GEOPHYSICAL SURVEY OF TORY HILL PROSPECT

MONMOUTH TOWNSHIP, EASTERN ONTARIO MINING DIVISION

CLAIMS: E.O. 370249
370252
370253
370255
370256
370257
370258
370263

BY: BONNIE Y. LOWE

IMPERIAL OIL LIMITED

AUGUST, 1975

INTRODUCTION

In June 1973, Imperial Oil Limited staked a group of eight claims in the Tory Hill area of southeastern Ontario. During June 1975, a radiometric survey was conducted on these claims. A geological survey (2.1481) completed on these claims by R.T. Garvey of Imperial Oil Limited in the summer of 1973, has already been submitted as a separate report. Some trenching was also carried out in 1955 by the previous operator. The claims covered in this report are: E.O. 370249
370252
370253
370255
370256
370257
370258
370263

LOCATION AND ACCESS

This claim group constitutes the south half of lot 22, Concession IX; lots 23 and 24, Concession IX; the south half of lot 23, Concession X; and lot 24, Concession X of Monmouth Township, Haliburton County. Good access is provided by the Hadlington Lake Road via Highway 121 from Tory Hill, Ontario.

GEOPHYSICAL SURVEY

From June 10, 1975 to June 24, 1975 a radiometric survey was conducted on these claims by pace and compass traversing: chained base lines and air photos were used for control. Stations every 100 feet along the lines were flagged and marked with line number and picket number.

Traverse lines were spaced 400 feet apart with radiometric readings taken at 50 foot intervals along each line using a McPhar TV-1 scintillometer. The operation of the scintillometer is described in the appendix. All readings were plotted in total radiation counts per minute.

The results of this survey are illustrated in the scintillometer plan accompanying this report. Approximately 850 readings were taken.

The background count for this claim group averaged 20 counts/min. Anomously high radioactivity of 5X background and greater was found in an open pegmatite cut, and several zircon and skarn trenches. A detailed survey was conducted upon the trench showings. Readings were taken every 25 feet along lines established with 25 foot spacings. The surface radiometric readings indicate that the zones of high radioactivity are narrow.

RECOMMENDATIONS

Further ground testing could be carried out on the zones of high radioactivity to better determine the nature and extent of the zones.

August 28, 1975

Bonnie Lowe

APPENDIX

GENERAL DESCRIPTION AND APPLICATIONS OF THE McPHAR MODEL TV-1 GAMMA RAY SPECTROMETER

The gamma ray detecting principle lies in the sodium iodide crystal. Gamma rays entering the crystal, interact with the crystal atoms, resulting in free electrons and light emission. The optically coupled photo-multiplier converts the light emission to electrical pulses. The magnitudes of the electrical pulses bear a relationship to the energy levels of the intercepted gamma rays.

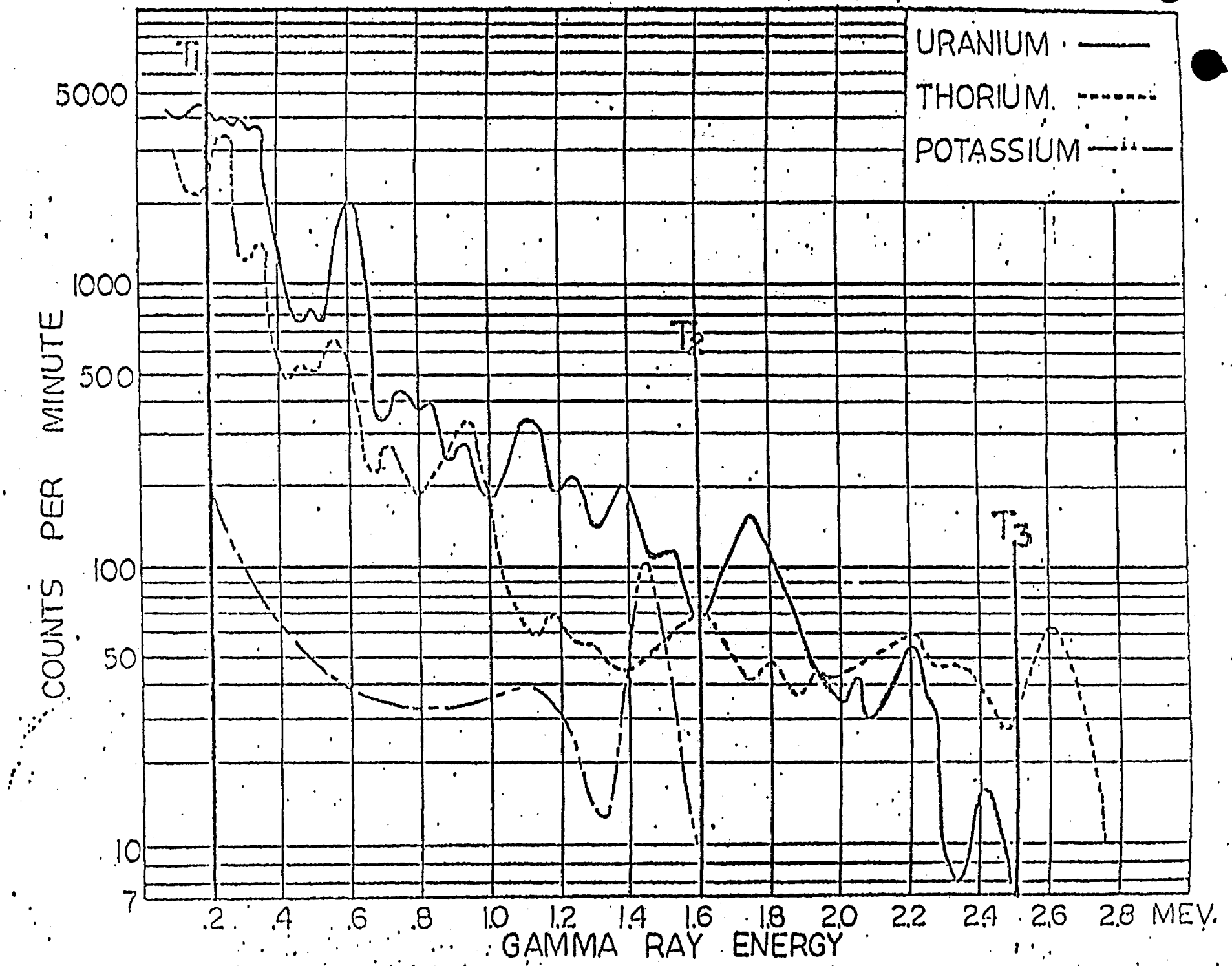
Various radioactive elements have characteristic gamma energy spectrums. The nature of the spectrum for a given element can be used to advantage in identifying it in the presence of other radioactive elements. Fig. 2 shows spectral curves for the three main elements of interest in radioactive surveys; potassium, uranium and thorium.

Thorium emits gamma rays with energy levels exceeding 2.5 Mev. The highest energy radiation from potassium is about 1.6 Mev. The three vertical lines marked T1,T2 and T3 show the location of the threshold settings of the TV-1 spectrometer after the instrument has been calibrated. Threshold T3 at 2.5 Mev. allows only those electrical pulses to be registered whose amplitudes correspond to gamma rays with energy levels above 2.5 Mev. T2 similarly responds to gamma energy levels above 1.6 Mev. When both thorium and uranium are present during a measurement, then the reading at T2 contains

counts resulting from both elements whereas T3 contains counts from thorium only.

It is possible then, to subtract the count in the T2 reading, leaving the count from uranium only. The count representing thorium in the T2 reading is a fixed multiple of the T3 reading. In the TV-1 spectrometer, this multiple is 3.5. That is, the count in T2 due to uranium is T2 - 3.5T3. A thorium calibrating source and calibration procedure, provided with the instrument, ensures that this is always the case.

RTG:rn


URANIUM
THORIUM.
POTASSIUM
T1
T2
T3
5000
1000
500
100
50
10
7
COUNTS PER MINUTE
.2
.4
.6
.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8 MEV.
GAMMA RAY ENERGY

File 2.1899

900

RECEIVED
SEP 4 1975
PROJECTS UNIT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey Ground Radiometric

Township or Area Monmouth Township

Claim holder(s) Imperial Oil Limited

Author of Report Bonnie Lowe

Address 111 St. Clair Ave. West

Covering Dates of Survey June 10 - June 24, 1975
(linecutting to office)

Total Miles of Line cut 9.7 miles

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	
–Magnetometer	
–Radiometric	40 20
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Aug. 28/75 SIGNATURE: J Hazan
Author of Report or Agent

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
E.O.	370249
E.O.	370252
E.O.	370253 1/3 not covered
E.O.	370255
E.O.	370256 1/4
E.O.	370257 1/3
E.O.	370258 1/4
E.O.	370263

If space insufficient, attach list

Area of claims not covered = 1¼
Well traversed / Let go

PROJECTS SECTION

Res. Geol. _____ Qualifications New — on this file

Previous Surveys 2.1481 Geological Survey done in 1973 by Imperial Oil Ltd.

Checked by _____

- Pace and compass traverse lines were used / No Credits for linecutting.

GEOLOGICAL BRANCH

Approved by _____ date _____

GEOLOGICAL BRANCH LD

Approved by _____ date _____

TOTAL CLAIMS 8

OFFICE USE ONLY

Show instrument technical data in each space for type of survey submitted or indicate "not applicable"

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS

Number of Stations 900 Number of Readings 900

Station interval 50 feet, 25 feet on detail

Line spacing 400 feet

Profile scale or Contour intervals 5X, 10X background

(specify for each type of survey)

MAGNETIC

Instrument

Accuracy - Scale constant

Diurnal correction method

Base station location

ELECTROMAGNETIC

Instrument

Coil configuration

Coil separation

Accuracy

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency

(specify V.L.F. station)

Parameters measured

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION – RESISTIVITY

Instrument

Time domain Frequency domain

Frequency Range

Power

Electrode array

Electrode spacing

Type of electrode

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument McPhar Model TV1 Scintillometer

Values measured Counts per minute

Energy windows (levels) Total gamma energy

Height of instrument 3 feet Background Count 2000

Size of detector 1" x 1¼"

Overburden Glacial overburden 0-10 feet
(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____
(specify for each type of survey)

Accuracy _____
(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken_____

Total Number of Samples_____

Type of Sample_____
(Nature of Material)

Average Sample Weight_____

Method of Collection_____

Soil Horizon Sampled_____

Horizon Development_____

Sample Depth_____

Terrain_____

Drainage Development_____

Estimated Range of Overburden Thickness_____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis_____

General_____

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others_____

Field Analysis (_____tests)

Extraction Method_____

Analytical Method_____

Reagents Used_____

Field Laboratory Analysis

No. (_____tests)

Extraction Method_____

Analytical Method_____

Reagents Used_____

Commercial Laboratory (_____tests)

Name of Laboratory_____

Extraction Method_____

Analytical Method_____

Reagents Used_____

General_____

Dudley Twp. M.84

Glamorgan Twp. M.95

Cardiff Twp. M.69

Anstruther Twp. M.45

THE TOWNSHIP OF 2.1899

MONMOUTH

COUNTY OF HALIBURTON

EASTERN ONTARIO MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	P
CROWN LAND SALE	C.S.
LEASES	L
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KINGS HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	

NOTES

This Map Is Not To Be Used —FOR SURVEY PURPOSES—

400' Surface rights reservation along the shores of all lakes and rivers.

Original shoreline shown thus:

F.R.I. shoreline shown thus:

Patents Map shoreline shown thus:

For status of summer resort locations shown thus

Please contact Ministry of Natural Resources.

- MINING LANDS -
DATE OF ISSUE
SEP - 3 1975
MINISTRY OF NATURAL RESOURCES

PLAN NO.-M.164

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

31D16NE0021 2.1899 MONMOUTH

200

J.P. von K.

N

M.N.

11.5°

LOT 24

HWY. 121

BL.1

L4N

LO

L4S

DUMP

370263

L8S

LOT 23

L12S

L15S

L16S

L20S

L24S

CONC X

370257

370258

L7E

L3E

L28S

L32S

L36S

L40S

L44S

L48S

L52S

L20N

BLE

L16N

L12N

370256

370255

L8N

LO

L4N

L4S

LO

L8S

370249

L12S

LOT 22

CONC IX

OLD HADLINGTON LAKE RD.

POWER LINE

370252

BL.

370253

L4S

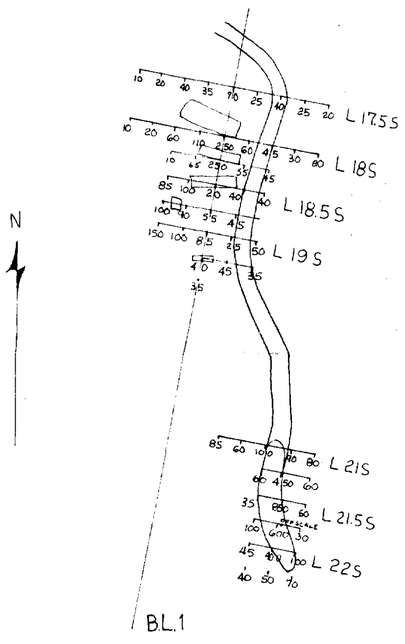
L8S

SBL

L12S

BIG HOLE POND

HADLINGTON LAKE RD



TRENCH DETAIL

SCALE: 1" = 100'

ROAD

TRENCH

TRAVERSE LINE

IMPERIAL OIL LIMITED

MONMOUTH TWP

NORTH BUCKSKIN CLAIM GROUP

TORY HILL PROSPECT

CONCESSION IX, LOTS 22 (S½), 23, 24

CONCESSION X, LOTS 23 (S½), 24

SCINTILLOMETER SURVEY W/ Mc PHAR TV-1 (SERIAL # 171-40) [redacted]

TOTAL RADIATION SURVEY

IN COUNTS PER MINUTE X100

[redacted]

SWAMP, MARSH

ROAD

CREEK

TRAVERSE LINE

READINGS ON LINE

LOT & CONC. LINE

CONTOURS

5 X BACKGROUND

10 X BACKGROUND

BACKGROUND 2000 CPM

SCALE 1"= 400 ft.

FIELD PARTY : BONNIE LOWE
NYRIE JACKSON
JACQUES DUMOUCHEL
DENIS VILLENEUVE

Bonnie Lowe