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EVALUATION OF THE DIAMOND POTENTIAL OF BRILLIANT MINING CORPORATION'S MEDLEY RIVER PROPERTY, EAST-CENTRAL ALBERTA

Prepared for

Brilliant Mining Corporation

APEX Geoscience Ltd.

December, 1999

M.B. Dufresne
D.A. Copeland

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SUMMARY

APEX Geoscience Ltd. (APEX), was retained during the late summer of 1999 as consultants by Brilliant Mining Corporation (Brilliant) in order to aid Brilliant in the exploration for diamonds on the Company's Medley River property, near Cold Lake. Although diamond exploration at the property is still in the early stages, the potential for discovery of diamondiferous kimberlites on Brilliant's property is considered high based upon the regional geological setting in conjunction with the positive results of limited exploration that has been conducted to date.

The Medley River permits were originally staked by Joseph Paulowicz on the basis of a favourable regional geological and structural setting, as well as the presence of diamond indicator minerals in the Cold Lake region. Brilliant holds an undisclosed interest in the Medley River property, which is located along the north and west sides of Cold Lake about 300 km east of Edmonton, just west of the Alberta–Saskatchewan border.

The results of diamond indicator mineral sampling on and in the vicinity of Brilliant's Medley River permits are encouraging based on the abundant diamond indicator minerals recovered from a limited number of samples collected to date. The Medley River and its tributaries have yielded several diamond indicator minerals at different sites including pyrope garnets, chrome diopsides, picroilmenites and chromites, indicating the probable existence of a mantle derived intrusive such as a kimberlite in the area. The size and morphology of the diamond indicator grains, including pyrope garnets with orange peel texture up to 1.0 mm in diameter indicates that the grains have not likely travelled further than 10 km from their original source. The chemistry of the diamond indicator minerals, including the recovery of one Gurney G10 pyrope garnet, indicates high potential for the existence of diamondiferous kimberlites in the region.

In conclusion, the potential for discovery of diamondiferous kimberlites within or in close proximity to Brilliant's Medley River permits is considered high based upon (a) the number, diversity, morphology and chemistry of diamond indicator minerals that have been recovered to date, (b) the favourable basement and tectonic setting, and (c) the presence of areas of thin drift. An aggressive, systematic two-stage exploration program is warranted to search for diamondiferous kimberlites.

The **Stage 1** exploration should consist of a regional stream sediment, till and beach sand sampling program in conjunction with a detailed compilation and review of the drift thickness and Quaternary geology for the area. **Stage 2** should comprise a detailed high-resolution fixed-wing airborne magnetic survey over the Medley River mineral permits.

The estimated cost of the two-stage exploration program and compilation for the Medley River property is $75,000 for the **Stage 1** surface sampling and geological studies, and approximately $30,000 for the **Stage 2** airborne geophysical survey.

INTRODUCTION

Terms of Reference

APEX Geoscience Ltd. (APEX), was retained during the late summer of 1999 as consultants by Brilliant Mining Corporation (Brilliant) to conduct diamond exploration and prepare an independent evaluation of the diamond potential of Brilliant's Medley River property. This evaluation has been prepared on the basis of available published and unpublished material. The authors have personally visited the Medley River property.

Property Description and Location

The Medley River property is located adjacent to Cold Lake about 10 km east of the town of Cold Lake, east-central Alberta (Figure 1). This property encompasses nine mineral permits totalling approximately 63,181 ha, which are located within the Sand River (73L) 1:250,000 scale National Topographic System (NTS) map sheet, more specifically 73L/9 (Marie Lake) and 73L/8 (Cold Lake) 1:50,000 scale NTS map sheets.

Accessibility, Climate and Local Resources

The Medley River property may be accessed via Provincial Highway 897 and 892, all weather and dry weather gravel roads, cart trails and seismic lines. Portions of the permit area may be accessed by four-wheel drive vehicles or argos. Accommodation, food, fuel, and supplies are best obtained in the towns of Grand Centre and Cold Lake (now amalgamated). Camping facilities may be available in English Bay and Ethel Lake Provincial Recreation Areas.

The Medley River property is situated within the Eastern Alberta Plains and Mostoos Hills Upland physiographic zones (Klassen, 1989). Relief generally comprises rolling hills and undulating plains. Elevation in the region varies from 535 m to 640 m above sea level (asl). Major topographic features in the region include: Cold and Marie lakes, situated in the centre of the property; areas of extensive muskeg to the northwest of the property; and the Medley and Martineau rivers. Numerous streams and creeks drain the region, flowing into Cold Lake, which in turn drains into the Beaver River to the south. The Sand River map sheet is the locus of a subcontinental divide where the Beaver River and its tributary, the Sand River, drain in to Hudson Bay via the Churchill River System. The northwest corner of the map sheet (73L) drains into the Arctic Ocean via the La Biche–Athabasca–MacKenzie River System. In addition to the numerous small lakes and ponds, much of the property is covered by swamps, marshes and fens. A boreal forest containing mainly spruce and jack pine covers the property. Annual temperatures range from -40°C in January to 25°C in July.

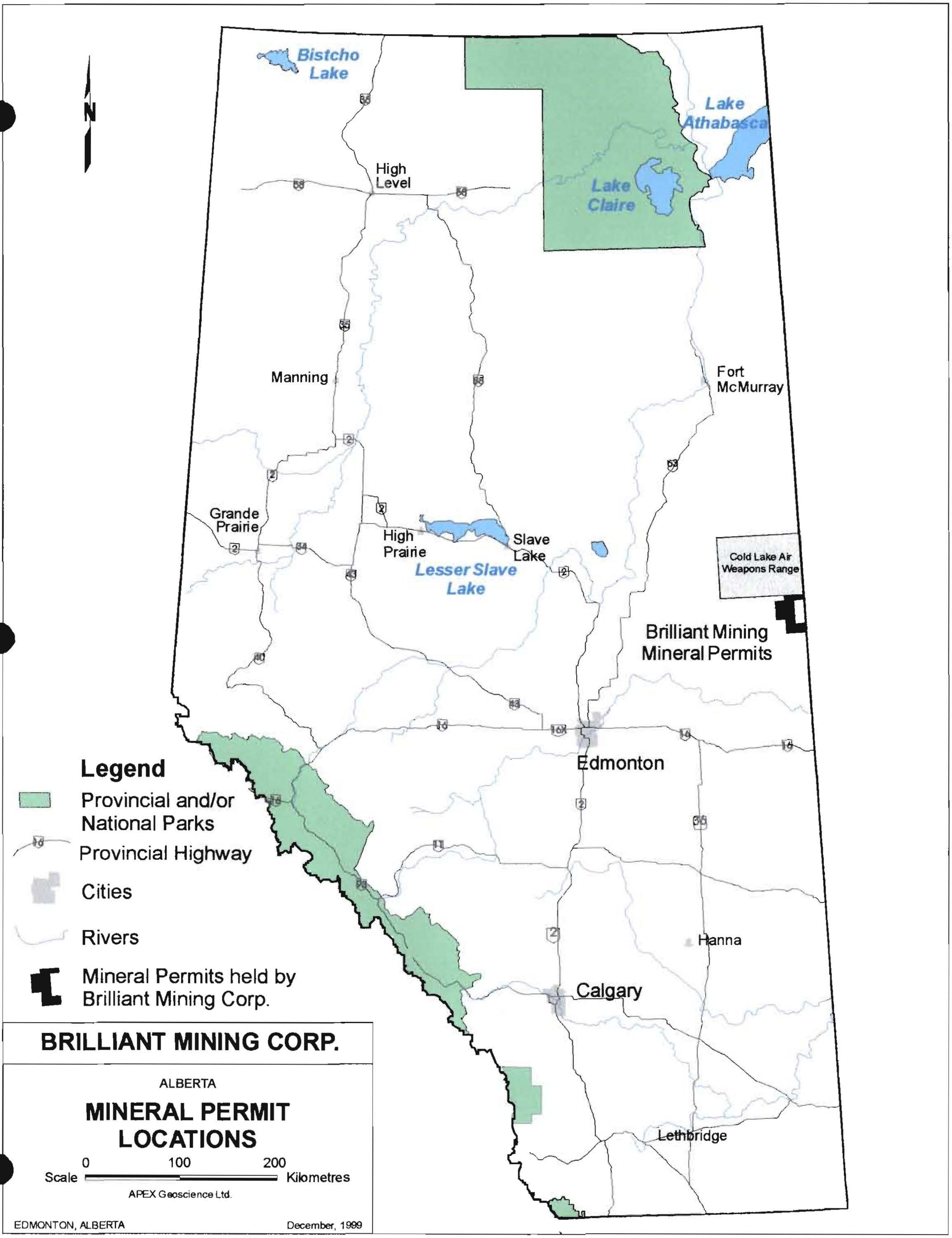

Bistcho Lake
Lake Athabasca
Lake Claire
High Level
Manning
Fort McMurray
Grande Prairie
High Prairie
Slave Lake
Lesser Slave Lake
Cold Lake Air Weapons Range
Brilliant Mining Mineral Permits
Edmonton
Hanna
Calgary
Lethbridge
N
Legend
Provincial and/or National Parks
Provincial Highway
Cities
Rivers
Mineral Permits held by Brilliant Mining Corp.
BRILLIANT MINING CORP.
ALBERTA
MINERAL PERMIT LOCATIONS
0 100 200
Scale Kilometres
APEX Geoscience Ltd.
EDMONTON, ALBERTA
December, 1999

FIGURE 1.

DIAMOND INDICATOR MINERALS, KIMBERLITES, AND EXPLORATION METHODS

To understand the significance of diamond indicator minerals ("DIM"), it is important to understand the type of igneous rocks from which primary diamond deposits are mined. The most common rock type from which diamonds are mined are kimberlites and to a lesser extent lamproites and orangeites. Diamond indicator minerals describe minerals which are common constituents of these three rock types, but for the purposes of this discussion, DIM will refer to minerals that are characteristic of kimberlites.

Kimberlite is best described as a hybrid igneous rock. Kimberlites are igneous in nature since they have crystallised from a molten liquid (kimberlitic magma) originating from the earth's upper mantle. Kimberlite magma contains volatile gases and is relatively buoyant with respect to the upper mantle. As a result, pockets of kimberlitic magma will begin to ascend upward through the upper mantle and along a path of least resistance to the earth's surface. As the kimberlitic magma ascends, the volatile gases within the magma expand, fracturing the overlying rock, continually creating and expanding its own conduit to the earth's surface. As a kimberlitic magma begins to ascend to the earth's surface it rips up and incorporates chunks or xenoliths of the various rock types the magma passes through on its way to surface. As the magma breaks down and incorporates these xenoliths, the chemistry and mineralogy of the original magma becomes altered or hybridised. The amount and type of foreign rock types a kimberlite may assimilate during its ascent will determine what types of minerals are present in the kimberlite when it erupts at surface.

When kimberlitic magma reaches or erupts at the earth's surface, the resulting volcanic event is typically violent, creating a broad shallow crater surrounded by a ring of kimberlitic volcanic ash and debris ("tuffaceous kimberlite"). The geological feature created by the eruption of a kimberlite is referred to as a diatreme or kimberlite pipe. In a simplified cross section a kimberlite diatreme appears as a near vertical, roughly "carrot shaped" body of solidified kimberlite capped by a broad shallow crater on surface that is both ringed and filled with tuffaceous kimberlite and fragments of the different rock types the kimberlite may have erupted through on route to surface.

Due to the unique geometry of a kimberlite pipe and the manner in which the kimberlite has intruded a pre-existing host rock type, there are often differences in the physical characteristics of a kimberlite and the host rock. Sometimes these contrasting physical characteristics are significant enough to be detected by airborne or ground geophysical surveys. Two of the most commonly used geophysical techniques are airborne or ground magnetic surveys and EM surveys. A magnetic survey measures the magnetic susceptibility and EM surveys measure the resistivity of the material at or near the earth's surface. When magnetic or resistivity measurements are collected at regular spaced intervals along parallel lines, the data can be plotted on a map and individual values can be compared. If a geophysical survey is conducted over an area where the bedrock and overburden geology is constant and there are no prominent structures or faults, there will be little variation in magnetic or resistivity data. However, when a kimberlite intrudes a homogenous geologic unit and erupts on surface, there is often a change in the geophysical signature or anomalous magnetic or resistivity data over the kimberlite diatreme. When the data is contoured the anomalous results often occur as a circular or oval anomaly outlining the surface or near surface expression of the diatreme.

The effectiveness of geophysical methods in kimberlite exploration is dependent on the assumption that the difference between the geophysical signature of the hosting rock unit and a potential kimberlite is significant enough to be recognised by the geophysical techniques available. There are many examples of economic kimberlites that produce very subtle, unrecognisable geophysical responses as well as non kimberlite geologic features and man made structures (referred to as "cultural interference") such as oil wells, fences, bridges, buildings which can produce kimberlite like anomalies. For these reasons, it is extremely important that other information such as DIM surveys be used in tandem with geophysical evidence to confirm whether there is other information to support the occurrence of a kimberlite pipe (Fipke *et al.*, 1995).

Diamonds do not crystallise from a kimberlitic magma: they crystallise within a variety diamond bearing igneous rocks in the upper mantle called peridotites and eclogites. Peridotites and eclogites are each made up of a diagnostic assemblage of minerals that crystallise under specific pressure and temperature conditions similar to those conditions necessary to form and preserve diamonds ("diamond stability field"). Diamond bearing peridotite can be further broken down into three varieties which are, in order of greatest diamond bearing significance, garnet harzburgite, chromite harzburgite, and to a lesser extent garnet lherzolite. For a kimberlite to be diamond bearing, the primary kimberlitic magma must disaggregate and incorporate some amount of diamond bearing peridotite or eclogite during its ascent to the earth's surface. The type and amount of diamond bearing peridotite or eclogite the kimberlitic magma incorporates during its ascent will determine the diamond content or grade of that specific kimberlite as well as the size and quality of diamonds. Diamond bearing peridotite and eclogite occur as discontinuous pods and horizons in the upper mantle, typically underlying the thickest, most stable regions of Archean continental crust or cratons (Helmstaedt, 1993). As a result, almost all of the economic diamond bearing kimberlites worldwide occur in the middle of stable Archean cratons.

Diamond indicator minerals includes minerals that have crystallised directly from a kimberlitic magma, or minerals that have been incorporated into the kimberlitic magma as it ascends to the earth's surface. Examples of DIMs are picroilmenite, titanium and magnesium rich chromite, chrome diopside, magnesium rich olivine, pyrope garnets (varieties which include Dawson and Stephen's (1975) G1, G2, G9, G10, G11, G12 and Gurney's (1984) Gurney and Moore's (1993) G9 and G10 garnets) and eclogitic garnets (varieties which include Dawson and Stephen's G3, G4, G5, and G6). From this paragraph on, reference to G1 and G2 pyrope garnets refers to Dawson and Stephens' (1975) classification and G9 and G10 refers to Gurney (1984) G9 and G10 pyrope garnets.

There are a limited variety of DIMs from which information pertaining to the diamond bearing potential of the host kimberlite can be gained. These are typically DIMs which have been derived from diamond bearing peridotite and eclogite in the upper mantle

(Mitchell, 1989). The most common examples of these would include sub-calcic, chromium rich G10 pyrope garnets (diagnostic of garnet harzburgite), in some instances G9 pyrope garnets (diagnostic of garnet lherzolite), chromium and magnesium rich chromite (referred to as diamond inclusion quality or "DIF" chromite and diagnostic of chromite or spinel harzburgite), diamond inclusion quality "DIF" eclogitic garnets and chemically distinct chrome diopside (diagnostic of diamond bearing eclogites).

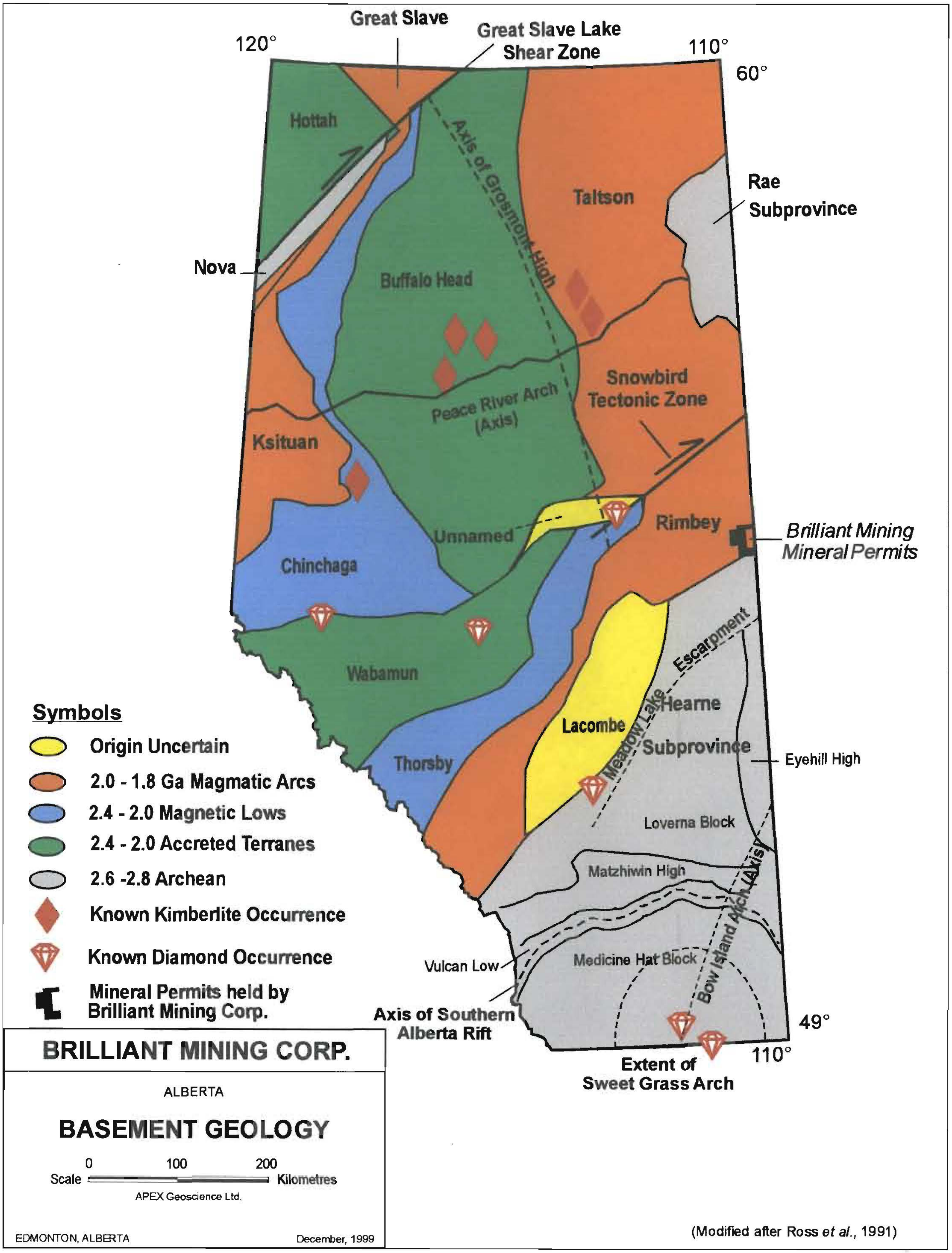
Other indicator minerals that have crystallised from a kimberlitic magma can provide information as to how well the diamonds in a given kimberlite have been preserved during their ascent to surface. For instance, the presence of low iron and high magnesium picroilmenites in a kimberlite is a positive indication that the oxidising conditions of a kimberlitic magma were favourable for the preservation of diamonds during their ascent to surface in the kimberlitic magma.

REGIONAL GEOLOGICAL SETTING

Precambrian

The Medley River permits lie in the Western Canada Sedimentary basin along the northern flank of the Meadow Lake Escarpment (MLE). Precambrian rocks are not exposed within the Sand River map sheet (NTS 73L). The basement underlying the Medley River permits borders the Hearne Subprovince (HSP), the Rimbey Magmatic Zone (RMZ) near the Meadow Lake Escarpment (Figure 2). Basement to the Medley permits is part of the Rimbey Magmatic Zone (RMZ), a 2.0 to 1.8 Ga aged terrane that represents a magmatic arc related to collisional orogeny of the Buffalo Head Terrane and the Churchill Structural Province (Hearne and Rae Subprovinces) during the Proterozoic (Burwash *et al.*, 1962; Burwash and Culbert, 1976; Burwash *et al.*, 1994; Ross and Stephenson, 1989; Ross *et al.*, 1991, 1998, Villeneuve *et al.*, 1993). Thick Archean cratons such as the HSP are considered favourable for the formation and preservation of diamonds within the upper mantle. The location of the contact zone between the RMZ and the HSP is highly uncertain but has been broadly ascertained on the basis of available drill hole intersections, regional airborne geophysics, and geochronology. The RMZ is characterised by a highly corrugated internal fabric comprised of extremely high relief, northeast-trending sinuous magnetic anomalies. Seismic refraction and reflection studies indicate that the crust in the Cold Lake region is likely around 35 to 40 km thick, a trait favourable for the formation and preservation of diamonds in the upper mantle (Dufresne *et al.*, 1996). In addition, studies by Lithoprobe have indicated that a deep mantle root, as illustrated in Fig. 25 in Helmstaedt (1993), exists proximal to the area. Due to their relatively stable history since accretion, the RMZ and HSP are currently the focus of diamond exploration in eastern Alberta.

To the north of the Medley River permits, the underlying RMZ is divided from the Talston Magmatic Zone by the Snowbird Tectonic Zone (STZ). The STZ is a major northeast-trending crustal lineament that is a prominent lineament on both the aeromagnetic and the gravity maps of Canada (GSC, 1990a, b). The STZ separates the Churchill Structural Province into two distinct basement domains, the Rae and Hearne Subprovinces, and extends to the northeast as far as Baker Lake, Nunavut (Ross *et al.*, 1991).


Great Slave
Great Slave Lake Shear Zone
120°
110°
60°
Hottah
Axis of Grosmont High
Taltson
Rae Subprovince
Nova
Buffalo Head
Peace River Arch (Axis)
Snowbird Tectonic Zone
Ksituan
Unnamed
Rimbey
Brilliant Mining Mineral Permits
Chinchaga
Wabamun
Escarpment
Meadow Lake
Hearne Subprovince
Lacombe
Eyehill High
Thorsby
Loverna Block
Matzhiwin High
Bow Island Arch (Axis)
Medicine Hat Block
Vulcan Low
Axis of Southern Alberta Rift
49°
110°
Extent of Sweet Grass Arch
Symbols
Origin Uncertain
2.0 - 1.8 Ga Magmatic Arcs
2.4 - 2.0 Magnetic Lows
2.4 - 2.0 Accreted Terranes
2.6 -2.8 Archean
Known Kimberlite Occurrence
Known Diamond Occurrence
Mineral Permits held by Brilliant Mining Corp.
BRILLIANT MINING CORP.
ALBERTA
BASEMENT GEOLOGY
0
100
200
Scale
Kilometres
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EDMONTON, ALBERTA
December, 1999
(Modified after Ross et al., 1991)

FIGURE 2.

Phanerozoic

Overlying the basement in the Cold Lake region is a thick sequence of Phanerozoic rocks comprising mainly Cretaceous sandstones and shales near surface and Cambrian to Ordovician sandstones and shales to Devonian carbonates and salts at depth (Hitchon and Andriashek, 1985; Mossop and Shetson, 1994). Bedrock exposure within the permit blocks is limited primarily to river and stream cuts and topographic highs. Table 1 shows the upper units found in the region. Further information pertaining to the distribution and character of these and older units can be obtained from well log data in government databases and various geological and hydrogeological reports (Carrigy, 1971; Ozoray *et al.*, 1980; Hitchon and Andriashek, 1985).

Underlying the near surface Cretaceous units in the Cold Lake area is a thick succession of Cambrian to Devonian sandstones, carbonates, calcareous shales and salt horizons (Hitchon and Andriashek, 1985; Mossop and Shetson, 1994). Several of the Devonian carbonate units are part of the Grosmont Reef Complex, a large structure whose eastern edge extends in a northwesterly direction from the Cold Lake area to the N.W.T. (Bloy and Hadley, 1989). The Grosmont Reef Complex is likely the result of tectonic uplift during the Devonian along this trend. During the middle Devonian, a large part of the Siluro-Ordovician stratigraphy was eroded or faulted away to form the northeast trending Meadow Lake Escarpment, a prominent Phanerozoic structural feature within the Western Canada Sedimentary Basin. These structures in conjunction with the Peace River Arch in northern Alberta could have played a significant role in the localisation of faults and other structures that could have provided favourable pathways for kimberlite volcanism.

In general, the Cretaceous strata underlying the Cold Lake permits is composed of alternating units of marine and nonmarine sandstones, shales, siltstones, mudstones and bentonites. The oldest documented units exposed in the permit area belong to the Lea Park Formation, a sequence of Upper Cretaceous calcareous and noncalcareous shales with thin intercalated sandstone layers (Figure 3). However, older units from the base of the Fort St. John and/or the top of the Colorado groups may be exposed in river and stream cuts.

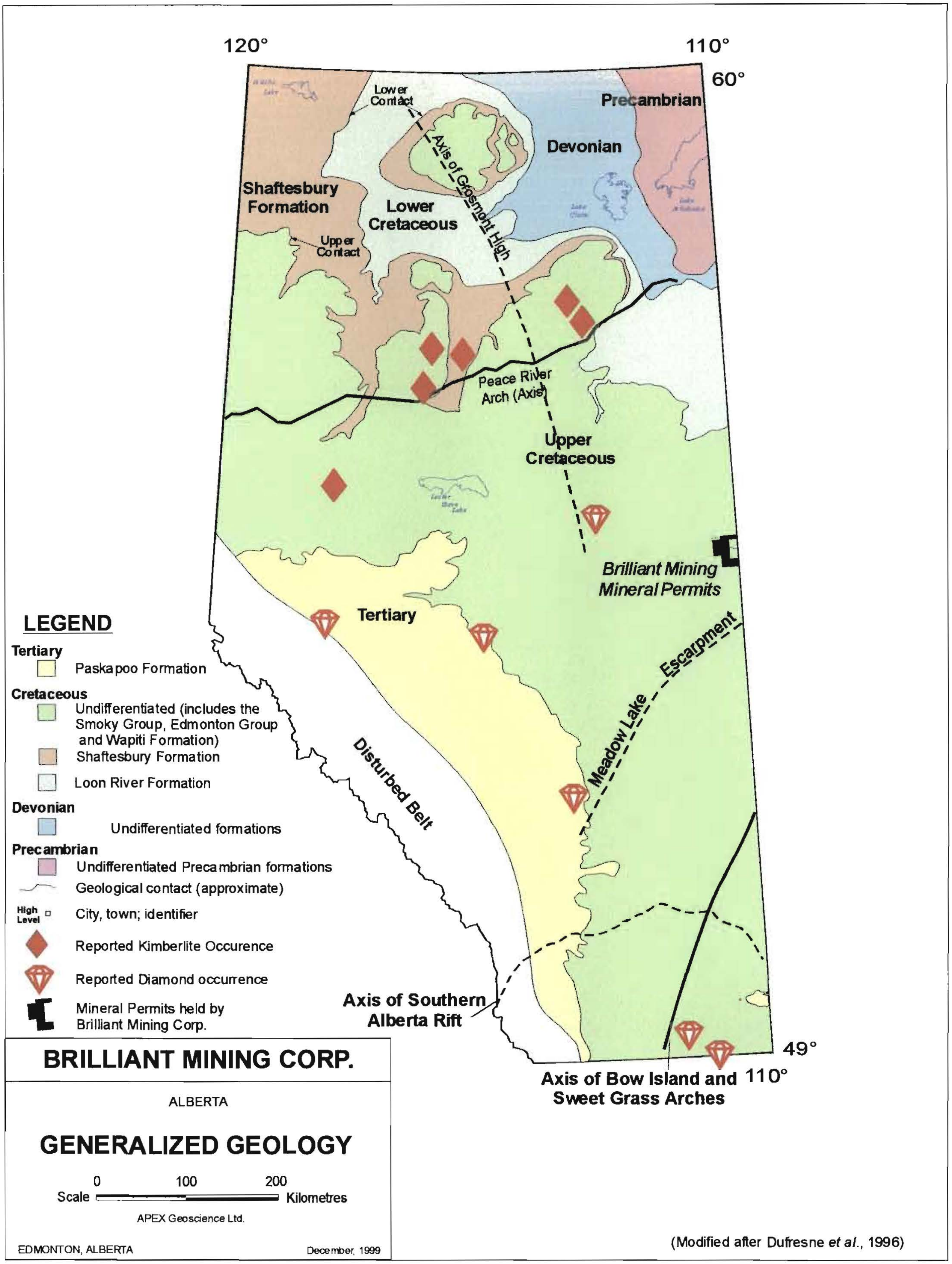
The Colorado Group is Lower Cretaceous in age and contains numerous formations, including the Joli Fou and the Viking formations, which are correlative with the Peace River Formation of the Fort St. John Group further west (Dufresne *et al.,* 1996). The Joli Fou Formation is comprised of shale with interbedded, bioturbated to glauconitic sandstones and minor amounts of bentonite, pelecypod coquinas, nodular phosphorite and concretionary layers of calcite, siderite and pyrite (Glass, 1990). The Viking Formation disconformably overlies the Joli Fou Formation and is gradational with the overlying Shaftesbury Formation (shales of the Colorado Group) and is correlative with the Cadotte and Paddy Sands of the Peace River area (Fort St. John Group). The Viking Formation is comprised of glauconitic sands, interbedded siltstone and mudstone with minor amounts of conglomerate. Coalified plant fragments and bioturbated sandstones are locally abundant.

TABLE 1
GENERALIZED STRATIGRAPHY
COLD LAKE PERMIT AREA

SYSTEM	GROUP	FORMATION	AGE* (MA)	DOMINANT LITHOLOGY
PLEISTOCENE			Recent	Glacial till and associated sediments
TERTIARY			6.5 to Recent	Preglacial sand and gravels
UPPER CRETACEOUS		Belly River	70 to 80	Shale, silty-shale and ironstone
	Smoky	Lea Park	75 to 86	Shale, silty-shale and ironstone, First White Specks
		Bad Heart	86 to 88	Thin or absent; Sandstone
		Kaskapau	88 to 92	Shale, silty-shale and ironstone, Second White Specks
		Dunvegan	92 to 95	Thin or absent; Sandstone and siltstone
	Fort St. John	Shaftesbury	95 to 98	Shale, bentonites, Fish-Scale Fm.
LOWER CRETACEOUS	Colorado	Viking	98 to 100	Glauconitic sands, siltstone, mudstone and conglomerate
		Joli Fou	100 to 103	Shale, glauconitic sandstone and bentonite

*Ages approximated from Green *et al.* (1970), Glass (1990), Dufresne *et al.* (1996) and Leckie *et al.* (1997).

The La Biche Formation is a frequently incorrectly used term correlative to units of the Shaftesbury Formation and other formations within the Smoky and Colorado groups (Glass, 1990). In the Medley River permit area, the term Shaftesbury Formation (Fort St. John Group) is more commonly used. This unit is correlative with the shales overlying and underlying the Fish Scale unit in the Colorado Group. The Shaftesbury Formation is lower Upper Cretaceous in age and is comprised of marine shales with fish- scale bearing silts, thin bentonitic streaks and ironstones. The upper contact is conformable and transitional with the Dunvegan Formation, however, the Dunvegan Formation is likely absent in the Cold Lake region, as sandy units within the Cretaceous stratigraphy generally thin out or become absent in deeper parts of the Western Sedimentary Basin. The Shaftesbury Formation may be exposed along deep river and stream cuts. Evidence of extensive volcanism during deposition of the Kaskapau and the Shaftesbury formations exists in the form of bentonites of variable thickness, distribution and composition. Numerous bentonitic horizons exist throughout the Shaftesbury Formation, especially within and near the Fish



120°
110°
60°
Precambrian
Devonian
Lower Contact
Axis of Grosmont High
Shaftesbury Formation
Lower Cretaceous
Upper Contact
Peace River Arch (Axis)
Upper Cretaceous
Brilliant Mining Mineral Permits
Tertiary
Meadow Lake Escarpment
Disturbed Belt
Axis of Southern Alberta Rift
49°
110°
Axis of Bow Island and Sweet Grass Arches
LEGEND
Tertiary
Paskapoo Formation
Cretaceous
Undifferentiated (includes the Smoky Group, Edmonton Group and Wapiti Formation)
Shaftesbury Formation
Loon River Formation
Devonian
Undifferentiated formations
Precambrian
Undifferentiated Precambrian formations
Geological contact (approximate)
High Level
City, town; identifier
Reported Kimberlite Occurence
Reported Diamond occurrence
Mineral Permits held by Brilliant Mining Corp.
BRILLIANT MINING CORP.
ALBERTA
GENERALIZED GEOLOGY
0
100
200
Scale
Kilometres
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December, 1999
(Modified after Dufresne *et al.*, 1996)

FIGURE 3.

Scales horizon across much of Alberta (Leckie *et al.*, 1992; Bloch *et al.*, 1993). The time span of deposition of the Shaftesbury Formation is also chronologically correlative with the deposition of the Crowsnest Formation volcanics of southwest Alberta (Olson *et al.*, 1994; Dufresne *et al.*, 1995) and with kimberlitic volcanism near Fort à la Corne in Saskatchewan (Lehnert–Thiel *et al.*, 1992; Scott Smith *et al.*, 1994). In addition, there is documented igneous activity associated with the Steen River Anomaly, a possible impact structure, which formed in northwestern Alberta about this time (Carrigy, 1968; Dufresne *et al.*, 1995).

The Smoky Group is Upper Cretaceous in age and is comprised of thinly bedded, marine, silty shale with occasional ironstone and claystone nodules and thin bentonite streaks. The group is divided into three formations: (a) a lower shale unit, Kaskapau, which includes the Second White Specks marker unit; (b) a middle sandstone, named the Bad Heart; and, (c) an upper shale, Lea Park, which contains the First White Specks marker unit. The Smoky Group is conformably and transitionally overlain by the Wapiti Formation. Ammonite fossils and concretions are present in both the Puskwaskau and the Kaskapau formations. In addition, foraminifera are present in the lower arenaceous units (Glass, 1990). The upper formations of the Smoky Group are correlative with the Lea Park Formation. The lower portions of the Smoky Group are correlative with the middle to upper units of the Colorado Group, including the First and Second White Speckled Shale marker units (Glass, 1990). The Bad Heart, Dunvegan, and Wapiti formations are likely absent to very thin within the Cretaceous stratigraphy underlying the Cold Lake area. Bedrock exposures in the Cold Lake permits comprise the Lea Park and Belly River formations, however much (up to 1 km) of the upper portions of the Smoky Group have been eroded away by glacial and/or post-depositional processes. In general, exposures of the Smoky Group are limited to river and stream cuts, topographic highs, and regions with thin drift veneer. There is strong evidence of volcanism associated within the depositional time span of the Smoky Group in the vicinity of the PRA (Auston, 1998; Carlson *et al.*, 1998). Ashton's recently discovered Buffalo Head Hills kimberlites intrude Kaskapau shale and yield emplacement ages of 86 to 88 Ma (Auston, 1998; Carlson *et al.*, 1998).

The youngest bedrock unit in the Cold Lake area is the Belly River and Lea Park formations of Upper Cretaceous age, comprised of marine, thinly bedded to massive shales. The upper surfaces of the Belly River and Lea Park formations are generally erosional. Thickness of the unit may exceed 100 m (Glass, 1990). The Belly River Formation is exposed in the southeastern half of the Sand River map sheet around Cold Lake. The Lea Park formation outcrops within the northeast half of the Sand River map sheet. The Mountain Lake Kimberlite near Grande Prairie intrudes the Wapiti Formation, which is time correlative with the sedimentary rocks of the Belly River Formation and yields an emplacement age of 75 Ma (Leckie *et al.,* 1997).

Quaternary

Data and information about the surficial geology in central to northern Alberta is sparse and regional in nature (Klassen, 1989; Shetson, 1990). Prior to continental glaciation during the Pleistocene, most of Alberta, including the Cold Lake region, had reached a mature stage of erosion. Large, broad paleochannels and their tributaries drained much of the region, flowing in an east to northeasterly direction (Dufresne *et al.*, 1996; Edwards *et al.*, 1994). In addition, fluvial sand and gravel was deposited preglacially in much of the region.

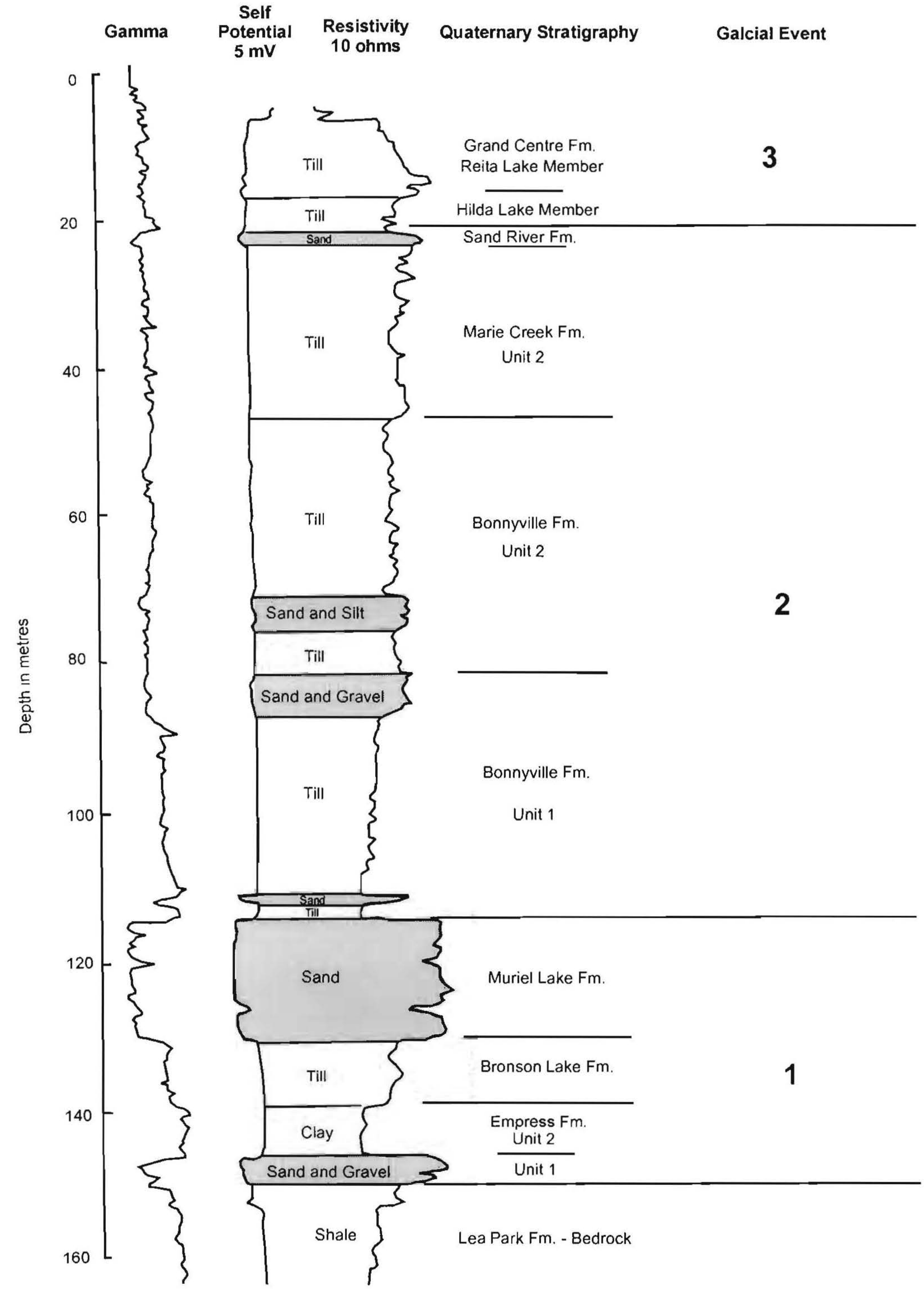
During the Pleistocene, multiple southwesterly and southerly glacial advances of the Laurentide Ice Sheet across the region resulted in the deposition of ground moraine and associated sediments (Figure 5 in Dufresne *et al.,* 1996). In addition, the advance of glacial ice resulted in the erosion and glaciotectonism of the underlying bedrock. Ice thrusted bedrock has been documented at the southwest terminus of Primrose Lake (Andriashek, *pers com.*, 1999). Glacial sediments infilled low-lying and depressional areas, draped topographic highs and covered much of the Cold Lake area as veneers and/or blankets of till and diamict. Localised pockets of deposits from glacial meltwater and proglacial lakes infill the numerous spillway channels present near the area.

Glacial ice is believed to have receded from the area about 15,000 years ago. After the final glacial retreat, lacustrine clays and silts were deposited in low-lying regions along with organic sediments. Rivers previously re-routed due to glaciation, re-established easterly to northeasterly drainage regimes similar to that of the pre-Pleistocene. Extensive colluvial and alluvial sediments accompanied post-glacial river and stream incision.

The Quaternary stratigraphy within the Cold Lake area is complex and has been developed during three episodes of glaciation (Hitchon and Andriashek, 1985). The Quaternary stratigraphy is defined by several formations that are related to specific glacial events (Figure 4). The oldest and lowermost unit within the regional stratigraphy is the Empress Formation which comprises a lower sand and gravel horizon (Unit 1) with an overlying fluvial or lacustrine silt and clay (Unit 2). Unit one is largely composed of quartzite, chert and sandstone cobbles that were deposited in paleochannels by rivers flowing eastward from the Rocky Mountains. During the first glaciation event, a thick sheet of glacial sediment or till of the Bronson Lake Formation was deposited above the preglacial Empress Formation and local bedrock of the Lea Park Formation. This till is very clay rich and mainly occupies buried bedrock valleys such as those at Bronson Lake and Helina Valley.

Following the retreat of the first glacial event and perhaps during the advance of the second glaciation extensive glaciofluvial sand of the Muriel Lake Formation was deposited above the Bronson Lake till sheet. The second glacial event deposited the very thick till sequences of the Bonnyville Formation. This till is characterised by a relatively high ratio of quartz to rock fragment within the matrix. The formation, divided into Units 1 and 2, commonly contains intercalations of glaciofluvial sand and gravel at the unit contacts. Following retreat of the second glacial ice advance silt and lacustrine sediment of the Ethel

Testhole E 2075 SW ¼ Sec28-Tp66-Rg5-W4M



BRILLIANT MINING CORP.

Medley River Property

Quaternary Stratigraphy
Cold Lake, Alberta

APEX Geoscience Ltd.

EDMONTON, ALBERTA December, 1999

After Hitchon and Andriashak (1985)

FIGURE 4.

Lake Formation were deposited on top of the Bonnyville Formation tills, in the central and eastern art of map sheet NTS 73L.

The third and final glacial event deposited an extensive cover of till and glacially thrust sediments of the Grand Centre Formation. Based on spatial, textural and landform characteristics the Grand Centre Formation has been divided into four members. The lowermost (Hilda Lake Member) is found only in the east, and consists clay rich till that was intermixed with glacially thrust sediment of the Lea Park formation. The predominant glacial direction is oriented northeast to southwest based on the geometry of glacial flutes and drumlins of the Hilda Lake Member. The Reita Lake Member is also found within the eastern part of NTS 73L and overlies most of the Hilda Lake Member. The Reita Lake Member comprises sandy clay till that occurs within higher relief landforms on the south side of major lakes, with glacially displaced masses of Marie Creek till forming the majority of the Member. These types of landforms have been referred to as "hill–hole pairs" and represent glacially thrusted material. Seismic profiles within the Cold Lake region show evidence that glacial thrust planes, ramps, and duplexes may commence at the bedrock and overburden contact (Andriashek, *pers com.*, 1999). This shows that the overburden and Tertiary/Quaternary stratigraphy may in places be piggybacked, and thickened by the related glacial tectonism. This has important implications for the design of a surface till sampling program for diamond indicator minerals. Overlying the Reita Lake Member are the sandy tills of the Kehiwin Lake Member. This member gradationally interfingers with the Reita Lake Member in the centre of NTS 73L along a north-south trend. The predominant glacial orientation of flutes within the Kehiwin Member id north–south. Overlying the Kehiwin Member in the western half of the Sand River map sheet are the till of the Vilna Member which are typified by glacial flutes that are oriented northwest–southeast. In general the tills of the Grand Centre Formation are higher in crystalline rock fragments than the underlying till formations. It is interpreted that the Grand Centre tills saw very little interaction with bedrock and thus represent an ablation till. This has important implications for the design of a regional till sampling program for diamond indicator minerals in that, the upper till sheet likely did not interact with possible kimberlite diatremes that are age correlative with the underlying Upper Cretaceous Lea Park stratigraphy. More specific details of the glacial stratigraphy of the Cold Lake area and Sand River Map sheet are presented in Hitchon and Andriashek (1985) and Andriashek (1985).

The majority of area within the Medley River permits is underlain by drift of variable thickness, ranging from less than 0 m to likely over 175 m (Fenton and Andriashek, 1983). Drift thickness decreases considerably outside of infilled depressions and meltwater channels and in areas of high topographic relief, in particular near the west side of Cold Lake. However, local drift thicknesses can not be confirmed without detailed compilation of available drill hole data. Information regarding bedrock topography and drift thickness in northwest Alberta is available from the logs of holes drilled for petroleum, coal or groundwater exploration and from regional government compilations (Fenton and Andriashek, 1983; Pawlowicz and Fenton, 1995a, b; Dufresne *et al.*, 1996).

Structural Geology

In eastern-central Alberta, the MLE is a region where the younger Phanerozoic rocks which overlie the Precambrian basement, have undergone periodic vertical and, possibly, compressive deformation from the Proterozoic into Tertiary time (Cant, 1988; O'Connell *et al.*, 1990; Dufresne *et al.*, 1995, 1996). This pattern of long-lived, periodic uplift and subsidence has imposed a structural control on the deposition patterns of the Phanerozoic strata in eastern Alberta (Kent, 1986, 1994; Christopher, 1990). In addition, this periodic movement has resulted in a rectilinear pattern of faults that not only is responsible for structurally controlled oil and gas pools, but may have provided potential pathways for later deep-seated intrusive kimberlitic magmas (Herbaly, 1974).

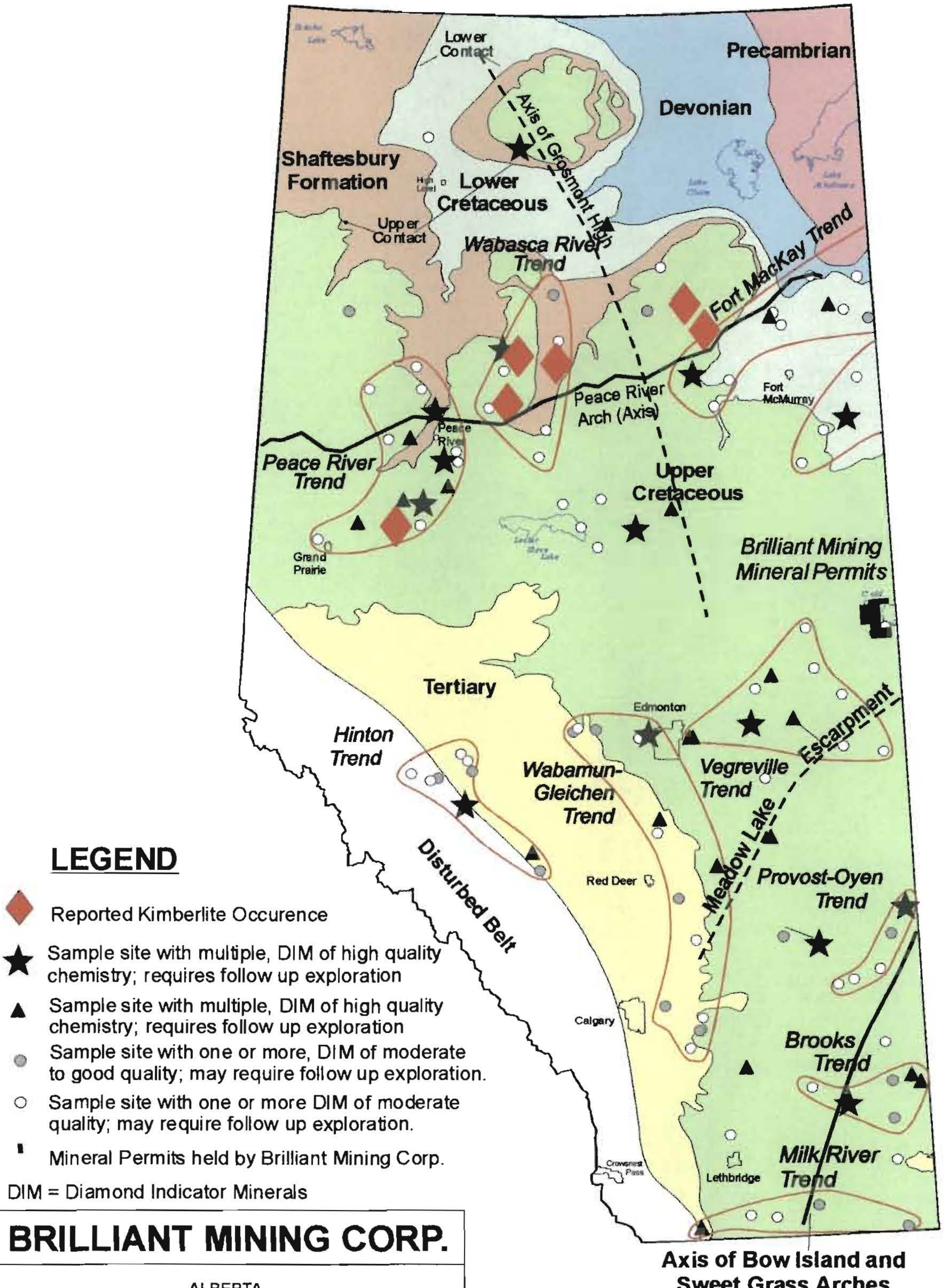
During the mid-Cretaceous and Early Tertiary, compressive deformation occurred as a result of the orogenic event that eventually led to the formation of the Rocky Mountains. The MLE was emergent during this period resulting in the reactivation of many prominent basement faults. The Phanerozoic rocks beneath the Medley River permits lie within the northern edge of the MLE and are underlain by and proximal to basement faults related to the STZ, and the Grosmont Reef Complex, the latter being formed over the Grosmont High (Bloy and Hadley, 1990; Dufresne *et al.*, 1996). Basement faults may have controlled the emplacement of the Mountain Lake Kimberlite and the Buffalo Head Hills kimberlites northwest of the Medley River permits (Dufresne *et al.*, 1996; Leckie *et al.*, 1997). Therefore, structures in the Cold Lake area resulting from tectonic activity associated with movement along the MLE, the Grosmont High, the STZ, or even along contacts between different basement terranes could be pathways for kimberlitic volcanism.

PREVIOUS EXPLORATION

Previous exploration in the Cold Lake area has focussed primarily on the search for hydrocarbon and aggregate deposits and the determination of hydrogeological and geothermal regimes (Hackbarth and Nastasa, 1979; Mandryk and Richardson, 1988; Bachu *et al.*, 1993; Edwards *et al.*, 1994). Only recently has the focus of exploration been redirected towards diamonds (Dufresne *et al.*, 1996). In summary, prior exploration for diamonds conducted within the Medley River permits comprised staking, reconnaissance prospecting, sampling (gravel and sand) and geophysical surveying (ground magnetic).

Prospecting and Surface Sampling

The Alberta Geological Survey (AGS) and the Geological Survey of Canada (GSC) collected three till samples (NAT92-32, NAT92-33, and 43-4-1-T) from the Cold Lake region in 1992 (Dufresne *et al.*, 1995, 1996). These samples were collected for regional diamond indicator mineral analysis to provide background information on the diamond potential of the region (Figure 5). Sample NAT92-32 yielded a single Cr-grossular garnet. Chrome-grossular garnet is not unique to kimberlite intrusives but may be sourced from mantle derived intrusives such as kimberlite or lamproite. Sample NAT92-33 yielded no diamond indicator minerals. Sample 43-4-1-T was collected from the southwest side of



BRILLIANT MINING CORP.

ALBERTA

DIAMOND INDICATOR MINERAL TRENDS

Scale 0 100 200 Kilometres

APEX Geoscience Ltd.

EDMONTON, ALBERTA December, 1999

(Modified after Dufresne *et al.*, 1996)

FIGURE 5.

Cold Lake. This till sample returned a G1 and G2 pyrope, both of which are titanium rich pyropes. These types of pyropes are rare, and when found are often considered a diagnostic mineral indicative of local kimberlite intrusives.

Twelve samples were collected within Brilliant's mineral permits between June 15 and June 18, 1999 by Mr. Stuart C. Fraser of Stuart C. Fraser Geological (Fraser) in Edmonton, Alberta. The costs associated with this work are reported in Appendix 2. The samples (MR-01 to MR-12) were collected from excavated gravel pits and/or clearings near the Medley River using shovels and augers, and panned to a concentrate on site for further processing (Fraser, 1999a, b). It is unknown how much original sample was collected or what type of concentration method was used to obtain the concentrate, and it is assumed that these methods are not the same as those systematically applied by APEX. These samples were submitted by Fraser to Loring Laboratories (Calgary, Alberta) for processing for heavy mineral concentrates. The samples were then sent to Mr. Fraser for diamond indicator mineral picking and analysis. The picked grains were probed at the University of Alberta microprobe facility. The microprobe results of the grains picked by Fraser (1999a, b) have been obtained by APEX and have reviewed and interpreted along with the data obtained from sampling conducted by APEX. Loring Laboratories also processed the heavy mineral concentrates from Fraser's samples for gold assay.

Brilliant employees or subcontractors collected bulk gravel samples from the same gravel pit locations as APEX samples 9TK004 and 9TK005. The two samples weighed approximately 1,000 and 2,000 lbs respectively, and were separated into several different fractions (based on size and specific gravity), which were subsequently submitted as separate samples. For the purposes of this report the diamond indicator results of all the fractions have been recombined and reported as one sample so that the results relative to the amount of starting material can be compared to the results of the samples collected by APEX (Appendix 3). These samples were submitted to the Saskatchewan Research Council (SRC), Saskatoon, Saskatchewan for diamond indicator mineral processing and picking.

Ground Geophysical Surveys

During early March, 1999, EXCEL GEOPHYSICS INC. (EXCEL) of High River Alberta, completed ground magnetic surveys over sections 13, 24 (Tp. 66, Rg. 4) and sections 18, 19 (Tp. 66, Rg. 3) of the Medley River permit area. One large grid at a cross line spacing of 200 m north-south lines was surveyed. The spacing between individual magnetometer readings was 20 m. The magnetic data was collected using GEM Systems GSM-19 Overhauser and Omnimetrics G816 magnetometers with GSM-19 and Omni IV base stations to correct for diurnal variation of the magnetic field. Anomalous magnetic readings from man made structures (ie. culture) such as well heads and pipelines were removed from the data set. EXCEL did not produce a report outlining the logistics, scientific, or interpretive aspects of the survey they conducted. Brilliant has produced an internal company document that outlines some of the survey parameters and preliminary interpretations of the survey data. The interpretation presented below is based on the review by APEX of maps provided by EXCEL.

Airborne Geophysical Surveys

During 1952, the GSC conducted an aeromagnetic survey of the Sand River NTS map sheet (73L) as part of a regional study (GSC, 1983). The survey was flown at an altitude of 300 m with flight lines spaced every one mile and cross-lines every 15 miles. Closer examination of the 1:250,000 scale aeromagnetic map for the Cold Lake area indicates a predominance of northeast trending basement magnetic highs. These highs parallel the trend of the Snowbird Tectonic Zone and pass through the northeast quadrant of the map sheet, just north of Cold Lake. Unfortunately, the flight lines from this 1952 survey are too widely spaced to be useful for locating possible kimberlites.

Prior Expenditures

Brilliant reports that a total of $250,642.45 has been spent on the Medley River property to date (Appendix 2). This total includes documented expenditures pertaining to ground geophysical surveys, sampling, geochemical surveying, as well as overhead and equipment (drill) purchases. In summary, they report that $34,570.42 was spent on ground geophysical surveys and $4,430.93 on geochemical sampling. The remaining expenditures were attributed to miscellaneous items such as consulting fees, research costs, reporting, equipment purchases and general business expenses etc.

1999 APEX EXPLORATION

Surface Sampling

During late summer of 1999, Mr. M. Dufresne of APEX conducted one day of gravel and river sediment (heavy mineral concentrate) sampling along the Medley River. The samples that were collected (9TK001 to 9TK005) consisted of nearly full five-gallon pails of unscreened riverbed (recent and ancient) gravel (Figure 6). Many of the larger cobble to boulder sized detritus was not collected for sampling, as this size fraction is unnecessary for diamond indicator mineral recovery. The samples were sent for diamond indicator mineral processing and picking to the SRC. The samples were also processed for gold grains. The diamond indicator mineral results are presented in Appendix 3a. Microprobe analyses of the picked diamond indicator grains were performed by the SRC and are presented in Appendix 3b.

RESULTS TO DATE AND DISCUSSION OF DIAMOND POTENTIAL

Quaternary and Bedrock Geology

A complex history of glaciation is evidenced within the Cold Lake area. The variable drift thickness (ranging from negligible to 175 m) and glacial complexity place constraints on the implementation of a systematic exploration program for kimberlites and diamonds in the Cold Lake area. A full glacial and drift thickness compilation based on the extensive work of Andriashek (1985) and Fenton and Andriashek (1983) is required to fully assess the impact of the Quaternary geology/stratigraphy on the exploration opportunities and diamond potential of the area. The data should be compiled in order to delineate those areas of thick versus thin drift and areas of less complex glacial history. The areas of thin drift and less glacial complexity should be the focus of any future exploration programs.

A very limited amount of bedrock exposure has been observed and reported within the area. Hitchon and Andriashek (1985) indicate that the Lea Park and Belly River formations outcrop within the Cold Lake area, and that lower stratigraphic units of the Smoky Group may be locally exposed in incised valleys. The bedrock exposed in the area (Belly River Formation) or intersected near surface in drilling is age correlative to bedrock in other parts of Northern Alberta that has been intruded by kimberlites.

The bedrock geology and associated Archean, Proterozoic and Phanerozoic structures underlying the Cold Lake area are an ideal environment for the formation and ascent of kimberlitic magmas. The significant crustal thickness (40 km) underlying the area is suitable for the formation and preservation of diamonds within the upper mantle. The existence of basement structures such as the STZ and the contact between the Thorsby Terrane and the Hearne Sub-Province, and Phanerozoic structures such as the Meadow Lake Escarpment, indicate that the area is highly prospective for the required pathways for the upward migration of kimberlite intrusives through the Phanerozoic to surface.

Ground Magnetic Surveys

The results of the ground geophysical survey over a four section area in the vicinty of May Lake were not conclusive and do not likely indicate the presence of a kimberlite body. The survey does tend to indicate an overall south to north transition in the bedrock geology (likely basement) from a relatively low magnetic body (granite pluton or gneiss) in the south to a lithology with a higher magnetic signature (mafic gneiss or greenstone) in the north. Anomalous readings were only recovered on one line (line 4) of the survey (UTM NAD 27; 534360 mE, 6064400 mN). This isolated magnetic high is approximately 80 m to 100 m wide and is approximately 100 nT above background (59060 nT) for the area. This anomaly is in general too narrow to be representative of a kimberlite body and the magnitude is suggestive of a culture source for the anomaly.

Indicator Results From Previous Sampling

Gold and diamond indicator mineral results were reported by Fraser (1999a, b) for the gravel samples collected near the Medley River. Fraser (1999a, b) reports anomalous gold values between 0 and 36,250 ppb for the collected samples. At the time of Fraser's (1999a) report half of the samples were pending analysis. Possible pyrope garnet, possible chrome diopside and possible picroilmenite were picked by Mr. Fraser from the heavy mineral concentrates of these samples, although specific numbers are not mentioned. Microprobe analyses of the recovered pyrope grains were completed by the University of Alberta. The microprobe mounts of these grains are illustrated in Fraser (1999b), although that report does not cover the mineral chemistry results. The microprobe results of the indictor minerals are presented in Appendix 3a and 3b, along with the results from the APEX sampling program.

The bulk gravel samples (Appendix 3a) collected by Brilliant employees returned encouraging diamond indicator results, despite the unconventionally large sample size. The sample from site 9TK004 returned a total of 9 definite pyrope garnets, 3 possible chrome diopside, and 1 possible eclogitic garnet. The bulk sample taken at the same location as 9TK005 returned 59 definite pyrope garnets, 23 possible pyrope garnets, 3 definite chrome diopsides, 7 possible chrome diopsides, and 1 possible chrome diopside. These results are very encouraging even considering the large sample size that was collected. Microprobe results for the indicator grains recovered from these two bulk samples have not been analysed by electron microprobe.

Indicator Mineral Chemistry From Previous Sampling

A total of 11 diamond indicator minerals were confirmed by microprobe analysis from eight of the samples collected by Fraser (1999a). Several of the sample locations (BM-3, BM-4, 7, 14, 15, 16 and 17) remain unknown to APEX, although it is understood that these samples were collected from two gravels pits along the Medley River and are represented by APEX sample sites (Fraser, *pers com.*, 1999). These samples returned several pyrope garnets, including one Gurney (1994) subcalcic G10 pyrope garnet and several picroilmenites. Although the samples were not collected by APEX, subsequent work by APEX has confirmed the results presented below. Microprobe data for the diamond indicator minerals is presented with x–y scatter plots in Appendix 3b.

Six of the samples yielded pyrope garnets including 8 lherzolitic G9 pyropes and 1 harzburgitic subcalcic G10 pyrope. Samples 7, 14, 15, 16 and 17 each returned 1 calcic G9 pyrope garnet, while sample MR-04 contained 3 calcic G9 pyrope garnets. Some of the G9 pyropes contain elevated Cr_2O_3 and low concentrations of CaO, which is considered by some explorationists to be prospective that some of the grains may have been derived from the diamond stability field. All of these pyropes are likely derived from kimberlites that have sampled lherzolitic mantle.

One harzburgitic Gurney (1984) G10 pyrope garnet was recovered from sample MR-04, that has a low concentration of CaO and a high concentration of Cr_2O_3 and plots to the left of Gurney's (1984) 85% line within the region indicative of high diamond potential. G10 pyropes are derived from harzburgitic mantle and are commonly associated with diamonds that have been incorporated into the kimberlite. It is generally well accepted, that most highly diamondiferous kimberlites contain a large population of Gurney G10 pyrope garnets.

Two picroilmenite grains with chemistries that are indicative of derivation from a kimberlite were recovered from samples BM-3 and BM-4 (Fraser, *pers com.* 1999). These picroilmenites are characterised by elevated MgO (12–14 wt%) and a low concentration of total Fe (<40 wt% total Fe as FeO). The low Fe and high MgO generally indicate a state of low oxygen fugacity within the kimberlite magma, a trait that is favourable preservation of diamonds. In hot, oxidising environments, diamonds readily convert to CO_2 and/or graphite.

Indicator Mineral Chemistry From APEX 1999 Sampling

A total of 22 diamond indicator minerals were confirmed by microprobe analysis from the five samples collected by APEX with the bulk of the indicator minerals coming from samples 9TK002, 9TK004 and 9TK005. Microprobe data from the picked diamond indicator minerals is presented with x–y scatter plots in Appendix 3b. The indicator minerals confirmed include G1, G2 and G9 pyrope garnets, Cr-diopsides, picroilmenites and chromites. Indicators were recovered from recent river and stream gravel as well as glacial gravel deposits. The morphology, size and abundance of the indicator minerals recovered from the Medley River indicate that some of the indicator minerals are likely sourced directly from a nearby kimberlite that is being eroded by recent drainage (Medley River or its tributaries).

At least a couple of samples yielded a diverse assemblage of indicator minerals (including pyropes, Cr-diopsides, eclogitic garnets and Cr-grossular garnets) as well as angular pyropes up to 0.8 or 0.9 mm in size (Figure 7). In addition, a few of the pyropes display weak orange peel texture, which is a remnant of the reaction rim normally formed by interaction of the xenocryst with the enclosing kimberlite magma. Since the samples were collected from both recent and glacial gravels and all have returned diamond indicator minerals, it is believed that both the recent and glacial gravels are likely eroding kimberlitic or lamproitic source rocks within the region.

Four of the five samples yielded pyrope garnets including high titanium G1 or G2 pyropes comparable to kimberlite megacryst/macrocryst populations, and lherzolitic G9 pyropes. Sample 9TK001 yielded one G1 pyrope and one Cr-grossular. Sample 9TK002 yielded 3 pyropes (G1 or G2, G9), 1 borderline eclogitic garnet, and a Cr-grossular. Sample 9TK004 yielded one pyrope (G1) and one high-Cr grossular. Sample 9TK005 contained 4 pyropes and a low Fe kimberlitic Cr-diopside. All of the pyropes acquired from the APEX sampling program, plot within the garnet lherzolite field, with one grain having higher Cr_2O_3 (9.8 wt%) and relatively low CaO. High-Cr subcalcic G9 pyropes such as this grain, may have been derived from the diamond stability field within the upper mantle. The G9 lherzolitic pyropes are of little use in qualifying the diamond potential of a prospective source kimberlite, however, they are a strong indication that kimberlites exist in the region. Four of the lherzolitic garnets yield high TiO_2 values (>0.6 wt%) and have low Cr2O3 (<4 wt%). These grains classify as G1/G2 magacrystic/macrocrystic pyropes, which are known to be almost exclusive to kimberlites (Mitchell 1989).

Two chrome diopsides were recovered from the Medley River samples; one each from samples 9TK004 and 9TK005. These grains have chemistries similar to Cr-diopsides from the Mountain Lake Kimberlite and the Lac de Gras area and plot within the field of mantle derived Cr-diopsides derived from kimberlites. The Cr-diopsides cannot be used to assess diamond potential but they are likely derived from lherzolitic mantle that has been brought to surface by a kimberlite or related alkaline intrusive.

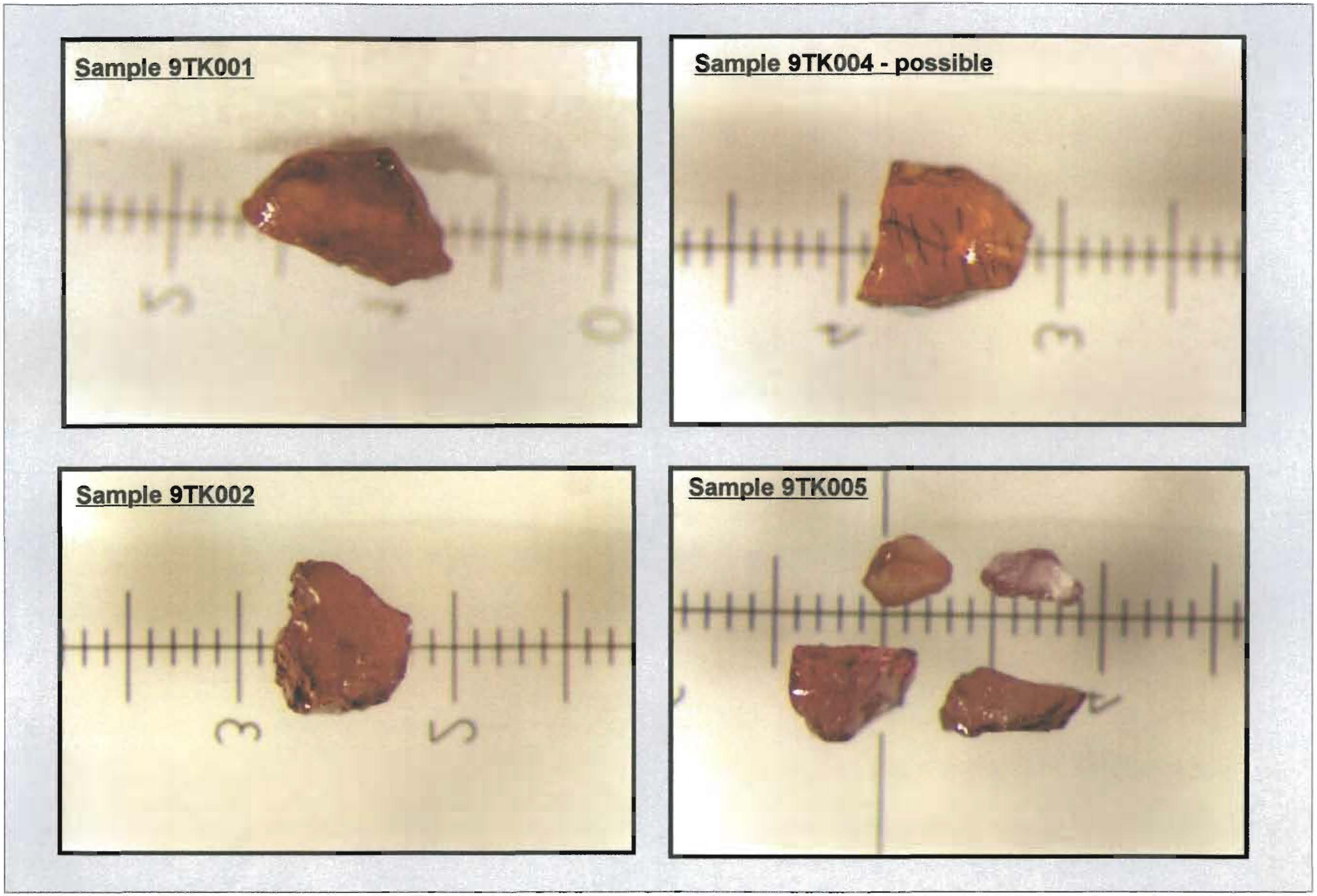


Figure 7. Photomicrograph of picked pyropes from Brilliant Mining Corp.'s Medley River property, Cold Lake, Alberta. The scale bar in the background is in milimetres.

Five picroilmenite grains were recovered from samples 9TK001, 003, 004, and 005. These grains are characterised by elevated MgO (11.5–15 wt%) and low concentrations of total Fe (<40 wt% total Fe as FeO). The low Fe and high MgO generally indicate a state of low oxygen fugacity within the kimberlite magma, a trait that is favourable for the preservation of any diamonds carried by the host kimberlite magma. In hot, oxidising environments, diamonds readily convert to CO_2 and/or graphite.

Diamond Potential

The diamond potential of the area cannot be fully assessed with the limited amount of sampling, and the small number diamond indicator minerals recovered to date. Although diamond stability field indicator minerals were recovered, only a small part of the property has been sampled, and therefore a limited population of diamond indicator minerals have been recovered. It is suspected that the recovered diamond indicator minerals are representative of only a limited portion of the property geology. Further systematic sampling will lead to a better understanding of the diamond potential of the property. The indicator minerals recovered to date are highly encouraging and may indicate the presence of a diamondiferous kimberlitic source within an approximate distance of 1 to 10 km.

The presence of thick Proterozoic and Archean basement, and several major Proterozoic and Phanerozoic structures underlying the Medley River property are favourable traits for the formation and preservation of diamonds in the upper mantle, as well as, the migration of kimberlite through the crust to surface.

Abundant indicator minerals were recovered from both glacial gravels and recent fluvial deposits along the Medley River, leading to the observation that the glacial gravels are, in part, a source for the indicator minerals recovered from the Medley River. However, the presence of large and unabraded pyrope garnets with orange peel texture, including one subcalcic Gurney G10, within the Medley River indicates that the Medley River drainage is eroding a possible diamondiferous kimberlite nearby. The unabraded nature along with orange peel texture of the pyropes would not likely be so well preserved with lengthy transport within the recent or glacial gravel drainage systems. The source for the indicator minerals within both the glacial and recent gravels is likely to the north and or west of the mouth of the Medley River.

The presence of potentially diamondiferous kimberlites regionally is indicated by the chemistry of the single Gurney (1984) G10 pyrope that has been recovered to date. This occurrence is only the fourth known occurrence of G10 pyrope garnets in Alberta and is a significant early stage discovery in a grassroots diamond exploration program. The variety, size, volume and morphology of the indicator minerals recovered to date strongly suggest that a kimberlitic source may exist within 1 to 10 km of the Medley River.

The high Ti G1/G2 pyropes and high Mg, low Fe Cr-bearing picroilmenites likely indicate the presence of a local kimberlite diatreme in the Medley River are, since these diamond indicators minerals are almost exclusive to kimberlites. Additionally, the chemistry of the picroilmenites is indicative of a low oxygen fugacity magmatic environment, which is important in the preservation of any diamonds carried by the host kimberlite.

The geophysical characteristics of the property visible on the GSC regional airborne survey do not provide enough information to be of use in the exploration for kimberlites on the Medley River property. Thus, a high-resolution airborne geophysical survey is required to locate potentially magnetic kimberlite bodies.

CONCLUSIONS

The regional setting for Brilliant's Medley River mineral permits is considered highly encouraging for the presence of diamondiferous kimberlites as the permits are underlain by Early Proterozoic basement of the Rimbey Magmatic Zone near its southeastern most limit and Archean basement of the Hearne Sub-Province. The Medley River permits are located along the north flank of the Meadow Lake Escarpment near the eastern terminus of the Grosmont high and in an area where seismic refraction indicates crustal thickness ranges from 35 to 40 km. In addition, the permit area is in close proximity to the northeast trending Snowbird Tectonic Zone, a major crustal lineament. This regional structural setting is considered complex but favourable for the formation and preservation of diamonds in the upper mantle and their transport to surface in kimberlitic magmas during periodic tectonic activity associated with movement along either the Peace River Arch, the Grosmont High, the Meadow Lake Escarpment or the Snowbird Tectonic Zone.

The Cold Lake area is underlain by Upper Cretaceous Lea Park and Belly River formation shales, which are roughly age equivalent or slightly younger than the shales that host the diamondiferous kimberlites discovered in the Buffalo Head Hills area and the Birch Mountains. Drift thickness in the Cold Lake area is considered to be moderate to thin, therefore, the diamond indicator results to date are considered favourable and potentially indicative of the presence of diamondiferous kimberlites in the vicinity of Brilliant's Medley River mineral permits.

Recent, limited exploration by Fraser and APEX on behalf of Brilliant has yielded indications of the presence of local mantle-derived intrusives, such as kimberlite, in the Cold Lake region with the detection of diamond indicator minerals particularly in and around the Medley River. Indicator minerals recovered to date include G1, G2, G9 and G10 pyrope garnets, Cr-diopsides, Mg-rich picroilmenites and chromites. The Medley River G10 pyrope is one of only four known occurrences of Gurney G10 pyropes in Alberta. Gurney G10 pyrope garnets are generally associated with highly diamondiferous kimberlites in most kimberlite areas of the world.

Based on these results an aggressive follow-up property-scale exploration program is warranted for the Medley River area including detailed sampling in conjunction with a compilation of drift thickness and Quaternary geology. In addition a high-resolution airborne magnetic survey for the Medley River permits should be completed as quickly as possible.

RECOMMENDATIONS

Based upon the favourable regional geological setting and the positive results of exploration conducted to date within the Medley River permits, an aggressive, systematic follow-up exploration program, including drilling, is warranted to search for diamondiferous kimberlites at both properties. Exploration at the permit area should be staged and include data compilation, systematic regional till, stream and beach sand sampling; airborne and ground geophysical surveys to pin point collar locations, followed by drill testing.

Although the exploration recommended at Brilliant's Medley River mineral permits is still considered high risk because the presence of kimberlite has not yet been confirmed, the potential for discovery of mantle-derived intrusives on the permit area is considered encouraging based upon the regional geological setting in conjunction with the positive results of limited exploration to date.

At the **Medley River mineral permits,** exploration should be conducted in two stages and consist of the following:

Stage 1: Conduct a systematic regional till, stream sediment and lake sediment/beach sand sampling program for diamond indicator minerals, and a drift thickness/Quaternary geology study to identify areas of thin drift. The estimated cost of this program including sample collection, processing, analysis and data interpretation is $75,000, not including GST.

Stage 2: Concurrent with Phase 1, initiate a property scale airborne magnetic survey with a minimum of a 200 m line spacing with occasional 100 m infill lines. The estimated cost of this survey including data compilation and interpretation is approximately $ 30,000, not including GST.

PERMIT TO PRACTICE
APEX Geoscience Ltd.
Signature
Date December 20, 1999
PERMIT NUMBER: P-5824
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

APEX Geoscience Ltd.

PROFESSIONAL GEOLOGIST
MICHAEL B. DUFRESNE
ALBERTA

M. B. Dufresne M.Sc., P.Geol.

D.A. Copeland, M.Sc., G.I.T.

December, 1999
Edmonton, Alberta

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CERTIFICATION

I, M.B. DUFRESNE OF [redacted] EDMONTON, ALBERTA, CERTIFY AND DECLARE THAT I AM A GRADUATE OF THE UNIVERSITY OF NORTH CAROLINA AT WILMINGTON WITH A B.SC. DEGREE IN GEOLOGY (1983) AND A GRADUATE OF THE UNIVERSITY OF ALBERTA WITH A M.SC. DEGREE IN ECONOMIC GEOLOGY (1987). I AM REGISTERED AS A PROFESSIONAL GEOLOGIST WITH THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA.

MY EXPERIENCE INCLUDES SERVICE AS AN EXPLORATION GEOLOGIST WITH THE DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT, YUKON, FROM 1983 TO 1985. FROM 1986 TO 1993, I HAVE CONDUCTED AND DIRECTED PROPERTY EXAMINATIONS AND EXPLORATION PROGRAMS ON BEHALF OF COMPANIES AS A GEOLOGIST IN THE EMPLOY OF R.A. OLSON CONSULTING LTD. AND ITS PREDECESSOR COMPANY TRIGG, WOOLLETT, OLSON CONSULTING LTD. OF EDMONTON, ALBERTA. SINCE JANUARY 1994, I HAVE CONDUCTED AND DIRECTED PROPERTY EXAMINATIONS, PROPERTY EVALUATIONS AND EXPLORATION PROGRAMS ON BEHALF OF COMPANIES AS A PRINCIPAL IN APEX GEOSCIENCE LTD.

I HAVE NO INTEREST, DIRECT OR INDIRECT, IN THE PROPERTIES THAT ARE THE SUBJECT OF THIS REPORT OR SECURITIES OF BRILLIANT MINING CORP., NOR DO I EXPECT TO RECEIVE SUCH INTEREST. AS WELL, APEX GEOSCIENCE LTD. HAS NO INTEREST, DIRECT OR INDIRECT, IN THE PROPERTIES, OR SECURITIES OF BRILLIANT MINING CORP., NOR DOES IT EXPECT TO RECEIVE SUCH INTEREST.

THIS REPORT ENTITLED "DIAMOND POTENTIAL OF BRILLIANT MINING CORP.'S MEDLEY RIVER PROPERTY, ALBERTA" WAS WRITTEN UNDER MY SUPERVISION AND IS BASED UPON THE STUDY OF PUBLISHED AND UNPUBLISHED DATA. I HAVE PERFORMED A FIELD EXAMINATION OF THE MEDLEY RIVER PROPERTY, AND HAVE CONDUCTED CONSIDERABLE FIELDWORK IN THE REGIONS SURROUNDING EACH OF THIS PROPERTY.

I HEREBY GRANT BRILLIANT MINING CORP. OF EDMONTON, ALBERTA, PERMISSION TO USE THIS REPORT AS A QUALIFYING REPORT FOR THE MEDLEY RIVER PROPERTY.

M.B. DUFRESNE, M.SC., P.GEOL.

December, 1999
EDMONTON, ALBERTA

CERTIFICATION

I, D.A. COPELAND OF [redacted] EDMONTON, ALBERTA, CERTIFY AND DECLARE THAT I AM A GRADUATE OF THE UNIVERSITY OF NEW BRUNSWICK AT FREDERICTON WITH A B.SC. DEGREE IN GEOLOGY (1995) AND A GRADUATE OF THE UNIVERSITY OF NEW BRUNSWICK WITH A M.SC. DEGREE IN STRUCTURAL GEOLOGY (1999). I AM REGISTERED AS A GEOLOGIST IN TRAINING WITH THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA.

MY EXPERIENCE INCLUDES SERVICE AS A GEOLOGICAL ASSITANT WITH THE UNIVERSITY OF NEW BRUNSWICK AND THE GEOLOGICAL SURVEY OF CANADA FROM 1993 TO 1997, AND EXPLORATION GEOLOGIST WITH A JUNIOR MINING COMPANY DURING 1997 AND 1998. I HAVE CONDUCTED PROPERTY EXAMINATIONS AND EXPLORATION PROGRAMS ON BEHALF OF COMPANIES AS A GEOLOGIST IN THE EMPLOY OF APEX GEOSCIENCE LTD. SINCE 1998.

I HAVE NO INTEREST, DIRECT OR INDIRECT, IN THE PROPERTIES THAT ARE THE SUBJECT OF THIS REPORT OR SECURITIES OF BRILLIANT MINING CORP., NOR DO I EXPECT TO RECEIVE SUCH INTEREST. AS WELL, APEX GEOSCIENCE LTD. HAS NO INTEREST, DIRECT OR INDIRECT, IN THE PROPERTIES, OR SECURITIES OF BRILLIANT MINING CORP., NOR DOES IT EXPECT TO RECEIVE SUCH INTEREST.

THIS REPORT ENTITLED "DIAMOND POTENTIAL BRILLIANT MINING CORP.'S MEDLEY RIVER PROPERTY, ALBERTA" IS BASED UPON THE STUDY OF PUBLISHED AND UNPUBLISHED DATA. I HAVE NOT PERFORMED A FIELD EXAMINATION OF THE MEDLEY RIVER PROPERTY.

I HEREBY GRANT BRILLIANT MINING CORP. OF EDMONTON, ALBERTA, PERMISSION TO USE THIS REPORT AS A QUALIFYING REPORT FOR THE MEDLEY RIVER PROPERTY.

[redacted]

D.A. COPELAND, M.SC., G.I.T.

DECEMBER, 1999
EDMONTON, ALBERTA

APPENDIX 1

LEGAL PROPERTY DESCRIPTIONS FOR BRILLIANT MINING CORPORATION'S MEDLEY RIVER PERMITS

APPENDIX 1
Mineral Permit Status
Medley River Property, Alberta
BRILLIANT MINING CORPORATION
PROJECT (99218)

Permit #	Term Date	Current Expiry Date	Status	Area (Ha)	Owner	Legal Description
0939399060001	1999-06-14	2009-06-14	Active	7480	Paulowicz, Joseph	4-01-063:1-7,23-28,30-36, parts of 8-22,29
0939398120012	1998-12-21	2008-12-21	Active	5888	Paulowicz, Joseph	4-01-066:19;29-32; 4-02-066:19-36
0939399060002	1999-06-14	2009-06-14	Active	6133	Paulowicz, Joseph	4-02-063:3,8-17,22,23,25-27,35-36, parts of 1,2,18,24,28,29
0939399060003	1999-06-14	2009-06-14	Active	3495	Paulowicz, Joseph	4-02-064:1,12,13,22-26,35-36, parts of 2, 11,14,15,16
0939398120010	1998-12-21	2008-12-21	Active	8815	Paulowicz, Joseph	4-02-065: 1-9,12-23,26-36, parts of 11,24,25
0939398120013	1998-12-21	2008-12-21	Active	9216	Paulowicz, Joseph	4-02-066:1-18; 4-03-066:1-18
0939399060004	1999-06-14	2009-06-14	Active	4608	Paulowicz, Joseph	4-03-064:13-36
0939398120011	1998-12-21	2008-12-21	Active	9178	Paulowicz, Joseph	4-03-065: 1-25,27-34,36, parts of 26,35
A93 99103	1999-09-03		Active	8368	Paulowicz, Joseph	4-03-066: 19,20,23-26,29-32,34,36 parts of 22,27,28,33,35 4-04-66: 1-3, 10-15, 22-27, 34-36
TOTAL				63181		

APPENDIX 2

BRILLIANT MINING CORPORATION - EXPENDITURES TO DATE FOR MEDLEY RIVER PROPERTY

Equipment Rental		15459.16
Assets - Equipment		86645.86
Assets - Tools		400.05
Parts & Supplies		4380.05
Maps & Data		2546.35
Consulting		5662.90
Travel-Mileage		4294.35
Travel - Parking		580.16
Auto Expenses		3764.97
Freight/Courier		84.61
Casual Labour		9166.29
Travel/Accomodations		2402.75
R&M Equipment		701.60
R&M General		147.98
Laboratory Testing	Loring, SRC	4430.93
Geological Survey	[redacted], Apex	22559.32
Geophysical Survey	Excel, [redacted]	34570.42
Prospecting	[redacted]	26000.00
Travel-Meals		4059.02
		227856.77
Overhead (10%)		22785.68
		250642.45

Phone	1346.14	o/h
Insurance	738.00	o/h
General Admin	7.51	o/h
Drycleaning	10.98	o/h
Office Equipment	225.50	o/h
Office Supplies	227.00	o/h
Utilities	1283.33	o/h
Permits & Fees	497.50	n/a
	4335.96	

APPENDIX 3a

PICKED DIAMOND INDICATOR MINERALS FROM SURFACE SAMPLING

APPENDIX 3a
Picked Indicator Mineral Results 1999 Surface Sampling
Medley River Property, Alberta
BRILLIANT MINING CORPORATION
PROJECT (99218)

Sample	Pyrope Garnet		Chrome Diopside		Eclogitic Garnet	Olivine	%	Picroilmenite		Chromite		%
	def	poss	def	poss	poss	poss	picked	def	poss	def	poss	picked
9TK001	1	0	0	1	0	0	100	0	34	0	0	4
9TK002	1	3	0	2	2	1	100	0	16	0	0	5
9TK003	0	0	0	0	0	0	100	0	10	0	0	12
9TK004	0	2	0	1	0	0	100	0	10	0	0	17
9TK005	4	0	1	1	0	0	100	0	14	0	0	8
9TK003_repeat	0	0	0	0	0	0	100	0	2	0	0	12
9TK004 bulk	9	3	0	3	0	1	100	n/a	n/a	n/a	n/a	n/a
9TK005 bulk	59	31	3	7	1	0	100	n/a	n/a	n/a	n/a	n/a

APPENDIX 3b

MICROPROBE RESULTS AND SCATTER PLOTS FOR DIAMOND INDICATOR MINERALS FROM SURFACE SAMPLING

APPENDIX 3b
Microprobe Data For The Medley River Area Indicator Minerals
Medley River Property, Alberta
BRILLIANT MINING CORP.
PROJECT (99218)

Sample	Grain	Mineral	TiO2	Cr2O3	FeO*	MgO	CaO	SiO2	Al2O3	Na2O	MnO	K2O	TOTAL
7	BM-1-1-3	G_09_CHROME_PYROPE	0.17	3.25	7.12	20.45	4.64	41.69	21.66	0.06	0.30	0.03	99.37
14	BM-2-8-6	G_10_LOW_CALCIUM_CHROME_PYROPE	0.05	9.57	7.18	18.59	6.56	39.94	16.42	0.02	0.43	0.01	98.76
15	BM-3-4-r-3	G_09_CHROME_PYROPE	0.22	4.25	8.25	19.72	5.07	41.03	20.53	0.03	0.36	0.02	99.48
16	BM-3-4-r-4	G_11_UVAROVITE_PYROPE	0.69	7.48	7.15	19.81	5.91	40.78	17.14	0.05	0.24	0.01	99.27
17	BM-8-4-r-4	G_11_UVAROVITE_PYROPE	0.52	7.84	6.63	19.99	5.95	40.73	16.94	0.04	0.29	0.01	98.94
9TK-001	1	G_01_TITANIAN_PYROPE	0.48	3.74	6.99	20.89	5.01	42.46	20.13	0.08	0.27	0.06	100.10
9TK-001	1	G_07_FERRO-MAGNESIAN_UVAROVITE_GROSSULAR	0.20	19.01	3.47	0.03	35.09	36.71	5.24	0.05	0.14	0.06	99.99
9TK-001	1	PICRO_ILMENITE	52.50	0.55	33.87	12.57	0.00	0.00	0.57	0.00	0.23	n/a	100.68
9TK-002	2	G_11_UVAROVITE_PYROPE	0.38	7.18	8.22	18.95	5.99	41.81	17.21	0.10	0.41	0.00	100.26
9TK-002	3	G_02_HIGH_TITANIUM_PYROPE	0.85	3.65	7.64	21.27	5.10	41.77	19.83	0.12	0.26	0.00	100.49
9TK-002	4	G_09_CHROME_PYROPE	0.06	4.70	8.11	19.10	5.65	41.46	19.57	0.09	0.52	0.10	99.37
9TK-002	5	G_05_MAGNESIAN_ALMANDINE	0.08	0.00	28.05	4.92	6.82	37.51	21.34	0.00	1.92	0.00	100.64
9TK-002	6	G_05_MAGNESIAN_ALMANDINE	0.06	0.05	24.13	7.79	7.81	38.60	21.28	0.00	0.41	0.00	100.12
9TK-002	7	G_07_FERRO-MAGNESIAN_UVAROVITE_GROSSULAR	0.35	12.68	4.89	0.27	33.21	38.06	9.35	0.02	0.76	0.00	99.57
9TK-002	8	G_08_FERRO_MAGNESIAN_GROSSULAR	0.20	0.00	9.72	0.06	23.85	37.90	25.49	0.00	0.20	0.00	97.41
9TK-003	2	PICRO_ILMENITE	51.00	0.34	35.14	11.51	0.00	0.01	0.24	0.00	0.28	n/a	98.84
9TK-004	2	CPX_05_UNKNOWN	0.24	1.69	3.21	15.09	23.52	53.83	2.45	0.73	0.10	0.00	100.85
9TK-004	3	PICRO_ILMENITE	52.32	0.53	33.07	13.18	0.00	0.00	0.53	0.00	0.30	n/a	100.34
9TK-004	4	PICRO_ILMENITE	53.60	0.66	30.94	13.58	0.00	0.00	0.50	0.00	0.38	n/a	99.86
9TK-004	8	G_01_TITANIAN_PYROPE	0.84	3.03	8.39	20.13	5.28	42.45	19.08	0.08	0.32	0.00	99.60
9TK-004	9	G_07_FERRO-MAGNESIAN_UVAROVITE_GROSSULAR	0.26	19.08	4.73	0.05	32.74	36.44	6.09	0.09	0.25	0.00	99.74
9TK-005	3	CPX_05_CHROME_DIOPSIDE	0.30	0.93	2.50	14.65	21.95	52.76	5.56	1.49	0.11	0.02	100.26
9TK-005	5	PICRO_ILMENITE	54.74	1.09	28.60	15.14	0.00	0.07	0.50	0.00	0.34	n/a	100.87
9TK-005	10	G_09_CHROME_PYROPE	0.09	5.27	7.92	20.34	5.32	41.81	19.60	0.05	0.48	0.00	100.88
9TK-005	11	G_01_TITANIAN_PYROPE	0.63	5.10	6.82	21.32	5.06	41.78	18.51	0.09	0.37	0.00	99.69
9TK-005	12	G_10_LOW_CALCIUM_CHROME_PYROPE	0.18	6.71	7.43	19.43	6.11	40.88	18.17	0.06	0.39	0.14	99.50
9TK-005	13	G_11_UVAROVITE_PYROPE	0.61	9.68	6.35	19.74	6.72	41.94	14.98	0.05	0.33	0.01	100.41
BM-3	5	PICRO_ILMENITE	52.60	0.71	29.45	14.04	0.01	0.00	0.41	n/a	0.29	n/a	97.66
BM-4	4	PICRO_ILMENITE	51.20	0.46	32.52	12.62	0.02	0.01	0.50	n/a	0.30	n/a	97.69
MR-04	BM-1-7-10	G_11_UVAROVITE_PYROPE	0.43	8.66	7.52	18.57	6.46	40.14	16.86	0.05	0.45	0.02	99.16
MR-04	BM-1-7-11	G_01_TITANIAN_PYROPE	0.50	5.16	6.97	20.29	5.35	41.02	19.18	0.03	0.27	0.02	98.79

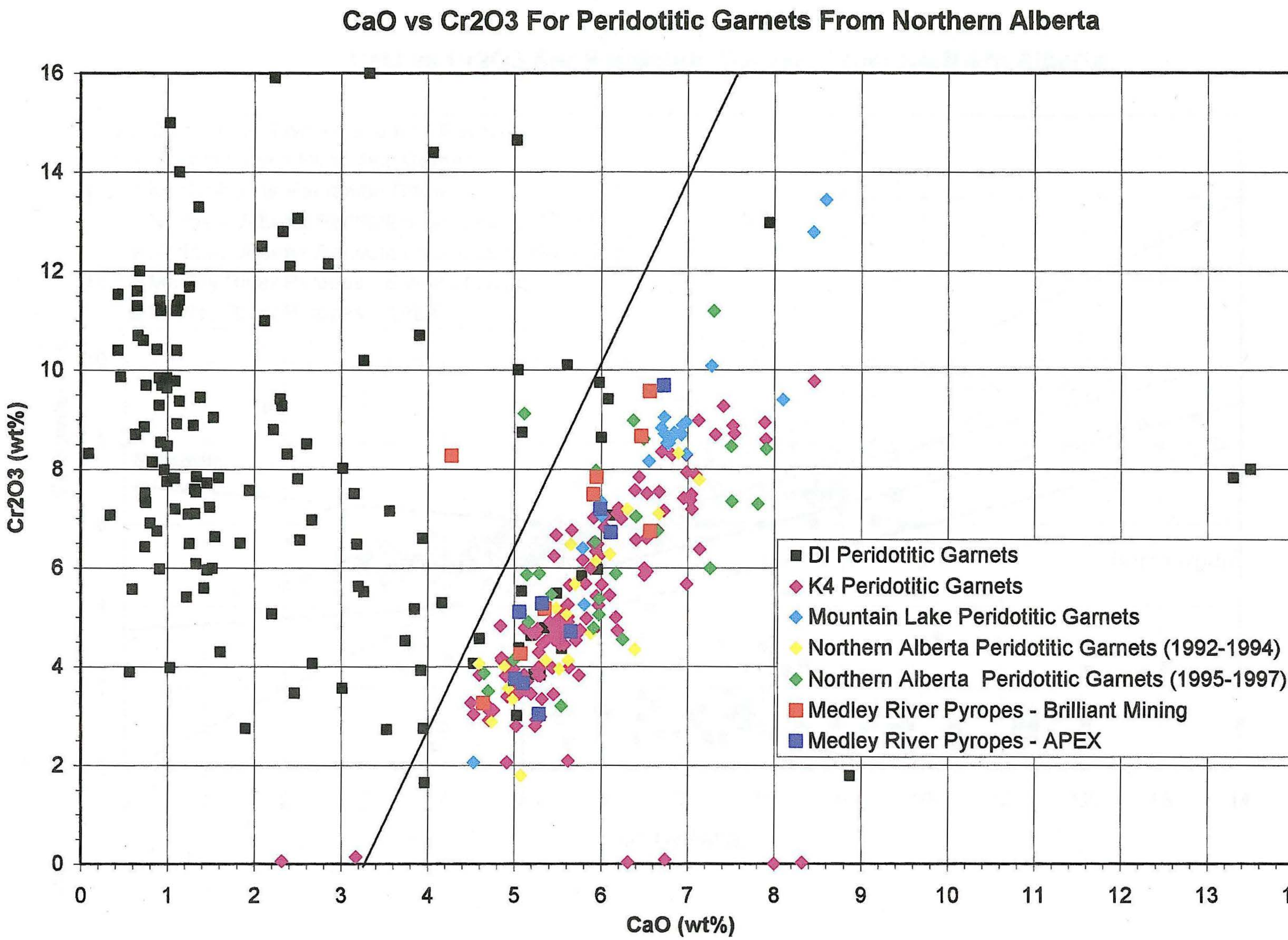
APPENDIX 3b
Microprobe Data For The Medley River Area Indicator Minerals
Medley River Property, Alberta
BRILLIANT MINING CORP.
PROJECT (99218)

Sample	Grain	Mineral	TiO2	Cr2O3	FeO*	MgO	CaO	SiO2	Al2O3	Na2O	MnO	K2O	TOTAL
MR-04	BM-1-7-8	G_10_LOW_CALCIUM_CHROME_PYROPE	0.00	6.74	7.82	18.17	6.56	40.49	18.85	0.02	0.47	0.02	99.13
MR-04	BM-1-7-9	G_10_LOW_CALCIUM_CHROME_PYROPE	0.09	8.27	6.73	20.57	4.27	40.86	17.81	0.00	0.31	0.01	98.91

* Fe^{2+} and Fe^{3+} reported as total Fe.

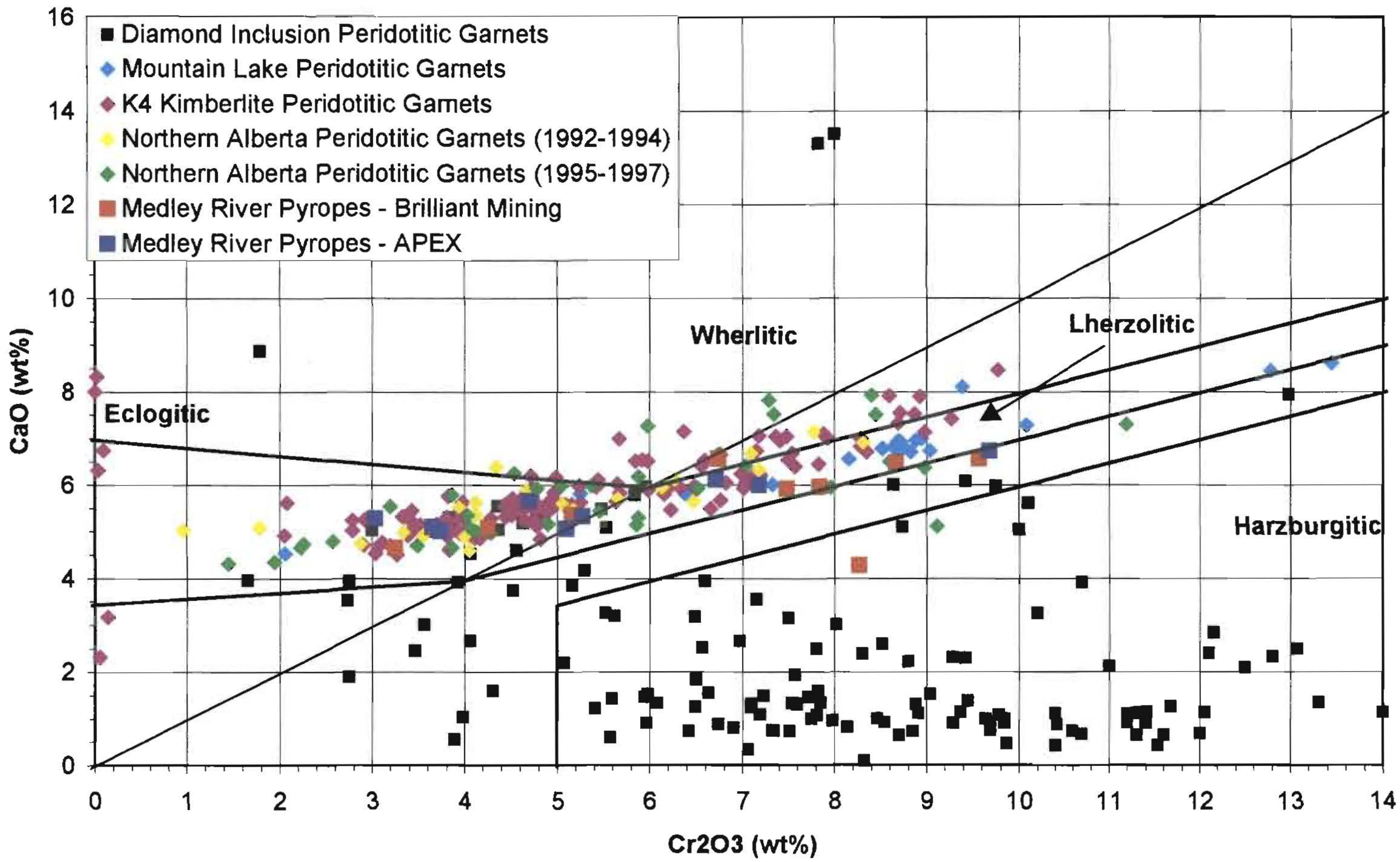
~ Mineral classification from the program by Quirt (1992a, b).

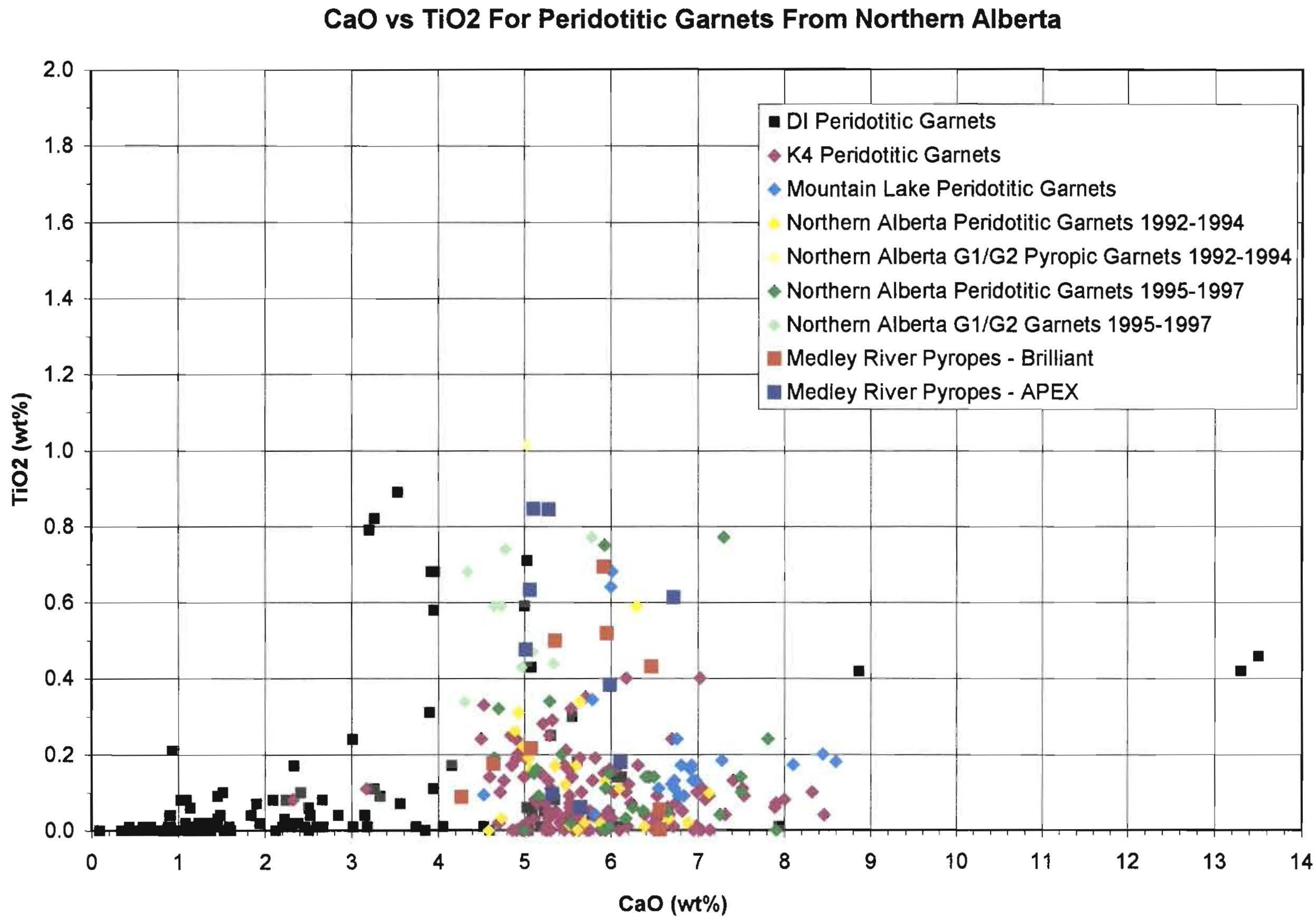
n/a = not analysed

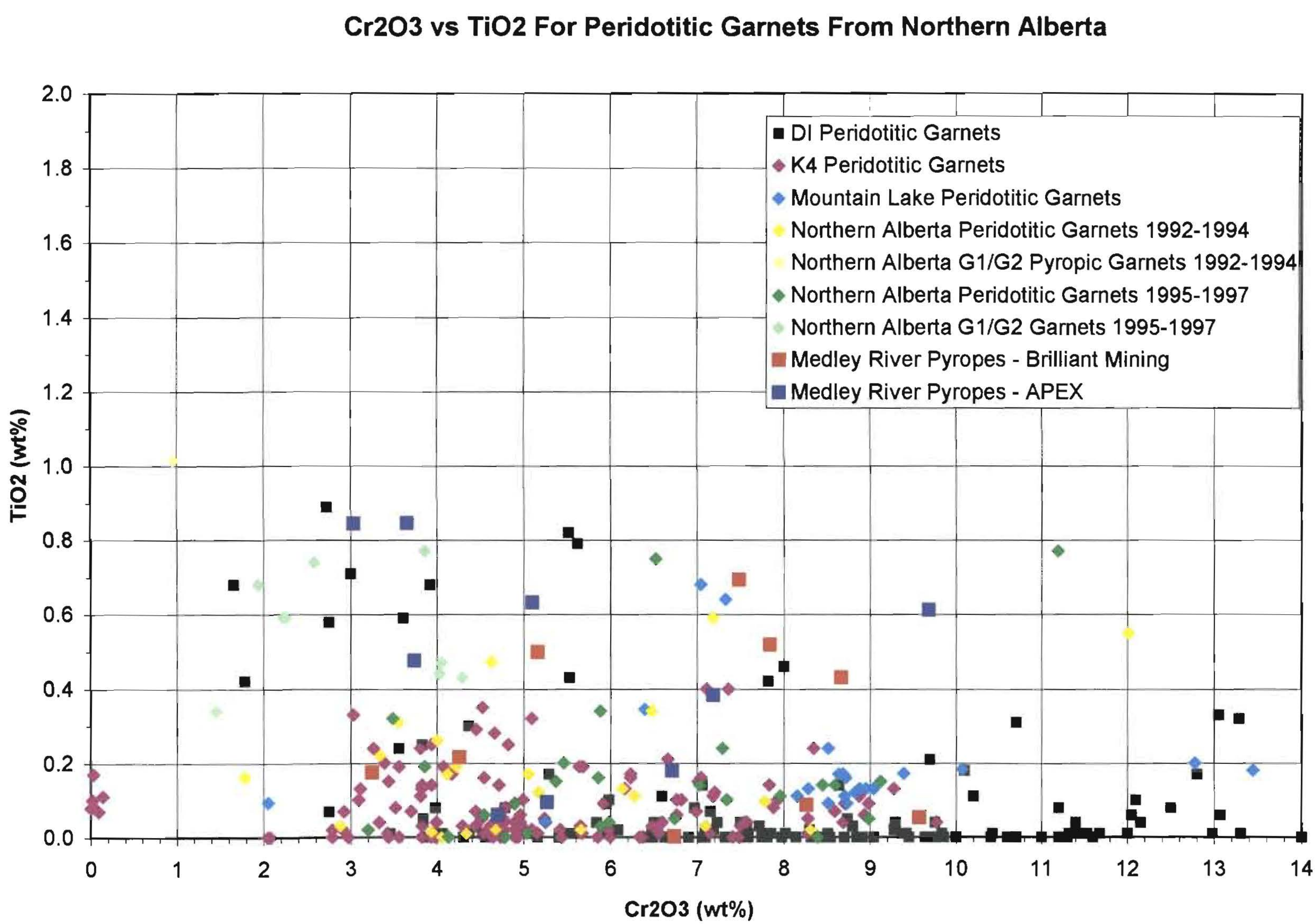


CaO vs Cr2O3 For Peridotitic Garnets From Northern Alberta
Cr2O3 (wt%)
CaO (wt%)
0
2
4
6
8
10
12
14
16
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
DI Peridotitic Garnets
K4 Peridotitic Garnets
Mountain Lake Peridotitic Garnets
Northern Alberta Peridotitic Garnets (1992-1994)
Northern Alberta Peridotitic Garnets (1995-1997)
Medley River Pyropes - Brilliant Mining
Medley River Pyropes - APEX

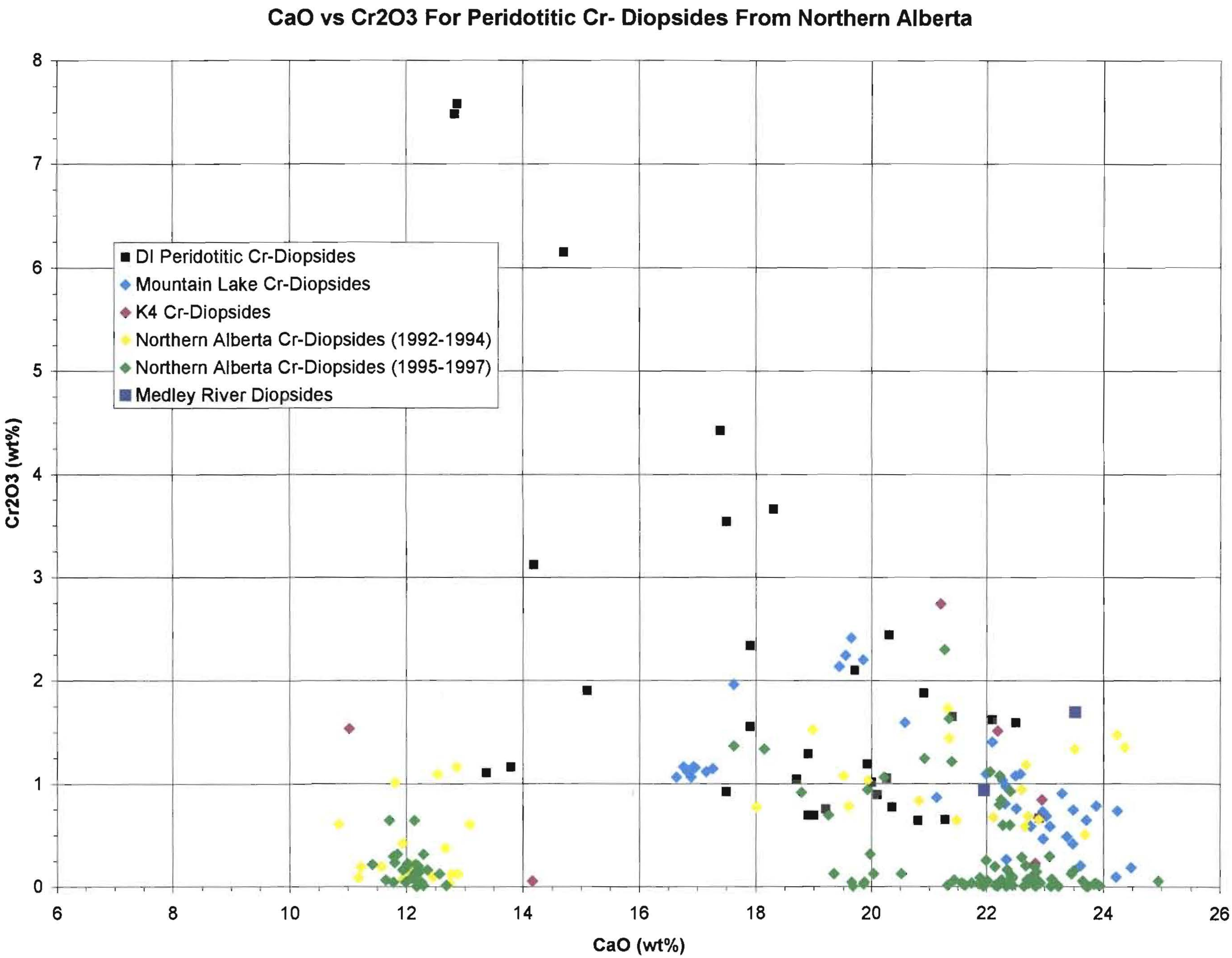
CaO vs Cr2O3 For Peridotitic Garnets From Northern Alberta



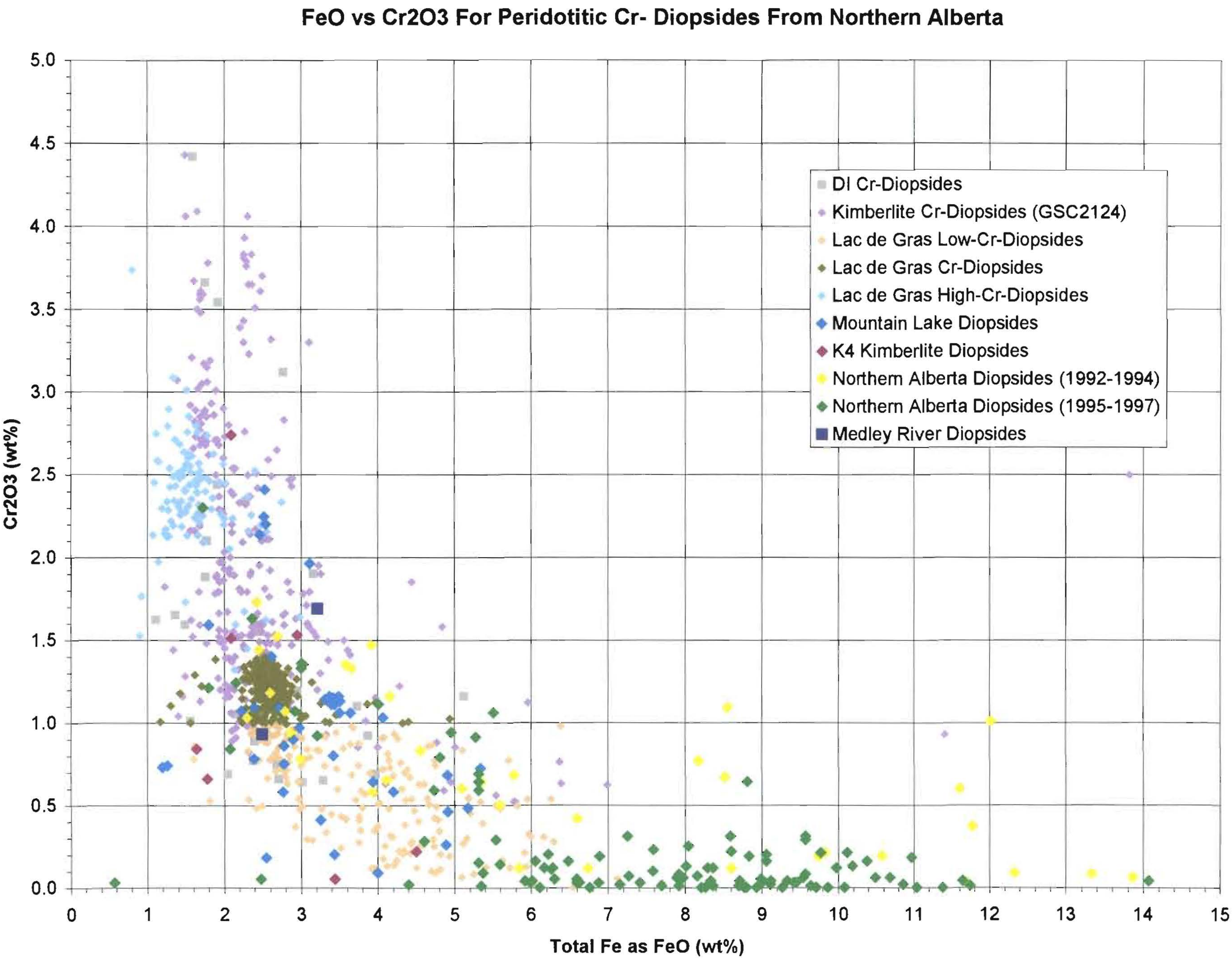

CaO vs TiO2 For Peridotitic Garnets From Northern Alberta
DI Peridotitic Garnets
K4 Peridotitic Garnets
Mountain Lake Peridotitic Garnets
Northern Alberta Peridotitic Garnets 1992-1994
Northern Alberta G1/G2 Pyropic Garnets 1992-1994
Northern Alberta Peridotitic Garnets 1995-1997
Northern Alberta G1/G2 Garnets 1995-1997
Medley River Pyropes - Brilliant
Medley River Pyropes - APEX
TiO2 (wt%)
CaO (wt%)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14

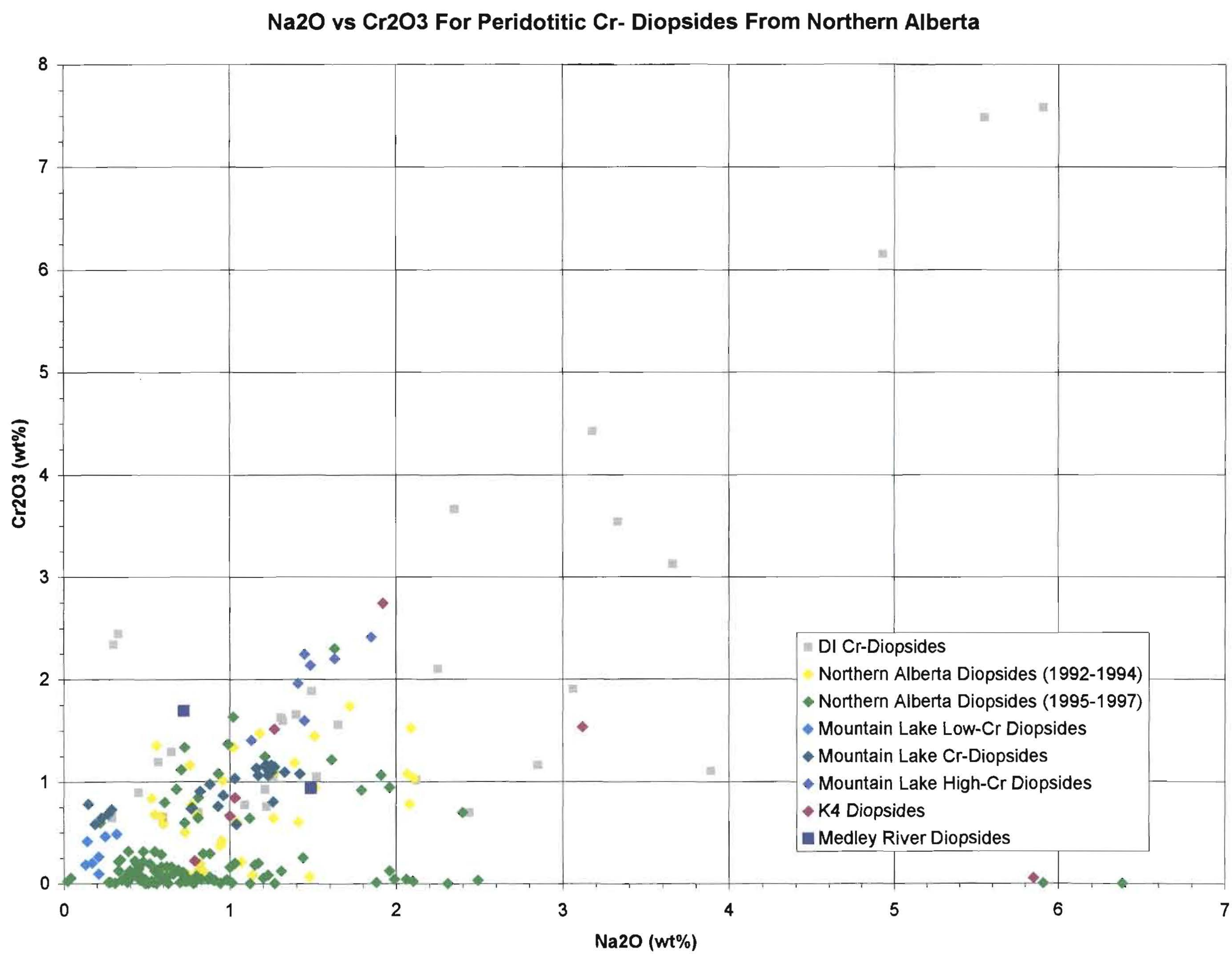


Cr2O3 vs TiO2 For Peridotitic Garnets From Northern Alberta
DI Peridotitic Garnets
K4 Peridotitic Garnets
Mountain Lake Peridotitic Garnets
Northern Alberta Peridotitic Garnets 1992-1994
Northern Alberta G1/G2 Pyropic Garnets 1992-1994
Northern Alberta Peridotitic Garnets 1995-1997
Northern Alberta G1/G2 Garnets 1995-1997
Medley River Pyropes - Brilliant Mining
Medley River Pyropes - APEX
TiO2 (wt%)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Cr2O3 (wt%)

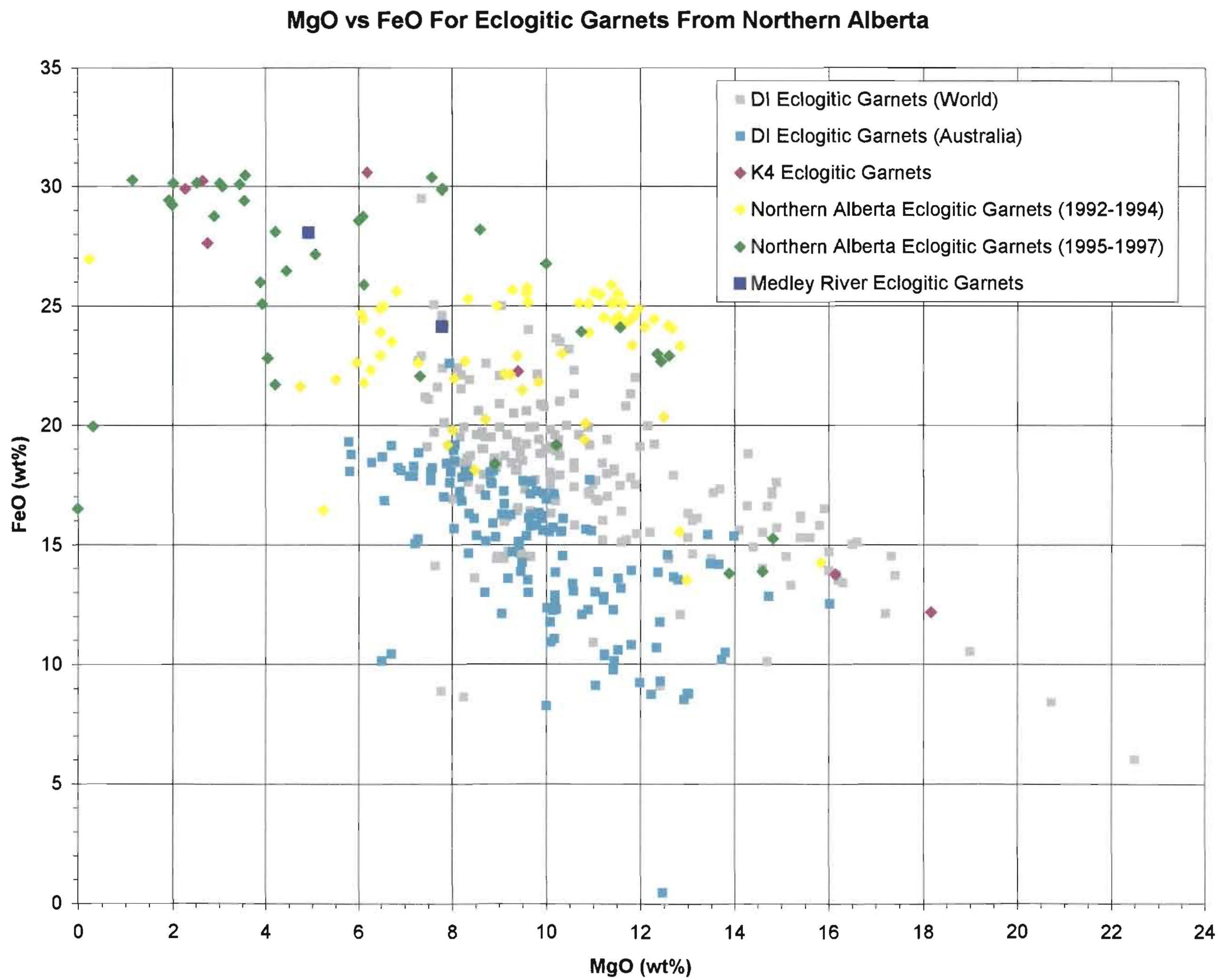


CaO vs Cr2O3 For Peridotitic Cr- Diopsides From Northern Alberta
DI Peridotitic Cr-Diopsides
Mountain Lake Cr-Diopsides
K4 Cr-Diopsides
Northern Alberta Cr-Diopsides (1992-1994)
Northern Alberta Cr-Diopsides (1995-1997)
Medley River Diopsides
Cr2O3 (wt%)
CaO (wt%)
0
1
2
3
4
5
6
7
8
6
8
10
12
14
16
18
20
22
24
26

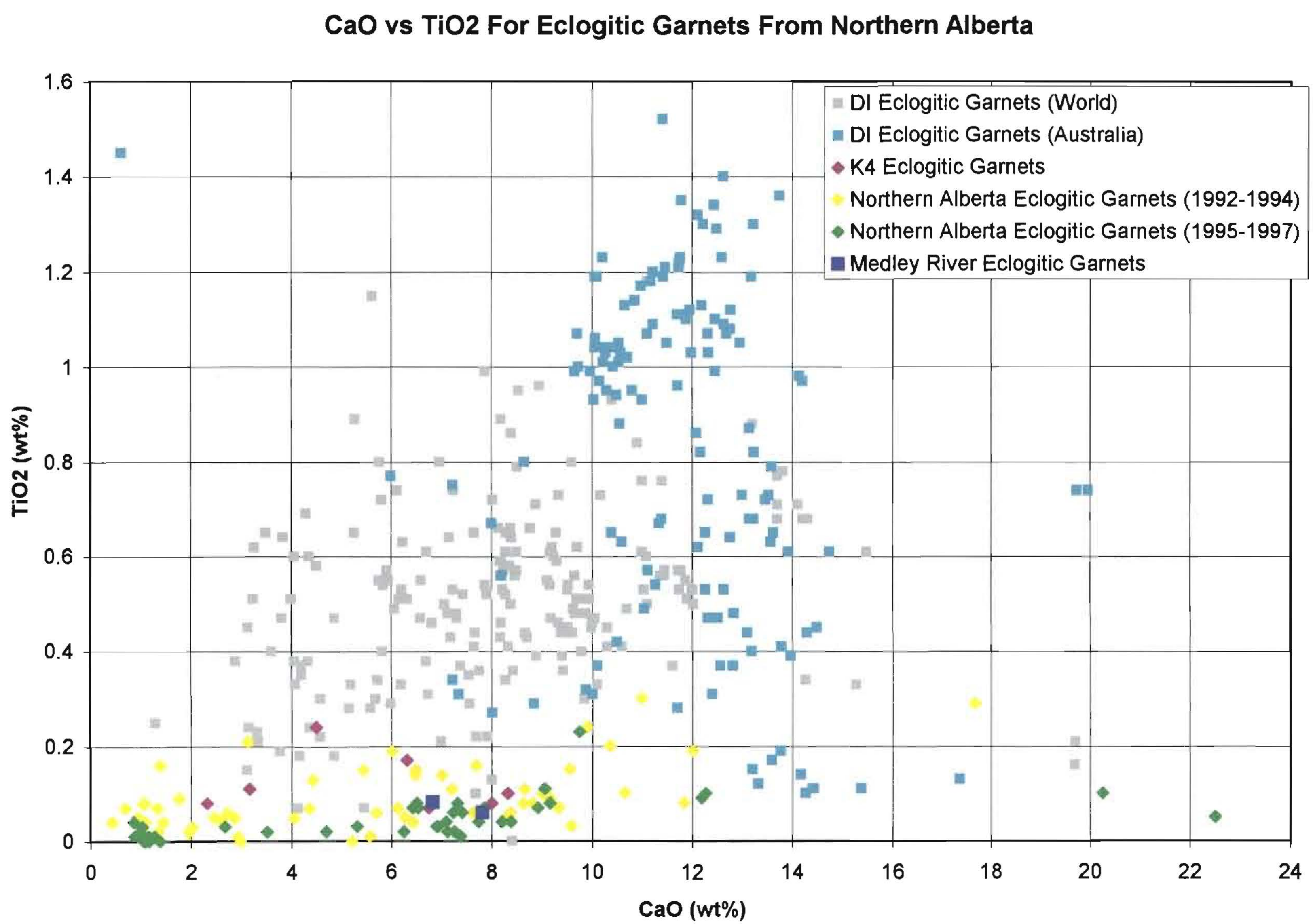

FeO vs Cr2O3 For Peridotitic Cr- Diopsides From Northern Alberta
Cr2O3 (wt%)
Total Fe as FeO (wt%)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
DI Cr-Diopsides
Kimberlite Cr-Diopsides (GSC2124)
Lac de Gras Low-Cr-Diopsides
Lac de Gras Cr-Diopsides
Lac de Gras High-Cr-Diopsides
Mountain Lake Diopsides
K4 Kimberlite Diopsides
Northern Alberta Diopsides (1992-1994)
Northern Alberta Diopsides (1995-1997)
Medley River Diopsides

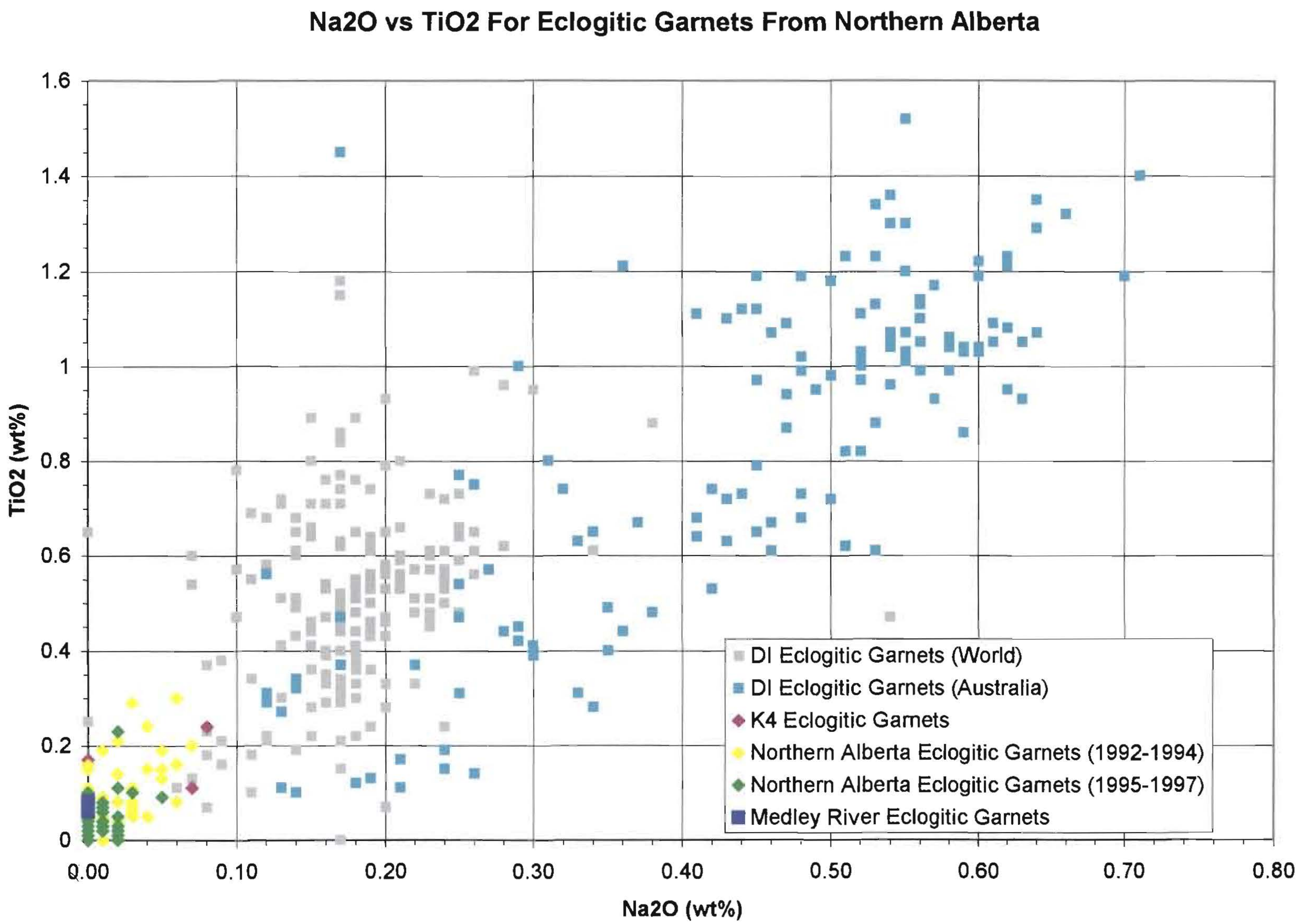


Na2O vs Cr2O3 For Peridotitic Cr- Diopsides From Northern Alberta
Cr2O3 (wt%)
Na2O (wt%)
0
1
2
3
4
5
6
7
8
DI Cr-Diopsides
Northern Alberta Diopsides (1992-1994)
Northern Alberta Diopsides (1995-1997)
Mountain Lake Low-Cr Diopsides
Mountain Lake Cr-Diopsides
Mountain Lake High-Cr Diopsides
K4 Diopsides
Medley River Diopsides

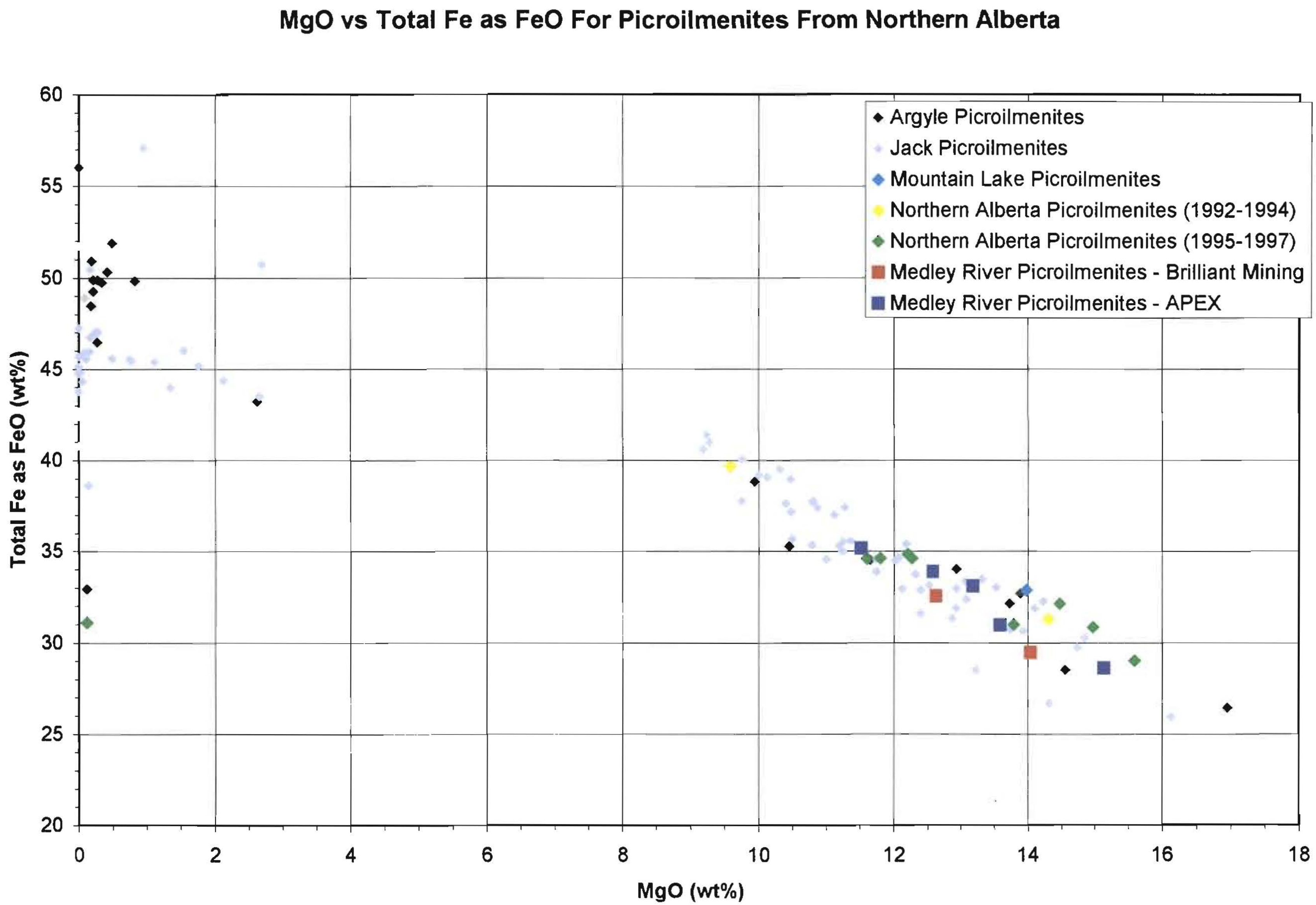


MgO vs FeO For Eclogitic Garnets From Northern Alberta
DI Eclogitic Garnets (World)
DI Eclogitic Garnets (Australia)
K4 Eclogitic Garnets
Northern Alberta Eclogitic Garnets (1992-1994)
Northern Alberta Eclogitic Garnets (1995-1997)
Medley River Eclogitic Garnets
FeO (wt%)
MgO (wt%)
0
5
10
15
20
25
30
35
0
2
4
6
8
10
12
14
16
18
20
22
24

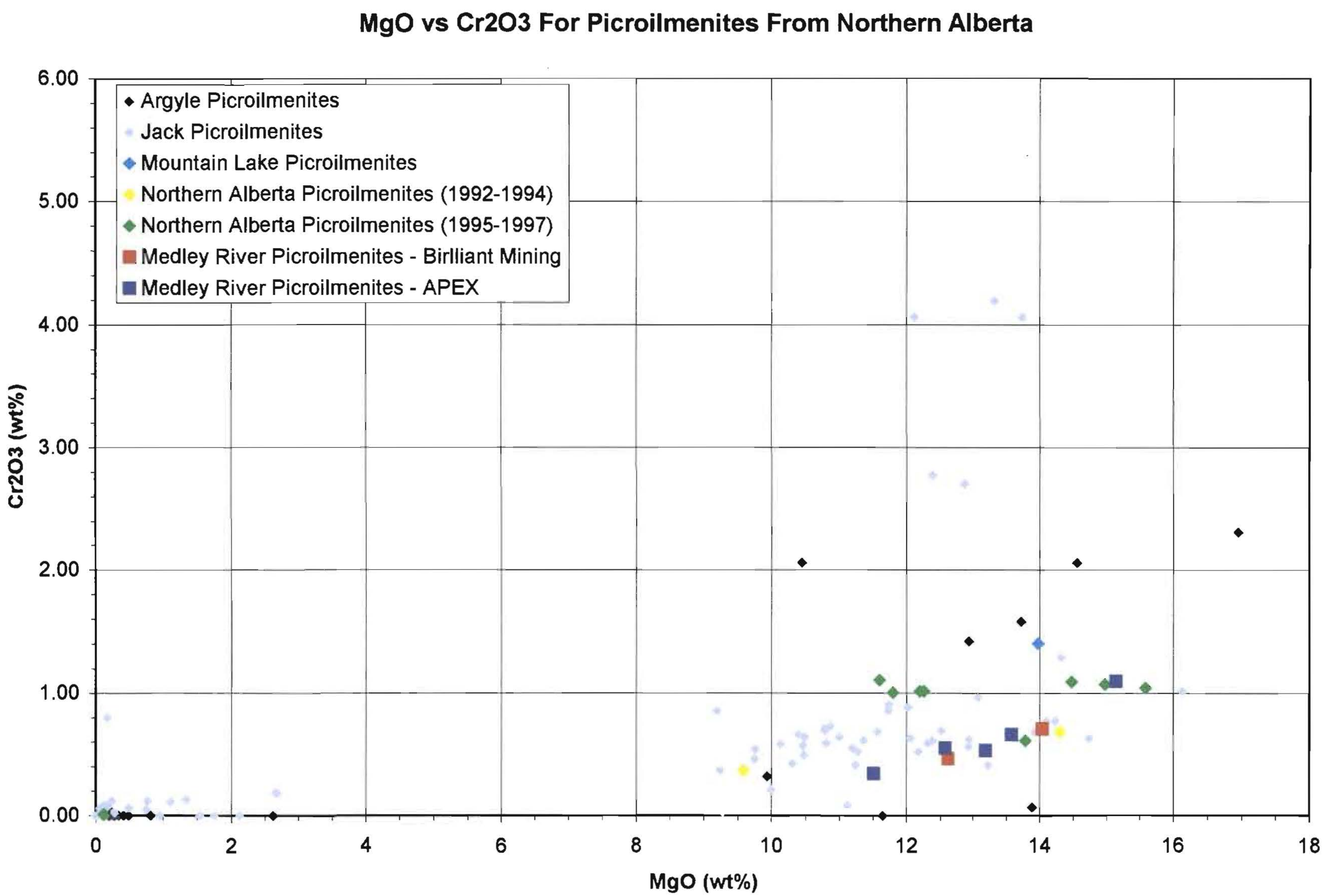

CaO vs TiO2 For Eclogitic Garnets From Northern Alberta
TiO2 (wt%)
CaO (wt%)
DI Eclogitic Garnets (World)
DI Eclogitic Garnets (Australia)
K4 Eclogitic Garnets
Northern Alberta Eclogitic Garnets (1992-1994)
Northern Alberta Eclogitic Garnets (1995-1997)
Medley River Eclogitic Garnets
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
0
2
4
6
8
10
12
14
16
18
20
22
24



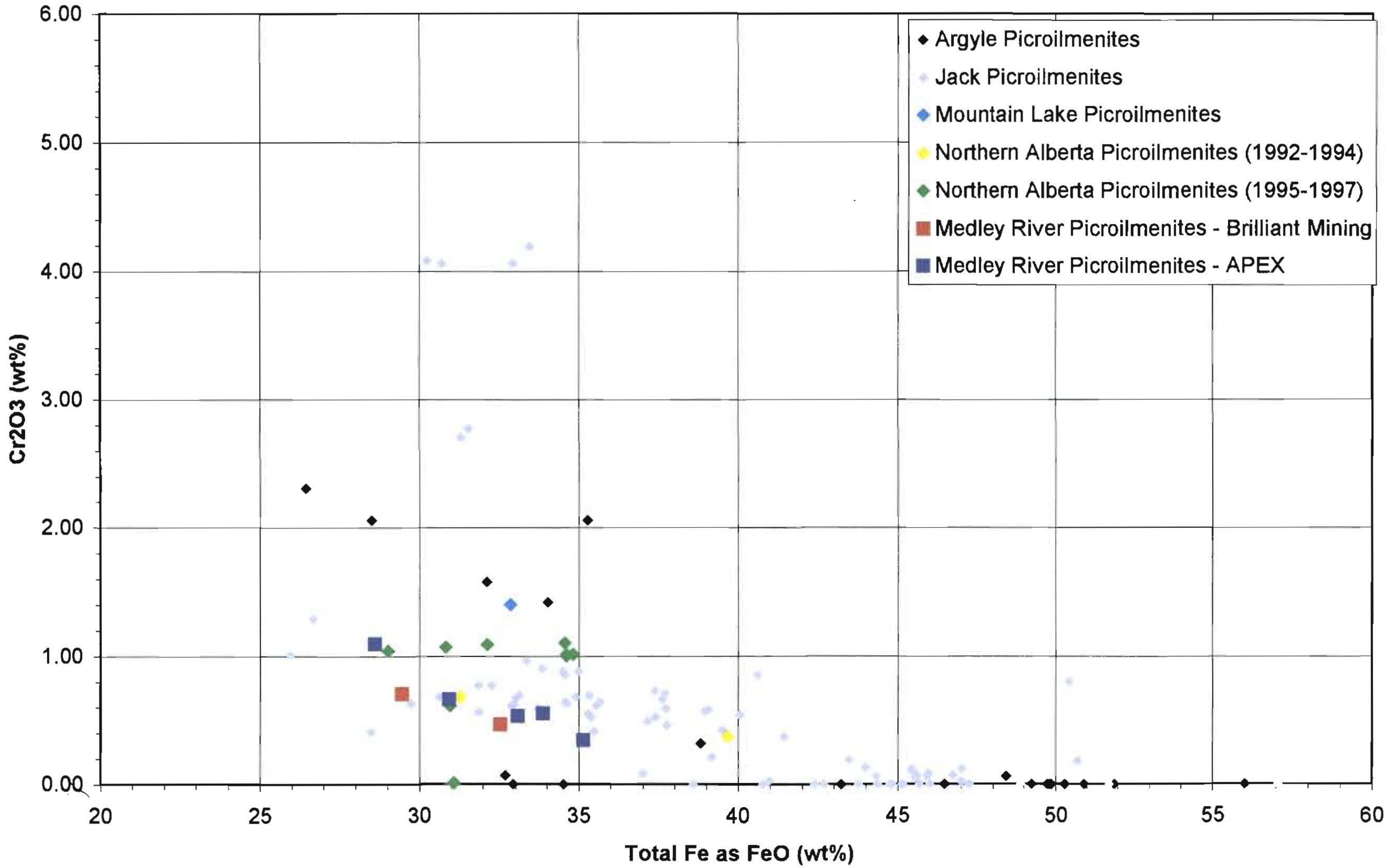
Na2O vs TiO2 For Eclogitic Garnets From Northern Alberta
TiO2 (wt%)
Na2O (wt%)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
DI Eclogitic Garnets (World)
DI Eclogitic Garnets (Australia)
K4 Eclogitic Garnets
Northern Alberta Eclogitic Garnets (1992-1994)
Northern Alberta Eclogitic Garnets (1995-1997)
Medley River Eclogitic Garnets



MgO vs Total Fe as FeO For Picroilmenites From Northern Alberta
Total Fe as FeO (wt%)
MgO (wt%)
60
55
50
45
40
35
30
25
20
0
2
4
6
8
10
12
14
16
18
Argyle Picroilmenites
Jack Picroilmenites
Mountain Lake Picroilmenites
Northern Alberta Picroilmenites (1992-1994)
Northern Alberta Picroilmenites (1995-1997)
Medley River Picroilmenites - Brilliant Mining
Medley River Picroilmenites - APEX


MgO vs Cr2O3 For Picroilmenites From Northern Alberta
Argyle Picroilmenites
Jack Picroilmenites
Mountain Lake Picroilmenites
Northern Alberta Picroilmenites (1992-1994)
Northern Alberta Picroilmenites (1995-1997)
Medley River Picroilmenites - Birlliant Mining
Medley River Picroilmenites - APEX
Cr2O3 (wt%)
MgO (wt%)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0
2
4
6
8
10
12
14
16
18

FeO vs Cr2O3 For Picroilmenites From Northern Alberta



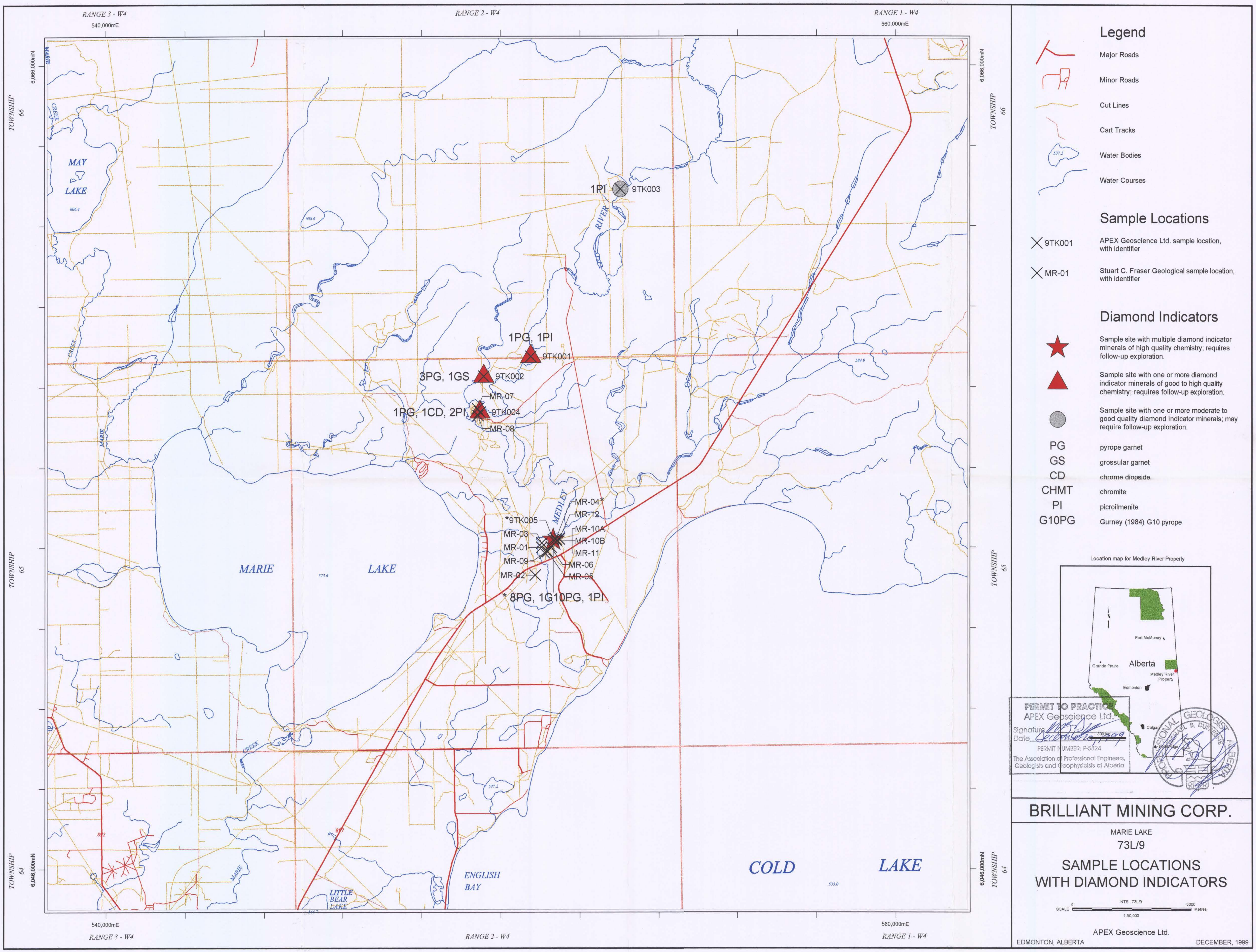
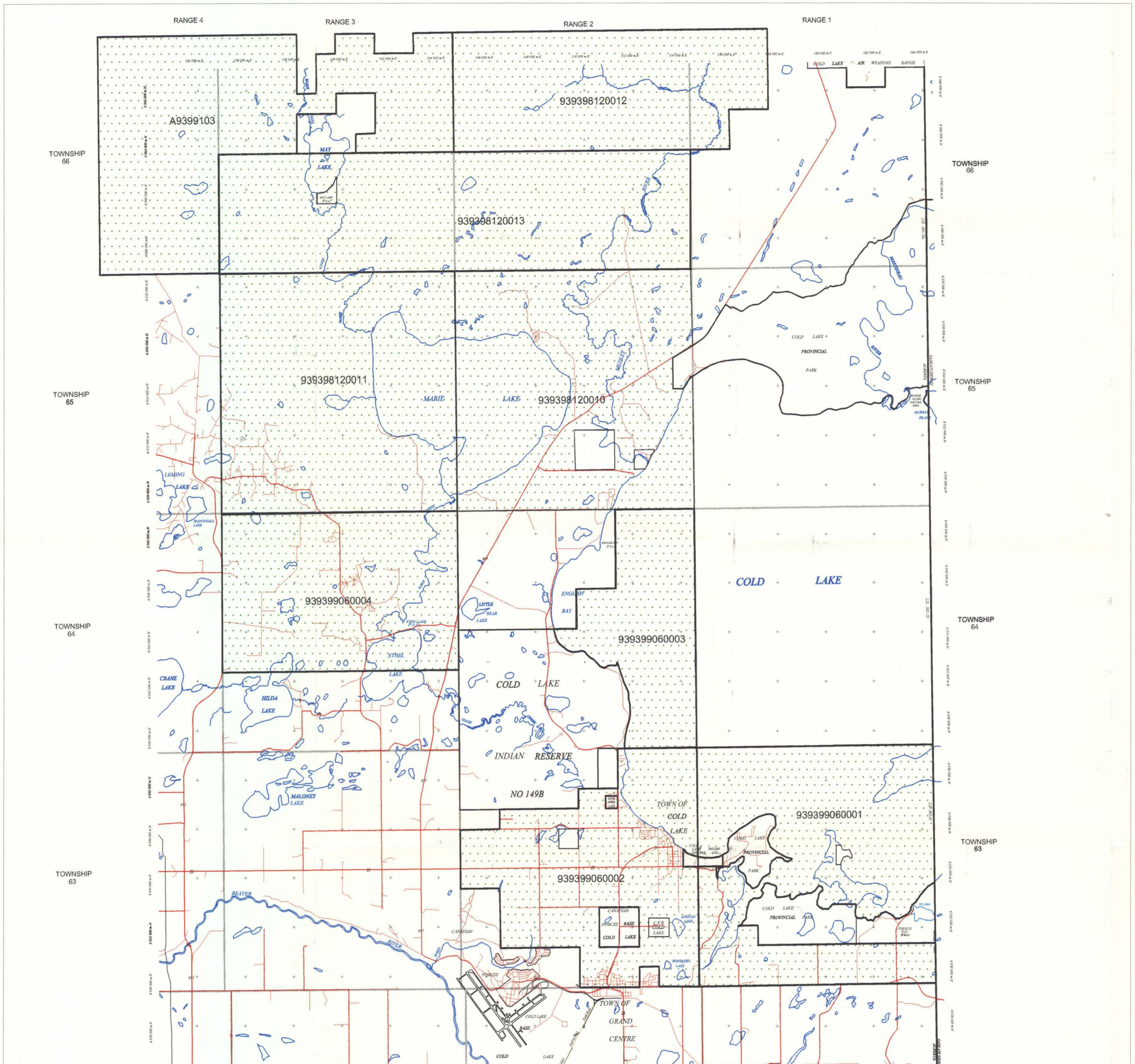

RANGE 3 - W4
RANGE 2 - W4
RANGE 1 - W4
540,000mE
560,000mE
6,066,000mN
6,046,000mN
TOWNSHIP 66
TOWNSHIP 65
TOWNSHIP 64
MAY LAKE
MARIE LAKE
COLD LAKE
ENGLISH BAY
LITTLE BEAR LAKE
MEDLEY RIVER
MARIE CREEK
1PI 9TK003
1PG, 1PI 9TK001
3PG, 1GS 9TK002
1PG, 1CD, 2PI 9TK004
MR-07
MR-08
*9TK005
MR-03
MR-01
MR-09
MR-02
MR-04*
MR-12
MR-10A
MR-10B
MR-11
MR-06
MR-05
* 8PG, 1G10PG, 1PI
Legend
Major Roads
Minor Roads
Cut Lines
Cart Tracks
Water Bodies
Water Courses
Sample Locations
9TK001 APEX Geoscience Ltd. sample location, with identifier
MR-01 Stuart C. Fraser Geological sample location, with identifier
Diamond Indicators
Sample site with multiple diamond indicator minerals of high quality chemistry; requires follow-up exploration.
Sample site with one or more diamond indicator minerals of good to high quality chemistry; requires follow-up exploration.
Sample site with one or more moderate to good quality diamond indicator minerals; may require follow-up exploration.
PG pyrope garnet
GS grossular garnet
CD chrome diopside
CHMT chromite
PI picroilmenite
G10PG Gurney (1984) G10 pyrope
Location map for Medley River Property
Fort McMurray
Grande Prairie
Alberta
Medley River Property
Edmonton
Calgary
PERMIT TO PRACTICE
APEX Geoscience Ltd.
Signature
Date
PERMIT NUMBER: P-5824
The Association of Professional Engineers, Geologists and Geophysicists of Alberta
PROFESSIONAL GEOLOGIST
ALBERTA
BRILLIANT MINING CORP.
MARIE LAKE
73L/9
SAMPLE LOCATIONS WITH DIAMOND INDICATORS
NTS: 73L/9
SCALE
1:50,000
Metres
APEX Geoscience Ltd.
EDMONTON, ALBERTA
DECEMBER, 1999

FIGURE 6.



Legend

Medley River Permit With ID

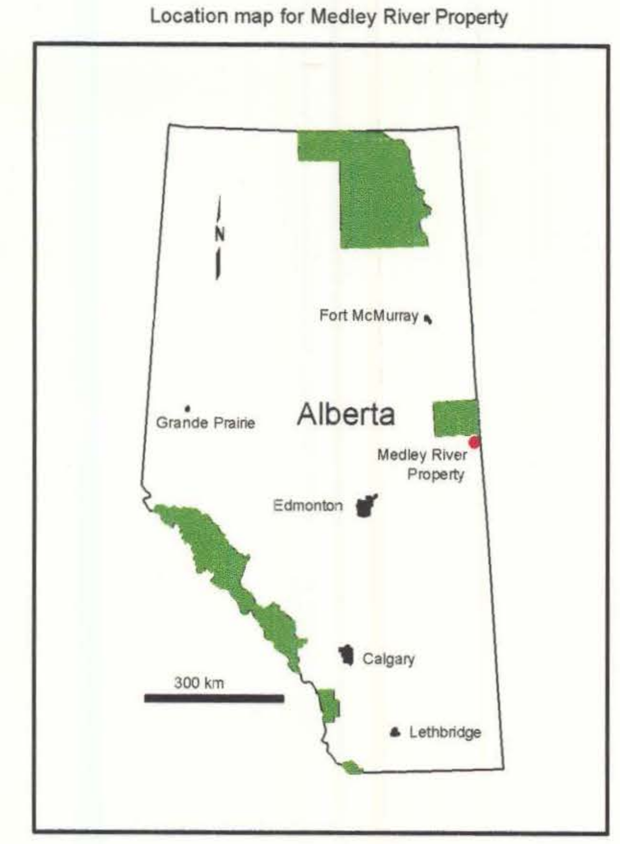
Major Roads

Minor Roads

Cart Tracks

Water Bodies

Location map for Medley River Property



PERMIT TO PRACTICE
APEX Geoscience Ltd.
Signature
Date
PERMIT NUMBER: P-5824
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

PROFESSIONAL GEOLOGIST
ALBERTA

BRILLIANT MINING CORP.

MARIE LAKE

MEDLEY RIVER PERMITS

NTS: 73L/8,9
SCALE 0 6000 Metres
1:100,000

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EDMONTON, ALBERTA DECEMBER, 1999