KELLY GROUP : SOIL GEOCHEMISTRY
: LINE CUTTING

GREENWOOD MINING DIVISION

KELLY 1 (20 units)

82E/6E

49°18'N, 119°09'W

Owner/Operator

Amoco Canada Petroleum Company Ltd.
Mining Division
#656 - 409 Granville Street
Vancouver, B.C.
V6C 1T2

Report written by
Walter Melnyk
November 15, 1979

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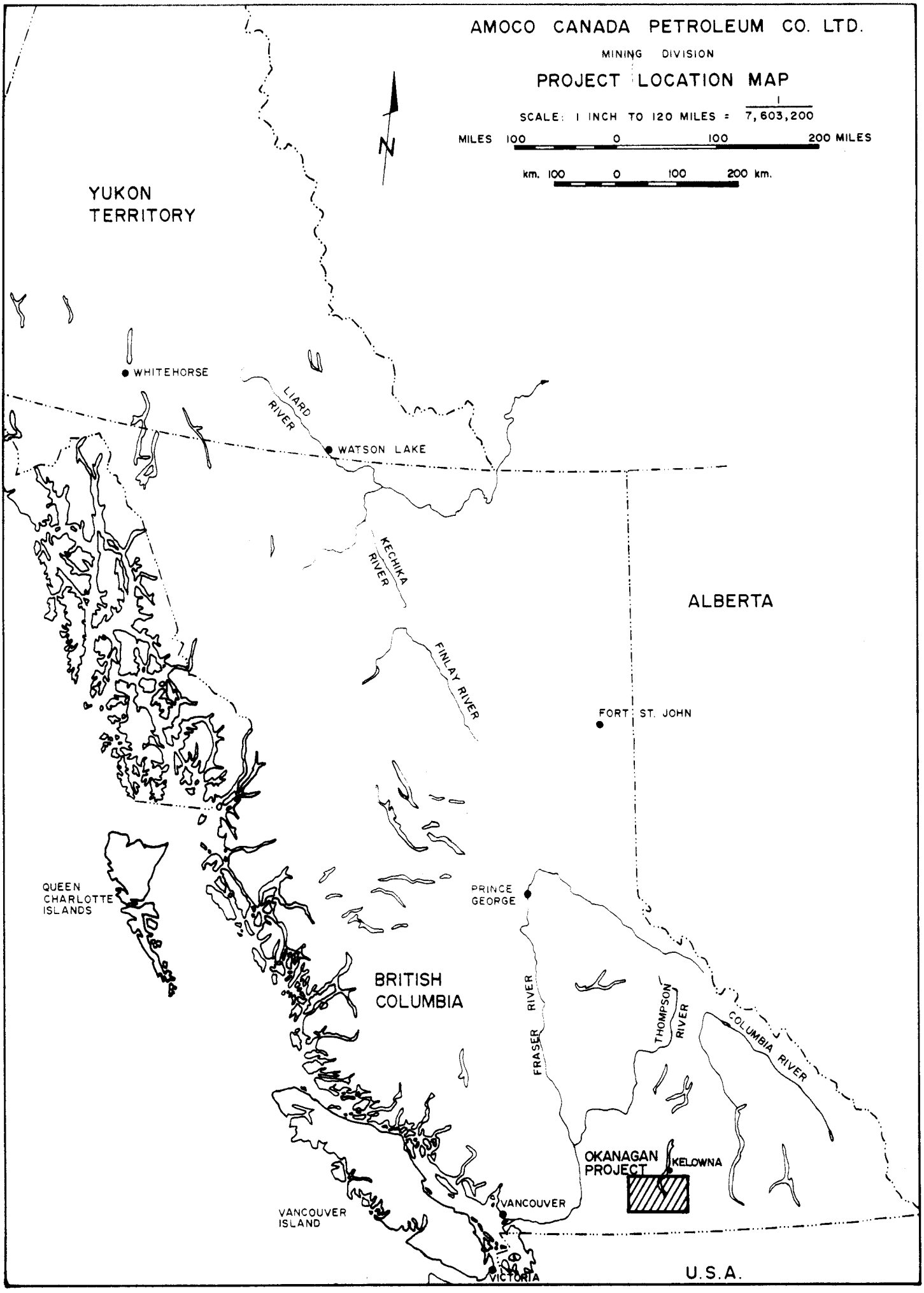
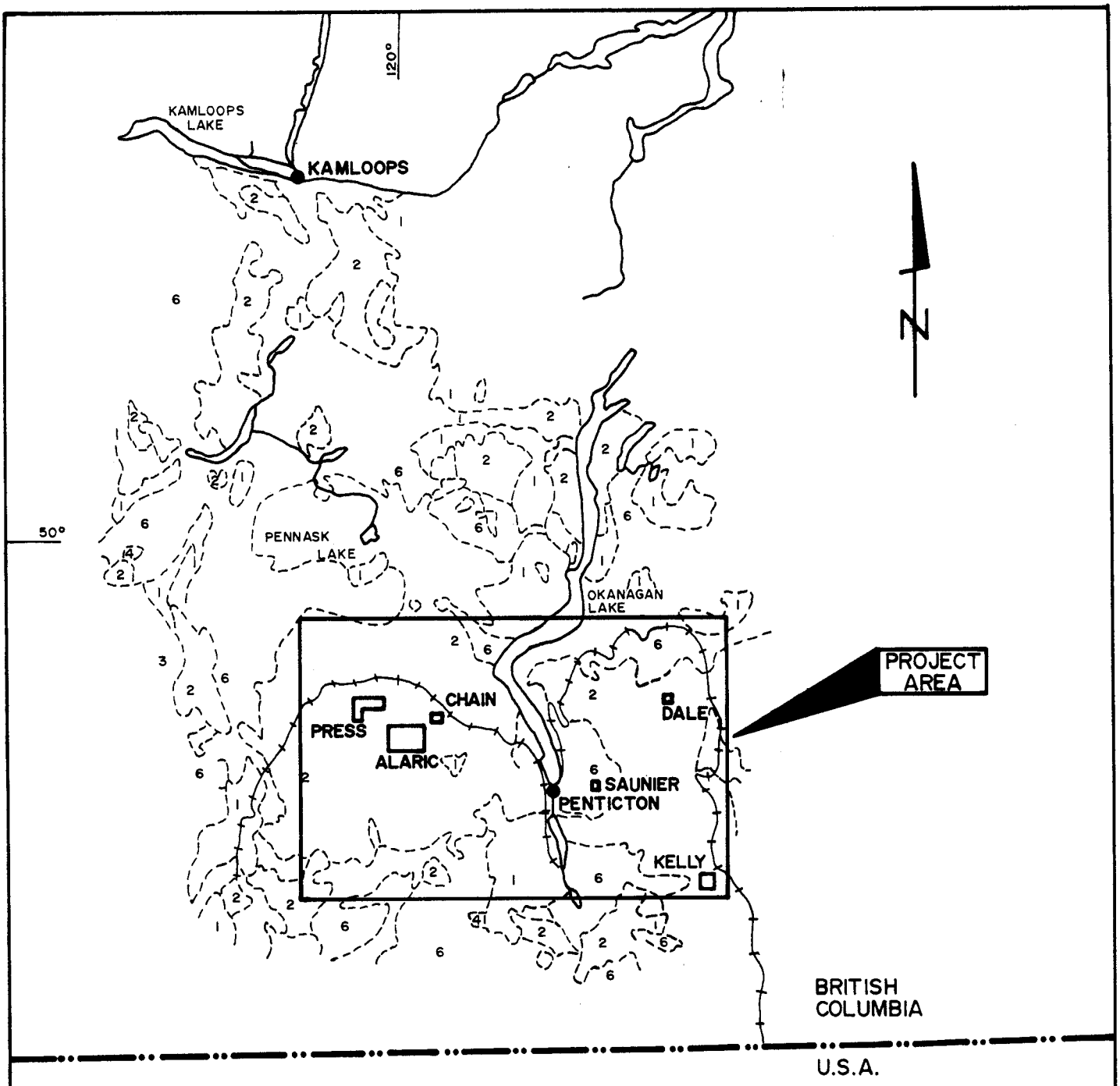

AMOCO CANADA PETROLEUM CO. LTD.
MINING DIVISION
PROJECT LOCATION MAP
SCALE: 1 INCH TO 120 MILES = 1/7,603,200
MILES 100 0 100 200 MILES
km. 100 0 100 200 km.
N
YUKON TERRITORY
WHITEHORSE
LIARD RIVER
WATSON LAKE
KECHIKA RIVER
FINLAY RIVER
ALBERTA
FORT ST. JOHN
QUEEN CHARLOTTE ISLANDS
PRINCE GEORGE
BRITISH COLUMBIA
FRASER RIVER
THOMPSON RIVER
COLUMBIA RIVER
OKANAGAN PROJECT
KELOWNA
VANCOUVER
VANCOUVER ISLAND
VICTORIA
U.S.A.



LEGEND:

TERTIARY

1 SEDIMENTS AND VOLCANICS

CRETACEOUS

2 FELSIC INTRUSIVES

3 SEDIMENTS, VOLCANIC ROCKS

4 ULTRAMAFIC ROCKS

PRE-CRETACEOUS

5 INTRUSIVES

6 SEDIMENTS

AMOCO CLAIM GROUPS

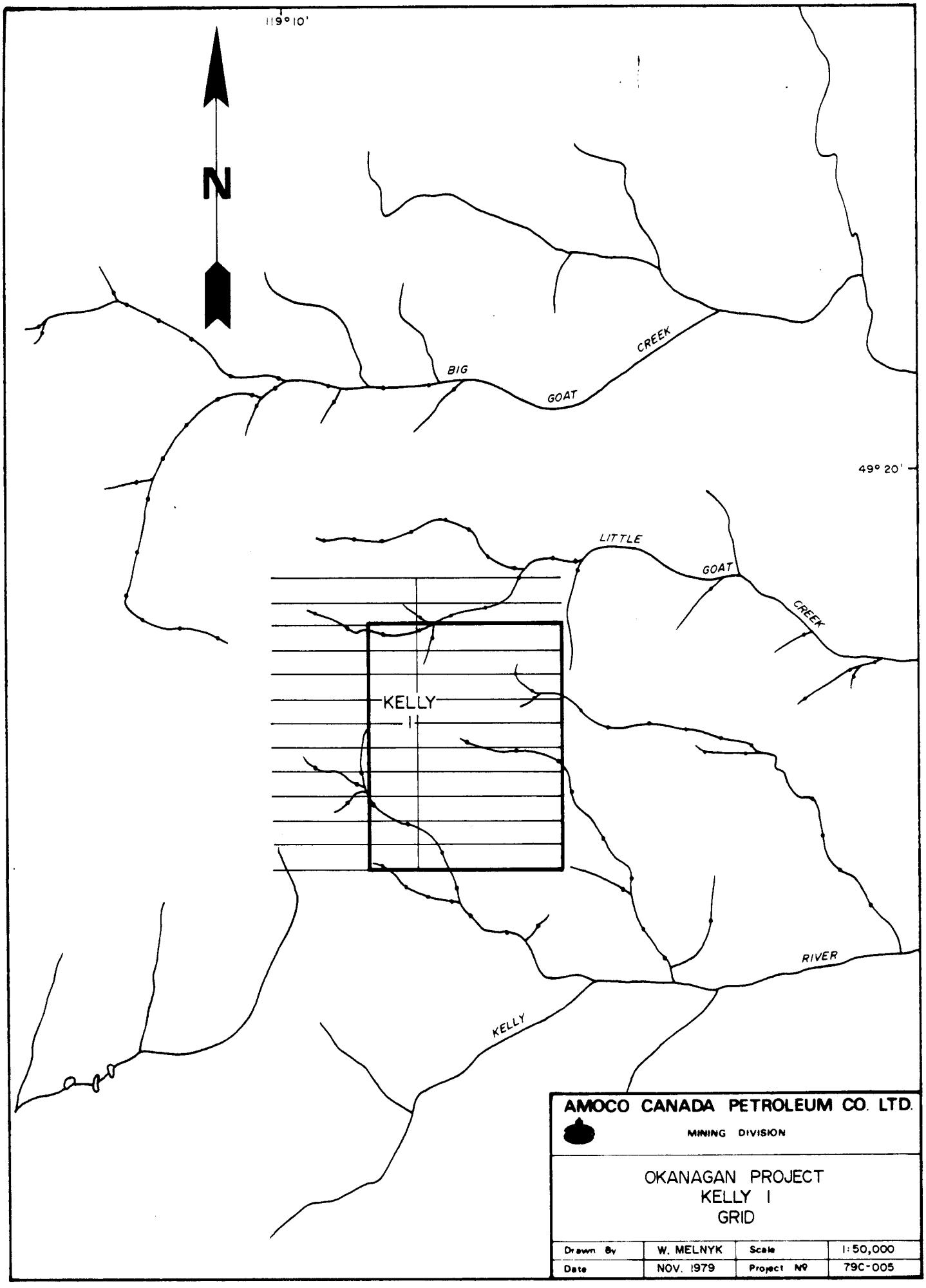
0 5 10 20 40 MILES

0 8 16 32 64 KM.

AMOCO CANADA PETROLEUM CO. LTD.
MINING DIVISION

OKANAGAN PROJECT
LOCATION MAP

DRAWN BY,	R. IVANY	SCALE	1:1,267,200
DATE	NOV. 1979	PROJECT NO.	79C-005



AMOCO CANADA PETROLEUM CO. LTD.

MINING DIVISION

OKANAGAN PROJECT
KELLY 1
GRID

Drawn By	W. MELNYK	Scale	1:50,000
Date	NOV. 1979	Project N°	79C-005

INTRODUCTION

The KELLY 1 claim consists of 20 contiguous units which are located 40 km southeast of Penticton, on the divide between Kelly River and Little Goat Creek. Access to the property is by helicopter from Penticton.

Amoco Canada Petroleum Company Ltd., Mining Division, is the owner and operator of KELLY 1.

The KELLY property is underlain by rocks of the cretaceous Valhalla Intrusive Complex and these in turn are overlain by a varied sequence of Eocene volcanics belongong to the Kettle River Formation.

Geochemical soil sampling resulted in two separate areas containing anomalous values for uranium. A Radon survey was conducted over anomalous areas using the RD-200 Portable Radon Detector.

KELLY 1 Claim

	Units	Tag No.	Date Staked	Anniversary Date	Record No.
KELLY 1	20	21902	June 9,1979	July 5, 1980	1630

GEOLOGY

The KELLY property is underlain by a varied sequence of volcanic rocks which belong to the Eocene Kettle River Formation. These rocks are in turn underlain by the Valhalla Intrusive Complex which in the Kelly River area is a medium-grained, non-foliated, massive granodiorite.

The volcanic rocks have been divided into three distinctly separate units. The lowermost unit, which overlies the intrusive rocks, is termed a basalt conglomerate. This unit is characterized by the presence of rounded intrusive cobbles and boulders varying in size from 4 cm to 30 cm or more. The cobbles constitute approximately 75% of the unit whereas the basalt forms the bonding agent cementing the cobbles. The interstitial basalt is partially chloritized, however, it forms an impermeable fabric amongst the foreign cobbles. The basalt conglomerate occupies an area in the eastern portion of KELLY 1 between lines 12+50N and 22+50N. This unit probably occupies southwesterly trending paleo channels scoured in the underlying Valhalla rocks.

A sequence of basic flows overlie the basalt conglomerate. The flows vary in colour, texture, grain size and range in composition from basalt to andesite. The most common flows are grey and porphyritic, with phenocrysts of

white feldspar or black amphibole. With the exception of the northeastern corner of KELLY 1, the entire claim is underlain by basic flows.

Two linear belts of porphyritic felsic tuffs, trending south and southwesterly, overlie the basic flows in the western portion of the claim. The acid tuffs are white in colour, coarse-granular, bedded, contain abundant free quartz and are porphyritic. The phenocrysts are subhedral feldspar crystals. Biotite often occurs as shiny black euhedral crystals in the groundmass.

SOIL GEOCHEMISTRY

During the period June 24 to June 29, 20 man-days were spent collecting soil samples along pace and compass lines perpendicular from a cut base-line on the KELLY 1 claim. The base-line was established in a northerly direction through KELLY 1 extending beyond the northern claim boundary an additional 500 metres for a total length of 2900 metres. Traverses were conducted at 250 metre intervals and soil samples were collected at 40 metre intervals. The grid was specifically oriented to test areas adjoining immediately west and north of KELLY 1.

Soil samples were collected from depths of 15 to 45 cm with a mattock and stored in Kraft paper bags. The

"B" soil horizon was sampled in most instances.

The minus 80 mesh fraction of all samples was analyzed for uranium by Min-En Laboratories, North Vancouver.

Soil geochem results indicate two areas of anomalous values in uranium. Background on the KELLY property is 1.3 ppm uranium, while anomalous values are in the order of 10 to 90 ppm.

One anomaly extends along line 10+00N and 12+50N, for 1500 metres east of the base-line. At least twelve values are strongly anomalous with one sample running 90.0 ppm. This anomaly extends across lithologic boundaries and trends east-west as versus a southwesterly geologic trend. A soil radon survey was conducted along the anomalous lines as well as Line 9+50N. Radon counts per minute (c.p.m.) varied from 0 to 66 cpm with a background of approximately 20 cpm.

A second anomaly occurs along the western boundary of KELLY 1. Eight soil samples from three lines yielded values of 10 to 50 ppm uranium. The area is underlain by Valhalla Intrusive rocks. A soil radon survey conducted over the anomaly resulted in values of 0 to 46 cpm over a background of 20 cpm. This anomaly trends southwesterly and occurs in a topographically low area suggesting organic accumulation as the probable cause of the anomaly.

EVALUATION OF WORK

WORK CONDUCTED - Grid soil sampling and line cutting

CLAIMS - KELLY 1

SOIL SAMPLING - A total of 1068 soil samples were collected.

LINE CUTTING - 2900 metres of line was cut and picketed.

DATES WORK CONDUCTED - June 24,25,26,27,28 and 29.

SALARIES -	Walter Melnyk	5 man-days @ $66.11	$ 330.55
	Greg MacDonald	5 man-days @ $45.16	225.80
	Gerald Fuss	5 man-days @ $43.30	216.50
	Garry Tether	5 man-days @ $39.52	197.60
	Total		$ 970.45
MEALS -	20 man-days at $12.00/man-day		$ 240.00
TRANSPORTATION -	Helicopter 2.8 hrs. at $376.99/hr.		$1055.57
		TOTAL WORK DONE	$2266.02
ASSAY CHARGES -	1068 soil samples analyzed for uranium at $4.25/sample		$4539.00

CREDIT TO KELLY 1

Work done	$2266.02
Assay charges	4539.00
Cost of report preparation	300.00
TOTAL	$7105.02

APPORTIONMENT OF EXPENSES

KELLY 1, and Adjacent Area

Total number of samples 1068

Total No. samples KELLY 1 632
Total No. samples Adjacent Area 436

Apportionment of Expenses:

KELLY 1 : 632/1068 x $7105.02 = $4204.47

Adjacent Area: 436/1068 x $7105.02 = $2900.55

APPENDIX I

FEE SCHEDULE

Geochemical analyses were done by

Min-En Laboratories Ltd.
705 West 15th Street
North Vancouver, B.C.
V7M 1T2

Geochemical analyses:

Uranium	$3.75
Sample preparation	.50
	$4.25

PHONE 980-5814

APPENDIX II

MIN-EN Laboratories Ltd.
Specialists in Mineral Environments
Corner 15th Street and Bewicke
705 WEST 15th STREET
NORTH VANCOUVER, B.C.
CANADA

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

Procedure for Uranium Analysis:

Rock, soil and silt samples are dried at 110°C and then rocks are crushed and pulverized to -80 mesh.

Soils and silts are sieved and the minus 80 mesh fraction is retained for analysis.

1.000 g. sub-sample is weighed and digested for eight hours with HNO_3 and $HClO_4$.

Then the uranium is separated chemically from other possible interfering ions as Mn,Fe, etc.

After preparation a suitable aliquote is taken and fluxed to form a 1.5 inch diameter discs in platinum dishes.

These salt discs then are compared and measured along with suitable standard with a Jarrell Ash Fluorometer.

The results are calculated accordingly to the sample aliquotes used from standard graphs.

APPENDIX III

NAMES AND ADDRESSES OF PERSONS CONDUCTING WORK

Walter Melnyk	1614 Coleman Rd. North Vancouver, B.C.
Gerald Fuss	84 Willow Park Green S.E. Calgary, Alberta T2J 3L1
Greg MacDonald	R.R. #1 Coboconk, Ontario K0M 1K0
Garry Tether	#2 - 209 Bottomly Ave. North Saskatoon Saskatchewan

APPENDIX IV

COST PER HOUR FOR HELICOPTER, 1979

Bell 206B, casual basis, Okanagan Helicopters, Penticton, B.C.

Casual cost	$350.00/hr.
Fuel and oil cost	26.99/hr.
TOTAL	$376.99/hr.

RD-200
Portable Radon Detector

APPENDIX V

Application

The RD-200 is an indispensible uranium survey instrument which may be used alone, or in combination with other geochemical and geophysical techniques in a well integrated exploration program. Used at either a detailed or reconnaisance level, it is capable of defining specific targets for drilling or trenching, or locating broad areas of interest for further investigation. Since it is extremely sensitive to the presence of minute amounts of Uranium and Thorium, it is a valuable technique used to establish lithogic boundaries, locate fault and fracture patterns, outline potential economic geothermal sources, and detect other economic mineral deposits such as fluorite and heavy beach sands.

On the detailed level, the RD-200 is utilized to determine Radon and Thoron in soil-gas. The procedure is simple and rapid; one operator commonly samples 40-70 stations per day. In this application, a needle bar is driven 30 cm into the ground and then withdrawn slowly. Immediately the probe is inserted and soil-gas is pumped manually into the counting cell. Three sequential one minute counts are initiated and recorded. The resulting data may then later be reduced to uniquely determine the Radon-222 and the Thoron present at the sample site. In certain areas, deeper samples may be taken using the optional Deep Soil Probe.

On a broader scale, water and/or sediment samples are collected and returned to the base camp for rapid processing. The water samples are simply degassed using the optional portable RDU-200 Degassing System and the Radon content is measured in the RD-200. Soils and sediments may require the addition of water and a short period of time to allow Radium and Radon to reach equilibrium before degassing. This technique is used extensively with excellent results in deep sedimentary basins to delineate areas for more extensive detailed investigations.

In either mode of operation, the project manager has complete control over the survey and can alter the program as data accumulates. Fill-in stations may be added to further define anomalies, and grids extended to follow-up interesting zones.

Description

Radon geochemistry is a proven analytical technique which specifically indicates the presence of Uranium. Unlike conventional gamma ray scintillometry, it offers the opportunity to "see" into the third dimension due to the mobility of radon and its precursors in the geological environment.

Of the various techniques available to determine Radon, the RD-200, based on design specifications set forth by the Geological Survey of Canada, offers several technical advantages and conveniences not found in competitive systems. Foremost are the absolute differentiation and quantitative determination of Radon-222, and Radon-220 (Thoron), in the sample, as well as the direct determination of Radium-226 present in water and soil or sediment samples. Other features include exceptional sensitivity over a broad dynamic range, reliable accuracy, complete portability, on-site survey control, rapid sampling and economy of operation.

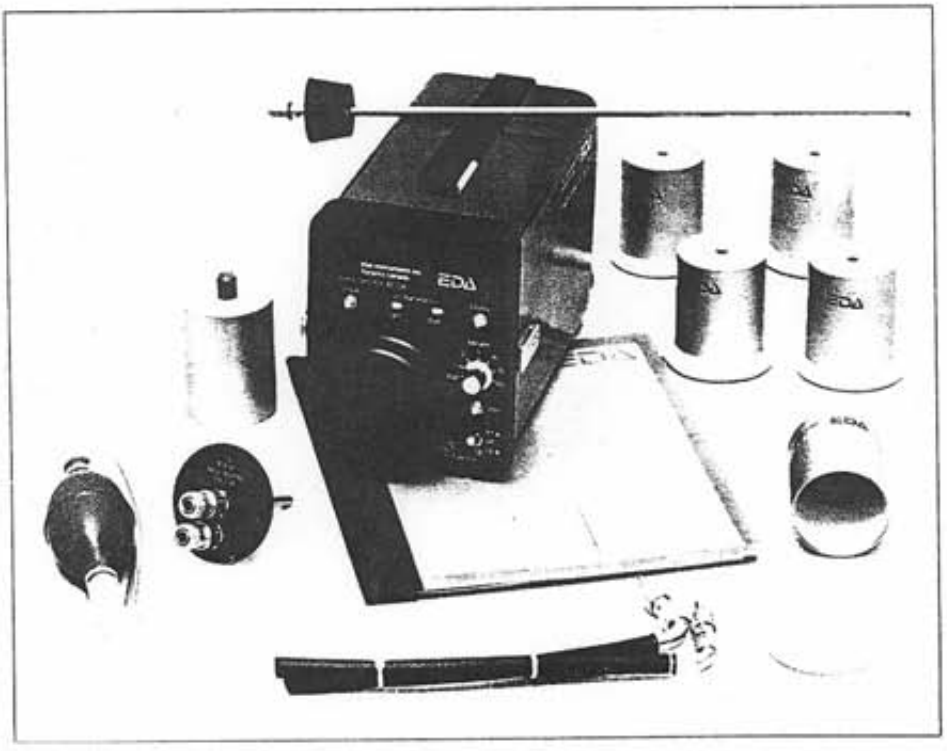
The RD-200 is a field portable state-of-the-art electronic instrument which measures alpha particle emissions from the decay of isotopic radon in its gas phase. It employs a silver activated Zinc Sulphide phosphor coated cell

RD-200
Portable Radon Detector

which because of its optimized geometry and intrinsic scintillation properties is highly sensitive to alpha particles in the 5.5MeV energy range. Each scintillation within the cell is converted to an electronic charge and amplified by a specially selected photomultiplier tube, and then is stored in memory for recall on a five digit LED display. Automatic and manual timing of the counting period allows total operator control over the resulting statistical accuracy. Stable C/MOS logic circuitry ensures consistently reliable results, and low power consumption.

Features

- Accurately determines Radon, Thoron and Radium in soil-gas, snow, water or sediments.
- Detects deeply buried Uranium mineralization.
- Flexible — system permits full survey control by project manager by daily up-dating of field results.
- Portable and simple to operate — only one technician required.
- Fast — average sampling rate 40-70 stations per day.
- Used on both the reconnaisance and detailed exploration level.
- Most cost effective Radon detection system available.
- Extremely sensitive — measures to the sub picocurie/liter level.
- Versatile — may be used for geologic mapping, geothermal, fluorite and heavy beach sand exploration.
- Lightweight and rugged — reliable under extreme field conditions.
- Low power consumption C/MOS logic circuitry prolongs battery life.
- High efficiency ZnS(Ag) phosphor specific for alpha radiation.
- Optimized cell dimensions — 170cc volume with over 14,000mm² of detector surface area.
- Five digit LED display ensures wide dynamic range.
- Wide, switch selectable counting range — from 1 to 60 minutes automatic or manual.
- Photomultiplier tube protected against accidental exposure to strong light.
- Backed by service oriented and experienced technical staff.



RD-200
Portable Radon Detector

Specifications

Isotopes Measured	Radon-222, half life 3.82 days, sixth member of the Uranium-238 decay series. Radon-220 (Thoron), half life 54.5 seconds, fifth member of the Thorium-232 decay series. Radium-226, half life 1,622 years, immediate precursor of Rn-222. Radon daughters.
Detector System	ZnS(Ag) scintillator cell coupled to a 30mm diameter photomultiplier tube. PMT amplification 1 x 10^7. High voltage supply internally adjustable ± 1% at nominal 600 volts.
Cell	Volume, 170cc. Surface area of phosphor, 14,350mm^2. Dimensions, 53mm diameter x 73mm high.
Sensitivity to Radon as Daughters Accumulate	1.2 cpm/pc after one minute. 2.2 cpm/pc after ten minutes. 4.0 cpm/pc after one hour.
Efficiency of ZnS(Ag)	Empirically determined to be approximately 33-35%.
Electronics	High specification, low power consumption all solid state C/MOS logic circuitry.
Counting System	Integrating linear counter, capacity 99999 counts. Switch selectable counting periods: Manual, 1, 2, 5, 10, 30 and 60 minutes.
Display	Five digit LED, first 4 digits automatically switched off after 10 seconds to conserve batteries.
Calibration	Against standard (Radium) test cell provided, adjusted internally to less than ± 5%.
Power Supply	Internal, 8 "C" cells (alkaline). External, any 10-24V DC source.
Battery Life	30 days under average field conditions.
Operating Temperature	-30°C to +40°C.
Dimensions	
Console	127 x 165 x 280mm (5" x 6.5" x 11")
Shipping (System)	610 x 610 x 355mm (24" x 24" x 14")
Weights	
Console	2.7kg (6 lbs.)
System	3.2kg (7 lbs.)
Shipping (System)	9.0kg (20 lbs.)
Standard System Components	Detector Console, Test Cell, 5 Soil-Gas Cells, 5 Cell Caps, 14" Probe/Pump, 8 "C" Cell Batteries, Flat Cap with Two Swagelok Connectors, and Instruction Manual.
Options and Accessories	RDU-200 Radon Degassing System. RDX-356 Heavy Duty 29" Soil Probe. RDX-700 External Battery Pack for cold weather operations. RDX-703/4 Battery Charger to be used with rechargeable NiCad batteries. Input either 110V AC, 60 Hz or 240V AC, 50 Hz. RDX-706/7 External AC/DC Power Supply Converter. RDM-225 Audio Alarm, indicates end of counting period.

APPENDIX VI

QUALIFICATIONS OF W.D. MELNYK

B.Sc., Geological Engineering, University of Saskatchewan, Saskatoon, 1972.

Member of The Association of Professional Engineers of the Province of Ontario.

Member of The Association of Professional Engineers of British Columbia.

W.D. Melnyk, P.Eng.

Vancouver, B.C.
November 15, 1979

L. 14+00 W. | L. 12+00 W. | L. 10+00 W. | L. 8+00 W. | L. 6+00 W. | L. 4+00 W. | L. 2+00 W. | L. 0+00 | L. 2+00 E. | L. 4+00 E. | L. 6+00 E. | L. 8+00 E. | L. 10+00 E. | L. 12+00 E. | L. 14+00 E.

N

BASELINE

L. 29+00 N.
L. 26+50 N.
L. 24+00 N.
L. 22+50 N.
L. 20+00 N.
L. 17+50 N.
L. 15+00 N
L. 12+50 N
L. 10+00 N
L. 9+50 N
L. 7+50 N.
L. 5+00 N
L. 2+50 N.
L. 0+00

OS 4W

LEGAL CORNER POST

LAKE

KELLY 1

5S 4W

5S 0W

BASELINE

0 50 100 200 400 METERS
SCALE IN METERS

LEGEND

·1.8 Uranium (ppm) Soil

18.78 ⊙ 1.3 Radon Counts/Minute ⊙ Uranium Parts/Million

x 32.0 Uranium (ppm) Silt

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
7512

AMOCO CANADA PETROLEUM CO. LTD.
MINING DIVISION

OKANAGAN PROJECT
KELLY RIVER CLAIM GROUP & ANOMALY
URANIUM (ppm)

Drawn By	Altair / a.m.b.	Scale	1 cm. = 50m.
Date	Sept., 1979	Project Nº.	79C-005