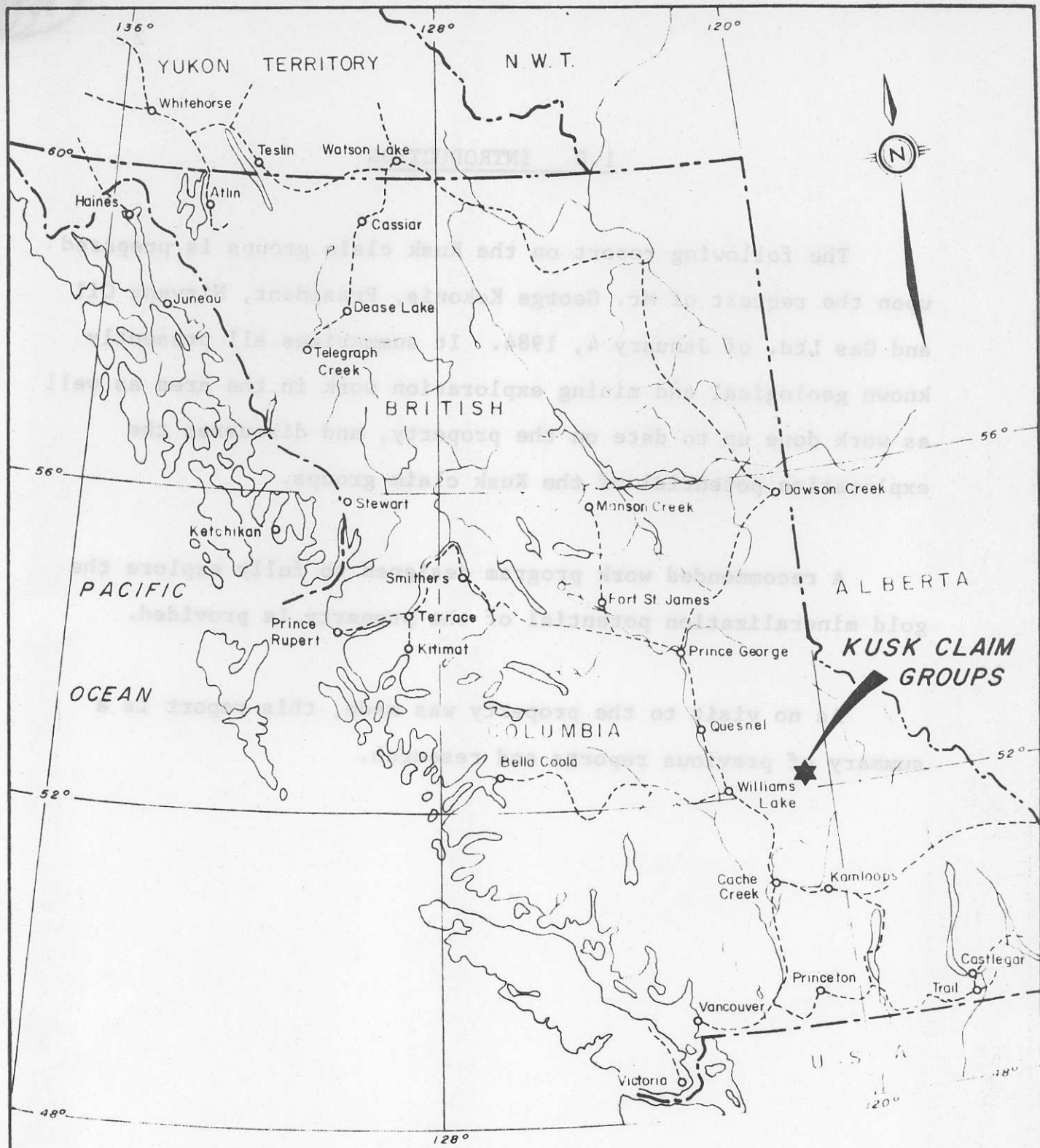
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GENERAL LOCATION MAP  
KUSK CLAIM GROUPS  
CARIBOO MINING DIVISION

Project No:	V-139	By:	T. N.
Scale:	1" = 125 MILES	Drawn:	J. S.
Drawing No:	1	Date:	JAN. 1984.



MPH Consulting Limited



Scale: 1" = 125 miles



## 1.0 INTRODUCTION

The following report on the Kusk claim groups is prepared upon the request of Mr. George Kokonis, President, Nirvana Oil and Gas Ltd. of January 4, 1984. It summarizes all presently known geological and mining exploration work in the area as well as work done up to date on the property, and discusses the exploration potential of the Kusk claim groups.

A recommended work program designed to fully explore the gold mineralization potential of the property is provided.

As no visit to the property was made, this report is a summary of previous reports and research.





## 2.0 PROPERTY LOCATION, ACCESS, TITLE

The Kusk claim groups are located between McKusky Creek and the MacKay River, NTS maps 93A/1,2,7 and 8, centred at approximately 52°15'N latitude, 120°30'W longitude in the Horsefly District of the Cariboo Mining Division of British Columbia.

At present, the only means of access to the property is by helicopter. The route previously used involved driving from Clearwater to a forestry helicopter pad at the south end of Clearwater Lake. From there, the camp was flown in by helicopter, a distance of about 30 km. Alternative routes via Williams Lake and Horsefly include a road to Crooked Lake (16 km west of the property) or a road up the MacKay River. The latter road has been bulldozed onto the Frasergold property and now ends within about two km of the northwestern edge of the Kusk property and could be extended onto the Kusk claims. It is reached by driving about 45 km east from Horsefly along the main Horsefly River Road and turning south into the MacKay River valley.

The property is comprised of eleven contiguous metric claims, in two groups, totalling 154 units as summarized below.

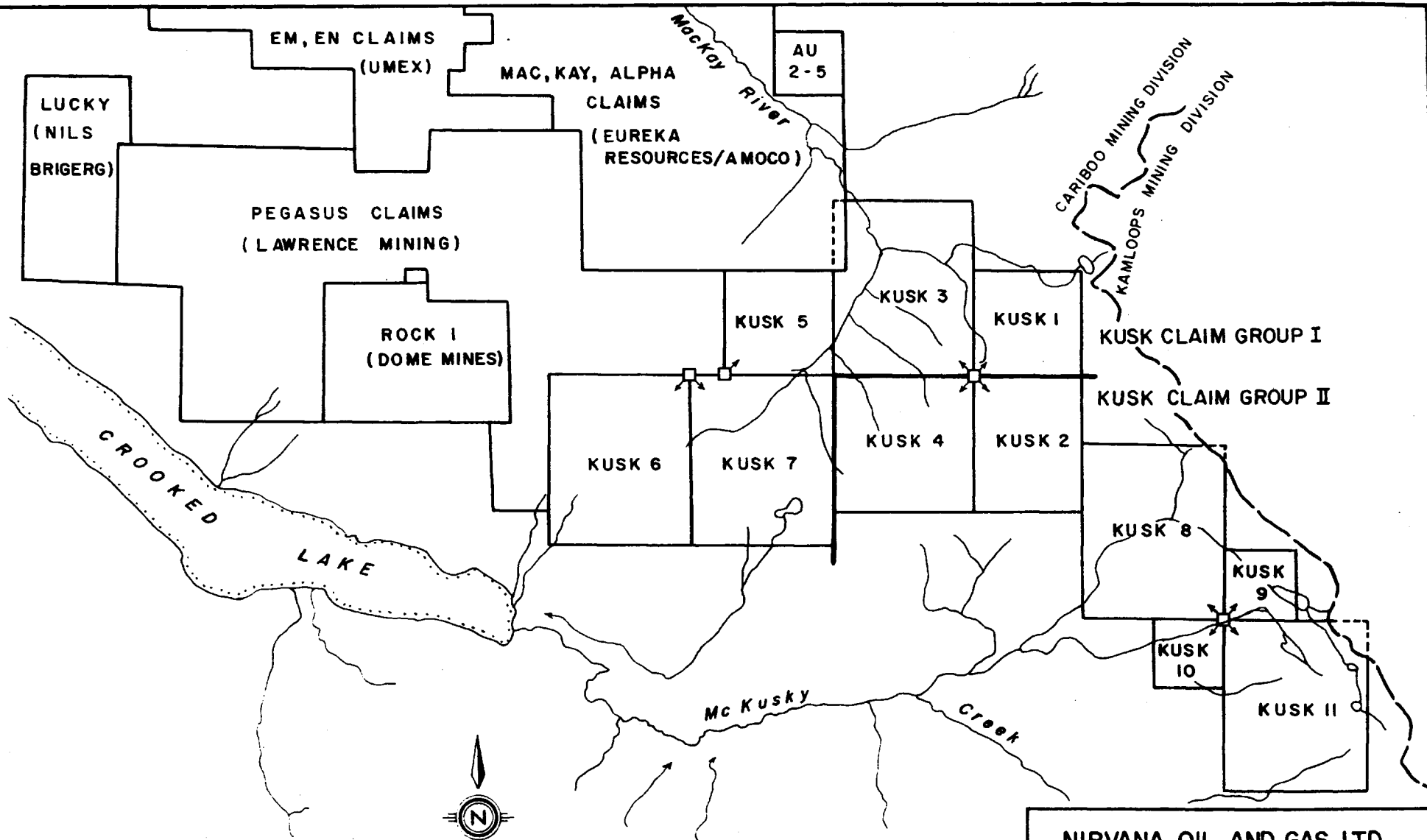


Table I  
Claims Summary

Claim Name	No. of Units	Record Number	Expiry Date
<u>Group 1</u>			
Kusk 1	9	4141	20 Nov/84 *
Kusk 3	20	4143	20 Nov/84 *
Kusk 5	9	4145	20 Nov/84 *
Kusk 6	20	4146	20 Nov/84 *
Kusk 7	<u>20</u>	4147	20 Nov/84 *
Total	78 units		
<u>Group 2</u>			
Kusk 2	12	4142	20 Nov/84 *
Kusk 4	16	4144	20 Nov/84 *
Kusk 8	20	4148	20 Nov/84 *
Kusk 9	4	4149	20 Nov/84 *
Kusk 10	4	4150	20 Nov/84 *
Kusk 11	<u>20</u>	4151	20 Nov/84 *
Total	76 units		

\* based on work filed 1983

The claims are all owned by J.J. O'Neill (50%), J.M. Dawson(25%), and Gary Belik (25%) and are optioned from them by a joint venture consisting of Nirvana Oil and Gas Ltd. (Operator) and Roddy Resources Inc.



**NIRVANA OIL AND GAS LTD.**

**DETAILED LOCATION MAP  
KUSK CLAIM GROUPS  
CARIBOO MINING DIVISION**

Project No. V-139	By: T N
Scale: APPROX 1:80,000	Drawn: J S
Drawing No. 2	Date: JAN. 1984.



**MPH Consulting Limited**



### 3.0 HISTORY

The earliest recorded mining activity in the Kusk claim groups area was placer gold mining on the tributaries of the MacKay River in the early 1900's. Minor placer gold production took place at Frasergold Creek, 1 km northwest of Kusk #3.

In 1966, exploration by Helicon Explorations Ltd. on the EN property at Eureka Peak 6 km northwest of the Kusk claims located porphyry copper mineralization in a mafic alkalic sill. Exploration continued on this property until 1974 and resumed in 1981 when UMEX explored the claims.

In 1978, C. Gunn staked the Alpha 1 claim on an area with numerous mineralized quartz boulders about 9 km NW of the Kusk claims. In 1979, as a result of anomalous gold values in silt and soil samples, he staked the Kay 1-8 claims along Frasergold Creek. Keron Holdings Ltd. optioned the property later in 1979 and staked additional claims in 1980 to make up the Frasergold property (Mac, Kay, and Alpha claims). By 1981, exploration work had resulted in the delineation of a strata-bound, probably syngenetic, zone of gold mineralization several kilometres long near the southeastern boundary of the property.

A regional geochemical survey of the area released by the B.C. government in 1980 led to the discovery of similar gold occurrences northwest of Crooked Lake.



In November, 1981, J.M. Dawson staked the Kusk claims on the nose of the syncline which the Frasergold and Crooked Lake gold-bearing horizons occur on opposite limbs of. A very brief geochemical survey in October of 1982 gave encouraging results.

In September 1983, two grids were laid out; Grid A over the postulated southeast extension of the Frasergold horizon, and Grid B over the theoretical southern continuation of the horizon on the southwest limb of the Crooked Lake Syncline. A total of 380 soil samples were collected at 50 m intervals on lines spaced 200 m apart. The total area covered by soil sampling was about 3 square km. The soil samples were analyzed for Au, Ag, Cu, Pb, and Zn. Limited geological mapping, prospecting, and rock sampling were also carried out in the grid areas.

Soil sampling results ranged from <10 to 170 ppb Au, 0.1 to 6.7 ppm Ag, 9 to 358 ppm Cu, 4 to 72 ppm Pb, and 22 to 1200 ppm Zn. Values considered to be anomalous were 10 ppb Au, 1.2 ppm Ag, 75 ppm Cu, 25 ppm Pb, and 270 ppm Zn.

On Grid A, the Au anomalies occurred mainly on lines 22E, 24E, and 26E. No Au anomalies were located in the centre of the grid, but some anomalies appeared in the southeastern end, indicating that the horizon is either discontinuous or is offset to the north by a fault. Silver anomalies were more widespread than Au anomalies and tended to form haloes around or adjacent



to the gold anomalies. Lead anomalies were weaker than Cu anomalies and occur mainly on the western part of the grid. Several well defined Zn anomalies were located. Some anomalies for all metals were open to the north and west and some Ag, Pb, and Zn anomalies were also open to the south. Correlation of Cu, Pb, and Zn anomalies was fair to very good with Ag anomalies, but generally poor with Au anomalies.

On Grid B, several well defined Ag anomalous clusters were located, some related to higher Au values which were generally low and scattered. Near the centre of the grid some Pb anomalies were located. Once again, Cu, Pb, and Zn anomalies showed fair to excellent correlation with Ag anomalies, but poor correlation to Au anomalies.

Combining all anomalies on one map shows a very strong anomalous zone on Grid A, approximately along the baseline, which appears to coincide with a zone of quartz outcrops and boulders noted during the 1983 fieldwork. Several other anomalous zones occur, mainly in the northwest part of the grid, some of which are open to the north and west. On Grid B, two "combined" anomalous zones occur; one following the baseline and a second one running parallel and north of the baseline. Both are open to the east and west. The zones are up to several hundred metres wide and are 1400 m and 1200 m long, respectively.



7b.

Thus, soil sampling results indicate that several anomalous zones exist, on both the north and south limbs of the syncline, which appear to be favourable for gold-silver mineralization.

Only 14 rock samples were collected. Only three samples ran over the detection limit (10 ppb) in Au, and only one sample ran over 1 ppm Ag. They are summarized below:

	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	
KR-3/58	<10	3.8				rusty quartz sweat
KR-5/58	20	0.8	48	13	116	black phyllite
KR-9/58	20	0.9				rusty phyllite near rusty quartz sweat
KR-12/58	20	0.1				milky quartz sweat in phyl- lite/schist.

The locations of the "definite" and "strong" soil anomalies are marked on Figure 4. Values used for the various "classes" of anomalies are summarized following:



7c.

	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
range	<10-170	0.1-6.7	9-358	4-72	22-1200
possibly anomalous	10	1.2-2.3	75-149	25-49	270-539
probably anomalous	20	2.4-3.5	150-224	50+	540-809
definitely anomalous	30	3.6-4.7	225-299		810+
strongly anomalous	40+	4.8+	300+		





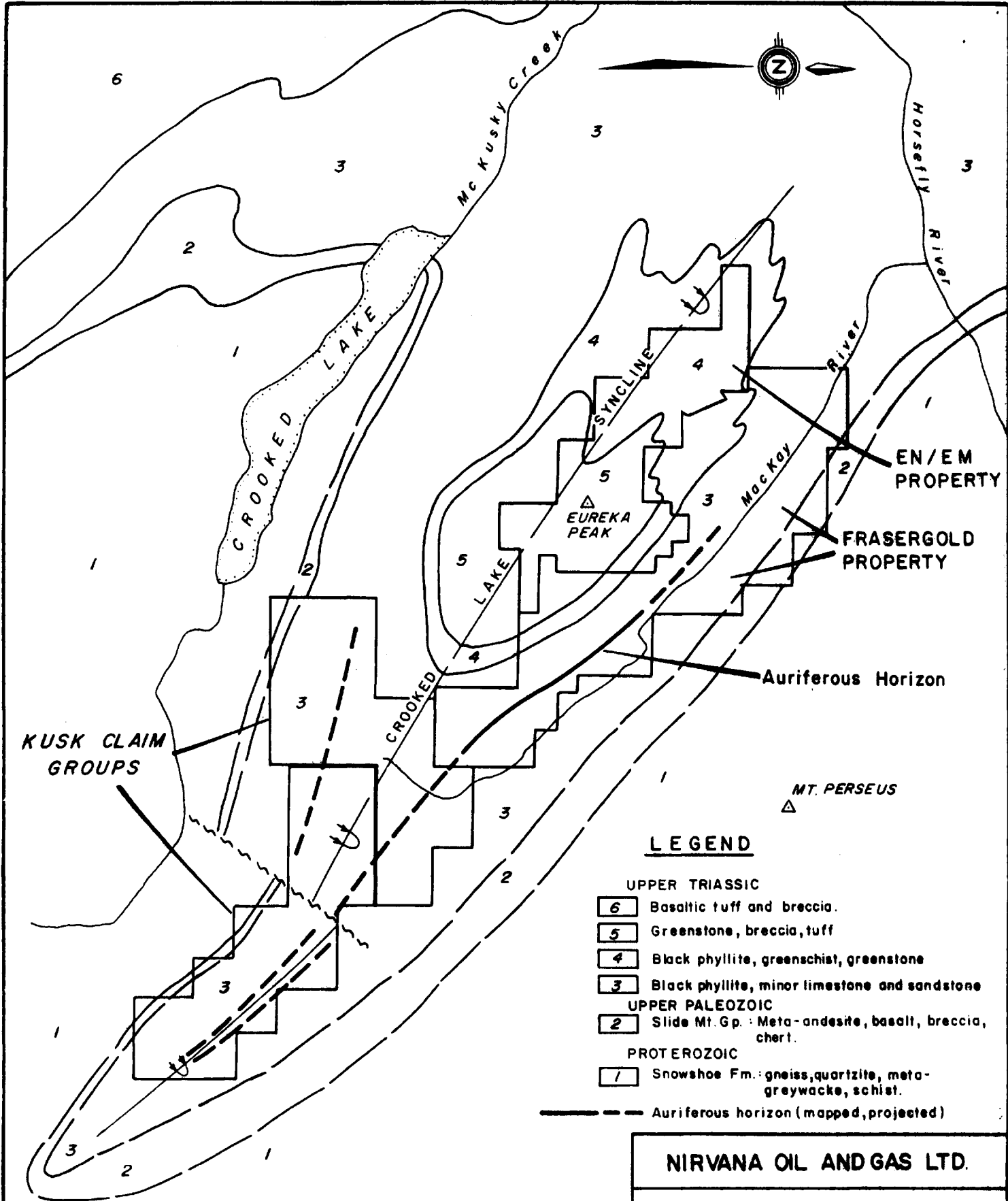
## 4.0 GEOLOGY

### 4.1 Regional

The most recent geological mapping of the area was done by R.B. Campbell (G.S.C. Open File 574 - Quesnel Lake Map Area, 1978) at a scale of 1:125,000.

The Kusk property is located at the nose of the Crooked Lake Syncline, part of the Quesnel Trough of the Intermontaine Belt which forms an embayment into the Omineca Crystalline Belt. In the area, Omineca Belt rocks are represented by the Proterozoic Snowshoe Formation, consisting of paragneiss, leucocratic feldspar augen gneiss, schist, and an upper green-schist unit. Overlying the Snowshoe Formation above a major angular unconformity is the Antler Formation of the Upper Paleozoic Slide Mountain Group. It is a sequence of dark green re-crystallized and foliated andesitic to basaltic greenstone about 100 m thick. As it is wrapped right around the Crooked Lake Syncline, The Antler Formation is a very useful marker horizon. Small serpentinite and peridotite bodies intruding the Snowshoe Formation are of uncertain age (probably pre-Antler Formation).

A thick sequence of Upper Triassic volcanic and sedimentary rocks of the Takla Group conformably overlies the Antler Formation. A basal unit of dark grey to black phyllite is



**LEGEND**

- UPPER TRIASSIC**
- 6 Basaltic tuff and breccia.
  - 5 Greenstone, breccia, tuff
  - 4 Black phyllite, greenschist, greenstone
  - 3 Black phyllite, minor limestone and sandstone
- UPPER PALEOZOIC**
- 2 Slide Mt. Gp.: Meta-andesite, basalt, breccia, chert.
- PROTEROZOIC**
- 1 Snowshoe Fm.: gneiss, quartzite, meta-greywacke, schist.
- Auriferous horizon (mapped, projected)

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**REGIONAL GEOLOGY  
KUSK CLAIM GROUPS  
CARIBOO MINING DIVISION**

Reference: J. M. Dawson (1982)  
Modified after R. B. Campbell (O.F. 574)

Project No. V-139	By: T. N.
Scale: APPROX. 1:127,000	Drawn: J. B.
Drawing No. 3	Date: JAN. 1984.





overlain by greenstone, greenschist, augite porphyry breccia and tuff. Alkalic hypabyssal dykes, sills, and plugs representing feeders to the Triassic extrusive rocks are common.

Tertiary plateau and valley basalt is common throughout the region.

Regional metamorphism of varying degrees has affected all but the Tertiary rocks. The Snowshoe Formation has been metamorphosed to amphibolite facies while the Paleozoic and Mesozoic rocks have undergone greenschist facies metamorphism. The biotite isograd approximately follows the Takla phyllite unit.

The Crooked Lake Syncline is the major regional structure in the area. It is a northwest trending and plunging, overturned structure. Uplift of the Omineca rocks in the lower Jurassic caused strong foliation and tight folding of the Takla phyllite near the Omineca rocks. A large fault striking northeasterly and having an apparent left lateral displacement of approximately 1.5 km cuts the southern limb of the syncline on the Kusk claims.

#### 4.2 Local

The Kusk property is almost entirely underlain by the Upper Triassic Takla Group represented by a thick (up to 1800 m) sequence of black phyllite (ie. the basal phyllite referred to above) forming the core of the Crooked Lake Syncline.



sequence of black phyllite (i.e. the basal phyllite referred to above) forming the core of the Crooked Lake Syncline.

Very small amounts of the Snowshoe Formation metamorphic basement rocks occur along the southernmost part of the claims. A narrow band of the Upper Paleozoic Antler Formation occurs in the southern part of the claims, between the basement rocks and the Takla phyllite, which it conformably underlies. It is wrapped around the nose of the syncline and continues in a northwesterly direction just beyond the property limits.

On the Frasergold property, mapping by Belik divided the Takla phyllite unit into three members. They are: a lower unit of greenschist, black phyllite, and quartz-sericite schist; a middle unit of dark grey to black lustrous phyllite with minor interbedded limestone lenses; and an upper unit of interbedded black phyllite, greenschist, and quartz-sericite-chlorite schist which is a transitional zone to the volcanic units of the Takla Group which are found above the phyllite on the Frasergold property. All three phyllite members also occur on the Kusk claim groups.

In most areas, abundant lenses, pods, irregular veins, and "sweats" of milky quartz occur. The quartz bodies are commonly stained with limonite, range from a few centimetres to two metres wide and possibly up to ten metres long, and are conformable (some may be discordant according to Daughtry).



Small amounts of pyrite, and minor chalcopyrite and galena in two localities, have been noted. Quartz bodies may form up to 25% of the rock in place. Some quartz veins are isoclinally folded. It is believed that the quartz was "sweated" out of the country rocks during regional metamorphism, although Laanela believes that some may be derived from pre-existing quartzitic layers.

The phyllite is frequently drag-folded on a small to large scale and has prominent, steeply-dipping crenulations. In some places, parallel jointing is developed, crosscutting the foliation. Air photo interpretation has located numerous possible faults on the property.

Black, carbonaceous phyllite containing frequent primary bands and streaks of pyrite and minor calcareous layers occurs in the extreme southeast part of the property, while buff and limonite-stained phyllite with some chloritic and hornblende-rich horizons occurs in the central area.

On the Frasergold property, the iron-carbonate-rich facies (knotted phyllite) which hosts low grade gold mineralization, occurs in the middle member of the phyllite unit. The knotted phyllite is characterized by boudins of rusty ankerite or siderite up to 8 mm in size formed by brittle deformation of originally continuous iron-carbonate laminae in the phyllite. The mineralized phyllite contains no visible sulphides and is



indistinguishable from the unmineralized phyllite at Frasergold according to Belik. The mineralized horizon is said to be 200 to 300 metres wide and several kilometres in length and was located and traced by soil and rock geochemistry. Grab samples of the knotted phyllite assay as high as 0.04 oz/ton Au, and samples of quartz within knotted phyllite have run as high as 0.28 oz/ton Au.

#### 4.3 Mineral Occurrences

##### EN, EM Claims Cu

###### Geology:

A thick sequence of Mesozoic siltstones and phyllites of the Quesnel Trough are intruded successively by irregular bodies of amphibolite, augite porphyry, and granodiorite. The mineralization consists of finely disseminated (some veins and pods) pyrite, chalcopyrite, and pyrrhotite with traces of bornite and possibly chalcocite in and adjacent to a leucocratic syenodiorite (granodiorite) and lesser amounts possibly unrelated to the granodiorite occurring in the augite porphyry.

###### Economic Features:

An inner "core" 4000 to 6000 feet by 800 feet with grades from 0.13% to 0.44% Cu is surrounded by an outer "envelope" of about 0.10% Cu in diorite and augite porphyry. Grab samples have assayed up to 3.5% Cu. A 1972 report stated that there was excellent potential for over 150 million tons of porphyry copper ore.

**History:**

1958: discovered by E. Scholtes.

1965-66: Helicon Explorations Ltd.; built access road, topographic mapping, reconnaissance aeromag, geochemistry, and geological surveys, EM and IP surveys, some X-ray diamond drilling, a 72 foot adit with a 630 foot horizontal drill hole at the end.

1968: Howard Traris; EM survey, diamond drilling.

1969-70: Amax Exploration Inc.; soil, silt, rock, and water geochemistry surveys, geological mapping, diamond drilling.

1971: Cerro Corp.; a small amount of sampling.

1972: Rio Tinto Canadian Exploration Ltd.; geological mapping, sampling.

1974: Noranda Mines Ltd.; IP survey, 2 diamond drill holes totalling 1204 feet.

1981: UMEX Inc.; soil sampling and rock geochemistry surveys, airborne EM and magnetometer surveys.

**References:**

Assessment Reports 2137, 2662, 3814, 5215

Frasergold (Kay, Mac, Alpha) Au

**Geology:**

The same as for the Kusk claims. The Frasergold property adjoins the Kusk property to the northwest and was the original discovery of gold in the area that prompted staking of the Kusk claims.



### Economic Features:

A large zone of stratabound, low grade gold mineralization 200 to 300 m wide by several kilometres long reported to contain 11 million tons of 0.04 to 0.05 oz/ton Au. Grab samples of knotted phyllite assay up to 0.04 oz/ton, and of quartz within knotted phyllite up to 0.28 oz/ton.

Results from Amoco's recent drill program include the following:

Hole 83-1	10.5 m of 0.083 oz/ton Au including 1.5 m of 0.477 oz/ton Au
83-2	10.0 m of 0.067 oz/ton Au
83-3	7.5 m of 0.020 oz/ton Au
83.4	6.0 m of 0.048 oz/ton Au
83.5	18.0 m of 0.022 oz/ton Au

as well as numerous other shorter or lower grade sections. Visible gold was present in drill holes 1 and 2. Assay results are highly variable due to the presence of coarse, free gold in some samples. Down-dip and on-strike projections correlate well in several of the drill holes.

### History:

1978-79: C. Gunn staked Alpha 1 and Kay 1-8 claims.

1979-81: Keron Holdings Ltd.; staked additional claims, soil, silt, and rock geochemistry surveys, geological mapping.

Present: Amoco Canada Petroleum Co./Eureka Resources Ltd.; diamond drilling.





References: George Cross Newsletter #219, 249 (1983).

West of the Kusk claims, a geochemical survey by Tillicum Gold Mines on the Elbow claims yielded values greater than 1.4 ppm Au. Adjacent to the Elbow claims, Mt. Calvery's property is reported to have yielded an assay of 0.30 oz/ton Au over 11 feet. There are various other claims and claim groups between the Kusk claims and the Elbow claims for which there is no record of work done.

The rest of the Quesnel Trough is also a hot exploration target. The QR and Maud deposits of Dome Mines Ltd. occur in rocks mapped by Campbell (1978) as basaltic breccia, tuffs, and flows with minor sediments (immediately above unit 6 on regional geology map) overlying the Takla Group, about 100 km northwest of the Kusk claims. The QR deposit contains 950,000 tons of 0.21 oz/ton Au. A large amount of exploration in this area has resulted in virtually solid staking for 50 km southeast to Quesnel Lake.

In the same unit of rocks, Monte Christo Resources and E&B Explorations are conducting a drill program on the Jamboree claims northwest of Crooked Lake. Gold mineralization was intersected from surface to 100 m in 18 out of 20 rotary drill holes, and surface assays of 0.118 to 0.145 oz/ton Au are reported.



The Cariboo Bell porphyry copper deposit with 100 million tons of 0.37% Cu and 0.015 oz/ton Au is found in an intrusive within these same rocks approximately 85 km to the northwest.

The Boss Mountain molybdenum mine is located within the Takomkane Batholith, approximately 32 km to the southeast. From 1965 to 1978 it produced 28,202,314 pounds of molybdenum, and geological reserves as of March, 1979 are reported as 2.7 million tons grading 0.18% Mo. An earlier figure is given as 40 million tons of 0.08% Mo.



## 5.0 EXPLORATION POTENTIAL

The Kusk property almost certainly hosts an auriferous horizon extending from the Frasergold property. More than 20 km of the favourable horizon may be present if the Frasergold occurrence and the gold found on the southern limb of the syncline are in the same layer that is folded around the nose of the syncline.

Tight folding, fracturing, and faulting in the nose of the Crooked Lake Syncline provide a highly favourable setting for concentration of remobilized low grade syngenetic gold mineralization into higher-grade, structurally controlled deposits.

The regional setting of the Kusk claims is similar to that of the gold deposits in the Wells area which have produced over 1.2 million ounces of gold. An additional 800,000 ounces or more of placer gold has been produced from Tertiary channels in the Cariboo region, over 15,000 ounces of which came from the Horsefly River drainage. Ancient Tertiary channels containing placer gold could possibly occur on the Kusk property.

If any intrusive bodies of a reasonable size are located during mapping, they could be checked for signs of porphyry copper mineralization, as the EN porphyry copper occurrence is nearby and the large Cariboo Bell deposit is only 85 km to the southwest.



## 6.0 RECOMMENDED WORK PROGRAM

### 6.1 Plan

The Kusk claims are underlain by phyllites of the Upper Triassic Takla Group which contain an auriferous "knotted phyllite" horizon on the adjacent Frasergold property, which is believed to continue onto the Kusk property.

As the favourable horizon is difficult or impossible to distinguish from the surrounding phyllites and 80 to 90% of the property is soil-covered, soil geochemistry is the most useful exploration tool. It was by a thorough program of soil and rock sampling that the knotted phyllite horizon was traced on the Frasergold property. It is reported that anomalous silver, lead, and zinc values form a halo around the main gold anomaly.

Phase I will therefore consist of soil geochemistry, covering all of the claims to determine where the knotted phyllite is located along with geological mapping and litho-geochemical sampling of the available outcrops. A total of approximately 1500 soil samples will be taken every 50 m on lines spaced 400 m apart. The lines will be flagged but not cut at this stage. As a good correlation exists for silver, lead, zinc, and copper, analyses will only be done for silver and gold.

The fact that previous soil geochemistry surveys have shown silver anomalies to form a wider, enclosing "halo" around gold anomalies, makes it possible to do a regional program with fairly wide sample spacing without worrying about missing any narrow gold anomalies. In the event that gold anomalies are



weak or absent, the larger, encircling silver anomaly should be detected and can be followed up on a more detailed scale to determine whether it contains a smaller gold anomaly.

Geological mapping will hopefully locate enough outcrop to be able to trace the three members of the phyllite, thereby narrowing the search area to the middle member. As well, the presence of structural features which may control deposition of remobilized gold or offset or divert the auriferous horizon, will be investigated. Litho geochemistry will help to divide the phyllite into its three members as well as indicating any mineralization.

Phase I is estimated to take 45 days to complete at a cost of \$79,000.

Once the results from Phase I are available, Phase II is designed as a follow-up. IP surveys will be done over the most promising anomalies as well as more closely spaced soil sampling to better define the anomalies. During the last week of Phase II, trenching on the best anomalies will provide a chance to geologically examine the rocks and to sample them for assaying. Phase II is estimated to take four weeks to complete at a cost of \$113,000.

If warranted by results of Phase II, Phase III will consist of a small initial drill program. Therefore, 3000 feet of diamond drilling estimated to cost \$150,000 is tentatively recommended.

The total cost of Phases I, II, and III is \$342,000, to be spent over approximately four months.

6.2 BudgetPhase I

Mobilization/Demobilization			\$ 2,000
<b>Personnel</b>			
Geologist	35 days @ \$325	\$11,375	
Soil Samplers (3)	35 days @ \$450	<u>15,750</u>	27,125
<b>Field Expenses</b>			
Camp and Materials	35 days @ \$40/day	1,400	
Supplies -	140 man days @ \$30/day	4,200	
Helicopter	24 hours @ \$500/hour	12,000	
Miscellaneous		<u>1,000</u>	18,600
<b>Analyses</b>			
1500 soil samples	@ \$6.65 each (Au Ag)	9,975	
100 rock samples	@ \$8.05 each (Au Ag)	<u>805</u>	10,780
Consulting/Supervision	6 days @ \$450		2,700
<b>Report Preparation</b>			
10 days @ \$325		3,250	
Costs		2,500	<u>5,750</u>
			66,955
Administration (15% of 33,880)			<u>5,100</u>
			72,055
Contingency @ 10%			<u>72,00</u>
	say		\$79,000



22.

Phase II

Mobilization/Demobilization		\$ 2,000
I.P. Surveying 20 days @ \$1500/day		30,000
Personnel		
Geologist 21 days @ \$325	\$6,825	
Samplers/Trenchers(2) 21 days @ \$350	<u>7,350</u>	
		14,175
Field Expenses		
Camp and Materials 21 days @ \$40	840	
Suppliers 63 man days @ \$30	1,890	
Trenching Supplies		
Steel, powder, drill rental	2,500	
Helicopter 60 hrs @ \$500	<u>30,000</u>	
		35,230
Analyses		
400 soil samples @ \$6.65 each (Au,Ag)	2,660	
100 rock samples @ \$12 each (Au,Ag)	<u>1,200</u>	
		3,860
Consulting/Supervision		
5 days @ \$450		2,250
Report Preparation		
7 days @ \$325	2,275	
Costs	<u>2,000</u>	
		<u>4,275</u>
		91,790
Administration (15% of 73,090)		<u>11,000</u>
		102,790
Contingency @ 10%		<u>10,300</u>
	say	\$113,000



Phase III

3000 feet of drilling at overall cost  
of \$50 foot \$150,000

Total Phases I, II, III \$342,000

Given the 50-50 joint venture with Roddy Resources Inc.,  
the Nirvana Oil and Gas Ltd. share of the projected budget is as  
follows:

Phase I	\$ 39,500
Phase II	56,500
Phase III	<u>75,000</u>
	\$171,000

6.3 Schedule

The estimated time requirements for Phase I work are  
summarized in the following table. Phase II follow-up sampling,  
IP, and trenching and rock sampling are estimated to take three  
weeks to complete.



Week	1 . . . . .	2 . . . . .	3 . . . . .	4 . . . . .	5 . . . . .
Mobilization	—				
Soil Sampling					
Geological Mapping, Rock Sampling					
Consulting/ Supervision	—			—	—
Analyses				—	
Demobilization					—
Reporting					.....

Table II  
Phase I Project Schedule  
Kusk Property





## 7.0 CONCLUSIONS

1. The Kusk claim groups are underlain by a sequence of Upper Triassic phyllites known to host a large zone of low grade gold mineralization on a property adjacent to the northwest. Gold also occurs in the phyllites to the west. Thus, a potential strike length of over 20 km exists for the gold-bearing layer.
2. Folding and fracturing in the vicinity of the Crooked Lake Syncline nose make it an excellent target for higher-grade structurally controlled deposits of gold concentrated after remobilization due to regional metamorphism.
3. Soil geochemistry was found to be the cheapest and fastest way of outlining the auriferous horizon on the Fraser gold property.
4. Previous soil geochemistry has indicated that the favourable horizon is probably present on the property, but a gap between the grid and the Frasergold property and possible fault offsets cause uncertainties.
5. A systematic program of exploration to locate, trace, sample, and develop the auriferous knotted phyllite horizon using soil geochemistry, geological mapping and litho-geochemistry, with follow-up geophysics and trenching, and eventually diamond drilling is warranted.



## 8.0 RECOMMENDATIONS

1. A Phase I program of systematic soil geochemical sampling and geological mapping and rock sampling covering the entire property with the aim of locating and tracing the favourable knotted phyllite horizon and to locate geochemical anomalies for follow-up is recommended.
2. It is recommended that grid lines be flagged and rough cut and that soil samples be analyzed for gold and silver.
3. The first phase is estimated to cost \$79,000 and to take seven weeks to complete both field work and reporting.
4. A 21 day, \$113,000 Phase II program of follow-up IP and detailed soil geochemistry surveys on geochemical anomalies and trenching and rock sampling on the best anomalies is contingent on favourable results from Phase I.
5. Contingent on favourable results from Phase II, a \$150,000 budget is tentatively recommended for an initial diamond drill program of about 3000 feet.

Respectfully submitted,  
MPH CONSULTING LIMITED

A handwritten signature in cursive script, appearing to read 'Tim Neale'.

T. Neale, B.Sc.

A handwritten signature in cursive script, appearing to read 'T.G. Hawkins'.

T.G. Hawkins, P.Geol.



## CERTIFICATE

I, T. Neale, do hereby certify:

1. That I am a graduate in geology of The University of British Columbia (B.Sc. 1978).
2. That I have practised as a geologist in mineral exploration for six years.
3. That the opinions, conclusions, and recommendations contained herein are based on library and property work research.
4. That I own no direct, indirect, or contingent interest in the area, the subject property, or shares or securities of Nirvana Oil and Gas, Roddy Resources Inc., or associated companies.

A handwritten signature in cursive script, appearing to read 'T. Neale', written in dark ink.

T. Neale, B.Sc.

Vancouver, B.C.

January 10, 1984



## CERTIFICATE

I. T. E. Gregory Hawkins, do hereby certify:

- 1) That I am a Consulting Geologist with business offices at 301-409 Granville Street, Vancouver, British Columbia V6C 1T2.
- 2) That I am a graduate in geology of The University of Alberta, Edmonton (B.Sc. 1973) and of McGill University, Montreal (M.Sc. 1979).
- 3) That I have practised within the geological profession for the past fourteen years.
- 4) That I am a Fellow of the Geological Association of Canada and a Professional Geologist registered in the Province of Alberta.
- 5) That the opinions, conclusions and recommendations herein are based on research work carried out and supervised by me during the same period.
- 6) That I own no direct, indirect, or contingent interests in the area, the subject property, or shares or securities of Nirvana Oil and Gas Ltd., Roddy Resources Inc., or associated companies.

A handwritten signature in cursive script, appearing to read 'Gregory Hawkins', written in dark ink.

T.E. Gregory Hawkins, P.Geol.

Dated at Vancouver, British Columbia,  
this 10th day of January, 1984.



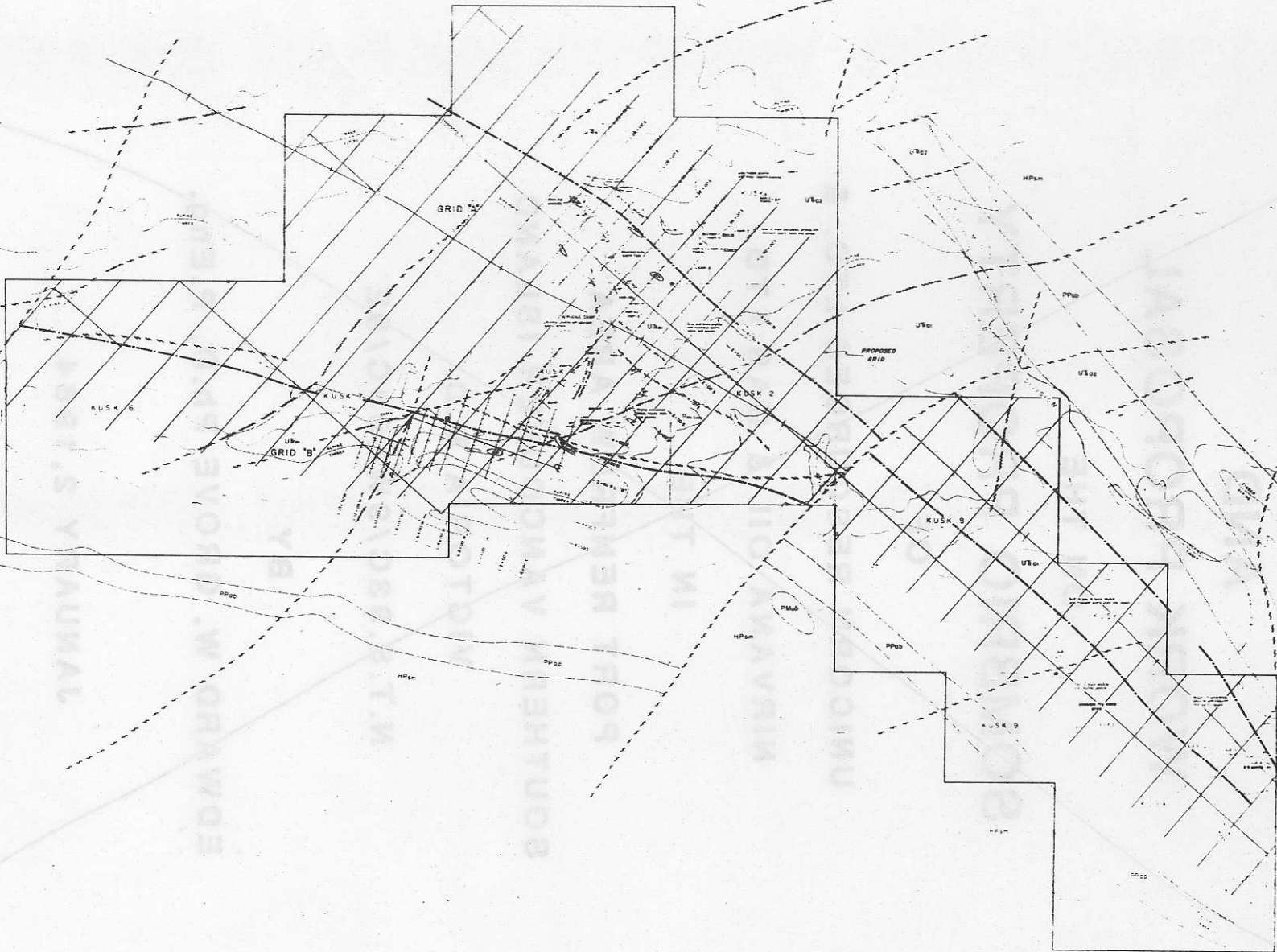
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**LEGEND**

PROPERTY CLAIM GROUPS

PROPOSED GRID

LANDING STRIP

WATER COURSE

ROAD

BOUNDARY

...

**MAP**

NIRIANA OIL AND GAS LTD  
KUSK CLAIM GROUPS  
PROPERTY GEOMETRY PREVIOUS WORK  
PROPOSED GRID  
LANDING STRIP

Scale: 1:50,000

North Arrow

**MSM** MSM Consulting Limited