FLUORSPAR PROSPECT
CARDIFF AND MONMOUTH TOWNSHIPS
ONTARIO

INTRODUCTION

This is a report on a group of contiguous mining claims located in Cardiff and Monmouth Townships, Ontario, which constitute a fluorspar prospect.

The purpose of this report is to summarize the work done on the claims, point out their mineral potential and to recommend a program for their further exploration.

This report is based on the following sources of information.

1. Several publications of the Ontario Department of Mines, the principal ones being:
   a) Radioactive Mineral Occurrences in the Bancroft Area by J. Satterly, 1957,
   b) Geology of Cardiff and Faraday Townships by D.F. Hewitt, 1959, and
   c) Map 2174, Monmouth Township, Haliburton County.

2. A study of the air photographs of the region.

3. I have examined this prospect on many occasions over the past 18 years. My examination has included studying maps, air photograph studies, mapping geology, prospecting for mineral, examining certain of the known mineral occurrences. My last examination of this property was in the Fall of 1970.

PROPERTY AND LOCATION

The property consists of 34 contiguous mining claims of which 14 are located in east central Monmouth Township and 20 are located in west central Cardiff Township, Haliburton
County, Eastern Ontario Mining Division. The total acreage is 1778 acres. The claims are numbered as follows:

EO31776 to EO31785 incl.,
EO32191 to EO32206 incl., and
EO33837 to EO33844 incl.

The claims are located in the following lots and concessions:

**Cardiff Township**
- Lots A, 1, and 2, Conc. 16
- Lots A, 1, 2, S½ 3, S½ 4, Conc. 15
- Lots A, 1, 2, Conc. 14

**Monmouth Township**
- Lots 34, 35, Conc. 12
- Lots 33, 34, 35, Conc. 11
- Lots 34, 35, Conc. 10

The following lots and concessions have patented surface rights, therefore the claims cover Mining Rights only.

**Cardiff Township**
- Lot 2, Conc. 16

**Monmouth Township**
- Lots 34, 35, Conc. 12
- Lot 34, Conc. 11
- Lot 34, Conc. 10

Sufficient work has been done by Canuc Mines Ltd. to bring all of the above claims to Lease. A land survey of the claim area is not required. The cost of Leasing the 34 mining claims is approximately $1778. for the first year and
approximately $450. for each year thereafter for the 21 years of the Lease.

ACCESS AND FACILITIES

One highway and several secondary roads pass through the property. These roads link with the towns of Bancroft, Wilberforce, Haliburton and Kinmount. Bush roads and unimproved tractor trails lead to various parts of the property. By installing two culverts, a diamond drill may be trucked to the favoured location for exploration for fluor spar.

Hydro service suitable for home and farm use is available over those parts of the property which are settled farms and summer resort areas. This service and the roads, together with wood and water resources, are the only facilities of use on the property. There is no mining equipment on the property.

HISTORY AND DEVELOPMENT

All of the known history of the property is associated with uranium exploration and the fluor spar possibilities have never been investigated.

Circa 1954, the southern part of the property belonged to Empire Oil & Mineral Incorporated who completed a surface scintillometer survey and some 15,072 feet of diamond drilling in 31 holes. Some interesting zones of uranium mineralization were defined.

Between 1953 and 1955 the northern tier of claims in Cardiff Township were explored by Atlin Ruffner (B.C.) Ltd. and
Stratmat, Ltd. The work done included surface scintillometer surveying and 9 drill holes totalling 2,713 linear feet. Here, too, some interesting uranium and rare earth mineralization was encountered.

Around 1967 the present property was acquired by L.T. Chandler who had an airborne magnetometer, electromagnetic and scintillometer survey made of the claim area, by Canadian Aero Mineral Surveys Ltd. Subsequently the property was acquired by Canuc Mines Ltd. This company drilled 8 holes totalling 4,530 linear feet on the "B" Zone.

Total drilling completed on the property approximates 48 drill holes totalling 22,315 linear feet. All of this drilling has been done on known uranium occurrences and none has been located within ½ mile of the area considered favourable for fluorspar occurrences.

GENERAL GEOLOGY

The geology of the property is dominated by the effects of the intrusions of the Cheddar granite and the more complex Cardiff Plutonic Mass. These intrusions have affected their enclosing rocks both structurally and genetically.

Structurally, the enclosing rocks have been folded about the two circular shaped intrusives. Thus on the north part of the property the rocks tend to strike North-South and dip East, whereas on the south part of the property the rocks tend to strike southwest and dip southeast. It is within this area of the claims, where the strikes and dips undergo a major
directional change, where the proposed exploration program should be concentrated for, it is in this region that dilation effects should be the strongest.

Genetically, the intrusives have modified their enclosing rocks and this is particularly true with the northern intrusive, the Cardiff Pluton. The Cardiff Plutonic Complex is a syenitic intrusive, that is, it is deficient in silica, one of the essential rock forming components. The Pluton has thus absorbed silica from its enclosing rocks wherever this was possible and the enclosing rocks are now chiefly syenitic gneisses, nepheline syenite, and hybrid syenites of various types. The many chemical changes brought about by the hybridization processes, coupled with the changes in rock volume, porosity, and permeability, tend to favour mineralization processes.

The changes in the enclosing rocks produced by the Cheddar Granite (the southern intrusion) are much less extensive and less striking in their final product. The Cheddar Granite is a normal granite carrying a normal content of silica. Hence it produced no complex syenites. One major effect of the Cheddar Granite intrusion was the emplacement of a number of uraniferous granite pegmatites into its enclosing rocks. The uranium deposits on the southern claims are examples of these effects. There are no similar simple granite pegmatites associated with the Cardiff intrusion. Instead, the associated pegmatites are syenitic pyroxenite pegmatites, again carrying uranium.
Much of the rock enclosing the intrusion is sediment; quartzites, mudstones and limestones. The first two types have been metamorphosed to various types of paragneiss while the limestone has been re-crystallized, marbleized and in places altered to diopside-rich rocks. The better uranium deposits of the area are definitely associated with the syenitic and granitic pegmatites whereas the fluorite deposits are spatially related to the limestone horizons and the calcite-fluorite-apatite vein dikes.

**ECONOMIC GEOLOGY**

**Uranium**

Uranium deposits are the most valuable of the mineral deposits known in Cardiff and Monmouth Townships. The North-western Zone of the Halo Property (Amalgamated Rare Earth Mines Ltd.) located in Cardiff Township contains in excess of 400,000 tons of 0.11% U₃O₈ as drill indicated reserves. This deposit occurs in a syenitic pegmatite body with sulphides which was probably generated by the Cardiff Plutonic Complex. The Blue Rock Property (Amalgamated Rare Earth Mines Ltd.) located in Monmouth Township contains proven and drill indicated reserves of about 290,000 tons grading 0.10% U₃O₈. This deposit occurs in a granitic pegmatite which is probably genetically related to the Cheddar Granite batholith.

Each of the above deposits, as well as many of the other uranium deposits of the area, have insignificant amounts of fluorite present.
There are several uranium occurrences on the claim group herein reported. Zones A, B, C, and D, located in the south central part of the property, were originally explored by Empire Oils and Minerals Incorporated and recently, to a minor degree, by Canuc Mines Ltd. while the "Allanite Zone", located in the northeast extremity of the property, was explored by Atlin-Ruffner (B.C.) Ltd. The "A", "B", "C" and "D" showings are typical granitic pegmatite uranium occurrences, similar in many ways to the Blue Rock deposit. The allanite Showing is more like the Halo deposit in that it occurs in syenitic rocks with considerable sulphide present but, in addition, some pink fluorite is present.

The uranium deposits on the property are not without merit. H. Parliment of the Geo-Technical Development Company calculated that the B Zone contains about 1,074 tons per vertical foot grading 0.078% U₃O₈ but cautioned that fill-in drilling was required before the zone could be classed as an ore reserve. Under today's economic conditions the above is certainly well below ore grade, however, if and when the price and demand for uranium improves, the general area will require further examination. In the writer's opinion, the "A" and "C" Zones and their vicinities, located ½ mile east of the "B" Zone represent good uranium exploration ground.

Fluorspar

The mineral fluorite was the basis for the first mining venture in Cardiff Township and the discovery of uranium, associated with fluorite in the early 1920's, sparked
the uranium rush to the area during the 1950's and resulted in locating several economic uranium deposits. The original uranium discovery was made at the north end of the township on a fluorite prospect owned by the Ontario Radium Corporation.

The Cardiff Uranium Mines Ltd. is the best of the known fluorite deposits in the area. Its main deposit, which lies 1800 feet north and on strike of the property herein described, has been developed by a shaft and two levels. Its ore indications are approximately 300 tons per vertical foot grading about 18% fluorite and 0.09% U₃O₈. It is questionable if the deposits are large enough to support a mill of sufficient size for economic production. Hence any possibility of locating other fluorite deposits in the area, and feeding all into a central mill, is of great interest to the Cardiff Company.

The fluorite occurs within structures which have been called "pegmatites" but also, perhaps more aptly, "vein dikes". For the most part, the vein dikes are conformable structures which pinch and swell, echelon and branch, in an unpredictable fashion. Vein widths are commonly about 4 to 5 feet, occasionally swelling to 15 to 20 feet. The vein dikes consist (in order of magnitude) of calcite, fluorite, and apatite with minor amounts of pyroxenite, uraninite, titanite, zircon and other accessory minerals. Some of the vein dikes are quite rich in uraninite, in others there is none whatever. The uranium occurs mostly as cubic crystals of uraninite from 1/8" to 2½" across. This mode of occurrence makes the uranium content of the vein dikes virtually impossible to assess by diamond
drilling. Until the advent of atomic absorption assaying techniques, the method of assaying for fluorite was very arduous and difficult to do. Consequently old fluorite assays are subject to very broad positive and negative errors.

The fluorite deposits of western Cardiff Township are concentrated along a North-South trending contact between limestone and syenitic gneisses. The contact and its associated fluorite bearing vein dikes has been traced for a length of just over 3 miles. The best of these fluorite deposits (Cardiff Veins) occur at the very south limit of this traceable contact, some 1800 feet north and on strike of the claims herein reported. The length of contact between the exposed Cardiff vein dikes and this property is entirely and completely covered with overburden and has never been diamond drilled. The favourable contact area which underlies this property is entirely covered with overburden and has never been diamond drilled. There is no geophysical technique which can detect fluorite bearing vein dikes. Reasoning on the basis of straight geological projection, it seems likely that fluorite bearing vein dikes occur on claims EO33844 and EO33842 which are a part of the property herein reported.

There is another geological factor which encourages the exploration of the two claims described above. The vein dikes and their associated contact described above have a north-south strike and an eastward dip. As one moves southward along the contact zone onto these claims, the North-South
strike changes to N55E and the dip to the southeast. This structural change is likely to have caused fracturing, faulting, and folding in the rocks under claims E0338 and 33842. Thus, on these claims one might anticipate, not only finding fluorite bearing vein dikes, but finding vein dikes having much larger dimensions than those found to the north.

**Other Mineral Occurrences**

Within the general area of western Cardiff Township valuable mineral in addition to uranium and fluorite are known to occur. These are the rare earth metals, molybdenite and nepheline.

The most significant rare earth deposit in the area is the Allanite Zone which occurs on this claim group. In 1955, 5 tons of Allanite bearing rock was shipped to Electro-Metallurgical Company, Niagara Falls, U.S.A. and the cerium content was valued at $443.00.

There is a good sized showing of molybdenite held by Joiner Mining Co. Ltd. in the north part of the township. It was this discovery which first brought prospectors into the general area.

A modest sized showing of nepheline is located on strike about 1 1/2 miles north of these claims. Nepheline is a rock forming mineral, used in the manufacture of glassware and is genetically associated with syenitic rocks. The known nepheline deposit is too small to be of commercial interest but it is possible for a commercial nepheline deposit to occur in the syenitic rocks of western Cardiff Township.
CONCLUSIONS AND RECOMMENDATIONS

1. Sufficient work has been done on the property to indicate the presence of some uranium deposits of a size and grade which are not likely to be economically viable in the near future. The full potential of these deposits has not been tested.

2. On the basis of projecting established geological facts, an overburdened section of the property has merit as a fluorite prospect. Furthermore, the structural geology conditions are such that fluorite bearing vein dikes located on claims E033844 and 33842, might have dimensions greater than the vein dikes occurring a short distance to the north.

3. Since there is no known geophysical or geochemical method of searching for fluorite bearing vein dikes in areas of heavy overburden, the geologically favourable area should be tested by cross section diamond drilling.
COST ESTIMATES

1. By brushing out trees, installing two small culverts and 100 ft. of road fill, a truck may be driven to the drill site. Estimated cost $ 500.00

2. Line cutting, geographic control, etc. 500.00

3. Diamond drilling 1,000 linear feet at $7.50/ft. 7,500.00

4. Sampling, Assaying, Engineering, Travel 1,500.00

Contingency Allowance 1,500.00

Total $11,500.00

My report is respectfully submitted,

H. G. Harper

REPORT ON FLUORITE PROSPECT
IN
CARDIFF AND MONMOUTH TOWNSHIPS
EASTERN ONTARIO
FOR
LANDAIR EXPLORATIONS LIMITED
April 10, 1972
Report on Fluorite Prospect
in
Cardiff and Monmouth Townships
Eastern Ontario
for
Landair Explorations Limited

SUMMARY

The property consists of thirty-four unpatented mining claims located in Cardiff and Monmouth Townships, Ontario. Metasediments in contact with the Cardiff pluton strike north-south and contain known fluorite deposits 1800 feet north of the property boundary. Recent drilling located a wide transition zone that contains veins of fluorite that are of economic interest.

The potential for fluorite deposits lying in the overburdened area south of the Cardiff fluorite deposit was proven by two drill holes on one section. The details of this drilling are reported contained in this report. Here the geologic conditions are similar to those of the Cardiff deposit and in addition, the change in strike of the rocks has added another dimension and has proven favourable to the occurrence fluorite veins. Several occurrences of limestone now become
areas for further fluorite exploration.

These fluorite intersections in the drilling lie 1800 feet southwest from surface fluorite veins on the Cardiff property and 3200 feet from the fluorite veins in the Cardiff underground workings. Previous work on the property has indicated some small low grade uranium deposits and these remain to be tested.

It is recommended that a further 1500 feet of diamond drilling be used to cross section the overburdened area to test for additional fluorite occurrences and to establish the continuation of the favourable limestone-syenite contact. Soil geochemistry should be carried out in other promising areas to search for additional fluorite occurrences. A budget of $19,750 for 1500 feet of diamond drilling and soil geochemistry is recommended. The five acre wedge of land on the southeast side of the Irondale River should be acquired.

In the event the proposed drilling programme is successful, an additional 3000 feet of diamond drilling will be required at an all inclusive cost of $24,000.
I. INTRODUCTION

This report covers a group of 34 contiguous mining claims in Cardiff and Monmouth Townships, Eastern Ontario Mining Division. The report describes the history of the property and outlines an exploration programme for fluorspar.

II. PROPERTY, LOCATION AND ACCESS

The property comprises 34 contiguous unpatented mining claims of which 14 are located in Monmouth Township, Haliburton County, Eastern Ontario Mining Division, Ontario. The total acreage is 1778 acres.

Monmouth Township

E.O. 33841 and -42 (2 claims) S 1/2 and N 1/2 lot 34 Conc. XII
33843 and -44 (2 claims) N 1/2 and S 1/2 lot 35 Conc. XII
31784 and -85 (2 claims) N 1/2 and S 1/2 lot 33 Conc. XI
33839 and -40 (2 claims) S 1/2 and N 1/2 lot 34 Conc. XI
32191 and -92 (2 claims) N 1/2 and S 1/2 lot 35 Conc. XI
33837 and -38 (2 claims) S 1/2 and N 1/2 lot 34 Conc. X
31776 and -79 (2 claims) N 1/2 and S 1/2 lot 35 Conc. X
Cardiff Township

E.O. 32193 and -94 (2 claims) N 1/2 and S 1/2 lot A Conc.XVI
32197 and -98 (2 claims) N 1/2 and S 1/2 lot 1 Conc.XVI
32203 and -04 (2 claims) S 1/2 and N 1/2 lot 2 Conc.XVI
32195 and -96 (2 claims) N 1/2 and S 1/2 lot A Conc.XV
32199 and -200 (2 claims) N 1/2 and S 1/2 lot 1 Conc.XV
32201 and -202 (2 claims) S 1/2 and N 1/2 lot 2 Conc.XV
32205 (1 claim) S 1/2 lot 3 Conc.XV
32206 (1 claim) S 1/2 lot 4 Conc.XV
31777 and 31780 (2 claims) N 1/2 and S 1/2 lot A Conc.XIV
31778 and 31781 (2 claims) N 1/2 and S 1/2 lot 1 Conc.XIV
31782 and -83 (2 claims) N 1/2 and S 1/2 lot 2 Conc.XIV

Total 34 claims 1778 acres

The following lots have patented surface rights:

Cardiff Township lot 2 Conc.XVI
Monmouth Township lots 34 and 35 Conc.XII
lot 34 Conc.XI
lot 34 Conc.X

Sufficient work has been done to bring all
of the above claims (34) to lease.

The property is located sixteen miles west of
Bancroft along Highways 28 and 121. The latter traverses
the southern end of the property. Bush roads and trails
lead to various parts of the property. Some minor
road work (culverts etc.) has enabled easy access to
drilling areas, additional minor road work and swamp
drainage will be required from time to time.

III. GENERAL GEOLOGY

The bedrock formations are all of Pre-Cambrain
age and consist of an old series of Grenville metasedimentary
rocks intruded and replaced by basic and acid plutonic rocks
(diorite, gabbro, granite, syenite and nepheline syenite).

The geology of the property is dominated by the effects of the intrusions of the Cheddar granite and Cardiff plutonic mass. The enclosing rocks have been folded about these two circular shaped intrusives. In the northern portion of the property the rocks strike north-south and dip east while to the south they strike southwest and dip southeast. The area of the change of strike is the area of proposed exploration.

The silica-poor Cardiff pluton (syenitic in composition) when intruded into gneiss has altered them by reducing their silica so they are chiefly syenitic gneisses, nepheline syenite and hybrid syenites. This hybridization produces changes in volume, porosity and permeability; a good environment for mineral deposits.

The Cheddar granite, with a normal silica content, produced a much less extensive change on the enclosing rocks. It has been observed that a number of uraniferous granite pegmatites are related to this granite. The Cardiff pluton has syenitic pyroxerite pegmatites associated with it and these are uraniferous also.

Much of the rock enclosing the intrusives is sediments; quartzites, mudstones and limestones. The quartzites and mudstones are now paragneisses while the limestones are marbleized and in places altered to diopside-rich rocks. The
uranium mineralization is associated with the pegmatites while
the fluorite deposits are related to the limestone horizons
and the calcite-fluorite-apatite vein-dykes.

IV. **HISTORY and DEVELOPMENT**

All of the known history of the property is
associated with uranium exploration and the fluorspar
possibilities have never been investigated.

Circa 1954, the southern part of the property
belonged to Empire Oil & Mineral Incorporated who completed
a surface scintillometer survey and some 15,072 feet of
diamond drilling in 31 holes. Some interesting zones of
uranium mineralization were defined.

Between 1953 and 1955 the northern tier of claims
in Cardiff Township were explored by Atlin Ruffner (B.C.) Ltd.
and Stratmat, Ltd. The work done included surface
scintillometer surveying and 9 drill holes totalling 2,713 linear
feet. Here, too, some interesting uranium and rare earth
mineralization was encountered.

Around 1967 the present property was acquired by
L.T. Chandler who had an airborne magnetometer, electro-
magnetic and scintillometer survey made of the claim area,
by Canadian Aero Mineral Surveys Ltd. This company drilled
8 holes totalling 4,530 linear feet on the "B" Zone.

Total drilling completed on the property approximates
48 drill holes totalling 22,315 linear feet. All of this drilling has been done on known uranium occurrences and none has been located within 1/2 mile of the area considered favourable for fluor spar occurrences.

V. ECONOMIC GEOLOGY

Uranium - The most valuable mineral deposits in the area are uranium. Two properties of Amalgamated Rare Earth Mines Limited, the Halo property related to the Cardiff pluton and the Blue Rock property related to the Cheddar granite, contain drill indicated values of $U_3O_8$. The Blue Rock property is located 5 miles southwest of Landair. These deposits and many of the other uranium deposits in the area have no fluorite present.

The property has several uranium occurrences. Empire Oils and Minerals located Zones A, B, C and D in the south-central part of the property and these were recently explored by Canuc Mines Limited. These are quite similar to the Blue Rock deposit occurring in a granitic pegmatite. The "Allanite Zone" located in the northeast corner of the property was explored by Atlin-Ruffner (B.C.) Ltd.

The B Zone was drilled to indicate approximately 1,074 tons per vertical foot grading 0.078% $U_3O_8$, but H. Parliament cautioned that additional fill-in drilling was

* Report Amalgamated Rare Earth Mines Limited
required. The areas around and including Zones A and C present good uranium exploration ground.

**Fluorspar** - The mineral fluorite was the basis for early mining ventures in Cardiff Township. It was the association of uranium with the fluorite deposits in the area that led to the uranium rush in the 1950's.

The Cardiff Uranium Mines Limited owns, but is not operating the well known deposits of fluorite in the area. The main deposit is located on the strike and 1800 feet north of the property described herein. Hewitt records (in Vol.LXVI part 3 C.D.M.) fluorite-uranium mineralization on this deposit of Cardiff's is approximately 300 ton per vertical foot grading 18% fluorite and 0.09% U₃O₈.* If several similar deposits were located, they might justify a central mill.

The occurrence of fluorite is usually in vein dykes, conformable structures which pinch and swell, echelon and branch. The widths range from four to five feet, occasionally swelling to fifteen and twenty feet. The vein-dyke composition is calcite, fluorite and apatite with minor proxemite, uraninite, titanite, zircon and other accessory minerals. Uranium is present in some, absent in others.

The nature of these vein dykes have made it

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*Company report by Geo.Holbrook June 5, 1958
"Summary report on Cardiff Uranium Mines Limited".*
difficult to assess them with diamond drill. Until the advent of 'Specific Ion Meter' assaying technique, fluorite assays were difficult and subject to large errors.

The fluorite deposits in western Cardiff Township are concentrated along a north-south contact of limestone with syenitic gneisses. These have been traced for just over three miles. The Cardiff deposit occurs at the southern end of this zone and from there south and onto the property, the favourable contact is overburdened and to-date unexplored.

The vein dykes and their associated intrusives contact have a north-south strike and an eastward dip but as they extend southward onto claims E.C. 33843 and 33842, the strike changes to N55°E and the dip to south-east. This area of structural change and the projection of known fluorite deposits is an excellent exploration target.

Other economic minerals occurring in the area are rare earths, molybdenite and nepheline but no commercial deposits are known.

VI. RECENT WORK

A preliminary diamond drill programme comprised two holes totaling 1210 feet drilled in the north-west corner of the property. These were drilled on the same east-west section in the overburdened area. The
on the Cardiff property and 3200 feet from the fluorite veins in the Cardiff underground workings. Other limestone-syenite areas should be tested with soil or other geochemistry.

It is also noted that sufficient work has been done on the property to indicate some small low grade uranium deposits. Good exploration ground remains to be tested when government policy and price become more predictable.

It is recommended that the new fluorite area in the northwestern portion of the property should be further cross sectioned with diamond drilling.

**Budget:**

1. Road repair, location control and preparation of drill sites $500.00
2. Diamond Drilling - 1500 feet @ $7.50/foot $11,250.00
3. Engineering services, assaying $2,250.00
4. Geochemical surveys $4,000.00
5. Land acquisition $750.00
6. Contingencies $1,000.00

Total $19,750.00

In the event the proposed drilling programme is successful, an additional 3000 feet of diamond drilling
will be required at an all inclusive cost of $24,000.

Respectfully submitted,

April 10, 1972.

Tom Gledhill, B.A., P.Eng.
holes were drilled from east to west.

The westerly hole L72-1 intersected six zones of fluorite which were sampled. The best of these averaged 9.39% CaF₂ across 6.8 feet.

Drill hole L72-2 intersected two zones of fluorite considered to be worth sampling. The better one assayed 30.8% CaF₂ across 19.3 feet of drill core. The grade and width (true width about 15 feet) classify this intersection as being of commercial interest.

VII. CONCLUSIONS AND RECOMMENDATIONS

The potential for fluorite deposits in the overburdened area south of the Cardiff fluorite deposit has been confirmed. Here the geologic conditions are similar to those of the Cardiff deposit and in addition, the change in strike of the rocks adds another structural dimension favourable to exploration. Further drilling should be used to cross section this overburdened area. This area is on claims E.O. 33841 to 33844 inclusive.

The five acre wedge of land on the south side of the Irondale River, being a portion of lot 35 Concession XIII Monmouth Township, should be acquired.

These fluorite intersections in the drilling lie 1800 feet southwest from surface fluorite veins.
CERTIFICATE

I, Tom Gledhill, of the Borough of North York in the Province of Ontario hereby certify:

1. That I am a practicing Professional Engineer with offices at 21 Sandalwood Place, Don Mills, Ontario.

2. That I am a graduate of the University of Toronto and hold a degree in Physics and Geology and I am a member of the Association of Professional Engineers of the Province of Ontario. I have been practicing my profession for over fifteen years.

3. That I do not have either directly or indirectly, nor do I expect to receive either directly or indirectly, any interest in the properties or securities of Landair Explorations Limited.

4. That the accompanying report was prepared on the basis of a study of the following reports and maps:

   i. Available geological maps, and reports of the Ontario Department of Mines and Northern Affairs, principal ones being:

      (a) Radioactive Mineral Occurrences in the Bancroft Area by J. Satterly 1957
      (b) Geology of Cardiff and Faraday Townships by D. F. Hewitt 1959
      (c) Map 2174, Monmouth Township, Haliburton County
      (d) A trip to the property on April 8, 1972 to examine the drill core.

   ii. Data supplied from the company reports and files.

   iii. Personal visits to the area over the last ten years by the writer, but not to this specific property.

5. That this certificate applies to a property in Cardiff and Monmouth Townships, Eastern Ontario Mining Division, Ontario.

Dated at Don Mills, Ontario this 10th Day of April, 1972.

April 10, 1972.

Tom Gledhill, B.A., P. Eng.
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>quartz increasing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>328 - 360</td>
<td>H2S, &amp; mud seam</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>360 - 363</td>
<td>open seam</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>370</td>
<td>seam</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>limy silt, marl, green &amp; gray 375&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>413.6</td>
<td>Limestone - Keystoned - phlegmite</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>473</td>
<td>Sphene - Greenish Top - fine quartz - mosaic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>neg greenish</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MoS2 in Calcs - dolomite 55-1 + po</td>
<td>462.5 - 4635</td>
<td>3.465</td>
<td>6.0</td>
<td>3.10</td>
<td></td>
</tr>
<tr>
<td>MoS2 as fracture filling</td>
<td>467.2 - 468</td>
<td>3.466</td>
<td>0.8</td>
<td>5.78</td>
<td></td>
</tr>
<tr>
<td>Footage</td>
<td>Sample Footages</td>
<td>Sample No.</td>
<td>Width Ft.</td>
<td>% Cu</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td>------------</td>
<td>-----------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>508</td>
<td>Limestone - 35 chronological - many impure sections</td>
<td>515 - 516.7</td>
<td>3.467</td>
<td>1.7</td>
<td>10.63</td>
</tr>
<tr>
<td></td>
<td>Limestone - similar beds alternating with lime rich metamorphic minerals</td>
<td>522.7 - 523.5</td>
<td>3.468</td>
<td>0.8</td>
<td>-1.24</td>
</tr>
<tr>
<td>524</td>
<td>Limestone - recrystallized - massive - cream like</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>529</td>
<td>Amphibolite - medium gr. massive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625</td>
<td>Peg. dolie - labradorite - minor Co, Fe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**END OF HOLE**
Certificate of Analysis

NO. 8306

To: Landair Exploration Ltd.,
1617 Park Royale Blvd.,
Mississauga, Ontario.

RECEIVED Mar 13/72

INVOICE NO. 8306

SAMPLES OF S. core SUBMITTED TO US SHOW RESULTS AS FOLLOWS:

<table>
<thead>
<tr>
<th>Sample</th>
<th>%CaF₂</th>
<th>%U₃O₈</th>
<th>%ThO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>913</td>
<td>23.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>914</td>
<td>49.4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>915</td>
<td>33.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>916</td>
<td>6.58</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>917</td>
<td>25.7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>918</td>
<td>16.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>919</td>
<td>-</td>
<td>0.20</td>
<td>0.22</td>
</tr>
<tr>
<td>920</td>
<td>-</td>
<td>0.21</td>
<td>0.08</td>
</tr>
</tbody>
</table>

DATE March 14, 1972

CC: H.G. Harper, 314 Hendon Ave., Willowdale

ASSAYERS:  ANALYTICAL CHEMISTS:  SPECTROGRAPHERS

X-RAY ASSAY LABORATORIES LIMITED

CERTIFIED BY

TOM GLEDHILL
REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO
<table>
<thead>
<tr>
<th>FOOTAGE</th>
<th>SAMPLE FOOTAGES</th>
<th>SAMPLE No.</th>
<th>WIDTH FT.</th>
<th>ASSAY DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-119</td>
<td>Evaporites - 'Gibbings' 173'</td>
<td></td>
<td>40</td>
<td>23.5</td>
</tr>
<tr>
<td>125</td>
<td>Westmore; Rich</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.37</td>
<td>Apal, D.I. - Rich Green (spid.) d.c. Fyr</td>
<td>526.6 - 526.6</td>
<td>71.4</td>
<td>50</td>
</tr>
<tr>
<td>2.65</td>
<td>Spand, Gries - med gr. pink feldsp. &amp; blt. terrriages</td>
<td>536.6 - 536.6</td>
<td>715.5</td>
<td>5.0</td>
</tr>
<tr>
<td>6.6</td>
<td>Caliche vein, pink - barren</td>
<td>536.6 - 536.6</td>
<td>715.5</td>
<td>5.0</td>
</tr>
<tr>
<td>3.26</td>
<td>Spand, Gries - as above, more terrriages; caliche, (paety Th.) rises slightly with increasing depth.</td>
<td>536.6 - 536.6</td>
<td>715.5</td>
<td>5.0</td>
</tr>
<tr>
<td>5.41</td>
<td>Caliche - Fluvial, Vein - purple &amp; grey, fluviatile in crevices, calcit - minor alteration &amp; gangue</td>
<td>536.6 - 536.6</td>
<td>715.5</td>
<td>5.0</td>
</tr>
<tr>
<td>19.5</td>
<td>well rock, sparse frays. Very minor graphite</td>
<td>536.6 - 536.6</td>
<td>715.5</td>
<td>5.0</td>
</tr>
<tr>
<td>4.5</td>
<td>No radiation</td>
<td>536.6 - 536.6</td>
<td>715.5</td>
<td>5.0</td>
</tr>
<tr>
<td>5.32</td>
<td>5.419</td>
<td>717</td>
<td>2.7</td>
<td>15.7</td>
</tr>
<tr>
<td>6.68</td>
<td>Spand, Gries - increasing size of terrriages</td>
<td>536.6 - 536.6</td>
<td>715.5</td>
<td>5.0</td>
</tr>
<tr>
<td>- Rich, D.I.</td>
<td>Calcit - Fluvial Vein</td>
<td>536.6 - 536.6</td>
<td>715.5</td>
<td>5.0</td>
</tr>
<tr>
<td>HOLE END OF HOLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
X-RAY ASSAY LABORATORIES LIMITED

Certificate of Analysis

NO. 8204

TO: Landair Exploration Ltd.,
1617 Park Royale Blvd.,
Mississauga, Ontario.

RECEIVED Feb 2/72

SAMPLE(S) OF w. core SUBMITTED TO US SHOW RESULTS AS FOLLOWS:

<table>
<thead>
<tr>
<th>Sample</th>
<th>% MoS₂</th>
<th>% U₃O₈</th>
<th>%ThO₂</th>
<th>%CaF₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>3460</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.23</td>
</tr>
<tr>
<td>61</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7.83</td>
</tr>
<tr>
<td>62</td>
<td>-</td>
<td>Trace</td>
<td>0.13</td>
<td>14.30</td>
</tr>
<tr>
<td>63</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.49</td>
</tr>
<tr>
<td>64</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.02</td>
</tr>
<tr>
<td>65</td>
<td>3.10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>66</td>
<td>5.78</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>67</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10.05</td>
</tr>
<tr>
<td>68</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.29</td>
</tr>
</tbody>
</table>

DATE Feb. 9/72

AMENDMENT TO PROSPECTUS
TOMROSE MINES LIMITED

The Prospectus of the Company is amended as follows:

1. Paragraph 13 is deleted and the following substituted therefor:

“Pursuant to an Agreement in writing dated the 4th day of August, 1964, Tom & Barnt, 80 Richmond Street West, Toronto, Ontario, acting as agents on behalf of Hector Durwood Tomlinson, 60 Paperbirch Drive, Don Hills, Ontario, has agreed to purchase fifty thousand shares (50,000) of the capital stock of the Company at ten cents (10¢) per share for a total consideration of Five Thousand Dollars ($5,000.00) payable within five (5) days of the effective date of the Agreement. The effective date is the date upon which the Ontario Securities Commission accepts for filing the Amendment to Prospectus of the Company and gives the Company the final receipt therefor. In consideration of the above commitment the Underwriter Optionee has been guaranteed an option to purchase the whole or any part of an additional two hundred and fifty thousand (250,000) shares upon the following terms:

<table>
<thead>
<tr>
<th>No. of Shares</th>
<th>Price per Share</th>
<th>Amount</th>
<th>Time of Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000</td>
<td>10 cents</td>
<td>$5,000.00</td>
<td>90 days after effective date</td>
</tr>
<tr>
<td>100,000</td>
<td>12 ½ cents</td>
<td>12,500.00</td>
<td>180 days after effective date</td>
</tr>
<tr>
<td>100,000</td>
<td>15 cents</td>
<td>15,000.00</td>
<td>270 days after effective date</td>
</tr>
</tbody>
</table>

The said Agreement provides that it shall not be terminated by default until fifteen (15) days after service of a notice by the Company on Tom & Barnt and their failure to rectify such default within such period. The Company understands that notwithstanding failure to serve such notice an Amendment to Prospectus must be filed within twenty (20) days of default if the securities of the Company are still in the course of primary distribution. There are no sub-options or sub-underwritings outstanding or proposed to be given at this time.”