RADAR EXPLORATION COMPANY

31L04SE0002 0010A1 NIPISSING

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TORONTO 18, CANADA

Geophysical Report

on

CLAIMS OF ~~A.D. COWAN~~ J. H. Dumouchel

Nipissing Twp., Ont.

AREA

A gravity survey was undertaken over claims staked on lots 23, 24, 25 Conc. XII and part of lots 213 to 217 Concs. A and B, Nipissing Township.

REASON FOR SURVEY

The basis of staking was on some hematite showings in the vicinity. For the most part the area is overlain with glacial drift and it was therefore decided that gravity was the indicated method to determine the possibilities of any commercial amount of hematite.

DATE OF SURVEY

October and November, 1951.

APPARATUS

LaCoste and Romberg gravity meter serial No. 115, scale constant .0945 milligals per dial division, reading accuracy .01 milligals. Horizontal and vertical control was obtained by a transit survey.

NO. of STATIONS

600 new, 200 repeat.

LINES CUT

8 miles.

PROGRESS

Line cutting 47 man days.

Geophysical party 209 man days.

Geophysical office work 30 man days.

RESULTS

Profile lines were laid out at right angles to the presumed strike of the formations and stations were established at 50-foot intervals along these lines. The elevation of each station was measured with a transit and the lines tied back so that the probable error is not more than 0.1 feet.

The gravity meter was read at each station and returned to base at least every two hours to correct for tidal variation and instrumental drift.

Before the gravity readings could have any significance they had to be corrected for elevation, latitude and the effects of surrounding topography. The elevation correction was determined empirically and latitude correction was obtained from the international ellipsoid formula. Terrain corrections were carried out to a distance of 1/2 mile from each station as it is only local variations occurring over a distance of a few hundred feet that are of interest.

The final gravity results have been interpreted as follows. On the northern portion of the eastern half the gravity contours are indicative of a material that is stratified. Outcrop in the vicinity indicate dolomitized limestone. The southern half has gravity contours that follow no particular pattern. This is characteristic of granite and is confirmed by outcrops. Dividing the southern and northern halves is a fairly abrupt gravity change which is interpreted as a fault with the denser material to the north and the lighter material or granite to the south.

Parallel to the fault line and lying quite close to it are small lenticular positive anomalies which possibly are indicative of mineralization. One of these small anomalies coincides with a pit in which hematite is exposed. However, the size of the local gravity anomaly suggests that there is no comerical quantity of ore.

The largest of these local anomalies lies between line E and line EE on the northeast corner of claim 1679. This was detailed at a later date and was confirmed.

The western half of the area reveals a gravity pattern which one would expect to find over granite. No significant local gravity anomalies are observed.

RADAR EXPLORATION COMPANY,

G.R. Johnson

RADAR EXPLORATION COMPANY

31L04SE0002 0010A1 NIPISSING

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[illegible] ST., WEST
[illegible]
TORONTO 18, CANADA
TELEPHONE: [illegible]

Geophysical Report

on

CLAIMS OF ~~A.P. COWAN~~ J H Dumouchel

South River Area, Nipissing Twp., Ont.

REASON FOR SURVEY

From geological reports and aerial photographs several possible major fault structures were noted in this area with hematite stains associated with the faults. The area is mostly covered with glacial drift.

DATE OF SURVEY

August, 1952.

APPARATUS

LaCoste and Romberg gravity meter No. 115:

Scale constant .0948 milligals per dial division.

Reading accuracy .01 milligals.

Horizontal and vertical survey control by transit.

NO. OF STATIONS

300 new, 100 repeat.

LINES CUT

4 miles.

9 556 40+

PROGRESS

Line cutting, 24 man days

Geophysical party, 100 man days

Geophysical office work, 15 man days.

13 556

RESULTS

Profile lines were laid out at right angles to the presumed strike of the formations and stations were established at 50-foot intervals along these lines. The elevation of each station was measured with a transit and the lines tied back so that the probable error is not more than 0.1 feet.

The gravity meter was read at each station and returned to base at least every two hours to correct for tidal variation and instrumental drift.

Before the gravity readings could have any significance they had to be corrected for elevation, latitude and the effects of surrounding topography. The elevation correction was determined empirically and latitude correction was obtained from the international ellipsoid formula. Terrain corrections were carried out to a distance of 1/2 mile from each station as it is only local variations occurring over a distance of a few hundred feet that are of interest.

The general gravity picture shows a low running the length of the survey which can be interpreted as a rather wide brecciated fault zone.

This main zone is crossed by at least one other major force in the vicinity of line H.

It is within this brecciated zone that small local positive anomalies would be indicative of a mass of hematite. Three such concentrations are observed, one each on lines H, HHH and II. To the east between line FF and C for the most part along the base line a zone of slightly denser material is noticed. This can be attributed to iron formation or lean ore.

Mathematical integration of all these local anomalies shows that although there may be some pods of relatively high density material the quantities are small.

RADAR EXPLORATION COMPANY

G.R. Johnson

G.R. Johnson

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INTRODUCTION:

During the better part of the period May 8th, 1952, to September 18th, 1952, the writer was engaged in exploring and geologically mapping parts of the mining property here to be discussed and adjoining lands.

The writer had previously examined parts of those claims to be referred to as the South Group and the property adjoining to the east, in 1941, and was responsible for "spotting" the diamond drill hole shown on the map.

The writer was originally engaged to make a detailed geological examination and map of an area covered by a gravity meter survey, by Radar Explorations Limited of Toronto, in the Fall of 1951. This survey had shown several gravity "highs", including one of relatively important size.

Using the surveyed lines of the geophysical survey as base lines and by "pace and compass" and sometimes steel tape, the writer and assistants examined, in detail, the area containing the gravimetric anomalies. This work was done in more detail than is usual for a geological survey, as most of the ground underlying the anomalies was drift covered and it was necessary to cut some additional base lines as well as crisscrossing between the already surveyed lines. It was also necessary to use "pick and shovel" to attempt to find rubble from the underlying bedrock and to follow all streams and gullies to examine all the rock fragments, boulders and pebbles that might be found in them.

The conclusions reached from this work will be discussed later, but the main conclusion was that it was improbable that a commercial body of iron ore existed within the area examined.

However, the work referred to above, coupled with opinions formed during the examination in 1941, gave evidence that nearby areas, having similar geological conditions - mainly structural - might contain commercial quantities of iron ore.

With the aid of airphotos, the nearby "fault" valleys were prospected and the iron-enriched breccia of the North Group was soon found.

A preliminary geological examination and map was made of this North Group area and a gravity survey contracted with Radar Explorations. Using the surveyed lines for the gravity survey as base lines, a detailed geological survey was made of this area.

Both geological conclusions and gravity meter results agreed, independently, on a particular part of this area as probably containing a small body of high grade hematite.

ACKNOWLEDGEMENTS:

The writer has studied and used information contained in the report and map of the Parry Sound District (Ont. Dept. of Mines, 51st. An. Rept., Vol. LI, Pt. 11, 1942, by J. Satterly). Unfortunately, this report and map cover only the eastern extremities of the ground here under consideration.

The writer had occasion, in 1941, to consult Dr. Satterly, personally, regarding the hematite showing on Lot 218, Con. A and the Dolomite - Gneiss contact.

Ably assisting the writer, for varying periods, in the exploration and mapping, in 1952, were C. N. Cowan, M. R. Hargrave, Victor Kelly and Charles Vester.

LOCATION & ACCESS:

The areas covered by the accompanying geological maps will henceforth be referred to as the North Group and the South Group. These Groups lie about 1½ miles apart, in a north - south direction, in the west central part of the Township of Nipissing.

The North Group covers most of Mining Claims No's. P.S. 1855, 1877, 1879 and P.S. 1881 and is located on the west side of South Bay, Lake Nipissing, just north of the mouth of the South River.

The South Group covers the whole and/or parts of Mining Claims No's. P.S. 1678, 1679, 1680, 1681, 1684, 1703, 1799, 1800 and P.S. 1801 and parts of Lots 216, 217 and 218, Concession A. This Group lies to the south and west of the South River and Fish Bay, Lake Nipissing.

The claims are most easily accessible from the village of Nipissing, which is approximately ten miles by road from the town of Powassan. Powassan is located both on the C. N. R. and Highway #11.

A gravel road from Nipissing Village - a distance of approximately two miles - extends well into the South Group and a bush road continues westerly through the length of this Group.

The North Group may be reached by a bush road from the South Group, or by water down the South River.

TOPOGRAPHY:

The topography of the areas mapped is quite rugged. The lowlands of the Paleozoics and the valleys occupied by lakes, streams and swamps rise steeply - in some cases abruptly - over outcrop and gravel ridges to relatively level uplands, as much as 300 feet above the neighbouring lowlands.

This topography will be discussed more fully, later, under Structure.

GENERAL GEOLOGY:

Table of Formations

Quaternary	
Recent -	Clay, sand, gravel, boulders, muskeg.
Pleistocene -	Clay, sand, gravel, boulders.
Paleozoic	
Ordovician -	Dolomite.
Pre-Cambrian	
	Granite, granite gneiss, pegmatite. Hybrid gneisses of sedimentary and igneous origin.

Pre-Cambrian

The area covered by this examination and partially shown on the two accompanying geological maps is dominately underlain by Pre-Cambrian rocks - probably Grenvill in age.

Tow

Although referred to mostly as granite gneisses, the writer is of the opinion that more than 50% are sedimentary in origin. If it were not for the fact of having seen some definite pegmatitic material - mostly orthoclase feldspar - the writer would be inclined to place all the Pre-Cambrian rocks seen, in the area here being considered, under the title of hybrid gneisses (see Table of Formations). A good part of the granite and granite gneisses are really closer to syenites and syenite gneisses. Mineralogically they vary from hornblendites to pegmatites, with the intermediate facies being the most common. Being, in this area, relatively flat-lying and with the igeous phases having indefinite boundaries, it was impossible to separate them in the areas mapped. Also, their mineralogical designation seemingly having no importance with regard to the locating of possible economical, hematite deposits and "time being of the essence", not too much time was spent in examining the individual layers for their non-economic mineral content.

Paleozoic

A remnant of Paleozoic dolomite (Ordovician) outcrops on Lot 218, Concession A. There were several shallow pits sunk in this dolomite, in the past, and there are signs of old lime kilns. The area underlain by this remnant is of very limited extent. The contact between the dolomite and the gneisses is nowhere exposed completely, but at a point where the two rocks were within approximately 10 feet of each other, the dolomite was observed dipping as much as 15° - 20° northerly - away from the gneisses. Further away from the gneisses, the dolomite is practically flat-lying. Although the gneisses are brecciated, at this location of close contact, the dolomite is not and it is considered that the contact is a normal unconformity against a former fault scarp in the gneisses.

Pleistocene

A large part of this area is covered by glacial drift - ranging from varved clays and sands to boulder erratics. This is particularly true of the South Group; where even the hilltops are often composed of overburden to a thickness - as shown in stream valleys - of 75 ft. or more.

Recent

Along the South River occur recent clay deposits and the swamp areas are often covered by a peat-like muskeg.

STRUCTURE:

Very little folding was observed in the gneisses. They were, in general, very close to flat-lying, or dipping gently, northerly. A maximum dip of 15° was very uncommon, in the areas mapped, and even that possibly due to slumping of a cliff-face.

As mentioned in the Introduction, considerable use was made of vertical airphotos in the examination of this area. These airphotos show a series of prominent, elongated valleys cutting across the gneisses. The most prominent set strike generally east-west, with accompanying and intersecting northeast-southwest and northwest-southeast valleys and minor north-south valleys. These topographic depressions are generally occupied by lakes, ponds, streams or swamps and along the major ones there is a considerable distance, across water or overburden, between the outcrop walls. That these valleys mark the directions of jointing is probable and that movement has taken place along some of them is definite - from the evidence of the breccia zones discovered. The directions and distance of movement, however, could not be determined - due to the lack of marker horizons and outcrop.

In the few cases where outcrop could be found in the valleys, the gneisses were considerably brecciated. The brecciated gneisses had been largely replaced by silica and some hematite, with subsequent leaching. The resultant rock was not unlike a low-grade, brecciated iron-formation - "taconite".

ECONOMIC GEOLOGY:

Opinions formed from the writer's examination of the hematite showing on Lot 218, Concession A and adjoining ground, in 1941, were not changed, to any important degree, by the more detailed examination made in 1952.

That there has been an addition of iron oxide, in the form of hematite (often specular), in the whole Lake Nipissing area, is quite obvious from even a casual observation of the rock-cuts along highways #11 and #17.

That this additional hematite sometimes occurs in concentrations of commercial grade (high-grade, in fact), is shown in the deposit on Lot 218, referred to above, and also

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in the float and drill core of Nipiron Mines Limited, on and around Iron Island in Lake Nipissing. However, it has yet to be discovered in commercial quantities.

The surrounding rocks are, at the above occurrences, hybrid gneisses of both sedimentary and igneous origin. There is also present a fossiliferous dolomite. The writer is quite certain that the presence of this fossiliferous dolomite (identified as Ordovician) is a coincidence and has no mineralogical significance. To complicate matters further, the hematite at the Iron Island area occurs mostly in a dolomite of igneous origin; some of which is almost identical, petrographically, with the sedimentary dolomite. However, the average chemical composition of this rock indicates a ferrodolomite and a large part of it is the resultant of replacing older brecciated rocks by ascending ferrodolomite solutions. This ferrodolomite is very similar to that occurring on the footwall of the orebodies at Steep Rock Lake, Ontario.

The economic, geological situation around Lake Nipissing bears some resemblance to the Steep Rock area. There are deposits of high-grade hematite closely associated with igneous ferrodolomite and also some away from the ferrodolomite.

The apparent answer is that Lake Nipissing, like Steep Rock Lake, was formerly an area into which percolated iron-rich solutions. These iron-rich solutions were preceeded by, and possibly, partially accompanied by carbonate and silica enriched solutions. The factors controlling the deposition and resulting locations were necessairly the openings, or channelways, in the overlying rocks; allowing the minerialized solutions to ascend from their parent, magmatic source. Where these openings were spread throughout a considerable mass of rock, over a large area, the amount of iron available for deposition was dissipated throughout the mass and over the area and the present, average amount of iron, per ton, is not commercial. However, where the opening or openings (faults, fracture zones, brecciation, etc.) were confined within relatively small limits, the iron could be deposited in and replace the broken rocks to an extent and concentration that could produce a commercial, iron orebody.

To date, no such iron orebody has been discovered in the Lake Nipissing area. We have, however, the two extremes of evidence - the widespread, iron oxide enrichment of large fracture zones and the narrow, fracture fillings of high-grade hematite.

That a commercial body of medium grade hematite exists, within the general Lake Nipissing area, could be said to be more probable than possible.

During the exploration and examination of the property here under consideration and the general area, showing the association of granitic gneisses with hematite and some pegmatitic rocks, the writer, naturally, speculated on the resemblance between these rock and mineral assemblages and those of the uranium areas in Northern Saskatchewan. Unfortunately, no geiger counter was available during the period of the examination. However, since that time, increased geiger "counts" have been obtained from outcrops of similar rocks, that practically adjoin those shown on the accompanying maps.

CONCLUSIONS:

The areas shown in the accompanying maps, particularly the North Group, are potentially valuable for the locating of small, high-grade, hematite deposits.

These areas are also potentially valuable for the locating of radioactive and rare-earth minerals.

These minerals (both the iron and the radioactive - rare-earth) are likely to be found in close conjunction.

Parts of the adjoining areas have the same mineral potentialities, as those mapped.

The locations of these minerals, in possible, commercial quantities, will be controlled mainly by structural conditions - e.g., intersecting fracture zones - although the presence of pegmatites will be important. However, most of the pegmatites seen occurred close to, or within, one of the postulated fault zones.

Not as a conclusion, but rather as an unproved theory: it may be that the basic phases of the gneisses are more favourable for the deposition of the radioactive - rare-earth minerals, than the acidic phases.

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RECOMMENDATIONS:

That a diamond drill hole be put down on the North Group, as recommended by Radar Explorations. This drill hole to be started at a point on gravity survey line H, 25 feet north of station 1 N, and be drilled at an angle of 60°, bearing of south 10° west, for a slope length of 300 feet.

That the property, beyond the areas already mapped, be prospected for the presence of breccia zones with hematite staining. (This can be done, most satisfactorily, by traversing along the bases of the ridges forming the valley walls - as shown on the vertical airphotos.)

That a geiger counter be used by the prospectors during their search for hematite enriched breccia zones.

That, on the discovery of such a breccia zone, and/or increased geiger "counts", detailed prospecting be done, of the immediate area, both for hematite and radioactive mineral deposits.

That any occurrences of pegmatite and/or basic rocks, be prospected very thoroughly, using the geiger counter, for radioactivity.

Respectfully submitted,

W. D. Neeland, M.Sc.

Dated at Thornhill, Ontario,
This 10th day of September, 1953.

NORTH GROUP

(Comprising Mineral Claims No's P.S. 1855, P.S. 1877, P.S. 1879, P.S. 1881, Nipissing, Twp.)

Time Record of Employees Engaged on Geological Survey

Name of Employee	Address	Title	Nature of Work	Period of Employment (all dates in 1952)	8 hr. days
Victor Kelly	Powassan Ont.	Geological Assistant	Geological Survey	June 15 - July 30 incl.	16
Charles Vester	Powassan Ont.	Geological Assistant	Geological Survey	Aug. 5 - 31 incl.	27
W. D. Neeland	Thornhill Ont.	Geologist	Geological Survey	June 24 - July 4 incl.	11
				July 17 - 20 incl.	4
				July 26 - 28 incl.	3
				Aug. 5 - 10 incl.	6
				Aug. 13 - 21 incl.	9
				Sept. 1	1
W. D. Neeland	Thornhill Ont.	Geologist	Draughting maps & preparing reports	June 24 - Sept. 18	10
				Total 8 hr. days	87

Total time spent directly on claims listed: 60% of 87 = 52

I hereby rtify that the parties listed above were eng d on the work, designated, for the total time shown.

Dated at Thornhill, Ontario,
This 23rd day of October, 1953.

W. D. Neeland, M.Sc.

SOUTH GROUP

(Comprising Mineral Claims No's P.S. 1678, P.S. 1679, P.S. 1680, P.S. 1681, P.S. 1703, Nipissing, Twp.)

Time Record of Employees Engaged on Geological Survey

Name of Employee	Address	Title	Nature of Work	Period of Employment (All dates in 1952)	8 hr. days
C. N. Cowan	516 Driveway Ottawa	Geological Assistant	Geological Survey	May 8 - 10 incl.	3
M. R. Hargrave	c/o Radar Exploration Co. Toronto	Geological Assistant	Geological Survey	May 16 - 29 incl.	13
Victor Kelly	Powassan Ont.	Geological Assistant	Geological Survey	June _ - 14 incl.	14
W. D. Neeland	Thornhill Ont.	Geologist	Geological Survey	May 8 - 10 incl. May 14 - June 2 incl. June 10 - 14 incl.	3 15 5
W. D. Neeland	Thornhill Ont.	Geologist	Draughting maps & preparing reports	June 24 - Sept. 18 incl	15
				Total 8 hr. days	68

Total time spent directly on claims listed: 75% of 68 = 51

I hereby certify that the parties listed above were engaged on the work, designated, for the total time shown.

W. D. Neeland, M.Sc.

Dated at Thornhill, Ontario
This 23rd day of October, 1953.

Telephone
AVenue 5-1700

Franklin Avenue,
Thornhill, Ont.

October 23rd, 1953.

Dr. H. C. Rickaby,
Deputy Minister of Mines,
Ontario Dept. of Mines,
Toronto, Ontario.

Dear Sir;

During parts of the period May 8th to Sept. 18th, 1952, and to some extent continued into 1953, I was employed by J. H. Dumouchel and associates to geologically examine, map and report on parts of various Mineral Claims, Patented Lands and Crown Lands, to the west and southwest of South Bay, Lake Nipissing.

Unfortunately, Mr. Dumouchel died suddenly on April 14th, 1953, and the work which was just then recommencing after the winter, was terminated; as the Mineral Claims were all recorded in Mr. Dumouchel's name.

It was requested, by some of Mr. Dumouchel's associates, that I compile all the geological information derived from my previous work in a form to be acceptable for Assessment Work credit[illegible] been done, and I trust, correctly.

There [illegible]ached a certified statement listing those engaged in [illegible] work, with the dates of their employment and the percent[illegible] of such time, that, to the best of my knowledge, was spent directly on the geological surveying, mapping and composing of the report on the Mineral Claims for which Assessment Work credit is applied.

You will see, from the accompanying geological maps and report, that the work here being reported is divided

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Telephone
AVenue 5-1700

Franklin Avenue,
Thornhill, Ont.

October 23rd, 1953.

Dr. H. C. Rickaby,
Deputy Minister of Mines,
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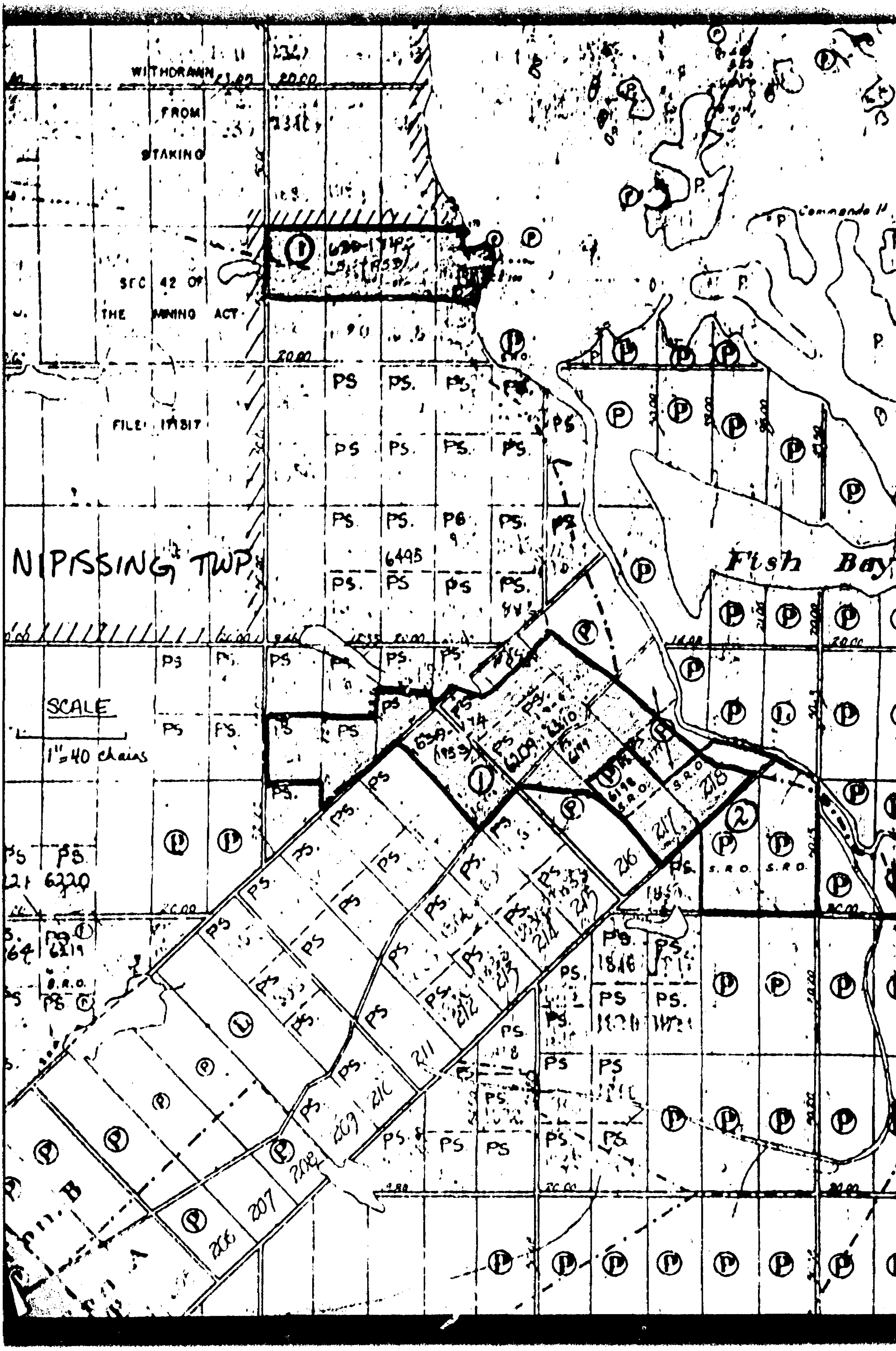
There is attached a certified statement listing those engaged in the work, with the dates of their employment and the percentage of such time, that, to the best of my knowledge, was spent directly on the geological surveying, mapping and composing of the report on the Mineral Claims for which Assessment Work credit is applied.

You will see, from the accompanying geological maps and report, that the work here being reported is divided between two separated groups of claims. The lists showing the employees' terms of employment, on these claim groups, are also divided. Although there may be minor discrepancies in the listing of the dates on which the individuals worked on the different claim groups, such discrepancies will not affect the total days spent on each claim group, and a sufficient percentage of the total time has been deducted to more than offset any unintentional errors that might exist.

Respectfully yours,

[signature]

W. D. Hooland.


WITHDRAWN
FROM
STAKING
SEC 42 OF
THE MINING ACT
FILE 171817
NIPISSING TWP
SCALE
1" = 40 chains
Fish Bay
Commando II
PS
S.R.O.

FOR ADDITIONAL

INFORMATION

SEE MAPS:

NIPISSING-0010-A1 # 1

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NIPISSING -0010-A1 #1

NIPISSING TOWNSHIP

PLAN OF ELEVATIONS

SCALE 1" = 100'

Note :- assumed elevation A.O. 1020 Feet

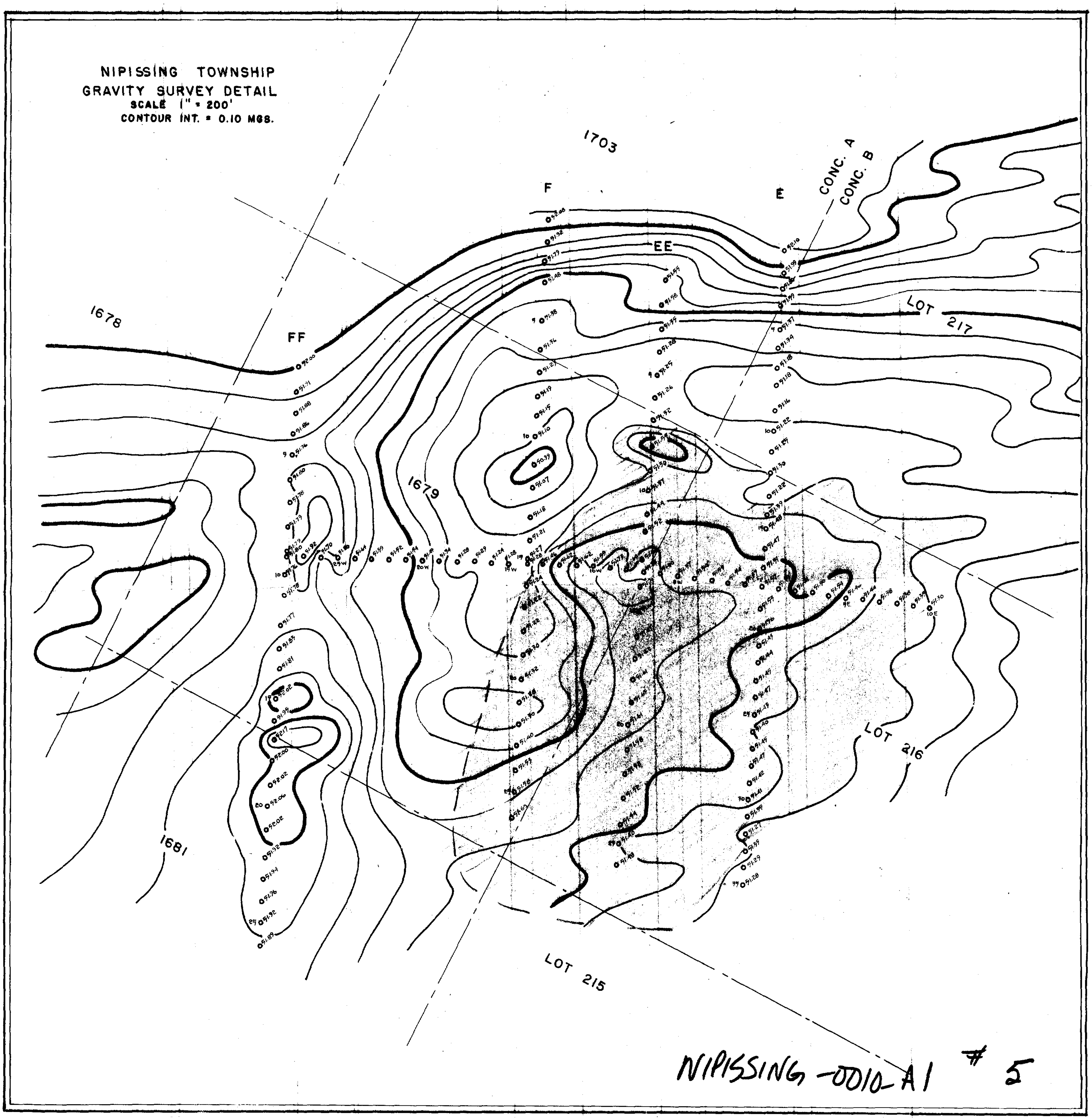
210

NIPISSING-0010-A1 #2.


POWASSAN NIPISSING TWP.
ASSUMED ELEVATION DATUM B-O 1000'
SCALE 1" = 200'
CONTOUR INTERVAL 10'
LOT 215
LOT 216
LOT 22
LOT 23
LOT 24
LOT 25
CON XII
CON B
1678
1679
1680
1681
1682
1684
1685
1686
1700
1701
1050
1100
1150
1200
1250
1300
1350
1400
FOUND POST
N
NIPISSING -0010-A1 #3

230

NIPISSING 0010-A1 #4



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NIPISSING - 0010-A1 #8

270

NIPISSING-0010-A1 #9

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NIPISSING-0010-A1 #10

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