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DESCRIPTION OF THE GEOLOGICAL UNIT, TAKEN FROM THE PRELIMINARY GEOLOGY REPORTS

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Énergie et Ressources
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Québec 

DESCRIPTION OF THE GEOLOGICAL UNITS

(Taken from the Preliminary Geology Reports)

Ministère des Richesses Naturelles, Québec
SERVICE DE LA
DOCUMENTATION TECHNIQUE
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1 b - VOLCANICS PREDOMINANTLY BASIC

Basalts and Metabasalts

Appear to have their best expression in the lac Guyer sector where they are referred to as metabasalts. In the case of all occurrences they are defined topographically as dark coloured ridges. These rocks are essentially dark coloured varying from dark green to black on both weathered and fresh surfaces. Composition is amphibole and basic plagioclase, the former being the predominant mineral. Granularity is fine grained to microlitic or microgranular. Pillow structures are often evident especially in the Sakami, Yasinski, LG-3 and lac Guyer sectors. Pillows are not heavily vesiculated and intrapillow matrix is not abundant and where present in significant amounts is often epidotized and exhibits a schistose texture. Size of pillows range from 10 cm to 1 m over most of the permit and from 25 cm to 2 m around lac Guyer. In all cases they are stretched parallel to the structural grain. In the LG-3 sector columnar jointing has developed locally. Rocks are variably chloritized and is strongly developed in the lac Long, Coutaceau and LG-3 sectors imparting a strong greenish tint to the rocks. Carbonatization is ubiquitous and occurs as fracture filling and disseminations. Feldspar is essentially saussuritized and sericitized.

Andesites and Meta-Andesites

Similar in appearance to basalts, occasionally pillowed. Distinguishable from basaltic rocks by their elevated feldspar content. Another possible distinction is the abundant quartz veining which is not as evident in rocks of more basic composition. Fresh surfaces are dark green in colour. Granularity is fine to very fine grained. The rocks of the lac Duncan and lac Long sectors often appear to fall between andesites and basalts in their composition.

Basaltic and Andesitic Tuffs

Fine grained sediments formed of ash and described according to their parent volcanic. Well bedded or banded with 2 to 10 cm laminations. Fresh surfaces do not show the banding as well as the weathered surfaces. It is within these tuffs that cherty magnetite iron formation frequently occurs. The texture is more granular than crystalline.

Amphibolite and Amphibolite Schist

A massive black rock, essentially composed of amphibole (90%) and variable amounts of feldspar and lesser quartz. Amphibole occurs as stubby crystals or needles. Frequently outcrops as narrow bands 1 to 10 meters thick and a gneissic

texture is variably developed. Granularity is fine to medium grained. Amphibolite schists described from the Sakami sector are generally found associated with basalts and are possibly of tuffaceous origin. The rocks are greenish in colour and finely laminated with quartzo-feldspathic rich bands.

Volcanic Conglomerate, Agglomerate and Volcanic Breccia

Volcanic conglomerates were found in the lac Long sector and are essentially polymictic fragmental sediments with angular to subrounded granitic and volcanic clasts, poorly sorted and swimming in a chloritic, tuffaceous matrix. Rounding of fragments, heterogenous composition of clasts and a suggestion of laminations would support the probability of limited transport and mixing having taken place in an aqueous environment.

A 3 meter thick agglomerate occurs in the LG-3 sector with a basic matrix enclosing elliptical clasts of quartzo-feldspathic material which is fine grained and creamy beige in colour.

In the lac Long sector a volcanic breccia was described. This breccia contained fragmental basic tuffs and lavas set in a dacitic matrix. The location of this breccia may represent the site of a volcanic vent.

Chlorite Schists

This unit represents heavily sheared volcanics, dark green in colour, soft and schistose. This unit is often intensely drag folded. The overall thickness is not great, never more than 8 meters but has long strike extent. Occasionally one finds relict structures such as pillows now highly deformed.

Gabbro

Within the lac Duncan and lac Long sectors the gabbroic intrusions have been included with the basic volcanic suite due to their lack of thickness and concordance with the stratification. It is often difficult to distinguish these rocks from basalt flows because they are frequently fine grained and contacts are often covered with overburden.

1 f - BANDED IRON FORMATION CHARACTERISTICALLY EXHALATIVE

Essentially composed of chert and magnetite, fine grained and finely laminated. Chert and magnetite laminations are from 1 to 2 cm thick, these laminations are sometimes intensely folded. Overall thickness of this unit varies from ten to tens of meters. There is a particularly thick iron formation to the south east of lac Duncan.

Associated volcanics are predominantly acidic to intermediate in composition and less frequently basic. Occasionally disseminated sulphide (pyrite and chalcopyrite) is found associated with this unit.

A second type of iron formation was described from the LG-3 sector and was of banded chert, jasper, hematite, specularite and magnetite. There appeared to be a transition through the unit from one oxide to another. This unit passes laterally into the former type of iron formation. Banding is essentially the same as the former.

1 i - VOLCANICS PREDOMINANTLY INTERMEDIATE

Intermediate and Andesitic Tuffs

These tuffs are essentially massive in outcrops with a laminated appearance due to alternating mafic and quartzo-feldspathic rich layers. Weathered surfaces are dark grey to greenish grey in colour. Composition is of amphibole, biotite, feldspar and quartz in variable proportions with occasional pyroxene in the andesitic tuffs. Pyrite is present as disseminations or in fine laminae. Mafic minerals are frequently chloritized and feldspars sericitized. Granularity is very fine to medium grained. In the LG-3 and lac Long sectors intermediate tuffs were frequently found interbedded with more acidic tuffs. In the Sakami sector tuffs were found to contain either graphite, large amphibole crystals in a fine grained matrix or containing lenticular quartzitic fragments 1 cm diameter and well rounded bluish quartz grains.

Agglomerate with Andesitic to Basaltic Matrix

Described from the LG-3 sector, this unit was found interbedded with acidic tuffs over a width of 150 m located around the Gaber uranium showing. Brownish green in colour, it contains aplitic fragments and ellipsoidal clasts of rhyolitic composition in an amphibole, feldspar, chlorite matrix. The matrix is fine grained, heavily altered and sheared. The alignment of chlorite imparts a schistose texture to the rock. Hematization and carbonatization is strong particularly around and in the fractures.

Intermediate Feldspar Porphyry

Described from the lac Guyer sector, this unit is quite thin, 1 to 1.5 meters. It is associated with a sequence of intermediate volcanics. Its importance is that of a reference horizon for the lac Guyer sector.

The outcrop is rusty grey in colour on weathered surfaces. Composition is of one third feldspar and one third amphibole, the remainder being of quartz and minor biotite. The phenocrysts are of feldspar. The rock is epidotized and carbonatized.

Banded Amphibolite and Quartzite, Banded Amphibole Gneiss and Amphibole Gneiss

The banded amphibolite and amphibole gneiss differ in the thickness of their laminations. The amphibolite-quartzite banding is of 1 meter thickness whereas the banded amphibolite has 1 to 2 m banding. In the latter the banding is due to alternating amphibole rich and epidotized layers. Both are garnetiferous and porphyroblastic. The garnet rich units occur in the Sakami and lac Guyer sectors.

The amphibolite gneiss is the most widespread unit. It has essentially the same composition as the andesitic and intermediate tuffs, is fine to medium grained and has a gneissic texture.

This unit is placed in unit 1 i due to close spacial association of these rocks with intermediate volcanics.

Dacite and Rhyodacite Tuffs and Lavas

Rocks of this composition have been included in this unit in the Yasinski sector only.

The dacites are represented by true tuffs and lavas occurring as massifs 300 meters wide. They are microgranular and are composed of porphyritic feldspar (50%) and quartz (20%). The matrix and cement is a mixture of quartz and amphibole.

Rhyodacite tuffs occur as laminated beds with 2 mm laminations. They are an overall grey mauve colour with green patches. Composition is of equiproportional quartz, feldspar, biotite and amphibole with amphibole also occurring as phenocrysts.

Porphyritic Lava

Described from the LG-3 sector, this unit was found interlayered with intermediate to basic tuffs in bands 2 meters thick. The rock in outcrop is heavily fractured and is greenish brown on weathered surfaces. There is a slight gneissic porphyroblastic texture. The porphyroblasts are of feldspar 3 to 4 cm diameter. The groundmass is composed of equiproportional feldspar and amphibole. The feldspar is sericitized and there is an overall light chloritization.

Graphitic Quartzite Breccia and Graphite Garnet Schist

These rocks are apparently restricted to the volcanics in the Sakami sector. They are graphitic with graphite in the form of filaments. The quartzite breccia is fine to medium grained. The schist is composed of about 50% quartz and 50% graphite and garnet. The schistose texture is imparted by the graphite. The garnet tends towards being porphyroblastic with crystals 2 mm diameter with a crushed appearance.

1 u - SILLS' AND FLOWS OF BASIC AND ULTRABASIC COMPOSITION

Gabbro and Metagabbro

Occurs as massive outcrops somewhat elongated. Essentially a dark coloured medium to coarse grained rock. Composition varies between 20% to 30% feldspar (plagioclase), 40% to 50% amphibole and 30% to 40% pyroxene. The metagabbro is similar in composition to the gabbro but resembles the massive amphibolite in texture.

Massive Amphibolite

Described from the lac Guyer and LG-3 sectors. Essentially a dark coloured medium grained rock. Composition is 80% amphibole and 20% feldspar. Occasionally the rock is entirely composed of idiomorphic amphibole. Occurs in sill-like structures.

Pyroxenite

Massive outcrops probably sills or possibly flows. The rock is dark coloured often black, fine to coarse grained. Essential constituents are pyroxene phenocrysts in a feldspar, amphibole matrix. Can be highly magnetic indicative of the presence of magnetite released during serpentinization of olivine. Other secondary constituents include actinolite.

Peridotite and Serpentinized Peridotite

Outcrops as rounded masses or sills. A reddish coloured rock on weathered surfaces, fresh surfaces are black to dark green. Serpentinized to varying degrees it is frequently cut by serpentine veinlets and occasionally asbestos. Contains significant amounts of magnetite which results in the rock being strongly magnetic. The rock is fine grained. Talc occurs sometimes in veinlets and pyrite and pyrrhotite as disseminations.

Ultrabasic Lavas

Pillowed ultrabasic flows have been found in the lac Guyer sector. They are of dunitic or peridotitic composition, fine grained to aphanitic. These flows are heavily serpentinized.

Talc Schists

Described from the Yasinski sector and situated adjacent to ultrabasic bodies. The rock is black, smooth surfaced, soft and with the characteristic soapy touch. Very fine grained the composition is essentially talc (60%), plagioclase, actinolite, pyroxene and quartz, all of which are of variable proportions. Associated with these talc schists are biotite, actinolite and hornblende schists. This unit is quite thin never more than 1 meter thick.

Breccia

Also described from the Yasinski sector. It is a fragmental rock containing angular fragments 1 cm diameter of pyroxenite or peridotite cemented by calcite, talc and serpentine and containing sulphides (chalcopyrite, pyrite, pyrrhotite) in significant concentrations.

2 - ACIDIC TUFFS AND VOLCANICS (FLOWS)

Acidic Tuffs

Finely laminated, beige, white or pink coloured. Sericitic tuffs are apple green in colour often cut by quartz veinlets. Very fine grained to aphanitic the quartz sometimes exhibits a microlitic texture. Mafic fragments occasionally occur along planes of schistosity. Composition revolves around 80% quartz and feldspar and 10% sericite, the proportion of quartz to feldspar is variable. Feldspar is sericitized and saussuritized throughout the lac Long, Coutaceau and LG-3 sectors and the tuffs are pyritic occurring as disseminations. The above description also applies to what have been called rhyolite tuffs.

Chlorite and epidote is variably developed throughout this unit, but is particularly strong in the lac Long, Coutaceau and LG-3 sectors.

Acidic tuffs are often found interbedded with intermediate and andesitic lavas and tuffs in the lac Long and LG-3 sectors.

Pyroclastic Tuffs

Described from the Sakami sector. It is a brecciated quartzitic rock with quartzitic fragments or feldspar augen. The composition of this unit is quartz, feldspar, biotite all of which is very fine grained. Horizons are very finely but regularly bedded. Amphibole needles occasionally are present in the biotite rich beds.

Vitric Tuffs and Massive Rhyolite

Vitric tuffs are described in the Sakami sector and massive rhyolite in the LG-3 sector. Both are massive, equigranular, fine to very fine grained with a homogenous texture which is saccharoidal in the vitric tuff. Composition is of quartz and biotite with the latter being preferentially aligned.

Biotite Garnet Tuff and Biotite Schistose Tuff

Described from the Sakami sector this unit is equigranular, fine to very fine grained, in fact, both of these rock types are similar to the vitric tuff but are more schistose. The schistose texture is enhanced by the occurrence of biotite rich laminations. The biotite garnet tuff contains porphyroblastic garnets up to 1/2 cm diameter.

Acid Volcanics

Mostly of dacitic to rhyodacitic composition. Pink to medium grey in colour, they occasionally have a green tint due to the presence of chlorite. Granularity ranges from fine through very fine to subaphinitic.

Greywacke

A massive rock with no visible mineral alignment. More feldspar rich than is normal for a greywacke and the biotite is in the form of clumps.

Facies R

Described from the Coutaceau sector occurring in the area around the Maro uranium showing. This unit outcrops as narrow long, whale back shaped ridges, often heavily fractured. It is characteristically surrounded by epidote schists with large quartz augen. The colour varies from green to brick red. It is microgranular, composed of transparent elongated quartz eyes and biotite now heavily chloritized. Visible constituents include feldspar, quartz, biotite and chlorite in order of their respective abundance.

Agglomerate

Described from the LG-4 and LG-3 sectors. The rock contains rounded and slightly elliptical fragments of milky quartz and granitic gneiss. In the LG-4 sectors these fragments are more angular and blocky. The matrix is of feldspar and quartz with sericite and limonite. Around LG-3 this unit has been partly reworked and contains fragments of agglomerate within the agglomerate. The matrix now exhibits a schistose texture.

Milky Breccia

Described from the lac Long sector. It is a rock composed of angular, pink to reddish brown rhyolitic fragments in a massive quartz matrix. This unit outcrops as rounded elongated ridges and is fault bounded.

Iron Formation

Described from the Yasinski sector it is essentially a cherty magnetite iron formation similar to those described in unit 1 f but in this case the unit is enclosed in acidic material.

3 m - PARAGNEISS (Includes sediments and metasediments)

Arkose and Meta-Arkose

A pinkish-grey coloured rock on weathered surfaces. It is variably fine to coarse grained often with porphyroblastic feldspar in a matrix of quartz, feldspar, biotite and less frequently amphibole.

In relatively unmetamorphosed occurrences it is possible to see rounded grains and bedding. Alteration where present is in the form of epidotization and chloritization.

This unit often occurs interbedded with quartzites.

Quartzite and Sandstone

This unit is frequently associated with the arkoses and meta-arkoses and represents feldspar poor beds. They are clean, equigranular, well bedded to massive rocks. Composition is essentially quartz with minor biotite or muscovite.

In the lac Guyer, Sakami and lac Duncan sectors there occurs a quartzite unit which is grey to white in colour, friable and medium grained. This unit contains sericite rich horizons and is rarely garnetiferous. In the Yasinski sector the quartzite occurring adjacent to basic lavas is frequently a green colour due to the presence of chrome mica.

Quartzite bearing biotite is abundant throughout the sectors and is fine to very fine grained, well bedded and feldspathic to highly feldspathic with biotite and sometimes muscovite. These quartzites are frequently associated with volcanics in the LG-4 and Yasinski sectors.

Gneiss

Banded to homogenous texture. Granularity is fine to medium and where mafic minerals are abundant this unit may be schistose. In the lac Guyer sector this unit has been extensively injected with granodiorite producing a migmatite. Composition is either quartz, feldspar, amphibole or quartz, feldspar, biotite. Colour varies from grey to dark grey. Feldspar is occasionally porphyroblastic particularly in the Bruce sector.

Conglomerate

Described from the lac Guyer and Bruce sectors. In the lac Guyer sector the pebbles are subrounded and elliptical, sometimes up to 150 cm diameter. Pebble composition is essentially of fine grained grey gneiss and some basic volcanics. The matrix is grey and gneissic to schistose.

The Bruce sector conglomerates contain quartzite pebbles with aplitic quartz in a very fine grained quartzite matrix. Occurs as lenses 50 m to 100 m by 30 m wide within a garnet biotite and massive fine grained amphibolite.

3 v - VOLCANOGENIC SEDIMENTS

Greywacke and Metagreywacke

Fine to coarse grained grey coloured rock. Bedding may or may not be present. Often contains porphyroblastic feldspar which may be idioblastic. Composition is variable with feldspar the predominant mineral then biotite and quartz in variable proportions. Occasionally a schistose texture is developed particularly in the lac Guyer sector extending to the east of the permit. Feldspar is often sericitized and chloritization is variably developed.

Amphibolite and Amphibolite Gneiss

Thick banded and interbedded with volcanics and sediments of volcanic origin. The distinction between the two gneisses is based on the relative abundance of feldspar which is elevated in the amphibolite gneiss but in both cases the amphibole content is greater than 40%. Granularity varies between fine to coarse. The amphibole gneiss often develops banding. Gneiss of this type is abundant in the LG-4 sector.

Amphibole and/or Biotite Gneiss and Schist

A dark grey rusty coloured rock. Granularity is variable from fine to medium and occasionally coarse. It is characteristically banded. In the LG-3 sector this unit is extensively chloritized and epidotized. Where mafic minerals are predominant the rock exhibits a schistose texture. Composition is essentially amphibole, feldspar, biotite, quartz. In the area southwest of LG-4 these gneisses and schists are intimately associated with detrital iron formation. In the Yasinski and LG-4 sectors these gneisses are frequently garnetiferous.

Acidic Metavolcanic Sediments

Described from the lac Guyer sector and represented by quartz sericite schists and interstratified greywacke. Both are fine to medium grained with feldspar, quartz and the major mafic constituent biotite in the greywacke.

3 f - DETRITAL MAGNETITE OR SULPHIDE IRON FORMATION

Black to metallic grey in colour. Essentially composed of quartz and magnetite in alternating quartz rich and magnetite rich bands giving a laminated appearance.

Granularity varies from fine to coarse grained and individual bands vary in thickness from 3 mm to 2 cm. In some areas the quartz rich bands can contain appreciable amounts of amphibole and iron sulphide. Rocks associated with these iron formations are basic volcanics and volcanically derived sediments. In the LG-4 sector these sediments are now garnetiferous quartz amphibole schists and gneiss.

4 g - GRANODIORITE WITH BIOTITE AND/OR HORNBLÉNDE, PURPLE SYENODIORITE, SOMETIMES CHLORITIZED

Granodiorite

Large rounded massive outcrops. Colour on weathered surfaces varies from grey to beige-pink and white. Grain size varies from medium to coarse grained and may be gneissic. Composition is granodioritic with the mafic constituents variable in the predominance or absence of either biotite or hornblende. This variation in mafic content can occur within the same intrusive unit as well as between different intrusions. Feldspar is almost uniquely acid plagioclase. Texture is equigranular, hypidiomorphic and as mentioned above, sometimes gneissic. Xenoliths of host rock are abundant and these include remnants of basic and acid volcanics and paragneiss. Alteration is in the form of sericitization and saussuritization of feldspar and variably developed chloritization of biotite and hornblende.

Syenodiorite

Described from the LG-3 sector. Occurs as sills and dykes in the volcanics. Around Gaber it cuts the metabasalts and iron formation. It is a wine red colour, porphyritic with biotite and feldspar phenocrysts less than 4 mm diameter in a fine grained groundmass of the same composition. This rock is heavily chloritized and carbonatized.

4 p - PREDOMINANTLY QUARTZ-FELDSPAR BIOTITE GNEISS

Outcrops as whitish cuestas. Gneissic texture is due to the elongation of quartz grains. It is composed of medium grained grey quartz (25%) in a quartz (20%), feldspar (50%), biotite (5% to 10%) matrix. Locally this unit can be porphyritic.

5 d - DIORITE, SYENODIORITE

Diorite and Syenodiorite

Described from the lac Long and lac Duncan sectors. Essentially an intrusive unit of plagioclase, amphibole composition. Variation in the type of feldspar

results in a range of composition from syenitic through syenodioritic to dioritic. Quartz is usually absent or at the most in accessory amounts. The occurrence of quartz and/or potash rich "diorites" may be the result of assimilation of host rock or potash metasomatism and silicification. Granularity varies from fine to coarse and the texture is usually massive idiomorphic granular to less frequently gneissic.

5 g - DIORITE TO GRANIODIORITE-SYENODIORITE, PORPHYRITIC

Diorite Porphyry

Occurs as large massifs. It is a dark coloured rock, dark green on fresh surfaces. Fine to medium grained and composed of feldspar, amphibole and lesser amounts of biotite. Phenocrysts are of feldspar (acid plagioclase).

Granodiorite Porphyry

A heavily porphyritic rock with feldspar phenocrysts and interstitial globular quartz, plagioclase, accicular amphibole and fresh biotite. Occasionally grains of pyroxene are visible. Granularity is medium to coarse grained.

Syenodiorite Porphyry

Associated with the above diorite porphyry and may represent compositional zoning.

Pseudodiorite

Described from the Coutaceau sector. Occurs as massive outcrops from 1 m to 50 m thick. Always accompanied by chlorite schists. This rock is grey green in colour on fresh surfaces and whitish feldspar is sometimes visible exhibiting a subophitic texture. Composition varies from quartz diorite to gabbro.

5 m - MIGMATITE

Of no specific rock type, this unit is in the form of mixed up host rock and injected intruding material usually granitic or granodioritic. It now has an extremely contorted appearance.

6 g - LEUCOCRATIC GRANITE ENCLOSED BY MIGMATITES

Described from the LG-3 sector and occurs to the extreme west of the sector. Occurs as very pale coloured rounded hills. In outcrop the rock is massive, pale grey occasionally with pink patches. It is porphyritic with feldspar phenocrysts

up to 4 mm diameter in a fine grained matrix of feldspar, quartz and rare ferromagnesian minerals which are chloritized. The chlorite has a preferred orientation which gives the rock a slightly gneissic texture.

6 m - MIGMATIZED METASEDIMENTS WITH WHITE GRANITE-PEGMATITE

This unit is characterized by the presence of metasediments which have been extensively injected, intruded and migmatized by white granite and pegmatite of unit 6 p. Metasediments include polymictic conglomerates with subrounded elliptical boulders up to 800 cm long. These clasts are essentially composed of quartz, feldspar biotite with lesser amounts of fragmental basic volcanics and grey fine grained gneiss. Other metasediments include rusty grey gneiss and schist, well banded and sometimes migmatized. Composition is of quartz plagioclase biotite. These schists also form the matrix for the conglomerate. Pale grey quartzite is another rock type associated with these pegmatites. This quartzite contains sericite rich layers and rare crystals of garnet.

6 p - WHITE PEGMATITE

The intrusive member of unit 6 m and where it occurs as large discrete intrusions it has been placed in its own lithological unit. It is characterized by the frequent development of a graphitic texture of quartz in feldspar. Essentially constituents are quartz and feldspar with minor muscovite, biotite and accessory tourmaline garnet and spodumene all of which may or may not be present.

7 - QUARTZ MONZONITE AND PINK PEGMATITE

Quartz Monzonite

A pink coloured rock outcropping as massive elongated intrusions oriented parallel to the structural trend. Composition is of quartz, potash feldspar, less abundant plagioclase and occasionally magnetite. Mafic minerals amphibole and biotite are probably assimilated from the host rock.

Pink Pegmatite

Associated with quartz-monzonite intrusions and can occur as sills and veins in the white pegmatite.

8 - DIABASE DYKES

Orientation is predominantly northwest to north-north-west. Outcrops as roches moutonnées and is a reddish brown to dark green colour on weathered surfaces.

Granularity varies from fine grained ophitic along the margin of the dyke to medium grained along the central portion. Composition is of pyroxene, plagioclase and iron oxide with occasional disseminated pyrite. In the LG-4 and LG-3 sectors these diabase dykes have been found cutting the Sakami formation.

9 - SAKAMI FORMATION

This formation is found most abundantly in the Coutaceau, lac Tilly and LG-4 sectors. The succession is most variable west of lac Tilly and it is from this area that the section will be described proceeding from the top to the base of the succession.

Pink and White Quartzite

An orthoquartzite, equigranular with a siliceous cement. Locally one can find current bedding and ripple marks. The orientation of these structures suggests a source area to the southwest. The colour is variably pink or white with the variation being between beds and not usually within beds. Quartz grains are well rounded and sometimes etched. There are lenticular bands of quartz pebble conglomerates and reddish brown siltstone within the more massive quartzite.

Reddish Brown Sandstone

This unit is typically aeolian in origin with well rounded quartz grains which are etched. This unit is not as equigranular or as well sorted as the quartzite. The cement is a combination of silicic, silty material and iron oxide. The contact between the quartzite and the sandstone is poorly defined and completely gradational. In the lower sequences of this unit the sandstone becomes mottled with beige coloured patches. This unit is contemporaneous with a coarse reddish brown conglomerate and basaltic conglomerate which occurs as wedges within the sandstone. It is essentially the same as the basal conglomerate. Both conglomerates are polymictic and their matrix is the above sandstone.

Reddish Brown Siltstone

Here again there is a gradational contact with the overlying sandstone and the underlying green argillite. The mottling in the sandstone passes into the siltstone. Well rounded etched quartz grains and weathered feldspar grains are swimming in a silty iron oxide stained matrix.

Dark Green Argillite

A fine grained unit up to 10 feet thick and only found west of lac Tilly. On weathered surfaces it is a yellow-green colour whereas on fresh surfaces it is dark green. All sedimentary structures are well preserved and include mud cracks, slumps, bedding and load structures.

Grey Quartzite

A medium to fine grained quartzite. The contact between this and the overlying argillite is quite abrupt and well defined. The grey colour is due to the presence of biotite finely disseminated. This unit is of very limited extent in outcrop and is faulted against acid volcanics.

Basal Conglomerate and Boulder Conglomerate

The pebbles and boulders in these polymictic conglomerates are quite varied in size, distribution and shape. The clasts are swimming in a poorly sorted silty sandstone similar to the reddish brown sandstone described previously. Pebbles include fragments of pegmatite, acid volcanics, gneiss, quartzite and dark green argillite. This unit thickens to the south and is eventually faulted against the archean gneisses.

The overall impression of the depositional environment of the Sakami formation in this area is that of a continental environment with episodic outwashing of fragmental material to produce the boulder conglomerates. As the provenance was eroded these conglomerates were overlain by more mature sediments such as the sandstones and eventually the quartzites as reworking took place. The siltstones and argillites probably represent lake deposits which were probably intermittent and shallow giving rise to dessication features. The basal unconformity was located to the east of lac Tilly where pink quartzite had been deposited on an erosional surface which showed little evidence of chemical weathering or soil formation and the contact of the quartzite (Sakami) and the underlying muscovite metaquartzite (Archean) is sharp. There are however angular clasts of the metaquartzite swimming in the pink quartzite and these are fresh and unaltered.



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