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THE ALICE LAKE MAGNETITE DEPOSIT.

by John J. Drury.

Introduction - From July 25 to August 12, 1950, a Jalore field party was engaged in prospecting and mapping the Alice Lake magnetite deposit. Some reconnaissance work was done in the area surrounding this deposit.

Location: The Alice Lake magnetite deposit is located on the east side of Alice Lake, about one half mile north of the south boundary of Township 29, Range 26, in the Michipicoten District of Ontario. It runs parallel to, and 300 to 400 feet east of the east side of Alice Lake. This magnetite zone is about one half mile south of the old Magpie mine where siderite was mined from 1912 until 1921.

Alice Lake is accessible by a road running north from Magpie on the Algoma Central Railway's Michipicoten branch. The road passes along the west side of Alice Lake, which is eight miles north of Magpie, and the magnetite can be reached by crossing the lake or by walking around the south end of it.

History and Ownership: Only the southernmost third of the magnetite zone is covered by mining claims in good standing, the patented mining claims covering the southern end of the zone are claims JL88, JL89, and JL90. They were staked by the Algoma Central Railway, probably in 1909, which about the time the Magpie mine was staked,. From June, 1910, until March 1911, 4858 feet of diamond drilling was done on this deposit by the Lake Superior Corporation. Some trenching has also been done at some time, probably around the time of the drilling,. As far as we know, this is all the work that had been done up to 1950. At some time the exploration records passed to Algoma Ore Properties, who were kind enough to make them available to the Jalore Mining Company.

In 1950 an aeromagnetic survey showed a high magnetic zone on the east side of Alice Lake. It was investigated by F. Dubec and W. Richards. and later by J.P. McKee and myself. The surface outcrops of magnetite looked promising enough to warrant further prospecting of the area, and geological mapping of the magnetite zone.

Topography: The Alice Lake magnetite occupies a ridge for the most of its length. This ridge rises 75-100 feet from Alice Lake. On the east side of the ridge the ground is swampy, although considerably higher than the lake. The magnetite lens that lies between Alice and Eva Lakes is in low ground, and shows very little outcrop.

Personnel and Method - The mapping and exploration of the Alice Lake area was done for the main part by a party of four, in charge of G.E. Webber, who is responsible for a large part of the geological report contained herein. The party included J.C.L. Graham, S.W. Evans, and A. Turner. At various times Fernand Dybus and myself worked on the magnetite zone, and also on the general reconnaissance. A camp was located on the Magpie River, about one mile south of Alice Lake.

Using the road and Alice Lake as control lines, reconnaissance traverses, one thousand feet apart, were run east for a distance of 2000 feet. Between these, intermediate traverses were run east for a distance of about 1000 feet, which put them across the magnetite zone. This gave traverses over the magnetite zone at 500 foot intervals. These traverses were run using a sun compass and pacing control. Dip needle readings were taken at 25 foot intervals over the magnetite zone, and at 50 foot intervals along the rest of the traverse.

To outline the magnetite zone, a detailed traverse was run down its length, using a sun compass and chaining for control.

GENERAL GEOLOGY.

Iron Formation and magnetite zones, trending approximately N10W, extend from the east side of the north end of Alice Lake south for 3000 feet. These zones are bordered on either side by felsite and felsite breccia. A large basic intrusive, 500 to 700 feet wide, lies roughly parallel to the magnetite zone, and 600 feet east of it.

Magnetite and Pyrite, with some chlorite

Basic Intrusive

Granite

Iron Formation

Felsite, felsite breccia, and associated volcanics.

Felsite and Felsite Breccia - The felsite is mostly fine grained and siliceous. It is possible that the rocks classed as felsite are of diverse origin, but they are definitely of pyroclastic origin and are more basic than the typical felsite.

In many places the felsite is well brecciated, and S.W. Evans who is doing some photographic work on these rocks as part of a bachelor's thesis, reports that in thin section all the felsite he has studied is brecciated. The matrix of this breccia is chiefly chlorite, with varying amounts of magnetite. In places the magnetite content is very high. The fragments are sub-angular, and vary in composition from silica to carbonate and sericite. In places the chlorite appears to be replacing the felsite fragments along the edges in a feathery fashion, and in isolated spots the rock has been almost

completely altered to chlorite.

Granite - Some granite outcrops near the east side of Pete Lake. It is composed primarily of pink feldspar, with some quartz and very little dark mineral.

Basic Intrusive - The basic intrusive lies nearly parallel to, and 600 feet east of, the magnetite zone. It is a coarse to fine grained rock, composed chiefly of amphibole and pyroxene and a pale green mineral which is probably feldspar. Considerable chloritization has taken place in this rock. The basic intrusive appears on the 1"=200' geologic map as diorite.

Magnetite Pyrite and Iron Formation - See Economic Geology.

ECONOMIC GEOLOGY.

Magnetite outcrops onechelon in apparently disconnected zones with an overall length of approximately 3000 feet. The widest exposed zones are about 30 feet, although discontinuous outcrops indicate that widths on surface may be as great as 100 feet. The largest blocks of magnetite, judging from surface exposures, are the northernmost one and the southern lens, each being about 700 foot long and having an average surface width of 30 to 40 feet.

In general the magnetite is fine grained. It is intermixed with pyrite and chlorite, the pyrite being disseminated in some places and relatively massive in others. The pyrite and chlorite, although in places making up 35% of the magnetite zone, are not present throughout all of the magnetite. In some zones the magnetite is very siliceous, and has a conchoidal fracture. The magnetite associated with the iron formation just north of Pete Lake is probably not more than 20 feet wide and 400 feet long. It appears to be siliceous.

Iron Formation (banded silica and siliceous magnetite, leached granular silica, chlorite and magnetite, slightly banded) is present next to the magnetite in several places. Where a relationship can be observed the magnetite is on the east side of the iron formation, but the I.F. is not continuous for the whole length of the magnetite.

The grade of some samples collected by F. Dubuc from the Alice Lake magnetite is as follows:

	<u>Tot Fe.</u>	<u>Mag Fe</u>	<u>SiO2</u>	<u>S</u>	<u>Mn.</u>
Alice Lake #1 -	50.20	48.10	16.88	.080	.34
Alice Lake #2 - 57	57.29	56.17	11.26	.006	.30
Alice Lake #3 -	51.21	48.62	12.92	.048	.53
Alice Lake #4 -	54.67	54.12	11.20	.062	.87
Alice Lake #5 -	41.58	26.09	17.34	10.03	.19

The grade of the southernmost lens on the Algoma Central Railway claims, as established from the records of the drilling follows:

<u>Fe</u>	<u>SiO</u>	<u>S</u>	<u>P</u>
38.83	15.90	5.52	.019

Structure - The Alice Lake magnetite occurs in a series of lenses, nearly parallel to one another, and having a general strike of N10W. They probably dip steeply to the west, although seem to be almost vertical. R The zone is offset by two faults one at either end of Alice Lake. They strike N80W and are right hand faults.

Summary of Previous Work - Records of the previous work done on the Alice Lake magnetite were made available to the Jalore Mining Company by Algoma Ore Properties. Those records consisted of a map of the Alice Lake area at a scale of 1" = 200' showing the location of a number of magnetite lenses and also the location of eight diamond drill holes, plus the logs of these drill holes. These logs showed that 4858 feet of drilling has been done on four of the magnetite lenses.

Five of the drill holes were drilled on the southernmost lens, which is on claims held by the Algoma Central Railway. These holes showed the magnetite to be at least 40 feet wide in places, and to have a depth of at least 586 feet. This lens has a minimum length of 800 feet, and may extend out into Alice Lake. The other drill holes were less encouraging. No ore was found by a hole under the lens immediately north of the Algoma Central claims, although the magnetite at the surface is about 40 feet wide, however, this hole was drilled in an area of faulting and may have missed the ore for that reason. The other two holes, drilled near the center of the ore zone, only picked up traces of the ore, and we have been unable to correlate these traces with surface outcrops. The collars of all the drill holes but number 8 were found in our mapping.

In 1948 some work was done by Jalore on the mineralized zone on the west side of Eva Lake. This zone consists of a narrow band of iron formation with a narrow (10 feet) band of chlorite, magnetite, and pyrite on the east side of it. This

iron formation was traced for 1500 feet, and was found to be highly magnetic in most places.

Geophysical Information - The geophysical information we have on the Alice Lake area is confined to magnetics. Dip needle readings were taken on the traverses run, and the area was covered by both Aeromagnetic Surveys, and Lundberg in their airborne magnetometer surveys.

Dip Needle - It was found that the felsite breccia is strongly magnetic in places, due to the magnetite contained in its matrix. However, extremely high readings, such as those found over the magnetite, indicate high magnetic anomalies in the south end of Alice Lake, in the north end of Eva Lake and immediately east of the northern lenses of magnetite.

Airborne Magnetometer - These surveys showed a highly magnetic area in the vicinity of the Alice Lake magnetite and also showed a magnetic anomaly on Eva Lake.

Conclusions: There is a magnetite zone, at least 3000 feet long, part of which is on land open to staking.

The magnetite is in discontinuous lenses.

Although chlorite, silica and pyrite are present, the magnetite constitutes a large part of the mineralized zone.

There are possibly other magnetite zones of lenses not yet discovered, which might be found with more detailed dip needle work.

If the old drill records are reliable, the most promising looking magnetite lens is the one on the claims held by the Algoma Central Railway.

Recommendations: - The planning of further work depends on whether Jalore can acquire the three claims, JL88, JL89, and JL90 from the Algoma Central Railway under favourable terms. If this can be arranged the area warrants further exploration.

December 18, 1950.

Respectfully submitted,

John J. Drury.
Jalore Mining Company Limited.

L.P. Barrett.
J.P. McKee.

JONES & LAUGHLIN STEEL CORPORATION

AND SUBSIDIARY COMPANIES

PITTSBURGH, PA.

INTERDEPARTMENT CORRESPONDENCE

TO L.P. Barrett, Chief Geologist

DATE December 20, 1950

FROM J.J. Drury

SUBJECT Alice Lake Report



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Enclosed herein is a copy of the Alice Lake report, with one map of the magnetite zone at a scale of 1"-100'. Copies of the 1"-200' geological map, the 1"-200' magnetic map, and the 1"-1320' areal map will follow as soon as prints can be made

John J. Drury

cc.
L.P. Barrett
J.P. McKee



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A.C.R. TOWNSHIP 29 RANGE 26 (DE)

GENERAL

Only one traverse was made along the Magpie River road. Rocks encountered during this traverse were mostly volcanics with a small band of iron formation near the Magpie Mine.

VOLCANICS

Volcanic rocks along the road are both intermediate and basic types with a northeasterly strike. Small stringers of white quartz with rusty iron stain are common.

IRON FORMATION

Iron Formation near the Magpie Mine occurs in both acid and basic types of volcanics. It is usually pale brown in colour with streaks of dark grey magnetite. Small bands of sugary chert are a common feature. Siliceous siderite with streaks of pyrite is plentiful in the mine dump.

ECONOMIC GEOLOGY

Although there are signs of iron occurrence in the area, chances of iron occurring in economic amounts are scanty as the area has been quite thoroughly investigated by Algoma Ore Properties.

B. Vishnupada,

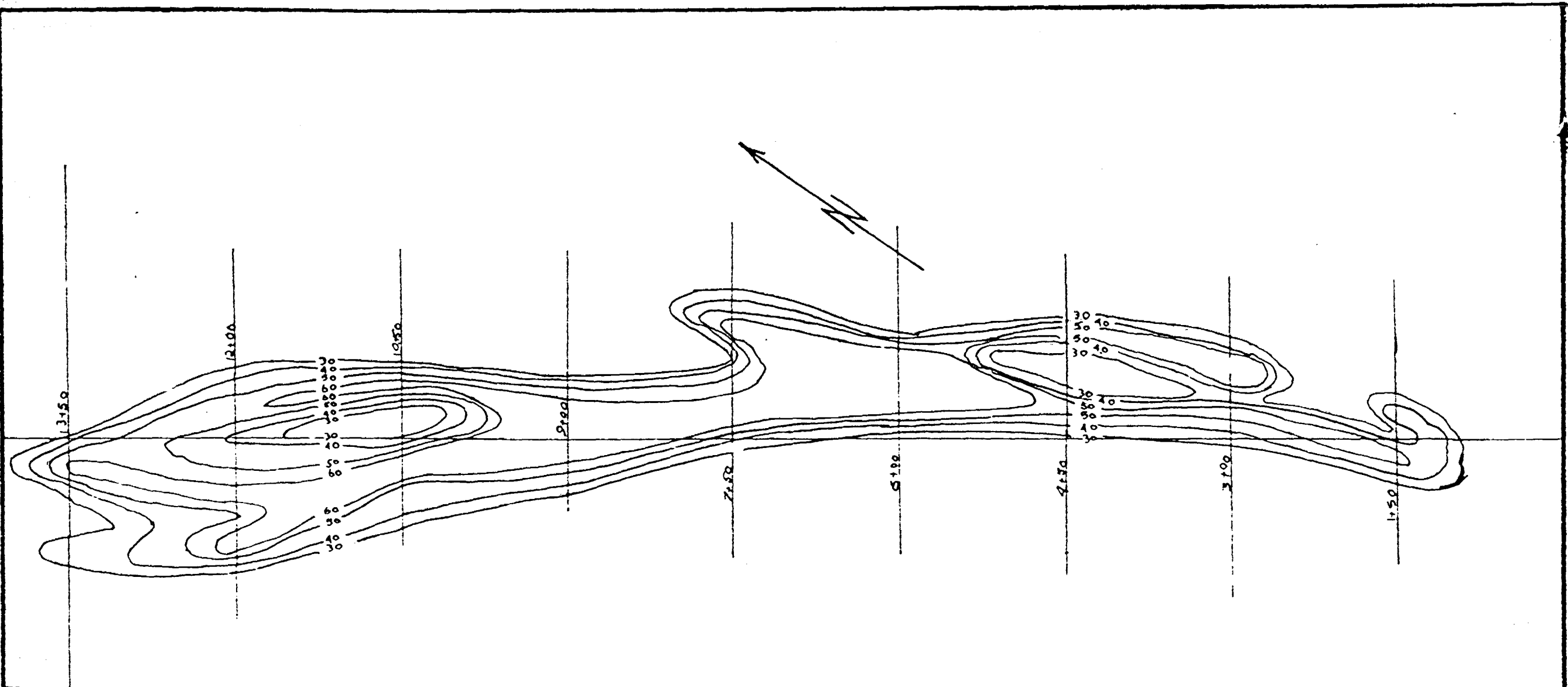
June 1962.

RECEIVED
DEC 7 1965

**RESIDENT GEOLOGIST
SAULT STE. MARIE**

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ALGOMA CENTRAL RAILWAY

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THE OFFICE OF THE RESIDENT
GEOLOGIST, ONT. DEPT. OF MINES
SAULT STE. MARIE, ONT.



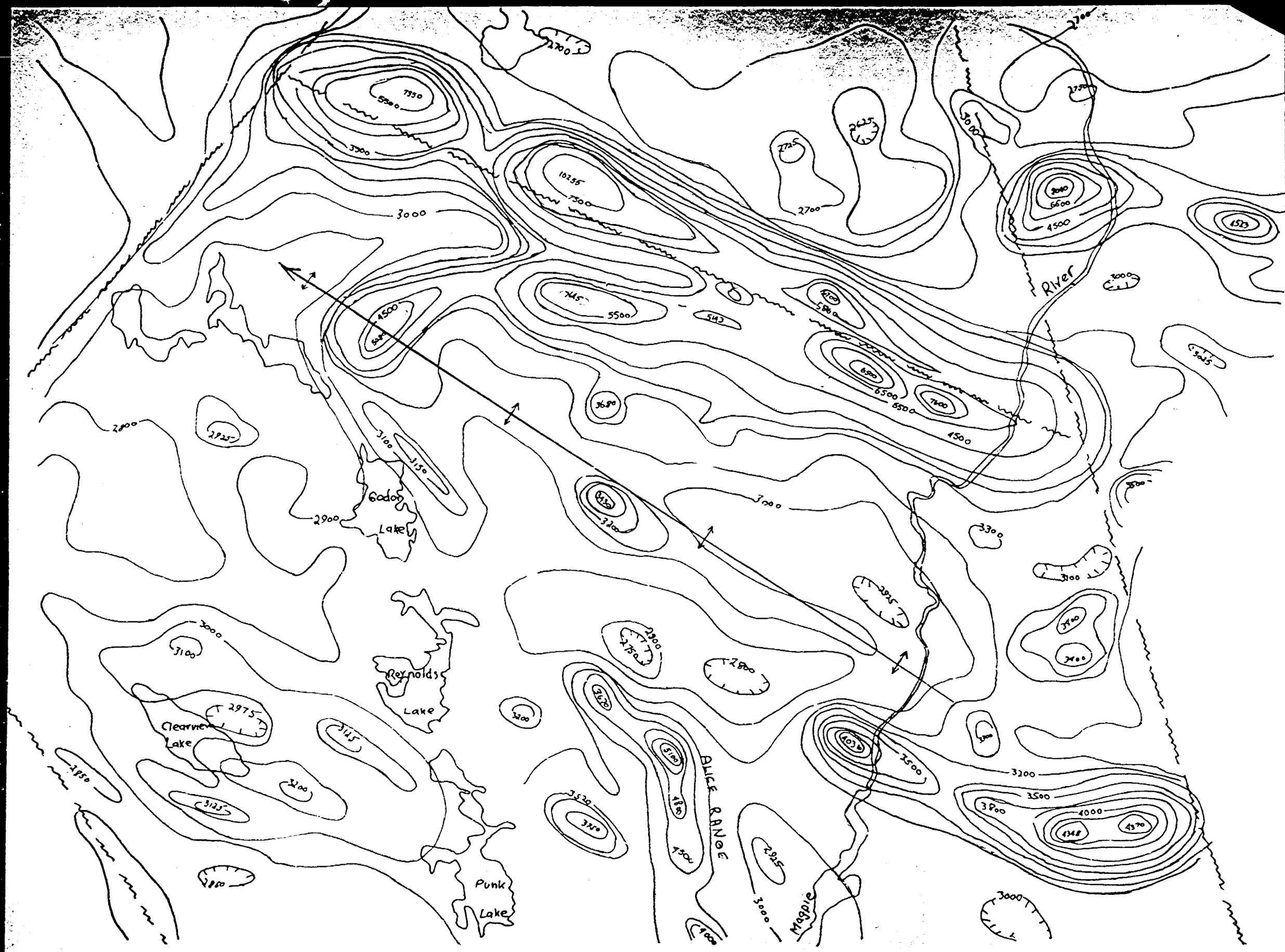
Twp. 29 - R. 26 DE

FINGER LAKE ANOMALY

MAGPIE AREA
SCALE 1" = 100' 1953

Scale
1" = 100'

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inked MAY/61 W.P.M.



Scale
 1" = 2640 (1/2 mile)
 Scale 1" = 2640 (1/2 mile)

1953

TW 29, R. 26 DE
AEROMAGNETIC MAP

inked
 may 1961
 W.P.M.

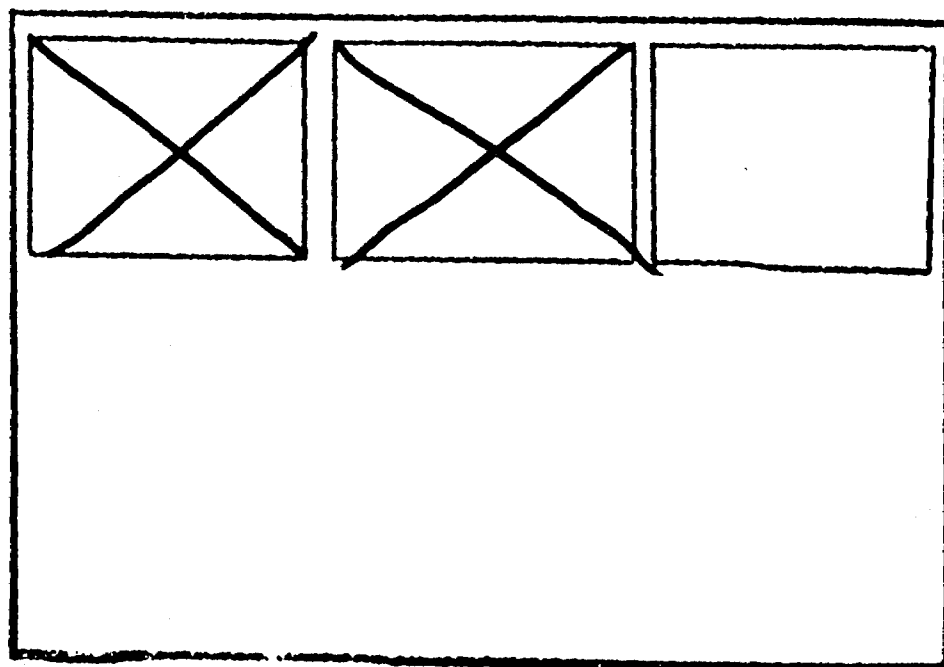
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SEE ACCOMPANYING
MAP(S) IDENTIFIED AS

LECLAIRE-0012-A1 #1

LECLAIRE-0012-A1 #2

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

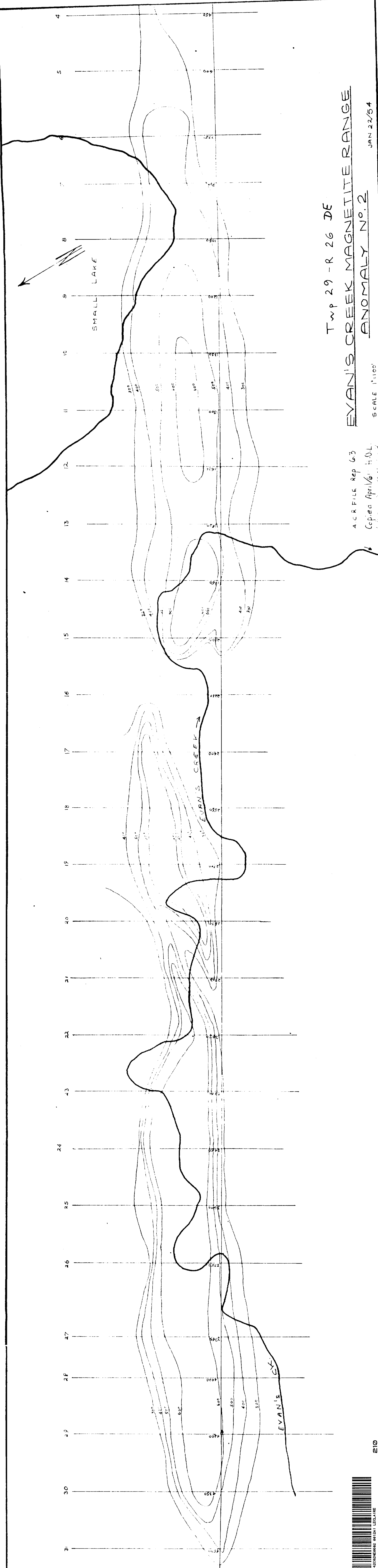


FOR ADD. INFO

SEE MAPS

IN 0011-A1

RE: ALICE LK PROP.

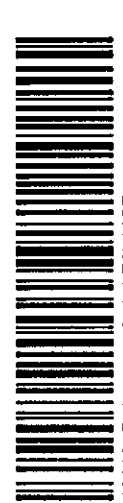


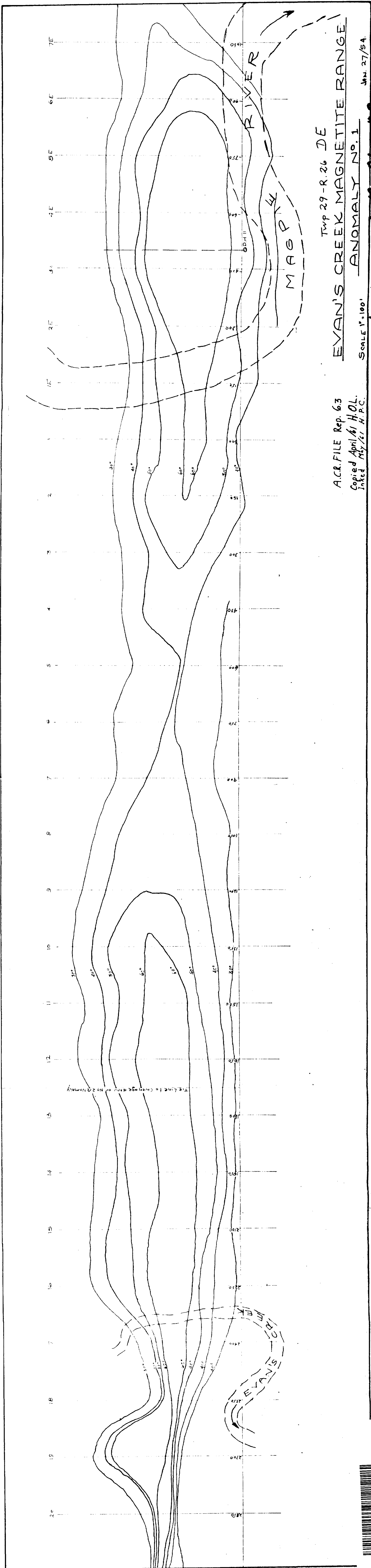
Twp 29-R 26 DE
 EVAN'S CREEK MAGNETITE RANGE
 ANOMALY No. 2

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JAN 22/54

SCALE 1"=100'





Twp 29-R.26 DE
 EVAN'S CREEK MAGNETITE RANGE
 SCALE 1"=100'
 ANOMALY NO. 1
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JUN. 27/54

