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REPORT ON THE GEOLOGY
OF A GROUP OF CLAIMS HELD BY
RONDA COPPER MINES LIMITED
NAIRN TOWNSHIP,
SUDBURY DISTRICT, ONTARIO.

BY

R. A. HALEY, Ph.D., P.Eng
CONSULTING GEOLOGIST

SUMMARY:

RONDA COPPER MINES LIMITED HOLDS 36 CLAIMS IN THE NORTHEASTERN PART OF HAIN TOWNSHIP, DISTRICT OF SUDBURY.

THE PROPERTY IS LOCATED FIVE MILES SOUTHEAST OF IMPORTANT URANIUM DEPOSITS AT THE BASE OF THE SEDIMENTARY MATINEUDA FORMATION.

IT IS HIGHLY PROBABLE THAT THE MATINEUDA FORMATION DOES UNDERLIE THE PROPERTY. THERE IS REASON TO BELIEVE THAT THE DEPTH FROM SURFACE TO THE BASE OF THE FORMATION (THE FAVOURABLE HORIZON FOR RADIOACTIVE DEPOSITS) IS NOT EXCESSIVE, BUT THE ACTUAL DEPTH, EXTENT AND QUALITY OF RADIOACTIVE DEPOSITS CAN BE DETERMINED ONLY BY DIAMOND DRILLING.

DIAMOND DRILLING AT THIS STAGE IS HIGHLY SPECULATIVE AND SHOULD BE PRECEDED BY A DETAILED STUDY OF GEOLOGICAL STRUCTURE, TO PERMIT A MORE INTELLIGENT SELECTION OF DRILL SITES.

THE COST OF THE GEOLOGICAL STUDY WILL BE APPROXIMATELY \$2500.00.

LOCATION AND ACCESS:

THE COMPANY HOLDS 36 CLAIMS RECENTLY STAKED, IN THE NORTHEASTERN PART OF HAIN TOWNSHIP, DISTRICT OF SUDBURY, PROVINCE OF ONTARIO, NUMBERED S-145177 TO S-145212 INCLUSIVE. THEY CONSIST OF ONE BLOCK OF 34 CONTIGUOUS CLAIMS, COVERING :- ALL OF LOTS 3, 4 AND 8; CONCESSION VI; WEST HALF OF NORTH HALF CONCESSION VI; AND ALL OF LOT 5, CONCESSION V.

THE OTHER TWO CLAIMS, NOT CONTIGUOUS TO THE ABOVE, COVER THE NORTH HALF OF THE NORTH HALF OF LOT 7, CONCESSION IV.

THE SOUTHERN BOUNDARY OF THE PROPERTY IS LESS THAN ONE MILE NORTH OF THE CANADIAN PACIFIC RAILWAY AND TRANS CANADA HIGHWAY NO. 17, AT HAIN CENTRE, APPROXIMATELY 30 MILES WEST OF SUDBURY.

MOST OF THE PROPERTY (33 OF 36 CLAIMS) LIES NORTH OF THE SPANISH RIVER AND MAY BE REACHED BY A NEW ROAD WHICH LEAVES THE TRANS CANADA HIGHWAY IMMEDIATELY WEST OF THE SPANISH RIVER CROSSING AND RUNS IN A NORTHEASTERLY DIRECTION, APPROXIMATELY PARALLEL TO THE SPANISH RIVER, AND HAS BEEN BUILT TO FACILITATE THE CONSTRUCTION OF A NEW ELECTRIC POWER TRANSMISSION LINE.

HISTORY:

THERE IS NO RECORD OF ANY PREVIOUS MINERAL DEVELOPMENT OR OF ANY OCCURRENCE OF POTENTIALLY VALUABLE MINERAL ON THESE CLAIMS.

REGIONAL GEOLOGY AND MINERAL DEPOSITS:

THE GEOLOGY OF THE AREA HAS BEEN MAPPED ON A SCALE OF ONE INCH TO ONE HALF MILE BY THE GEOLOGICAL BRANCH OF THE ONTARIO DEPARTMENT OF MINES AND WAS PUBLISHED IN 1963 AS GEOLOGICAL REPORT NO.34, WITH MAP NO.2055, COVERING HYMAN AND DRURY TOWNSHIPS, AND GEOLOGICAL REPORT NO.35, WITH MAP NO.2062, COVERING MAIRN AND LORNE TOWNSHIPS. THE FOLLOWING BRIEF DESCRIPTION OF THE GEOLOGY IS BASED PRINCIPALLY ON THESE REPORTS AND MAPS.

THE BEDROCK IN THE AREA CONSISTS OF PRECAMBRIAN SEDIMENTARY AND MAFIC INTRUSIVE ROCKS. THE SEDIMENTARY ROCKS FORM PART OF THE HURONIAN SYSTEM, AND REST ON A BASEMENT OF OLDER VOLCANIC ROCKS WHICH HAVE BEEN INVADDED BY GRANITIC INTRUSIVES.

THE STRATIGRAPHIC SUCCESSION IN THE AREA IS AS FOLLOWS, FROM THE YOUNGEST TO THE OLDEST:-

OLIVINE DIABASE DYKES

GABBROIC INTRUSIVES

INTRUSIVE CONTACT

UPPER QUARTZITE (SERPENT FORMATION)

UPPER ARGILLITE, CALCAREOUS (ESPANOLA FORMATION)

UPPER CONGLOMERATE (BRUCE FORMATION)

MIDDLE QUARTZITE (MISSISSAUGA FORMATION)

MIDDLE GREYWACKE ARGILLITE (PECORA FORMATION)

LOWER CONGLOMERATE (WHISKEY FORMATION)

LOWER ARGILLITE (NORDIC FORMATION)

LOWER QUARTZITE (MATINENDA FORMATION)

UNCONFORMITY

GRANITE, VOLCANIC AND SEDIMENTARY ROCK (ARCHEAN)

THE SEDIMENTARY ROCKS ARE QUITE FRESH AND RELATIVELY UNMETAMORPHOSED, BUT THEY ARE INTERRUPTED BY A SERIES OF FAULTS STRIKING EAST-NORTHEAST, BELONGING TO THE MURRAY-BALDWIN CREEK - FAIRBANK LAKE FAULT SYSTEM.

THE FORMATIONS HAVE BEEN FOLDED INTO A SERIES OF BROAD ANTICLINES AND SYNCLINES WHICH HAVE BEEN GREATLY COMPLICATED BY THE FAULTING, WHICH HAS GREATLY DISTURBED ADJACENT STRATA, AND BY SUBSEQUENT GABBROIC INTRUSIONS.

THERE ARE TWO DISTINCT TYPES OF MINERAL DEPOSITS IN THE AREA. COPPER NICKEL SULPHIDE MINERALIZATION OF THE SUDBURY TYPE OCCURS ON THE GABBROIC ROCKS, BUT NO COMMERCIAL DEPOSITS ARE KNOWN IN THE IMMEDIATE VICINITY OF HAIN TOWNSHIP.

URANIUM AND THORIUM MINERALIZATION OCCURS IN RELATIVELY THIN BEDS OF QUARTZ PEBBLE CONGLOMERATE NEAR THE BASE OF THE MATINENDA FORMATION (LOWER QUARTZITE). GEOLOGICAL REPORT NO. 1, OF THE ONTARIO DEPARTMENT OF MINES (1960) DESCRIBED A NUMBER OF THESE OCCURRENCES IN BALDWIN TOWNSHIP,

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TO THE WEST OF HAIRN TOWNSHIP, AND IN HYMAN AND DRURY TOWNSHIP TO THE NORTH AND NORTHEAST.

THESE DEPOSITS ARE SIMILAR IN LITHOLOGY, STRATIGRAPHY AND MINERALOGY TO THE URANIUM ORES OF THE BLIND RIVER - ELLIOTT LAKE DISTRICT, SOME 50 MILES TO THE WEST. THE RADIOACTIVE CONGLOMERATE BEDS OCCUR AT OR NEAR THE BASE OF THE MATINENDA FORMATION, WHICH LIES UNCONFORMALLY ON THE BASINMENT COMPLEX. THE CONGLOMERATE BEDS ARE USUALLY CONCENTRATED WITHIN 100 FEET OF THE BASINMENT, BUT THERE ARE NARROW INTERBEDS OF CONGLOMERATE WITHIN THE QUARTZITE FOR HUNDREDS OF FEET ABOVE THE BASINMENT. THE THICKNESS OF THE URANIUM BEARING BEDS OR REEFS VARIES GREATLY, BUT THE BETTER GRADES ARE USUALLY CONFINED TO WIDTHS OF 5 FEET OR LESS, AND RARELY UP TO 12 FEET.

THE RADIOACTIVE MINERALS OCCUR AS VERY SMALL GRAINS IN THE MATRIX AND INCLUDE MONAZITE, THORIANITE, URANINITE, 'DRANNERITE' AND A VARIETY OF ALTERATION PRODUCTS OF THESE MINERALS; OTHER MINERALS ARE PYRITE, MAGNETITE, ILMENITE, APATITE AND ZIRCON.

THE DEPOSITS ARE BELIEVED TO BE OF SEDIMENTARY ORIGIN (PLACER) SIMILAR TO THE SOUTH AFRICAN GOLD AND URANIUM BEARING CONGLOMERATES. THIS PROBABLY MEANS THAT SUCH DEPOSITS WILL BE WIDESPREAD, BUT IT MAY ALSO BE EXPECTED THAT ECONOMIC CONCENTRATIONS OF RADIOACTIVE MINERALS WITHIN THEM WILL BE RELATIVELY RARE.

ACCORDING TO THE ANNUAL REPORT OF KERR ADDISON MINES LIMITED FOR 1956 IMPORTANT DEPOSITS OF THIS TYPE HAVE BEEN INDICATED BY EXTENSIVE DIAMOND DRILLING IN NORTH CENTRAL HYMAN TOWNSHIP (CONCESSION V, LOTS 6 & 7).

THIS LOCATION IS APPROXIMATELY 5 MILES NORTH-NORTHWEST OF THE CLAIMS HELD BY RONDA COPPER MINES, AND WHICH ARE THE SUBJECT OF THIS REPORT.

GEOLOGY OF THE CLAIM GROUP:

THE NORTH BOUNDARY OF THE MAIN CLAIM GROUP (34 CLAIMS) IS ALSO THE NORTH BOUNDARY OF HAIN TOWNSHIP, AND A PORTION OF THE GROUP EXTENDS SOUTHWARD TO THE SPANISH RIVER (IN LOT 5). A SIZEABLE BODY OF WATER (JIGGY LAKE) LIES IN THE APPROXIMATE EAST-WEST CENTRE OF THE GROUP.

BEDROCK IS WELL EXPOSED AROUND THE SHORE OF JIGGY LAKE, BUT RATHER POORLY EXPOSED IN THE REMAINDER OF THE GROUP. IT CONSISTS ALMOST EXCLUSIVELY OF THE SEDIMENTARY ROCKS OF THE LOWER ARGILLITE UNIT (NORDIC FORMATION), - ARGILLITE, GREYWACKE AND SCHIST. THERE ARE SOME MINOR GABBRO INTRUSIVES AND ONE OF THE LATE DIABASE DYKES CROSSED THE PROPERTY FROM NORTHWEST TO SOUTHEAST. THE STRATA STRIKE NORTHEASTERLY, AND THE RECORDED DIPS ARE CHIEFLY TO THE NORTH. THEY RANGE FROM HORIZONTAL TO VERTICAL, BUT THE MAJORITY OF OBSERVATIONS APPEAR TO BE IN THE RANGE OF 40 TO 50 DEGREES NORTH.

TWO MAJOR NORTHEAST FAULTS CROSS THE PROPERTY FROM SOUTHWEST TO NORTHEAST. THE NORTHERLY FAULT IS CALLED THE FAIRBANK LAKE FAULT AND THE SOUTHERLY ONE THE JIGGY LAKE FAULT. BOTH ARE REGIONAL FEATURES AND BOTH ARE BRANCHES OF THE STILL GREATER MURRAY FAULT. MOST OF THE PROPERTY IS IN THE BLOCK BETWEEN THE TWO FAULTS.

THE SMALLER GROUP OF TWO CLAIMS IN LOT 5, CONCESSION IV, LIES TO THE SOUTH OF THE MURRAY FAULT. THE BEDROCK AT THE SURFACE OF THIS GROUP IS GABBRO, PROBABLY A BILL-LIKE INTRUSIVE. THE AXIS OF A MAJOR ANTICLINE IS SHOWN PASSING THROUGH THE SOUTHEAST CORNER OF THIS BLOCK.

ECONOMIC POSSIBILITIES OF THE PROPERTY:

THE ECONOMIC POSSIBILITIES OF THE PROPERTY DEPEND ON THE FOLLOWING FACTORS:-

1. DOES THE MATINENDA FORMATION UNDERLIE THE PROPERTY?
2. DOES IT CONTAIN URANIUM BEARING CONGLOMERATE BEDS OF SUFFICIENT GRADE, THICKNESS AND EXTENT?
3. DO THESE DEPOSITS OCCUR AT REASONABLE DEPTHS FOR ECONOMIC EXTRACTION?

THE SURFACE ROCKS BELONG TO THE NORDIC FORMATION, OR LOWER ARGILLITE UNIT, WHICH OVERLIES THE MATINENDA. THE THICKNESS OF THIS FORMATION RANGES FROM 100 FEET OR LESS TO MORE THAN 1500 FEET. ON THE PROPERTY THE THICKNESS IS UNKNOWN AND THE PROBLEM IS COMPLICATED BY FOLDING. HOWEVER, SOME OUTCROPS OF SUB-GREYWACKE (3A) HAVE BEEN RECORDED IN THE CENTRE OF LOT 2, CONCESSION VI, IMMEDIATELY EAST OF THE EAST BOUNDARY OF THE CLAIM GROUP. THE SUB-GREYWACKE IS SUPPOSED TO BE THE UPPERMOST MEMBER OF THE MATINENDA FORMATION. IF THIS INTERPRETATION IS CORRECT, THE LOWER ARGILLITE IS RELATIVELY THIN IN THE EASTERN PART OF THE PROPERTY AT LEAST.

THE THICKNESS OF THE MATINENDA FORMATION IN THIS AREA IS ALSO UNKNOWN. IN SOUTHWESTERN HYNAN TOWNSHIP ITS THICKNESS IS ABOUT 400 FEET AND IN DRAKY TOWNSHIP ABOUT 600 FEET. IN THE BLIND RIVER AREA THE FORMATION THICKENS SOUTHWARD, AND A THICKNESS OF 1000 FEET OR SO WOULD BE CONCEIVABLE IN THE NORTHERN PART OF NAIRN TOWNSHIP. HOWEVER, THIS IS ONLY CONJECTURE, THE THICKNESS COULD BE MUCH GREATER THAN 1000 FEET OR MUCH LESS, BUT THE PROBABILITY THAT THE BASE OF THE FORMATION LIES AT DEPTHS OF LESS THAN 2000 FEET BELOW SURFACE, APPEARS TO BE REASONABLY GOOD.

THE OCCURRENCE, EXTENT AND QUALITY OF RADIOACTIVE CONGLOMERATE BEDS NEAR THE BASE OF THE FORMATION CAN BE ESTABLISHED ONLY BY DRILLING, POSSIBLY TO DEPTHS OF 1000 FEET OR MORE. AT A LOCATION FIVE MILES FROM THE NEAREST KNOWN MINERAL DEPOSITS OF THIS TYPE, DRILLING WOULD BE A HIGHLY SPECULATIVE VENTURE AT THE PRESENT TIME.

RECOMMENDATIONS:

THE MERITS OF THE PROPERTY WILL EVENTUALLY HAVE TO BE TESTED BY EXPLORATORY DIAMOND DRILLING, WHICH WILL ALSO BE REQUIRED TO FULFILL ASSESSMENT WORK REQUIREMENTS.

BEFORE ANY DRILLING IS ATTEMPTED, THERE SHOULD BE A THOROUGH STUDY OF THE SURFACE GEOLOGY, WITH MAPPING AT A SCALE OF 200 FEET TO THE INCH, WITH PARTICULAR EMPHASIS ON STRATIGRAPHY AND STRUCTURE IN THE EASTERN PART OF THE PROPERTY.

THE COST OF THE GEOLOGICAL STUDY SHOULD BE ABOUT \$2500.00. THIS WILL PERMIT A MORE INTELLIGENT SELECTION OF SITES AND PROBABLE COST OF EXPLORATORY DRILL HOLES.

RESPECTFULLY SUBMITTED,

R. A. Hallet
R. A. HALEY, PH.D. P.ENG.,
CONSULTING GEOLOGIST.

TORONTO, ONTARIO.

JUNE 2, 1957.



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RONDA COPPER MINES LIMITED

URANIUM PROPERTY

NAIRN TOWNSHIP, SUDBURY DISTRICT, ONTARIO

BY

MICHAEL OGDEN, B.A. Sc., P.Eng.

CONSULTING GEOLOGIST.

Geological Report

TORONTO, ONTARIO
AUGUST 16, 1967.

INTRODUCTION:

FOLLOWING THE ACQUISITION OF THE PROPERTY IN THE SPRING OF THIS YEAR, IT WAS RECOMMENDED BY DR. R. A. HALEY THAT A GEOLOGICAL SURVEY BE CONDUCTED OVER MOST OF THE GROUND TO ASCERTAIN THE APPROXIMATE DEPTH TO THE URANIFEROUS PEBBLE CONGLOMERATE HORIZON WHICH PROBABLY UNDERLIES THE CLAIMS. THE GEOLOGICAL STUDY, WAS CONDUCTED BY THE WRITER WITH LOCAL ASSISTANTS, AND HAS BEEN ABLE TO ESTABLISH THAT PORTIONS OF THE PROPERTY AND ITS ENVIRONS ARE CLOSE ENOUGH TO BASEMENT ROCKS TO REACH THEM WITH A LIMITED DRILLING PROGRAM. A SERIES OF TWO OR THREE HOLES ARE PROPOSED FOR ^ATOTAL FOOTAGE OF ABOUT 2000 FEET, AT A COST OF \$11,000.

REFERENCES:

- 1) GEOLOGICAL MAP, WEST SHEET, 200 SCALE, OGDEN, AUGUST 1967.
- 2) GEOLOGICAL MAP, EAST SHEET, 200 SCALE, OGDEN, AUGUST 1967
- 3) REPORT ON GEOLOGY OF A GROUP OF CLAIMS HELD BY RONDA COPPER MINES LIMITED, R. A. HALEY, JUNE 2, 1967
- 4) GEOLOGICAL REPORT, #35, O.D.M. HAIN AND LORNE TOWNSHIPS, BY R. M. GINN, 1965
- 5) GEOLOGICAL REPORT, #34, O.D.M. HYMAN AND DORRY TOWNSHIPS, BY K. D. CARD, 1965.
- 6) GEOLOGICAL REPORT, #1, O.D.M. URANIUM AND THORIUM DEPOSITS, AT THE BASE OF THE HURONIAN SYSTEM IN THE SUDBURY DISTRICT, BY J. E. THOMSON, 1960.

PROPERTY, LOCATION & ACCESS:

THE PROPERTY CONSISTS OF 34 CLAIMS IN THE NORTH EASTERN PORTION OF HAIRN TOWNSHIP, BEING CLAIMS NUMBERS S-145177 TO S-145210 INCLUSIVE, WHICH ENCOMPASS LOT 5 IN CONCESSION V, AND IN CONCESSION VI; LOTS 5, 4, 3, AND THE W. $\frac{1}{2}$ OF THE N. $\frac{1}{2}$ OF LOT 2.

THERE ARE A COUPLE OF OTHER CLAIMS OWNED BY THE COMPANY IN THE N. $\frac{1}{2}$ OF THE N. $\frac{1}{2}$ OF LOT 7, CONCESSION IV, BUT THESE WERE NOT INVESTIGATED.

THE CLAIM BLOCK IS READILY ACCESSIBLE BY GRAVEL ROAD FROM JUST WEST OF THE BRIDGE OVER THE SPANISH RIVER ON HIGHWAY 17. THE ROAD EXTENDS TO THE NORTH EAST ALONG THE NORTH SIDE OF THE SPANISH RIVER FOR ABOUT SIX MILES. GOOD SANDY DUSH ROADS EXTEND NORTH FROM THAT GRAVEL ROAD INTO THE SOUTHERN PART OF THE PROPERTY FROM VARIOUS LOCATIONS, SO THAT DRILLING EQUIPMENT MAY READILY BE TAKEN TO ALMOST ANY PORTION OF THE PROPERTY.

HISTORY:

THERE IS NO EVIDENCE OF ANY PREVIOUS TRENCHING, STRIPPING, DIAMOND DRILLING OR GEOPHYSICAL SURVEYS ON THE CLAIM BLOCK. IT WAS, HOWEVER, STAKED A COUPLE OF YEARS AGO AND ALSO 20 YEARS BEFORE THAT, FROM THE APPEARANCE OF BLAZES ON THE TREES.

TOPOGRAPHY:

MOST OF THE PROPERTY IS GENTLY ROLLING OR FLAT SAND PLAIN WITH VERY LITTLE OUTCROP. THIS TYPE OF TERRAIN IS COVERED WITH NATURAL BIRCH AND POPLAR, OR, AS IN THE WEST PART OF THE GROUND, IS COVERED WITH A 35 YEAR OLD RED PINE PLANTATION.

THE OUTCROPS WHEN THEY OCCUR TEND TO BE LARGE AREAS OF HIGH ROCKS WITH VERY STEEP SIDES.

GENERAL GEOLOGY:

TABLE OF FORMATIONS

CENOZOIC - PLEISTOCENE AND RECENT, SAND, GRAVEL CLAY, SILT.

UNCONFORMABLE CONTACT (FAULTING)

PRECAMBRIAN - LATE BASIC INTRUSIVE ROCKS, DIABASE AND OLIVINE DIABASE.

INTRUSIVE CONTACT (FAULTING)

SEDIMENTARY GROUP - CONGLOMERATE, QUARTZITE, ARGILLITE, GREYWACKE, AND
THEIR METAMORPHIC EQUIVALENTS.

UNCONFORMABLE CONTACT (FAULTING)

VOLCANIC GROUP - VARIOUS VOLCANIC AND METAVOLCANIC ROCKS, NONE OF WHICH
ARE EXPOSED ON THE PROPERTY.

DESCRIPTION OF ROCK TYPES

VOLCANIC GROUP:

WHERE EXPOSED NEARBY, THESE ARE AMYGDALOIDAL AND PORPHYRITIC METAVOLCANICS, AMPHIBOLITE, GARNET AMPHIBOLITE, AMPHIBOLITE SCHIST AND HORNBLENDE SYENITE.

UNCONFORMABLE CONTACT:

THIS OLIGOMICTIC QUARTZ-PEDDLE CONGLOMERATE WHICH OCCURS IN THIN LENSES AT OR NEAR THE BASE OF THE SEDIMENTARY SERIES HAS NOT YET BEEN FOUND IN OUTCROP ON THE PROPERTY.

CONGLOMERATE (NO. 6 ON THE MAP)

THIS CONSISTS OF ROUNDED PEDDLES, BOULDERS AND COBBLES OF BANDED ARGILLITE AND GREYWACKE IN VARIOUS ORIENTATIONS WITHIN A CRITTY GREYWACKE MATRIX. THERE IS LITTLE OR NO SHEARING OR TENDENCY OF PARALLELISM AMONGST THE XENOLITHS.

QUARTZITE (NO. 4)

THIS IS A FINE GRAINED, GREY EVEN TEXTURED, BRITTLE, HARD ROCK WHICH IS NOT SCRATCHABLE BY A KNIFE. IT IS CONSIDERED BY BOTH GINN AND CARD OF THE ONTARIO DEPARTMENT OF MINES TO BE THE LOWER

QUARTZITE WHICH IS ESTIMATED TO BE 400 TO 600 FEET THICK IN HYMAN TOWNSHIP TO THE NORTH. THE URANIFEROUS PEBBLE CONGLOMERATE IS AT THE BASE OF THIS FORMATION IN HYMAN AND DRURY TOWNSHIP TO THE NORTH AND NORTH EAST.

ARENACEOUS GREYWACKE (No.3)

A GREY TO BUFF COLOURED, MEDIUM TO FINE GRAINED, CRITTY ROCK, WHICH CAN BE SCRATCHED WITH A KNIFE AND IS USUALLY QUITE MASSIVE. THE BEDDING IF VISIBLE, IS 6 INCHES OR MORE IN THICKNESS.

GREYWACKE (No.2)

VERY FINE GRAINED, EVEN TEXTURED GREENISH ROCK WHICH RARELY OCCURS.

ARGILLITE (No.1)

THIS, THE MOST COMMON ROCK UNDERLYING THE PROPERTY IS WELL BEDDED, FINE GRAINED WITH A LIGHT AND DARK BANDING, SO CLOSE TOGETHER AS TO RESEMBLE VARVED CLAYS. IT ALSO OCCURS AS SERICITE SCHIST (I-S) OR AS STAUROLITE SCHIST (I-ST). THE LATTER DISPLAYS ABUNDANT STAUROLITE CRYSTALS UP TO 1 INCH IN LENGTH.

DIABASE (No.5)

THERE ARE TWO TYPES OF THIS ROCK. THE RATHER FINE GRAINED DYKIC DIABASE (No.5) WHICH OCCURS AS IRREGULAR INTRUSIVES SOMETIMES NEAR CONTACTS OR ALONG FAULT PLANES. THE OTHER TYPE, THE MEDIUM TO COARSE GRAINED OLIVENE DIABASE OR GABBRO-DIORITE (5-0) OCCURS AS A WIDE DYKE CROSSING THE PROPERTY AND IS DETECTABLE BY AIRBORNE MAGNETIC SURVEY.

FAULT BRECCIA (No.0)

THIS CONSISTS OF ANGULAR PIECES OF ARGILLITE AND ARENACEOUS GREYWACKE, IN A MATRIX OF CRITTY GREYWACKE, OCCASIONALLY WITH PIECES OF DIABASE. THERE IS DISTINCT SHEARING IN A CONSISTANT DIRECTION AND A PARALLELISM TO THE BROKEN PIECES OF ROCK. X

GEOLOGICAL SURVEY:

IN ORDER TO MAINTAIN CONTROL OF THE MAPPING, THREE LINES WERE CHAINED AND PICKETED, EAST-WEST ACROSS THE PROPERTY. (LINE #1), THE SOUTHERLY ONE WAS ALONG THE BOUNDARY BETWEEN THE FIFTH AND SIXTH CONCESSION. LINE #3, THE NORTH LINE ABOUT 5400 FEET NORTH OF #1, IS BETWEEN NAIRN AND HYMAN TOWNSHIPS. THE MIDDLE LINE #2, WAS A BIT NORTH OF HALF WAY BETWEEN THE OTHERS, ALONG THE NORTH SHORE OF JIGGY LAKE. TRAVERSE LINES WERE RUN NORTH AND SOUTH BETWEEN THE PICKET LINES AT AN AVERAGE INTERVAL OF 400 FEET.

STRATIGRAPHY:

THE SEQUENCE OF DEPOSITION ACCORDING TO GINN AND CARD IN THE NEARBY TOWNSHIPS HAS THE QUARTZITE AS THE LOWEST FORMATION JUST ABOVE THE BASINMENT VOLCANICS AND GRANITES. THE URANIFEROUS PEBBLE CONGLOMERATE WHICH WAS NOT RECOGNIZED IN NAIRN TOWNSHIP HAS BEEN FOUND AT THE BASE OF THIS SERIES IN HYMAN AND DRURY TOWNSHIPS TO THE NORTH.

THE GREWACKES AND ARGILLITES WHICH OVERLIE THE QUARTZITE ARE OBVIOUSLY INTERMIXED AND CANNOT BE USED AS A MARKER HORIZON OF ANY SORT.

THE CONGLOMERATE (No.6) HAS BEEN CALLED A FAULT BRECCIA BY GINN, BUT I AM SURE IT IS A CONGLOMERATE AND I BELIEVE IT TO BE VERY LOW DOWN IN THE STRATIGRAPHIC SEQUENCE. PERHAPS EVEN NEAR THE BOTTOM OF THE QUARTZITE. IT IS MORE RADIOACTIVE IN AT LEAST ONE LOCATION, THAN ANY OF THE OTHER ROCKS, WHICH MAY BE DUE TO A LITTLE ENCLOSED URANIFEROUS CONGLOMERATE.

FOLDING:

THE COMMON STRIKE OF THE ROCKS IN THE WHOLE PROPERTY IS NORTH-EAST WITH A MEDIUM TO STEEP DIP TO THE NORTH-WEST. THEY REALLY FORM AN ANTICLINORIUM WITH THE AXIS, JUST SOUTH-EAST OF THE PROPERTY. THE NORTH LIMB OF THE FOLD SHOWING UNDULATIONS WITHIN ITS COMMON DIP TO THE NORTH-WEST. THE UNDULATIONS ARE SEVERE ENOUGH TO CAUSE A NUMBER OF FLATS FOR 50 TO 200 FEET IN WIDTH AND THE OCCASIONAL SMALL ANTICLINE, ONE OF WHICH MEASURE ABOUT 300 FEET IN WIDTH (BY THE CREEKS EAST OF JIGGY LAKE).

FAULTING:

A FAIR AMOUNT OF FAULTING IS SHOWN ON THE GOVERNMENT MAPS BUT ON THE GROUND THE ROCKS WERE SURPRISINGLY COMPETENT, THE ONLY SUBSTANTIAL SHEARING WAS DISPLAYED ALONG THE POWER LINE. SLIPS AND FAULTS WITH A FOOT OR TWO MOVEMENT WERE OCCASIONALLY FOUND ON THE SHORES OF JIGGY LAKE WHERE THE EXPOSURE IS EXCELLENT. THE NORTH CENTRAL PORTION OF THE PROPERTY HAS SOME VERY STEEP APPARENT FAULT SCARPS, BUT AS THE DIRECTION IS ALMOST PARALLEL TO THAT OF THE GLACIATION, I AM SUSPICIOUS THEY ARE ONLY JOINTS.

THE VERTICAL MOVEMENT ON THE MAJOR FAULTS CANNOT BE ASCERTAINED FOR SURE, BUT I WOULD EXPECT THE SOUTH SIDE TO HAVE MOVED DOWN.

CONCLUSIONS:

1. AS THERE IS NO SURFACE EXPOSURE OF THE URANIUM BEARING PEBBLE CONGLOMERATE, ONE CANNOT BE CERTAIN WHERE IT EXISTS UNDER THE CLAIM BLOCK. HOWEVER, THE RADIO ACTIVITY OF THE CONGLOMERATE, WHICH IS CONSIDERED TO BE WITHIN A FEW HUNDRED FEET OF THE URANIUM BED, IS HIGHLY SUGGESTIVE THAT IT MAY BE PRESENT.

2. THE PRESENT SURVEY HAS INDICATED THAT THE STRATIGRAPHIC LOCATION OF THE URANIUM ZONE IS PROBABLY WITHIN 1000 FEET OF THE SURFACE, ON OR NEAR THE EAST BOUNDARY OF THE PROPERTY. A COUPLE OF DIAMOND DRILL HOLES ARE RECOMMENDED TO INTERSECT IT AND ASSESS ITS POTENTIAL.

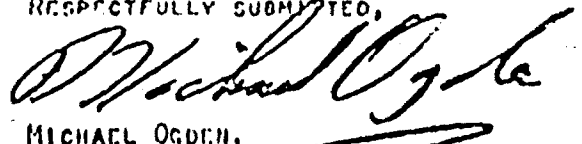
3. THE LOCATIONS AT WHICH THE BASEMENT ROCKS AND OVERLYING THE URANIUM ZONE, IF PRESENT, WOULD BE CLOSEST TO THE PRESENT SURFACE ARE AS FOLLOWS:-

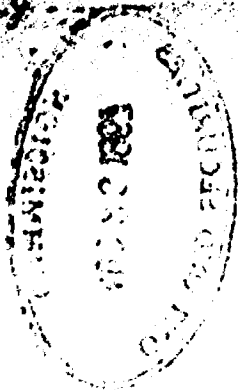
(A) IN CLAIM S-145190, NEAR THE EAST BOUNDARY OF THE PROPERTY. A VERTICAL HOLE, COLLARED IN THE QUARTZITE ON THE NORTH SIDE OF THE GUYCROP SHOULD ENCOUNTER THE BASEMENT ROCKS WITHIN 500 TO 800 FEET. A VERTICAL HOLE WOULD AVOID CUTTING THE NEARBY FAULT ZONE SOME 600 FEET TO THE SOUTH.

(B) A VERTICAL HOLE OF 1200 TO 1500 FEET IN LENGTH IN THE ABANDONED FARM FIELD WOULD PROBABLY ENCOUNTER THE BASEMENT ROCKS. A MAJOR ANTICLINAL AXIS EXTENDS THROUGH THE FIELD WHICH IS THUS THE VICINITY OF THE OLDEST EXPOSED ROCKS.

4. THE ANTICIPATED COST FOR 2000 FOOT DRILL PROGRAM IN TWO HOLES IS APPROXIMATELY \$11,000.

RESPECTFULLY SUBMITTED,



MICHAEL OGDEN.



CERTIFICATE

I, W. MICHAEL M. OGDEN, OF THE CITY OF TORONTO, IN
THE PROVINCE OF ONTARIO, HEREBY CERTIFY AS FOLLOWS:

1. THAT I AM A CONSULTING MINING GEOLOGIST, AND THAT I MAINTAIN AN OFFICE IN TORONTO, ONTARIO.
2. THAT I AM A GRADUATE IN APPLIED SCIENCE (MINING GEOLOGY) FROM THE UNIVERSITY OF TORONTO, A REGISTERED PROFESSIONAL ENGINEER IN THE PROVINCE OF ONTARIO, AND THAT I HAVE BEEN PRACTISING MY PROFESSION FOR SEVENTEEN YEARS.
3. THAT I HAVE NO INTEREST, EITHER DIRECTOR OR INDIRECT, AND DO NOT EXPECT TO RECEIVE ANY INTEREST IN THE PROPERTIES, OR IN THE SECURITIES OF RONDA COPPER MINES LIMITED.
4. THAT THIS REPORT IS BASED ON A PERSONAL KNOWLEDGE AND EXAMINATION OF THE PROPERTY, AND ON GEOLOGICAL REPORTS REFERRED TO IN "REFERENCES" OF THIS REPORT.


MICHAEL OGDEN; B.A. So. P. ENG.

DATED AT TORONTO, ONTARIO THIS 16TH DAY OF AUGUST, 1967.