



41105NE0024 00024 DRURY

010

REPORT ON
ACME GAS & OIL LIMITED
DRURY TOWNSHIP
SUDBURY MINING DIVISION
ONTARIO

by L. J. Cunningham, B.Sc., P. Eng.
Mining Engineer
dated at Kirkland Lake, Ontario
10th January, 1969

**DUPLICATE COPY
POOR QUALITY ORIGINAL
TO FOLLOW**

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
LOCATION & DESCRIPTION	1
HISTORY	2
GENERAL GEOLOGY	3
GEOLOGY OF PROPERTY	3
FAULTING	4
ECONOMIC GEOLOGY	4
CONCLUSIONS & RECOMMENDATIONS	7

411528224 00024 DRURY



0100C

**DUPLICATE CO.
POOR QUALITY ORIGINAL
TO FOLLOW**

Maps:

1. Location Map.
2. Part of O.D.M. Map P.405
3. Legend of O.D.M. Map P.405
4. Section through Agnew Lake Mines
5. Section through Acme Gas & Oil Limited
6. Geology of Part of Lots 6-7-8 Drury Township, Acme Gas & Oil.
7. Geology of Part of Lots 9-10-11-12 Drury Township. Acme Gas & oil.

REPORT ON
ACME GAS & OIL LIMITED
DRURY TOWNSHIP
SUDBURY MINING DIVISION
ONTARIO

INTRODUCTION

The property consists of 97 contiguous claims covering parts of Lots 5-6-7-8-9-10-11 and 12, Con.IV,V and VI of Drury Township.

The group straddles the contact between the lower members of the Huronian sedimentary series and the granitic-volcanic basement.

The property is divided into two parts, the west part covering Lots 9-10-11 and 12 and the east part covering lots 5-6-7 and 8.

A section 2 miles wide (measured from north to south) was mapped in 1968 on lines at 200 foot centres across the west group.

During 1966 reconnaissance mapping was completed over a limited portion of the east group.

Different control lines were used for the two parts of the property and as a result a discrepancy exists. Since the west group is accurately located, the east claims are shown about 400 feet north of their proper location.

In mapping, the writer attempted to conform with the Ontario Department of Mines rock types as described by K. D. Card in O.D.M. Geological Report No.34, 1965 covering Hyman and Drury Townships.

Reference to O.D.M. Preliminary Map P.405, Sudbury Mining Area is also made.

LOCATION AND DESCRIPTION

The property lies 30 miles west of Sudbury city and 5 miles north of Highway 17. From Nairn an all weather gravel road leads to High Falls, a power development on the Spanish River. Approximately 7 miles from Nairn, Agnew Lake Mines have constructed a new paved road which continues 5 miles to the Agnew Lake Plant. This paved road passes within 500 feet of the south boundary of Acme property in Lot 11, Con.III. At this point, Beamish Construction company have built a gravel road, passable to all vehicles, which traverses northerly across the west block of the property. The east block is accessible only by old bush roads suitable for tractors.

The claims are described as follows :

DUPLICATE
POOR QUALITY OF
TO FOLLOW

Lot 5 Con.	IV N $\frac{1}{2}$ N $\frac{1}{2}$ V S $\frac{1}{2}$	S.138838 - 138839 S.138836-138837; 138840-138841
6	IV Full Lot V S $\frac{1}{2}$	S.134888-9-90,135353,136311,136318,137423-4 S.137622-23,137425-26
7	IV S $\frac{1}{2}$ IV N $\frac{1}{2}$	Patented S.136371-72, 137385, 134891
8	IV N $\frac{1}{2}$ V S $\frac{1}{2}$	S.140891-92-93-94 S.140374-5-6-7
9	IV Full Lot V S $\frac{1}{2}$ S $\frac{1}{2}$ N $\frac{1}{2}$	S.138814-15,138817,138824,138842-43-44-45 S.149200-01, 139408-9-10-11
10	IV Full Lot V Full Lot VI S $\frac{1}{2}$ S $\frac{1}{2}$	S.138813, 138816,138818-19-20-21-22-23 S.139404-05-06-07; 149202-02, 149206-7 S.149204-05
11	IV Full Lot V Full Lot	S.139126-27-29-30-31-32-33 S.139440-41-42-43, 149208,09, 149212-13
12	IV E $\frac{1}{2}$ NW $\frac{1}{2}$ N $\frac{1}{2}$ V Full Lot	S.139134,139416, 140378-79 S.139448 S.139412-13-14-15, 139444-45-46-47

HISTORY

The claims have been undoubtedly been staked and prospected on a number of occasions. Certainly during the uranium rush of the 1950s the claims were investigated to a limited extent.

In 1958, United McFee drilled 6 holes in Lot 11 on what are now claims 139126 and 139133. 5 holes tested a copper showing near location 48E-2N results are unknown. The other hole tested a uranium showing at 57E-50S. The log of this last hole indicated low radioactivity.

In claim 138816 of Lot 10, 4 holes are shown of 6 drilled and reported for assessment purposes by Inco in 1957. Total footage was 905 feet. Results were not given.

In claim 139134, Lot 12, 3 closely spaced vertical holes of small dimension were drilled by Kerr-Addison Mines Limited for assessment purposes - results are unknown.

In 1967, Acme Gas and Oil drilled 2 packsack drill holes of approximately 100 feet in length to test below the pit on the east boundary of claim 137434, Lot 6. Little or no radioactivity was reported (the writer did not see the core).

Many old pits on sulphide patches in the gabbro intrusives attest to the search for nickel-copper ores.

A shaft was attempted in claim 134890, Lot 6 to test the possible extension of a 5' quartz vein. Apparently the shaft did not reach bed rock.

In 1968 Acme Gas and Oil Limited drilled 11 holes totalling 6,592

GENERAL GEOLOGY

"The Precambrian rocks are divisible into several lithological groups. The oldest, the metavolcanic group, consists mainly of basic to intermediate metavolcanic rocks with minor amounts of metasedimentary material. This group is intruded by granitic rocks, which form a large batholith to the north. The main group of metasedimentary rocks, consisting of peolitic, quartzitic and conglomeratic metasediments lies unconformably on, or in fault contact with, the two older groups. Gabbroic rocks, including the Nickel Irruptive, intrude all the foregoing groups; they are in turn intruded by diabase dikes, the youngest rocks in the area." K. D. Card, O.D.M. Report No. 34-1965, Page 3.

GEOLOGY OF THE PROPERTY

The contact between the Huronian and Pre-Huronian rocks extend in a southeasterly direction across the central part of the property.

Across Lots 9-10-11 and 12, the basement rocks are predominantly granitic but include variable amounts of the older metavolcanic rocks which they have intruded. Across lots 6-7 and 8 the basement rocks are predominantly metavolcanics. The presence of a scarp at numerous points along the contact suggests that the granitic-metavolcanic rocks are possibly in fault contact with the Huronian metasediment. However, this faulting is not evident in the drilling done to date by Acme Gas & Oil in the contact zone. Nor is the contact between the sediments and the granite-volcanics sharp or readily recognized. The irregular intrusion of a variety of granitic rocks, remnants of metavolcanics are variable amount of neogolothic material obscure the contact.

Overlying the granitic-metavolcanic basement rocks is a band of metasediments standing vertically and 800 to 1200 feet in thickness. K. D. Card on Map 2055 (O.D.M. Report 34) has mapped this as metavolcanics. However, after re-examining evidence on the Acme Property, the writer is of the opinion that Card is in agreement that these are highly metamorphosed sediments with possibly some interbedded volcanic material.

On the accompanying geological maps, these rocks are differentiated and shown as basal metasediments. They include greywacke, argillite, quartzite, gritty greywacke, conglomerate and a granite derived grit or arkose which because of metamorphosis is often difficult to distinguish from granite. The outcrop of granitic material shown in claim 139445, Lot 12, some 800 feet south of the granite basement contact is a metamorphosed arkose or grit.

Within the basal metasedimentary member are interbeds of quartzite which are in part gritty, conglomeratic and radioactive.

Overlying the basal metasediments is a prominent, readily identified band of thin-bedded quartzite 1400 to 200 feet in width, with vertical or very steep dips and including minor amounts of argillite, greywacke, and polymictic conglomerate. Economically important are the presence of lensic interbeds of rusty, radioactive, sheared quartz-pebble conglomerate.

Argillite, greywacke, slate and their metamorphic equivalents lie unconformably above the quartzite formation - these are generally dark rocks commonly thin bedded, often laminated. Some of the greywacke beds are quartose. No radioactivity was detected in this formation.

Gabbroic rocks are present throughout the map area in the form of sills, dikes and irregular bodies.

FAULTING

The rocks of the property was extensively faulted.

The major faults strike N30° to N60°E. A minor system trends north-south to north 30°W.

The major faults dip vertically to steeply south.

An examination of part of O.D.M. Map P.405 forming part of this report reveals that the Acme ground is crossed by the Cameron-Vermilion-Fairbank and Chicago faults - which are known to have significant vertical as well as horizontal displacement. The writer was informed verbally by the Sudbury Office on the Ontario Department of Mines that in the Sudbury basin over 5,000 feet of vertical movement has been determined on this fault system. According to Card (O.D.M. Geological Report 34, Page 26) the apparent horizontal movement on the fault is as follows :

Cameron Creek Fault	2 miles	north side	moved	westerly
Fairbank Lake Fault (north br)	1300 ft.	"	"	"
(south br)	3300 ft.	"	"	"
Chicago Fault North branch	600 ft.	"	"	"
South branch	2300 ft.	South	"	"
Vermilion Lake Fault	2000 ft.	north	"	"

With such major displacement, these faults effectively divide the Acme property into a number of blocks for exploration purposes must be considered separately.

ECONOMIC GEOLOGY

The search for radioactive ores on the Acme property must of necessity take into account the geology and mode of occurrence of the Agnew Lake ores. The following is a brief description of the Agnew Lake Mines ore zones, prepared by David S. Robertson & Associates, Consulting Geologists and Mining Engineers and published in an interim report to

shareholders, Quebec Mattagami Minerals's Limited, October 19, 1967 :

"Four feldspathic quartzite zones carrying radioactive conglomerate are known on the property and it is anticipated that additional zones will be found as drilling is carried out from underground at greater depth. The conglomerates carry economic values in uranium and high values in thorium and rare earths. In general the thorium and rare earth contents of the reefs are significantly higher than that in the reefs at the Elliot Lake, where the ore zones are geologically similar but lie more or less horizontal as opposed to the very steeply dipping ore zones on the Agnew Lake Mines Limited property. The average Th/Ur ratio in the ore of Agnew Lake Mines Limited is greater than 2 while at Elliot Lake the ratios are normally about 1. Rare earth content may be as much as five times higher than in the Elliot Lake ores."

Drill indicated ore reserves : Grade 1.5#/U3o8 per ton
width 9.2 feet
Tonnage 10,432,000

On the Acme ground two zones containing radioactive pebble conglomerate beds are known to occur.

The first zone lies within the basal metasedimentary formation which overlies the granite-volcanic basement and underlies the main quartzite formation. Several horizons of radioactive quartz pebble conglomerate beds occur within this zone. The first horizon is within 100 to 200 feet of the basement and has been tested over a strike length of approximately 3,000 feet by the following holes: 68-1-2-5-6-7-9-10-11.

Holes 68-1 and 2 drilled to cut beneath the only known exposure west of the Cameron Creek fault, cut the following :

68-1	0.46 lbs U3o8 over	9.0
	1.1	4.0
68-2	0.2 lbs. U3o8 over	6.0
	0.6	7.0
	0.4	13.0

Hole 9,10,11 and 12 (now drilling) tested this zone to the west. Hole 68-9 cut 35 feet (core length) of conglomerate with low radioactivity. Hole 68-10 cut 19 feet of weakly radioactive conglomerate. Hole 68-11 did not encounter more than 2 feet of barren quartzite.

Hole No. 68-5 drilled 800 feet east of # 68-1 did not encounter quartzite where expected. However, because the hole was drilled in the vicinity of the Cameron Creek fault, it is probable (1) that the quartzite interbeds as determined in Holes 1 and 2 do not pinch out but may be displaced or (2) that the drill hole remained entirely

within the fault zone. In the writer's opinion Hole 68-5 does not rule out the possibility of an extension of the radioactive zone to the east of the Cameron Creek fault.

Holes 68-6 and 68-7 tested the radioactive pebble horizon adjacent to the granitic-volcanic contact between the Vermilion and Fairbank Lake (north branch) faults. No quartzite was cut in Hole No. 6 and 0.6 lbs U3o8 over 4.0 feet respectively was encountered in Hole 68-7.

A second horizon of radioactive pebble conglomerate lies within the basal metasedimentary formation. In Lots 9 and 10 uraniferous beds are found 500-800 feet south of the granite contact. One hole, 68-8, tests this horizon and obtained 0.6 lbs. U3o8 over 2.5 feet.

The second zone of radioactivity lies within the main quartzite formation. No drilling has been done in this zone to date but numerous trenches have been blasted and sampled. Results are shown on the map.

The showings of this zone are described as follows :

BLOCK A : west of the Cameron Creek fault - No known showings

BLOCK B : east of the Cameron Creek fault and west of the Vermilion fault - discontinuous band consisting of 1 or more narrow 6"-2feet of lensic pebble conglomerate has been traced for 2,500 feet and tested by 4 pits. Results were as follows :

0.2 lbs. U3o8 over	5.0 feet
Tr	7.0
0.4	2.5
0.4	6.0

This section extends from 12 + 00E to 38+00E, approximately 6+00N to 9+00 N.

BLOCK C east of the Vermilion Fault and west of Fairbank Lake fault (north branch)

- at least 12 radioactive beds occur across a horizontal width of 1400 feet. Widths vary from 2 ft. to 8 feet and lengths from 50 feet to hundreds of feet. Insufficient work has been done to determine the full dimensions of these beds. Values vary from 5 lbs. U3o8 over 2.5 feet to 1lb. over 12.5 feet to 0.5 lbs. over 8 feet to 0.2 lbs. over 4.0 feet.

BLOCK D east of the north branch of the Fairbank Lake fault and west of the south branch of the Fairbank Lake fault.

- a minimum of 6 radioactive beds occur across a horizontal width of 1,000 feet. Widths vary from 2 ft. to 5 ft. and lengths from 50 feet to 500 feet with extensions possible. Grades vary from 0.8 U3o8 over 5 feet to 0.48 lbs. over 6.6 feet

BLOCK E - East of the Fairbank Lake fault (south branch) and west of the Chicago fault, north branch.

- 3 beds occur over a horizontal distance of 200 feet. Widths vary from 3 feet to 6 feet; lengths vary from 50 to 200 feet. Grades vary from 1.0 lbs. over 6.0 ft. to 0.2 lbs. over 3.5 feet. Beds are open to the east. To the west they extend into Falconbridge property.

BLOCK F between the branches of the Chicago fault = no outcrop-geological evidence suggests a down faulted block.

BLOCK G east of the south branch of the Chicago fault.

- a minimum of 6 beds occur across a width of 600 feet. Widths vary from 2 feet to 20 feet. Lengths vary from 50 feet to 500 feet. Grades vary from 1.56 lbs. U3o8 over 20 feet to 1.8 lbs. over 4.5 feet to 0.2 over 5 feet.

2 packsack drill holes of EX dimension tested at a shallow horizon beneath the pit which returned an assay of 1.56 lbs. U3o8 over 20 feet. The results were reportedly disappointing but the core was not seen by the writer.

CONCLUSIONS AND RECOMMENDATIONS

Apparently some of the deposition of the pebble conglomerate and the accompanying radioactive minerals was taking place under unstable conditions - possibly being deposited by streams, with variable flows, meandering over broad beach areas with the result that shallow pebble reefs were being laid down and often, after short intervals, eroded partially or completely away with the result that after consolidation and intense folding the reefs are evident today as sheared, elongated lenses or pods which often terminate abruptly.

It is evident that these conditions are subject to change in a vertical sense as well as in the horizontal. It is therefore necessary to do some probing at depth to determine if changing conditions of sedimentation resulted in thicker, more extensive beds of uraniferous conglomerate.

It is interesting to note that at Agnew Lake Mines, in some of the shallow drilling, the conglomerate beds were locally absent due to the sinuous character of the interface between the conglomerate member and the rough paleoslope.

Considering the high thorium and rare earth content of the Agnew Lake area, this economic factor should not be overlooked during future exploration.

Although results of drilling to date have been less than

expected, it must be emphasized that the footage completed is a small amount indeed when considered against the size of the property and the large number of showings.

The occurrences of such widespread radioactivity under geological conditions similar to those of the Agnew Lake Mines justifies a detailed program of drilling to seek similar ore zones.

The following areas are recommended for further drilling :

1. The contact area in the vicinity of Hole 68-1 and 68-2.

This zone has not been sufficiently tested in view of the results of these holes.

	<u>FOOTAGE</u>
(i) Drill 3 holes of 450-500 feet lengths to test this area at locations 200 feet east, 400 feet east and 400 feet west of 68-1	1,500
(ii) if results of (i) are encouraging (a) drill two 1300 foot holes similar to 68-2 and (b) drill one hole in Block B (east of the Cameron Creek fault) to determine easterly extension of the zone. Suggested location -600 feet east of 68-5	2,600 750
2. BLOCK C (i) Four 500 foot holes to cross-section the quartzite formation from south to north on line 56+00E	2,000
(ii) 5-400 foot holes to test additional promising showings	2,000
(iii) 1-1000 foot hole to test area at depth - suggested on line 56+00E	1,000
3. BLOCK D - 6 holes of 400 feet to test showings	2,400
4. BLOCK E - 2 holes of 500 feet to test the downward and eastward extension of three beds near the falconbridge boundary	1,000
5. BLOCK F - no outcrop. Drill if results in Block E or G are encouraging.	
6. BLOCK G - (i) drill a series of holes to cross-section the quartzite formation on a north-south line (14W) through the pit yielding 1.56 lbs. U3o8 over 20 feet	
5 holes of 400 feet	2,000
(ii) Drill at least one hole of 1,000 feet in length to test at depth the bed on which the above mentioned pit is located.	1,000
(iii) Drill 2 holes of 500 feet to test other showings	1,000
7. An allowance for deep drilling	5,000
	Total footage <u>22,250</u>
Estimated Cost 22,250 feet @ 7.50/foot	\$ 166,875.00
Supervision	\$ 20,000.00
	<u>\$ 186,875.00</u>

Signed,

L. J. Cunningham, B. Sc. P. Eng.
Mining Engineer.

Dated at Kirkland Lake, Ontario
10th January, 1969.

**DUPLICATE COPY
POOR QUALITY ORIGINAL...
TO FOLLOW**



41105NE0024 00024 DRURY

020

2.378

REPORT
ON
ACME GAS & OIL LIMITED
DRURY TOWNSHIP
SUDBURY MINING DIVISION
ONTARIO

by I. J. Cunningham, B.Sc., P.Eng.
Mining Engineer
dated at Kirkland Lake, Ontario
10th January, 1969

RECEIVED

APR 26 1971

PROJECTS
SECTION



41105NE0024 00024 DRURY

020C

TABLE OF CONTENTS.

	Page
INTRODUCTION	1
LOCATION & DESCRIPTION	1
HISTORY	2
GENERAL GEOLOGY	3
GEOLOGY OF PROPERTY	3
FAULTING	4
ECONOMIC GEOLOGY	4
CONCLUSIONS & RECOMMENDATIONS	7

MAPS:

- (1) Location Map
- (2) Part of O.D.H. Map P.405
- (3) Legend of O.D.M. Map P.405
- (4) Section through Agnew Lake Mines
- (5) Section through Acme Gas & Oil Limited
- (6) Geology of Part of Lots 6-7-8 Drury Township, Acme Gas & Oil
- (7) Geology of Part of Lots 9-10-11-12 Drury Township, Acme Gas & Oil

REPORT
ON
ACME GAS & OIL LIMITED
DRURY TOWNSHIP
SUDBURY MINING DIVISION
ONTARIO

INTRODUCTION

The property consists of 97 contiguous claims covering parts of Lots 5-6-7-8-9-10-11 and 12, Con. IV, V and VI of Drury Township.

The group straddles the contact between the lower members of the Huronian sedimentary series and the granitic-volcanic basement rocks.

The property is divided into two parts, the west part covering Lots 9-10-11 and 12 and the east part covering Lots 5-6-7 and 8.

A section 2 miles wide (measured from north to south) was mapped in 1968 on lines at 200 foot centres across the west group.

During 1966 reconnaissance mapping was completed over a limited portion of the east group.

Different control lines were used for the two parts of the property and as a result a discrepancy exists. Since the west group is accurately located, the east claims are shown about 400 feet north of their proper location.

In mapping, the writer attempted to conform with the Ontario Department of Mines rock types as described by K. D. Card in O.D.M. Geology Report No. 34, 1965 covering Hyman and Drury Townships.

Reference to O.D.M. Preliminary Map P.405, Sudbury Mining Area, is also made.

LOCATION AND DESCRIPTION

The property lies 30 miles west of Sudbury City and 5 miles north of Highway 17. From Nairn an all weather gravel road leads to High Falls, a power development on the Spanish River. Approximately 7 miles from Nairn, Agnew Lake Mines have constructed a new paved road which continues 5 miles to the Agnew Lake plant. This paved road passes within 500 feet of the south boundary of Acme property in Lot 11, Con. III. At this point, Beanish Construction Company have built a gravel road, passable to all vehicles, which traverses northerly across the west block of the property. The east block is accessible only by old bush roads suitable for tractors.

The claims are described as follows:

Lot 5	Cor. IV V	N $\frac{1}{2}$ N $\frac{1}{2}$ S $\frac{1}{2}$	S.138838 - 138839 S.138836-138837; 138840-138841
6	IV V	Full lot S $\frac{1}{2}$	S.134888-9-90, 135353, 136311, 136318, 137423-4 S.137622-23, 137425-26
7	IV IV	S $\frac{1}{2}$ N $\frac{1}{2}$	Patented S.136371-72, 137385, 134891
8	IV V	N $\frac{1}{2}$ S $\frac{1}{2}$	S.140891-92-93-94 S.140374-5-6-7
9	IV V	Full lot S $\frac{1}{2}$ S $\frac{1}{2}$ N $\frac{1}{2}$	S.138814-15, 138817, 138824, 138842-43-44-45 S.149200-01, 139408-9-10-11
10	IV V VI	Full lot " " S $\frac{1}{2}$ S $\frac{1}{2}$	S.138813, 138816, 138818-19-20-21-22-23 S.139404-05-06-07, 149202-03, 149206-07 S.149204-05
11	IV V	Full lot " "	S.139126-27-28-29-30-31-32-33 S.139440-41-42-43, 149208-09, 149212-13
12	IV V	E $\frac{1}{2}$ NW $\frac{1}{4}$ N $\frac{1}{2}$ Full lot	S.139134, 139416, 140378-79 S.139448 S.139412-13-14-15, 139444-45-46-47

HISTORY

The claims have undoubtedly been staked and prospected on a number of occasions. Certainly during the uranium rush of the 1950's the claims were investigated to a limited extent.

In 1958, United McFee drilled 6 holes in Lot 11 on what are now claims 139126 and 139133. 5 holes tested a copper showing near location 48 E - 2 N - results are unknown. The other hole tested a uranium showing at 57 E - 50 S. The log of this last hole indicated low radioactivity.

In claim 138816 of Lot 10, 4 holes are shown of 6 drilled and reported for assessment purposes by Inco in 1957. Total footage was 905 feet. Results were not given.

In claim 139134, Lot 12, 3 closely spaced vertical holes of small dimension were drilled by Kerr-Addison Mines Limited for assessment purposes - results are unknown.

In 1957, Acme Gas and Oil drilled 2 packsack drill holes of approximately 100 feet in length to test below the pit on the east boundary of claim 137404, Lot 6. Little or no radioactivity was reported (the writer did not see the core).

Many old pits on sulphide patches in the gabbro intrusives attest to the search for nickel-copper ores.

A shaft was attempted in claim 134890, Lot 6 to test the possible extension of a 5' quartz vein. Apparently the shaft did not reach bed rock.

In 1968 Acme Gas and Oil Limited drilled 11 holes totalling 6,562'

GENERAL GEOLOGY

"The Precambrian rocks are divisible into several lithological groups. The oldest, the metavolcanic group, consists mainly of basic to intermediate metavolcanic rocks with minor amounts of metasedimentary material. This group is intruded by granitic rocks, which form a large batholith to the north. The main group of metasedimentary rocks, consisting of pelitic, quartzitic, and conglomeratic metasediments, lies unconformably on, or in fault contact with, the two older groups. Gabbroic rocks, including the Nickel Irruptive, intrude all the foregoing groups; they are in turn intruded by diabase dikes, the youngest rocks in the area." K. D. Card, O.D.M. Report No. 34 - 1965, Page 3.

GEOLOGY OF THE PROPERTY

The contact between the Huronian and Pre-Huronian rocks extend in a southeasterly direction across the central part of the property.

Across Lots 9-10-11 and 12, the basement rocks are predominantly granitic but include variable amounts of the older metavolcanic rocks which they have intruded. Across Lots 6-7 and 8 the basement rocks are predominantly metavolcanics. The presence of a scarp at numerous points along the contact suggests that the granitic-metavolcanic rocks are possibly in fault contact with the Huronian metasediment. However, this faulting is not evident in the drilling done to date by Acme Gas & Oil in the contact zone. Nor is the contact between the sediments and the granite-volcanics sharp or readily recognized. The irregular intrusion of a variety of granitic rocks, remnants of metavolcanics and variable amounts of regolithic material obscure the contact.

Overlying the granitic-metavolcanic basement rocks is a band of metasediments standing vertically and 800 to 1200 feet in thickness. K. D. Card on Map 2055 (O.D.M. Report 34) has mapped this as metavolcanics. However, after re-examining evidence on the Acme property, the writer is of the opinion that Card is in agreement that these are highly metamorphosized sediments with possibly some interbedded volcanic material.

On the accompanying geological maps, these rocks are differentiated and shown as basal metasediments. They include greywacke, argillite, quartzite, gritty greywacke, conglomerate and a granite derived grit or arkose which because of metamorphosion is often difficult to distinguish from granite. The outcrop of granitic material shown in claim 139445, Lot 12, some 800 feet south of the granite basement contact is a metamorphosed arkose or grit.

Within the basal metasedimentary member are interbeds of quartzite which are in part gritty, conglomeratic and radioactive.

Overlying the basal metasediments is a prominent, readily identified band of thin-bedded quartzite 1400 to 200 feet in width, with vertical or very steep dips and including minor amounts of argillite, greywacke, and polymictic conglomerate. Economically important are the presence of lensoid interbeds of rusty, radioactive, sheared quartz-pebble conglomerate.

Argillite, greywacke, slate and their metamorphic equivalents lie conformably above the quartzite formation - these are generally dark rocks commonly thin bedded, often laminated. Some of the greywacke beds are quartzose. No radioactivity was detected in this formation.

Gabbroic rocks are present throughout the map area in the form of sills, dikes and irregular bodies.

FAULTING

The rocks of the property are extensively faulted.

The major faults strike N 30° to N 60° E. A minor system trends north-south to north 30° W.

The major faults dip vertically to steeply south.

An examination of part of O.D.M. Map P.405 forming part of this report reveals that the Acme ground is crossed by the Cameron-Vermilion-Fairbank and Chicago faults - which are known to have significant vertical as well as horizontal displacement. The writer was informed verbally by the Sudbury Office of the Ontario Department of Mines that in the Sudbury basin over 5,000 feet of vertical movement has been determined on this fault system. According to Card (O.D.M. Geological Report 34, Page 26) the apparent horizontal movement on the faults is as follows:

Cameron Creek Fault	2 miles	north side moved westward
Fairbank Lake Fault (north branch)	1,300 feet	" " " "
(south branch)	3,300 feet	" " " "
Chicago Fault North branch	600 feet	" " " "
South branch	2,300 feet	south " " "
Vermilion Lake Fault	2,000 feet	north " " "

With such major displacement, these faults effectively divide the Acme property into a number of blocks which for exploration purposes must be considered separately.

ECONOMIC GEOLOGY

The search for radioactive ores on the Acme property must of necessity take into account the geology and mode of occurrence of the Agnew Lake ores. The following is a brief description of the Agnew Lake Mines ore zones.

prepared by David S. Robertson & Associates, Consulting Geologists ~~Engineers~~ and published in an interim report to shareholders, Quebec Minerals Limited, October 19, 1967:

"Four feldspathic quartzite zones carrying radioactive conglomerate known on the property and it is anticipated that additional zones will be discovered as drilling is carried out from underground at greater depth. The conglomerates carry economic values in uranium and high values in thorium and rare earth elements. In general the thorium and rare earth contents of the reefs are significantly higher than that in the reefs at Elliot Lake, where the ore zones are geologically similar but lie more or less horizontal as opposed to the very steeply dipping ore zones on the Agnew Lake Mines Limited property. The average Th/U ratio in the ore of Agnew Lake Mines Limited is greater than 2 while at Elliot Lake the ratios are normally about 1. Rare earth content may be as much as fifty percent higher than in the Elliot Lake ores."

Drill indicated ore reserves:	Grade	1.54#/U ₃ O ₈ per ton
	Width	9.2 feet
	Tonnage	10,432,000

On the Acme ground two zones containing radioactive pebble conglomerate beds are known to occur.

The first zone lies within the basal metasedimentary formation which overlies the granite-volcanic basement and underlies the main conglomerate formation. Several horizons of radioactive quartz pebble conglomerate occur within this zone. The first horizon is within 100 to 200 feet of the basement and has been tested over a strike length of approximately 3,000 feet. The following holes: 68-1-2-5-6-7-9-10-11.

Holes 68-1 and 2 drilled to cut beneath the only zone west of the Cameron Creek fault, cut the following:

68-1	0.46 lbs. U ₃ O ₈ over 9.0
	1.1 4.0
68-2	0.2 lbs. U ₃ O ₈ over 6.0
	0.6 7.0
	0.4 13.0

Holes 9, 10, 11 and 12 (now drilling) tested this zone. Hole 68-9 cut 35 feet (core length) of conglomerate with low radioactive content. Hole 68-10 cut 19 feet of weakly radioactive conglomerate. Hole 68-11 did not encounter more than 2 feet of barren quartzite.

Hole No. 68-5 drilled 800 feet east of #68-1 did not encounter quartzite where expected. However, because the hole was drilled in the

of the Cameron Creek fault, it is probable (1) that the quartzite interbeds as determined in Holes #1 and 2 do not pinch out but may be displaced or (2) that the drill hole remained entirely within the fault zone. In the writer's opinion Hole 68-5 does not rule out the possibility of an extension of the radioactive zone to the east of the Cameron Creek fault.

Holes 68-6 and 68-7 tested the radioactive pebble horizon adjacent to the granitic-volcanic contact between the Vermilion and Fairbank Lake (north branch) faults. No quartzite was cut in Hole No. 6 and 0.6 lbs. U_3O_8 over 4.0 feet respectively was encountered in Hole 68-7.

A second horizon of radioactive pebble conglomerate lies within the basal metasedimentary formation. In Lots 9 and 10 uraniferous beds are found 500 - 800 feet south of the granite contact. One hole, 68-8, tests this horizon and obtained 0.6 lbs. U_3O_8 over 2.5 feet.

The second zone of radioactivity lies within the main quartzite formation. No drilling has been done in this zone to date but numerous trenches have been blasted and sampled. Results are shown on the map.

The showings of this zone are described as follows:

BLOCK A	west of the Cameron Creek fault	No known showings
BLOCK B	east of the Cameron Creek fault and west of the Vermilion fault - a discontinuous band consisting of 1 or more narrow 6" - 2 feet of lensitic pebble conglomerate has been traced for 2,500 feet and tested by 4 pits. Results were as follows:	
	0.2 lbs. U_3O_8 over 5.0 feet	
	Tr	7.0
	0.4	2.5
	0.4	6.0

This section extends from 12 + 00 E to 38 + 00 E, approximately 6 + 00 N to 9 + 00 N.

BLOCK C east of the Vermilion fault and west of the Fairbank Lake fault (north branch)
- at least 12 radioactive beds occur across a horizontal width of 1400 feet. Widths vary from 2 ft. to 8 feet and lengths from 50 feet to hundreds of feet. Insufficient work has been done to determine the full dimensions of these beds. Values vary from 5 lbs. U_3O_8 over 2.5 feet to 1 lb. over 12.5 feet to 0.5 lbs. over 8 feet to 0.2 lbs. over 4.0 feet.

BLOCK D east of the north branch of the Fairbank Lake fault and west of the south branch of the Fairbank Lake fault
- a minimum of 6 radioactive beds occur across a horizontal width of

1,000 feet. Widths vary from 2 ft. to 5 ft. and lengths from 50 feet to 500 feet with extensions possible. Grades vary from 0.8 U_3O_8 over 5 feet to 0.48 lbs. over 6.5 feet.

BLOCK E east of the Fairbank Lake fault (south branch) and west of the Chicago fault, north branch

- 3 beds occur over a horizontal distance of 200 feet. Widths vary from 3 feet to 6 feet; lengths vary from 50 to 200 feet. Grades vary from 1.0 lbs. over 6.0 ft. to 0.2 lbs. over 3.5 feet. Beds are open to the east. To the west they extend into Falconbridge property.

BLOCK F between the branches of the Chicago fault no outcrop geological evidence suggests a down faulted block

BLOCK G east of the south branch of the Chicago fault

- a minimum of 6 beds occur across a width of 600 feet. Widths vary from 2 feet to 20 feet. Lengths vary from 50 feet to 500 feet. Grades vary from 1.56 lbs. U_3O_8 over 20 feet to 1.8 lbs. over 4.5 feet to 0.2 over 5 feet.

2 packsack drill holes of EX dimension tested at a shallow horizon beneath the pit which returned an assay of 1.56 lbs. U_3O_8 over 20 feet. The results were reportedly disappointing but the core was not seen by the writer.

CONCLUSIONS & RECOMMENDATIONS

Apparently some of the deposition of the pebble conglomerate and the accompanying radioactive minerals was taking place under unstable conditions - possibly being deposited by streams, with variable flows, meandering over broad beach areas with the result that shallow pebble reefs were being laid down and often, after short intervals, eroded partially or completely away with the result that after consolidation and intense folding the reefs are evident today as sheared, elongated lenses or pods which often terminate abruptly.

It is evident that these conditions are subject to change in a vertical sense as well as in the horizontal. It is therefore necessary to do some probing at depth to determine if changing conditions of sedimentation resulted in thicker, more extensive beds of uraniferous conglomerate.

It is of interest to note that at Agnew Lake Mines, i. e. some of the shallow drilling, the conglomerate beds were locally absent due to the sinuous character of the interface between the conglomerate member and the rough paleoslope.

Considering the high thorium and rare earth content of the Agnew

Lake Area, this economic factor should not be overlooked during future exploration.

Although results of drilling to date have been less than expected, it must be emphasized that the footage completed is a small amount indeed when considered against the size of the property and the large number of showings.

The occurrence of such widespread radioactivity under geological conditions similar to those of the Agnew Lake Mines justifies a detailed program of drilling to seek similar ore zones.

The following areas are recommended for further drilling:

- (1) The contact area in the vicinity of Hole 68-1 and 68-2.

This zone has not been sufficiently tested in view of the results of these holes.

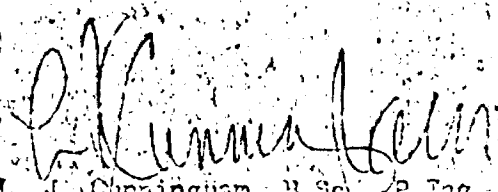
	<u>Footage</u>
(i) Drill 3 holes of 450-500 foot lengths to test this area at locations 200 feet east, 400 feet east and 400 feet west of 68-1.	1,500
(ii) If results of (i) aren't encouraging (a) drill two 1300 foot holes similar to 68-2 and (b) drill one hole in Block B (east of the Cameron Creek fault) to determine easterly extension of the zone. Suggested location - 600 feet east of 68-5	2,500
(2) Block C (i) Four 500 foot holes to cross-section the quartzite formation from south to north on line 56 + 00 E	2,000
(ii) 5 - 400 foot holes to test additional promising showings	2,000
(iii) 1 - 1,000 foot hole to test area at depth - suggested on line 56 + 00 E	1,000
(3) Block D - 6 holes of 400 feet to test showings	2,400
(4) Block E - 2 holes of 500 feet to test the downward and eastward extension of three beds near the Falconbridge boundary	1,000
(5) Block F - No outcrop Drill if results in Block E or G are encouraging	
(6) Block G (i) Drill a series of holes to cross-section the quartzite formation on a north-south line (14 W) through the pit yielding 1.56 lbs. U_3O_8 over 20 feet	
5 holes of 400 feet	2,000
(ii) Drill at least one hole of 1,000 feet in length to test at depth the bed on which the above mentioned pit is located	1,000
(iii) Drill 2 holes of 500 feet to test other showings	1,000
(7) An allowance for deep drilling	5,000

Total Footage 22,250

Acetylene Gas, Dryry Twp.

Estimated Cost	22,250 feet @ 7.50/foot	\$ 166,875.00
	Supervision	20,000.00
		<hr/>
		\$ 186,875.00
		<hr/>

Signed,



L. J. Cunningham, B.Sc., P.Eng.,
Mining Engineer

Dated at Kirkland Lake, Ontario
20th January, 1969



41105NE0024 00024 DRURY

900

PROVISION

ASSESSMENT WORK DETAILS

Type of Survey Geological
A separate form is required for each type of survey

Chief Line Cutter or Contractor Maurice Seguin Timmins, Ontario
Name Address

Party Chief L. J. Cunningham 1 McPhee Avenue Kirkland Lake, Ontario
Name Address

Consultant L. J. Cunningham 1 McPhee Avenue Kirkland Lake, Ontario
Name Address

COVERING DATES Line Cutting May 22, 1968 to June 24, 1968

Field Geology or Geophysics May 1968 to November 1968

Office Various dates from May 1968 to March 5, 1971

INSTRUMENT DATA Make, Model and Type _____

Scale Constant or Sensitivity _____

Or provide copy of instrument data from Manufacturer's brochure.

Total Number of Stations Within Claim Group _____ Number of Miles of Line cut Within Claim Group at least 66.86 miles

ASSESSMENT WORK CREDITS REQUESTED Geological Survey 40 Days per Claim

Geophysical Survey _____ Days per Claim

MINING CLAIMS TRAVERSED

See attached list - S-138813 et al

TOTAL 36 claims

DATE March 5, 1971

SIGNED [Signature]

Special provision credits do not apply to Radiometric Surveys.

AREA CODE — 416
TELEPHONE — 365-6918



2.378

WHITNEY BLOCK
QUEEN'S PARK
TORONTO, ONT. M5S 1A2

DEPARTMENT OF MINES AND NORTHERN AFFAIRS
MINING, LAND AND FORESTRY

*Rec. No. 13112
Sud. Res. Sect. office*

March 8, 1972.

Mr. Joseph A. Stocking,
Mining Recorder,
118 Cedar Street,
Sudbury, Ontario.

Dear Sir:

Re: Mining Claims S 138813 et al,
Drury Township. File 2.378

The Geological assessment work credits as listed with my Notice of Intent dated February 17, 1972 have been approved as of the date above. Please inform the recorded holder and so indicate on your records.

Yours very truly,

Fred W. Matthews,
Supervisor,
Projects Section.

/dg.

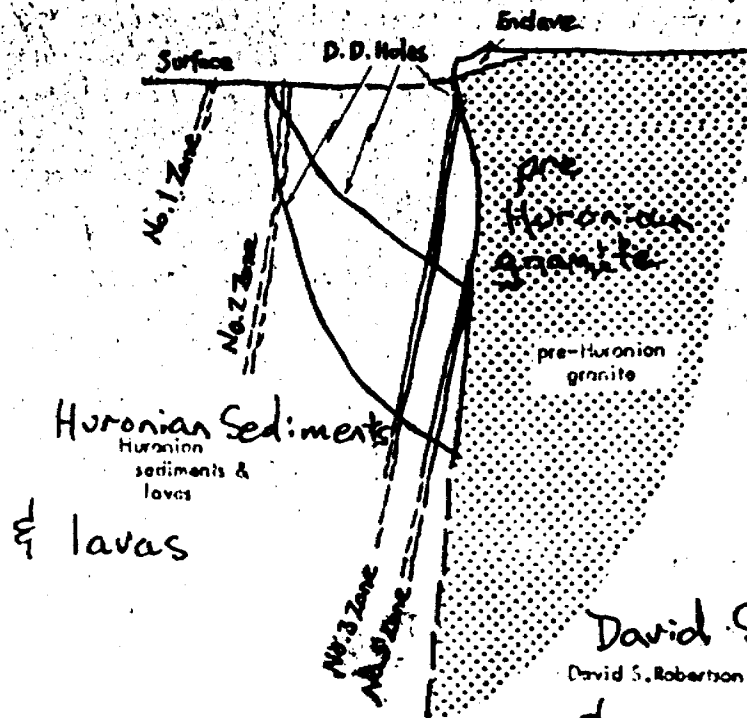
c.c. Acme Gas & Oil Co., Ltd.

c.c. Resident Geologist, ✓
Sudbury, Ont.

South

North

SKETCH OF STRUCTURE



AGNEW LAKE MINES

Huronian Sediments

Huronian
sediments &
lavas

& lavas

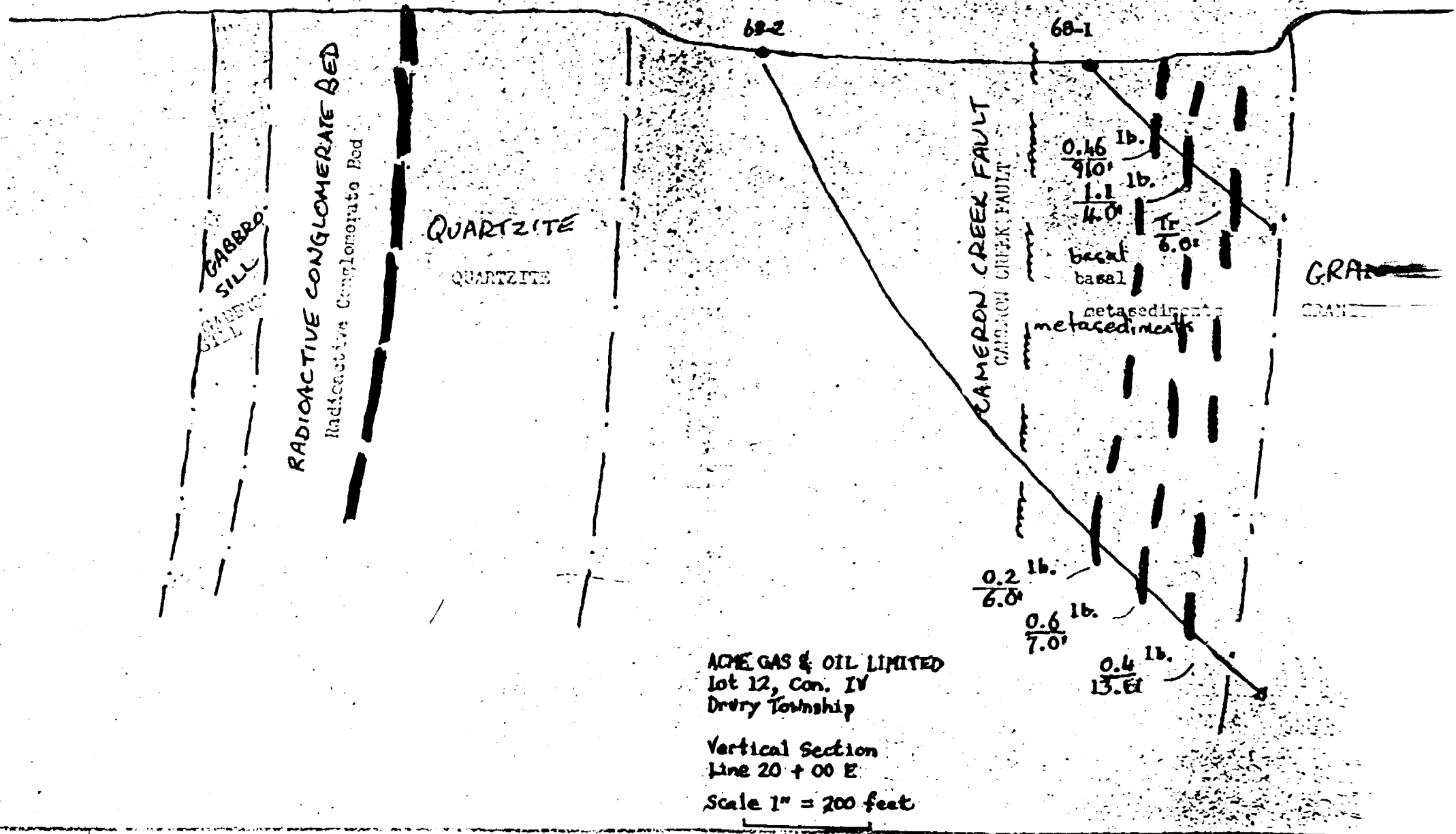
pre-Huronian
granite

pre-Huronian
granite

David S. Robertson

David S. Robertson & Associates Ltd.
September 1967

& Associates Ltd. Sept./67



ACME GAS & OIL LIMITED
 lot 12, Con. IV
 Dry Township

Vertical Section
 Line 20 + 00 E
 Scale 1" = 200 feet

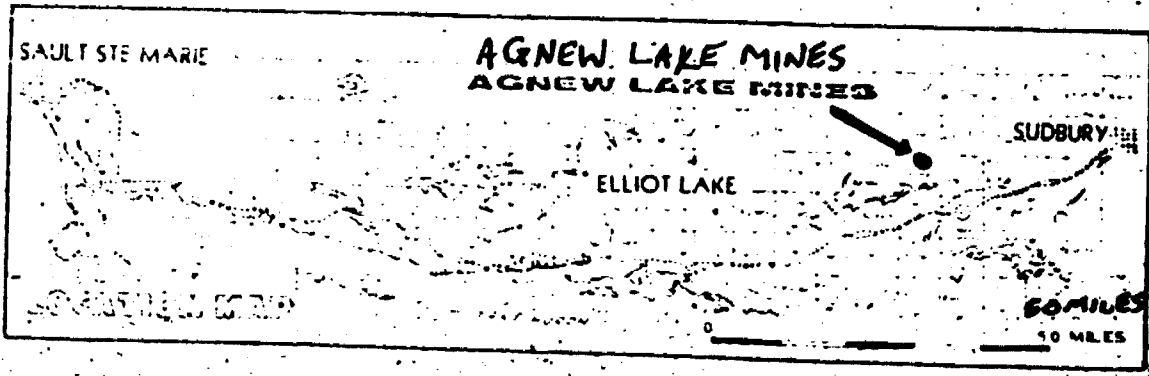
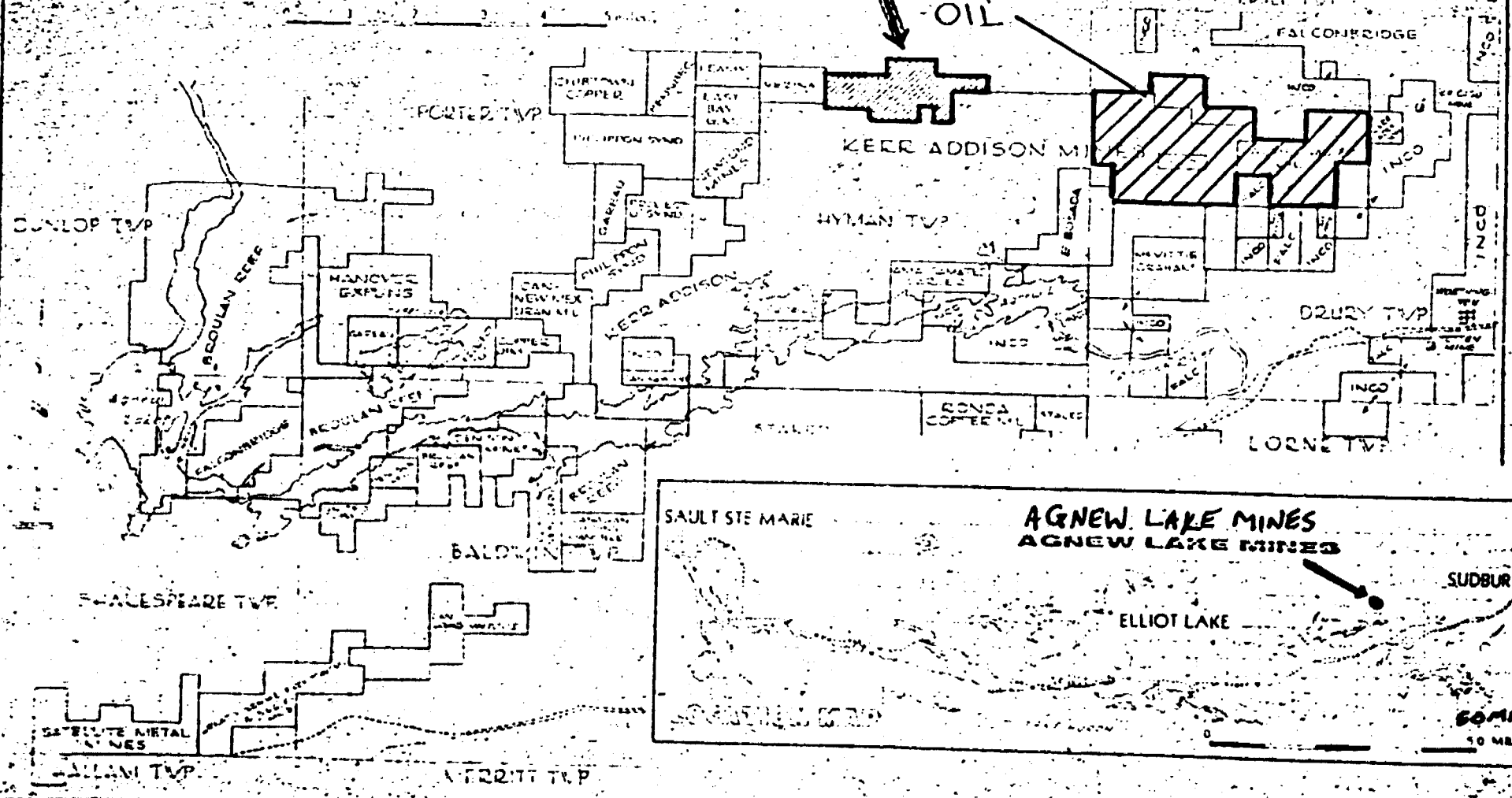
AGNEW LAKE MINES LIMITED ACME GAS & OIL

in the AGNEW LAKE MINING AREA - ONTARIO

ACME GAS & OIL

OIL

01.19.1967



ONTARIO DEPARTMENT OF MINES
PRELIMINARY GEOLOGICAL MAP NO. P-405

SUDBURY MINING AREA
DISTRICT OF SUDBURY

Scale : 1 inch to 1 mile

N.T.S. Reference : 41I/5,6,7; 41I/10,11,12; 41I/13,14,15

G.S.C. Aeromagnetic Maps : 1523G-1525G, 1517G-1519G, 1510-1512G

LEGEND

PLEISTOCENE AND RECENT
Sand, Gravel, Clay.

PRECAMBRAIN

GRENVILLE

12 Gneiss, migmatite, granitic intrusions

MAFIC INTRUSIONS

11a Olivine diabase
11b Amphibolite, trap
11c Gabbro, metagabbro

NICKEL IRRUPTIVE

10 Granophyre
9 Transition zone
8a Gabbro, norite, diorite and altered equivalents
8b Quartz, diorite (offsets), quartz diorite breccia.

METASEDIMENTS

7a Quartzite, undifferentiated.
7b Wanapitei quartzite
6 Limestone, calcareous argillite
5a Conglomerate, undifferentiated
5b Ramsay Lake conglomerate
4a Relictic and psammitic metasediments, undifferentiated.
4b Chelmsford sandstone
4c Onwatin slate
4d McKim pelites.

GRANITIC ROCKS

3a Granitic rocks, undifferentiated
3b Quartz monzonite (Creighton pluton)
3c Quartz monzonite and granite (Murray pluton)
3d Quartz monzonite (Birch Lake batholith)

FELSIC METAVOLCANICS

2a Rhyolite, undifferentiated; quartz-feldspar porphyry
2b Copper Cliff rhyolite

MAFIC AND INTERMEDIATE METAVOLCANICS

1a Mafic and intermediate metavolcanics, undifferentiated
1b Onaping tuffs and volcanic breccia.
1c Metamorphosed basaltic and andesitic pillow lava
and amygdaloidal lava, commonly with interbedded
pelitic sediments.

**DUPLICATE COPY
POOR QUALITY ORIGINAL
TO FOLLOW**

SUDBURY MINING AREA

DISTRICT OF SUDBURY

Scale 1 inch to 1 mile

N.E.S. Reference: 41I/5,6,7; 41I/10,11,12; 41I/13,14,15
 G.S.C. Aeromagnetic Maps: 1523G-1525G, 1517G-1519G, 1510-1512G

LEGEND

PLEISTOCENE AND RECENT

Sand, gravel, clay

PRECAMBRIAN

CHENEVILLE

12 Gneiss, migmatite, granitic intrusions

MADE INTERRUPTIONS

11a Olivine diabase
 11b Tricholite trap
 11c Gabbro, metagabbro

SEI TRUPTIVE

14 Anorthosite
 9 Transition zone
 8 Gabbro, norite, diorite and altered equivalents
 5 (quartz diorite (dykes), quartz diorite breccia

ALVADOMNIS

7
 11
 10
 6
 4
 3
 2
 1
 0
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100

PLUTIC ROCKS

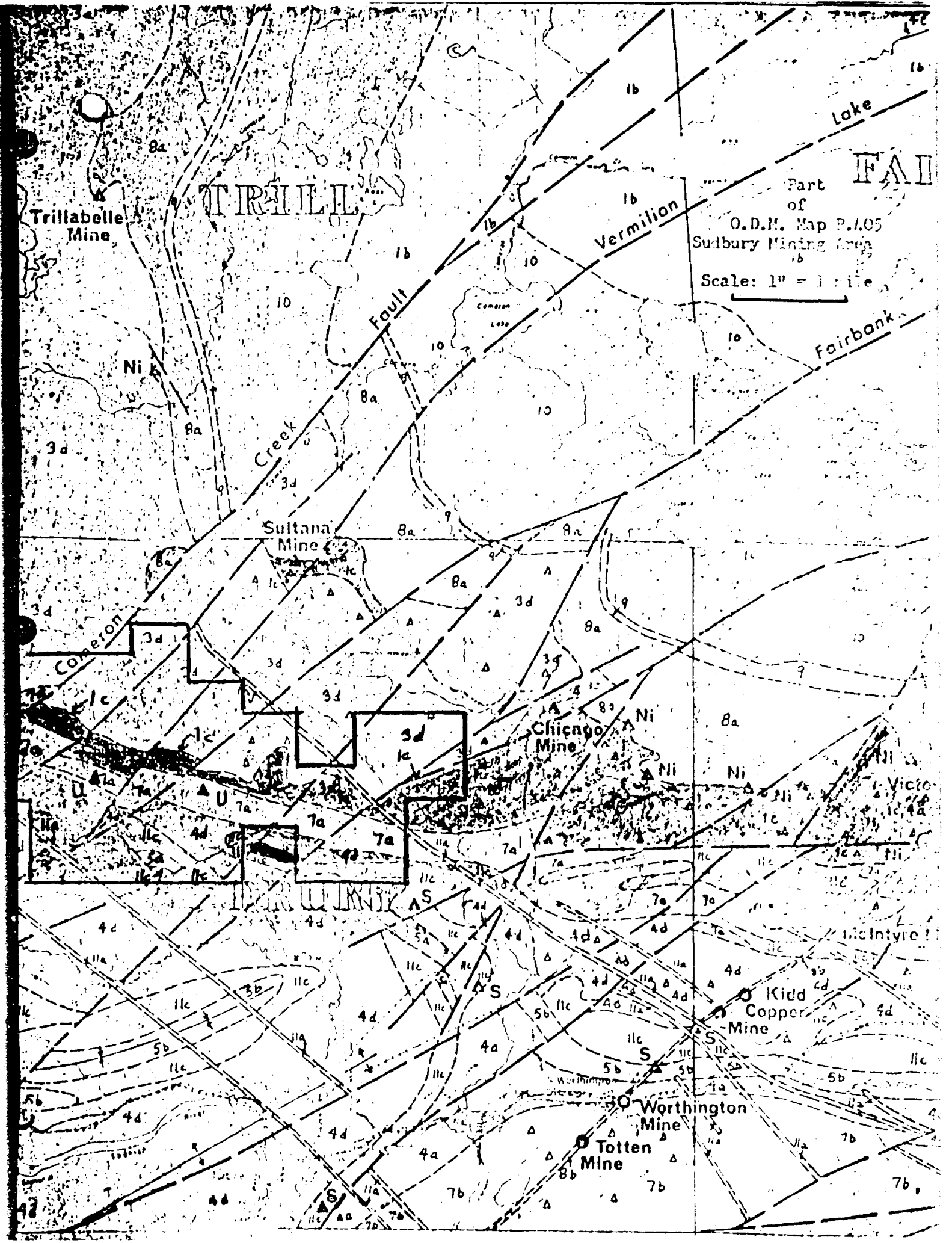
3
 2
 1
 0
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100

PLUTIC METAVOLCANICS

2a Rhyolite, undifferentiated; quartz-feldspar porphyry
 1b Copper Cliff rhyolite

PLUTIC AND INTERMEDIATE METAVOLCANICS

1a Mafic and intermediate metavolcanics, undifferentiated
 1b Dumping tuffs and volcanic breccia
 1c Metamorphosed basaltic and andesitic pillow lava
 and amygdaloidal lava, commonly with interbedded
 pelitic sediments



11111 Twp. (M-1165)

Fairbank L.

Hyman Twp. (M-945)

VI

V

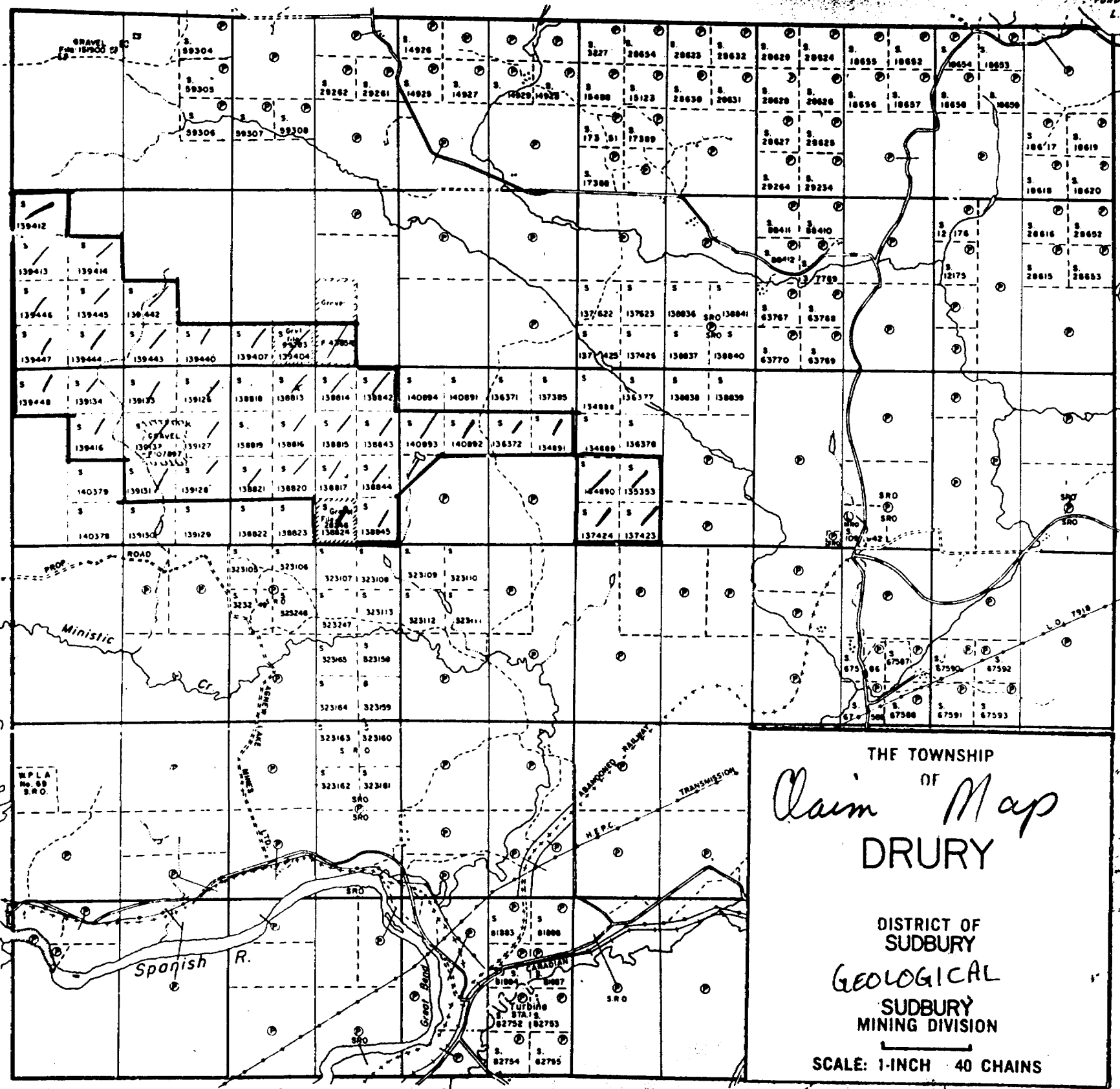
IV

III

II

I

Denison Twp. (M-756)



THE TOWNSHIP
OF
Claim Map
DRURY

DISTRICT OF
SUDBURY
GEOLOGICAL
SUDBURY
MINING DIVISION

SCALE: 1-INCH 40 CHAINS

12

11

10

9

LORNE TWP. (M-999)

5

4

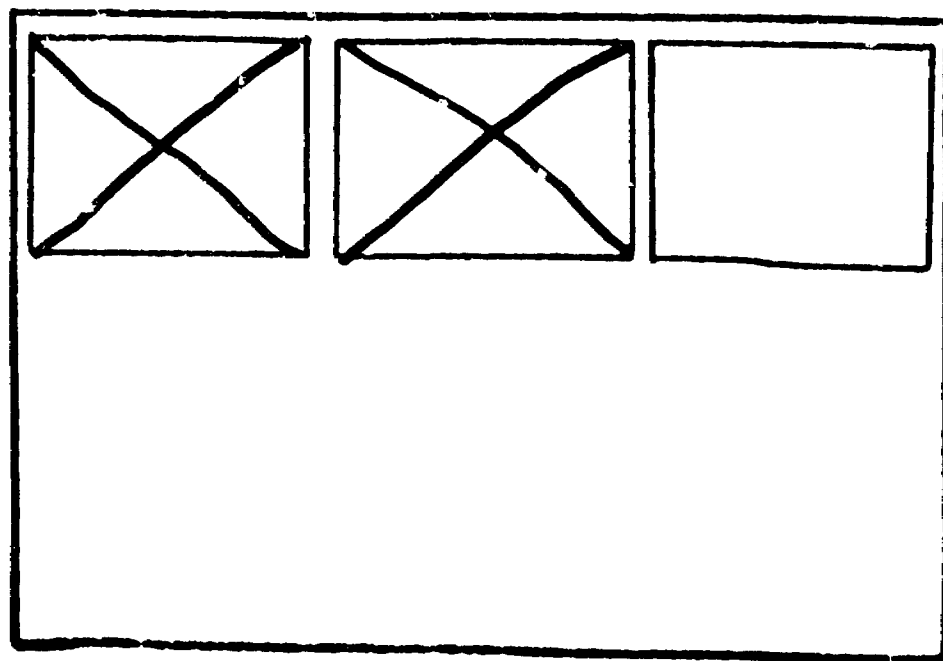
3

2

1

SEE ACCOMPANYING
MAP(S) IDENTIFIED AS
DRURY - 0024 - #1
DRURY - 0024 - #2

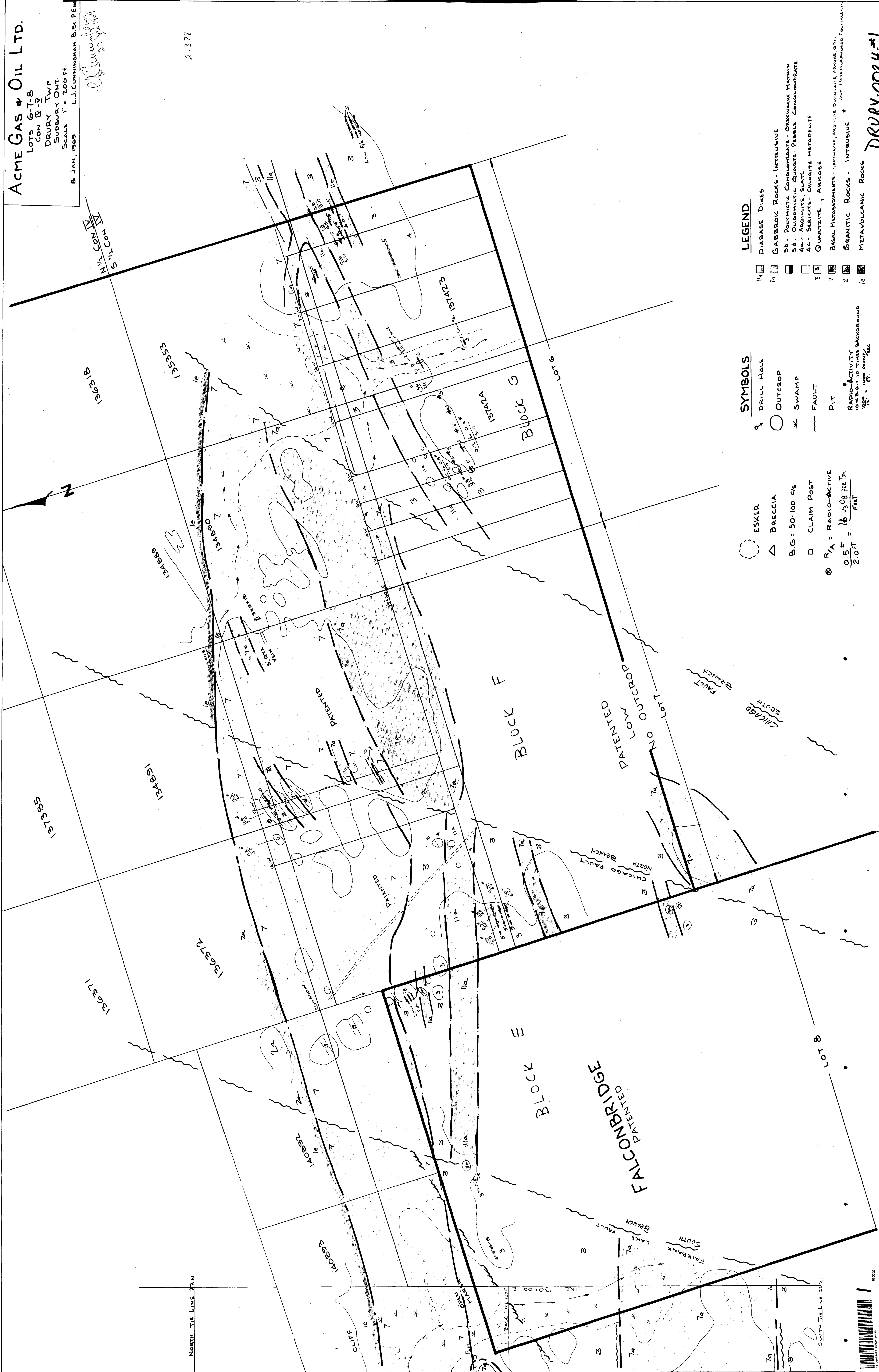
LOCATED IN THE MAP
CHANNEL IN THE FOLLOWING
SEQUENCE (X)



ACME GAS & OIL LTD.
 LOTS 6-7-B
 CON IV-7
 DRURY TWP
 SUBURBY ONT.
 SCALE 1" = 200 FT.
 8 JAN, 1969
 L.J. CUNNINGHAM B.S. P.E.M.

L.J. Cunningham
 29 Jan 1969

2.378



- SYMBOLS**
- ESKER
 - △ BRECCIA
 - B.G. = 50-100 c/s
 - CLAIM POST
 - ⊗ R/A = RADIO-ACTIVE
 - 0.5# = 16 1/2 08 PRE-TON
 - 2.0 FT. = FEET
- LEGEND**
- 114 ▣ DIABASE DIKES
 - 74 ▣ GABBROIC ROCKS - INTRUSIVE
 - 5b ▣ POLYMETIC CONGLOMERATE - GRAYWACKE MATRIX
 - 5A ▣ OLIGOMETIC QUARTZ-PEBBLE CONGLOMERATE
 - 4a ▣ ARGILLITE, SLATE
 - 4c ▣ SERICITE - CHLORITE METAPELITE
 - 3 ▣ QUARTZITE, ARKOSE
 - 7 ▣ BASAL METASEDIMENTS - GRAYWACKE, ARGILLITE, QUARTZITE, ARKOSE, GRIT
 - 2 ▣ GRANITIC ROCKS - INTRUSIVE
 - 1e ▣ METAVOLCANIC ROCKS

DRURY-0024-#1

ACME GAS & OIL LTD
 LOTS 9-10-11-12
 CON IV-V
 DRURY TWP
 SUBURBY ONT.
 SCALE 1" = 200 FT.
 4 JAN 1969
 23 SEPT 1968
 L.J. CUNNINGHAM B.Sc. P. ENG.

LEGEND

□	DIABASE DIXES
7a	GABBROIC ROCKS - INTRUSIVE
5	Sb. PEGMATITE CONGLOMERATE GNEISS/GNEISS MASSIVE
5b	ORICHOCTIC QUARTZ - PERSELE CONGLOMERATE
4	AC - SERVICITE - GARNET METAPELITE
3	QUARTZITE, ARKOSE
2c	BASAL METASEDIMENTS - GNEISS/GNEISS, ABSOLUTE QUARTZITE, ARKOSE, GABBROIC ROCKS
1c	GRANITIC ROCKS - INTRUSIVE
1e	META VOLCANIC ROCKS

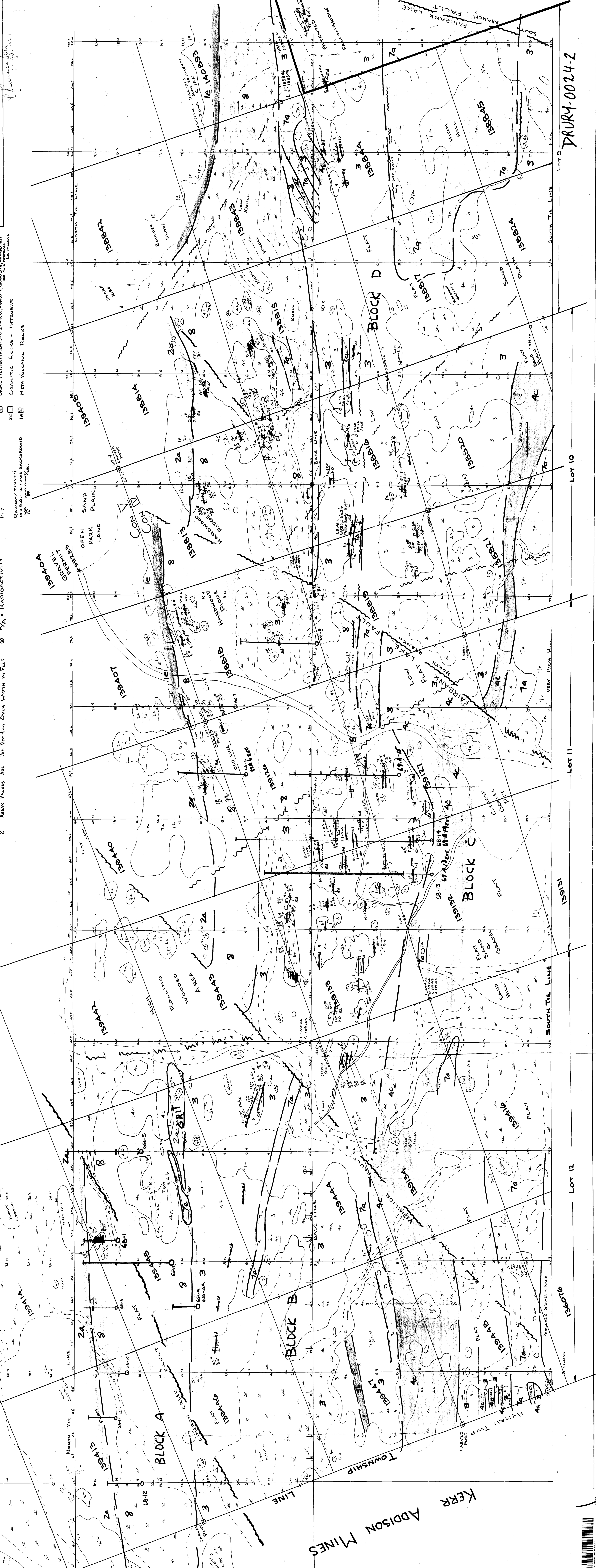
SYMBOLS

○	ESKER
△	BRECCIA
B.G. = 50-100 %	
□	CLAIM POST
⊗	RADIOACTIVITY
○	DRILL HOLE
○	OUTCROP
⋈	SWAMP
~	FAULT
⊙	PIT

RADIOACTIVITY
 10 x B.G. = 10 TIMES BACKGROUND
 1000 = 1000 COUNTERS/SEC.

NOTE

1. ALL DIPS ARE VERTICAL OR VERY STEEP
2. ASAX VALUES ARE 1/5 PER TEN OVER WIDTH IN FEET



DRURY-0024-2

Lot 10

Lot 11

Lot 12

Lot 9

Lot 10

Lot 11

Lot 12