Natural Resources Canada / Ressources naturelles Canada

GEOLOGICAL SURVEY OF CANADA / COMMISSION GÉOLOGIQUE DU CANADA

Saskatchewan Energy and Mines / Saskatchewan Geological Survey

DESCRIPTIVE NOTES

This bedrock geology map is the third in a series of three that form a continuous transect across the northwestern Reindeer Zone of the Trans-Hudson Orogen, from the Kisseynew Domain to the Peter Lake Domain. The three maps, resulting from field work undertaken between 1997 and 1999 by the Geological Survey of Canada (GSC), span the entire ~220 km length of Reindeer Lake in Saskatchewan [parts of NTS map sheets 64D/07; /09; /10; /15; /16; and 64E/01; /02; /07; /08; /09; /10; /16]. They integrate with a new series of 1:20,000 scale geological bedrock maps published by the Saskatchewan Geological Survey (SGS), centered on the La Ronge-Lynn Lake Bridge Project (Maxeiner, 1997; 1998; 1999; Maxeiner and Demmans, 2000; Harper, 1998). The first, recently published GSC map (Corrigan, 2000a) is located in the southern region of Reindeer Lake and covers NTS map sheets 64D/07; /09 and /10 at 1:50,000 scale. It spans from the northern flank of the Kisseynew Domain to the central part of the La Ronge Domain, and adjoins with 1:20,000 scale maps published by SGS (Maxeiner, 1997; 1998). The second map (Corrigan, 2000b) covers the central portion of Reindeer Lake at 1:100,000 scale and incorporates NTS map sheets 64D/16 and 64E/01 in their entirety as well as parts of map sheets 64D/15 and 64E/02. It extends from south to north from the central part of the La Ronge Domain to the south margin of the Wathaman Batholith. The map presented herein is located in the northern region of Reindeer Lake, covering NTS map sheets 64E/07; /08; /09; /10; and /16, at 1:100,000 scale. Parts of this map sheet have been previously mapped by Shklanka (1962), Stauffer et al. (1980; 1981) and Potter (1979) and appears on a 1:250,000 scale compilation map produced by the SGS (Macdonald and Thomas, 1983).

REGIONAL GEOLOGY

The Trans-Hudson Orogen in northern Saskatchewan (Reindeer Zone) forms a collage of west- to southwest-trending juvenile arcs and sedimentary basins that were accreted to the Archean Hearne, Superior and Sask cratons during Paleoproterozoic collision (e.g., Lewry et al., 1990). Along Reindeer Lake, the northwestern flank of the orogen is well exposed and includes, from lowest to highest structural levels, the Glennie, Kisseynew, La Ronge, Rottenstone and Peter Lake domains (see inset map), with the first three domains forming part of the orogen internides (however, see text below for an update). The Glennie and La Ronge domains consist of ca. 1.90-1.87 Ga juvenile volcanic rocks and arc-flanking sedimentary basins. The Kisseynew Domain outcrops in the core region of the orogen and consists predominantly of metaturbidites of the Burntwood Group, as well as fluvial to shallow marine sediments, interpreted as molasse deposits (Stauffer, 1990) along its northern and southern margins. The Burntwood Group is constrained by U-Pb dating to be younger than ca. 1.85 Ga (Ansdell et al., 1995), but in the Reindeer Lake area it is apparently folded and tectonically interleaved with supracrustal rocks that are older than ca. 1.90 Ga (Levesque Bay assemblage; Corrigan et al. (1999)), suggesting apparent tectonostratigraphic complexity. The La Ronge Domain forms a continuous, curvilinear belt up to 50 km in width, which is correlative with the Lynn Lake Belt in Manitoba. It consists of 1.90-1.88 Ga supracrustal rocks of the Central Metavolcanic Belt and its plutonic root (Crowe Island Complex) intruded by pre- to post-accretion plutons (Thomas, 1993), most of which forming satellite intrusions to the Wathaman Batholith (Corrigan et al., 1999). The metavolcanic rocks are predominantly mafic in composition and range from low-K tholeiitic to calc-alkaline (Watters and Pearce, 1987) and have been interpreted as being formed in an ensimatic island-arc setting (Thomas, 1993). Most plutons that intrude the La Ronge Domain exhibit strong calc-alkaline trends and isotopic and trace element characteristics that are consistent with emplacement in a continental arc setting (MacHattie, 2001). The Rottenstone Domain is lithologically complex and varies in composition along strike of the orogen. In its southwestern extent, outside of the Reindeer Lake area, it comprises tonalite, migmatite and metasedimentary rocks of unknown age, intruded by the 1865-1850 Ma Wathaman Batholith (Lewry et al., 1990). Along Reindeer Lake, the Rottenstone Domain consists of volcanic, plutonic and sedimentary rocks potentially representing northern extensions of the La Ronge Domain, as well as remnants of a foreland or forearc basin (Park Island assemblage; Corrigan et al., 1999). Therefore, on this map, we do not follow the Rottenstone domain nomenclature inferred in Macdonald and Thomas (1983), but instead, we interpret supracrustal rocks that occur in the southeastern corner as belonging to the Central Metavolcanic Belt of the La Ronge Domain.

LA RONGE/ROTTENSTONE DOMAINS

A portion of the La Ronge domain appears in the southeastern corner of this map sheet, where three of its major units are represented. In order of decreasing relative ages, they consist of the Central Metavolcanic Belt, the Crowe Island Complex and the Park Island assemblage. In the adjacent map sheets to the south, Maxeiner (1997; 1998, 1999) and Corrigan et al. (1997, 1998a, 1998b, 2000b) identified four strands of the Central Metavolcanic Belt, which they named the Lawrence Point, Reed Lake, Laxdal/Doucet and Clements Island belts. The Lawrence Point and Reed Lake belts are dominated by altered and metamorphosed MORB-like mafic volcanic rocks and intermediate to felsic volcanic rocks, respectively. The Laxdal/Doucet and Clements Island belts, on the other hand, are dominated by volcaniclastic and sedimentary protoliths, including iron-formation, with only minor rocks of unequivocal volcanic origin. Part of the Central Metavolcanic Belt assemblage shown on this map is along strike of, and interpreted to be related to the Clements Island belt. It consists of altered mafic to felsic metavolcanic rocks that include cordierite-anthophyllite schists, amphibolite with carbonate alteration and plagioclase-quartz-actinolite-garnet-biotite gneiss. Sedimentary rocks are equally abundant and include biotite-garnet ± graphite metapelite and metapsammite, as well as calc-silicate gneiss and rare impure quartzite. A preliminary age of 1905 +22/-3 Ma (Corrigan, 2000b) was obtained from a meta-rhyolite from the Clements Island belt immediately south of this map sheet, indicating a temporal correlation with volcanic rocks of the Lynn Lake belt in Manitoba (Baldwin et al., 1987). This map unit hosts numerous small gossans, two of which (see locations on the map) had previously been explored for Cu-Pb-Zn (Stauffer et al., 1980).

The Crowe Island Complex forms a distinctive assemblage of medium to fine-grained banded orthogneiss of mixed dioritic, tonalitic, granodioritic and granitic composition. Dynamic recrystallization is pervasive and the degree of partial melting ranges from incipient, to about 40 percent. This unit locally hosts rafts of supracrustal rocks that are similar in composition to parts of the Central Metavolcanic Belt, suggesting that it postdates (or accompanied) deposition. Moreover, U-Pb ages of 1891 ± 3 and 1884 +5/-3 Ma obtained from this suite, together with εNd values ranging between +2 and +4 Corrigan et al. (1999) suggests a juvenile source and an emplacement age similar to that of the La Ronge volcanic rocks. On previous compilation maps, this unit had been interpreted as part of the Rottenstone Domain (i.e., unit "Rgt" in Macdonald and Thomas, 1983). In light of the new isotopic and field data, Corrigan et al. (1998a; 1999) suggested that the Crowe Island Complex formed an integral part of the La Ronge domain, perhaps representing the plutonic root of the Central Metavolcanic Belt.

The Park Island metasedimentary assemblage is a newly recognized package of siliciclastic rocks that stratigraphically overlies the CMB (Corrigan et al., 1998b; 1999). It consists of a basal polymictic conglomerate, arkose, calcareous arkose, psammite and calcareous psammite. In this map area, the Park Island assemblage consists mainly of psammite and calcareous psammite that are migmatized to varying degrees. Cross-cutting relationships with the Wathaman Batholith, as well as the presence of a large raft of the Park Island assemblage west of South Porcupine Point, constrains its minimum age of deposition to > ca. 1.86 Ga.

WATHAMAN BATHOLITH

The Wathaman Batholith (Fumerton et al., 1984; Meyer et al., 1992) forms the most abundant rock type in this map area. It is composite and formed of numerous elongate plutons with sharp to diffuse mutual boundaries. The majority of the plutons contain K-feldspar megacrysts although medium- to coarse-grained equigranular bodies also occur. Five different compositional phases have been identified and consist, in order of decreasing abundance, of granodiorite, granite, quartz monzonite and monzonite, tonalite and monzodiorite. Mafic phases consist of biotite and locally hornblende, with titanite, epidote, apatite and zircon forming common accessory phases. Feldspar megacrysts consist of microcline with igneous zoning and vary in length from 2 to 8 cm. Rapakivi textures have been locally observed. Primary igneous textures such as accumulated megacrysts and magmatic flow alignment demonstrate that the crystals are igneous and not the end product of later metasomatism. Diorite and quartz diorite, which form large satellite intrusions further south (Corrigan et al., 1999; Corrigan, 2000b) are only found in small pods and plutons that are mostly located along the northern margin of the Batholith. The tonalite intrusion located on Cumines Island formed the only one of this composition within this map area. Three preliminary U-Pb zircon ages are reported herein. A foliated and completely recrystallized medium-grained granodiorite crosscut by megacrystic granodiorite and thought to form the oldest component, is 1856 ± 3 Ma. A medium-grained, homogeneous biotite granite enclosed within megacrystic granodiorite yielded a 1855 +4/-3 Ma age. A megacrystic biotite granite that intrudes the Peter Lake Domain yielded an 1861 + 3/-1 Ma age.

Both northern and southern margins of the batholith have intrusive relationships with adjacent units, albeit tectonically reworked. The batholith is bounded to the south by the Reilly Lake shear zone (Stauffer and Lewry, 1993), a ductile, inhomogeneous, moderately north-dipping shear zone about 100 metres thick. Consistent down-dip extension lineations and rare winged feldspar porphyroclasts suggest a reverse, top-to-the-south sense of shear (Corrigan et al., 1998b; see also Lafrance and Varga, 1996). To the north, the batholith intrudes the Peter Lake Domain. Within this map sheet, the Parker Lake shear zone, historically interpreted as forming the tectonic boundary between the Wathaman Batholith and the Peter Lake Domain, consists of a ductile, dextral strike-slip shear zone that is located well within the northern margin of the batholith and not at the contact between the two units. Moreover, it does not appear to be traceable to the northeast beyond Rocky Islands. It contains a steeply-plunging extension lineation that preserves an early reverse component of displacement, which was later reworked by localized dextral transcurrent shear (Lafrance and Varga, 1996; Corrigan et al., 1999). Another important ductile shear zone occurs south of the Parker Lake shear zone and is sub-parallel to the latter. It consists of a steeply north-dipping ductile shear zone a few hundred of metres wide, which accommodated sinistral transcurrent displacement. It has been named the Vermilion River shear zone (Corrigan et al., 1998a) and coincides with an important magnetic anomaly. It is unclear how far it extends east of Warren Islands.

PETER LAKE DOMAIN

The Peter Lake Domain is an Archean age crustal block that forms part of the southeastern margin of the Hearne Province. It comprises the Parker Lake Gneisses, the Campbell River Group and the Peter Lake Complex (Macdonald and Thomas, 1983). The portion of Peter Lake Domain that appears on this map is entirely underlain by the Peter Lake Complex. It consists of migmatitic gneisses of both sedimentary and plutonic origin with minor screens of mafic volcanic rock, intruded by amphibolite dykes, pegmatite, and plutons and sheets of granitic to syenitic composition. The above are intruded by a younger generation of dykes and elongate intrusions of ultramafic, mafic, to intermediate composition referred to as the Swan River Complex (Stauffer et al., 1981; Corrigan et al., 2000). Three occurrences of metavolcanic rocks (unit Av) are sufficiently large to be identified on the map and include the Wiley Bay unit, located southwest of Patterson Island, which has been previously described by MacDougall (1988). The other two occurrences are located on the western and eastern shores of MacLean Bay. The metavolcanic rocks are compositionally heterogeneous and consist of fine-grained and well-layered gneiss of felsic, intermediate and mafic composition, with the latter characterized by abundant calc-silicate alteration. Thick layers of bright green actinolite schist are locally present in the Wiley Bay unit, as well as in the occurrence east of McLean Bay, and may represent metamorphosed equivalents of mafic to ultramafic flows or shallow intrusions. Field relationships suggest that the metavolcanic rocks form the oldest component of the Peter Lake Domain. They are associated with migmatitic rocks and banded gneiss of sedimentary and plutonic origin (unit Aplm). The rocks described above are intruded by strongly foliated and thoroughly recrystallized, non-migmatitic metaplutonic rocks of granodioritic, granitic and syenitic composition (units Aplg and Aplgm). A grey granodioritic gneiss and a pink granitic gneiss from this unit, sampled on the shore of Reindeer Lake southwest of Crane Island, yielded U-Pb ages of 2582 ± 19 Ma and 2556 ± 22 Ma, respectively (Bickford et al., 1986). The fact that these dates were derived from zircons that were unabraded, together with the fact that Sm-Nd model ages ranges between 2700-2800 Ma range for these rocks (Bickford et al., 1987) suggest, however, that the U-Pb ages represent minimum estimates.

The Swan River complex, originally named "Swan River Pluton" by Stauffer et al. (1981), intrudes rocks of the Peter Lake complex. Throughout the area, rocks of the Swan River complex are compositionally heterogeneous and locally show igneous layering varying in thickness from metre- to centimetre-scale and is continuous over a few tens of metres. Individual layers include pyroxenite, olivine gabbro, gabbro, anorthosite and diorite, with the latter forming the most abundant rock type. There is local evidence for magma mingling and multiple injections in a dynamic magmatic system. Some of the diorite contains sub-ophitic textures and may represent hydrated and metasomatized gabbro. In contrast to the recrystallized and highly metamorphosed nature of plutonic rocks of the Peter Lake complex, rocks of the Swan River complex contain mainly original igneous minerals. Based on the similitude of field relationships and a poorly constrained U-Pb age of 1865 ± 10 Ma obtained by Bickford et al. (1986) on a pegmatitic gabbro, Corrigan et al. (2000) suggested that the Swan River complex could potentially be related to the Wathaman Batholith. However, a recently obtained 2562 ± 4 Ma U-Pb zircon age on a similar pegmatitic gabbro (Corrigan et al., unpublished data) indicates that the Swan River complex is a Late-Archean intrusion.

STRUCTURE AND METAMORPHISM

The main regional fabric in the map area consists of a penetrative southwest-northeast trending foliation outlined by the alignment of peak metamorphic minerals and transposed lithological units. Strain distribution is heterogeneous throughout the region, ranging from relatively low in certain parts of the Wathaman Batholith and in the Swan River Complex, to very strong in shear zones. The Paleoproterozoic deformation history consists of an early phase of large-amplitude recumbent folding (F_1) preceding the emplacement of the Wathaman Batholith and is recorded only in the La Ronge Domain (Corrigan et al., 1998b). Small scale structures related to D_1 are difficult to assess due to the strong D_2 regional overprint and are better observed in enclaves of country rock within plutons of the Wathaman suite (i.e., Corrigan et al., 1998a). The D_2 deformation consists of coaxial(?) refolding and tightening of F_1 folds and is coincident with peak metamorphism and development of the Reilly Lake shear zone. The penetrative foliation and outcrop-scale F_2 intrafolial folds within the Wathaman Batholith are interpreted as a product of D_2. In the Peter Lake Domain, the earlier Archean-age fabric is sub-parallel to the D_2 foliation developed in the Wathaman Batholith and appears to have been variably rotated into the D_2 plane. However, the apparent lack of penetrative deformation within some of the late-Archean intrusions suggests that at least part of the structural fabric within the Peter Lake gneisses may be of Archean age and only 'coincidentally' sub-parallel to the D_2 fabric observed in the Wathaman Batholith. The overall westerly plunging mineral lineations observed within the Peter Lake gneisses are nearly perpendicular to those observed within the Wathaman Batholith and supports this interpretation. There are no absolute age constraints on the timing of movement along the Reilly Lake, Vermilion River and Parker Lake shear zones. However, the presence of syn-shearing muscovite in the latter two, and its absence in the former, suggests that thrusting along the Reilly Lake shear zone preceded strike-slip shearing along the Vermilion River and Parker Lake shear zones. F_3 upright, large-wavelength, orogen-perpendicular folds, which are well-developed south of this map area (Corrigan, 2000b), are not present here.

Metamorphism throughout the region corresponds to middle- to upper-amphibolite facies. Remnants of an early, Archean-age metamorphic episode are preserved in the Peter Lake Domain, where the moderately deformed 2562 ± 4 Ma Swan River Complex crosscuts complexly folded and migmatized gneisses of the Peter Lake Complex. There are no constraints yet on the absolute age of this metamorphic event. Progressive increase in the degree of partial melting within the Park Island assemblage, towards the Wathaman Batholith, suggests that the latter produced a contact metamorphic aureole as a result of its emplacement at ca. 1.86-1.85 Ga. Constraints from the map area immediately south of this map sheet suggest that D_2-M_2, and hence the development of the regional SW-NE trending foliation, occurred during the interval 1.82-1.80 Ga (Corrigan et al., 1998b).

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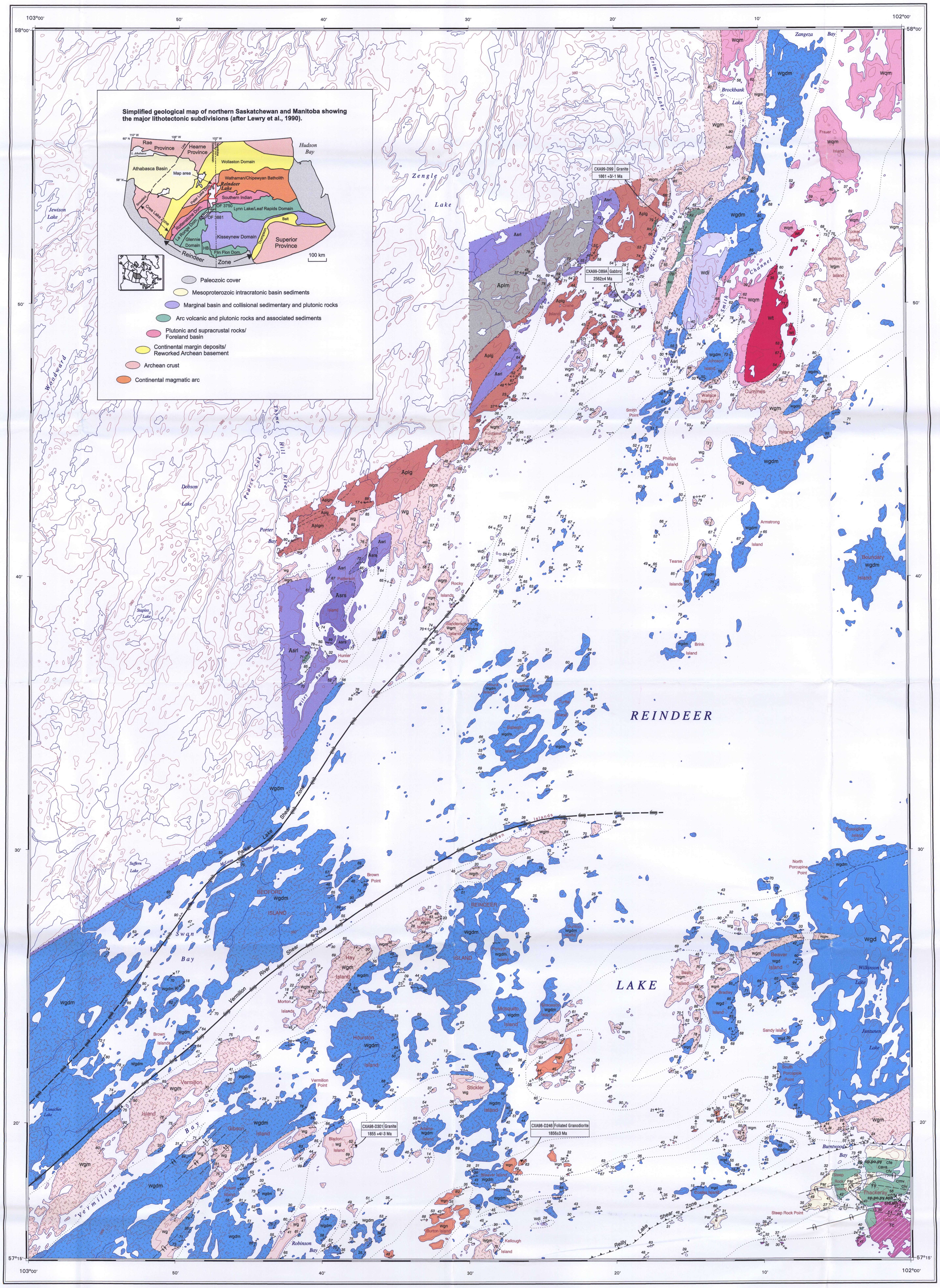

LEGEND

PRECAMBRIAN-PALEOPROTEROZOIC

INTRUSIVE ROCKS

WATHAMAN BATHOLITH AND SATELLITE INTRUSIONS

Wg — *Granite; pink, medium- to coarse-grained, homogeneous, moderately to strongly recrystallized, poorly to strongly foliated; with biotite, K-feldspar, plagioclase, quartz ± magnetite*

Wgm — *Megacrystic granite; similar to unit Wg but with 5 to 30 percent K-feldspar megacrysts*

Wgd — *Granodiorite to quartz monzonite; weakly to strongly foliated; light grey, coarse-grained and comprises 15 to 40 percent pink K-feldspar megacrysts set in a matrix of plagioclase, quartz, hornblende and biotite. Hornblende is either equally or more abundant than biotite, both minerals forming up to 25 percent of the rock volume. Titanite, Fe-Ti oxide, allanite and epidote are ubiquitous accessory minerals*

Wgdm — *Megacrystic granodiorite to quartz monzonite; similar to unit Wgd but with 5 to 30 percent K-feldspar megacrysts*

Wdi — *Diorite to quartz diorite; medium grey, medium- to coarse-grained, equigranular, massive to strongly lineated and/or foliated; 20 to 35 percent hornblende; up to 8 percent quartz; ± titanite; locally grades into granodiorite. Contains cognate mafic xenoliths and angular enclaves of supracrustal rocks*

Wqm — *Quartz monzonite to monzodiorite; medium grey, with coarse-grained K-feldspar (up to 20%) in medium-grained plagioclase(50%)-hornblende(20%)-biotite(<5%)-quartz(<5%) matrix. Massive, unrecrystallized, to well foliated and mostly recrystallized. Locally hosts numerous cognate mafic xenoliths*

Wt — *Tonalite; medium-grained, massive to moderately foliated, grey, with biotite (up to 20%), plagioclase, quartz and minor K-feldspar*

Wgn — *Mixed intrusive rocks of granitic, granodioritic and quartz-dioritic composition; medium-grained, grey to pink, locally gneissic; with biotite ± hornblende, plagioclase, K-feldspar and quartz. (U-Pb 1856 ± 3 Ma; granodioritic component)*

SUPRACRUSTAL AND RELATED ROCKS

PARK ISLAND METASEDIMENTARY ASSEMBLAGE

Par — *Meta-psammite; light grey to light pinkish grey, medium-grained, granoblastic, moderately to well foliated, thin to medium bedded; injected by 0 to 30 percent muscovite ± garnet bearing, white to pink pegmatite; up to 25 percent K-feldspar, up to 50 percent quartz, 10 to 25 percent muscovite, < 5 percent biotite, > 1 percent magnetite, locally large fibrolite faserkiesel. Includes meta-arkose; pink, fine- to medium-grained, massive to moderately foliated, granoblastic; thinly to thickly bedded; up to 50 percent K-feldspar, ≤ 5 percent biotite + muscovite + magnetite ± sillimanite.*

CROWE ISLAND COMPLEX

Tc — *Mixed diorite, granodiorite, tonalite, and granite; medium grey to light grey, fine- to medium-grained, equigranular, massive to strongly foliated and gneissic; locally migmatitic; with biotite ± hornblende ± magnetite ± epidote ± titanite (U-Pb zircon; 1891±4 Ma tonalite and 1886±5 Ma granite)*

CENTRAL METAVOLCANIC BELT

Cfe, Cava, Cfv, Cmv, Civ — *Mixed volcanic, volcaniclastic and sedimentary rocks, heterogeneous, well layered; (U-Pb zircon; 1905+17/-5 Ma). Includes:*
Cfe; ferruginous psammite; pale reddish-brown to yellowish brown, fine- to medium-grained, well foliated, thin to medium bedded, rusty on weathered surfaces; locally with lean silicate facies iron formation and psammopelite intercalations; with muscovite, quartz, microperthite, plagioclase, with pyrrhotite, pyrite ± graphite ± limonite ± fibrolite ± biotite
Cava; Cordierite-anthophyllite-biotite-plagioclase-quartz schist; medium grey, medium- to coarse-grained, heterogeneous, interpreted as hydrothermally altered and metamorphosed mafic to intermediate volcanogenic rock
Cfv; Felsic volcanic rock; light grey to light greenish grey, very fine- to fine-grained, thinly laminated to massive, moderately foliated to mylonitic, locally interlayered with felsic to intermediate epiclastic and volcanic rocks; contains less than 10 percent biotite, ± garnet (U-Pb zircon: 1905+22/-3 Ma)
Cmv; Mafic volcanic rock; greenish black to black, fine- to medium-grained, strongly foliated to mylonitic, homogeneous to banded, hornblende porphyroblastic; commonly interlayered with epidote- and carbonate-rich calc-silicate bands; up to 80 percent hornblende and actinolite ± garnet ± biotite
Civ; Intermediate volcanic rock; medium grey to greenish grey, fine- to medium-grained, moderately foliated or mylonitic, massive to finely layered, hornblende porphyroblastic; contains 10 to 20 percent biotite ± actinolite ± garnet ± epidote

ARCHEAN

PETER LAKE DOMAIN

SWAN RIVER COMPLEX

Asrl — *Layered mafic, ultramafic and intermediate rock; includes pyroxenite, olivine gabbro, leucogabbro, anorthosite and diorite; layering thickness varies from a few metres in the mafic rocks to centimetre-scale rythmic layering in diorite; gabbro locally with glomeroporphyritic texture (orthopyroxene megacrysts with olivine inclusions); diorite commonly pitted on weathered surface and injected by mafic veinlets; diorite is the most voluminous component, representing approximately 75% of the complex. U-Pb zircon age on a pegmatitic gabbro is 2562±4 Ma*

Asrs — *Megacrystic syenite to monzonite (Patterson Island pluton); massive to weakly foliated, with randomly oriented K-feldspar megacrysts (70%), hornblende ± clinopyroxene (20-30%) and biotite (1-5%) ± Fe-Ti oxide*

PETER LAKE COMPLEX

Aplg — *Felsic granitoids; fine- to medium-grained and equigranular, medium- to coarse-grained, completely recrystallized, sugary textured, pink to light grey; monzogranitic to syenogranitic to alaskitic; + biotite ± hornblende; locally with abundant allanite (≤ 2%); multiply intrusive; locally intruded by plagioclase-phyric amphibolite dykes*

Aplgm — *Similar to unit Aplg; with K-feldspar megacrysts*

Aplm — *Granitic to granodioritic orthogneiss and migmatite, medium- to coarse-grained, well foliated, locally banded, heterogeneous, with pegmatitic leucosomes and biotite schlieren; with biotite - plagioclase - K-feldspar - quartz ± hornblende; locally includes biotite gneiss and migmatite of metasedimentary origin; locally intruded by plagioclase-phyric amphibolite dykes*

Av — *Metavolcanic rocks; predominantly mafic with minor intermediate to felsic flows; amphibole-bearing with abundant calc-silicate alteration; interlayered with biotite ± garnet-bearing metapelitic and metapsammitic gneiss. Locally contains massive actinolite/tremolite ± clinopyroxene schist representing metamorphosed ultramafic intrusions or flows*

Geological contact (assumed, inferred)
Limit of interpretation
Strike and dip of bedding, magmatic layering (top unknown)
Strike and dip of main foliation (schistosity, gneissosity): inclined, dip unknown
Trend and plunge of undefined linear fabric
Trend and plunge of stretching lineation
Trend and plunge of mineral lineation: undefined age, 1st generation
Trend and plunge of fold axis, 1st generation: z-fold
Trend and plunge of U-fold: undefined age, 1st generation
Thrust fault (inferred)
Transcurrent shear zone - dextral (defined, inferred)
Transcurrent shear zone - sinistral (defined, inferred)
Trace of F_1 fold (overturned synform, antiform)
Trace of F_2 fold (overturned synform, antiform)
U-Pb age determination — Sample no | Rock type; Z=Zirca U-Pb age (2σ error)
Mineral occurrence — crd ×

MINERALS

Anthophyllite	ath	*Pyrite*	py
Chalcopyrite	cp	*Pyrrhotite*	po
Cordierite	crd	*Sphalerite*	sph

Geological mapping by D. Corrigan (project leader), J. Chakungal, B. Lassen, T. MacHattie, L. Piper, and D. Wright

Compilation and interpretation by D. Corrigan

Digital cartography by D. Viner, Earth Sciences Sector Information Division (ESS Info)

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

Digital base map from data compiled by Geomatics Canada, modified by ESS Info

Mean magnetic declination 2001, 11°07'E, decreasing 9.7' annually

Elevations in metres above mean sea level

OPEN FILE 1394

GEOLOGY

NORTHERN REINDEER LAKE

SASKATCHEWAN

Scale 1:100 000/Échelle 1/100 000

kilometres 2 0 2 4 6 8 kilomètres

Universal Transverse Mercator Projection
North American Datum 1983

Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983

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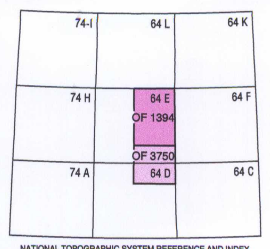

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Final check
P. Corrigan
April 5, 2001

Canada

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