81-#932-#9712

GREAT WESTERN PETROLEUM CORPORATION

GEOLOGICAL AND GEOCHEMICAL REPORT

SPECTRUM 3 AND SPECTRUM 4 CLAIMS

LILLOOET MINING DIVISION

BRITISH COLUMBIA

92-J-6E

123°11 W Lat.; 50°25' N.Long.

Nadia M. Caira
September 1981

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LOCATION AND ACCESS

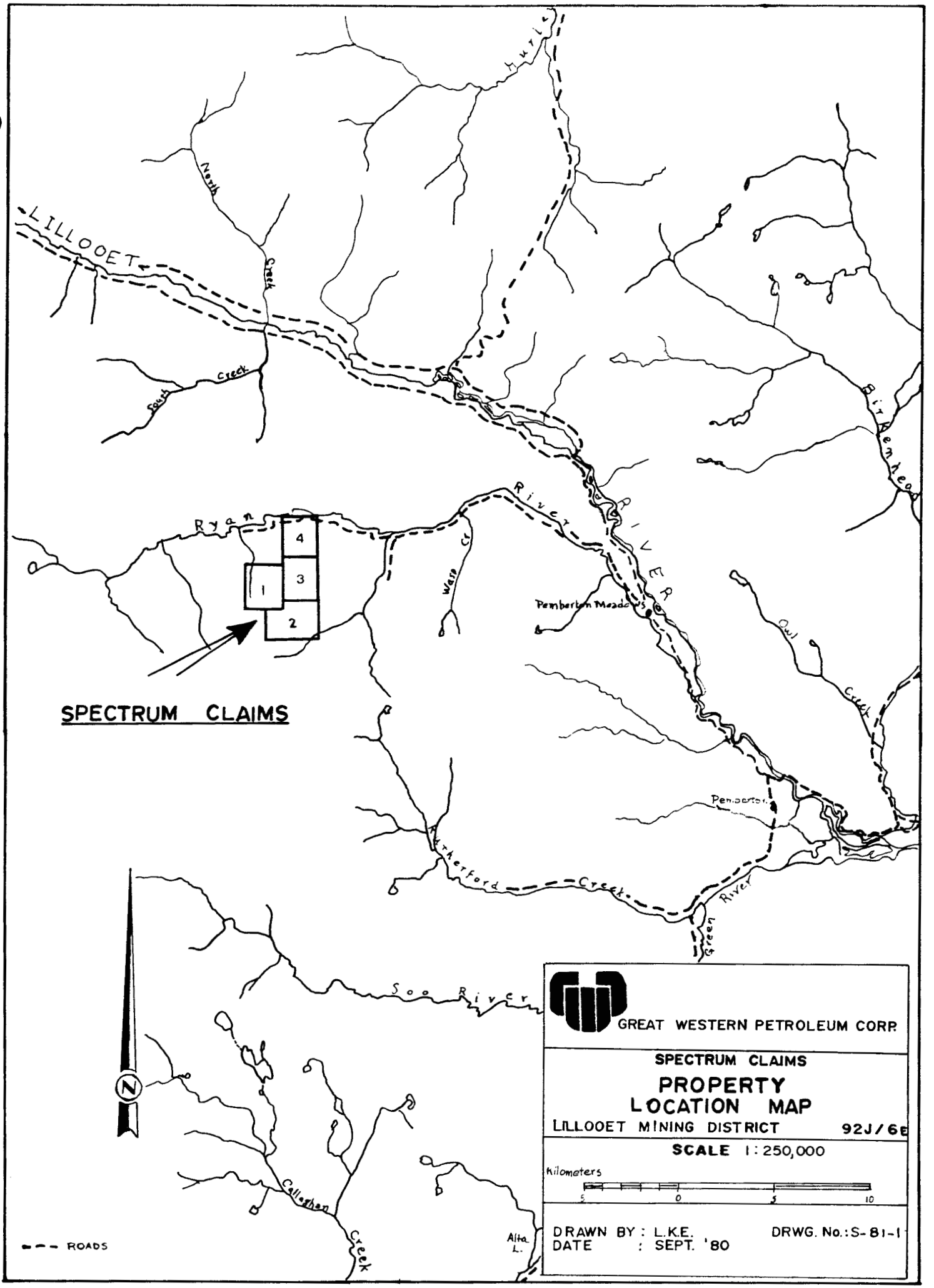
The Spectrum property is located on the south side of Ryan River approximately 33 kilometres northwest of the farming and logging community of Pemberton (Figure S-81-1). The town of Pemberton is located on Highway 99, 160 kilometres north of Vancouver and is serviced by the British Columbia Railway.

A logging road leading from the main paved road at Pemberton Meadows follows the south side of Ryan River and passes through the northern boundary of the Spectrum 4 Claim. Total road distance from Pemberton is about 40 kilometres.

PHYSIOGRAPHY AND VEGETATION

Spectrum 3 and 4 claims are situated on a very steep north facing slope that ranges in elevation from 800 metres to 2400 metres.

A large icefield covers much of the western half of Spectrum 3 while the remainder features typical alpine grasses and moss. Virtually all of Spectrum 4 is covered by mature stands of fir and cedar.



SPECTRUM CLAIMS

GREAT WESTERN PETROLEUM CORP.

SPECTRUM CLAIMS

PROPERTY LOCATION MAP

LILLOOET MINING DISTRICT 92J/6E

SCALE 1:250,000

Kilometers

5 0 5 10

DRAWN BY : L.K.E.
DATE : SEPT. '80

DRWG. No.: S-81-1

PROPERTY DEFINITION

HISTORY - To the knowledge of the author no previous work has been done in the area covered by the Spectrum 3 and 4.

The present claims were staked by Great Western Petroleum Corporation in the fall of 1980. Spectrum 3 claim adjoins the north claim line of Spectrum 2 and the east claim line of Spectrum 1 claim (Figure S-81-1).

Spectrum 1 and 2 claims were worked on in the fall of 1980. In August of 1981 assessment work in the form of geological mapping and a soil survey over the most accessible area was undertaken on the Spectrum 3 and 4 Claims.

LIST OF CLAIMS

CLAIM NAME	RECORD #	NO. UNITS	DATE RECORDED
Spectrum 3	1558	20	Sept. 25/1980
Spectrum 4	1559	20	Sept. 25/1980

OWNER AND OPERATOR

The property is currently owned and operated by Great Western Petroleum Corporation.

ECONOMIC ASSESSMENT

Anomalous concentrations of base metals are seen to occur in two different modes on the Spectrum 3 and 4 Claims. High concentrations of copper (in the form of covellite coatings on pyrite, chalcopyrite and malachite) and sphalerite occur in an area around what is believed to be a roof pendant of meta-sedimentary and/or metavolcanic rocks.

More important, however, are high concentrations of metallic minerals associated with highly altered and silicified zones. Massive molybdenite and chalcopyrite, with quartz, measuring 3 metres width and of indeterminate length is the best known example of this type of mineralization on the claims. High precious metal values of up to .29 oz./ton gold and 2.45 oz./ton silver, associated with chalcedonic quartz veins in shears, occur in several locations on the claims.

These claims have good potential for a disseminated replacement "porphyry" deposit of copper and molybdenum which could be enhanced by significant precious metal values.

GEOCHEMICAL SURVEY

SAMPLE COLLECTION AND PREPARATION

For control, a tieline was surveyed in the area of the west boundary of the claims. Due to extremely steep terrain locally, the tieline did not exactly follow along the claim line. The tieline started on the logging road on the south side of the river at the Spectrum 4 corner post, 5N/4E. Soil and rock samples were collected along 60 m (200 ft.) contour intervals with 100 metre spacings between sample sites. Sample locations, determined using hip chains and altimeters, were flagged and labelled.

Stream sediment samples were collected from creeks and all dry gullies encountered while contour sampling.

A total of 147 soil, 50 silt, and 35 rock chip samples were collected on the property and sent to Min-En Laboratories Ltd. in North Vancouver to be analyzed for copper, molybdenum, zinc, lead, gold and silver.

The results of the geochemical sampling program are shown on maps S-81-3 to S-81-5 accompanying this report.

Soil samples were collected from depths of about 6 to 12 cm. using mattocks and stone mason hammers to dig soil from the B or C horizons. The B horizon was most commonly sampled and usually was a red bronze colour.

PROCEDURES FOR GEOCHEMICAL ANALYSIS AND ASSAYING

Molybdenum, copper, lead, zinc and silver geochemical samples were analyzed by atomic absorption after a 3 hour digestion time in a 2 ml. solution of 85% perchloric acid/15% nitric acid.

Gold geochemical analysis was performed by digesting a 5 gram sample in 30 ml. of aqua regia solution for half an hour. After digestion, residue was filtered off, water added, and the solution heated and rendered down to 2 ml. The solution was then run through a DIBK extractor and analyzed by atomic absorption.

Assays for gold were done by fire assay and finished by atomic absorption.

INTERPRETATION

Soil geochemistry is a reliable technique on this property because of thick overburden cover. The steep nature of the terrain undoubtedly results in the downslope migration of metallic ions and this must be taken into account in the interpretation.

Coincident high copper and zinc values are present in the north eastern part of Spectrum 4. Copper values range from 10 ppm to 520 ppm. Minor amounts of chalcopyrite and sphalerite were seen as disseminations in outcrop and in float.

Zinc showed the greatest range of values. Results ran as low as 14 ppm to a high of 1020 ppm.

Silver values range from .3 ppm to 8.3 ppm. A few high silver values were associated with gold values that ranged up to 11,000 ppb. The highest precious metal values were reanalyzed by fire assay.

Molybdenum values obtained are not anomalous.

STATISTICAL INTERPRETATION

The background values for this set of data were obtained by calculating the median value for each element of the data distribution. The median is defined as "the value for which one half the values in the distribution are less and one half are greater". The median was obtained by ranking the results for each element in order of increasing magnitude. By counting along the ranked line of numbers until half the total sample numbers was arrived at, the median or background population was obtained.

The following tabulation illustrates the significant values determined for molybdenum, copper, zinc, silver and gold:

SOILS:

Element	Median R. Background	Threshold 2 x B.G.	Weak 2-4 x B.G.	Moderate 4-8 x B.G.	Strong 8-16 x B.G.	Extreme 16 x B.G.
Cu	28 ppm	56 ppm	57-112 ppm	113-224 ppm	225-448 ppm	>449 ppm
Mo	1 ppm	2 ppm	3-4 ppm	5-8 ppm	9-16 ppm	>17 ppm
Pb	18 ppm	36 ppm	37-72 ppm	73-144 ppm	145-288 ppm	>289 ppm
Zn	123 ppm	246 ppm	247-492 ppm	493-984 ppm	985-1968ppm	>1969 ppm
Ag	.8 ppm	1.6 ppm	1.7-3.2 ppm	3.3-6.4 ppm	6.5-12.8ppm	>12.9 ppm
Au	.5 ppb	10 ppb	11-20 ppb	21-40 ppb	41-80 ppb	>81 ppb

GEOLOGICAL FIELD WORK

Geological mapping at a scale of 1:10,000, was undertaken on the Spectrum 3 and 4 claims during the course of the geochemical survey.

A total of 35 rock samples, collected from various locations on the property, were sent to Min-En Laboratories for analysis of copper, molybdenum, lead, zinc, gold and silver.

GENERAL GEOLOGY

The Spectrum property, lying within the Coast Crystalline Complex is principally underlain by granodiorites and quartz monzonites of probable Cretaceous age. The main intrusive phase has been cut by a variety of acid and intermediate rocks in the form of small irregular stocks and/or dyke-like bodies. Younger andesitic to basaltic dykes, believed to be late Tertiary age, cut all other units.

In the eastern part of Spectrum 4 claim where many of the anomalous values for copper and zinc occur, a silicified roof pendant of metavolcanic/metasedimentary rocks exists within the intrusive complex.

DETAILED GEOLOGY

Unit 1 - Metavolcanic/metasedimentary Rocks.

These rocks occur as roof pendants within the granodiorite. They are often highly silicified and usually have a tuffaceous appearance with distinct green, white and/or blue-grey banding. The rock commonly displays a rusty weathering due to disseminated pyrite. Unit 1 outcrops in the North west portion of Spectrum 4 and in the central area of Spectrum 3. Outcrops measure up to 600 metres by 800 metres.

Unit 1 (A) - Grey phyllite - seen only in float and is probably a subunit of unit 1.

Unit 2 - Granodiorite

The main intrusive body underlying the Spectrum claims is granodioritic in composition.

Unit 2 (A) - Unaltered Granodorite is commonly a medium to coarse-grained, metasomatic rock. Hornblende, often seen altered to biotite and/or chlorite which results in a pitted or mottled weathered surface, is the main mafic mineral. Quartz and feldspars make up the bulk of the rock.

Unit 2B - Microdiorite is a fine grained porphyritic rock only seen in float. The rock is relatively unaltered and may be a finer grained phase of the unaltered granodiorite .

Unit 2C - Granodiorite (sericitized and partially chloritized)

This altered unit is commonly in and near gossanous areas. Pseudomorphs of hornblende and feldspar are altered to sericite and chlorite. These rocks are commonly rusty due to the oxidation of disseminated pyrite.

Unit 2D - is the extremely altered granodiorite found at various localities along the most eastern ridge on Spectrum 3 claim and in various localities in the faulted area in the most northern area of Spectrum 3. Original granodiorite is assumed to have been transformed by faulting and attendant alteration to a quartz-sericite schist containing disseminated pyrite.

Unit 3 - Aplite

Aplite was seen to outcrop in only one locality at the northernmost end of Spectrum 4, and also occurs as float in this same area. The rock contains disseminated pyrite and has a sugary aplitic texture.

Unit 4 - Hornblende-feldspar Porphyry

This rock occurs in outcrop in a few localities, mainly at the northernmost boundary of Spectrum 4. It has a dark grey to blue, fine grained matrix with coarse grained phenocrysts of acicular hornblende and euhedral feldspar and occurs as dykes trending north-westerly along the main fracture system.

Unit 4A - Lamprophyric Dykes

These black, coarse grained dykes contain disseminated pyrite. This is possibly a phase of unit 4 which lacks the fine grained matrix.

Unit 5 - Basaltic Dykes

Small basaltic dykes ranging from .5 metres to 2 metres wide are the youngest rocks encountered on the claims and consequently cut all other units. Attitudes are variable but most commonly the dykes parallel the main northwesterly shear zone. The rocks are dark grey to brown, vesicular, and/or porphyritic to fine grained, and are devoid of sulfides. They obviously postdate the alteration and mineralization.

ALTERATION

Small gossans developed in the altered granodiorite are probably a result of several episodes of faulting inasmuch as these areas are dominated by fault breccias and have minor amounts of disseminated pyrite. The gossans are coincident with areas of moderate to high quartz-sericite alteration.

In some places cubic-shaped crystals with covellite and possibly chalcocite coatings were seen with malachite halos up to 2 mm. wide. The partially sericitized granodiorite often possessed weathered-out pyrite blebs. Some of the area has undergone a period of siliceous flooding forming very irregular patterns throughout the altered granodiorite, and often showing breccia textures. In scattered localities, quartz veining is vuggy and is commonly ironstained, probably after pyrite.

STRUCTURE AND MINERALIZATION

Many small faults were observed in the altered granodiorite characterized by rusty, quartz-sericite schists. A major fault system trends northwest and contains abundant pyrite.

Faults in the area are oriented in two dominant directions with attitudes of 145/80W and 45/42NW. The overall fracture system has the same general orientation as the faulting, and increases in intensity marginal to faults. Two fracture systems in the area trend 160 to 175/85^{o}W and 80-95^{o}/45^{o}W and possibly represent a conjugate set.

Occurrences of copper mineralization as covellite coatings on pyrite, malachite and disseminated chalcopyrite are seen in quartz veins within altered and unaltered granodiorite, and metavolcanic/metasedimentary rocks of Unit 1.

Anomalous gold and silver geochemical values are found in narrow chalcedonic quartz veins that cut granodiorite.

CONCLUSIONS AND RECOMMENDATIONS

The geochemical survey showed high concentrations of copper and zinc within a silicified zone developed in a roof pendant of volcanosedimentary rocks.

Copper mineralization in the form of covellite coating on pyrite, malachite and disseminated chalcopyrite is seen in the granitic rocks on the claims.

Chalcedonic quartz veins within the granodiorite often show interesting gold assays that range up to .29 oz./ton. Areas showing this type of veining require detailed follow-up. Because of the steep terrain, much of this area is inaccessible to the inexperienced rock climber.

LIST OF FIGURES

COST STATEMENT - SPECTRUM 3 & 4 CLAIMS

1. Personnel

Name	Per Diem Rate	Specific Dates	# Days	Total
Caira, N. (geologist)	83.51	Aug. 12-21, Sept. 8-11	14	$1169.14
Connolly, L. (sampler)	73.28	Aug. 14-21	8	586.24
Eccles, L. (geologist)	116.58	Aug, 12, 14, Sept. 11	3	349.74
Green, R. (sampler)	52.85	Aug. 14-21	8	422.80
Muir, C. (draftsperson)	52.85	May 13	1	52.85
Tamaki, L. (sampler)	63.06	Aug. 14-21	8	504.48
				$3085.25

2. Transportation

A. Truck -

Company Truck charged out @ $30.00/day; 17¢/km + gas:

10 truck days @ $30.00/day	$300.00
1540 km @ 17¢/km	261.80
Gas: Aug. 14/81 Pemberton Chevron	42.00
Aug. 15/81 " "	41.00
Aug. 19/81 Texaco - Vancouver	29.00
Aug. 21/81 Texaco - Vancouver	28.00
	$701.80

B. Helicopter -

Company	Date	Invoice #	Amount
Pemberton Heli	Aug. 19/81	2498	$252.00
" "	Aug. 20/81	2500	432.00
			$684.00

3. Camp Costs

Nairn Falls Provincial Camp Ground: 7 days @ $6.00/day August 14-21/81	$ 42.00
Food: Aug. 14/81 - Vancouver & Pemberton	317.29
Aug. 17/81 - Pemberton	49.57
	$408.86

Cost Statement - Spectrum 3 & 4 Claims

4. Geochemical Assay Costs

35 Rocks & 197 Soil Samples analyzed for Cu, Mo, Pb, Zn, Ag, Au	
Min-En Laboratories Invoice #8775	$2502.95

5. Maps & Report Writing + Drafting

Western Reproducers Invoice # H65161	22.74
5 Topo maps @ $2.60 ea.	13.00
Drafting & Typing (not complete)	100.00
	$135.74

Summary of Costs

1.	Wages	$3085.25
2.	Transportation	1385.80
3.	Camp Costs	408.86
4.	Geochemical/Assay Costs	2502.95
5.	Maps & Report	135.74
	Total -	$7518.60

QUALIFICATIONS

I, Nadia M. Caira, do hereby certify that:

1. I am a graduate of the University of British Columbia (B.Sc. Geology).

2. I have worked, for the past three field seasons, doing geological field work in British Columbia and the Yukon.

3. In Semptember 1981, I directed a field program on the Spectrum 3 and 4 claims on behalf of Great Western Petroleum Corporation.

Nadia Caira

Nadia M. Caira

ATTESTATION

I, Nicholas C. Carter of Victoria, British Columbia, do hereby certify that:

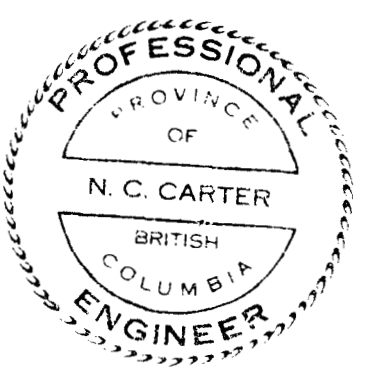
1. I am a practising geologist, registered with the Association of Professional Engineers of British Columbia since 1966;

2. I am a graduate of the University of New Brunswick with B.Sc. (1960); Michigan Technological University with M.S. (1962) and the University of British Columbia with Ph.D. (1974).

3. I have practised my profession in British Columbia and Eastern Canada and the Western United States for the past 21 years.

4. I oversaw the geological and geochemical program carried out by Ms. Caira on the Spectrum 3 and 4 Claims and will attest to the authenticity of data contained in this report.

N.C. Carter
Ph.D., P.Eng.



N

SCALE 1:10,000

0 100 200 300 400 500 600 700 800 900 1000 metres

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 9712

GREAT WESTERN PETROLEUM CORPORATION

FIG S-81-2 SPECTRUM 3 and 4 CLAIMS
GEOLOGY and ROCK SAMPLE LOCATIONS

LEGEND

5	Basaltic Dykes
4	Hornblende-Feldspar Porphyry
3	Aplite
2	2a: Granodiorite 2b: Microdiorite, 2c: Partially altered Granodiorite, 2d: Altered Granodiorite to quartz-sericite schist
1	Metasediments / Metavolcanics

Creek
Outcrop
Contact
Fault
Rock Chip Sample
Tieline
.Cu Copper (Covellite, chalco)
.Py Pyrite
Dipping Vein
Vertical Fracture
Fracture Dip

M.C.

SPECTRUM 4

SPECTRUM 1

LEGEND

SPECTRUM 3

SPECTRUM 1

SPECTRUM 2

SPECTRUM 4

6000'

6000'

6000'

LCP

SPECTRUM 3

GREAT WESTERN PETROLEUM CORPORATION

FIG. 5-81-4 SPECTRUM 3 and 4 CLAIMS
GEOCHEMISTRY and SAMPLE LOCATIONS.

$\frac{Cu}{Mo}$ geochemistry

Work carried out by Nadia Caira, Lynn Tamaki, Linda Connolly and Randy Green.

Legend

- Icefield
- Contour
- Creek
- O Soil sample location
- □ Silt sample location
- △ Rockchip sample location
- $\frac{Cu_{ppm}}{Mo_{ppm}}$ geochemistry

N

Scale: 1:10,000

0 100 200 300 400 500 600 700 800 900 1000 metres

mc.

August 24, 1981
Drawn by Randy Green.

SPECTRUM 4

SPECTRUM 3

LCP

6000'

6000'

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 9712

GREAT WESTERN PETROLEUM CORPORATION

FIG. S-81-5 SPECTRUM 3 and 4 CLAIMS
GEOCHEMISTRY and SAMPLE LOCATIONS.

Work carried out by Nadia Caira, Lynn Tomaki, Linda Connolly and Randy Green.

Legend

- Icefield
- Contour
- Creek
- Soil sample location
- Silt sample location
- Rockchip sample location
- Pb ppm / Zn ppm Geochemistry

N.C.

N

Scale: 1 10,000

0 100 200 300 400 500 600 700 800 900 1000 metres

August 24, 1981
Drawn by Randy Green

SPECTRUM 4

SPECTRUM 3

LCP

6000'

6000'

GREAT WESTERN PETROLEUM CORPORATION

FIG. S-81-6 SPECTRUM 3 and 4 CLAIMS
GEOCHEMISTRY and SAMPLE LOCATIONS.

Work carried out by Nadia Caira, Lynn Tomaki, Linda Connally and Randy Green.

Legend

- Icefield
- Contour
- Creek
- Soil sample location
- Silt sample location
- Rockchip sample location
- Au ppb / Ag ppm geochemistry

N

Scale: 1" 10,000

0 100 200 300 400 500 600 700 800 900 1000 metres

m.c.

August 21, 1981
Drawn by Randy Green

SPECTRUM 4

SPECTRUM 3

LCP

6000'

5000'

GREAT WESTERN PETROLEUM CORPORATION

FIG. S-81-3 SPECTRUM 3 and 4 CLAIMS
GEOCHEMISTRY and SAMPLE LOCATIONS.

Work carried out by Nadia Caira, Lynn Tamaki, Linda Connolly and Randy Green.

Legend

- Icefield
- Contour
- Creek
- Soil sample location
- Silt sample location
- Rockchip sample location

N

Scale: 1:10,000

0 100 200 300 400 500 600 700 800 900 1000 metres

m.c.

August 24, 1981
Drawn by Randy Green.