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GEOLOGY OF THE MANITOUWADGE GREENSTONE BELT OVERLAIN ON SHADED RELIEF OF TOTAL FIELD MAGNETICS

ONTARIO

OPEN FILE 3034

GEOLOGY

GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA

CANADA ONTARIO Agreement on Mineral Development / Entente sur le développement minier

Scale 1:25 000 - Échelle 1/25 000

Metres 500 0 500 1000 1500 2000 Mètres

Universal Transverse Mercator Projection
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Geology by E. Zalecki and V.L. Peterson

Magnetic information was provided in digital form by the Geophysics Division, Geological Survey of Canada

Lightsource for shaded relief was set at an inclination of 40° and a declination of 180°

Digital cartography by T.D. West, Geological Survey of Canada

Electrostatic plot produced by the Geological Survey of Canada

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Digital base maps from Ontario Ministry of Natural Resources, Land and Resources Information Branch. Modified by the Geological Survey of Canada

Digital copies of the base map may be obtained from the Provincial Mapping Office, Topographic Data Base, North York, Ontario M3N 5A1. Paper copies of the base maps may be obtained from the Natural Resources Information Centre, Toronto, Ontario M7A 1C1

Magnetic declination 1995, 1°29'W, increasing 4.7' annually

LOCATION MAP

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE

OPEN FILE DOSSIER PUBLIC 3034
GEOLOGICAL SURVEY OF CANADA COMMISSION GÉOLOGIQUE DU CANADA OTTAWA
04/1995

REFERENCES

Fenson, V.L. and Zalecki, E.
1994 Section and tectonics of the Manitouwadge greenstone belt and Wawa-Quetico subprovince boundary, northeastern Ontario; Current Research, Part C; Geological Survey of Canada, Paper 94-C, pp. 227-237.

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1994 Geological and gold metallogenic investigations of the Manitouwadge greenstone belt, northeastern Ontario; Current Research, Part C; Geological Survey of Canada, Paper 94-C, pp. 239-248.

Zalecki, E., Fenson, V.L. and von Brunsen, D.
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LEGEND

Diabase: dykes of probable Proterozoic age; mapped; inferred from aeromagnetic trend

WAWA SUBPROVINCE

INTRUSIVE ROCK UNITS

16 — *Alkalic rocks: syenite to hornblendite, massive to foliated, locally net veined or intrusion breccias*

15 — *Pegmatites, aplites, foliated granitoid massive to foliated, pegmatite locally accompanied by aplite with lineated allilanarite on shear surfaces and transitional to straight gneiss*

14 — *Undivided foliated intrusive rocks: dominantly tonalitic multiphase intrusions, also diorite, granodiorite, granite enclosing supracrustal rocks (eg. Black Pic batholith); semiconcordant tonalitic bodies intruding supracrustal rocks*

13 — *Foliated K-feldspar porphyritic granitoid: in two main bodies; a. Nama Creek pluton - long sinuous body folded by the Blackman Lake antiform between Black Pic batholith and Manitouwadge greenstone belt; b. Loken Lake pluton - in the centre of Manitouwadge synform; 3-20%, 1 cm phenocrysts; b. Loken Lake pluton - in the centre of Manitouwadge synform - K-feldspar megacrysts: to 15 cm) augen*

12 — *Foliated trondhjemite to granitoid leucocratic, medium to coarse grained, quartz-rich (50-65%), typically magnetite porphyroblastic, synvolcanic intrusion locally with hornblende-plagioclase alteration seams; transitional more potassic variants toward granitoid counterparts*

TECTONIC ROCK UNITS

11 — *Straight gneiss: laminated annealed mylonite, mappable units of felsic composition*

SUPRACRUSTRAL ROCK UNITS

10 — *Metasedimentary rocks: mainly monotonous metagreywackes and biotite schists, hornfelsed equivalents, locally with turbiditeous component (quartz and plagioclase crystal clasts), locally laddied and showing soft-sediment deformation*

9 — *Metamorphosed iron formation; three main types: a. Quartz-magnetite - alternating quartz-rich and magnetite-grunerite-(+hedenbergite-(+actinolite-(+garnet layers commonly with disseminated pyrite, locally forming a transitional zone between quartz-magnetite iron formation and massive sulphide bodies; b. Oxide(s) - quartz-rich with disseminated pyrite - hedenbergite-(+actinolite-(+garnet; c. Oxide(s) - quartz-rich with disseminated pyrite - pyrrhotite, locally forming a transitional zone between quartz-magnetite iron formation and massive sulphide bodies*

8 — *Quartz-phyric felsic metavolcanic rocks: three mappable bodies ranging from rhyodacite to rhyolite in composition, commonly with quartz and feldspar phenocrysts, typically quartz mosaic mosaicite or cast-silicate mineralization, patchy distribution of microcline*

7 — *Aphyric felsic metavolcanic rocks: monolithologic and heterolithic breccias, typically with abundant garnet-hornblende matrix*

6 — *Felsic to intermediate metavolcanic rocks: mainly heterogeneous and transitional hornblende-biotite schists, gneisses, layered rocks and foliated diorites, commonly with garnet-hornblende-rich patches*

5 — *Intermediate to mafic metavolcanic rocks: heterogeneous and transitional hornblende-biotite schists, gneisses, layered rocks and foliated diorites, commonly with garnet-hornblende-rich patches*

4 — *Mixed mafic and felsic metavolcanic rocks: interlayered mafic, felsic and intermediate metavolcanic rocks, transitional to garnet-orthoamphibole gneisses, epidote locally abundant, locally quartz-phyric*

3 — *Mafic metavolcanic rocks: dark laminated to schistose hornblende-rich, locally silicified, intercalated with medium to coarse grained foliated gabbros and hornblende-augen schists, locally garnet-rich zones ± orthoamphibole*

METASOMATICALLY ALTERED ROCK UNITS

2 — *Orthoamphibole-garnet-cordierite gneiss: coarse grained, typically layered with quartz-rich layers, commonly with garnets by orthoamphibole-garnet porphyroblasts, 5-20% and on a scale of 0.5 to several metres) with silliman(ite-garnet-biotite schist, also contains magnetite, biotite and cordierite manifested by cordierite, local biotite pseudomorphs of orthoamphibole*

1 — *Sillimanite-muscovite-garnet-cordierite-anthophyllite: includes interlayered similar or transitional rocks that are characterized by abundant muscovite and/or sillimanite (fibrolite) and/or biotite-K-feldspar-garnet-cordierite-magnetite. Is associated with orthoamphibole-garnet-cordierite gneiss and quartz-rich gneiss. Includes Hillsborough and Cavo mines - quartz-rich, abundant sillimanite knots; 2) Ridge region - interlayered quartz and sillimanite-rich layers, abundant sillimanite knots, locally large (1-6 cm) zoned sillimanite knots dispersed in schistose quartz-staurolite-kyanite-microcline-biotite-garnet matrix, local quartz-garnet-epidote patches*

QUETICO SUBPROVINCE

10q — *Metasedimentary rocks: mainly monotonous metagreywackes and derived migmatites, biotite-garnet-sillimanite in more pelitic layers, locally with cordierite-bearing leucosomes*

Geological contact (defined, approximate, assumed)

Fault (defined, interpreted)

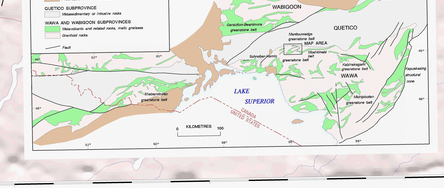
Trace of fold axial surface (D3, D4)

Dominant foliation (D2)

Mineral/stretching lineation (D2-D3)

Massive sulphide deposit : Cairn (G), Willroy (cordierite ± (+ K), Nama Creek (N), Willecho (cordierite W1 to W3)

Road washout



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Copies of this map may be obtained from the Geological Survey of Canada 601 Booth Street, Ottawa, Ontario K1A 0E8

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