



## GEOLOGICAL SURVEY OF CANADA

### OPEN FILE 3775

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# Mineralogy and geochemistry of the Peddie kimberlite and associated glacial sediments, Lake Timiskaming, Ontario

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M.B. McClenaghan, B.A. Kjarsgaard, I.M. Kjarsgaard,  
R.C. Paulen, J.A.R. Stirling

1999



<b>NODA • EDNO</b>		<b>CANADA ONTARIO</b>	<p>Contribution to Canada-Ontario Subsidiary Agreement on Northern Ontario Development (1991-1995), a subsidiary agreement under the Economic and Regional Development Agreement. Project funded by the Geological Survey of Canada.</p> <p>Contribution à l'Entente auxiliaire Canada-Ontario de développement du nord de l'Ontario (1991-1995), entente auxiliaire négociée en vertu de l'Entente de développement économique et régional. Ce projet a été financé par la Commission géologique du Canada.</p>
		Northern Ontario Development Agreement	
		Entente de développement du nord de l'Ontario	
	Minerals • Minéraux		
<b>Canada</b>			

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Contribution to Canada–Ontario Subsidiary Agreement on Northern Ontario Development (1991–1995), under the  
Canada–Ontario Economic and Regional Development Agreement/ Contribution à l'Entente auxiliaire  
Canada–Ontario sur le développement du nord de l'Ontario (1991–1995), entente négociée en vertu de l'Entente  
Canada–Ontario de développement économique et régional

**1999**

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## ABSTRACT

The Geological Survey of Canada has conducted indicator mineral and geochemical investigations in the vicinity of five kimberlite pipes in the Kirkland Lake-Lake Timiskaming areas, northeastern Ontario to document indicator mineral signatures in glacial sediments. This research will provide information that supports the design of mineral exploration methods for diamonds. As part of this program, this report presents results from the Peddie kimberlite in Bucke Township.

The subcropping surface of the Peddie kimberlite consists of hypabyssal facies phlogopite macrocrystic monticellite kimberlite. Kimberlite indicator minerals occur in abundances of tens of thousands of grains in a 10-kg kimberlite sample. Indicator minerals are dominated by olivine and Mg-ilmenite, but also include much less abundant Cr-pyrope, chromite and Cr-diopside. The relative abundances of these indicator minerals in the Peddie kimberlite are mimicked in till overlying and just down-ice and can be used to distinguish the Peddie dispersal train from other kimberlite dispersal trains nearby which contain abundant Cr,Ti-pyrope garnet. Kimberlitic debris in the till is most apparent overlying the kimberlite and just down-ice (0 to 50 m) and is concentrated in the 0.25 to 2.00 mm (coarse to fine sand) non-ferromagnetic heavy mineral fraction of till. The medium sand size fraction of till displays the strongest geochemical signature of the kimberlite, most notably for Cr, Ni, MgO, Ba and  $P_2O_5$ .

## INTRODUCTION

Since 1992, the Geological Survey of Canada (GSC) have carried out investigations in the vicinity of known kimberlites in the Kirkland Lake and Lake Timiskaming areas of northeastern Ontario. The purpose of the project is to document kimberlite mineralogy as well as glacial dispersal patterns and surficial geochemical signatures associated with the kimberlites. Bedrock in the Kirkland Lake- Lake Timiskaming region is covered by glacial sediments that are a few metres to 100 m thick.

Kimberlite, being relatively soft, was differentially eroded by preglacial weathering and glacial erosion such that it subcrops 3 to 35 m below the surrounding bedrock. Kimberlites were subsequently covered by glacial sediments and have no surface expression. Because of this thick cover, indicator mineral and geophysical methods have been used in the past 30 years to explore for kimberlites in the region. To date at least 26 kimberlite pipes have been discovered (Brummer et al., 1992a; McClenaghan, 1993; Zalnieriunas and Sage, 1995; Sage, 1996, 1998).

Kimberlites in the Kirkland Lake field located 80 km north of Lake Timiskaming (C14, B30, A4, Diamond Lake, Buffonta) were examined first and these results have been published in several GSC reports (Table 1). In 1997, several shallow trenches were excavated into the Peddie kimberlite in the Lake Timiskaming kimberlite field. Samples were collected document the kimberlite's mineralogical and geochemical signature and glacial dispersal patterns down-ice. This report summarizes the results of this work.

### Location and access

The Lake Timiskaming kimberlite field is in northeastern Ontario and western Quebec, near the towns of Haileybury and New Liskeard (Fig. 1). The Peddie kimberlite is located at latitude 47°26'30"N, longitude 79°41"W (UTM Zone 17, Easting 599450, Northing 5254900) in Bucke Township, 8 km south of the town of New Liskeard and 5 km north of the town of Cobalt (Fig. 2). Part of it underlies a wooded area and part underlies a swampy area associated with a beaver pond on the Peddie Farm south of Highway 558 (Photo 1).

### Geology

The bedrock geology in the immediate area of the Peddie kimberlite consists of Archean metaconglomerates of the Timiskaming Formation, and Paleoproterozoic diamictites and argillites of the Gowganda Formation (Young and Nesbitt, 1999), which are cut by Paleoproterozoic Nipissing diabase sills (Lightfoot et al., 1993). Just to the north of the kimberlite is the Paleozoic carbonate of the Ferrar Formation limestone, which are part of the Lake Timiskaming outlier (Grant and Owsiacki, 1987).

The Peddie kimberlite is classified as a hypabyssal facies phlogopite macrocrystic monticellite kimberlite (Photo 2). A high precision U-Pb perovskite radiometric age determination of 153.6 Ma (Heaman and Kjarsgaard, 1998) indicates the kimberlite is of Late Jurassic age. This age is consistent with this kimberlite intruding a Paleoproterozoic age Nipissing quartz diabase sill, and containing rare Paleozoic carbonate xenoliths. The kimberlite contains quite unusual 'eggs' (10 to 20 cm in size) consisting of >90 % olivine which seem not to be mantle dunite xenoliths and an unusually high volume of large, fresh olivine grains that give it a distinct

Table 1. Summary of detailed indicator mineral studies conducted by the Geological Survey of Canada around kimberlites in the Kirkland Lake region.

<b>GSC Publication Number</b>	<b>Subject</b>	<b>Year published</b>
GSC Open File 2819	character of indicator minerals in kimberlite and till around the C14 and Diamond Lake kimberlites	1994
GSC Open File 3005	biogeochemical studies around the C14, Diamond Lake and Buffonta kimberlites	1995
GSC Open File 3007	results of detailed indicator mineral and till geochemical studies around the Buffonta kimberlite dyke	1995
GSC Open File 3295	results of detailed indicator mineral and till geochemical studies around the B30 kimberlite	1996
GSC Open File 3576	results of detailed indicator mineral and till geochemical studies around the Diamond Lake kimberlite	1998
GSC Open File 3719	results of detailed indicator mineral and till geochemical studies around the C14 kimberlite	1999
GSC Open File 3769	results of detailed indicator mineral and till geochemical studies around the A4 kimberlite	1999
GSC Open File 3228	GSC kimberlite and related glacial dispersal studies across Canada	1996
GSC Open File 2124	diamond exploration techniques using indicator mineral chemistry, with examples from Canada	1989
GSC Bulletin 423	diamond exploration techniques using indicator mineral chemistry, with examples from Canada	1995

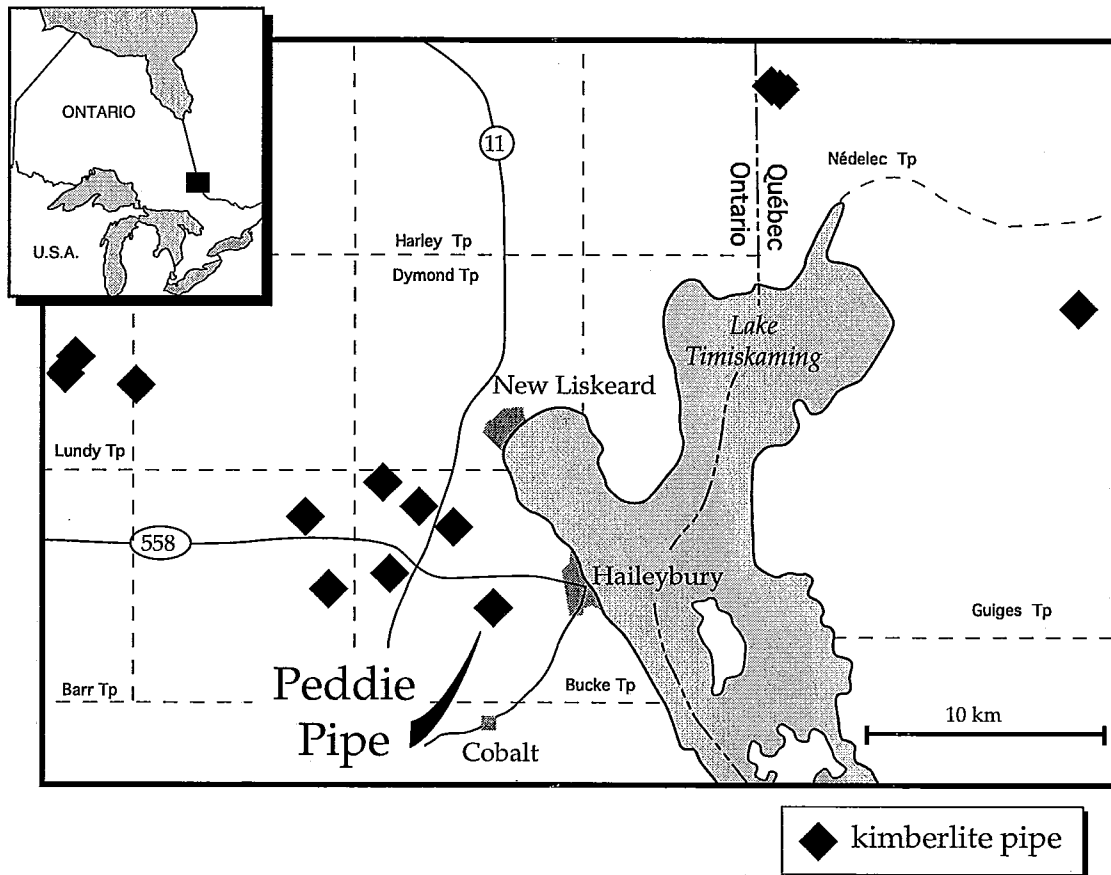


Figure 1. Location of the Peddie kimberlite in the Lake Timiskaming kimberlite field.



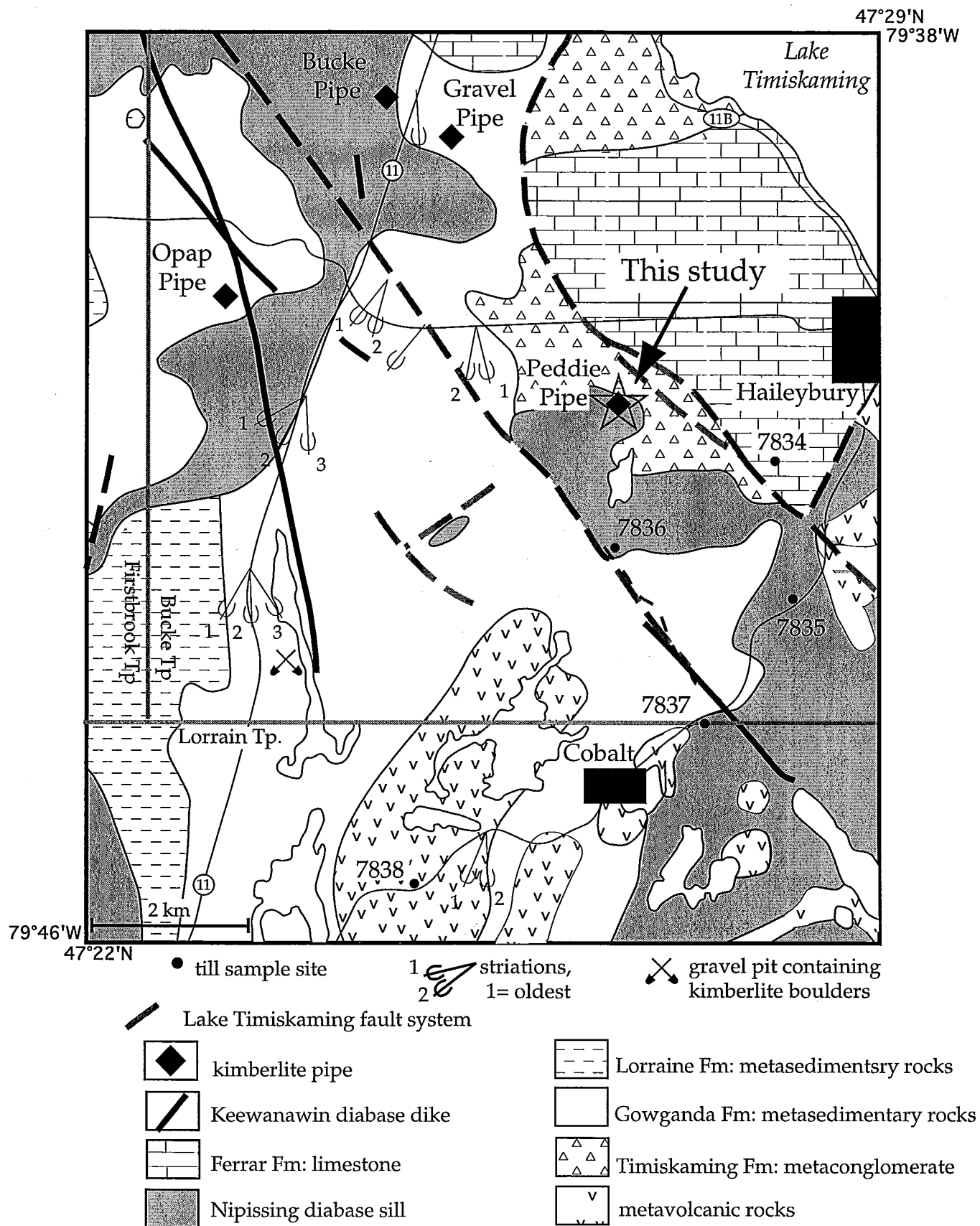
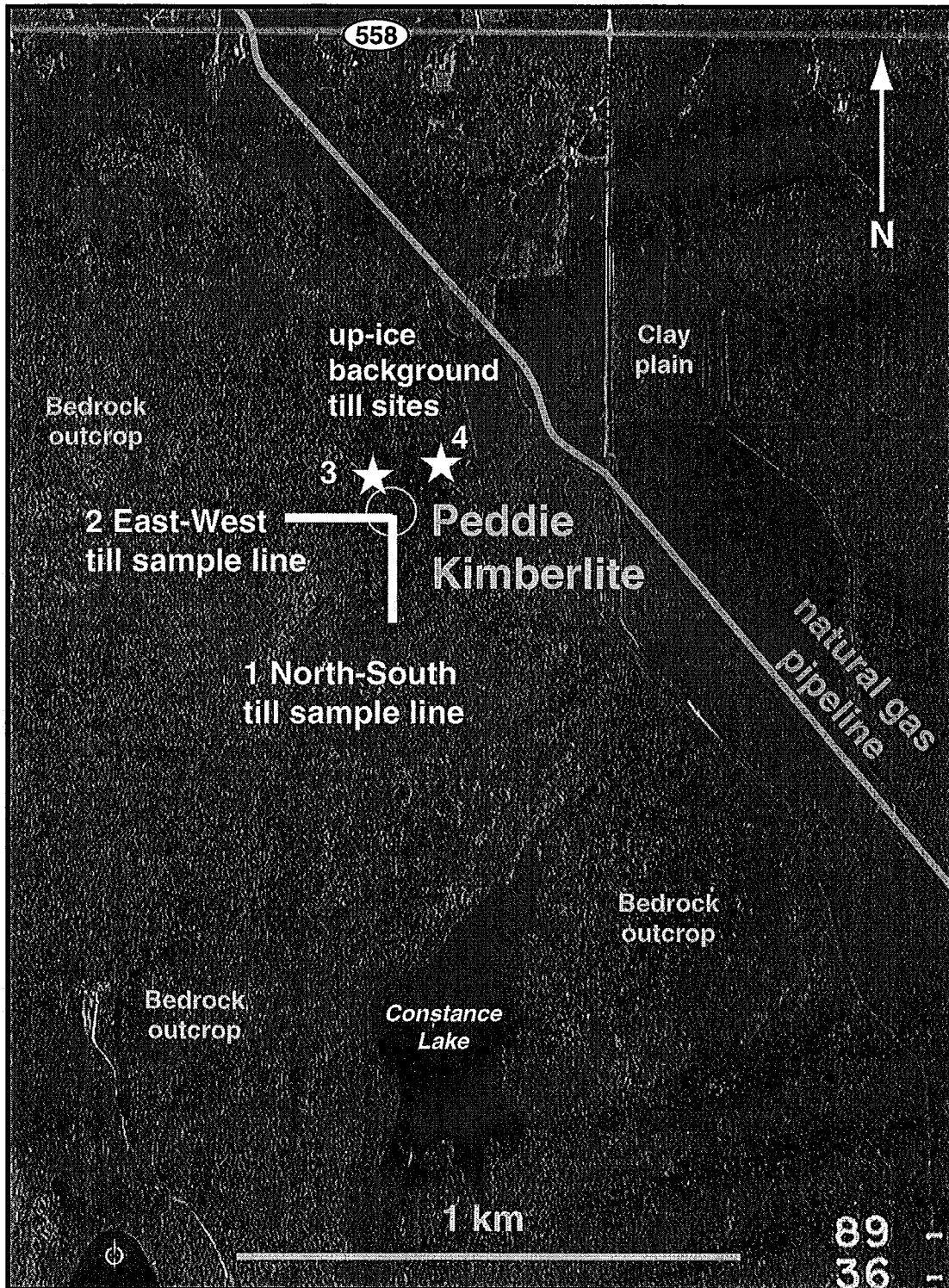


Figure 2. Bedrock geology map showing the location of the Peddie kimberlite and five till samples (7834 to 7838) collected south of the kimberlite.

Photo 1. Location of the Peddie kimberlite and till samples collected to the west, south and north (Ontario Ministry of Natural Resources air photo No. 89-4717 36-67)



Till sample sites:

- 1 North-south line 97MPB7801 to 7819
- 2 East-west line 97MPB7820 to 7828
- 3 97MPB7829, 7830
- 4 97MPB7831



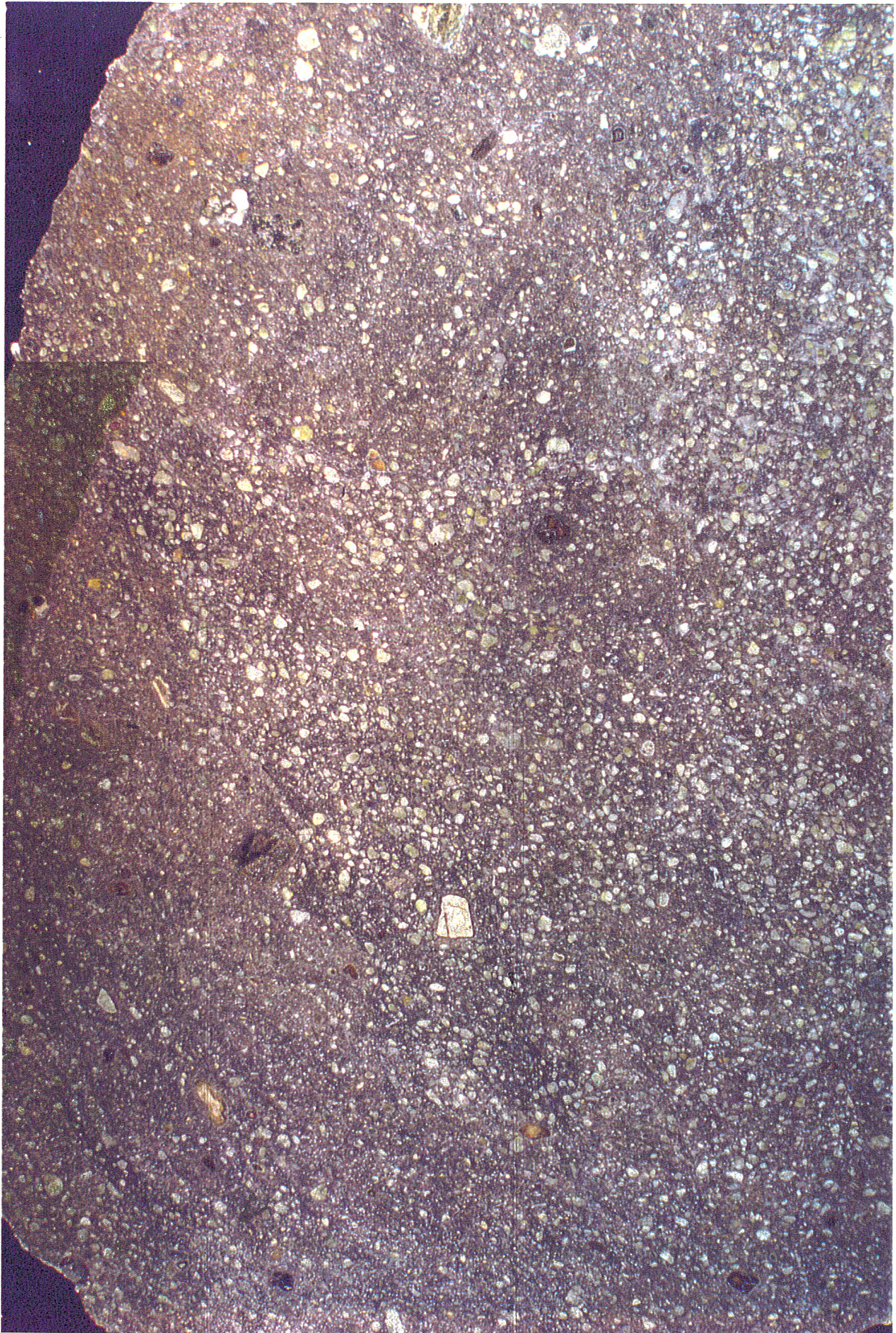


Photo 2. Slab of flow-banded hypabyssal kimberlite from the Peddie pipe. Note the olivine-rich and olivine-poor bands, as well as the paucity of xenolithic material. Width of view 30 cm.



mineralogical signature. The kimberlite has been eroded by preglacial and glacial processes down to the level of hypabyssal facies (Fig. 3). The upper surface of the kimberlite has undergone varying degrees of post-glacial weathering, leaving most of the upper surface friable and soft (Photo 3). A portion of the upper surface, however, is unweathered, hard kimberlite and displays what may be the first reported striated kimberlite surface (Photo 4).

The Lake Timiskaming region was covered by the Laurentide Ice Sheet during the Wisconsinan which deposited a silty sand till (Veillette, 1996). Ice flowed west to southwest during the main phase of glaciation (Fig. 4), then south and finally southeast during deglaciation (Veillette, 1989, 1996; Veillette and McClenaghan, 1996). As the glacier retreated northward approximately 9500 years ago, glacial Lake Barlow ponded in front of the ice sheet and thick sequences of fine grained glaciolacustrine sediments were deposited over top of the till and bedrock (Vincent and Hardy, 1979; Veillette, 1988, 1989, 1996). Glacial Lake Barlow receded from the Peddie pipe area approximately 8000 years ago (Veillette, 1994), and the site has been exposed to normal postglacial weathering and soil forming processes since that time. The distribution of surficial sediments in the Peddie area is summarized in Figure 5. The Peddie kimberlite is covered by 1 to 3 m of grey, silty sand till (Photo 5) which is overlain fine-grained by discontinuous glaciolacustrine sediments. Striations on the kimberlite and other bedrock in the area indicate that ice flowed toward 200° and 180°.

#### **Previous kimberlite research in the Lake Timiskaming area**

Information on the indicator mineral chemistry of the Lake Timiskaming kimberlites has been published by Schulze (1995, 1996), Schulze et al. (1995), and Sage (1996).

## **METHODS**

### **Sample collection**

Eleven pits 2 to 3 m deep were excavated using a backhoe to collect bulk (10-kg) samples of weathered and fresh kimberlite as well as glacial sediments overlying, up-ice and down-ice of the kimberlite (Photo 1). Pits were dug along an east-west line across the kimberlite and along a north-south line down-ice of the kimberlite (Fig. 6). Highly weathered kimberlite (samples 7818A) containing tree roots, weakly weathered kimberlite (sample 7814A), and fresh kimberlite (samples 7818A and 7814B) were collected from backhoe pits #2 and #3 (Fig. 6) to compare mineralogy and geochemistry of weathered and unweathered kimberlite. Additional samples of fresh kimberlite were taken from backhoe pit #4 (sample KIA97-PP4), and from large fresh kimberlite boulders in till from pits #7 and #8 (samples KIA-PP7, KIA97-PP8). A total of 16 till, 1 silt and 2 sand samples were collected from nine pits. The silt and sand samples were collected along with the till samples to evaluate their use in detecting kimberlite dispersal. Two pits were excavated north of the kimberlite to collect three till samples (78330 to 7832) to determine background till geochemical patterns and background concentrations of kimberlite indicator minerals. An additional 5 till samples (7834 to 7838) were collected from hand-dug pits 2 to 7 km down-ice (Photo 1) to detect kimberlite dispersal farther down-ice.

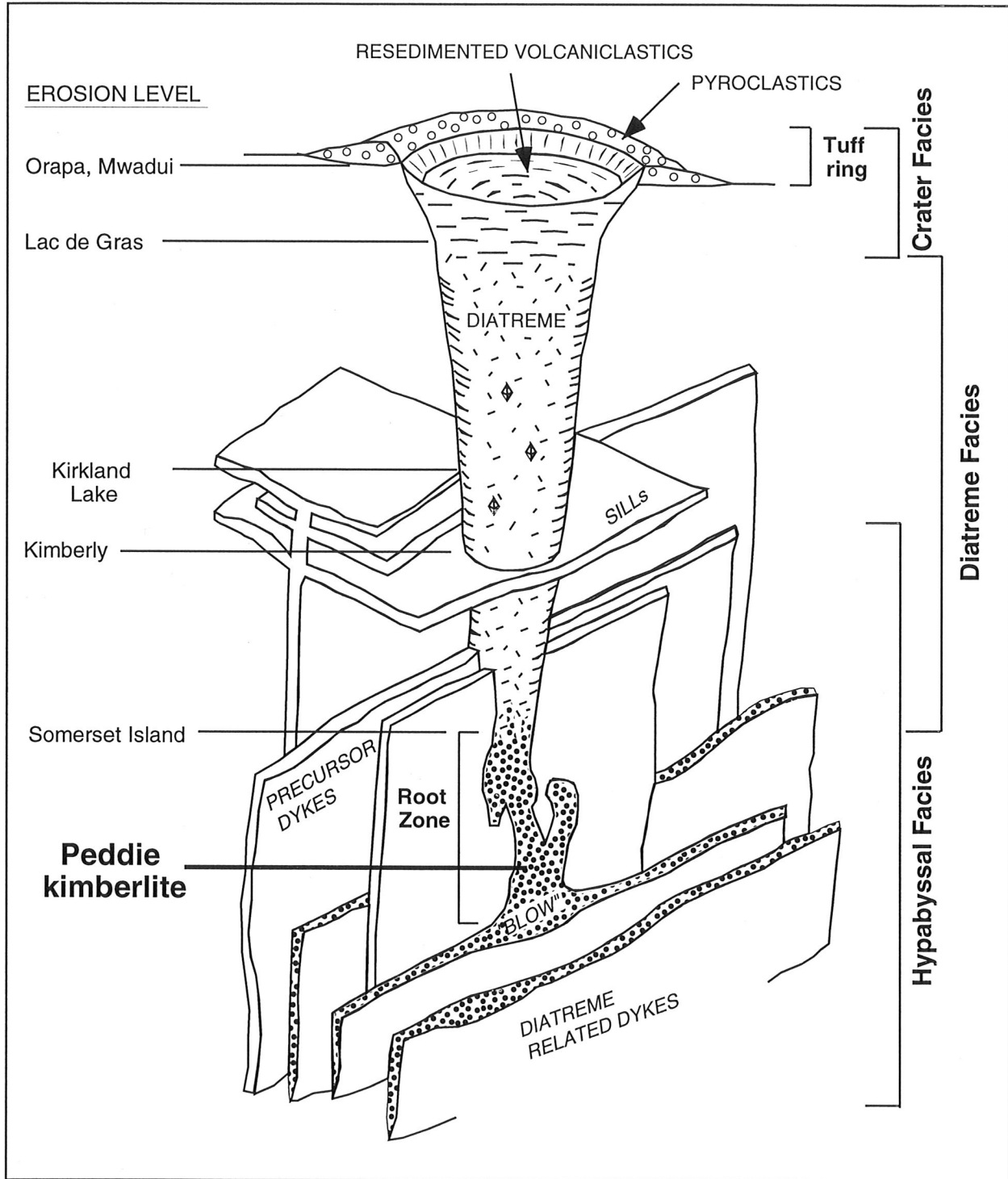


Figure 3. Model of a kimberlite (from Mitchell,1986) showing present day erosion levels for kimberlites in Kirkland Lake and the Peddie kimberlite (from Kjarsgaard,1996).



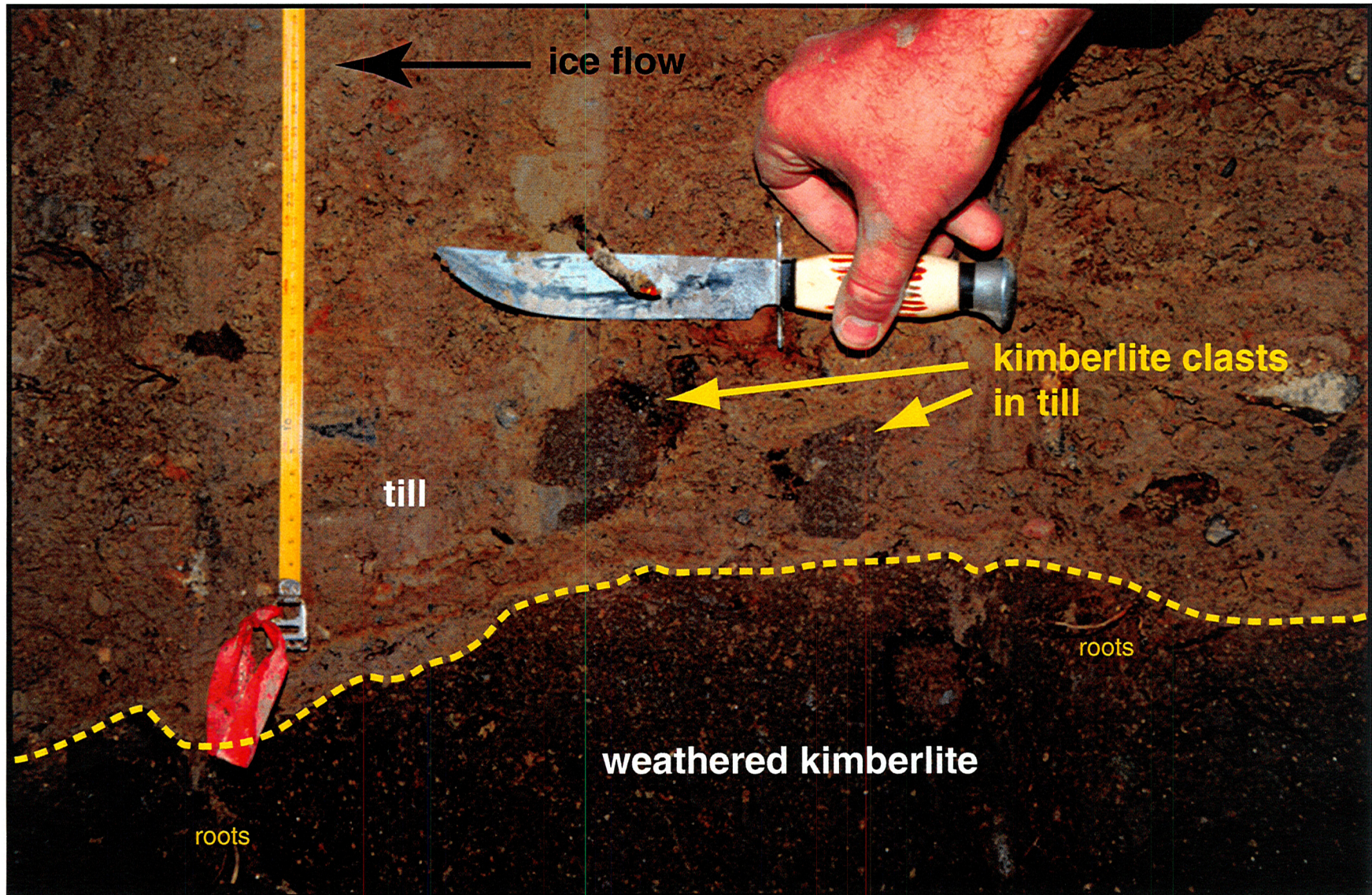


Photo 3. Weathered surfaces of the Peddie kimberlite could be scooped out easily with a backhoe. Kimberlite clasts in the till are soft and friable due chemical weathering in the 8000 years since the till was deposited. Note tree roots growing in kimberlite.



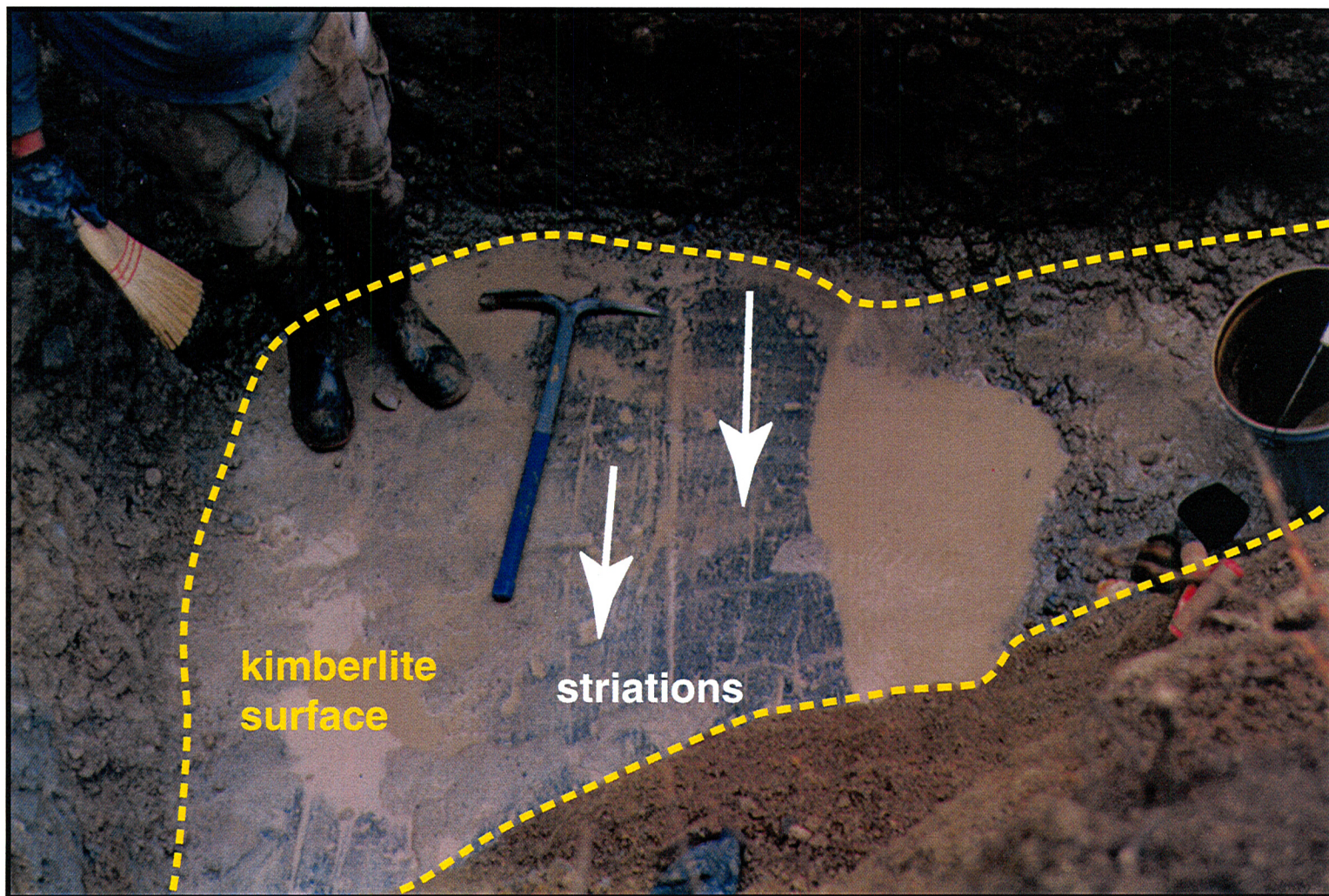


Photo 4. Fresh, unweathered kimberlite exposed in backhoe pit 4 was striated by ice flowing southwest ( 200°).



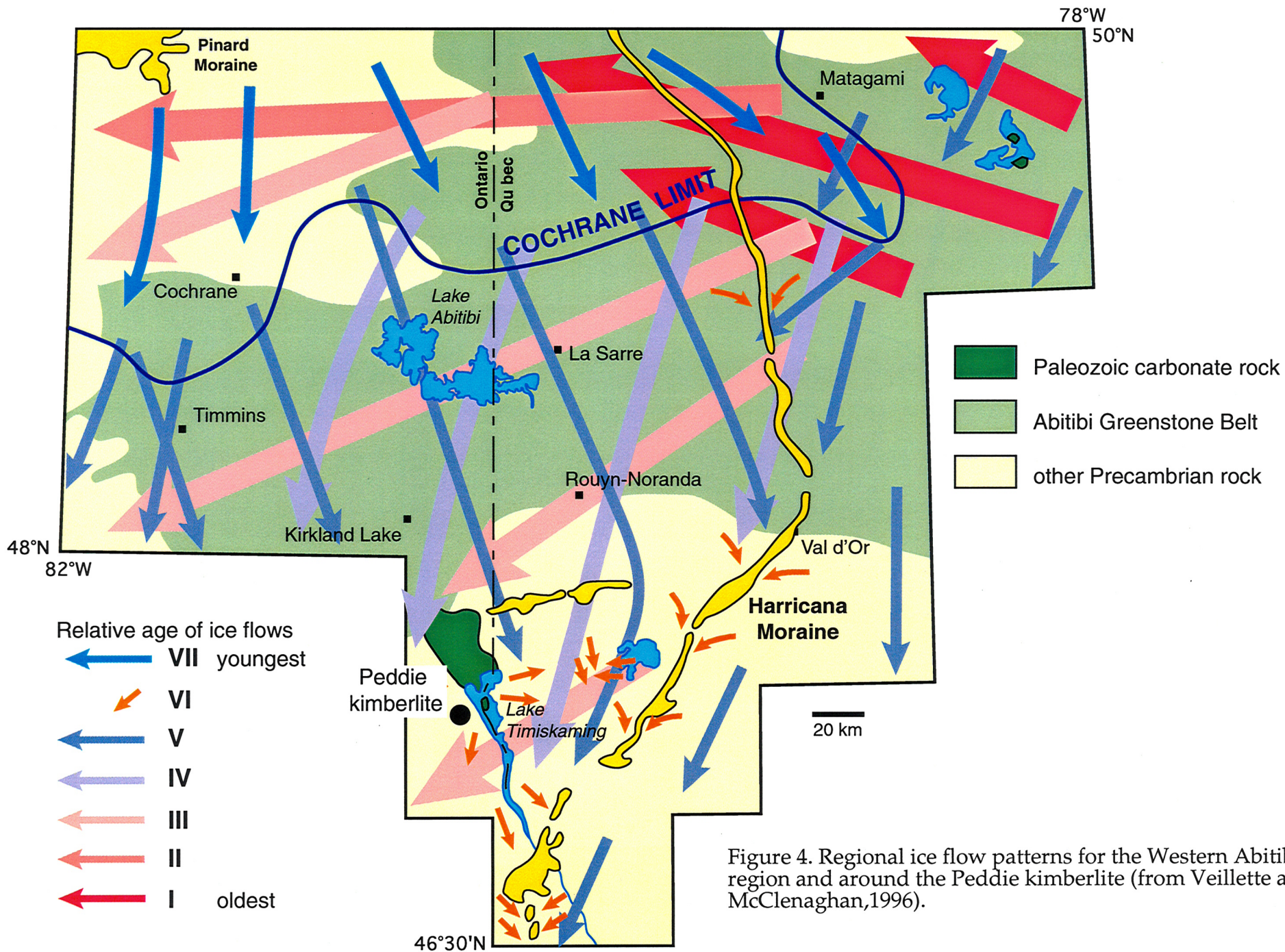


Figure 4. Regional ice flow patterns for the Western Abitibi region and around the Peddie kimberlite (from Veillette and McClenaghan, 1996).



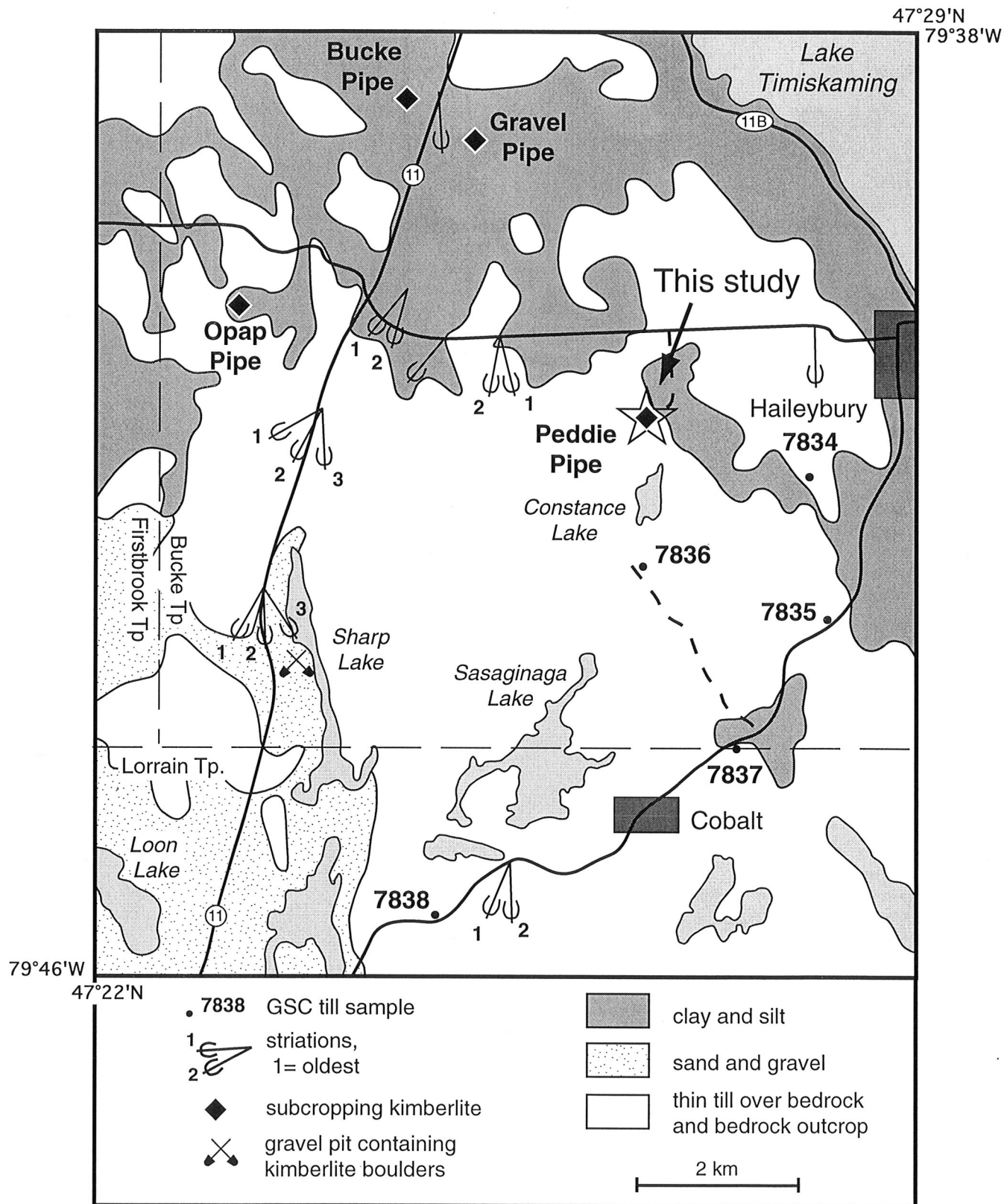


Figure 5. Surficial geology of the area around the Peddie kimberlite and location of striated bedrock sites (geology from Ontario Geological Survey unpublished map).

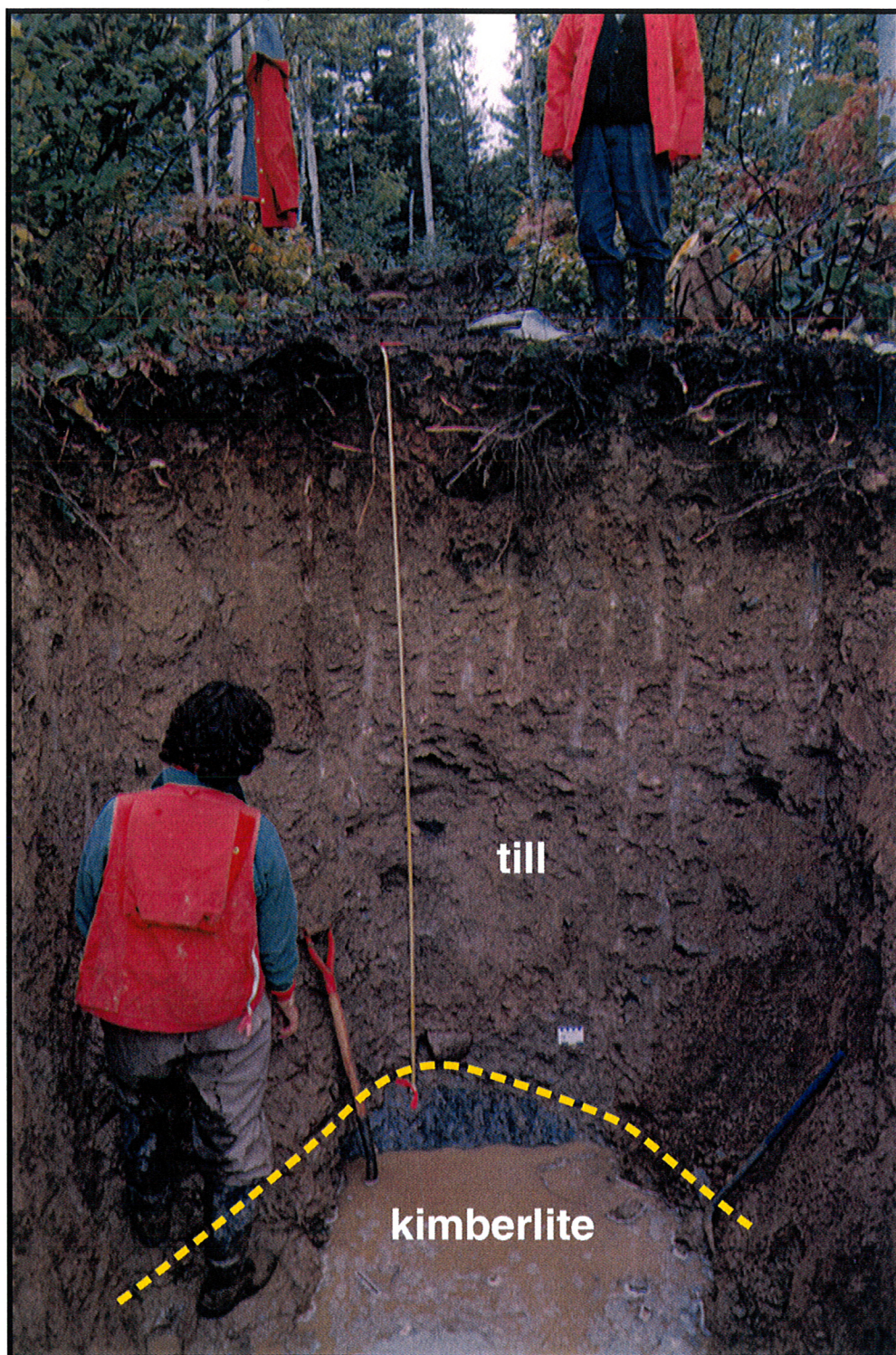


Photo 5. One to three metres of silty sand till overlies the Peddie kimberlite, as shown here in backhoe pit 3.

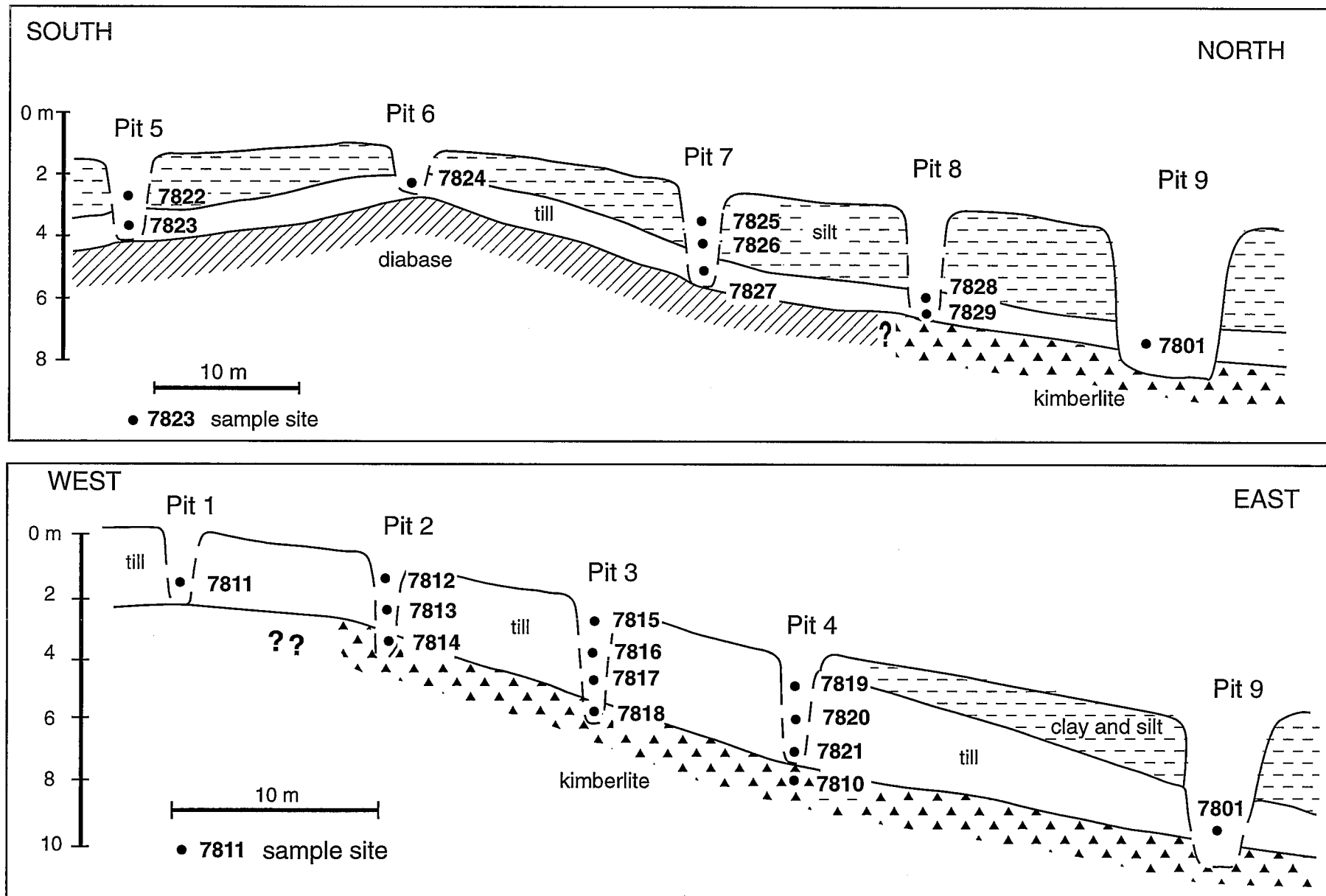


Figure 6. West-east and north-south cross-section across the Peddie kimberlite showing glacial sediment type and thickness overlying the kimberlite as well as kimberlite and glacial sediment sample sites.



### **Sample preparation**

Glacial sediment and kimberlite samples were processed by Overburden Drilling Management Ltd., Nepean, Ontario, to recover heavy mineral concentrates for examination of kimberlite indicator minerals as well as gold grains (Sample A- Fig. 7). Weathered kimberlite samples were soaked in water for 3 days prior to processing but were not subjected to any mechanical crushing. Fresh kimberlite was mechanically crushed to <2 mm before processing. Weights for all sample fractions produced during the processing procedure are reported in Appendix B. The >2 mm (+10 mesh) material was screened and retained for pebble lithology classification. The <2 mm (-10 mesh) fraction was screened to obtain two separate size fractions: 1) 1.0 to 2.0 mm fraction, and 2) <1.0 mm fraction.

1) The 1.0 to 2.0 mm fraction was not subjected to density preconcentration on the shaking table because of the risk of significant loss of coarse heavy minerals. Instead, this fraction was taken directly to methylene iodide (MI) diluted with acetone to a specific gravity (S.G.) of 3.2 to separate the light and heavy mineral fractions. Methylene iodide was diluted from full strength (S.G. 3.3) to maximize the recovery of Cr-diopside (S.G.≥3.2), the kimberlite indicator mineral with the lowest specific gravity. The light mineral (<3.2 S.G.) split was removed and put aside for future reference. The heavy mineral (>3.2 S.G.) split was further refined by removing the ferromagnetic fraction using a hand magnet, to produce a 1.0 to 2.0 mm non-ferromagnetic concentrate ready for indicator mineral picking.

2) The <1.0 mm fraction was processed using a combination of tabling and heavy liquid separation. First, the <1.0 mm material was passed over a shaking table twice to obtain a preconcentrate, which was then panned to recover gold grains which were counted, described and returned to the sample. The preconcentrate was then further refined using heavy liquid separation, as described above, to produce a heavy mineral fraction (S.G.>3.2). The ferromagnetic heavy minerals were removed using a hand magnet leaving a <1.0 mm non-ferromagnetic heavy mineral fraction for picking. This combination of tabling and heavy liquid separation was used to recover indicator minerals because tabling also recovers gold and sulphide grains that can be examined and counted. The <1.0 mm non-ferromagnetic heavy mineral concentrates were sieved into three fractions: <0.25 mm (-60 mesh), 0.25 to 0.5 mm (-35+60 mesh) and 0.5 to 1.0 mm (-18+35 mesh). The <0.25 mm fraction was set aside.

### **Kimberlite indicator mineral identification**

The 0.25 to 0.5 mm, 0.5 to 1.0 mm fractions and 1.0 to 2.0 mm fractions were examined by I. & M. Morrison Geological Services, Delta, B.C., using stereoscopic and petrographic microscopes and potential kimberlite indicator minerals were selected. Indicator minerals were identified on the basis of visual properties, such as colour, grain morphology and/or the presence of adhering kimberlite matrix material. Minerals picked included Cr-pyrope, Cr, Ti-pyrope, Cr-diopside, Mg-ilmenite, chromite, and olivine. Visually distinguishing characteristics of each indicator mineral are listed in Table 2. A selection of the picked grains were mounted in 25 mm epoxy mounts and polished in preparation for electron microprobe analysis to confirm their identity.

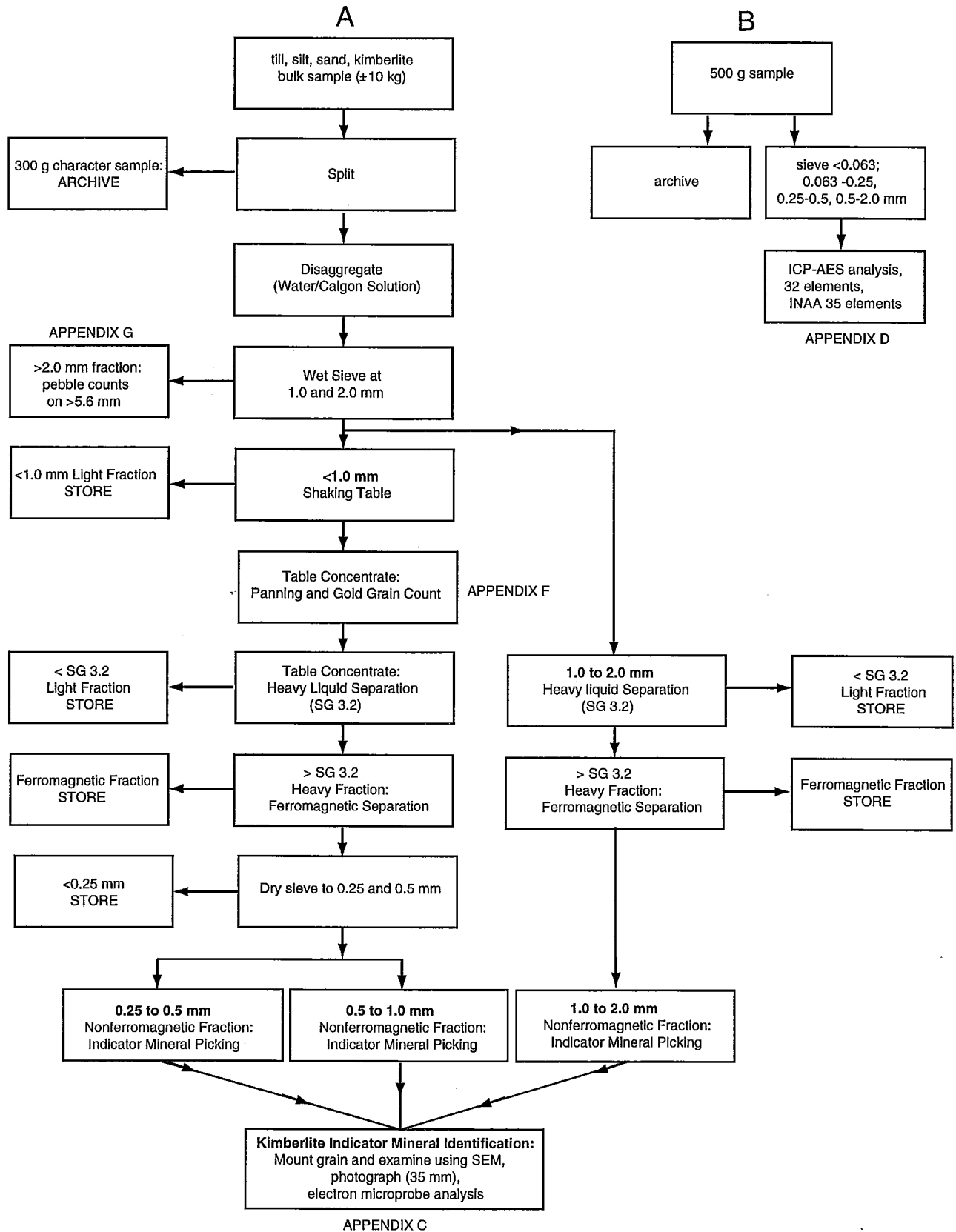


Figure 7. Sample processing flow diagram for till sample preparation: A) preparation of heavy mineral concentrates for gold grain counting and geochemical analysis, B) preparation of the <0.063 mm fraction for geochemical analysis.

Table 2. Summary of distinguishing characteristics used to visually identify kimberlite indicator minerals in heavy mineral concentrates.

Mineral	Colour	Other distinguishing characteristics
Cr-pyrope	purple	kelyphite rims, adhering kimberlite matrix
Cr, Ti- pyrope	orange-red to deep red	kelyphite rims, adhering kimberlite matrix
Cr-diopside	emerald green	cleavage
Mg-ilmenite	black	unbroken grains appear as irregular to round shaped black grains with grey/white coatings, perovskite overgrowths; metallic black with conchoidal fractures on broken surfaces
chromite	black, reddish brown around grain edges	octahedral crystal shape to irregular shaped grains
olivine	colourless to pale yellow	conchoidal fracture

Electron microprobe analyses were carried out at the GSC using operating conditions similar to those described by McClenaghan et al. (1999). Analyses were completed using a four spectrometer Cameca SX50 electron microprobe and all grains were analyzed using what is referred to internally as the "DIAMOND" routine for silicates (garnets, clinopyroxene, olivine) and "SPINELS" for the oxides. These routines were developed by the GSC to analyze for the major elements required to identify the potential mineral species using a minimum of probe time. The raw data were processed with the Cameca PAP program (Pouchou and Pichoir, 1984). The dead time correction formula (Willis, 1993) has been changed for the SX50 to achieve linearity at higher count rates. The standards and operating conditions are given in Appendix C-Table C.1. Microprobe analyses are included in Appendix C.1 (digital data file only, on diskette accompanying this report). Subsets of the microprobe analyses for those minerals identified as kimberlite indicator minerals are listed in Appendix C.1 to C.5.

Microprobe data were sorted by chemical composition and the grains were labeled with mineral names. For minerals and mineral groups that form solid solution series, theoretical endmembers compositions (LeMaitre, 1982, Table A13) were used to calculate threshold values (at approximately 50:50 mol %) for individual members of binary solid solution series. These threshold values are shown in Table 3. For minerals that contain substantial amounts of more than two endmembers (which is the case for most garnets and spinels), the threshold values were lowered accordingly (<50 mol % of one endmember). In equivocal cases, molar fractions of the critical oxides were calculated in order to assess the endmember with the highest (name giving) proportion. Other minerals were identified by comparing wt. % oxides to published analyses (Deer et al., 1978, 1982). Mineral names of grains with low totals were set in brackets. Prefixes were added to some of the indicator mineral names to emphasize elevated contents of petrogenetically critical elements such as Mg, Cr, and Ti which are important in distinguishing between potential kimberlite minerals and those from other bedrock sources. Threshold values for these prefixes (see Table 3) were chosen arbitrarily and might differ from those used by other authors. Readers are encouraged to examine the microprobe data and reclassify indicator minerals using their own criteria.

Table 3. Classification criteria for identifying minerals.

	<u>Criteria</u>	<u>Mineral name</u>
Al-garnet	> 21 wt.% MnO =	Spessartine
Al-garnet	> 13 wt.% MgO =	Pyrope
Al-garnet	> 17 wt.% CaO =	Grossular
Garnet	< 11 wt.% Al <sub>2</sub> O <sub>3</sub> & >13 wt.% CaO =	Andradite
Garnet	> 15 wt.% Cr <sub>2</sub> O <sub>3</sub> & >17 wt.% CaO =	Uvarovite
Andradite	> 2 wt.% Cr <sub>2</sub> O <sub>3</sub> =	Cr-Andradite
Andradite	> 5 wt.% MgO =	Serpentinized (Cr-) andradite
Pyrope	> 2 wt.% Cr <sub>2</sub> O <sub>3</sub> =	Cr-Pyrope
Diopside	>0.5 wt.% Cr <sub>2</sub> O <sub>3</sub> =	Cr-Diopside
Cr-Diopside	> 1.5 wt.% Cr <sub>2</sub> O <sub>3</sub> =	HiCr-Diopside
Chromite	Cr <sub>2</sub> O <sub>3</sub> /Al <sub>2</sub> O <sub>3</sub> < 1.5 =	Cr-Spinel
Chromite	> 3 wt.% TiO <sub>2</sub> =	Ti-Chromite
Rutile	> 15 wt.% FeOtot =	Fe-Rutile
Ilmenite	> 4 wt.% MgO =	Mg-Ilmenite
Ilmenite	> 53 wt.% FeOtot =	Ilmenite (altered)
Ilmenite	< 30 wt.% TiO <sub>2</sub> =	FeTi-Oxide
Pyrope-	< 22 wt.% FeO &	diamond inclusion
Almandine-	5wt.% < MgO < 15wt.%	(Group I) eclogitic
Grossular	& > 4 wt.% CaO	garnet
	& > 0.07 wt.% Na <sub>2</sub> O =	
Olivine	Mg-number (mol% forsterite) > 84	Olivine

Enlarged color prints and scanning electron microprobe (SEM) backscatter images of the grain mounts were used to aid mineral identification and to recognize possible inhomogeneities, intergrowths or exsolutions within individual grains. Grain colour was also used to confirm mineral identification. Minerals were identified and named using criteria similar to those of McClenaghan et al. (1996, 1998, 1999) and are outlined above. A few grains could not be identified because their totals were too low. This was due to insufficient outcrop at the surface of the grain mount, inhomogeneity, strong alteration of the grains or compositions which contained elements not analyzed (e.g. S in sulfides). Grains that did not yield analyses with totals high enough to be unequivocally identified were labeled "unknown".

The target minerals in diamond exploration are black Mg-ilmenite with  $\geq 4$  wt.% MgO (also called magnesian- or picro-ilmenites); red-brown Cr,Ti-pyrope garnet; purple Cr-pyrope garnet (in particular those with low CaO i.e. from subcalcic harzburgite or dunite peridotite assemblages); orange pyrope-almandine garnet with high CaO from eclogite xenoliths, including garnets that may contain significant trace amounts of Na<sub>2</sub>O and TiO<sub>2</sub> (i.e. diamond-inclusion eclogitic garnet); spinels with high chrome contents (>25 wt.% Cr<sub>2</sub>O<sub>3</sub>), specifically black magnesio-chromite with >62 wt.% Cr<sub>2</sub>O<sub>3</sub> and >12 wt.% MgO; emerald green Cr-diopside with high ( $\geq 1.0$  wt.%) Cr<sub>2</sub>O<sub>3</sub>; and forsteritic olivine ( $100 \times \text{Mg}/(\text{Mg}+\text{Fe}) > 84$ ). Colour photo of some of these indicator minerals are included in Averill and McClenaghan (1994) in Plates I and II.



### **Geochemical analysis of glacial sediment**

The 500 g subsamples of glacial sediment and fresh and weathered kimberlite samples were prepared by the GSC Sedimentology Lab and analyzed by Chemex Labs Ltd., Vancouver, B.C, X-Ray Assay Labs Ltd. (XRAL), Don Mills, Ontario and Activation Labs, Ancaster, Ontario. First, samples were oven dried at  $<40^{\circ}\text{C}$ . The  $<2.0$  mm fraction was then sieved into 4 sub-fractions to determine which size fractions show the strongest geochemical signature of the kimberlite: 1)  $<0.063$  mm (silt+clay), 2) 0.063 to 0.25 mm (very fine to fine sand), 3) 0.25 to 0.5 mm (medium sand) and 4) 0.5 to 2.0 mm (coarse to very coarse sand). These four fractions were analyzed using instrumental neutron activation analysis (INAA) and x-ray fluorescence spectrometry (XRF). Analytical methods and lower detection limits for all size fractions and methods are listed in Appendix D. XRF analysis was carried out by XRAL. INAA analysis of the  $<0.063$  mm fraction was completed by Activation Labs while the other three fractions were analyzed by XRAL. Chemex Labs completed aqua regia/ICP-ES analysis of the  $<0.063$  mm fraction. Analytical accuracy was monitored by analyzing GSC reference standards. Analytical precision was monitored by comparing duplicate analyses of selected samples and results are reported in Appendix D.1 to D.2. INAA data for Ag, Hg, Ir, Mo, Ni, Sr, Zn and W are not included in this report because the reported values were at or less than the lower detection limits. Acceptable INAA data are listed in Appendix D.4. ICP-ES data for Be, Bi, Cd, Ga, Hg, Mo, Tl, U and W are not included in this report because the reported values were at or less than the lower detection limits, while acceptable ICP-ES data are listed in Appendix D.6.

Four fresh kimberlite samples, three weathered kimberlite samples, one Paleozoic carbonate sample (from 6 km north of the Peddie kimberlite), and one Nipissing diabase sill sample (adjacent to the Peddie kimberlite) were prepared in an agate mill prior to whole rock analysis for major and trace elements. Analyses were performed by X-Ray Assay Laboratories (XRAL), Don Mills, Ontario. Analytical methods and detection limits are listed in Appendix E. Major oxides were determined by XRF fused disc analysis. Extended count times on these fused glass discs was utilized for the determination of the trace elements Rb, Sr, Y, Zr and Nb. Additional trace elements determined by instrumental neutron activation analysis included Hf, Ta, Th, U, Ni, Cr, Zn, Sc, Co, La, Ce, Nd, Sm, Eu, Tb, Yb, and Lu. The elements As, Se, Br, Mo, Ag, Sb, CS, Au, W, Ir, Hg were analyzed for, but were below detection limits. Split duplicates, as well as an internal GSC kimberlite standard are not reported for brevity. Results are reported in Appendix E.

### **Gold grains**

Gold grains were recovered from the sediment samples because of the proximity to the Kirkland Lake gold camp and the Cobalt silver camp. Gold grains in glacial sediment samples were examined by Overburden Drilling Management Ltd. as part of the sample processing procedure (Fig. 7). Gold grains recovered from the  $<1.0$  mm fraction during tabling and subsequent panning were counted, their size estimated and then returned to the sample in preparation for geochemical analysis. Gold grains were classified using the three morphologic categories of DiLabio (1990) that reflect increasing distance of glacial transport: pristine, modified and reshaped (Appendix F). Pristine grains retain primary shapes and surface textures and appear

not to have been damaged in glacial transport. Modified grains retain some primary surface textures but all edges and protrusions have been damaged during transport. Reshaped grains have undergone enough transport that all primary surface textures have been destroyed and the original grain shape is no longer discernible. The progression from pristine to reshaped grains is interpreted to represent increasing distance of glacial transport. Estimated gold assays for each sample were calculated by Overburden Drilling Management Ltd. based on the abundance and size of the gold grains recovered.

### **Pebble lithology**

The 5.6 mm to 6 cm (pebble) fraction was screened from the >2.0 mm (+10 mesh) fraction of till samples (Fig. 7). Approximately 300 clasts were examined and classified into categories that reflect the major rock types in the region: felsic to intermediate intrusive rocks; mafic intrusive rocks; diabase; metavolcanic rocks; metasedimentary rocks; Paleozoic carbonate rocks; kimberlite; vein quartz; and other or unknown rock types. Pebble lithology abundances are listed in Appendix G.

## **RESULTS**

### **Kimberlite indicator mineral chemistry and abundance**

The total number of indicator minerals <2.0 mm in each till and kimberlite sample is listed in Table 4. Note that these indicator mineral abundance numbers in Table 4 are normalized counts (to a 10 kg sample weight), based on information listed in Tables C.2 to C.4 (Appendix C). Table C.2 lists the total number of potential kimberlite indicator minerals counted in each sample. Note that only a portion of the picked indicator mineral grains were analyzed by electron microprobe to confirm and further classify their identity. Grains were selected at random for microprobe analysis. Table C.3 lists the number of grains that were probed, the number of grains successfully identified as kimberlite indicator minerals and the average percentage of grains successfully identified for each mineral type. The average percentage for each mineral was then multiplied by the total number of indicator minerals counted in each sample (Table C.2) to produce Table C.4. The values in Table C.4 were then normalized to a 10 kg sample weight to produce the values listed in Table 4. The microprobe results along with grain size and colour are reported in Appendix C. The most important mineral groups are discussed below.

### **Olivine**

Olivine has hitherto rarely been used as kimberlite indicator mineral since it occurs in abundance in basalts and other ultramafic rocks and is not unique to kimberlite. It is, however, the most abundant mineral in the upper mantle (main component of peridotite) and occurs as a macrocryst and phenocryst phase in kimberlite. It is often the most abundant mineral in heavy mineral concentrates from kimberlites and has been included in this study to test its usefulness in kimberlite exploration and evaluation. Chemistry, size and colour for individual olivine grains examined in this study are reported in Appendix C.1.

Olivine from kimberlite and peridotite is MgO-rich (close to the forsterite endmember of the olivine solid solution series) and is colourless to pale yellow or

Table 4. Kimberlite indicator mineral counts normalized to 10 kg weight of &lt;2.0 mm material

Sample	Material	Weight <2 mm (kg)	Pyrope			Cr-&HlCr-diopside			Olivine			Chromite			Mg-ilmenite			Location
			0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	
7830	till	6.85	9	0	0	3	0	0	11	13	1	24	0	0	69	1	0	Up-ice (background)
7831	till	9.55	2	0	0	2	0	0	1	5	0	38	0	0	20	4	1	
7832	till	10.35	9	1	0	2	0	0	1	0	0	10	0	0	13	3	0	
7810	fresh kimb.	11.10	685	108	47	269	25	9	>10,000	>10,000	>10,000	241	279	3	1131	1420	292	kimberlite
7814	weather'd kimb.	9.15	247	99	98	43	5	0	>10,000	>10,000	>10,000	238	123	0	302	104	51	
7801	till	4.95	20	4	2	15	2	0	12	36	16	24	4	0	95	16	1	till overlying kimberlite
7812	till	7.60	0	0	0	4	0	0	7	25	0	13	0	0	2	0	0	
7813	till	7.75	8	0	0	33	0	0	84	7	0	22	1	0	228	5	0	
7815	till	7.30	4	0	3	20	0	0	9	5	1	5	0	0	29	0	0	
7816	till	7.00	1	0	0	1	0	0	0	21	7	14	2	0	2	1	0	
7817	till	7.80	3	0	0	6	0	0	19	6	8	5	0	0	32	0	0	
7819	till	8.80	1	0	0	17	0	0	7	0	0	3	0	0	10	0	0	
7820	till	11.40	6	0	0	4	0	0	24	10	2	12	0	0	7	0	0	
7821	till	8.20	6	2	0	4	0	0	160	51	26	7	0	0	97	1	0	
7828	till	7.85	28	5	0	11	3	0	492	58	16	14	2	0	116	34	0	till 0 to 50 m down-ice
7829	till	4.85	19	0	2	13	0	0	216	98	67	16	5	0	113	56	1	
7811	till	8.20	7	1	0	8	2	0	66	16	0	8	1	0	13	0	0	
7823	till	8.05	10	0	0	6	0	0	369	49	25	12	0	0	59	12	0	till 2 to 7 km down-ice
7824	till	7.25	0	0	0	10	1	0	21	30	5	6	0	0	66	5	0	
7827	till	7.65	7	0	0	12	0	0	136	121	141	10	0	0	111	7	0	
7834	till	6.15	5	0	0	9	1	0	6	3	0	41	0	0	59	6	0	till 2 to 7 km down-ice
7835	till	7.25	3	0	0	1	0	0	6	0	0	3	0	0	6	2	0	
7836	till	6.80	16	9	0	7	0	0	6	3	0	3	0	0	44	8	0	
7837	till	9.15	3	1	0	0	1	0	3	2	0	1	0	0	3	0	0	
7838	till	9.25	2	0	0	1	0	0	4	6	0	0	0	0	2	0	0	

sample containing anomalous indicator mineral counts

pale green. Its chemistry is characterized by high Mg-number ( $\text{Mg}/(\text{Mg}+\text{Fe})$ ) between 84 and 95 and notable traces of NiO (Deer et al., 1982). These characteristics can be utilized to distinguish peridotitic and kimberlite-derived olivine from olivine from other rock types. Typical Mg-numbers for peridotitic olivines are between 88 and 95 with  $\text{NiO} \geq 0.25\%$ . Kimberlitic olivines have Mg-numbers that overlap with peridotitic olivines, partly due to the fact that it is difficult to distinguish between true kimberlite phenocrystic olivines and disaggregated mantle peridotitic olivines in kimberlite. However, small euhedral kimberlite phenocrystic olivine tends to have lower Mg-numbers than peridotitic olivine and  $\text{NiO} \leq 0.25\text{ wt.}\%$ . Olivine from carbonatites may have similar high Mg-numbers to that of peridotitic or kimberlitic olivine, but these can easily be distinguished by their different minor element chemistry (usually high MnO coupled with low NiO). In the study area of the Peddie kimberlite, the only potential source of olivine other than kimberlite is from the Paleoproterozoic Nipissing diabase sills. However, in these rocks olivine is rare, and has Mg-numbers of 60 to 69 (Lightfoot et al., 1993), and is therefore easily distinguishable from kimberlite or peridotite paragenesis olivine.

A selection of the picked olivine grains from kimberlite and till samples ( $N=1231$  grains) was analyzed by electron microprobe (Appendix C). These grains exhibit a very limited chemical variation: Mg-numbers vary from 85.4 to 94.7 and NiO from 0.00 to 0.50 wt.%. Figure 8a shows the variation of Mg-number with grain size in olivine from fresh kimberlite (sample 7810). The smallest size fraction (0.25 to 0.5 mm) has the largest variation in Mg-numbers from 85 to 94, with a frequency maximum close to 92. The larger size fractions contain olivine with a more restricted range of Mg-numbers from 90.7 to 94.5 (0.5 to 1.0 mm) and 91.7 to 93.5 (1.0 to 2.0 mm) respectively, and the maximum is shifted to slightly higher Mg-numbers.

The high Mg-numbers ( $>90$ ) are typical for mantle olivine derived from peridotite xenoliths. The lower Mg-numbers ( $<90$ ) in the smallest size fraction are at the lower end of the spectrum for mantle olivine and are more likely phenocrysts from the kimberlite (Mitchell, 1986), which is evident by their lower Ni levels (Fig. 9a). A similar range in Mg-numbers is seen both in weathered kimberlite (sample 7814) and in till (sample 7829; Fig. 9b). Comparison of olivine in samples 7810 (fresh kimberlite), 7814 (weather kimberlite), 7829 (anomalous till sample with high indicator mineral count), and 7830 (till sample up-ice) show essentially the same range of Mg-numbers with the notable exception that 7814 does not contain grains with Mg-numbers  $<88$  in its smallest size fraction as do MPB7810 and 7829. This absence may be due to weathering of the smallest size olivine phenocrysts in this sample. In summary, high Mg-numbers and high Ni levels suggest that the olivine is from disaggregated peridotite xenoliths, and from olivine precipitated from the kimberlite magma at high (50 kb) pressure. The olivine grains in the smallest (0.25 to 0.5 mm) size fraction with low Mg-numbers and  $\text{NiO} < 0.25\text{ wt.}\%$  and that exhibit a positive correlation between Mg-number and NiO are interpreted to be low pressure kimberlite phenocrysts.

Olivine size and abundance (normalized to 10 kg sample weight) in kimberlite and till samples are summarized in Table 4. Olivine is by far the most abundant indicator mineral in the Peddie kimberlite and comprises approximately 99% of

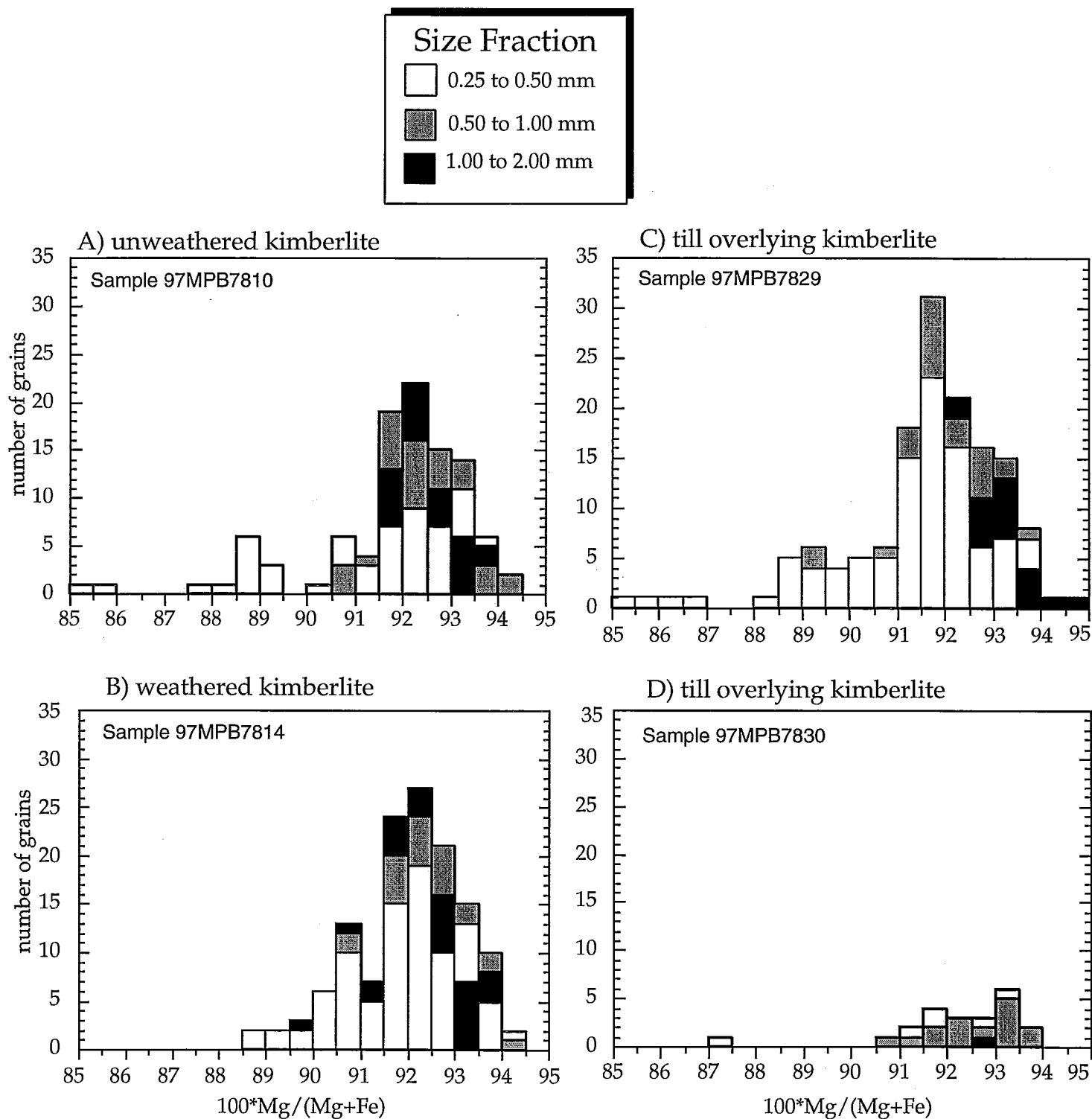
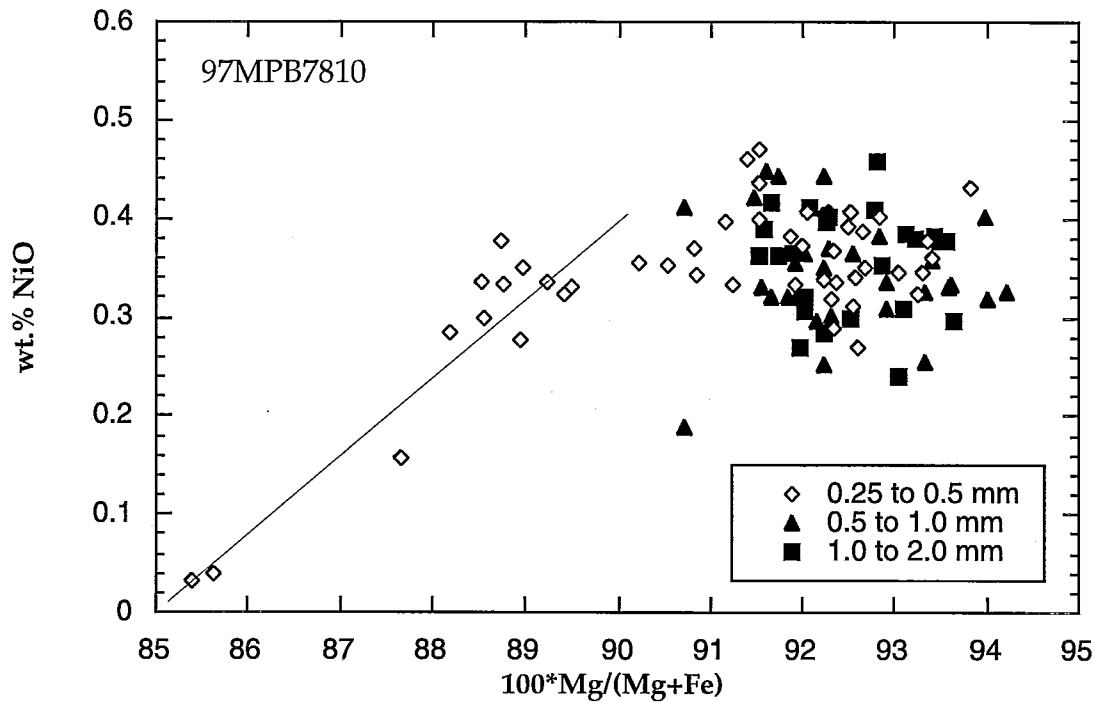


Figure 8. Comparison of mol% Forsterite ( $100 \cdot \text{Mg}/(\text{Mg} + \text{Fe})$ ) or Mg number in olivine from three size fractions of heavy minerals in kimberlite (A and B) and till (C and D) overlying kimberlite.

## A) Peddie kimberlite



## B) till overlying kimberlite

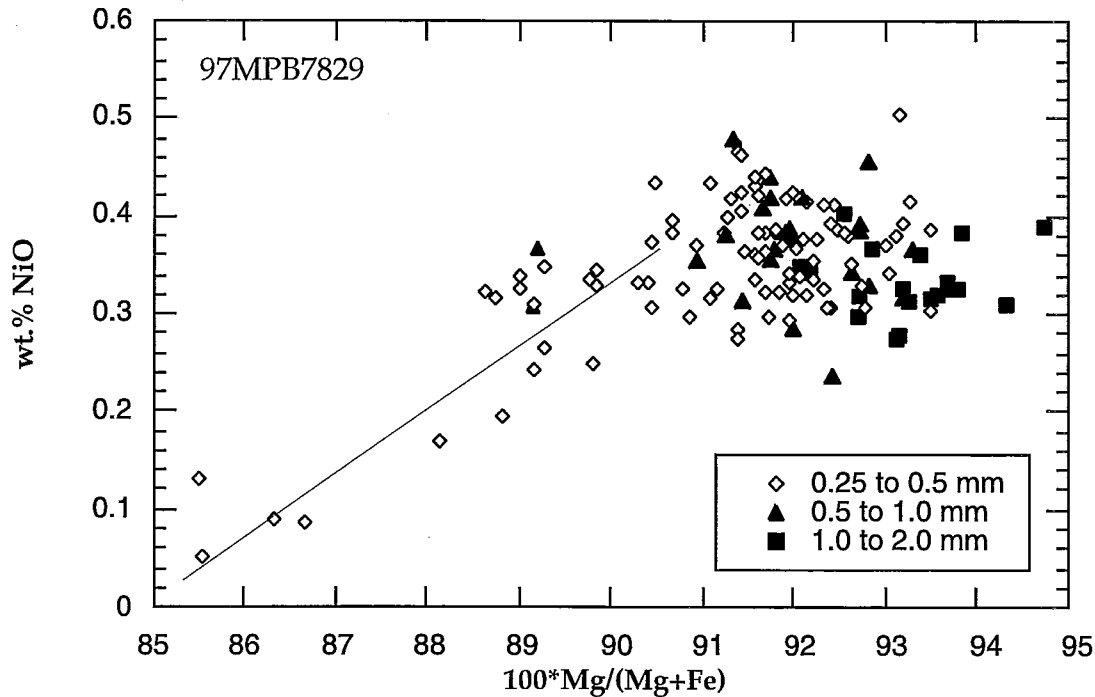


Figure 9. NiO versus mol% forsterite ( $100 \cdot \text{Mg}/(\text{Mg} + \text{Fe})$ ) in olivine from three size fractions of kimberlite (A) and overlying till (B). There is a strong correlation between nickel and Mg-number in olivine with the smallest size (0.25 to 0.5 mm), consistent with these olivine crystals being kimberlite-derived phenocrysts. There is no correlation between nickel and Mg-number at Mg-numbers >90 (dominantly the coarser grain size of olivine), suggesting a mixed population of peridotite-derived xenocrysts and high pressure phenocrysts. Olivine compositions in till immediately overlying the Peddie kimberlite (B) display the same distribution of values for nickel versus Mg-number.

the non-ferromagnetic heavy mineral concentrate of both weathered and unweathered kimberlite. Of the three size fractions examined, olivine is most abundant in the smallest (0.25 to 0.5 mm) fraction and least abundant in the coarsest (1.0 to 2.0 mm) fraction. Background concentration of olivine in till up-ice of the Peddie kimberlite (samples 7830 to 7831) varies between 1 and 11 grains in the 0.25 to 0.5 mm fraction. Overlying and immediately down-ice of the Peddie kimberlite, anomalous till samples contain between 12 and 492 olivine grains the 0.25 to 0.5 mm fraction. Till samples collected 2 to 7 km down-ice, however, contain only 3 to 6 olivine grains, suggested to be the background concentrations level.

### **Mg-ilmenite**

Ilmenites from kimberlite contain >4 wt.% MgO and are referred to as Mg-ilmenite, magnesian ilmenite or picroilmenite (Mitchell, 1973; Haggerty, 1975). Individual kimberlites in the Kirkland Lake-Timiskaming fields have compositionally distinct Mg-ilmenite populations (Schulze, 1996), therefore, comparison of ilmenite compositions from till samples to various kimberlites can provide information about glacial dispersal patterns.

Chemistry, size and colour for ilmenite from the Peddie kimberlite and till samples are reported in Appendix C.1. Mg-ilmenite in the Peddie kimberlite (Fig. 10a) is characterized by extremely high MgO (9 to 18 wt.%), similar to the nearby Gravel, Guige and Bucke kimberlites (Fig. 10b to d). As a group, these four kimberlites in the Timiskaming cluster all have ilmenite populations dominated by grains containing 10 to 15 wt.% MgO, unlike ilmenite from Kirkland Lake kimberlites 80 km to the north (Sage, 1996; Schulze et al., 1995; McClenaghan et al., 1996, 1998, 1999) which contain 4 to 13 wt.% MgO. Ilmenite in glacial sediments around the Peddie kimberlite (Fig. 11) have two distinct compositions: (1) Mg-ilmenite with >4 wt.% MgO that mimic the composition of ilmenites in the kimberlite and (2) ilmenite with <4 wt.% MgO and minor Cr<sub>2</sub>O<sub>3</sub>, interpreted to be derived from regional bedrock sources. The composition of Mg-ilmenite in till samples collected up-ice of the Peddie kimberlite (Fig. 11b), is most similar to those from the Gravel kimberlite (Fig. 10d) which is 4 km north of the Peddie kimberlite (Fig. 2) and is suggested to be the source of these grains. Mg-ilmenite in till samples overlying and just down-ice of the kimberlite (Fig. 11c) are quite similar in composition to Mg-ilmenite from the Peddie kimberlite, indicating that is their source. Mg-ilmenite populations from till samples 2 to 7 km down-ice (Fig. 11d) are most similar in composition to samples from the Gravel kimberlite.

Mg-ilmenite size and abundance (normalized to 10 kg sample weight) in kimberlite and till samples are summarized in Table 4. Mg-ilmenite is the second most abundant indicator mineral in the Peddie kimberlite. Of the three size fractions examined, it is most abundant in the smallest (0.25 to 0.5 mm) fraction and least abundant in the coarsest (1.0 to 2.0 mm) fraction. Background concentration in till up-ice (samples 7830 to 7831) is high, between 13 and 69 grains in the 0.25 to 0.5 mm fraction. Anomalous till samples overlying and immediately down-ice of the kimberlite contain between 95 and 228 Mg-ilmenite grains the 0.25 to 0.5 mm fraction. Till samples collected 2 to 7 km down-ice contain only background concentrations (<69 grains) of Mg-ilmenite in the 0.25 to 0.5 mm fraction.

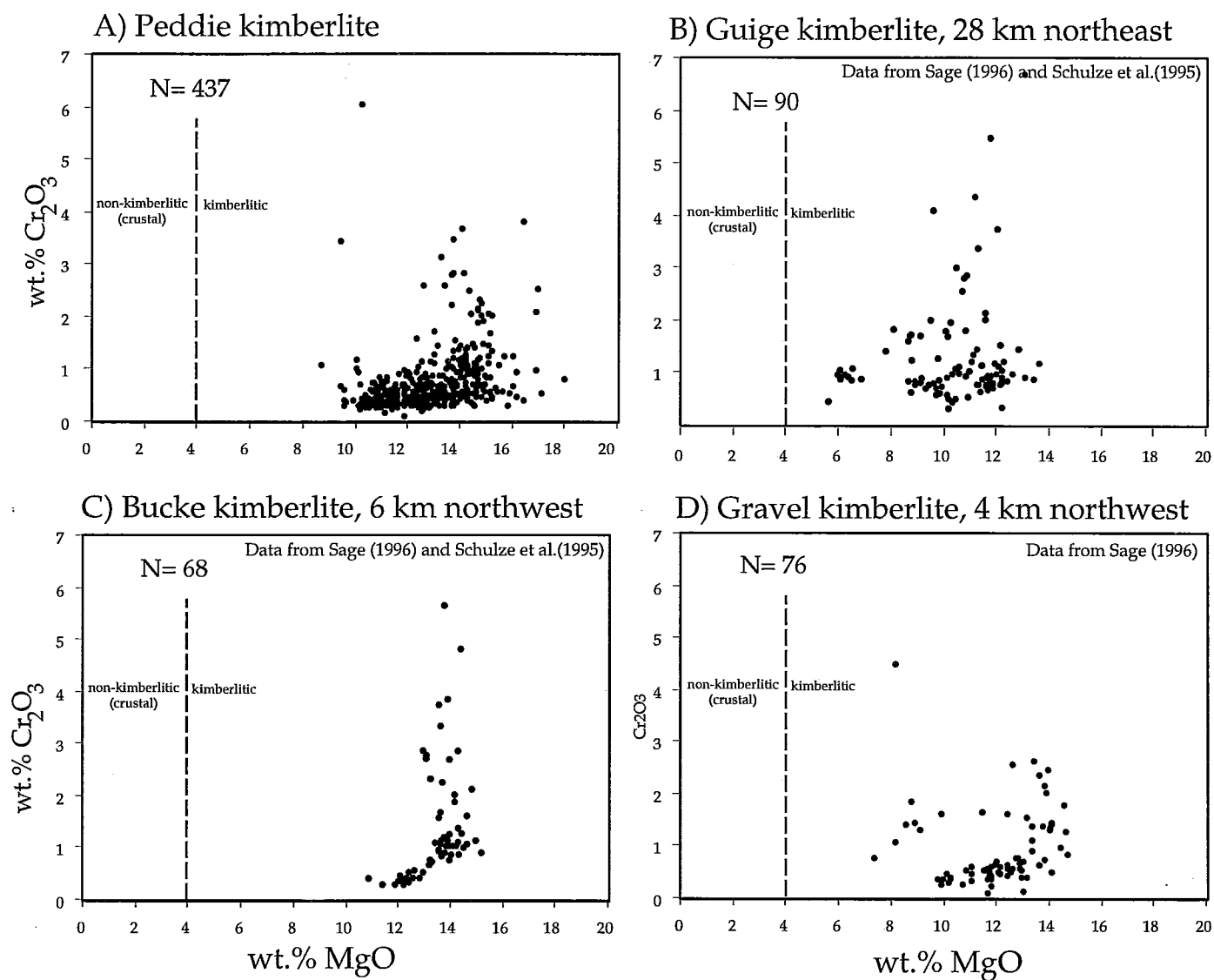


Figure 10. Comparison of  $\text{Cr}_2\text{O}_3$  versus MgO for ilmenites from the Peddie kimberlite and three other kimberlites in the New Liskeard area. Data for Guige, Gravel and Bucke kimberlites from Sage (1996) and Schulze et al. (grain core data only, 1995).



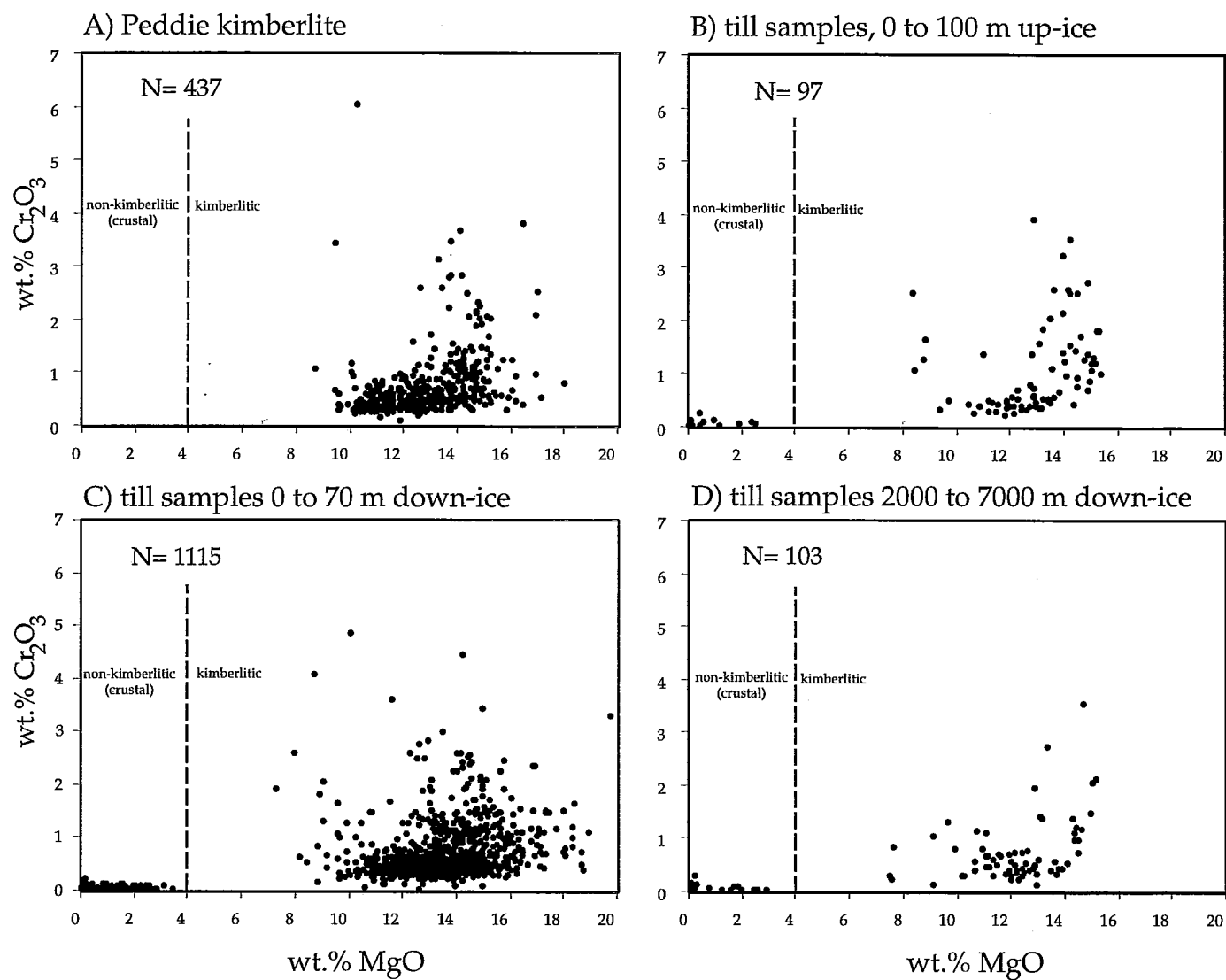


Figure 11.  $\text{Cr}_2\text{O}_3$  versus MgO for ilmenites from the Peddie kimberlite and till samples collected up-ice and varying distances down-ice.

### Pyrope garnet

Pyrope is chemically characterized by high MgO levels (>13 wt.% MgO) and varying amounts of Cr<sub>2</sub>O<sub>3</sub> (up to 15 wt.%). MgO- and Cr<sub>2</sub>O<sub>3</sub>- rich pyrope garnets are exceedingly rare in upper crustal rocks, being found in alpine peridotites and in mantle xenoliths carried to the surface by kimberlites or, more rarely, alkaline volcanic rocks with deep mantle sources (Deer et al., 1982). Mantle-derived garnets found as inclusions in kimberlite belong to three major petrogenetically and compositionally different groups: 1) Cr, Ti-pyrope ( $\leq 4$  wt.% Cr<sub>2</sub>O<sub>3</sub>), generally orange to deep red that belong to the Cr-poor megacryst suite which is thought to be genetically related to kimberlite; 2) pink to purple (rarely green) Ti-poor, Mg- and Cr-rich pyrope from peridotitic xenoliths; and 3) yellow to orange-red pyrope-almandine-grossular garnets from eclogitic xenoliths. Only garnets of the two latter groups have been found associated with diamonds; more specifically: purple subcalcic harzburgitic/dunitic Cr-pyropes and orange Na-bearing pyrope-almandines from group I eclogites (Sobolev, 1977; Sobolev et al., 1973, 1993; Gurney, 1984, 1989; Gurney and Zweistra, 1995; McCandless and Gurney 1989). These garnets are therefore a main target in diamond exploration. Only their chemical composition distinguishes them from other garnets with similar appearance.

Subcalcic harzburgitic/dunitic garnets can be differentiated from other peridotitic garnets on a bivariate plot of CaO versus Cr<sub>2</sub>O<sub>3</sub>, as shown in Figure 12. Figure 13 compares Cr<sub>2</sub>O<sub>3</sub> versus CaO content for pyrope from the Peddie kimberlite (A) and till samples (B, C, D) collected at varying distances up- and down-ice. The shaded central band in Figure 13 defines the composition of lherzolitic garnets according to Sobolev et al. (1973, 1993). The diagonal dashed line with the labels G9 and G10 on it is the '85% line' as defined by Gurney (1984). Although this line is commonly used to distinguish between lherzolitic (G9) and harzburgitic (G10) garnets it should be kept in mind that it originated from a study of diamond inclusion garnets of which 85% fell below this line (Gurney, 1984). The garnets below the 85% line are low-Ca, Cr-pyropes from harzburgitic or dunitic sources, which are also called "subcalcic" or G10 garnets after the classification by Dawson and Stephens (1975). The shaded area in the lower right part of the plot shows the target field for subcalcic garnets as defined by Sobolev (1971, 1977, 1993) and Sobolev et al. (1973; 1977, 1993) which is more restrictive than Gurney's 85% line (eliminating all garnets with Cr<sub>2</sub>O<sub>3</sub> <5 wt.%).

Most garnets from the Peddie kimberlite fall within the lherzolite field of Sobolev. Only two (out of 422) Cr-pyrope garnets from the Peddie kimberlite plot within Sobolev's subcalcic field (Fig. 13). This chemistry indicates that there is a low proportion of depleted harzburgite/dunite in the mantle xenolith suite sampled by the Peddie kimberlite. Therefore, on the basis of the high level, near-surface hypabyssal kimberlite samples examined in this study, it is therefore suggested that the kimberlite has low diamond potential with respect to peridotite sources. Only 17 pyrope garnets were found in till samples up-ice, too few to comment on. Pyrope garnet in till down-ice display similar compositions to those from the Peddie kimberlite. Mineral chemistry, size and colour for pyrope garnet grains from the Peddie kimberlite and glacial sediments are listed in Appendix C.3.

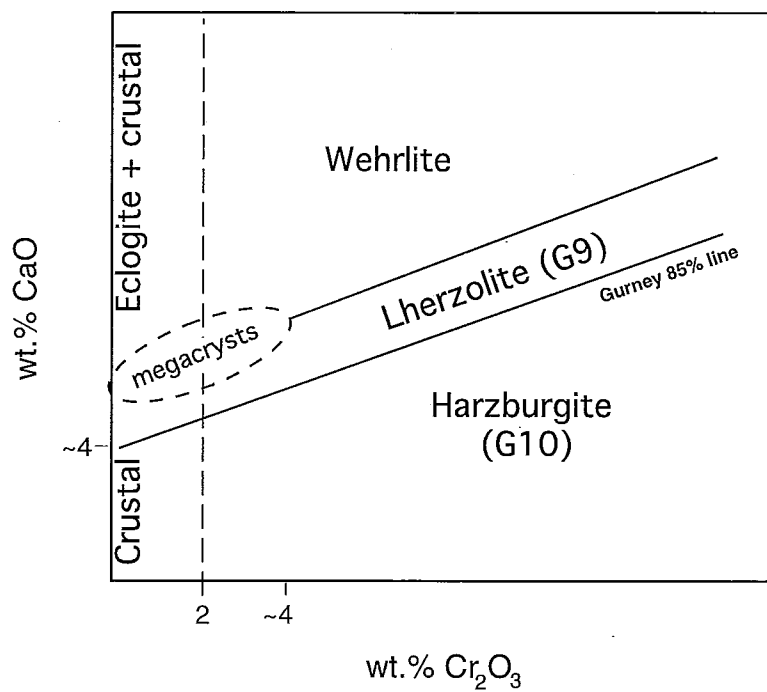


Figure 12. Schematic illustration of  $\text{CaO}$  and  $\text{Cr}_2\text{O}_3$  contents of garnets from various rock types likely to be sources of garnet xenocrysts in kimberlite (modified from Schulze, 1995; in press).

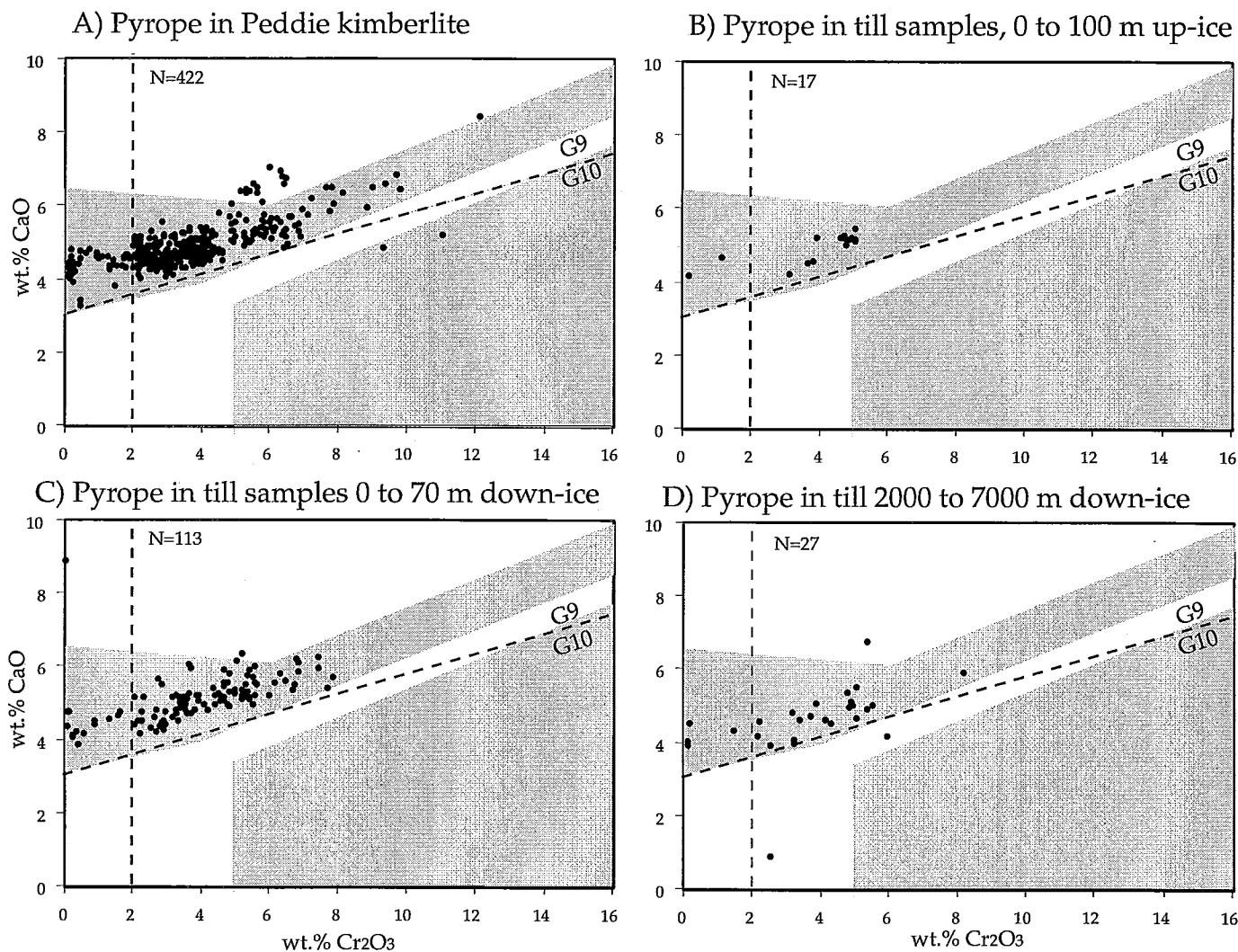


Figure 13. Cr<sub>2</sub>O<sub>3</sub> versus CaO content for pyrope from the Peddie kimberlite and till samples collected at varying distances up-ice and down-ice. Upper shaded area is the field for lherzolite garnets; lower shaded area is the composition of subcalcic garnets from the diamond stability field (Sobolev, 1997, 1993). Dashed diagonal line separates G9 and G10 garnets (Gurney, 1984). Dashed vertical line at 2 wt. %Cr<sub>2</sub>O<sub>3</sub> is from Fipke et al. (1995).

Pyrope size and abundance (normalized to 10 kg sample weight) in kimberlite and till samples are summarized in Table 4. Pyrope garnet is much less abundant than olivine and Mg-ilmenite. Of the three size fractions examined, pyrope concentration is highest in the smallest (0.25 to 0.5 mm) fraction and least abundant in the coarsest (1.0 to 2.0 mm) fraction. Background concentration in till up-ice (samples 7830 to 7831) is between 2 and 9 grains in the 0.25 to 0.5 mm fraction. Overlying and immediately down-ice, anomalous till samples contain between 10 to 28 pyrope grains the 0.25 to 0.5 mm fraction. Till samples collected 2 to 7 km down-ice contain between 2 to 16 pyrope grains. The elevated pyrope abundances in sample 7836 are likely from the Peddie kimberlite, however, the low olivine abundance in this sample suggests the pyrope may be from another kimberlite.

#### **Almandine-Spessartine-Grossular garnet**

The majority of orange to red garnets analyzed here are characterized by high FeO and/or MnO contents with additional CaO and MgO. These garnets belong to the almandine-spessartine-grossular solid-solution series and are found mainly in metapelites and metabasites (garnet-schists and amphibolites) (Deer et al., 1982) which are of local derivation from Archean lithologies. Although optically very similar to eclogitic garnets, they are of no interest in kimberlite exploration. Only four almandines were MgO-rich (> 5 wt.%) but none of these grains showed the typical low FeO ( $\leq 22$  wt.%) and high CaO of eclogitic garnets (Schulze, 1999), suggesting the Peddie kimberlite did not sample any mantle eclogite en route to the surface.

#### **Andradite and Cr-andradite garnet**

A few pale green to yellow-green andradites were recovered from till samples overlying and down-ice of the kimberlite. They were picked because of their similarity to Cr-diopside and olivine. On closer examination, they can be distinguished from Cr-diopside by their more frosted appearance, yellowish-greenish color and by their isotropic optical character. Cr-diopside, in contrast, is emerald green to pale green or colorless without yellowish tinge, usually transparent, has well developed cleavage and is optically anisotropic. A few melanite grains (black andradite garnet) were also picked because they appeared similar to the oxide phases chromite, ilmenite.

#### **Cr-Diopside**

Emerald green Cr-diopside is an important kimberlite indicator mineral, originating from mantle xenoliths (lherzolites, pyroxenites and eclogites) and intergrowths with ilmenite (Cr-poor megacryst suite). Generally, kimberlites contain diopsides with a wide range of Cr<sub>2</sub>O<sub>3</sub> content (up to 6 wt.%; Stephens and Dawson, 1977). Diopside from other ultrabasic rocks (see Table 52 of Deer et al. 1978) may contain up to approximately 1.5 wt.% Cr<sub>2</sub>O<sub>3</sub>. Discrimination between kimberlitic and other diopsides on the basis of Cr<sub>2</sub>O<sub>3</sub> content therefore may be difficult, but diopsides with  $\geq 1.5$  wt.% Cr<sub>2</sub>O<sub>3</sub> are most likely from kimberlites.

Diopside mineral chemistry, size and colour for individual grains is reported in Appendix C.4. A total of 274 diopsides from the Peddie kimberlite and till samples were divided into three groups based on their Cr<sub>2</sub>O<sub>3</sub> content: 1) diopside (< 0.50

wt.% Cr<sub>2</sub>O<sub>3</sub>: 40 grains), 2) Cr-diopside (0.5 to 1.5 wt.% Cr<sub>2</sub>O<sub>3</sub>: 193 grains); and 3) HiCr-diopside (1.5 wt.% to 4.73 wt.% Cr<sub>2</sub>O<sub>3</sub>: 41 grains). Comparison of diopside from the Peddie kimberlite and till samples (Fig. 14) shows a concentration of Cr-diopside from till with comparatively low Mg-numbers (84 to 87) and around 1 wt.% Cr<sub>2</sub>O<sub>3</sub> which is not found in the kimberlite samples. These Cr-diopside grains may, in part be derived from the local Nipissing diabase sills (Lightfoot et al., 1993), although other sources cannot be ruled out.

The chemical composition of the diopside from kimberlite shows a range in Mg-number (83.3 to 95.2) which is similar to the range previously noted for olivine. A comparison of Ca-content in relation to Mg-number (i.e. ternary Ca:Mg:Fe ratios), suggests these grains are mainly from peridotitic sources and not from megacryst suite diopsides, which are characterized by a lower Mg-number at a constant Ca-content.

Twelve diopside grains contain high concentrations of Na<sub>2</sub>O (3.19 to 7.19 wt.%) coupled with elevated Al<sub>2</sub>O<sub>3</sub> and in most cases, also high Cr<sub>2</sub>O<sub>3</sub> but with low FeO<sub>tot</sub>. These diopside grains are thus neither acmitic nor omphacitic (eclogitic) pyroxenes but are ureyitic clinopyroxene (Stephens and Dawson 1977) from kimberlitic and peridotitic parageneses.

Cr- and HiCr-diopside size and abundance (normalized to 10 kg sample weight) in kimberlite and till samples are summarized in Table 4. They are much less abundant than olivine and Mg-ilmenite. Of the three size fractions examined, their concentration is highest in the 0.25 to 0.5 mm fraction and least abundant in the 1.0 to 2.0 mm fraction. Background concentration in till up-ice (samples 7830 to 7831) is 2 to 3 grains in the 0.25 to 0.5 mm fraction. Overlying and immediately down-ice, the 0.25 to 0.5 mm fraction of till samples contains between 1 and 33 grains. Till samples collected 2 to 7 km down-ice contain between zero and 9 grains.

#### **Hematite , Leucoxene and Rutile**

A few hematite, leucoxene and rutile grains that were analyzed are accessories or alteration products of ilmenite or perovskite. Leucoxene is a mixture of Fe- and Ti-rich phases (rutile, titanite and hematite). In this study the name leucoxene is used for all non-stoichiometric mixtures of SiO<sub>2</sub>, FeO and TiO<sub>2</sub> with minor Al<sub>2</sub>O<sub>3</sub> and CaO.

#### **Chromite and Cr-spinel**

Chromite occurs in a variety of basic and ultrabasic rocks, including kimberlite. Similar to Cr-diopside, the Cr<sub>2</sub>O<sub>3</sub> contents of kimberlitic and non-kimberlitic chromite overlap. Very chromium and magnesium rich (>62.5 wt.% Cr<sub>2</sub>O<sub>3</sub>, 12 to 17 wt.% MgO, <1 wt.% TiO<sub>2</sub>) (magnesio-) chromites in kimberlite have been found as inclusions in diamonds (Fipke et al., 1989; Gurney and Moore, 1993).

Size, colour and mineral chemistry for individual chromite grains are reported in Appendix C.5. The analyzed chromite grains have a wide range of Cr<sub>2</sub>O<sub>3</sub> contents, ranging from Cr-spinels with <25 wt.% Cr<sub>2</sub>O<sub>3</sub> to chromites with up to 65 wt.% Cr<sub>2</sub>O<sub>3</sub>. The Cr<sub>2</sub>O<sub>3</sub> versus MgO bivariate plots for chromite grains from the Peddie

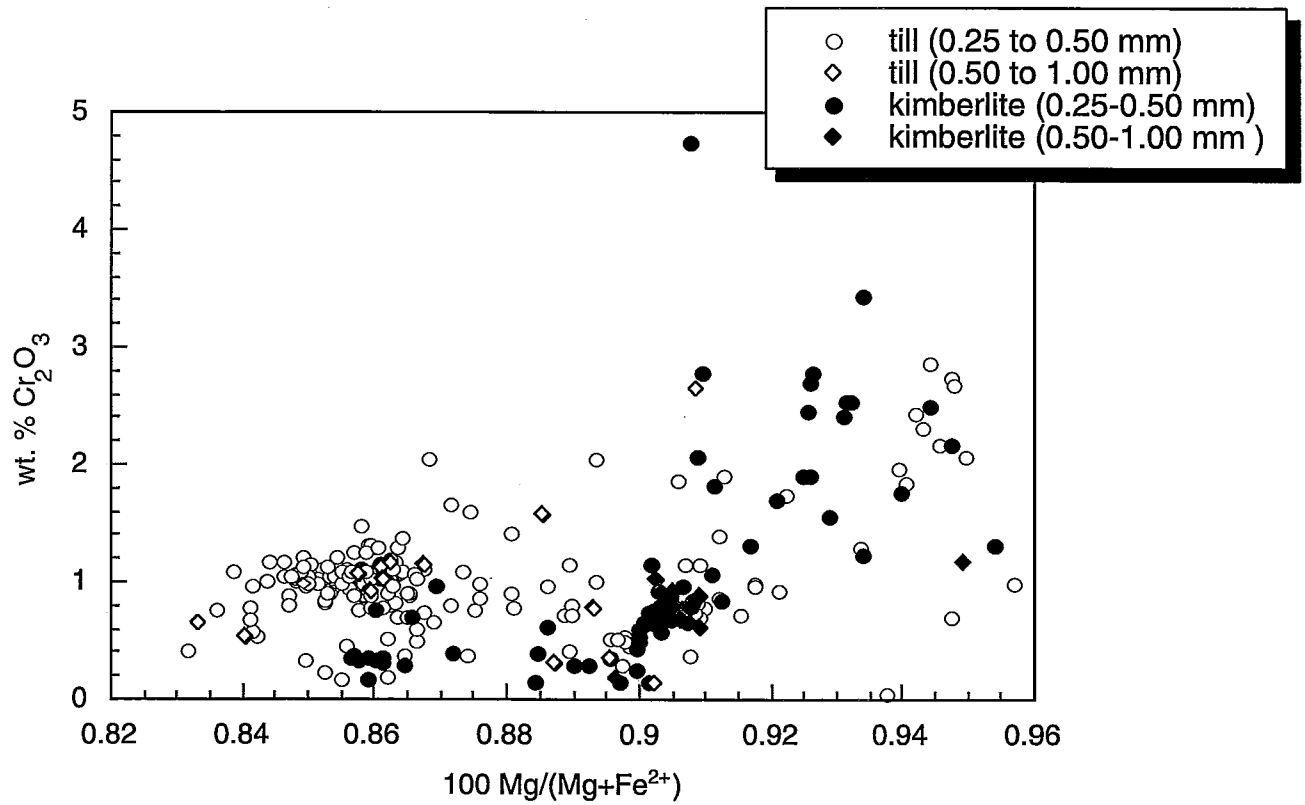


Figure 14.  $\text{Cr}_2\text{O}_3$  versus Mg-number for clinopyroxenes from the Peddie kimberlite and till samples.

kimberlite (Fig. 15a) show that no grains contain sufficient MgO and Cr<sub>2</sub>O<sub>3</sub> to plot in the diamond inclusion field defined by Fipke et al. (1989). Schulze (1996c), however, argues that chromite coexisting with diamond do not have to fall into this field due to possible subsequent open system re-equilibration in the upper mantle. Chromite in the glacial sediment samples immediately down-ice of the Peddie kimberlite (Fig. 15c) show a population of compositions similar to those of the kimberlite. However, three grains from the till samples contain sufficient MgO and Cr<sub>2</sub>O<sub>3</sub> to plot in the diamond inclusion field. Chromite in till up-ice (Fig. 15b) and 2 to 7 km down-ice (Fig. 15d) display similar ranges in composition, and which are different from chromite grains in the Peddie kimberlite and in till zero to 70 m down ice of the Peddie kimberlite. These grains are suggested to be derived from a different source, possibly another kimberlite up-ice.

In Figure 16, the chromite grains from the Peddie kimberlite and the glacial sediment samples are shown on bivariate plots of TiO<sub>2</sub> versus Cr<sub>2</sub>O<sub>3</sub>, and Al<sub>2</sub>O<sub>3</sub> versus Cr<sub>2</sub>O<sub>3</sub>, following the methods outlined by Sobolev (1977). Note that no chromite grains from any sample (kimberlite or sediment) fall into the chromite diamond inclusion field as defined by Sobolev (1977). These data, taken together with the information from Figure 15 (for chromite grains from high level, near-surface hypabyssal kimberlite samples examined in this study) suggest that the kimberlite has low diamond potential.

Chromite size and abundance (normalized to 10 kg sample weight) in kimberlite and till samples are summarized in Table 4. They are much less abundant than olivine and Mg-ilmenite. Of the three size fractions examined, chromite concentration is highest in the 0.25 to 0.5 mm fraction and least abundant in the 1.0 to 2.0 mm fraction. Background concentration in till up-ice (samples 7830 to 7831) is high, between 10 and 38 grains in the 0.25 to 0.5 mm fraction. Overlying and immediately down-ice, the 0.25 to 0.5 mm fraction of till samples contains only background concentrations, between 3 and 24 grains. Till samples collected 2 to 7 km down-ice contain between 0 and 41 grains.

### Other minerals

Some garnet grains exhibited kelyphitic rims or overgrowths which were analyzed, in some cases, because no fresh garnet was exposed on the grain surface. Kelyphite is a mixture of ortho- and clinopyroxene, phlogopite, Al-rich spinel and serpentine; some kelyphite rims were almost pure phlogopite. Other minerals analyzed in this study were picked because they resembled kimberlite indicator minerals. Black amphibole, tourmaline and titanite were picked because they look similar to Mg-ilmenite or chromite. Epidote and clinozoisite were picked because they look similar to olivine.

### Kimberlite geochemistry

Whole rock major and trace element chemistry for seven Peddie kimberlite samples are listed in Appendix F. Four samples are of fresh kimberlite (three in situ, one large boulder in till) and three samples are of variably weathered kimberlite (two in situ, one boulder from till). In general, the kimberlite samples have a characteristic geochemical signature, being rich in elements of ultramafic



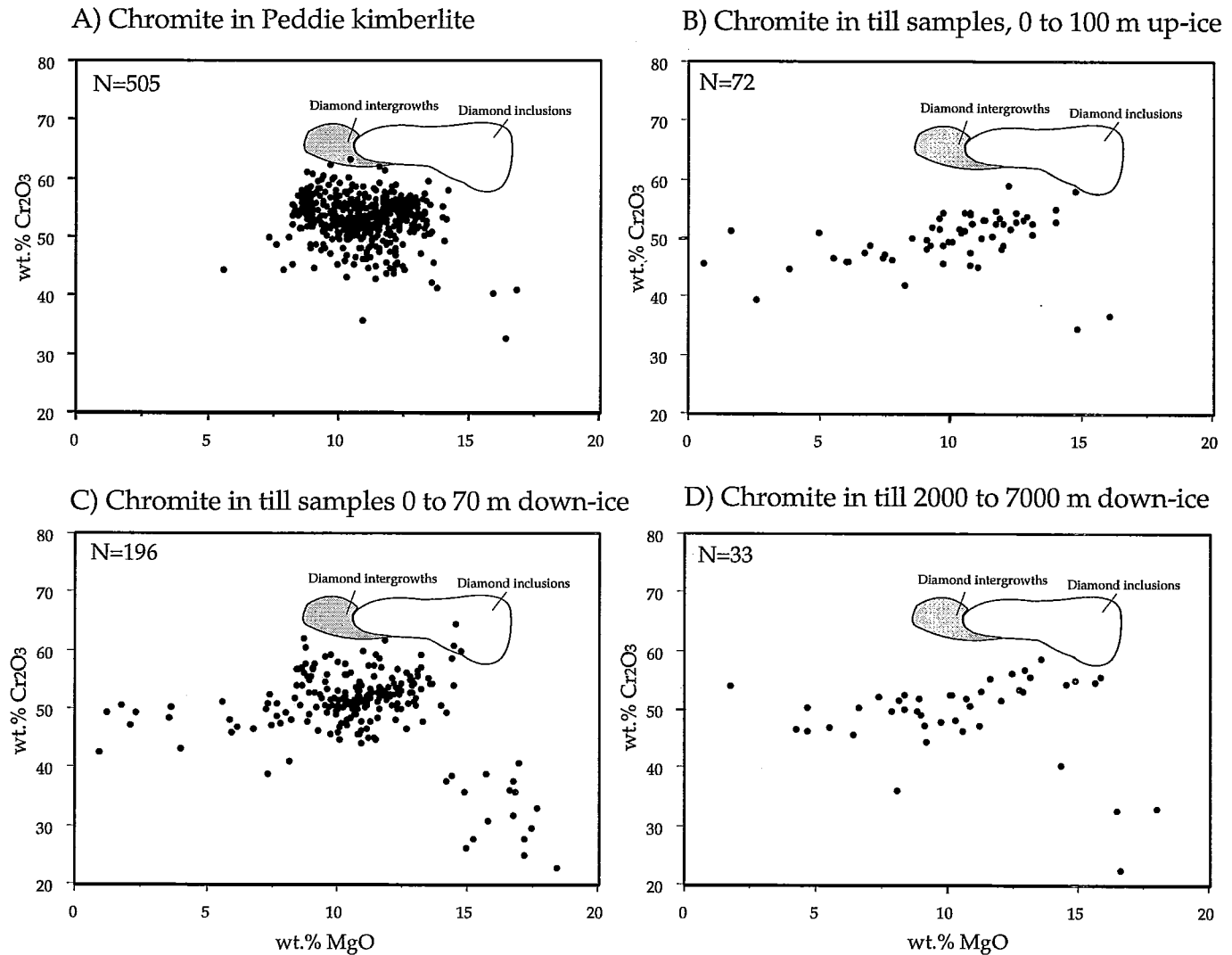


Figure 15.  $\text{Cr}_2\text{O}_3$  versus  $\text{MgO}$  content for chromite grains from the Peddie kimberlite and till samples up-ice and varying distances down-ice. Diamond inclusion and intergrowth fields are from Fipke et al. (1995).

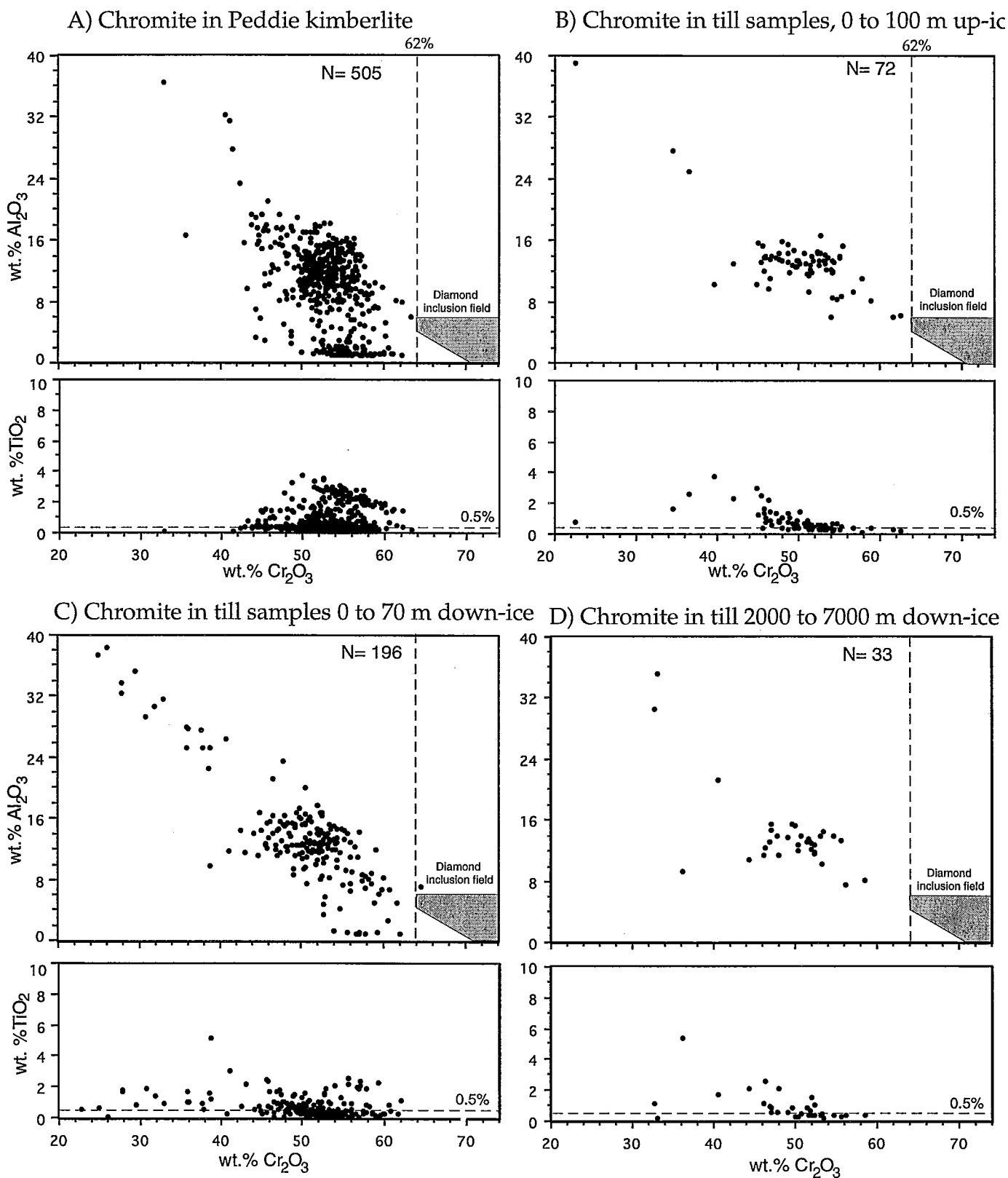


Figure 16.  $\text{TiO}_2$ , and  $\text{Al}_2\text{O}_3$  versus  $\text{Cr}_2\text{O}_3$  content for chromite from the Peddie kimberlite and till samples up-ice and varying distances down-ice. Diamond inclusion field and dashed lines are from Sobolev (1977).

affinity (e.g. Mg, Ni, Cr, Co) as well as having a high 'incompatible' element signature (e.g. Sr, Ba, La, Ce, Sm, Nd, Nb, Ta, P). Note that six of the seven Peddie kimberlite samples (NB of these six samples, four were considered 'fresh' and two 'slightly weathered') are extremely similar in terms of their geochemistry. However, the highly weathered kimberlite containing tree roots (sample MPB97-18A) has quite an anomalous geochemical signature (Fig. 17a,b). This sample has much lower incompatible and compatible element concentrations, coupled with higher  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{K}_2\text{O}$ , and  $\text{Na}_2\text{O}$  abundances as compared to the fresh Peddie kimberlite samples. Of interest is the selective mobilization of a number of elements (e.g. LREE, MREE, Sr, Ba, Th, U, Nb, Ta, Zr, Hf), but not others (e.g. Cr).

For the fresh Peddie kimberlite samples, when compared to archetypal (Gp I) kimberlites from various global localities, the Peddie samples plot slightly above the global 'world average' and below the world 'high values' (Fig. 17a,b). In other words, the geochemistry of the fresh Peddie samples is quite typical of other kimberlites worldwide, and the range of individual element concentrations are towards the high end of the scale which is suggested to be rather typical for fresh, hypabyssal kimberlite that is not highly contaminated by crustal material.

#### **Comparison of kimberlite and local bedrock geochemistry**

The average concentration (from five fresh samples) values of oxides and elements for the Peddie kimberlite is compared with average concentration values for a variety of local bedrock types in Figure 19. The local bedrock geochemistry data sources for the Gowganda Fm are from Young and Nesbitt (1999), the Nippising diabase data is from Lightfoot et al. (1993) and Paleozoic Ferrar limestone data is Sage, (1996), complimented by additional data for diabase and limestone from this study (Appendix F). Figure 18 illustrates that the concentration levels for some elements/oxides are significantly higher in the kimberlite as compared to the local bedrock types. This comparative geochemistry indicates that Ni, Cr, LREE, Nb, Ta and  $\text{P}_2\text{O}_5$  have concentration levels an order of magnitude higher in the kimberlite as compared to other local bedrock sources. This in turn suggests that these elements, in particular could be especially effective for kimberlite till geochemistry exploration applications in the New Liskeard - Cobalt area.

#### **Till geochemistry**

Major and trace element data determined by INAA and XRF for the <0.063mm, 0.063 to 0.25 mm, 0.25 to 0.5 mm, and 0.5 to 2.0 mm fractions of till are listed in Appendices D.2 and D.4. There is clearly an anomalous geochemical response in the till overlying the Peddie kimberlite, as compared to samples taken up ice (background) and distally (6 km) down ice. However, the silt + clay fraction (<0.063 mm fraction), which is typically the fraction selected for till geochemical studies in Canada, does not show the best response. Rather, the sand-sized fraction (0.5 to 2.0 mm) has the highest concentration of Ni,  $\text{P}_2\text{O}_5$ , MgO, Cr, La, Nb, and Ba. These patterns are illustrated in Figure 19, which compares concentrations in three till samples, one overlying the kimberlite (7829), one up-ice (7832) and one 6 km down-ice (7836). The high Ni and MgO content in the coarsest size fraction of till overlying the kimberlite is thought to be due to the high concentration of sand-sized olivine, while elevated Nb may be due to high concentrations of Mg-ilmenite grains. The high levels of La and  $\text{P}_2\text{O}_5$  are suggested to be due to apatite; large

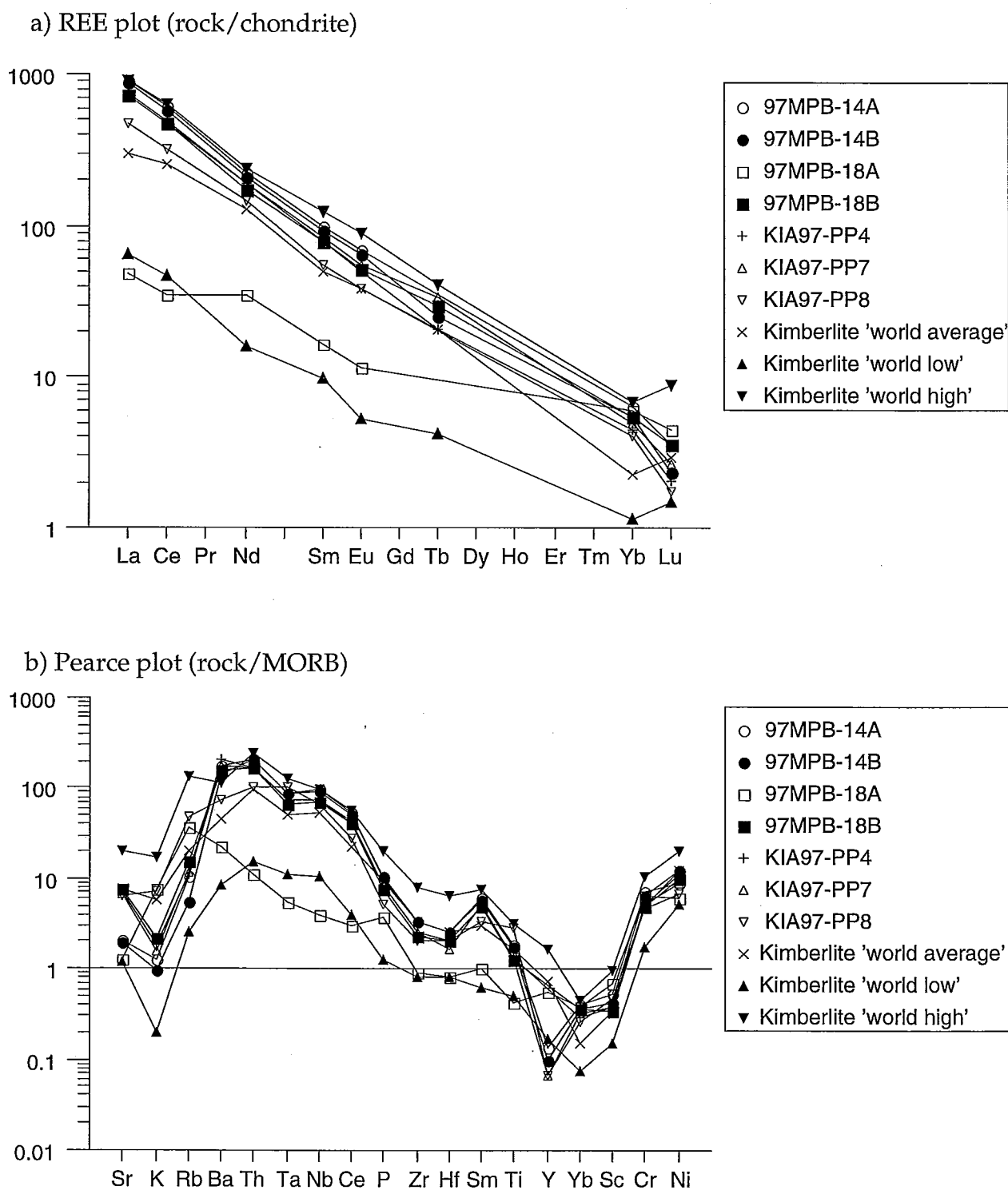


Figure 17a) Chondrite normalized REE plot for seven Peddie kimberlite samples. Chondrite normalization values from Nakamura (1974); b) Pearce plot (samples normalized to MORB) for seven Peddie kimberlite samples. For comparison, world average plus high and low values for archetypal (Gp I) kimberlite are also shown.

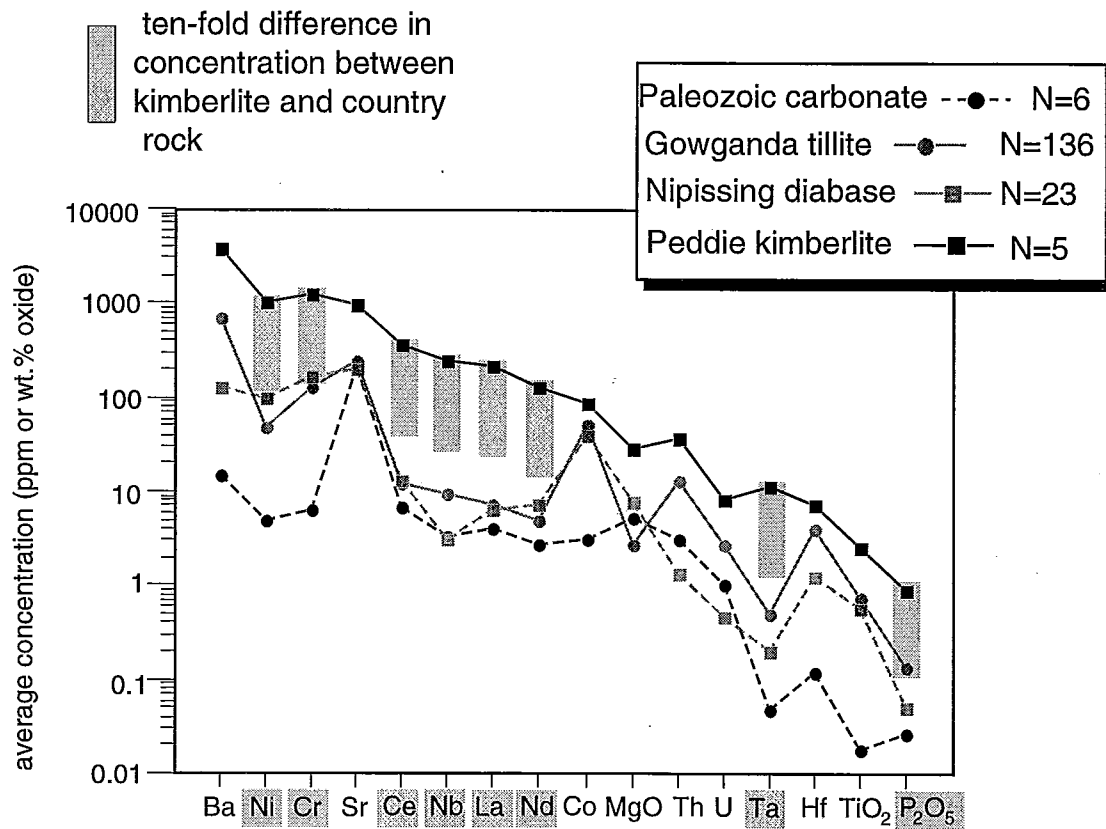


Figure 18. Till geochemistry pathfinder elements (highlighted by grey box) identified by comparing the average element/major oxide concentration in various country rock types and the Peddie kimberlite.

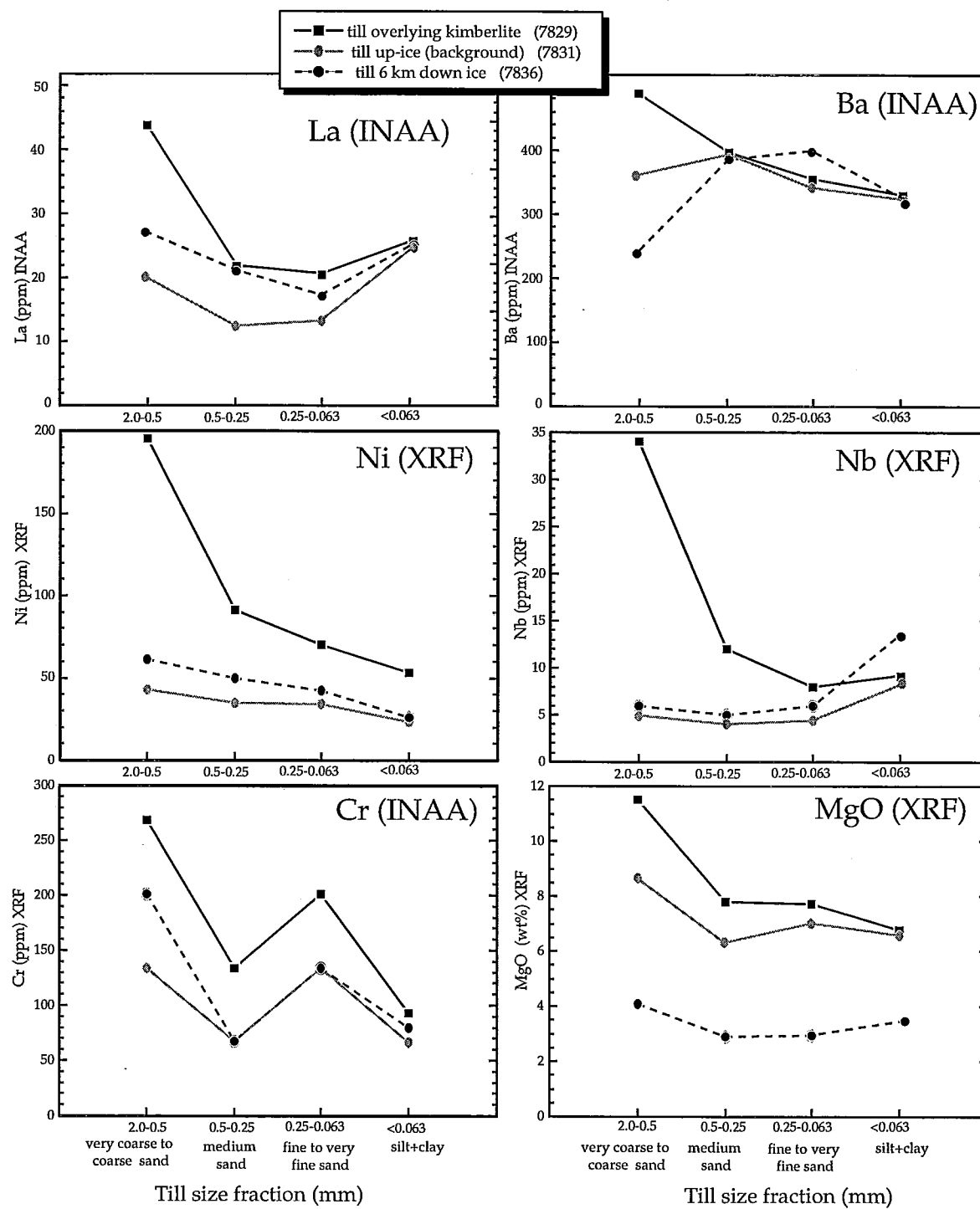


Figure 19. Comparison of element concentration in four size fractions of till samples collected up-ice, overlying and down-ice of the Peddie kimberlite.

crystals ( $>0.5$  mm) were observed during petrographic studies. High Ba is suggested to be due to kinoshitalite solid solution in phlogopite mica.

Till samples 7811 to 7813 on the west edge of the kimberlite are extremely oxidized and weathered (B horizon soil), as indicated by their strong orangey-brown colour and lack of carbonate pebbles. This high degree of weathering is reflected in the geochemistry, which shows they contain much less Ca and Mg and more Fe, Al as compared to the other till samples.

### **Gold grains and geochemistry**

The number, size and shape of visible gold grains recovered from till samples are reported in Appendix F. Because of the variable weight of the samples (5 to 11 kg), gold grain counts were normalized to 10 kg of  $<2.0$  mm (-10 mesh) material. Normalized values are reported in Appendix G and only these values are discussed below. Till samples contain between 2 and 29 visible gold grains, although most samples contain  $<10$  gold grains. Over 95% of the gold grains recovered are reshaped (well travelled) grains that are  $<100$   $\mu\text{m}$  in size. The five till samples (7834 to 7838) collected 2 to 6 km down-ice contain the most visible gold grains, between 12 and 29 grains.

### **Pebble lithology**

The number percent of pebbles (5.6 mm to 6 cm) in nine lithologic categories are listed in Appendix G. The pebble fraction is composed primarily of three rock types, Paleozoic limestone, metasedimentary and metavolcanic rocks. This is consistent with regional till clast lithology data reported by Veillette for this area (Veillette, 1996). Paleozoic carbonate is most abundant, varying between 30 to 75% of the pebbles fraction. The exceptions are till samples 7811, 7812 and 7813 in Pit 2, which contain  $<12\%$  limestone. This is not unexpected as the till in this pit was more oxidized and any carbonate fragments may have been destroyed during surface weathering of the till. A few kimberlite pebbles were found in till samples 7801 and 7821 overlying the kimberlite and sample 7827 just south of the kimberlite.

## **DISCUSSION**

Based on the examination of the chemistry of indicator minerals from concentrate from near-surface kimberlite samples, the diamond grade of the Peddie pipe is suggested to be low. There is a complete absence of eclogitic garnet, and compositions of chromite and Cr-pyrope indicate that the dominant type of peridotitic mantle sample by the Peddie kimberlite was lherzolite.

The Peddie kimberlite is an exceptionally fresh, hypabyssal monticellite phlogopite kimberlite in which the majority of olivine crystals, ranging in size from a  $<1$  mm to  $>10$  mm are pristine, showing little secondary alteration. Till down-ice from the Peddie kimberlite thus has a resultant high olivine content.

Till samples up-ice and samples 2 to 7 km down-ice have similar indicator mineral chemistry, that is different from the Peddie kimberlite (which is an indicator poor kimberlite), and are similar to the Gravel pipe (which is an indicator mineral rich kimberlite). The Peddie kimberlite has Mg-ilmenite from the megacryst suite, with garnet, clinopyroxene, olivine, spinel from disaggregated peridotite. The Gravel

pipe has Mg-ilmenite, Cr-Ti-pyrope, Cr-diopside from the megacryst suite, plus minerals from disaggregated peridotite.

## CONCLUSIONS

- Relative abundance of kimberlite indicator minerals in the Peddie kimberlite is: olivine >> Mg-ilmenite >> pyrope > Cr-spinel > Cr-diopside. This relative abundance is different from other kimberlites in the Lake Timiskaming field and can be used to distinguish the Peddie dispersal train from the relatively Cr-Ti-pyrope and Cr-diopside-rich dispersal trains from the Bucke and Gravel kimberlites.
- Olivine abundance in kimberlite is a reflection of its dominance as the most abundant mineral in mantle peridotites (occurring as xenoliths in kimberlite) and as the most important phenocryst phase in kimberlite. The high abundance of olivine in the Peddie pipe is due to it being a hypabyssal kimberlite with fresh (i.e. non-serpentinized) olivine.
- Olivine in the Peddie kimberlite has survived both in-situ weathering of the kimberlite and subsequent glacial transport. Unlike tropical and arid terrains of South Africa and Australia, olivine is an excellent kimberlite indicator mineral in glaciated terrain.
- Mg-ilmenite in the Peddie kimberlite is characterized by extremely high MgO (most between 9 and 18 wt.%) similar to other kimberlites nearby (Gravel, Bucke) but unlike the Kirkland Lake kimberlites 80 km to the north.
- The Lake Timiskaming kimberlites, including the Peddie kimberlite, have ilmenites with distinct  $\text{Cr}_2\text{O}_3$  versus MgO signatures which can be used to distinguish between Mg-ilmenite grains in till derived from the Peddie kimberlite and other kimberlites in the area.
- The diamond potential of the Peddie kimberlite is low: only two out of 514 Cr-pyropes are subcalcic garnets related to harzburgitic/dunitic assemblages, and no eclogitic garnet were found.
- Till contains a distinctive "kimberlitic" geochemical signature defined by Ni, Ba, Nb, MgO, and  $\text{P}_2\text{O}_5$  which is most apparent in the coarse to very coarse sand (0.5 to 2.0 mm) size fraction.

## FUTURE WORK

Additional till sampling as well as biogeochemical and soil geochemical studies will be carried out around the Peddie kimberlite in 1999. Ilmenite from kimberlite boulders collected in gravel pits in the Munro and Misema River eskers near Kirkland Lake and from the Sharp Lake esker near the Peddie kimberlite are being analyzed to document kimberlite dispersal in eskers and to determine the boulders' sources.



## ACKNOWLEDGMENTS

The study was funded by the Geological Survey of Canada, under the Minerals Program of the Canada-Ontario Northern Ontario Development Agreement 1991-1995(NODA). Mr. L. Peddie is thanked for allowing access to his property and for providing backhoe excavation services. The authors thank Bram Janse for his initial encouragement of this research and Ron Sage (OGS) for sharing geological information. Excellent service was provided by Overburden Drilling Management Ltd., I.&M. Morrison Geological Services, Chemex Labs Ltd., X-Ray Assay Laboratories Ltd., and Activation Labs Ltd. Comments by L.H. Thorleifson improved the manuscript.

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## **Appendix A. Sample descriptions**



Appendix A. Sample locations and descriptions

Sample	Material	Weight (kg)	Site location	Depth (m)	Colour	Texture	Clast content	Visible oxidation
97MPB7801	till	9.25	pit 9	3.0	light olive brown	silty sand	25%	high
97MPB7810	fresh kimberlite	11.10	pit 4	3.5	dark blue-grey			
97MPB7811	till	9.70	pit 2	1.7	light brown	silty sand	10%	high
97MPB7812	till	9.45	pit 2	1.2	light brown	silty sand	10 to 15%	high
97MPB7813	till	9.30	pit 2	1.8	light brown	silty sand	10 to 15%	high
97MPB7814	weathered kimb.	13.00	pit 2	2.1	dark blue-grey			
97MPB7815	till	11.15	pit 3	1.0	light brown	silty sand	25%	high
97MPB7816	till	10.65	pit 3	2.0	light brown	silty sand	25%	high
97MPB7817	till	11.50	pit 3	3.0	orangey-brown	silty sand	25%	high
97MPB7818A	weathered kimb.		pit 3	3.5	dark blue-grey			
97MPB7818B	weathered kimb.		pit 3	3.5	dark blue-grey			
97MPB7819	till	12.65	pit 4	1.0	light brown	silty sand	25%	high
97MPB7820	till	16.05	pit 4	2.0	olive grey	sandy silt	25%	none
97MPB7821	till	12.25	pit 4	3.0	olive grey	sandy silt	25%	none
97MPB7822	gritty silt	10.20	pit 5	1.8	light brown	silt	5 to 10%	high
97MPB7823	till	11.55	pit 5	2.4	olive grey	sandy silt	20%	none
97MPB7824	till	13.30	pit 6	1.2	orangey-brown	silty sand	25%	high
97MPB7825	sand	9.60	pit 7	0.7	grey	fine to medium sand	2%	none
97MPB7826	sand&pebble gravel	13.05	pit 7	1.0	grey	fine to coarse sand	50%	none
97MPB7827	till	11.45	pit 7	2.4	olive grey	sandy silt	25%	none
97MPB7828	till	11.95	pit 8	2.0	orangey-brown	silty sand	25%	high
97MPB7829	till	8.80	pit 8	2.8	olive grey	sandy silt	25%	none
97MPB7830	till	14.15	pit 10	1.0	light brown	silty sand	30%	moderate
97MPB7831	till	14.00	pit 10	2.0	light brown	silty sand	30%	moderate
97MPB7832	till	17.25	pit 11	1.1	light brown	silty sand	30%	moderate
97MPB7833	limestone		roadcut*		beige			
97MPB7834	till	10.95	regional	0.6	light brown	silty sand	30%	moderate
97MPB7835	till	10.00	regional	2.0	light brown	silty sand	30%	moderate
97MPB7836	till	10.90	regional	0.9	orangey-brown	silty sand	15 to 20%	high
97MPB7837	till	9.90	regional	2.0	light brown	silty sand	10%	moderate
97MPB7838	till	10.95	regional	2.0	brown	silty sand	15%	none

\* UTM coordinates for roadcut

## **Appendix B. Sample and heavy mineral fraction weight data**

APPENDIX B: Weight of size fractions produced during sample processing and preparation of heavy mineral concentrates for indicator mineral picking

SAMPLE NUMBER	LITHOLOGY	BULK SAMPLE, WEIGHT (kg)				TABLE CONCENTRATE <2.0 mm WEIGHT (g)							
		TOTAL WEIGHT	>2 mm CLASTS	1 to 2 mm CLASTS	<2 mm (TABLE FEED)	TOTAL	M.I. LIGHTS	TOTAL MAG	TOTAL NON-MAG	TOTAL NON-MAG			
										<0.25 mm	0.25 to 0.5 mm	0.5 to 1.0 mm	1.0 to 2.0 mm
97MPB7801	till	9.25	3.80	0.50	4.95	884.0	862.7	3.3	18.0	4.8	3.0	3.5	6.7
97MPB7810	fresh kimberlite	11.10	0.00	0.00	11.10	1538.1	467.8	160.4	909.9	199.7	147.4	264.8	298.0
97MPB7811	till	9.70	1.15	0.35	8.20	933.3	905.8	5.2	22.3	3.0	12.8	4.7	1.8
97MPB7812	till	9.45	1.45	0.40	7.60	944.1	913.4	5.6	25.1	17.5	4.5	2.4	0.7
97MPB7813	till	9.30	1.20	0.35	7.75	896.0	861.6	5.3	29.1	21.4	4.4	2.3	1.0
97MPB7814	weather'd kimberlite	13.00	1.70	2.15	9.15	2452.1	984.7	121.2	1346.2	205.4	241.6	193.7	705.5
97MPB7815	till	11.15	3.05	0.80	7.30	1244.4	1223.1	4.1	17.2	11.7	2.7	1.5	1.3
97MPB7816	till	10.65	2.85	0.80	7.00	1147.4	1113.7	6.4	27.3	19.8	4.1	2.2	1.2
97MPB7817	till	11.50	2.80	0.90	7.80	1387.5	1349.7	8.0	29.8	20.0	5.8	2.6	1.4
97MPB7819	till	12.65	3.05	0.80	8.80	1389.8	1358.7	5.4	25.7	17.5	5.1	2.1	1.0
97MPB7820	till	16.05	3.80	0.85	11.40	1222.3	1196.3	4.9	21.1	15.0	3.7	1.6	0.8
97MPB7821	till	12.25	3.35	0.70	8.20	1087.9	1060.7	4.8	22.4	15.0	3.7	2.3	1.4
97MPB7822	gritty silt	10.20	1.25	0.50	8.45	743.4	724.9	3.9	14.6	9.7	2.5	1.7	0.7
97MPB7823	till	11.55	2.85	0.65	8.05	1153.8	1128.7	3.7	21.4	13.7	4.1	2.5	1.1
97MPB7824	till	13.30	5.15	0.90	7.25	1187.7	1161.4	5.7	21.4	15.3	3.7	2.0	0.4
97MPB7825	sand	9.60	0.95	1.05	7.60	1571.6	1486.4	8.9	76.3	63.0	7.7	4.9	0.7
97MPB7826	pebbly sand	13.05	6.60	1.15	5.30	1584.0	1554.3	5.6	24.1	13.1	6.3	3.9	0.8
97MPB7827	till	11.45	3.00	0.80	7.65	1262.2	1217.8	6.2	38.2	26.3	5.2	3.6	3.1
97MPB7828	till	11.95	3.10	1.00	7.85	1288.1	1238.8	7.9	41.4	22.9	8.4	5.8	4.3
97MPB7829	till	8.80	3.35	0.60	4.85	1000.4	947.5	5.8	47.1	11.4	9.4	13.3	13.0
97MPB7830	till	14.15	6.40	0.90	6.85	1206.0	1708.8	5.9	14.9	9.2	3.4	1.7	0.6
97MPB7831	till	14.00	3.65	0.80	9.55	1483.6	1470.0	3.3	10.3	6.1	2.4	1.2	0.6
97MPB7832	till	17.25	5.75	1.15	10.35	1561.1	1528.1	8.3	24.7	17.4	4.5	2.0	0.8
97MPB7834	till	10.95	4.00	0.80	6.15	1305.0	1275.3	5.5	24.2	16.6	4.1	2.0	1.5
97MPB7835	till	10.00	2.15	0.60	7.25	1227.6	1196.0	5.5	26.1	19.5	4.2	2.0	0.4
97MPB7836	till	10.90	3.45	0.65	6.80	1200.9	1159.0	7.1	34.8	24.8	5.7	3.2	1.1
97MPB7837	till	9.90	0.45	0.30	9.15	1004.9	975.2	5.1	24.6	18.0	4.3	1.7	0.6
97MPB7838	TILL	10.95	1.25	0.45	9.25	1347.7	1317.8	5.4	24.5	17.0	4.4	2.3	0.8

## Appendix C. Electron microprobe analyses of mineral grains

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## Appendix C.1

Table C.1.

Operating conditions and standard values for the microprobe routine  
"DIAMOND"

Elem.	Std	wt. fract.	line	crystal	kV	nA	time (sec)
Na	NaCl	0.3930	K_	PCO	20	20	10
K	KBr	0.3290	K_	PET	20	20	10
Fe	Fe	1.0000	K_	LIF	20	20	10
Mg	MgO	0.6032	K_	TAP	20	20	10
Al	Al <sub>2</sub> O <sub>3</sub>	0.5290	K_	TAP	20	20	10
Si	SiO <sub>2</sub>	0.4674	K_	TAP	20	20	10
Ca	CaSiO <sub>3</sub>	0.3432	K_	PET	20	20	10
Ti	TiO <sub>2</sub>	0.5895	K_	PET	20	20	10
Cr	Cr	1.0000	K_	LIF	20	20	10
Mn	Mn	1.0000	K_	LIF	20	20	10
Ni	Ni	1.0000	K_	LIF	20	20	10
V	V	1.0000	K_	LIF	20	20	10

Operating conditions and standard values for the microprobe routine  
"OXIDE"

Elem.	Std.	wt. fract.	line	crystal	kV	nA	time (sec)
Mg	MgO	0.6032	K_	TAP	20	10	10
Al	Al <sub>2</sub> O <sub>3</sub>	0.5290	K_	TAP	20	10	10
Si	SiO <sub>2</sub>	0.4674	K_	TAP	20	10	10
As	InAS	0.3949	L_	TAP	20	10	10
Ca	CaSiO <sub>3</sub>	0.3432	K_	PET	20	10	10
Ti	TiO <sub>2</sub>	0.5895	K_	PET	20	10	10
Nb	Nb	1.0000	L_	PET	20	10	10
S	FeS <sub>2</sub>	0.5345	K_	PET	20	10	10
Fe	Fe	1.0000	K_	LIF	20	10	10
Cr	Cr	1.0000	K_	LIF	20	10	10
Mn	Mn	1.0000	K_	LIF	20	10	10
Ni	Ni	1.0000	K_	LIF	20	10	10
V	V	1.0000	K_	LIF	20	10	10
Co	Co	1.0000	K_	LIF	20	10	10
Zn	Zn	1.0000	K_	LIF	20	10	10

Appendix C Table C.2. Total number of grains counted in the three size fractions for each sample (raw data)

Sample	Material	Pyrope			Cr- & Hi-Cr-diopside			Olivine			Chromite			Mg-ilmenite		
		0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm
7830	till	6	0	0	2	0	0	9	10	1	27	0	0	79	1	0
7831	till	2	0	0	2	0	0	1	6	0	61	0	0	32	6	1
7832	till	9	1	0	2	0	0	1	0	0	17	0	0	22	6	0
7810	fresh kimb.	760	120	52	332	31	11	>10000	>10000	>10000	445	516	6	2093	2627	541
7814	weather'd kimb.	226	91	90	44	5	0	>10000	>10000	>10000	363	187	0	460	159	78
7801	till	10	2	1	8	1	0	7	21	9	20	3	0	78	13	1
7812	till	0	0	0	3	0	0	6	22	0	17	0	0	2	0	0
7813	till	6	0	0	28	0	0	76	6	0	29	1	0	295	7	0
7815	till	3	0	2	16	0	0	8	4	1	6	0	0	35	0	0
7816	till	1	0	0	1	0	0	0	17	6	16	2	0	2	1	0
7817	till	2	0	0	5	0	0	17	5	7	7	0	0	42	0	0
7819	till	1	0	0	17	0	0	7	0	0	4	0	0	14	0	0
7820	till	7	0	0	5	0	0	32	13	3	22	0	0	14	0	0
7821	till	5	2	0	4	0	0	153	49	25	9	0	0	132	2	0
7828	till	22	4	0	10	3	0	449	53	15	18	3	0	152	44	0
7829	till	9	0	1	7	0	0	122	55	38	13	4	0	91	45	1
7811	till	6	1	0	7	2	0	63	15	0	11	1	0	18	0	0
7823	till	8	0	0	5	0	0	345	46	23	16	0	0	79	16	0
7824	till	0	0	0	8	1	0	18	25	4	7	0	0	80	6	0
7827	till	5	0	0	10	0	0	121	108	125	13	0	0	141	9	0
7834	till	3	0	0	6	1	0	4	2	0	42	0	0	60	6	0
7835	till	2	0	0	1	0	0	5	0	0	4	0	0	7	3	0
7836	till	11	6	0	5	0	0	5	2	0	3	0	0	50	9	0
7837	till	3	1	0	0	1	0	3	2	0	2	0	0	4	0	0
7838	till	2	0	0	1	0	0	4	6	0	0	0	0	3	0	0

Appendix C. Table C.3 Number of grains probed and number of grains correctly indentified as kimberlite indicator minerals

Sample	Material	Pyrope									Cr-Diopside									Olivine								
		correct		probed		correct		probed		% correct	correct		probed		correct		probed		% correct	correct		probed		correct		probed		% correct
		0.25-0.5	0.5-1.0	1.0-2.0	total correct	total probed	0.25-0.5	0.5-1.0	1.0-2.0		total correct	total probed	0.25-0.5	0.5-1.0	1.0-2.0	total correct	total probed	0.25-0.5		0.5-1.0	1.0-2.0	total correct	total probed					
7830	till	6	5	0	0	0	0	6	5	120	1	2	0	0	0	0	1	2	50	6	9	10	10	1	1	17	20	85
7831	till	1	2	0	0	0	0	1	2	50	2	2	0	0	0	0	2	2	100	1	1	5	6	1	0	7	7	100
7832	till	9	9	1	1	0	0	10	10	100	2	2	0	0	0	0	2	2	100	0	1	0	0	0	0	0	1	0
7810	fresh kimb.	124	112	51	46	16	16	191	174	110	30	46	11	12	3	3	44	61	72	50	50	25	25	25	25	100	100	100
7814	weath'd kimb	118	112	95	90	8	8	221	210	105	27	40	2	5	0	0	29	45	64	86	90	21	25	26	25	133	140	95
7801	till	8	10	1	2	1	1	10	13	77	5	8	1	1	0	0	6	9	67	6	7	21	21	8	9	35	37	95
7812	till	0	0	0	0	0	0	0	0		3	3	0	0	0	0	3	3	100	6	6	22	22	0	0	28	28	100
7813	till	6	6	0	0	0	0	6	6	100	27	28	0	0	0	0	27	28	96	50	50	6	6	0	0	56	56	100
7815	till	3	3	0	0	2	2	5	5	100	13	16	0	0	0	0	13	16	81	3	8	2	4	1	1	6	13	46
7816	till	1	1	0	0	0	0	1	1	100	0	1	0	0	0	0	0	1	0	3	0	17	17	6	6	26	23	113
7817	till	1	2	0	0	0	0	1	2	50	5	5	0	0	0	0	5	5	100	7	17	5	5	7	7	19	29	66
7819	till	2	1	0	0	0	0	2	1	200	14	17	0	0	0	0	14	17	82	1	7	0	0	0	0	1	7	14
7820	till	7	7	0	0	0	0	7	7	100	4	5	0	0	0	0	4	5	80	24	25	14	13	3	3	41	41	100
7821	till	5	5	2	2	0	0	7	7	100	3	4	0	0	0	0	3	4	75	45	46	25	25	25	25	95	96	99
7828	till	23	22	4	4	0	0	27	26	104	9	10	2	3	0	0	11	13	85	90	89	26	25	14	15	130	129	101
7829	till	9	9	0	0	1	1	10	10	100	7	7	0	0	0	0	7	7	100	98	100	25	25	21	21	144	146	99
7811	till	6	6	1	1	0	0	7	7	100	7	7	1	2	0	0	8	9	89	57	63	15	15	0	0	72	78	92
7823	till	9	8	0	0	0	0	9	8	113	3	5	0	0	0	0	3	5	60	38	41	10	10	23	23	71	74	96
7824	till	2	0	0	0	0	0	2	0		6	8	1	1	0	0	7	9	78	11	11	24	25	4	4	39	40	98
7827	till	6	5	0	0	0	0	6	5	120	8	10	0	0	0	0	8	10	80	47	50	26	27	25	25	98	102	96
7834	till	2	3	0	0	0	0	2	3	67	6	6	1	1	0	0	7	7	100	0	4	2	2	0	0	2	6	33
7835	till	2	2	0	0	0	0	2	2	100	1	1	0	0	0	0	1	1	100	3	5	0	0	0	0	3	5	60
7836	till	11	11	6	4	0	0	17	15	113	5	5	0	0	0	0	5	5	100	3	5	2	2	0	0	5	7	71
7837	till	3	3	1	1	0	0	4	4	100	0	0	1	1	0	0	1	1	100	2	3	2	2	0	0	4	5	80
7838	till	2	1	0	0	0	0	2	1	200	1	1	0	0	0	0	1	1	100	4	4	--	6	0	0	--	10	100



Appendix C. Table C.3 Number of grains probed and number of grains correctly identified as kimberlite indicator minerals

Chromite									Mg-ilmenite								
correct probed			correct probed			correct probed			correct probed			correct probed			correct probed		
0.25-0.5	0.5-1.0	1.0-2.0	total correct	total probed	% correct	0.25-0.5	0.5-1.0	1.0-2.0	total correct	total probed	% correct	0.25-0.5	0.5-1.0	1.0-2.0	total correct	total probed	% correct
25	27	0	0	0	0	25	27	93	39	79	0	1	0	0	39	80	49
36	61	1	0	0	0	37	61	61	15	32	4	6	0	1	19	39	49
10	17	0	0	0	0	10	17	59	14	22	4	6	0	0	18	28	64
81	81	17	17	1	2	99	102	97	136	136	65	75	57	54	258	265	97
226	154	213	131	0	0	439	285	154	72	149	101	159	5	7	178	315	57
12	20	5	3	0	0	17	23	74	44	78	8	13	1	1	53	92	58
1	17	0	0	0	0	1	17	6	4	2	0	0	0	0	4	2	200
8	29	1	1	0	0	9	30	30	204	295	6	7	0	0	210	302	70
8	6	0	0	0	0	8	6	133	10	35	0	0	0	0	10	35	29
6	16	0	2	0	0	6	18	33	8	2	0	1	0	0	8	3	267
7	7	0	0	0	0	7	7	100	4	42	0	0	0	0	4	42	10
2	4	0	0	0	0	2	4	50	0	14	0	0	0	0	0	14	0
6	22	0	0	0	0	6	22	27	7	14	0	0	0	0	7	14	50
15	9	0	0	0	0	15	9	167	89	132	2	2	0	0	91	134	68
24	18	4	3	0	0	28	21	133	122	152	41	44	0	0	163	196	83
23	13	7	4	0	0	30	17	176	75	91	38	45	1	1	114	137	83
9	11	0	1	0	0	9	12	75	12	18	0	0	0	0	12	18	67
17	16	0	0	0	0	17	16	106	73	79	12	16	0	0	85	95	89
8	7	0	0	0	0	8	7	114	33	80	5	6	0	0	38	86	44
19	13	0	0	0	0	19	13	146	128	141	9	9	0	0	137	150	91
28	42	0	0	0	0	28	42	67	14	60	3	6	0	0	17	66	26
1	4	0	0	0	0	1	4	25	4	7	0	3	0	0	4	10	40
2	3	0	0	0	0	2	3	67	39	50	9	9	0	0	48	59	81
1	2	0	0	0	0	1	2	50	2	4	0	0	0	0	2	4	50
1	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	3	0

Appendix C. Table C.4. Indicator mineral counts (Table C.2) corrected to % correctly identified (Table C.4)

Percentage correctly identified		100%			90%			86%			60%			60%		
Sample	Material	Pyrope			Cr- and Hi-Cr-diopside			Olivine			Chromite			Mg-ilmenite		
		0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm	0.25-0.5 mm	0.5-1.0 mm	1.0-2.0 mm
7830	till	6	0	0	2	0	0	8	9	1	16	0	0	47	1	0
7831	till	2	0	0	2	0	0	1	5	0	37	0	0	19	4	1
7832	till	9	1	0	2	0	0	1	0	0	10	0	0	13	4	0
7810	fresh kimb.	760	120	52	299	28	10	>10000	>10000	>10000	267	310	4	1256	1576	325
7814	weather'd kimb.	226	91	90	40	5	0	>10000	>10000	>10000	218	112	0	276	95	47
7801	till	10	2	1	7	1	0	6	18	8	12	2	0	47	8	1
7812	till	0	0	0	3	0	0	5	19	0	10	0	0	1	0	0
7813	till	6	0	0	25	0	0	65	5	0	17	1	0	177	4	0
7815	till	3	0	2	14	0	0	7	3	1	4	0	0	21	0	0
7816	till	1	0	0	1	0	0	0	15	5	10	1	0	1	1	0
7817	till	2	0	0	5	0	0	15	4	6	4	0	0	25	0	0
7819	till	1	0	0	15	0	0	6	0	0	2	0	0	8	0	0
7820	till	7	0	0	5	0	0	28	11	3	13	0	0	8	0	0
7821	till	5	2	0	4	0	0	132	42	22	5	0	0	79	1	0
7828	till	22	4	0	9	3	0	386	46	13	11	2	0	91	26	0
7829	till	9	0	1	6	0	0	105	47	33	8	2	0	55	27	1
7811	till	6	1	0	6	2	0	54	13	0	7	1	0	11	0	0
7823	till	8	0	0	5	0	0	297	40	20	10	0	0	47	10	0
7824	till	0	0	0	7	1	0	15	22	3	4	0	0	48	4	0
7827	till	5	0	0	9	0	0	104	93	108	8	0	0	85	5	0
7834	till	3	0	0	5	1	0	3	2	0	25	0	0	36	4	0
7835	till	2	0	0	1	0	0	4	0	0	2	0	0	4	2	0
7836	till	11	6	0	5	0	0	4	2	0	2	0	0	30	5	0
7837	till	3	1	0	0	1	0	3	2	0	1	0	0	2	0	0
7838	till	2	0	0	1	0	0	3	5	0	0	0	0	2	0	0

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T780	18	7801	0.25-0.5	colorless	Olivine	40.30	0.00	0.02	0.00	0.00	7.63	0.15	0.33	50.35	0.17	0.00	0.02	98.98	92.2
T780	19	7801	0.25-0.5	colorless	Olivine	40.24	0.05	0.00	0.04	0.00	8.28	0.19	0.36	49.86	0.17	0.00	0.02	99.20	91.5
T780	20	7801	0.25-0.5	colorless	Olivine	39.84	0.07	0.03	0.01	0.00	9.72	0.11	0.37	48.77	0.24	0.00	0.00	99.16	89.9
T780	21	7801	0.25-0.5	colorless	Olivine	40.41	0.00	0.03	0.02	0.00	7.92	0.13	0.36	50.51	0.29	0.00	0.01	99.68	91.9
T780	22	7801	0.25-0.5	colorless	Olivine	40.41	0.00	0.02	0.07	0.00	9.71	0.12	0.32	48.95	0.25	0.00	0.01	99.86	90.0
T780	23	7801	0.25-0.5	colorless	Olivine	40.42	0.02	0.00	0.05	0.03	8.20	0.18	0.40	50.18	0.19	0.00	0.00	99.67	91.6
T787	19	7801	0.50-1.0	colorless	Olivine	39.74	0.07	0.07	0.04	0.00	9.61	0.16	0.34	49.26	0.08	0.00	0.00	99.37	90.1
T787	20	7801	0.50-1.0	colorless	Olivine	40.86	0.00	0.03	0.00	0.00	5.82	0.12	0.43	52.71	0.02	0.00	0.00	99.98	94.2
T787	21	7801	0.50-1.0	colorless	Olivine	40.02	0.03	0.03	0.06	0.00	8.84	0.13	0.33	50.21	0.00	0.00	0.01	99.67	91.0
T787	22	7801	0.50-1.0	colorless	Olivine	39.94	0.06	0.05	0.04	0.00	10.05	0.12	0.30	48.94	0.07	0.00	0.03	99.61	89.7
T787	23	7801	0.50-1.0	colorless	Olivine	39.97	0.03	0.05	0.06	0.00	9.01	0.11	0.41	49.94	0.07	0.00	0.00	99.66	90.8
T787	24	7801	0.50-1.0	colorless	Olivine	40.15	0.03	0.09	0.08	0.01	8.49	0.08	0.38	50.09	0.08	0.00	0.01	99.49	91.3
T787	25	7801	0.50-1.0	colorless	Olivine	40.08	0.03	0.00	0.00	0.02	8.56	0.17	0.31	50.09	0.02	0.00	0.01	99.28	91.3
T787	26	7801	0.50-1.0	colorless	Olivine	40.75	0.00	0.02	0.10	0.00	8.40	0.09	0.40	50.66	0.05	0.00	0.01	100.49	91.5
T787	27	7801	0.50-1.0	colorless	Olivine	40.60	0.02	0.01	0.00	0.00	6.71	0.09	0.34	52.27	0.02	0.00	0.00	100.08	93.3
T787	28	7801	0.50-1.0	colorless	Olivine	40.72	0.00	0.03	0.00	0.02	6.59	0.13	0.35	52.01	0.01	0.00	0.00	99.87	93.4
T787	29	7801	0.50-1.0	colorless	Olivine	40.50	0.00	0.02	0.01	0.00	8.11	0.14	0.27	50.89	0.00	0.00	0.00	99.96	91.8
T787	30	7801	0.50-1.0	colorless	Olivine	40.52	0.02	0.03	0.00	0.00	8.08	0.11	0.40	50.51	0.03	0.00	0.00	99.71	91.8
T787	31	7801	0.50-1.0	colorless	Olivine	40.53	0.02	0.03	0.01	0.00	8.26	0.14	0.40	50.23	0.03	0.00	0.00	99.66	91.5
T787	32	7801	0.50-1.0	colorless	Olivine	40.58	0.04	0.03	0.05	0.00	6.99	0.13	0.49	51.80	0.02	0.00	0.00	100.14	93.0
T787	33	7801	0.50-1.0	colorless	Olivine	40.53	0.01	0.03	0.00	0.07	7.49	0.08	0.29	51.11	0.02	0.00	0.00	99.63	92.4
T787	34	7801	0.50-1.0	colorless	Olivine	40.64	0.00	0.04	0.00	0.05	6.66	0.10	0.39	52.12	0.00	0.00	0.01	100.01	93.3
T787	35	7801	0.50-1.0	colorless	Olivine	40.01	0.04	0.02	0.08	0.05	8.99	0.06	0.36	49.62	0.07	0.00	0.00	99.30	90.8
T787	36	7801	0.50-1.0	colorless	Olivine	40.68	0.00	0.04	0.01	0.00	6.94	0.18	0.29	51.51	0.01	0.00	0.00	99.67	93.0
T787	37	7801	0.50-1.0	colorless	Olivine	40.41	0.04	0.03	0.00	0.00	7.56	0.13	0.39	51.53	0.02	0.00	0.00	100.10	92.4
T787	38	7801	0.50-1.0	colorless	Olivine	40.41	0.06	0.02	0.00	0.04	8.24	0.15	0.43	50.15	0.01	0.00	0.01	99.52	91.6
T787	39	7801	0.50-1.0	colorless	Olivine	40.34	0.00	0.03	0.02	0.00	6.71	0.09	0.38	51.58	0.02	0.00	0.01	99.18	93.2
T800	3	7801	1.0-2.0	colorless	Olivine	41.18	0.00	0.02	0.01	0.00	6.50	0.09	0.37	52.35	0.03	0.00	0.01	100.56	93.5
T800	4	7801	1.0-2.0	colorless	Olivine	40.44	0.01	0.00	0.05	0.01	7.37	0.12	0.35	51.22	0.01	0.00	0.00	99.58	92.5
T800	5	7801	1.0-2.0	colorless	Olivine	40.59	0.02	0.04	0.00	0.00	6.44	0.09	0.39	52.23	0.04	0.00	0.02	99.87	93.5
T800	7	7801	1.0-2.0	colorless	Olivine	40.33	0.02	0.03	0.01	0.00	7.48	0.14	0.45	51.20	0.02	0.00	0.00	99.67	92.4
T800	8	7801	1.0-2.0	colorless	Olivine	40.78	0.06	0.01	0.00	0.00	5.68	0.09	0.39	53.00	0.02	0.00	0.00	100.04	94.3
T800	9	7801	1.0-2.0	colorless	Olivine	40.11	0.00	0.03	0.00	0.00	8.59	0.11	0.48	50.62	0.02	0.00	0.00	99.96	91.3
T800	10	7801	1.0-2.0	colorless	Olivine	40.60	0.00	0.03	0.00	0.00	8.42	0.11	0.43	51.02	0.04	0.00	0.00	100.64	91.5
T800	11	7801	1.0-2.0	colorless	Olivine	40.44	0.02	0.01	0.03	0.00	6.62	0.17	0.33	52.28	0.03	0.00	0.00	99.94	93.4
T800	14	7801	1.0-2.0	colorless	Olivine	40.70	0.00	0.02	0.04	0.00	6.68	0.13	0.36	52.13	0.03	0.00	0.00	100.08	93.3
T800	15	7801	1.0-2.0	colorless	Olivine	41.22	0.03	0.00	0.00	0.00	5.79	0.08	0.38	52.64	0.00	0.00	0.00	100.13	94.2
T800	16	7801	1.0-2.0	colorless	Olivine	40.34	0.03	0.00	0.00	0.00	8.25	0.16	0.41	50.81	0.03	0.00	0.01	100.04	91.7
T800	17	7801	1.0-2.0	colorless	Olivine	39.80	0.01	0.00	0.01	0.00	7.29	0.16	0.38	51.50	0.03	0.00	0.00	99.19	92.6
T800	18	7801	1.0-2.0	colorless	Olivine	40.01	0.03	0.02	0.04	0.00	8.31	0.15	0.36	50.32	0.03	0.00	0.00	99.27	91.5
T800	19	7801	1.0-2.0	colorless	Olivine	40.08	0.00	0.04	0.02	0.03	7.87	0.16	0.34	51.29	0.01	0.00	0.00	99.85	92.1
T800	20	7801	1.0-2.0	colorless	Olivine	39.95	0.00	0.05	0.02	0.02	8.22	0.15	0.36	50.68	0.04	0.00	0.01	99.50	91.7
T755	78	7810	0.25-0.5	colorless	Olivine	40.82	0.03	0.01	0.03	0.05	6.19	0.09	0.43	52.82	0.01	0.00	0.01	100.50	93.8
T755	79	7810	0.25-0.5	colorless	Olivine	40.44	0.03	0.02	0.00	0.03	8.39	0.15	0.40	50.85	0.01	0.00	0.00	100.32	91.5
T755	80	7810	0.25-0.5	colorless	Olivine	40.66	0.03	0.02	0.01	0.00	7.50	0.13	0.39	51.79	0.01	0.00	0.00	100.55	92.5
T755	81	7810	0.25-0.5	colorless	Olivine	40.17	0.06	0.02	0.03	0.00	10.79	0.10	0.35	48.78	0.05	0.00	0.00	100.34	89.0

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T755	82	7810	0.25-0.5	colorless	Olivine	40.56	0.01	0.01	0.02	0.01	7.90	0.16	0.41	51.25	0.04	0.00	0.00	100.37	92.0
T755	83	7810	0.25-0.5	colorless	Olivine	40.98	0.03	0.03	0.00	0.00	6.68	0.07	0.35	52.24	0.00	0.00	0.00	100.37	93.3
T755	84	7810	0.25-0.5	colorless	Olivine	40.06	0.05	0.04	0.00	0.00	11.98	0.16	0.16	47.78	0.05	0.00	0.01	100.28	87.7
T755	85	7810	0.25-0.5	colorless	Olivine	40.30	0.00	0.00	0.07	0.01	7.15	0.11	0.40	51.89	0.03	0.00	0.01	99.99	92.8
T755	86	7810	0.25-0.5	colorless	Olivine	41.05	0.05	0.03	0.01	0.00	7.69	0.15	0.34	51.21	0.03	0.00	0.00	100.56	92.2
T755	87	7810	0.25-0.5	colorless	Olivine	40.72	0.02	0.04	0.04	0.00	7.65	0.14	0.41	51.36	0.04	0.00	0.00	100.41	92.3
T755	88	7810	0.25-0.5	colorless	Olivine	40.71	0.03	0.04	0.00	0.00	7.54	0.14	0.33	51.13	0.03	0.00	0.00	99.96	92.4
T755	89	7810	0.25-0.5	colorless	Olivine	41.03	0.06	0.04	0.02	0.02	6.55	0.08	0.36	52.11	0.00	0.00	0.00	100.27	93.4
T755	90	7810	0.25-0.5	colorless	Olivine	40.44	0.02	0.03	0.00	0.05	8.31	0.13	0.47	50.42	0.03	0.00	0.00	99.90	91.5
T755	91	7810	0.25-0.5	colorless	Olivine	39.72	0.06	0.05	0.00	0.01	13.87	0.15	0.04	46.32	0.05	0.00	0.00	100.26	85.6
T755	92	7810	0.25-0.5	colorless	Olivine	39.56	0.02	0.00	0.04	0.00	11.13	0.17	0.30	48.33	0.04	0.00	0.00	99.58	88.6
T755	93	7810	0.25-0.5	colorless	Olivine	40.25	0.02	0.09	0.05	0.04	7.92	0.12	0.37	51.07	0.07	0.00	0.01	100.02	92.0
T755	94	7810	0.25-0.5	colorless	Olivine	40.83	0.06	0.01	0.03	0.02	7.29	0.14	0.35	51.73	0.03	0.00	0.00	100.51	92.7
T755	95	7810	0.25-0.5	colorless	Olivine	40.63	0.04	0.02	0.00	0.00	6.94	0.10	0.35	52.03	0.01	0.00	0.01	100.12	93.0
T755	96	7810	0.25-0.5	colorless	Olivine	40.28	0.01	0.04	0.00	0.03	8.48	0.14	0.46	50.58	0.02	0.00	0.01	100.04	91.4
T755	97	7810	0.25-0.5	colorless	Olivine	40.30	0.04	0.00	0.00	0.01	8.05	0.16	0.33	51.38	0.01	0.00	0.00	100.28	91.9
T755	98	7810	0.25-0.5	colorless	Olivine	40.03	0.01	0.01	0.00	0.00	7.40	0.12	0.31	51.57	0.03	0.00	0.01	99.48	92.6
T755	99	7810	0.25-0.5	colorless	Olivine	39.45	0.01	0.00	0.03	0.00	14.05	0.16	0.03	46.02	0.05	0.00	0.00	99.80	85.4
T755	100	7810	0.25-0.5	colorless	Olivine	40.32	0.04	0.05	0.06	0.02	7.69	0.11	0.40	51.20	0.04	0.00	0.01	99.94	92.2
T755	101	7810	0.25-0.5	colorless	Olivine	40.80	0.08	0.04	0.00	0.02	7.67	0.13	0.37	51.79	0.00	0.00	0.01	100.90	92.3
T755	102	7810	0.25-0.5	colorless	Olivine	40.20	0.01	0.05	0.03	0.00	8.01	0.12	0.38	50.72	0.04	0.00	0.01	99.57	91.9
T755	103	7810	0.25-0.5	colorless	Olivine	40.93	0.02	0.00	0.00	0.01	7.45	0.12	0.41	51.68	0.00	0.00	0.01	100.63	92.5
T807	44	7810	0.25-0.5	colorless	Olivine	40.61	0.05	0.00	0.02	0.02	10.76	0.10	0.28	48.57	0.02	0.00	0.00	100.43	88.9
T807	45	7810	0.25-0.5	colorless	Olivine	40.91	0.02	0.04	0.00	0.03	7.60	0.16	0.29	51.34	0.02	0.00	0.00	100.41	92.3
T807	46	7810	0.25-0.5	colorless	Olivine	41.11	0.00	0.04	0.01	0.00	6.57	0.08	0.38	51.69	0.00	0.00	0.01	99.87	93.3
T807	47	7810	0.25-0.5	colorless	Olivine	40.71	0.00	0.01	0.01	0.01	6.70	0.10	0.32	51.93	0.03	0.00	0.00	99.81	93.3
T807	48	7810	0.25-0.5	colorless	Olivine	40.45	0.06	0.05	0.04	0.01	10.46	0.09	0.34	48.68	0.04	0.00	0.00	100.22	89.2
T807	49	7810	0.25-0.5	colorless	Olivine	39.99	0.05	0.05	0.01	0.02	11.46	0.16	0.28	47.99	0.09	0.00	0.01	100.10	88.2
T807	50	7810	0.25-0.5	colorless	Olivine	40.72	0.05	0.02	0.03	0.00	8.32	0.13	0.44	50.45	0.02	0.00	0.01	100.19	91.5
T807	52	7810	0.25-0.5	colorless	Olivine	40.59	0.03	0.02	0.05	0.01	8.64	0.15	0.33	50.57	0.01	0.00	0.00	100.40	91.2
T807	53	7810	0.25-0.5	colorless	Olivine	40.78	0.01	0.03	0.08	0.06	9.04	0.13	0.37	50.22	0.08	0.00	0.01	100.80	90.8
T807	54	7810	0.25-0.5	colorless	Olivine	40.09	0.02	0.04	0.06	0.02	10.23	0.10	0.33	48.90	0.09	0.00	0.01	99.89	89.5
T807	55	7810	0.25-0.5	colorless	Olivine	40.79	0.03	0.02	0.02	0.03	8.95	0.10	0.34	49.82	0.03	0.00	0.00	100.12	90.8
T807	56	7810	0.25-0.5	colorless	Olivine	40.00	0.01	0.03	0.02	0.00	10.96	0.12	0.38	48.41	0.09	0.00	0.00	100.03	88.7
T807	57	7810	0.25-0.5	colorless	Olivine	39.94	0.06	0.04	0.00	0.03	10.27	0.16	0.32	48.71	0.05	0.00	0.00	99.59	89.4
T807	58	7810	0.25-0.5	colorless	Olivine	40.93	0.05	0.02	0.00	0.00	7.34	0.12	0.34	51.30	0.02	0.00	0.00	100.11	92.6
T807	59	7810	0.25-0.5	colorless	Olivine	40.87	0.04	0.05	0.02	0.04	9.32	0.18	0.35	50.10	0.01	0.00	0.00	100.98	90.5
T807	60	7810	0.25-0.5	colorless	Olivine	40.77	0.02	0.05	0.10	0.00	9.62	0.12	0.36	49.73	0.06	0.00	0.00	100.82	90.2
T807	61	7810	0.25-0.5	colorless	Olivine	40.33	0.00	0.04	0.06	0.00	10.90	0.15	0.33	48.29	0.06	0.00	0.00	100.17	88.8
T807	62	7810	0.25-0.5	colorless	Olivine	40.13	0.08	0.05	0.07	0.00	11.21	0.13	0.34	48.57	0.05	0.00	0.01	100.63	88.5
T807	63	7810	0.25-0.5	colorless	Olivine	40.57	0.03	0.00	0.01	0.01	7.61	0.14	0.32	51.21	0.02	0.00	0.01	99.92	92.3
T807	64	7810	0.25-0.5	colorless	Olivine	40.55	0.02	0.01	0.04	0.03	8.64	0.14	0.40	50.06	0.02	0.00	0.00	99.91	91.2
T807	65	7810	0.25-0.5	colorless	Olivine	41.07	0.01	0.03	0.00	0.03	7.34	0.11	0.27	51.58	0.01	0.00	0.01	100.44	92.6
T807	66	7810	0.25-0.5	colorless	Olivine	40.73	0.03	0.03	0.00	0.01	7.27	0.10	0.39	51.44	0.02	0.00	0.01	100.02	92.7
T807	67	7810	0.25-0.5	colorless	Olivine	40.84	0.01	0.03	0.01	0.00	7.92	0.14	0.32	50.79	0.06	0.00	0.00	100.11	92.0
T813	27	7810	0.5-1.0	colorless	Olivine	41.40	0.04	0.00	0.02	0.00	8.09	0.09	0.36	51.69	0.03	0.09	0.01	101.81	91.9

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T813	28	7810	0.5-1.0	colorless	Olivine	41.96	0.00	0.01	0.08	0.00	9.15	0.17	0.19	50.21	0.01	0.00	0.00	101.78	90.7
T813	57	7810	0.5-1.0	colorless	Olivine	40.85	0.06	0.01	0.00	0.00	7.63	0.15	0.37	51.30	0.04	0.00	0.00	100.41	92.3
T813	64	7810	0.5-1.0	colorless	Olivine	41.07	0.05	0.01	0.05	0.00	6.00	0.10	0.40	52.70	0.00	0.00	0.00	100.38	94.0
T813	65	7810	0.5-1.0	colorless	Olivine	40.30	0.02	0.05	0.00	0.05	8.36	0.12	0.42	50.39	0.01	0.00	0.00	99.71	91.5
T813	66	7810	0.5-1.0	colorless	Olivine	40.77	0.02	0.02	0.00	0.09	8.09	0.16	0.32	51.12	0.03	0.00	0.00	100.63	91.8
T813	67	7810	0.5-1.0	colorless	Olivine	40.70	0.03	0.02	0.03	0.01	8.34	0.20	0.33	50.73	0.02	0.00	0.01	100.41	91.6
T813	68	7810	0.5-1.0	colorless	Olivine	41.05	0.01	0.03	0.01	0.08	6.57	0.04	0.36	52.33	0.02	0.00	0.01	100.52	93.4
T813	69	7810	0.5-1.0	colorless	Olivine	40.93	0.02	0.00	0.00	0.05	8.26	0.11	0.45	50.59	0.02	0.00	0.00	100.43	91.6
T813	70	7810	0.5-1.0	colorless	Olivine	40.62	0.04	0.03	0.01	0.00	9.05	0.15	0.41	49.56	0.01	0.00	0.02	99.92	90.7
T813	71	7810	0.5-1.0	colorless	Olivine	40.64	0.01	0.01	0.07	0.01	7.80	0.17	0.37	50.53	0.04	0.00	0.00	99.65	92.0
T813	72	7810	0.5-1.0	colorless	Olivine	41.20	0.00	0.00	0.00	0.00	6.65	0.06	0.33	52.15	0.02	0.00	0.01	100.43	93.3
T813	73	7810	0.5-1.0	colorless	Olivine	41.32	0.01	0.03	0.00	0.05	6.39	0.10	0.33	52.40	0.03	0.00	0.02	100.67	93.6
T813	74	7810	0.5-1.0	colorless	Olivine	40.98	0.02	0.02	0.01	0.01	6.65	0.12	0.26	52.16	0.03	0.00	0.00	100.25	93.3
T813	75	7810	0.5-1.0	colorless	Olivine	41.35	0.00	0.02	0.00	0.00	5.78	0.18	0.33	52.91	0.01	0.00	0.03	100.60	94.2
T813	76	7810	0.5-1.0	colorless	Olivine	41.07	0.04	0.04	0.01	0.00	5.96	0.12	0.32	52.47	0.01	0.00	0.00	100.04	94.0
T813	77	7810	0.5-1.0	colorless	Olivine	40.59	0.03	0.03	0.06	0.00	7.70	0.12	0.44	51.30	0.01	0.00	0.01	100.29	92.2
T813	78	7810	0.5-1.0	colorless	Olivine	40.76	0.04	0.01	0.05	0.00	7.69	0.16	0.35	51.29	0.02	0.00	0.00	100.36	92.2
T813	79	7810	0.5-1.0	colorless	Olivine	40.84	0.03	0.01	0.02	0.00	7.64	0.10	0.25	50.86	0.02	0.00	0.00	99.77	92.2
T813	80	7810	0.5-1.0	colorless	Olivine	40.82	0.01	0.01	0.04	0.00	7.77	0.09	0.30	51.25	0.02	0.00	0.02	100.33	92.2
T813	81	7810	0.5-1.0	colorless	Olivine	40.80	0.02	0.03	0.00	0.00	7.40	0.15	0.37	51.49	0.00	0.00	0.00	100.26	92.5
T813	82	7810	0.5-1.0	colorless	Olivine	40.91	0.04	0.01	0.00	0.00	7.04	0.12	0.34	51.90	0.04	0.00	0.02	100.41	92.9
T813	83	7810	0.5-1.0	colorless	Olivine	40.88	0.00	0.00	0.00	0.03	7.07	0.10	0.38	51.45	0.04	0.00	0.01	99.97	92.8
T813	84	7810	0.5-1.0	colorless	Olivine	41.22	0.00	0.04	0.00	0.03	7.04	0.14	0.31	51.88	0.02	0.00	0.00	100.68	92.9
T813	85	7810	0.5-1.0	colorless	Olivine	40.15	0.01	0.02	0.02	0.04	7.55	0.13	0.30	50.86	0.01	0.00	0.00	99.09	92.3
T813	86	7810	0.5-1.0	colorless	Olivine	40.95	0.03	0.02	0.00	0.03	6.36	0.12	0.33	52.29	0.01	0.00	0.00	100.15	93.6
T813	87	7810	0.5-1.0	colorless	Olivine	40.49	0.05	0.03	0.01	0.03	8.18	0.14	0.44	50.96	0.02	0.00	0.00	100.36	91.7
T813	88	7810	0.5-1.0	colorless	Olivine	40.66	0.02	0.02	0.00	0.00	8.25	0.14	0.32	50.79	0.04	0.00	0.01	100.25	91.7
T815	26	7810	1.0-2.0	colorless	Olivine	40.37	0.04	0.01	0.06	0.00	7.00	0.09	0.35	50.98	0.00	0.00	0.00	98.90	92.8
T815	27	7810	1.0-2.0	colorless	Olivine	40.26	0.00	0.03	0.03	0.00	7.92	0.12	0.36	50.28	0.01	0.00	0.02	99.05	91.9
T815	28	7810	1.0-2.0	colorless	Olivine	40.32	0.00	0.03	0.01	0.00	6.52	0.07	0.38	52.11	0.01	0.00	0.01	99.47	93.4
T815	29	7810	1.0-2.0	colorless	Olivine	40.10	0.04	0.00	0.07	0.02	7.75	0.09	0.32	50.23	0.02	0.00	0.00	98.63	92.0
T815	30	7810	1.0-2.0	colorless	Olivine	40.83	0.00	0.00	0.03	0.00	6.69	0.06	0.38	51.66	0.01	0.00	0.00	99.66	93.2
T815	32	7810	1.0-2.0	colorless	Olivine	40.20	0.04	0.01	0.01	0.01	7.85	0.14	0.27	50.43	0.02	0.00	0.01	99.00	92.0
T815	33	7810	1.0-2.0	colorless	Olivine	40.29	0.00	0.01	0.03	0.02	7.78	0.16	0.41	50.72	0.03	0.00	0.01	99.46	92.1
T815	34	7810	1.0-2.0	colorless	Olivine	40.41	0.00	0.03	0.00	0.00	7.61	0.09	0.40	51.00	0.02	0.00	0.00	99.56	92.3
T815	35	7810	1.0-2.0	colorless	Olivine	40.61	0.02	0.03	0.03	0.01	7.07	0.15	0.46	51.20	0.02	0.00	0.00	99.59	92.8
T815	37	7810	1.0-2.0	colorless	Olivine	40.76	0.02	0.02	0.00	0.00	7.65	0.15	0.28	51.02	0.02	0.00	0.01	99.91	92.2
T816	1	7810	1.0-2.0	colorless	Olivine	40.00	0.00	0.01	0.00	0.00	6.22	0.11	0.30	51.43	0.02	0.00	0.01	98.11	93.7
T816	2	7810	1.0-2.0	colorless	Olivine	39.58	0.02	0.01	0.08	0.00	8.01	0.17	0.36	49.88	0.03	0.00	0.01	98.16	91.7
T816	3	7810	1.0-2.0	colorless	Olivine	40.08	0.00	0.03	0.00	0.00	6.76	0.15	0.31	51.15	0.01	0.00	0.00	98.48	93.1
T816	4	7810	1.0-2.0	colorless	Olivine	39.93	0.00	0.00	0.01	0.00	8.12	0.15	0.39	49.60	0.03	0.00	0.01	98.24	91.6
T816	5	7810	1.0-2.0	colorless	Olivine	39.64	0.02	0.04	0.00	0.00	7.23	0.12	0.30	50.15	0.01	0.00	0.09	97.60	92.5
T816	6	7810	1.0-2.0	colorless	Olivine	39.68	0.03	0.03	0.01	0.00	7.77	0.24	0.31	50.27	0.00	0.00	0.04	98.37	92.0
T816	7	7810	1.0-2.0	colorless	Olivine	40.05	0.00	0.01	0.00	0.02	6.70	0.09	0.38	50.96	0.00	0.00	0.04	98.25	93.1
T816	8	7810	1.0-2.0	colorless	Olivine	40.04	0.02	0.04	0.00	0.05	7.04	0.12	0.41	50.79	0.02	0.00	0.02	98.54	92.8
T816	9	7810	1.0-2.0	colorless	Olivine	40.40	0.01	0.02	0.00	0.07	8.24	0.18	0.36	50.05	0.00	0.00	0.03	99.37	91.5

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T816	10	7810	1.0-2.0	colorless	Olivine	39.71	0.00	0.01	0.00	0.00	8.07	0.16	0.42	49.76	0.02	0.00	0.02	98.16	91.7
T816	11	7810	1.0-2.0	colorless	Olivine	40.01	0.03	0.06	0.00	0.01	7.55	0.15	0.40	50.48	0.02	0.00	0.00	98.71	92.3
T816	12	7810	1.0-2.0	colorless	Olivine	40.01	0.00	0.03	0.05	0.03	6.26	0.10	0.38	51.16	0.01	0.00	0.02	98.05	93.6
T816	13	7810	1.0-2.0	colorless	Olivine	40.16	0.00	0.03	0.00	0.00	6.41	0.14	0.38	51.54	0.03	0.00	0.01	98.70	93.5
T816	14	7810	1.0-2.0	colorless	Olivine	39.71	0.02	0.00	0.00	0.00	6.76	0.07	0.24	50.75	0.02	0.00	0.01	97.59	93.0
T767	47	7811	0.25-0.5	colorless	Olivine	40.52	0.04	0.03	0.05	0.04	10.43	0.08	0.25	48.43	0.37	0.00	0.01	100.25	89.2
T767	48	7811	0.25-0.5	colorless	Olivine	40.26	0.01	0.05	0.05	0.03	11.77	0.16	0.16	47.03	0.43	0.00	0.02	99.96	87.7
T776	12	7811	0.25-0.5	colorless	Olivine	39.56	0.00	0.00	0.11	0.00	9.17	0.12	0.33	49.38	0.07	0.00	0.01	98.75	90.6
T776	13	7811	0.25-0.5	colorless	Olivine	39.81	0.02	0.09	0.06	0.00	8.36	0.16	0.38	49.84	0.10	0.00	0.00	98.83	91.4
T776	14	7811	0.25-0.5	colorless	Olivine	40.10	0.02	0.06	0.05	0.05	8.61	0.14	0.31	50.27	0.07	0.00	0.03	99.71	91.2
T776	16	7811	0.25-0.5	colorless	Olivine	39.75	0.02	0.02	0.00	0.00	8.02	0.12	0.34	50.31	0.00	0.00	0.00	98.58	91.8
T776	17	7811	0.25-0.5	colorless	Olivine	39.44	0.01	0.04	0.02	0.06	10.40	0.13	0.34	48.59	0.06	0.00	0.03	99.12	89.3
T776	19	7811	0.25-0.5	colorless	Olivine	39.23	0.06	0.01	0.09	0.04	11.13	0.14	0.15	47.90	0.05	0.00	0.01	98.81	88.5
T776	20	7811	0.25-0.5	colorless	Olivine	39.86	0.03	0.04	0.02	0.01	7.48	0.11	0.34	50.93	0.02	0.00	0.00	98.83	92.4
T776	21	7811	0.25-0.5	colorless	Olivine	39.29	0.02	0.05	0.00	0.04	10.54	0.15	0.37	48.88	0.05	0.00	0.02	99.42	89.2
T776	23	7811	0.25-0.5	colorless	Olivine	39.17	0.04	0.03	0.08	0.04	9.92	0.10	0.38	49.00	0.05	0.00	0.00	98.82	89.8
T776	24	7811	0.25-0.5	colorless	Olivine	39.81	0.03	0.04	0.02	0.02	8.35	0.13	0.32	49.94	0.09	0.00	0.01	98.75	91.4
T776	25	7811	0.25-0.5	colorless	Olivine	39.33	0.03	0.02	0.05	0.00	10.73	0.14	0.30	47.86	0.04	0.00	0.00	98.50	88.8
T776	26	7811	0.25-0.5	colorless	Olivine	40.13	0.01	0.05	0.01	0.02	7.64	0.12	0.36	50.78	0.01	0.00	0.00	99.14	92.2
T776	27	7811	0.25-0.5	colorless	Olivine	39.99	0.02	0.03	0.01	0.00	6.61	0.06	0.39	51.63	0.04	0.00	0.00	98.79	93.3
T776	28	7811	0.25-0.5	colorless	Olivine	39.43	0.04	0.05	0.07	0.01	11.27	0.17	0.39	47.63	0.07	0.00	0.01	99.13	88.3
T776	29	7811	0.25-0.5	colorless	Olivine	39.63	0.02	0.02	0.04	0.00	7.75	0.14	0.32	50.83	0.01	0.00	0.00	98.76	92.1
T780	35	7811	0.25-0.5	colorless	Olivine	40.65	0.02	0.03	0.00	0.00	6.39	0.10	0.31	51.75	0.02	0.00	0.01	99.27	93.5
T780	36	7811	0.25-0.5	colorless	Olivine	41.16	0.02	0.00	0.05	0.00	6.89	0.08	0.35	51.76	0.04	0.00	0.00	100.36	93.0
T780	37	7811	0.25-0.5	colorless	Olivine	39.83	0.03	0.05	0.04	0.00	9.73	0.11	0.30	48.55	0.21	0.00	0.00	98.86	89.9
T780	38	7811	0.25-0.5	colorless	Olivine	40.75	0.00	0.02	0.06	0.00	5.82	0.13	0.30	52.16	0.19	0.00	0.01	99.44	94.1
T780	39	7811	0.25-0.5	colorless	Olivine	40.13	0.01	0.04	0.05	0.00	7.81	0.16	0.33	49.83	0.22	0.00	0.01	98.58	91.9
T780	40	7811	0.25-0.5	colorless	Olivine	40.39	0.00	0.03	0.06	0.00	8.08	0.17	0.35	50.02	0.15	0.00	0.01	99.26	91.7
T780	41	7811	0.25-0.5	colorless	Olivine	40.06	0.00	0.03	0.04	0.03	9.16	0.12	0.40	49.54	0.15	0.00	0.00	99.54	90.6
T780	42	7811	0.25-0.5	colorless	Olivine	40.43	0.01	0.02	0.01	0.06	8.48	0.15	0.39	49.87	0.01	0.00	0.00	99.43	91.3
T780	43	7811	0.25-0.5	colorless	Olivine	39.73	0.01	0.05	0.08	0.06	10.35	0.12	0.30	47.63	0.07	0.00	0.02	98.43	89.1
T780	44	7811	0.25-0.5	colorless	Olivine	40.29	0.00	0.05	0.02	0.00	6.96	0.10	0.38	50.81	0.10	0.00	0.01	98.71	92.9
T780	45	7811	0.25-0.5	colorless	Olivine	39.41	0.04	0.06	0.02	0.03	11.93	0.11	0.33	46.99	0.15	0.00	0.03	99.11	87.5
T780	46	7811	0.25-0.5	colorless	Olivine	39.89	0.03	0.05	0.07	0.02	9.42	0.14	0.35	49.05	0.06	0.00	0.00	99.09	90.3
T780	47	7811	0.25-0.5	colorless	Olivine	40.63	0.00	0.04	0.08	0.08	8.37	0.11	0.33	50.18	0.07	0.00	0.02	99.91	91.4
T780	48	7811	0.25-0.5	colorless	Olivine	40.41	0.02	0.02	0.00	0.01	6.99	0.12	0.39	51.02	0.21	0.00	0.00	99.19	92.9
T780	49	7811	0.25-0.5	colorless	Olivine	39.86	0.01	0.05	0.04	0.00	9.07	0.13	0.33	48.88	0.22	0.00	0.04	98.63	90.6
T780	50	7811	0.25-0.5	colorless	Olivine	40.58	0.02	0.01	0.00	0.06	7.39	0.13	0.29	50.75	0.17	0.00	0.03	99.42	92.5
T780	51	7811	0.25-0.5	colorless	Olivine	40.32	0.01	0.05	0.12	0.00	8.06	0.10	0.37	49.84	0.26	0.00	0.02	99.15	91.7
T780	52	7811	0.25-0.5	colorless	Olivine	39.99	0.03	0.04	0.10	0.08	9.56	0.14	0.42	48.63	0.28	0.00	0.00	99.27	90.1
T780	53	7811	0.25-0.5	colorless	Olivine	40.44	0.04	0.06	0.03	0.03	7.38	0.12	0.33	50.48	0.14	0.00	0.01	99.06	92.4
T780	54	7811	0.25-0.5	colorless	Olivine	40.36	0.00	0.04	0.08	0.04	8.00	0.12	0.46	50.01	0.30	0.00	0.00	99.40	91.8
T780	55	7811	0.25-0.5	colorless	Olivine	40.00	0.03	0.02	0.00	0.02	7.57	0.19	0.35	50.70	0.22	0.00	0.01	99.12	92.3
T780	56	7811	0.25-0.5	colorless	Olivine	40.70	0.02	0.03	0.02	0.00	7.09	0.15	0.35	50.84	0.20	0.00	0.01	99.41	92.7
T780	57	7811	0.25-0.5	colorless	Olivine	39.97	0.05	0.07	0.00	0.06	8.58	0.10	0.40	49.07	0.26	0.00	0.02	98.59	91.1
T780	58	7811	0.25-0.5	colorless	Olivine	40.31	0.00	0.06	0.10	0.06	9.73	0.10	0.38	48.76	0.10	0.00	0.01	99.61	89.9

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T780	59	7811	0.25-0.5	colorless	Olivine	39.87	0.03	0.04	0.06	0.03	7.57	0.07	0.34	50.46	0.16	0.00	0.03	98.67	92.2
T780	60	7811	0.25-0.5	colorless	Olivine	40.50	0.00	0.00	0.04	0.01	6.45	0.12	0.39	51.38	0.21	0.00	0.00	99.12	93.4
T780	61	7811	0.25-0.5	colorless	Olivine	40.20	0.00	0.03	0.02	0.03	8.39	0.12	0.43	49.66	0.26	0.00	0.01	99.15	91.3
T780	62	7811	0.25-0.5	colorless	Olivine	40.20	0.00	0.04	0.01	0.00	7.05	0.18	0.37	50.45	0.24	0.00	0.02	98.56	92.7
T780	63	7811	0.25-0.5	colorless	Olivine	40.11	0.03	0.02	0.03	0.01	7.72	0.14	0.36	50.05	0.25	0.00	0.02	98.72	92.0
T780	64	7811	0.25-0.5	colorless	Olivine	40.63	0.01	0.04	0.04	0.00	8.42	0.13	0.39	50.19	0.06	0.00	0.00	99.92	91.4
T780	66	7811	0.25-0.5	colorless	Olivine	40.58	0.01	0.02	0.00	0.12	6.69	0.08	0.36	51.94	0.01	0.00	0.01	99.81	93.3
T780	67	7811	0.25-0.5	colorless	Olivine	40.33	0.03	0.03	0.04	0.00	7.31	0.12	0.35	50.85	0.01	0.00	0.01	99.09	92.5
T780	68	7811	0.25-0.5	colorless	Olivine	40.26	0.04	0.01	0.00	0.00	7.01	0.09	0.29	51.76	0.00	0.00	0.00	99.46	92.9
T780	69	7811	0.25-0.5	colorless	Olivine	40.75	0.00	0.03	0.04	0.03	7.14	0.10	0.29	51.58	0.02	0.00	0.00	99.98	92.8
T780	70	7811	0.25-0.5	colorless	Olivine	40.09	0.02	0.02	0.03	0.02	9.12	0.09	0.28	49.34	0.12	0.00	0.02	99.16	90.6
T780	71	7811	0.25-0.5	colorless	Olivine	40.93	0.01	0.02	0.06	0.00	7.28	0.12	0.37	51.24	0.00	0.00	0.00	100.04	92.6
T780	72	7811	0.25-0.5	colorless	Olivine	40.54	0.02	0.02	0.01	0.03	8.18	0.14	0.33	49.93	0.15	0.00	0.01	99.39	91.6
T780	73	7811	0.25-0.5	colorless	Olivine	40.42	0.00	0.02	0.00	0.03	6.93	0.12	0.36	51.23	0.23	0.00	0.03	99.38	92.9
T780	74	7811	0.25-0.5	colorless	Olivine	40.07	0.06	0.00	0.00	0.00	7.34	0.12	0.40	50.46	0.08	0.00	0.00	98.53	92.5
T780	76	7811	0.25-0.5	colorless	Olivine	40.19	0.04	0.00	0.02	0.02	7.37	0.09	0.32	50.85	0.01	0.00	0.00	98.92	92.5
T787	42	7811	0.50-1.0	colorless	Olivine	40.49	0.02	0.03	0.02	0.00	7.47	0.08	0.40	51.03	0.00	0.00	0.00	99.55	92.4
T787	43	7811	0.50-1.0	colorless	Olivine	41.27	0.00	0.01	0.01	0.01	5.59	0.08	0.40	52.46	0.02	0.00	0.00	99.85	94.4
T787	44	7811	0.50-1.0	colorless	Olivine	40.85	0.01	0.04	0.00	0.02	7.08	0.08	0.39	51.58	0.00	0.00	0.00	100.05	92.9
T787	45	7811	0.50-1.0	colorless	Olivine	40.81	0.00	0.03	0.01	0.01	7.54	0.16	0.40	51.15	0.01	0.00	0.03	100.16	92.4
T787	46	7811	0.50-1.0	colorless	Olivine	40.41	0.05	0.02	0.01	0.02	7.52	0.18	0.34	51.64	0.02	0.00	0.00	100.22	92.4
T787	47	7811	0.50-1.0	colorless	Olivine	40.45	0.02	0.04	0.00	0.01	6.97	0.07	0.27	51.44	0.08	0.00	0.01	99.37	92.9
T787	48	7811	0.50-1.0	colorless	Olivine	40.39	0.06	0.02	0.02	0.02	7.39	0.13	0.42	51.24	0.05	0.00	0.01	99.77	92.5
T787	49	7811	0.50-1.0	colorless	Olivine	40.67	0.01	0.02	0.02	0.00	6.95	0.08	0.45	51.29	0.01	0.00	0.00	99.51	92.9
T787	50	7811	0.50-1.0	colorless	Olivine	40.34	0.03	0.00	0.04	0.03	7.78	0.11	0.31	51.39	0.03	0.00	0.03	100.10	92.2
T787	51	7811	0.50-1.0	colorless	Olivine	40.68	0.03	0.01	0.03	0.00	7.04	0.07	0.29	51.89	0.02	0.00	0.01	100.07	92.9
T787	52	7811	0.50-1.0	colorless	Olivine	40.23	0.00	0.02	0.00	0.03	8.50	0.11	0.36	50.51	0.02	0.00	0.00	99.78	91.4
T787	53	7811	0.50-1.0	colorless	Olivine	40.48	0.02	0.04	0.08	0.00	8.30	0.06	0.46	50.44	0.08	0.00	0.00	99.96	91.6
T787	54	7811	0.50-1.0	colorless	Olivine	40.31	0.00	0.02	0.00	0.05	6.87	0.13	0.44	51.33	0.01	0.00	0.00	99.15	93.0
T787	55	7811	0.50-1.0	colorless	Olivine	40.51	0.01	0.01	0.02	0.00	8.15	0.14	0.37	51.01	0.01	0.00	0.00	100.25	91.8
T787	56	7811	0.50-1.0	colorless	Olivine	40.70	0.02	0.02	0.00	0.00	8.05	0.17	0.37	50.95	0.03	0.00	0.01	100.32	91.9
T756	22	7812	0.25-0.5	colorless	Olivine	41.74	0.02	0.04	0.07	0.00	8.18	0.11	0.38	50.66	0.03	0.00	0.05	101.27	91.7
T776	38	7812	0.25-0.5	colorless	Olivine	38.87	0.06	0.05	0.00	0.00	12.86	0.11	0.15	46.22	0.03	0.00	0.00	98.35	86.5
T776	39	7812	0.25-0.5	colorless	Olivine	40.02	0.01	0.01	0.02	0.00	6.59	0.08	0.34	52.03	0.03	0.00	0.01	99.14	93.4
T776	40	7812	0.25-0.5	colorless	Olivine	39.42	0.01	0.04	0.00	0.05	8.04	0.08	0.29	50.22	0.00	0.00	0.01	98.17	91.8
T776	41	7812	0.25-0.5	colorless	Olivine	39.01	0.06	0.04	0.11	0.00	10.08	0.13	0.32	48.22	0.07	0.00	0.01	98.05	89.5
T780	85	7812	0.25-0.5	colorless	Olivine	40.29	0.03	0.00	0.00	0.00	8.81	0.14	0.36	49.82	0.08	0.00	0.00	99.52	91.0
T788	1	7812	0.5-1.0	colorless	Olivine	40.27	0.04	0.01	0.01	0.00	8.23	0.11	0.29	50.20	0.03	0.00	0.01	99.21	91.6
T788	2	7812	0.5-1.0	colorless	Olivine	40.70	0.04	0.03	0.03	0.07	6.73	0.07	0.31	51.29	0.01	0.00	0.01	99.30	93.1
T788	3	7812	0.5-1.0	colorless	Olivine	40.68	0.04	0.01	0.03	0.00	8.35	0.12	0.33	50.31	0.02	0.00	0.01	99.90	91.5
T788	4	7812	0.5-1.0	colorless	Olivine	41.35	0.00	0.02	0.00	0.04	6.41	0.06	0.34	52.00	0.03	0.00	0.01	100.26	93.5
T788	5	7812	0.5-1.0	colorless	Olivine	41.04	0.02	0.05	0.04	0.00	6.87	0.12	0.24	51.32	0.01	0.00	0.00	99.72	93.0
T788	6	7812	0.5-1.0	colorless	Olivine	40.68	0.04	0.02	0.02	0.03	7.68	0.15	0.29	51.01	0.02	0.00	0.01	99.96	92.2
T788	7	7812	0.5-1.0	colorless	Olivine	40.30	0.03	0.03	0.00	0.02	8.43	0.16	0.27	49.75	0.04	0.00	0.00	99.02	91.3
T788	8	7812	0.5-1.0	colorless	Olivine	40.64	0.03	0.02	0.05	0.00	8.02	0.11	0.30	50.45	0.03	0.00	0.00	99.65	91.8
T788	9	7812	0.5-1.0	colorless	Olivine	40.84	0.03	0.04	0.03	0.00	6.45	0.13	0.29	51.69	0.02	0.00	0.01	99.52	93.5



Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T788	10	7812	0.5-1.0	colorless	Olivine	40.88	0.01	0.04	0.03	0.00	6.73	0.05	0.30	51.66	0.02	0.00	0.01	99.72	93.2
T788	11	7812	0.5-1.0	colorless	Olivine	40.73	0.03	0.00	0.04	0.00	8.07	0.17	0.34	50.49	0.02	0.00	0.01	99.91	91.8
T788	12	7812	0.5-1.0	colorless	Olivine	40.87	0.03	0.04	0.01	0.04	7.62	0.12	0.26	51.00	0.00	0.00	0.01	99.99	92.3
T788	13	7812	0.5-1.0	colorless	Olivine	40.63	0.07	0.03	0.01	0.02	7.97	0.15	0.35	50.65	0.02	0.00	0.01	99.90	91.9
T788	14	7812	0.5-1.0	colorless	Olivine	40.77	0.02	0.02	0.03	0.00	7.27	0.12	0.31	51.20	0.00	0.00	0.01	99.75	92.6
T788	15	7812	0.5-1.0	colorless	Olivine	40.48	0.06	0.03	0.02	0.00	9.71	0.14	0.13	48.96	0.07	0.00	0.01	99.61	90.0
T788	16	7812	0.5-1.0	colorless	Olivine	40.88	0.02	0.04	0.02	0.03	6.74	0.10	0.26	51.14	0.01	0.00	0.00	99.24	93.1
T788	17	7812	0.5-1.0	colorless	Olivine	40.07	0.05	0.00	0.09	0.00	10.10	0.12	0.36	48.79	0.05	0.00	0.00	99.63	89.6
T788	18	7812	0.5-1.0	colorless	Olivine	40.38	0.00	0.04	0.04	0.01	8.09	0.13	0.33	50.83	0.03	0.00	0.01	99.89	91.8
T788	19	7812	0.5-1.0	colorless	Olivine	40.65	0.01	0.01	0.05	0.02	8.24	0.12	0.32	50.53	0.02	0.00	0.00	99.97	91.6
T788	20	7812	0.5-1.0	colorless	Olivine	40.71	0.00	0.01	0.00	0.05	6.88	0.08	0.37	51.55	0.01	0.00	0.01	99.67	93.0
T788	21	7812	0.5-1.0	colorless	Olivine	40.51	0.04	0.04	0.02	0.00	8.35	0.10	0.38	50.17	0.08	0.00	0.00	99.68	91.5
T788	22	7812	0.5-1.0	colorless	Olivine	39.93	0.08	0.04	0.00	0.00	10.31	0.13	0.27	48.70	0.09	0.00	0.01	99.56	89.4
T758	12	7813	0.25-0.5	colorless	Olivine	40.91	0.01	0.01	0.00	0.00	7.92	0.18	0.34	51.40	0.04	0.00	0.01	100.82	92.0
T758	13	7813	0.25-0.5	colorless	Olivine	41.15	0.00	0.04	0.00	0.03	7.15	0.13	0.46	51.48	0.01	0.00	0.00	100.46	92.8
T758	14	7813	0.25-0.5	colorless	Olivine	41.14	0.04	0.01	0.02	0.06	7.50	0.12	0.41	51.17	0.01	0.00	0.01	100.49	92.4
T758	15	7813	0.25-0.5	colorless	Olivine	41.26	0.04	0.04	0.04	0.04	8.07	0.11	0.42	50.62	0.08	0.00	0.01	100.73	91.8
T758	16	7813	0.25-0.5	colorless	Olivine	40.74	0.00	0.04	0.00	0.02	8.28	0.13	0.42	50.80	0.04	0.00	0.00	100.48	91.6
T758	17	7813	0.25-0.5	colorless	Olivine	40.56	0.03	0.04	0.05	0.03	9.73	0.19	0.36	49.54	0.09	0.00	0.03	100.64	90.1
T758	18	7813	0.25-0.5	colorless	Olivine	41.13	0.03	0.05	0.03	0.03	7.41	0.11	0.33	51.76	0.00	0.00	0.00	100.89	92.6
T758	19	7813	0.25-0.5	colorless	Olivine	40.23	0.05	0.03	0.02	0.00	10.09	0.12	0.40	49.33	0.10	0.00	0.02	100.38	89.7
T758	20	7813	0.25-0.5	colorless	Olivine	40.74	0.04	0.02	0.01	0.00	8.90	0.12	0.35	50.64	0.01	0.00	0.00	100.83	91.0
T758	21	7813	0.25-0.5	colorless	Olivine	40.51	0.01	0.02	0.09	0.03	9.04	0.13	0.35	50.14	0.05	0.00	0.00	100.37	90.8
T758	22	7813	0.25-0.5	colorless	Olivine	40.65	0.04	0.02	0.00	0.00	7.97	0.16	0.29	51.51	0.02	0.00	0.01	100.66	92.0
T771	20	7813	0.25-0.5	colorless	Olivine	41.30	0.04	0.00	0.01	0.00	7.13	0.16	0.31	51.27	0.04	0.00	0.02	100.29	92.8
T771	12	7813	0.25-0.5	colorless	Olivine	39.29	0.00	0.03	0.06	0.00	8.05	0.10	0.36	50.23	0.11	0.00	0.00	98.23	91.8
T771	13	7813	0.25-0.5	colorless	Olivine	40.00	0.02	0.01	0.05	0.00	6.52	0.14	0.30	51.61	0.03	0.00	0.02	98.70	93.4
T771	15	7813	0.25-0.5	colorless	Olivine	39.31	0.03	0.04	0.01	0.00	7.51	0.13	0.43	50.80	0.03	0.00	0.01	98.30	92.3
T771	17	7813	0.25-0.5	colorless	Olivine	39.49	0.04	0.04	0.00	0.00	8.33	0.14	0.40	49.88	0.03	0.00	0.00	98.36	91.4
T771	18	7813	0.25-0.5	colorless	Olivine	39.61	0.04	0.02	0.04	0.03	8.41	0.14	0.40	50.12	0.03	0.00	0.00	98.83	91.4
T771	19	7813	0.25-0.5	colorless	Olivine	39.71	0.04	0.02	0.10	0.00	8.24	0.13	0.33	49.97	0.07	0.00	0.01	98.62	91.5
T776	56	7813	0.25-0.5	colorless	Olivine	38.83	0.02	0.07	0.02	0.01	13.24	0.22	0.29	45.83	0.12	0.00	0.00	98.66	86.1
T776	57	7813	0.25-0.5	colorless	Olivine	39.78	0.04	0.02	0.01	0.00	8.00	0.09	0.32	50.16	0.02	0.00	0.00	98.43	91.8
T776	58	7813	0.25-0.5	colorless	Olivine	39.92	0.02	0.04	0.06	0.00	7.35	0.14	0.34	50.78	0.01	0.00	0.00	98.66	92.5
T776	59	7813	0.25-0.5	colorless	Olivine	39.76	0.00	0.00	0.02	0.00	7.96	0.18	0.34	50.81	0.02	0.00	0.02	99.11	91.9
T776	60	7813	0.25-0.5	colorless	Olivine	39.77	0.00	0.02	0.05	0.00	8.05	0.12	0.35	50.42	0.01	0.00	0.03	98.82	91.8
T781	26	7813	0.25-0.5	colorless	Olivine	40.47	0.02	0.03	0.02	0.04	7.37	0.12	0.33	50.53	0.24	0.00	0.01	99.18	92.4
T781	27	7813	0.25-0.5	colorless	Olivine	40.02	0.04	0.04	0.04	0.06	8.19	0.17	0.34	49.95	0.22	0.00	0.01	99.07	91.6
T781	28	7813	0.25-0.5	colorless	Olivine	40.90	0.01	0.00	0.07	0.00	6.63	0.13	0.37	51.66	0.01	0.00	0.00	99.78	93.3
T781	29	7813	0.25-0.5	colorless	Olivine	40.31	0.02	0.04	0.08	0.04	8.65	0.11	0.39	49.90	0.29	0.00	0.00	99.82	91.1
T781	30	7813	0.25-0.5	colorless	Olivine	40.19	0.01	0.04	0.00	0.00	7.67	0.12	0.40	50.48	0.33	0.00	0.00	99.26	92.1
T781	31	7813	0.25-0.5	colorless	Olivine	40.08	0.04	0.03	0.06	0.04	8.20	0.15	0.39	50.16	0.29	0.00	0.00	99.43	91.6
T781	32	7813	0.25-0.5	colorless	Olivine	40.46	0.03	0.03	0.07	0.01	7.01	0.11	0.33	51.01	0.31	0.00	0.01	99.38	92.8
T781	33	7813	0.25-0.5	colorless	Olivine	40.91	0.02	0.03	0.04	0.00	6.74	0.13	0.47	51.49	0.09	0.00	0.00	99.92	93.2
T781	34	7813	0.25-0.5	colorless	Olivine	40.55	0.03	0.01	0.00	0.00	6.74	0.11	0.29	51.41	0.06	0.00	0.00	99.21	93.1
T781	35	7813	0.25-0.5	colorless	Olivine	40.48	0.01	0.01	0.00	0.00	6.62	0.09	0.49	51.39	0.13	0.00	0.01	99.23	93.3

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T781	36	7813	0.25-0.5	colorless	Olivine	40.47	0.02	0.00	0.02	0.03	7.39	0.10	0.32	50.67	0.34	0.00	0.02	99.36	92.4
T781	37	7813	0.25-0.5	colorless	Olivine	40.46	0.01	0.00	0.05	0.03	6.70	0.16	0.42	51.48	0.34	0.00	0.02	99.67	93.2
T781	38	7813	0.25-0.5	colorless	Olivine	40.77	0.00	0.03	0.00	0.02	7.67	0.14	0.40	51.24	0.00	0.00	0.00	100.26	92.3
T781	39	7813	0.25-0.5	colorless	Olivine	40.26	0.06	0.02	0.00	0.02	8.18	0.12	0.44	50.32	0.47	0.00	0.00	99.87	91.6
T781	40	7813	0.25-0.5	colorless	Olivine	40.75	0.00	0.02	0.00	0.00	6.70	0.13	0.35	51.65	0.03	0.00	0.00	99.64	93.2
T781	41	7813	0.25-0.5	colorless	Olivine	40.96	0.03	0.05	0.04	0.01	6.25	0.10	0.35	52.42	0.01	0.00	0.00	100.21	93.7
T781	42	7813	0.25-0.5	colorless	Olivine	40.44	0.00	0.02	0.01	0.01	7.72	0.15	0.34	50.27	0.00	0.00	0.01	98.95	92.1
T781	43	7813	0.25-0.5	colorless	Olivine	40.72	0.02	0.01	0.03	0.03	5.42	0.14	0.39	52.57	0.01	0.00	0.01	99.36	94.5
T781	44	7813	0.25-0.5	colorless	Olivine	40.12	0.01	0.03	0.00	0.00	7.89	0.12	0.46	50.02	0.32	0.00	0.00	98.97	91.9
T781	45	7813	0.25-0.5	colorless	Olivine	40.36	0.02	0.02	0.00	0.00	7.79	0.10	0.33	50.55	0.01	0.00	0.00	99.19	92.0
T781	46	7813	0.25-0.5	colorless	Olivine	40.98	0.03	0.01	0.01	0.06	6.60	0.10	0.35	51.72	0.03	0.00	0.00	99.88	93.3
T781	48	7813	0.25-0.5	colorless	Olivine	39.63	0.04	0.06	0.04	0.05	10.24	0.12	0.23	47.89	0.28	0.00	0.01	98.60	89.3
T781	49	7813	0.25-0.5	colorless	Olivine	41.05	0.07	0.04	0.00	0.06	6.43	0.10	0.37	52.21	0.01	0.00	0.00	100.34	93.5
T781	50	7813	0.25-0.5	colorless	Olivine	40.67	0.01	0.03	0.03	0.07	6.37	0.05	0.39	51.88	0.00	0.00	0.01	99.51	93.6
T788	31	7813	0.5-1.0	colorless	Olivine	40.67	0.01	0.04	0.04	0.01	7.95	0.15	0.35	50.39	0.02	0.00	0.03	99.65	91.9
T788	32	7813	0.5-1.0	colorless	Olivine	41.06	0.02	0.00	0.03	0.02	6.18	0.11	0.30	51.68	0.02	0.00	0.00	99.42	93.7
T788	33	7813	0.5-1.0	colorless	Olivine	41.07	0.00	0.01	0.03	0.01	5.90	0.10	0.27	52.75	0.03	0.00	0.00	100.18	94.1
T788	34	7813	0.5-1.0	colorless	Olivine	40.63	0.00	0.04	0.04	0.01	7.88	0.14	0.32	50.83	0.02	0.00	0.00	99.92	92.0
T788	35	7813	0.5-1.0	colorless	Olivine	40.69	0.01	0.03	0.00	0.00	6.51	0.09	0.35	51.63	0.02	0.00	0.00	99.32	93.4
T788	36	7813	0.5-1.0	colorless	Olivine	40.70	0.02	0.06	0.00	0.00	7.02	0.12	0.30	51.66	0.04	0.00	0.00	99.92	92.9
T769	96	7814	0.25-0.5	colorless	Olivine	41.46	0.00	0.00	0.04	0.00	6.82	0.09	0.33	51.96	0.03	0.00	0.01	100.75	93.1
T769	97	7814	0.25-0.5	colorless	Olivine	41.62	0.00	0.02	0.02	0.00	7.32	0.09	0.35	51.33	0.03	0.00	0.01	100.79	92.6
T769	98	7814	0.25-0.5	colorless	Olivine	41.72	0.02	0.04	0.00	0.02	6.39	0.11	0.42	52.09	0.02	0.00	0.00	100.81	93.6
T769	99	7814	0.25-0.5	colorless	Olivine	41.55	0.02	0.03	0.05	0.00	7.72	0.14	0.35	50.91	0.02	0.00	0.00	100.79	92.2
T769	100	7814	0.25-0.5	colorless	Olivine	41.86	0.03	0.02	0.02	0.04	7.83	0.14	0.34	51.11	0.01	0.00	0.00	101.40	92.1
T769	101	7814	0.25-0.5	colorless	Olivine	41.69	0.00	0.00	0.03	0.00	7.46	0.13	0.37	51.43	0.03	0.00	0.00	101.14	92.5
T769	102	7814	0.25-0.5	colorless	Olivine	41.73	0.07	0.03	0.03	0.01	9.07	0.07	0.37	50.08	0.06	0.00	0.00	101.50	90.8
T769	103	7814	0.25-0.5	colorless	Olivine	40.98	0.05	0.02	0.00	0.00	7.99	0.13	0.36	51.05	0.01	0.00	0.00	100.60	91.9
T769	104	7814	0.25-0.5	colorless	Olivine	41.34	0.01	0.01	0.04	0.00	8.13	0.16	0.37	50.65	0.03	0.00	0.01	100.76	91.7
T769	105	7814	0.25-0.5	colorless	Olivine	41.77	0.03	0.01	0.00	0.00	7.46	0.12	0.36	50.87	0.02	0.00	0.00	100.65	92.4
T770	1	7814	0.25-0.5	colorless	Olivine	40.83	0.04	0.02	0.00	0.02	7.90	0.12	0.37	50.14	0.00	0.00	0.00	99.43	91.9
T770	2	7814	0.25-0.5	colorless	Olivine	41.07	0.02	0.02	0.04	0.01	7.64	0.13	0.31	50.00	0.01	0.00	0.01	99.24	92.1
T770	3	7814	0.25-0.5	colorless	Olivine	41.00	0.03	0.02	0.05	0.00	7.47	0.16	0.38	50.38	0.03	0.00	0.02	99.56	92.3
T770	4	7814	0.25-0.5	colorless	Olivine	41.00	0.06	0.02	0.01	0.00	7.19	0.12	0.37	50.18	0.02	0.00	0.00	98.99	92.6
T770	5	7814	0.25-0.5	colorless	Olivine	40.94	0.07	0.04	0.00	0.00	7.90	0.07	0.44	49.79	0.02	0.00	0.02	99.29	91.8
T770	6	7814	0.25-0.5	colorless	Olivine	40.77	0.06	0.02	0.00	0.05	7.87	0.14	0.33	49.78	0.03	0.00	0.00	99.05	91.9
T770	7	7814	0.25-0.5	colorless	Olivine	40.78	0.02	0.00	0.00	0.00	7.68	0.16	0.32	50.33	0.02	0.00	0.02	99.34	92.1
T770	8	7814	0.25-0.5	colorless	Olivine	40.30	0.04	0.00	0.08	0.00	10.68	0.14	0.29	47.81	0.08	0.00	0.00	99.42	88.9
T770	9	7814	0.25-0.5	colorless	Olivine	40.38	0.04	0.05	0.08	0.04	9.11	0.11	0.33	48.78	0.08	0.00	0.01	99.01	90.5
T770	10	7814	0.25-0.5	colorless	Olivine	40.98	0.04	0.00	0.00	0.00	5.81	0.13	0.33	51.49	0.03	0.00	0.01	98.82	94.0
T770	11	7814	0.25-0.5	colorless	Olivine	40.52	0.05	0.04	0.00	0.00	6.92	0.08	0.40	50.88	0.02	0.00	0.02	98.92	92.9
T770	12	7814	0.25-0.5	colorless	Olivine	40.49	0.03	0.02	0.06	0.00	7.77	0.14	0.41	50.00	0.03	0.00	0.02	98.96	92.0
T770	13	7814	0.25-0.5	colorless	Olivine	40.10	0.05	0.00	0.00	0.01	10.78	0.12	0.17	47.73	0.01	0.00	0.01	98.97	88.8
T770	14	7814	0.25-0.5	colorless	Olivine	40.64	0.00	0.04	0.06	0.00	6.53	0.13	0.34	51.20	0.01	0.00	0.01	98.97	93.3
T770	15	7814	0.25-0.5	colorless	Olivine	40.50	0.05	0.07	0.05	0.06	9.03	0.09	0.40	48.93	0.08	0.00	0.00	99.26	90.6
T770	16	7814	0.25-0.5	colorless	Olivine	40.70	0.00	0.03	0.03	0.00	7.41	0.09	0.29	50.38	0.00	0.00	0.01	98.95	92.4

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T770	17	7814	0.25-0.5	colorless	Olivine	40.32	0.03	0.01	0.01	0.04	8.07	0.12	0.36	49.35	0.02	0.00	0.02	98.34	91.6
T770	18	7814	0.25-0.5	colorless	Olivine	40.34	0.04	0.05	0.00	0.00	7.70	0.14	0.35	50.02	0.04	0.00	0.01	98.69	92.0
T770	19	7814	0.25-0.5	colorless	Olivine	40.29	0.02	0.02	0.05	0.00	8.11	0.14	0.40	49.93	0.09	0.00	0.02	99.09	91.6
T770	20	7814	0.25-0.5	colorless	Olivine	39.53	0.04	0.06	0.08	0.02	9.12	0.17	0.39	48.67	0.07	0.00	0.01	98.15	90.5
T770	21	7814	0.25-0.5	colorless	Olivine	39.92	0.02	0.06	0.06	0.00	8.44	0.11	0.40	49.10	0.09	0.00	0.02	98.23	91.2
T770	22	7814	0.25-0.5	colorless	Olivine	40.29	0.04	0.02	0.02	0.00	7.58	0.12	0.35	50.16	0.02	0.00	0.00	98.59	92.2
T770	23	7814	0.25-0.5	colorless	Olivine	39.91	0.05	0.05	0.12	0.00	9.20	0.14	0.44	48.96	0.06	0.00	0.00	98.92	90.5
T770	24	7814	0.25-0.5	colorless	Olivine	40.00	0.01	0.00	0.01	0.00	7.57	0.12	0.35	50.17	0.01	0.00	0.00	98.24	92.2
T770	25	7814	0.25-0.5	colorless	Olivine	39.90	0.02	0.01	0.00	0.00	8.63	0.19	0.41	49.66	0.01	0.00	0.00	98.83	91.1
T770	26	7814	0.25-0.5	colorless	Olivine	40.18	0.03	0.04	0.03	0.00	7.34	0.14	0.33	50.63	0.00	0.00	0.01	98.74	92.5
T770	27	7814	0.25-0.5	colorless	Olivine	39.78	0.04	0.02	0.02	0.05	7.11	0.13	0.36	50.43	0.03	0.00	0.00	97.96	92.7
T770	28	7814	0.25-0.5	colorless	Olivine	40.65	0.00	0.01	0.05	0.00	6.09	0.09	0.31	51.42	0.00	0.00	0.01	98.63	93.8
T770	29	7814	0.25-0.5	colorless	Olivine	40.09	0.04	0.03	0.01	0.02	7.37	0.15	0.32	50.48	0.00	0.00	0.00	98.51	92.4
T770	30	7814	0.25-0.5	colorless	Olivine	40.04	0.00	0.02	0.04	0.00	6.55	0.13	0.40	51.15	0.02	0.00	0.01	98.35	93.3
T770	31	7814	0.25-0.5	colorless	Olivine	39.96	0.01	0.03	0.01	0.02	7.21	0.14	0.30	50.12	0.03	0.00	0.00	97.84	92.5
T770	32	7814	0.25-0.5	colorless	Olivine	39.94	0.05	0.02	0.06	0.04	7.28	0.11	0.37	50.65	0.03	0.00	0.00	98.55	92.5
T770	33	7814	0.25-0.5	colorless	Olivine	39.57	0.00	0.00	0.01	0.02	8.11	0.13	0.32	49.49	0.02	0.00	0.02	97.69	91.6
T770	34	7814	0.25-0.5	colorless	Olivine	39.38	0.05	0.05	0.06	0.00	9.73	0.13	0.40	48.17	0.10	0.00	0.00	98.07	89.8
T770	35	7814	0.25-0.5	colorless	Olivine	40.28	0.01	0.00	0.00	0.00	6.86	0.09	0.33	50.95	0.01	0.00	0.00	98.53	93.0
T770	36	7814	0.25-0.5	colorless	Olivine	39.99	0.00	0.02	0.00	0.00	8.34	0.12	0.47	49.83	0.03	0.00	0.02	98.83	91.4
T770	37	7814	0.25-0.5	colorless	Olivine	40.06	0.04	0.03	0.01	0.00	6.25	0.09	0.34	51.58	0.01	0.00	0.02	98.44	93.6
T770	38	7814	0.25-0.5	colorless	Olivine	39.95	0.02	0.06	0.00	0.00	6.82	0.12	0.33	50.37	0.03	0.00	0.02	97.73	92.9
T770	39	7814	0.25-0.5	colorless	Olivine	39.76	0.00	0.00	0.00	0.06	7.78	0.10	0.32	49.83	0.01	0.00	0.01	97.88	92.0
T793	59	7814	0.50-1.0	colorless	Olivine	40.79	0.03	0.04	0.04	0.00	7.69	0.04	0.34	51.68	0.03	0.00	0.00	100.69	92.3
T793	60	7814	0.50-1.0	colorless	Olivine	41.02	0.00	0.00	0.05	0.00	7.54	0.11	0.41	51.82	0.02	0.00	0.00	100.99	92.5
T793	61	7814	0.50-1.0	colorless	Olivine	40.74	0.03	0.02	0.00	0.00	7.78	0.12	0.35	51.43	0.02	0.00	0.00	100.49	92.2
T793	62	7814	0.50-1.0	colorless	Olivine	40.63	0.05	0.02	0.03	0.02	8.35	0.13	0.49	50.97	0.03	0.00	0.01	100.75	91.6
T793	63	7814	0.50-1.0	colorless	Olivine	40.30	0.01	0.01	0.02	0.00	7.57	0.13	0.36	51.31	0.05	0.00	0.00	99.76	92.4
T793	64	7814	0.50-1.0	colorless	Olivine	40.67	0.01	0.04	0.00	0.00	7.07	0.08	0.34	52.10	0.02	0.00	0.00	100.33	92.9
T793	65	7814	0.50-1.0	colorless	Olivine	40.77	0.00	0.00	0.02	0.04	6.99	0.09	0.30	52.03	0.01	0.00	0.02	100.26	93.0
T793	66	7814	0.50-1.0	colorless	Olivine	40.78	0.02	0.04	0.00	0.03	7.21	0.14	0.34	52.07	0.01	0.00	0.01	100.64	92.8
T793	67	7814	0.50-1.0	colorless	Olivine	40.49	0.01	0.02	0.00	0.00	6.39	0.10	0.49	52.33	0.01	0.00	0.01	99.85	93.6
T793	68	7814	0.50-1.0	colorless	Olivine	40.42	0.01	0.00	0.04	0.00	8.15	0.16	0.38	51.20	0.01	0.00	0.00	100.36	91.8
T793	69	7814	0.50-1.0	colorless	Olivine	40.67	0.00	0.01	0.02	0.00	7.86	0.16	0.30	51.01	0.02	0.00	0.00	100.04	92.0
T793	70	7814	0.50-1.0	colorless	Olivine	41.11	0.01	0.02	0.05	0.04	7.06	0.15	0.43	52.11	0.02	0.00	0.00	100.99	92.9
T793	71	7814	0.50-1.0	colorless	Olivine	41.19	0.05	0.03	0.04	0.02	6.37	0.04	0.41	52.38	0.02	0.00	0.01	100.57	93.6
T793	72	7814	0.50-1.0	colorless	Olivine	40.56	0.02	0.02	0.00	0.00	9.22	0.14	0.47	50.33	0.02	0.00	0.02	100.81	90.7
T793	73	7814	0.50-1.0	colorless	Olivine	40.55	0.04	0.00	0.01	0.00	8.33	0.12	0.40	51.11	0.02	0.00	0.00	100.58	91.6
T793	74	7814	0.50-1.0	colorless	Olivine	40.43	0.01	0.03	0.04	0.03	9.00	0.10	0.45	49.99	0.04	0.00	0.01	100.12	90.8
T793	75	7814	0.50-1.0	colorless	Olivine	40.47	0.02	0.02	0.00	0.03	6.94	0.05	0.36	51.76	0.02	0.00	0.02	99.69	93.0
T793	76	7814	0.50-1.0	colorless	Olivine	40.20	0.02	0.04	0.06	0.00	8.02	0.04	0.42	50.74	0.08	0.00	0.00	99.61	91.9
T793	77	7814	0.50-1.0	colorless	Olivine	40.67	0.04	0.02	0.00	0.00	8.34	0.13	0.41	50.96	0.04	0.00	0.00	100.62	91.6
T793	78	7814	0.50-1.0	colorless	Olivine	40.77	0.00	0.02	0.00	0.00	6.67	0.10	0.31	52.03	0.00	0.00	0.02	99.92	93.3
T793	79	7814	0.50-1.0	colorless	Olivine	40.95	0.03	0.01	0.03	0.00	7.04	0.08	0.41	52.11	0.01	0.00	0.00	100.68	93.0
T793	80	7814	0.50-1.0	colorless	Olivine	40.73	0.00	0.01	0.02	0.00	5.61	0.05	0.37	53.12	0.05	0.00	0.01	99.96	94.4
T809	80	7814	0.25-0.5	colorless	Olivine	40.87	0.04	0.04	0.01	0.00	9.22	0.16	0.33	49.37	0.05	0.00	0.01	100.10	90.5

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T809	81	7814	0.25-0.5	colorless	Olivine	40.29	0.01	0.02	0.03	0.04	7.72	0.11	0.29	50.36	0.02	0.00	0.01	98.89	92.1
T809	82	7814	0.25-0.5	colorless	Olivine	39.99	0.05	0.07	0.02	0.00	9.27	0.12	0.36	49.52	0.06	0.00	0.02	99.45	90.5
T809	83	7814	0.25-0.5	colorless	Olivine	40.30	0.03	0.03	0.11	0.00	10.51	0.07	0.30	48.26	0.06	0.00	0.00	99.66	89.1
T809	84	7814	0.25-0.5	colorless	Olivine	40.29	0.06	0.05	0.04	0.00	8.81	0.08	0.35	49.70	0.07	0.00	0.00	99.44	91.0
T809	85	7814	0.25-0.5	colorless	Olivine	40.49	0.01	0.05	0.09	0.03	7.64	0.09	0.36	50.57	0.10	0.00	0.00	99.43	92.2
T809	86	7814	0.25-0.5	colorless	Olivine	40.55	0.02	0.02	0.04	0.00	7.71	0.13	0.33	50.89	0.03	0.00	0.00	99.72	92.2
T809	88	7814	0.25-0.5	colorless	Olivine	40.93	0.01	0.05	0.08	0.03	8.97	0.13	0.30	49.85	0.14	0.00	0.00	100.49	90.8
T809	89	7814	0.25-0.5	colorless	Olivine	40.70	0.04	0.00	0.07	0.00	6.41	0.13	0.28	51.90	0.00	0.00	0.00	99.53	93.5
T809	90	7814	0.25-0.5	colorless	Olivine	40.32	0.06	0.03	0.03	0.04	10.35	0.11	0.19	48.57	0.12	0.00	0.00	99.82	89.3
T809	91	7814	0.25-0.5	colorless	Olivine	40.38	0.04	0.05	0.07	0.01	7.95	0.14	0.32	50.40	0.09	0.00	0.02	99.46	91.9
T809	92	7814	0.25-0.5	colorless	Olivine	40.58	0.02	0.04	0.03	0.01	7.84	0.09	0.38	50.05	0.10	0.00	0.00	99.14	91.9
T809	93	7814	0.25-0.5	colorless	Olivine	41.42	0.02	0.00	0.00	0.04	7.15	0.13	0.24	51.54	0.01	0.00	0.00	100.54	92.8
T809	94	7814	0.25-0.5	colorless	Olivine	40.71	0.01	0.00	0.00	0.00	7.91	0.12	0.30	50.37	0.01	0.00	0.01	99.42	91.9
T809	95	7814	0.25-0.5	colorless	Olivine	40.72	0.05	0.02	0.00	0.06	7.62	0.15	0.34	50.94	0.00	0.00	0.00	99.91	92.3
T809	96	7814	0.25-0.5	colorless	Olivine	40.52	0.00	0.04	0.04	0.04	6.66	0.05	0.28	51.82	0.02	0.00	0.00	99.47	93.3
T809	97	7814	0.25-0.5	colorless	Olivine	40.90	0.03	0.02	0.02	0.00	6.57	0.05	0.37	52.06	0.02	0.00	0.01	100.04	93.4
T809	98	7814	0.25-0.5	colorless	Olivine	40.17	0.04	0.01	0.06	0.06	9.63	0.08	0.37	48.81	0.09	0.00	0.01	99.30	90.0
T809	99	7814	0.25-0.5	colorless	Olivine	40.79	0.00	0.02	0.07	0.02	6.29	0.06	0.42	51.73	0.00	0.00	0.00	99.42	93.6
T809	100	7814	0.25-0.5	colorless	Olivine	40.89	0.03	0.03	0.03	0.00	7.19	0.11	0.31	51.38	0.01	0.00	0.02	99.97	92.7
T809	101	7814	0.25-0.5	colorless	Olivine	40.73	0.00	0.02	0.02	0.00	7.77	0.11	0.35	50.73	0.00	0.00	0.00	99.74	92.1
T809	102	7814	0.25-0.5	colorless	Olivine	40.11	0.03	0.02	0.03	0.00	7.79	0.14	0.32	50.40	0.03	0.00	0.03	98.88	92.0
T809	103	7814	0.25-0.5	colorless	Olivine	40.70	0.06	0.23	0.20	0.04	8.82	0.15	0.35	48.20	0.81	0.00	0.01	99.56	90.7
T809	104	7814	0.25-0.5	colorless	Olivine	40.46	0.04	0.04	0.05	0.08	10.08	0.17	0.30	48.69	0.05	0.00	0.02	99.98	89.6
T809	106	7814	0.25-0.5	colorless	Olivine	40.38	0.03	0.03	0.09	0.00	8.12	0.12	0.34	49.91	0.11	0.00	0.01	99.13	91.6
T809	107	7814	0.25-0.5	colorless	Olivine	40.36	0.03	0.07	0.02	0.00	9.17	0.15	0.42	49.54	0.10	0.00	0.00	99.85	90.6
T809	108	7814	0.25-0.5	colorless	Olivine	40.60	0.03	0.03	0.09	0.00	9.06	0.11	0.36	49.58	0.07	0.00	0.00	99.92	90.7
T809	109	7814	0.25-0.5	colorless	Olivine	40.45	0.01	0.01	0.01	0.06	8.35	0.16	0.33	50.08	0.11	0.00	0.02	99.55	91.4
T809	110	7814	0.25-0.5	colorless	Olivine	40.27	0.07	0.04	0.05	0.02	9.62	0.15	0.30	49.25	0.06	0.00	0.01	99.84	90.1
T809	111	7814	0.25-0.5	colorless	Olivine	40.01	0.04	0.06	0.09	0.08	8.20	0.08	0.30	49.77	0.07	0.00	0.00	98.70	91.5
T809	112	7814	0.25-0.5	colorless	Olivine	40.28	0.01	0.03	0.12	0.03	9.37	0.11	0.26	48.96	0.09	0.00	0.02	99.26	90.3
T809	113	7814	0.25-0.5	colorless	Olivine	39.96	0.07	0.03	0.06	0.00	9.53	0.11	0.27	48.62	0.03	0.00	0.01	98.67	90.1
T809	114	7814	0.25-0.5	colorless	Olivine	40.96	0.02	0.02	0.00	0.02	6.69	0.10	0.32	51.21	0.01	0.00	0.00	99.36	93.2
T809	80B	7814	0.25-0.5	colorless	Olivine	40.20	0.00	0.00	0.05	0.00	8.62	0.12	0.32	49.70	0.04	0.00	0.00	99.06	91.1
T810	9	7814	1.0-2.0	colorless	Olivine	41.09	0.03	0.06	0.02	0.00	9.01	0.16	0.39	49.46	0.07	0.09	0.03	100.42	90.7
T810	16	7814	1.0-2.0	colorless	Olivine	39.88	0.05	0.01	0.00	0.00	6.52	0.09	0.33	51.24	0.02	0.00	0.00	98.15	93.3
T810	17	7814	1.0-2.0	colorless	Olivine	40.62	0.00	0.00	0.00	0.02	6.97	0.16	0.33	51.13	0.01	0.00	0.00	99.24	92.9
T810	18	7814	1.0-2.0	colorless	Olivine	41.70	0.02	1.83	0.01	0.03	7.76	0.10	0.39	49.54	0.04	0.00	0.01	101.42	91.9
T810	19	7814	1.0-2.0	colorless	Olivine	40.27	0.03	0.03	0.03	0.00	6.60	0.09	0.29	51.75	0.00	0.00	0.00	99.09	93.3
T810	20	7814	1.0-2.0	colorless	Olivine	40.76	0.01	0.02	0.08	0.01	6.75	0.06	0.35	51.52	0.00	0.00	0.01	99.56	93.2
T810	21	7814	1.0-2.0	colorless	Olivine	40.11	0.04	0.05	0.04	0.05	8.45	0.18	0.36	50.08	0.00	0.00	0.00	99.36	91.4
T810	22	7814	1.0-2.0	colorless	Olivine	40.10	0.03	0.03	0.02	0.03	7.01	0.15	0.37	51.32	0.04	0.00	0.00	99.10	92.9
T810	23	7814	1.0-2.0	colorless	Olivine	40.75	0.02	0.03	0.05	0.00	6.15	0.09	0.39	51.69	0.02	0.00	0.00	99.18	93.7
T810	24	7814	1.0-2.0	colorless	Olivine	40.55	0.03	0.02	0.02	0.01	8.60	0.13	0.32	50.72	0.00	0.00	0.00	100.38	91.3
T810	25	7814	1.0-2.0	colorless	Olivine	40.49	0.04	0.03	0.05	0.00	7.57	0.09	0.38	51.24	0.01	0.00	0.00	99.90	92.3
T810	26	7814	1.0-2.0	colorless	Olivine	40.38	0.01	0.02	0.04	0.00	6.33	0.11	0.38	51.73	0.02	0.00	0.00	99.02	93.6
T810	27	7814	1.0-2.0	colorless	Olivine	40.31	0.03	0.04	0.05	0.00	6.09	0.08	0.36	51.93	0.01	0.00	0.00	98.89	93.8

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T811	1	7814	1.0-2.0	colorless	Olivine	40.15	0.03	0.01	0.04	0.00	6.62	0.13	0.35	51.34	0.01	0.00	0.00	98.68	93.3
T811	2	7814	1.0-2.0	colorless	Olivine	39.96	0.02	0.02	0.03	0.01	7.70	0.19	0.28	50.86	0.01	0.00	0.00	99.08	92.2
T811	3	7814	1.0-2.0	colorless	Olivine	39.82	0.00	0.01	0.00	0.08	8.07	0.14	0.39	50.18	0.02	0.00	0.00	98.70	91.7
T811	4	7814	1.0-2.0	colorless	Olivine	38.73	0.00	0.08	0.06	0.04	9.57	0.15	0.37	47.74	0.05	0.00	0.01	96.82	89.9
T811	5	7814	1.0-2.0	colorless	Olivine	40.45	0.06	0.04	0.00	0.00	7.36	0.12	0.35	51.20	0.00	0.00	0.01	99.60	92.5
T811	6	7814	1.0-2.0	colorless	Olivine	39.98	0.05	0.00	0.02	0.05	6.54	0.14	0.47	51.08	0.02	0.00	0.01	98.36	93.3
T811	7	7814	1.0-2.0	colorless	Olivine	39.97	0.00	0.00	0.05	0.00	6.87	0.11	0.26	51.01	0.03	0.00	0.00	98.30	93.0
T811	8	7814	1.0-2.0	colorless	Olivine	39.69	0.03	0.04	0.02	0.00	8.20	0.08	0.41	50.04	0.01	0.00	0.01	98.52	91.6
T811	9	7814	1.0-2.0	colorless	Olivine	39.75	0.01	0.03	0.04	0.00	6.90	0.16	0.35	50.93	0.01	0.00	0.00	98.18	92.9
T811	10	7814	1.0-2.0	colorless	Olivine	39.48	0.00	0.02	0.02	0.03	8.27	0.14	0.49	50.01	0.01	0.00	0.00	98.49	91.5
T811	11	7814	1.0-2.0	colorless	Olivine	40.40	0.02	0.04	0.00	0.00	6.88	0.15	0.36	51.16	0.00	0.00	0.01	99.03	93.0
T811	12	7814	1.0-2.0	colorless	Olivine	39.99	0.00	0.04	0.04	0.05	6.50	0.09	0.37	51.19	0.02	0.00	0.00	98.28	93.3
T811	13	7814	1.0-2.0	colorless	Olivine	40.71	0.03	0.02	0.03	0.00	6.61	0.13	0.38	51.76	0.01	0.00	0.00	99.69	93.3
T811	14	7814	1.0-2.0	colorless	Olivine	39.77	0.00	0.04	0.00	0.00	7.44	0.12	0.35	50.34	0.02	0.00	0.01	98.10	92.3
T776	72	7815	0.25-0.5	colorless	Olivine	39.39	0.09	0.04	0.07	0.00	9.60	0.13	0.36	49.03	0.08	0.00	0.00	98.79	90.1
T776	75	7815	0.25-0.5	colorless	Olivine	38.98	0.05	0.04	0.00	0.01	10.25	0.15	0.42	48.38	0.09	0.00	0.00	98.37	89.4
T781	70	7815	0.25-0.5	colorless	Olivine	40.56	0.02	0.07	0.06	0.00	6.62	0.12	0.37	50.97	0.37	0.00	0.00	99.15	93.2
T794	1	7815	0.50-1.00	colorless	Olivine	39.98	0.04	0.01	0.01	0.00	7.32	0.08	0.34	50.64	0.00	0.00	0.01	98.45	92.5
T794	2	7815	0.50-1.00	colorless	Olivine	40.02	0.03	0.08	0.01	0.02	8.51	0.08	0.37	49.83	0.07	0.00	0.01	99.04	91.3
T758	80	7816	0.25-0.5	colorless	Olivine	40.94	0.04	0.02	0.02	0.00	7.53	0.12	0.30	51.44	0.00	0.00	0.02	100.43	92.4
T776	80	7816	0.25-0.5	colorless	Olivine	40.24	0.02	0.02	0.00	0.00	7.47	0.12	0.36	51.29	0.01	0.00	0.00	99.53	92.4
T776	81	7816	0.25-0.5	colorless	Olivine	39.34	0.00	0.03	0.05	0.01	8.15	0.13	0.44	50.18	0.02	0.00	0.01	98.36	91.7
T794	6	7816	0.50-1.00	colorless	Olivine	39.72	0.00	0.02	0.02	0.07	7.39	0.12	0.34	50.66	0.01	0.00	0.03	98.40	92.4
T794	7	7816	0.50-1.00	colorless	Olivine	39.84	0.03	0.03	0.00	0.03	7.91	0.10	0.29	50.17	0.03	0.00	0.00	98.43	91.9
T794	8	7816	0.50-1.00	colorless	Olivine	39.70	0.04	0.00	0.00	0.01	8.22	0.19	0.48	49.56	0.03	0.00	0.00	98.24	91.5
T794	9	7816	0.50-1.00	colorless	Olivine	40.03	0.01	0.02	0.03	0.00	6.27	0.12	0.32	51.35	0.00	0.00	0.00	98.16	93.6
T794	10	7816	0.50-1.00	colorless	Olivine	39.69	0.04	0.02	0.02	0.02	7.77	0.11	0.45	49.95	0.04	0.00	0.00	98.10	92.0
T794	11	7816	0.50-1.00	colorless	Olivine	40.58	0.06	0.03	0.01	0.01	7.99	0.20	0.16	50.73	0.13	0.00	0.00	99.90	91.9
T794	12	7816	0.50-1.00	colorless	Olivine	39.93	0.01	0.04	0.00	0.02	8.18	0.13	0.39	49.96	0.03	0.00	0.01	98.70	91.6
T794	13	7816	0.50-1.00	colorless	Olivine	39.73	0.01	0.03	0.01	0.03	8.61	0.10	0.43	49.56	0.02	0.00	0.03	98.56	91.1
T794	14	7816	0.50-1.00	colorless	Olivine	40.05	0.01	0.01	0.01	0.00	6.53	0.08	0.39	51.26	0.03	0.00	0.01	98.39	93.3
T794	15	7816	0.50-1.00	colorless	Olivine	40.61	0.00	0.01	0.03	0.08	6.20	0.13	0.34	51.40	0.00	0.00	0.00	98.80	93.7
T794	16	7816	0.50-1.00	colorless	Olivine	39.67	0.03	0.03	0.04	0.00	7.89	0.12	0.37	49.98	0.01	0.00	0.01	98.15	91.9
T794	17	7816	0.50-1.00	colorless	Olivine	40.09	0.07	0.02	0.07	0.00	7.26	0.17	0.36	50.98	0.00	0.00	0.00	99.02	92.6
T794	18	7816	0.50-1.00	colorless	Olivine	40.13	0.01	0.02	0.00	0.03	7.34	0.12	0.32	50.79	0.00	0.00	0.01	98.79	92.5
T794	19	7816	0.50-1.00	colorless	Olivine	39.67	0.00	0.04	0.00	0.01	8.08	0.12	0.36	49.95	0.03	0.00	0.00	98.27	91.7
T794	20	7816	0.50-1.00	colorless	Olivine	39.68	0.00	0.02	0.03	0.00	6.73	0.06	0.32	50.91	0.03	0.00	0.01	97.79	93.1
T794	21	7816	0.50-1.00	colorless	Olivine	39.27	0.04	0.01	0.00	0.00	9.02	0.16	0.40	49.03	0.00	0.00	0.00	97.94	90.6
T794	22	7816	0.50-1.00	colorless	Olivine	39.41	0.06	0.03	0.00	0.00	9.53	0.12	0.36	48.39	0.06	0.00	0.01	97.98	90.1
T771	53	7817	0.25-0.5	colorless	Olivine	38.60	0.05	0.05	0.01	0.00	12.93	0.15	0.04	46.56	0.02	0.00	0.00	98.41	86.5
T781	89	7817	0.25-0.5	colorless	Olivine	40.82	0.01	0.01	0.00	0.03	6.57	0.12	0.28	51.60	0.02	0.00	0.00	99.45	93.3
T781	90	7817	0.25-0.5	colorless	Olivine	40.51	0.00	0.03	0.02	0.01	9.83	0.12	0.31	48.82	0.08	0.00	0.01	99.75	89.8
T781	92	7817	0.25-0.5	colorless	Olivine	40.85	0.05	0.05	0.04	0.02	8.12	0.06	0.42	50.42	0.06	0.00	0.00	100.07	91.7
T781	94	7817	0.25-0.5	colorless	Olivine	40.45	0.02	0.01	0.03	0.00	9.91	0.16	0.31	48.73	0.08	0.00	0.02	99.73	89.8
T781	95	7817	0.25-0.5	colorless	Olivine	40.94	0.04	0.03	0.00	0.02	7.56	0.07	0.41	51.29	0.04	0.00	0.00	100.40	92.4
T781	98	7817	0.25-0.5	colorless	Olivine	40.91	0.05	0.02	0.07	0.00	7.91	0.14	0.37	49.97	0.08	0.00	0.01	99.53	91.8

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T781	99	7817	0.25-0.5	colorless	Olivine	40.52	0.04	0.04	0.12	0.02	7.96	0.07	0.38	50.38	0.06	0.00	0.00	99.57	91.9
T794	23	7817	0.50-1.00	colorless	Olivine	39.79	0.01	0.02	0.00	0.00	6.73	0.11	0.32	50.95	0.04	0.00	0.00	97.97	93.1
T794	24	7817	0.50-1.00	colorless	Olivine	39.67	0.03	0.01	0.01	0.01	6.73	0.11	0.30	50.97	0.01	0.00	0.02	97.87	93.1
T794	25	7817	0.50-1.00	colorless	Olivine	38.67	0.04	0.04	0.04	0.05	12.55	0.10	0.11	45.99	0.02	0.00	0.01	97.63	86.7
T794	26	7817	0.50-1.00	colorless	Olivine	39.48	0.00	0.02	0.01	0.00	8.15	0.17	0.37	49.48	0.03	0.00	0.02	97.75	91.5
T794	27	7817	0.50-1.00	colorless	Olivine	40.63	0.01	0.03	0.07	0.06	6.54	0.09	0.33	51.27	0.01	0.00	0.01	99.04	93.3
T801	1	7817	1.0-2.0	colorless	Olivine	39.53	0.01	0.00	0.00	0.00	7.95	0.09	0.42	49.79	0.03	0.00	0.02	97.84	91.8
T801	2	7817	1.0-2.0	colorless	Olivine	39.65	0.05	0.04	0.01	0.08	8.02	0.15	0.45	49.77	0.02	0.00	0.00	98.22	91.7
T801	3	7817	1.0-2.0	colorless	Olivine	40.13	0.00	0.04	0.00	0.07	6.59	0.11	0.39	51.56	0.01	0.00	0.02	98.92	93.3
T801	4	7817	1.0-2.0	colorless	Olivine	40.02	0.00	0.03	0.00	0.02	6.94	0.09	0.38	51.03	0.03	0.00	0.01	98.54	92.9
T801	5	7817	1.0-2.0	colorless	Olivine	39.75	0.03	0.02	0.00	0.01	6.54	0.12	0.32	51.29	0.02	0.00	0.02	98.11	93.3
T801	6	7817	1.0-2.0	colorless	Olivine	40.02	0.01	0.03	0.05	0.01	7.90	0.20	0.35	50.42	0.01	0.00	0.00	99.00	91.9
T801	7	7817	1.0-2.0	colorless	Olivine	39.57	0.00	0.00	0.04	0.00	6.69	0.06	0.39	51.24	0.00	0.00	0.03	98.01	93.2
T758	96	7819	0.25-0.5	colorless	Olivine	41.64	0.00	0.09	0.00	0.12	12.93	0.11	0.00	46.81	0.16	0.02	0.00	101.87	86.6
T782	34	7820	0.25-0.5	colorless	Olivine	40.27	0.03	0.04	0.01	0.04	7.02	0.12	0.33	51.34	0.02	0.00	0.01	99.21	92.9
T782	35	7820	0.25-0.5	colorless	Olivine	39.87	0.06	0.00	0.05	0.00	6.38	0.08	0.36	50.34	0.70	0.00	0.00	97.84	93.4
T782	36	7820	0.25-0.5	colorless	Olivine	39.70	0.04	0.03	0.02	0.01	8.08	0.07	0.33	49.35	0.65	0.00	0.00	98.29	91.6
T782	37	7820	0.25-0.5	colorless	Olivine	40.59	0.01	0.03	0.01	0.01	8.31	0.10	0.40	50.09	0.00	0.00	0.00	99.55	91.5
T782	38	7820	0.25-0.5	colorless	Olivine	40.31	0.01	0.02	0.00	0.05	7.26	0.10	0.46	50.73	0.02	0.00	0.01	98.97	92.6
T782	39	7820	0.25-0.5	colorless	Olivine	39.76	0.02	0.06	0.04	0.00	8.55	0.09	0.40	49.88	0.09	0.00	0.00	98.89	91.2
T782	40	7820	0.25-0.5	colorless	Olivine	40.39	0.02	0.03	0.00	0.00	7.18	0.10	0.31	50.96	0.00	0.00	0.00	98.99	92.7
T782	41	7820	0.25-0.5	colorless	Olivine	40.25	0.01	0.00	0.00	0.00	7.84	0.12	0.34	50.30	0.15	0.00	0.00	99.00	92.0
T782	42	7820	0.25-0.5	colorless	Olivine	40.84	0.00	0.03	0.01	0.02	7.13	0.07	0.30	51.35	0.01	0.00	0.01	99.76	92.8
T782	43	7820	0.25-0.5	colorless	Olivine	40.51	0.01	0.00	0.00	0.00	6.65	0.11	0.34	51.64	0.01	0.00	0.01	99.28	93.3
T782	44	7820	0.25-0.5	colorless	Olivine	39.79	0.00	0.02	0.03	0.00	7.56	0.12	0.34	49.39	0.93	0.00	0.02	98.20	92.1
T782	45	7820	0.25-0.5	colorless	Olivine	40.41	0.04	0.01	0.00	0.02	7.29	0.12	0.39	50.81	0.02	0.00	0.00	99.11	92.6
T782	46	7820	0.25-0.5	colorless	Olivine	40.13	0.00	0.01	0.00	0.01	6.74	0.11	0.43	50.75	0.67	0.00	0.00	98.86	93.1
T782	47	7820	0.25-0.5	colorless	Olivine	40.47	0.01	0.01	0.03	0.04	6.40	0.11	0.34	51.51	0.00	0.00	0.01	98.93	93.5
T782	48	7820	0.25-0.5	colorless	Olivine	40.84	0.04	0.00	0.00	0.08	6.91	0.07	0.34	51.69	0.02	0.00	0.00	99.99	93.0
T782	49	7820	0.25-0.5	colorless	Olivine	40.07	0.04	0.04	0.01	0.00	7.09	0.15	0.43	50.13	0.69	0.00	0.01	98.66	92.7
T782	50	7820	0.25-0.5	colorless	Olivine	40.39	0.04	0.01	0.00	0.00	8.16	0.17	0.27	50.15	0.01	0.00	0.00	99.20	91.6
T782	51	7820	0.25-0.5	colorless	Olivine	39.12	0.04	0.04	0.00	0.02	9.73	0.10	0.41	47.10	0.80	0.00	0.00	97.35	89.6
T782	53	7820	0.25-0.5	colorless	Olivine	40.57	0.03	0.01	0.00	0.03	6.46	0.12	0.31	51.44	0.01	0.00	0.00	98.98	93.4
T782	54	7820	0.25-0.5	colorless	Olivine	40.33	0.02	0.02	0.02	0.00	6.73	0.11	0.34	51.14	0.00	0.00	0.01	98.73	93.1
T782	55	7820	0.25-0.5	colorless	Olivine	39.48	0.02	0.01	0.00	0.08	7.07	0.12	0.33	49.59	0.62	0.00	0.01	97.32	92.6
T782	56	7820	0.25-0.5	colorless	Olivine	39.73	0.04	0.06	0.07	0.00	6.56	0.13	0.38	51.28	0.01	0.00	0.00	98.27	93.3
T782	57	7820	0.25-0.5	colorless	Olivine	40.46	0.00	0.02	0.00	0.02	7.58	0.11	0.45	50.82	0.01	0.00	0.00	99.46	92.3
T782	58	7820	0.25-0.5	colorless	Olivine	39.68	0.04	0.04	0.03	0.00	7.60	0.06	0.31	49.67	0.48	0.00	0.01	97.94	92.1
T794	28	7820	0.50-1.00	colorless	Olivine	40.68	0.05	0.03	0.01	0.02	6.13	0.12	0.33	52.03	0.02	0.00	0.02	99.43	93.8
T794	29	7820	0.50-1.00	colorless	Olivine	39.12	0.02	0.03	0.00	0.02	8.32	0.18	0.34	49.45	0.02	0.00	0.00	97.51	91.4
T794	30	7820	0.50-1.00	colorless	Olivine	40.12	0.01	0.03	0.00	0.02	6.48	0.05	0.34	51.31	0.01	0.00	0.02	98.39	93.4
T794	31	7820	0.50-1.00	colorless	Olivine	40.11	0.01	0.03	0.00	0.00	6.50	0.12	0.35	51.49	0.00	0.00	0.01	98.62	93.4
T794	32	7820	0.50-1.00	colorless	Olivine	39.53	0.01	0.04	0.00	0.02	7.63	0.08	0.42	50.33	0.03	0.00	0.02	98.10	92.2
T794	33	7820	0.50-1.00	colorless	Olivine	40.17	0.00	0.03	0.00	0.00	6.44	0.10	0.31	51.39	0.01	0.00	0.01	98.47	93.4
T794	34	7820	0.50-1.00	colorless	Olivine	40.30	0.01	0.04	0.04	0.03	6.56	0.11	0.38	51.39	0.00	0.00	0.00	98.88	93.3
T794	35	7820	0.50-1.00	colorless	Olivine	39.65	0.03	0.03	0.00	0.00	7.81	0.15	0.34	50.17	0.02	0.00	0.03	98.21	92.0

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T794	36	7820	0.50-1.00	colorless	Olivine	40.03	0.00	0.02	0.05	0.01	7.83	0.09	0.41	50.52	0.01	0.00	0.01	98.97	92.0
T794	37	7820	0.50-1.00	colorless	Olivine	39.87	0.00	0.03	0.03	0.06	7.94	0.12	0.32	50.20	0.01	0.00	0.02	98.62	91.8
T794	38	7820	0.50-1.00	colorless	Olivine	39.87	0.02	0.04	0.01	0.04	6.85	0.10	0.32	51.13	0.02	0.00	0.01	98.42	93.0
T794	39	7820	0.50-1.00	colorless	Olivine	40.31	0.02	0.03	0.01	0.00	7.02	0.13	0.39	51.32	0.03	0.00	0.01	99.27	92.9
T794	40	7820	0.50-1.00	colorless	Olivine	39.60	0.04	0.02	0.04	0.06	8.70	0.16	0.39	49.48	0.04	0.00	0.00	98.53	91.0
T794	41	7820	0.50-1.00	colorless	Olivine	39.53	0.03	0.03	0.05	0.03	7.67	0.12	0.37	50.35	0.01	0.00	0.01	98.20	92.1
T801	8	7820	1.0-2.0	colorless	Olivine	39.69	0.00	0.04	0.00	0.01	7.60	0.13	0.30	50.24	0.01	0.00	0.00	98.02	92.2
T801	9	7820	1.0-2.0	colorless	Olivine	39.84	0.03	0.02	0.00	0.04	6.49	0.15	0.39	51.20	0.00	0.00	0.04	98.19	93.4
T801	10	7820	1.0-2.0	colorless	Olivine	39.32	0.01	0.00	0.01	0.00	6.63	0.12	0.36	50.73	0.03	0.00	0.00	97.23	93.2
T777	20a	7821	0.25-0.5	colorless	Olivine	37.80	0.06	0.02	0.00	0.05	11.72	0.12	0.20	45.95	0.03	0.00	0.00	95.94	87.5
T777	20b	7821	0.25-0.5	colorless	Olivine	39.35	0.04	0.03	0.07	0.02	8.20	0.15	0.42	49.64	0.06	0.00	0.00	97.99	91.5
T777	21	7821	0.25-0.5	colorless	Olivine	39.61	0.02	0.05	0.04	0.03	8.64	0.11	0.39	49.35	0.08	0.00	0.03	98.35	91.1
T777	22	7821	0.25-0.5	colorless	Olivine	39.39	0.07	0.03	0.01	0.01	8.40	0.13	0.34	49.73	0.06	0.00	0.01	98.17	91.3
T777	23	7821	0.25-0.5	colorless	Olivine	39.65	0.01	0.03	0.04	0.01	7.98	0.15	0.41	50.11	0.01	0.00	0.00	98.42	91.8
T777	24	7821	0.25-0.5	colorless	Olivine	39.57	0.04	0.05	0.12	0.00	8.10	0.10	0.34	50.01	0.06	0.00	0.02	98.43	91.7
T777	25	7821	0.25-0.5	colorless	Olivine	39.90	0.03	0.04	0.07	0.03	8.95	0.09	0.36	49.44	0.07	0.00	0.00	98.99	90.8
T777	26	7821	0.25-0.5	colorless	Olivine	39.39	0.04	0.03	0.03	0.00	8.46	0.12	0.30	49.42	0.04	0.00	0.00	97.82	91.2
T777	27	7821	0.25-0.5	colorless	Olivine	38.77	0.03	0.04	0.07	0.03	11.85	0.18	0.19	47.06	0.00	0.00	0.01	98.23	87.6
T777	28	7821	0.25-0.5	colorless	Olivine	39.99	0.01	0.04	0.10	0.02	7.76	0.10	0.38	49.81	0.09	0.00	0.00	98.29	92.0
T777	29	7821	0.25-0.5	colorless	Olivine	39.84	0.00	0.07	0.07	0.03	7.91	0.09	0.32	50.15	0.09	0.00	0.00	98.56	91.9
T777	30	7821	0.25-0.5	colorless	Olivine	39.50	0.06	0.01	0.00	0.01	7.80	0.14	0.33	49.93	0.01	0.00	0.00	97.78	91.9
T777	31	7821	0.25-0.5	colorless	Olivine	38.94	0.04	0.02	0.04	0.00	11.25	0.10	0.23	47.45	0.02	0.00	0.03	98.11	88.3
T777	32	7821	0.25-0.5	colorless	Olivine	39.88	0.00	0.03	0.00	0.00	8.46	0.14	0.32	49.97	0.02	0.00	0.01	98.83	91.3
T777	33	7821	0.25-0.5	colorless	Olivine	39.30	0.00	0.01	0.03	0.00	8.35	0.14	0.39	50.07	0.02	0.00	0.00	98.31	91.4
T777	34	7821	0.25-0.5	colorless	Olivine	39.29	0.06	0.03	0.07	0.00	9.42	0.09	0.32	49.08	0.06	0.00	0.02	98.46	90.3
T777	35	7821	0.25-0.5	colorless	Olivine	39.56	0.05	0.04	0.09	0.05	9.51	0.10	0.33	48.92	0.06	0.00	0.00	98.71	90.2
T777	36	7821	0.25-0.5	colorless	Olivine	39.94	0.00	0.05	0.11	0.00	8.77	0.16	0.40	49.42	0.08	0.00	0.01	98.96	90.9
T777	37	7821	0.25-0.5	colorless	Olivine	39.35	0.02	0.03	0.01	0.04	8.33	0.14	0.39	49.57	0.01	0.00	0.00	97.89	91.4
T777	38	7821	0.25-0.5	colorless	Olivine	39.42	0.02	0.03	0.00	0.00	7.16	0.17	0.36	50.67	0.01	0.00	0.00	97.84	92.7
T782	65	7821	0.25-0.5	colorless	Olivine	39.85	0.05	0.05	0.07	0.05	8.52	0.15	0.39	48.34	0.80	0.00	0.00	98.27	91.0
T782	66	7821	0.25-0.5	colorless	Olivine	39.76	0.03	0.02	0.00	0.05	6.90	0.16	0.36	50.12	0.64	0.00	0.00	98.03	92.8
T782	67	7821	0.25-0.5	colorless	Olivine	39.78	0.06	0.07	0.07	0.00	9.13	0.17	0.32	49.16	0.10	0.00	0.01	98.88	90.6
T782	68	7821	0.25-0.5	colorless	Olivine	39.20	0.07	0.00	0.02	0.02	10.36	0.07	0.29	47.09	0.74	0.00	0.01	97.89	89.0
T782	69	7821	0.25-0.5	colorless	Olivine	39.71	0.03	0.05	0.06	0.02	8.20	0.13	0.32	49.37	0.14	0.00	0.00	98.02	91.5
T782	70	7821	0.25-0.5	colorless	Olivine	40.36	0.02	0.02	0.10	0.03	8.02	0.14	0.44	50.08	0.07	0.00	0.01	99.30	91.8
T782	71	7821	0.25-0.5	colorless	Olivine	40.46	0.03	0.03	0.05	0.00	7.58	0.14	0.44	50.73	0.01	0.00	0.00	99.46	92.3
T782	72	7821	0.25-0.5	colorless	Olivine	40.04	0.05	0.06	0.01	0.05	7.99	0.12	0.43	50.03	0.04	0.00	0.00	98.82	91.8
T782	73	7821	0.25-0.5	colorless	Olivine	40.63	0.03	0.04	0.09	0.00	8.37	0.10	0.38	50.22	0.08	0.00	0.01	99.94	91.5
T782	74	7821	0.25-0.5	colorless	Olivine	40.13	0.01	0.05	0.00	0.02	8.50	0.14	0.46	49.59	0.22	0.00	0.02	99.15	91.2
T782	75	7821	0.25-0.5	colorless	Olivine	39.93	0.04	0.04	0.11	0.00	7.87	0.13	0.34	49.97	0.08	0.00	0.00	98.52	91.9
T782	76	7821	0.25-0.5	colorless	Olivine	39.53	0.00	0.04	0.00	0.03	7.65	0.15	0.48	49.17	0.62	0.00	0.00	97.66	92.0
T782	77	7821	0.25-0.5	colorless	Olivine	40.04	0.04	0.01	0.00	0.00	7.15	0.10	0.36	49.82	0.71	0.00	0.00	98.23	92.6
T782	78	7821	0.25-0.5	colorless	Olivine	38.90	0.03	0.05	0.03	0.00	9.95	0.15	0.27	47.28	0.78	0.00	0.00	97.45	89.4
T782	79	7821	0.25-0.5	colorless	Olivine	40.21	0.01	0.03	0.05	0.00	7.40	0.14	0.31	49.94	0.72	0.00	0.01	98.83	92.3
T782	80	7821	0.25-0.5	colorless	Olivine	39.88	0.00	0.03	0.00	0.11	7.56	0.08	0.36	49.24	0.75	0.00	0.00	98.02	92.1
T782	81	7821	0.25-0.5	colorless	Olivine	39.32	0.02	0.02	0.07	0.02	7.43	0.11	0.36	49.23	0.67	0.00	0.01	97.25	92.2



Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T782	82	7821	0.25-0.5	colorless	Olivine	39.89	0.06	0.03	0.03	0.01	7.65	0.17	0.34	49.72	0.66	0.00	0.00	98.56	92.1
T782	83	7821	0.25-0.5	colorless	Olivine	39.13	0.05	0.04	0.02	0.06	8.89	0.16	0.34	47.84	0.67	0.00	0.01	97.23	90.6
T782	84	7821	0.25-0.5	colorless	Olivine	39.84	0.02	0.07	0.05	0.00	9.00	0.13	0.36	48.24	0.69	0.00	0.00	98.40	90.5
T782	85	7821	0.25-0.5	colorless	Olivine	39.60	0.05	0.02	0.01	0.04	7.70	0.16	0.38	49.59	0.59	0.00	0.00	98.16	92.0
T782	86	7821	0.25-0.5	colorless	Olivine	40.26	0.00	0.03	0.00	0.00	7.96	0.14	0.37	49.35	0.07	0.00	0.01	98.19	91.7
T782	87	7821	0.25-0.5	colorless	Olivine	40.11	0.06	0.01	0.04	0.05	7.06	0.11	0.33	50.41	0.52	0.00	0.00	98.68	92.7
T782	88	7821	0.25-0.5	colorless	Olivine	40.03	0.04	0.04	0.05	0.03	7.66	0.13	0.43	49.40	0.60	0.00	0.00	98.40	92.0
T782	89	7821	0.25-0.5	colorless	Olivine	39.75	0.00	0.00	0.01	0.02	8.29	0.16	0.43	49.00	0.53	0.00	0.01	98.22	91.3
T795	7	7821	0.50-1.00	colorless	Olivine	39.43	0.03	0.00	0.04	0.03	8.24	0.12	0.42	49.77	0.02	0.00	0.00	98.11	91.5
T795	8	7821	0.50-1.00	colorless	Olivine	39.60	0.01	0.00	0.04	0.03	7.53	0.13	0.33	50.37	0.04	0.00	0.00	98.08	92.3
T795	9	7821	0.50-1.00	colorless	Olivine	39.81	0.00	0.03	0.01	0.01	8.47	0.16	0.37	49.88	0.04	0.00	0.00	98.78	91.3
T795	10	7821	0.50-1.00	colorless	Olivine	39.82	0.01	0.02	0.03	0.04	7.56	0.11	0.47	50.87	0.02	0.00	0.00	98.94	92.3
T795	11	7821	0.50-1.00	colorless	Olivine	40.12	0.03	0.01	0.02	0.00	6.75	0.05	0.40	51.32	0.00	0.00	0.00	98.70	93.1
T795	12	7821	0.50-1.00	colorless	Olivine	40.41	0.00	0.06	0.01	0.00	6.81	0.08	0.46	51.63	0.01	0.00	0.01	99.50	93.1
T795	13	7821	0.50-1.00	colorless	Olivine	40.43	0.01	0.00	0.00	0.00	6.65	0.13	0.37	51.71	0.01	0.00	0.00	99.32	93.3
T795	14	7821	0.50-1.00	colorless	Olivine	40.20	0.02	0.00	0.00	0.00	7.34	0.11	0.36	50.60	0.03	0.00	0.00	98.67	92.5
T795	15	7821	0.50-1.00	colorless	Olivine	40.03	0.04	0.01	0.04	0.00	8.13	0.14	0.41	50.11	0.01	0.00	0.00	98.91	91.7
T795	16	7821	0.50-1.00	colorless	Olivine	40.39	0.01	0.03	0.05	0.06	7.16	0.10	0.30	51.13	0.03	0.00	0.01	99.28	92.7
T795	17	7821	0.50-1.00	colorless	Olivine	39.62	0.04	0.07	0.06	0.03	8.28	0.11	0.36	50.17	0.09	0.00	0.02	98.87	91.5
T795	18	7821	0.50-1.00	colorless	Olivine	40.21	0.02	0.04	0.06	0.00	7.31	0.16	0.38	51.02	0.07	0.00	0.00	99.27	92.6
T795	19	7821	0.50-1.00	colorless	Olivine	40.28	0.04	0.02	0.04	0.00	8.25	0.13	0.36	50.34	0.02	0.00	0.01	99.49	91.6
T795	20	7821	0.50-1.00	colorless	Olivine	40.24	0.00	0.02	0.02	0.03	6.62	0.12	0.43	51.60	0.02	0.00	0.00	99.08	93.3
T795	21	7821	0.50-1.00	colorless	Olivine	40.23	0.02	0.02	0.00	0.02	7.34	0.09	0.40	50.80	0.03	0.00	0.01	98.98	92.5
T795	22	7821	0.50-1.00	colorless	Olivine	39.78	0.03	0.04	0.04	0.00	8.11	0.13	0.44	50.65	0.04	0.00	0.01	99.26	91.8
T795	23	7821	0.50-1.00	colorless	Olivine	40.23	0.02	0.04	0.00	0.00	7.56	0.12	0.39	51.22	0.02	0.00	0.01	99.64	92.4
T795	24	7821	0.50-1.00	colorless	Olivine	39.70	0.01	0.02	0.01	0.00	8.29	0.12	0.46	49.90	0.04	0.00	0.01	98.56	91.5
T795	25	7821	0.50-1.00	colorless	Olivine	40.43	0.01	0.05	0.02	0.00	6.86	0.09	0.32	51.27	0.03	0.00	0.00	99.08	93.0
T795	26	7821	0.50-1.00	colorless	Olivine	39.50	0.03	0.01	0.02	0.01	8.38	0.13	0.37	49.98	0.04	0.00	0.00	98.45	91.4
T795	27	7821	0.50-1.00	colorless	Olivine	40.49	0.06	0.02	0.02	0.00	7.70	0.10	0.42	50.79	0.02	0.00	0.00	99.62	92.2
T795	28	7821	0.50-1.00	colorless	Olivine	39.91	0.01	0.03	0.04	0.02	7.60	0.13	0.31	50.76	0.02	0.00	0.01	98.85	92.3
T795	29	7821	0.50-1.00	colorless	Olivine	38.85	0.02	0.01	0.02	0.07	8.24	0.17	0.42	50.11	0.05	0.00	0.02	97.99	91.6
T795	30	7821	0.50-1.00	colorless	Olivine	39.75	0.03	0.02	0.01	0.02	7.88	0.14	0.37	50.14	0.03	0.00	0.01	98.40	91.9
T795	31	7821	0.50-1.00	colorless	Olivine	39.88	0.03	0.05	0.00	0.01	7.25	0.11	0.31	50.90	0.03	0.00	0.01	98.57	92.6
T801	11	7821	1.0-2.0	colorless	Olivine	39.73	0.04	0.00	0.04	0.00	6.67	0.13	0.36	51.32	0.01	0.00	0.01	98.31	93.2
T801	12	7821	1.0-2.0	colorless	Olivine	39.72	0.01	0.02	0.00	0.06	7.69	0.16	0.34	50.27	0.01	0.00	0.03	98.30	92.1
T801	13	7821	1.0-2.0	colorless	Olivine	39.98	0.04	0.03	0.01	0.02	7.26	0.08	0.46	50.76	0.00	0.00	0.01	98.64	92.6
T801	14	7821	1.0-2.0	colorless	Olivine	40.12	0.02	0.02	0.02	0.04	6.44	0.12	0.33	51.17	0.02	0.00	0.00	98.30	93.4
T801	15	7821	1.0-2.0	colorless	Olivine	40.21	0.02	0.05	0.00	0.00	8.31	0.14	0.38	49.62	0.01	0.00	0.01	98.75	91.4
T801	16	7821	1.0-2.0	colorless	Olivine	40.08	0.01	0.02	0.00	0.00	7.58	0.10	0.32	50.31	0.02	0.00	0.00	98.44	92.2
T801	17	7821	1.0-2.0	colorless	Olivine	39.65	0.02	0.02	0.00	0.02	8.23	0.13	0.35	49.70	0.01	0.00	0.02	98.15	91.5
T801	18	7821	1.0-2.0	colorless	Olivine	39.32	0.02	0.03	0.00	0.00	8.28	0.16	0.39	49.38	0.01	0.00	0.02	97.61	91.4
T801	19	7821	1.0-2.0	colorless	Olivine	39.60	0.01	0.02	0.05	0.00	7.56	0.11	0.42	50.19	0.03	0.00	0.01	98.01	92.2
T801	20	7821	1.0-2.0	colorless	Olivine	39.70	0.06	0.01	0.02	0.03	7.62	0.13	0.31	50.05	0.05	0.00	0.04	98.03	92.1
T801	21	7821	1.0-2.0	colorless	Olivine	39.84	0.00	0.01	0.00	0.00	8.25	0.20	0.41	49.98	0.03	0.00	0.01	98.74	91.5
T801	22	7821	1.0-2.0	colorless	Olivine	40.23	0.00	0.02	0.04	0.01	6.92	0.12	0.35	50.91	0.02	0.00	0.02	98.63	92.9
T801	23	7821	1.0-2.0	colorless	Olivine	40.70	0.03	0.03	0.00	0.00	7.52	0.13	0.35	50.44	0.03	0.00	0.03	99.25	92.3

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T801	24	7821	1.0-2.0	colorless	Olivine	40.38	0.01	0.03	0.02	0.00	7.92	0.14	0.35	49.39	0.02	0.00	0.02	98.27	91.7
T801	25	7821	1.0-2.0	colorless	Olivine	40.50	0.02	0.03	0.04	0.00	7.49	0.16	0.35	50.28	0.01	0.00	0.00	98.88	92.3
T801	26	7821	1.0-2.0	colorless	Olivine	39.82	0.00	0.00	0.04	0.00	8.05	0.16	0.37	49.64	0.02	0.00	0.02	98.12	91.7
T801	27	7821	1.0-2.0	colorless	Olivine	40.32	0.01	0.05	0.07	0.00	6.20	0.02	0.39	51.57	0.01	0.00	0.02	98.65	93.7
T801	28	7821	1.0-2.0	colorless	Olivine	39.66	0.04	0.02	0.00	0.04	8.07	0.14	0.36	49.58	0.01	0.00	0.00	97.92	91.6
T801	29	7821	1.0-2.0	colorless	Olivine	39.51	0.02	0.04	0.01	0.07	8.26	0.12	0.43	49.36	0.06	0.00	0.01	97.89	91.4
T801	30	7821	1.0-2.0	colorless	Olivine	39.49	0.04	0.00	0.01	0.00	8.21	0.13	0.44	49.80	0.03	0.00	0.03	98.16	91.5
T801	31	7821	1.0-2.0	colorless	Olivine	40.11	0.04	0.05	0.00	0.00	6.82	0.16	0.41	50.47	0.02	0.00	0.02	98.10	93.0
T801	32	7821	1.0-2.0	colorless	Olivine	39.24	0.05	0.03	0.01	0.04	8.04	0.15	0.41	49.49	0.03	0.00	0.01	97.49	91.6
T801	33	7821	1.0-2.0	colorless	Olivine	39.83	0.00	0.02	0.03	0.05	7.50	0.10	0.42	50.25	0.04	0.00	0.01	98.26	92.3
T801	34	7821	1.0-2.0	colorless	Olivine	39.46	0.00	0.02	0.03	0.03	7.35	0.09	0.45	50.33	0.03	0.00	0.02	97.82	92.4
T801	35	7821	1.0-2.0	colorless	Olivine	39.80	0.00	0.01	0.06	0.02	6.66	0.08	0.33	51.32	0.01	0.00	0.02	98.30	93.2
T777	39	7822	0.25-0.5	colorless	Olivine	39.42	0.02	0.02	0.00	0.03	8.46	0.15	0.43	49.74	0.02	0.00	0.01	98.30	91.3
T795	42	7822	0.50-1.00	colorless	Olivine	40.15	0.04	0.01	0.02	0.02	6.76	0.12	0.40	51.84	0.03	0.00	0.00	99.41	93.2
T795	43	7822	0.50-1.00	colorless	Olivine	40.23	0.03	0.03	0.09	0.00	7.40	0.16	0.39	50.88	0.02	0.00	0.01	99.25	92.5
T795	44	7822	0.50-1.00	colorless	Olivine	39.98	0.00	0.03	0.00	0.00	8.08	0.14	0.47	50.32	0.01	0.00	0.00	99.03	91.7
T795	45	7822	0.50-1.00	colorless	Olivine	39.88	0.02	0.01	0.01	0.00	7.99	0.14	0.39	50.29	0.03	0.00	0.00	98.76	91.8
T795	46	7822	0.50-1.00	colorless	Olivine	40.48	0.00	0.02	0.00	0.00	6.69	0.08	0.34	51.71	0.00	0.00	0.02	99.35	93.2
T795	47	7822	0.50-1.00	colorless	Olivine	39.58	0.03	0.01	0.06	0.00	7.57	0.12	0.33	50.65	0.02	0.00	0.00	98.36	92.3
T795	48	7822	0.50-1.00	colorless	Olivine	39.66	0.01	0.04	0.05	0.01	8.66	0.14	0.37	49.98	0.05	0.00	0.00	98.98	91.1
T795	49	7822	0.50-1.00	colorless	Olivine	39.56	0.04	0.02	0.02	0.05	6.99	0.10	0.30	51.36	0.00	0.00	0.01	98.45	92.9
T795	50	7822	0.50-1.00	colorless	Olivine	39.74	0.00	0.03	0.02	0.06	7.37	0.05	0.39	51.08	0.03	0.00	0.00	98.77	92.5
T777	57	7823	0.25-0.5	colorless	Olivine	39.84	0.04	0.02	0.00	0.04	7.68	0.15	0.43	50.36	0.00	0.00	0.00	98.56	92.1
T777	58	7823	0.25-0.5	colorless	Olivine	39.87	0.00	0.01	0.04	0.00	7.07	0.16	0.32	50.55	0.00	0.00	0.01	98.03	92.7
T777	59	7823	0.25-0.5	colorless	Olivine	39.78	0.06	0.05	0.02	0.00	8.33	0.14	0.41	49.95	0.04	0.00	0.00	98.76	91.4
T777	60	7823	0.25-0.5	colorless	Olivine	39.24	0.03	0.04	0.02	0.00	9.32	0.16	0.33	49.10	0.03	0.00	0.00	98.27	90.4
T777	61	7823	0.25-0.5	colorless	Olivine	39.40	0.01	0.00	0.00	0.05	7.64	0.19	0.44	50.56	0.01	0.00	0.00	98.29	92.2
T777	62	7823	0.25-0.5	colorless	Olivine	39.47	0.01	0.02	0.04	0.00	7.86	0.18	0.31	49.92	0.02	0.00	0.00	97.82	91.9
T777	63	7823	0.25-0.5	colorless	Olivine	40.10	0.00	0.03	0.00	0.00	8.44	0.17	0.41	49.97	0.00	0.00	0.00	99.11	91.3
T777	64	7823	0.25-0.5	colorless	Olivine	40.10	0.01	0.02	0.01	0.02	5.80	0.13	0.31	51.77	0.02	0.00	0.01	98.18	94.1
T777	65	7823	0.25-0.5	colorless	Olivine	40.11	0.04	0.00	0.00	0.00	7.32	0.15	0.39	50.89	0.01	0.00	0.01	98.93	92.5
T777	65b	7823	0.25-0.5	colorless	Olivine	39.75	0.04	0.05	0.04	0.00	7.96	0.16	0.32	50.27	0.05	0.00	0.00	98.64	91.8
T777	66	7823	0.25-0.5	colorless	Olivine	39.58	0.00	0.01	0.04	0.03	7.90	0.13	0.37	50.10	0.01	0.00	0.00	98.17	91.9
T777	67	7823	0.25-0.5	colorless	Olivine	39.01	0.02	0.03	0.06	0.02	7.71	0.14	0.38	49.85	0.02	0.00	0.00	97.25	92.0
T777	68	7823	0.25-0.5	colorless	Olivine	39.83	0.01	0.03	0.05	0.02	6.44	0.10	0.35	51.17	0.00	0.00	0.00	98.00	93.4
T777	69	7823	0.25-0.5	colorless	Olivine	38.98	0.05	0.05	0.04	0.02	10.13	0.12	0.40	48.01	0.09	0.00	0.01	97.90	89.4
T777	70	7823	0.25-0.5	colorless	Olivine	38.86	0.05	0.05	0.10	0.00	10.17	0.07	0.34	48.04	0.09	0.00	0.00	97.76	89.4
T777	71	7823	0.25-0.5	colorless	Olivine	40.04	0.01	0.03	0.01	0.01	8.19	0.10	0.47	50.28	0.01	0.00	0.02	99.17	91.6
T777	72	7823	0.25-0.5	colorless	Olivine	39.39	0.04	0.04	0.00	0.00	7.31	0.09	0.32	50.02	0.01	0.00	0.00	97.23	92.4
T777	73	7823	0.25-0.5	colorless	Olivine	39.90	0.02	0.01	0.03	0.01	7.54	0.07	0.43	50.64	0.03	0.00	0.01	98.68	92.3
T777	74	7823	0.25-0.5	colorless	Olivine	39.72	0.01	0.01	0.00	0.00	8.58	0.16	0.36	49.65	0.02	0.00	0.00	98.51	91.2
T777	75	7823	0.25-0.5	colorless	Olivine	39.77	0.03	0.01	0.06	0.00	7.40	0.09	0.45	50.59	0.00	0.00	0.02	98.43	92.4
T777	76	7823	0.25-0.5	colorless	Olivine	39.41	0.02	0.03	0.04	0.03	7.78	0.10	0.43	50.16	0.00	0.00	0.00	97.99	92.0
T783	31	7823	0.25-0.5	colorless	Olivine	40.07	0.00	0.03	0.04	0.06	6.65	0.11	0.35	51.13	0.11	0.00	0.00	98.55	93.2
T783	32	7823	0.25-0.5	colorless	Olivine	39.96	0.04	0.01	0.07	0.00	6.99	0.12	0.38	50.88	0.39	0.00	0.02	98.86	92.8
T783	33	7823	0.25-0.5	colorless	Olivine	40.09	0.02	0.01	0.00	0.00	7.65	0.15	0.43	50.12	0.46	0.00	0.02	98.95	92.1

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T783	34	7823	0.25-0.5	colorless	Olivine	40.43	0.00	0.05	0.02	0.05	6.63	0.11	0.33	50.97	0.41	0.00	0.00	99.01	93.2
T783	35	7823	0.25-0.5	colorless	Olivine	40.57	0.00	0.02	0.02	0.00	7.80	0.15	0.36	50.47	0.03	0.00	0.02	99.44	92.0
T783	36	7823	0.25-0.5	colorless	Olivine	40.81	0.00	0.04	0.00	0.02	5.52	0.11	0.35	52.25	0.01	0.00	0.00	99.10	94.4
T783	37	7823	0.25-0.5	colorless	Olivine	40.72	0.00	0.04	0.00	0.00	7.99	0.12	0.35	50.35	0.03	0.00	0.01	99.63	91.8
T783	38	7823	0.25-0.5	colorless	Olivine	39.70	0.04	0.03	0.04	0.06	8.56	0.16	0.36	48.71	0.52	0.00	0.01	98.18	91.0
T783	39	7823	0.25-0.5	colorless	Olivine	40.28	0.05	0.05	0.07	0.00	8.55	0.11	0.41	49.51	0.33	0.00	0.01	99.37	91.2
T783	40	7823	0.25-0.5	colorless	Olivine	39.97	0.05	0.02	0.04	0.05	7.91	0.10	0.35	50.05	0.03	0.00	0.00	98.57	91.9
T783	41	7823	0.25-0.5	colorless	Olivine	40.37	0.01	0.00	0.04	0.00	7.48	0.15	0.35	51.04	0.00	0.00	0.02	99.45	92.4
T783	42	7823	0.25-0.5	colorless	Olivine	40.24	0.03	0.03	0.01	0.03	7.31	0.09	0.28	51.30	0.37	0.00	0.00	99.69	92.6
T783	43	7823	0.25-0.5	colorless	Olivine	39.50	0.05	0.05	0.05	0.00	8.90	0.13	0.37	48.70	0.44	0.00	0.01	98.21	90.7
T783	44	7823	0.25-0.5	colorless	Olivine	40.25	0.01	0.04	0.03	0.00	6.92	0.12	0.31	50.76	0.26	0.00	0.00	98.70	92.9
T783	45	7823	0.25-0.5	colorless	Olivine	40.07	0.03	0.04	0.00	0.02	7.81	0.12	0.34	49.63	0.28	0.00	0.03	98.37	91.9
T783	47	7823	0.25-0.5	colorless	Olivine	40.51	0.00	0.04	0.00	0.00	6.67	0.05	0.33	50.85	0.43	0.00	0.00	98.88	93.1
T783	48	7823	0.25-0.5	colorless	Olivine	39.76	0.00	0.06	0.11	0.00	7.80	0.08	0.30	49.85	0.59	0.00	0.01	98.54	91.9
T783	49	7823	0.25-0.5	colorless	Olivine	40.05	0.00	0.04	0.03	0.05	7.39	0.14	0.32	50.36	0.47	0.00	0.00	98.85	92.4
T795	51	7823	0.50-1.00	colorless	Olivine	39.49	0.00	0.03	0.00	0.00	6.43	0.13	0.36	51.58	0.01	0.00	0.02	98.04	93.5
T795	52	7823	0.50-1.00	colorless	Olivine	39.46	0.04	0.02	0.00	0.00	7.20	0.07	0.38	50.85	0.02	0.00	0.00	98.03	92.6
T795	53	7823	0.50-1.00	colorless	Olivine	39.55	0.02	0.04	0.01	0.00	6.72	0.16	0.40	51.04	0.01	0.00	0.01	97.96	93.1
T795	54	7823	0.50-1.00	colorless	Olivine	39.87	0.00	0.03	0.07	0.00	6.56	0.14	0.34	51.65	0.02	0.00	0.02	98.70	93.4
T795	55	7823	0.50-1.00	colorless	Olivine	39.69	0.00	0.03	0.03	0.00	7.11	0.06	0.38	50.89	0.02	0.00	0.00	98.22	92.7
T795	56	7823	0.50-1.00	colorless	Olivine	39.53	0.03	0.02	0.01	0.07	8.34	0.05	0.40	50.27	0.02	0.00	0.01	98.75	91.5
T795	57	7823	0.50-1.00	colorless	Olivine	39.71	0.03	0.02	0.00	0.05	7.72	0.15	0.28	50.39	0.01	0.00	0.00	98.36	92.1
T795	58	7823	0.50-1.00	colorless	Olivine	40.26	0.00	0.02	0.00	0.03	5.77	0.06	0.39	52.25	0.02	0.00	0.02	98.82	94.2
T795	59	7823	0.50-1.00	colorless	Olivine	39.69	0.04	0.01	0.00	0.07	8.25	0.18	0.30	50.31	0.03	0.00	0.00	98.90	91.6
T795	60	7823	0.50-1.00	colorless	Olivine	40.01	0.00	0.00	0.04	0.01	7.99	0.15	0.43	50.18	0.01	0.00	0.00	98.81	91.8
T802	1	7823	1.0-2.0	colorless	Olivine	40.26	0.04	0.00	0.00	0.03	6.88	0.09	0.36	50.94	0.04	0.00	0.02	98.65	93.0
T802	2	7823	1.0-2.0	colorless	Olivine	40.22	0.03	0.01	0.00	0.01	7.14	0.10	0.34	51.00	0.01	0.00	0.02	98.87	92.7
T802	3	7823	1.0-2.0	colorless	Olivine	40.08	0.03	0.04	0.04	0.00	7.41	0.13	0.31	50.60	0.04	0.00	0.02	98.70	92.4
T802	4	7823	1.0-2.0	colorless	Olivine	40.05	0.01	0.03	0.03	0.02	8.11	0.08	0.37	50.00	0.02	0.00	0.01	98.73	91.7
T802	5	7823	1.0-2.0	colorless	Olivine	40.44	0.00	0.02	0.00	0.02	6.32	0.12	0.33	51.14	0.03	0.00	0.00	98.43	93.5
T802	6	7823	1.0-2.0	colorless	Olivine	40.03	0.01	0.02	0.05	0.01	7.38	0.11	0.38	50.61	0.01	0.00	0.00	98.62	92.4
T802	7	7823	1.0-2.0	colorless	Olivine	40.28	0.00	0.04	0.01	0.03	5.38	0.12	0.40	52.53	0.01	0.00	0.02	98.84	94.6
T802	8	7823	1.0-2.0	colorless	Olivine	39.88	0.05	0.00	0.06	0.01	7.42	0.11	0.29	50.52	0.04	0.00	0.01	98.40	92.4
T802	9	7823	1.0-2.0	colorless	Olivine	40.19	0.02	0.02	0.00	0.01	5.43	0.08	0.34	51.99	0.02	0.00	0.00	98.12	94.5
T802	10	7823	1.0-2.0	colorless	Olivine	40.36	0.01	0.01	0.03	0.00	5.66	0.09	0.35	52.08	0.02	0.00	0.02	98.63	94.3
T802	11	7823	1.0-2.0	colorless	Olivine	39.90	0.01	0.04	0.04	0.01	7.86	0.09	0.36	50.42	0.01	0.00	0.02	98.75	92.0
T802	12	7823	1.0-2.0	colorless	Olivine	40.05	0.06	0.04	0.00	0.03	7.21	0.11	0.32	50.79	0.02	0.00	0.02	98.66	92.6
T802	13	7823	1.0-2.0	colorless	Olivine	40.42	0.00	0.02	0.00	0.01	6.38	0.07	0.31	51.37	0.01	0.00	0.01	98.61	93.5
T802	14	7823	1.0-2.0	colorless	Olivine	40.60	0.00	0.04	0.02	0.00	6.78	0.12	0.28	51.28	0.00	0.00	0.00	99.11	93.1
T802	15	7823	1.0-2.0	colorless	Olivine	40.14	0.00	0.02	0.04	0.00	7.35	0.06	0.28	50.91	0.02	0.00	0.04	98.87	92.5
T802	16	7823	1.0-2.0	colorless	Olivine	40.55	0.03	0.01	0.00	0.00	6.42	0.11	0.32	51.68	0.02	0.00	0.02	99.16	93.5
T802	17	7823	1.0-2.0	colorless	Olivine	40.46	0.00	0.02	0.00	0.00	5.72	0.09	0.36	52.24	0.01	0.00	0.02	98.93	94.2
T802	18	7823	1.0-2.0	colorless	Olivine	40.29	0.00	0.02	0.06	0.00	6.42	0.10	0.33	51.41	0.02	0.00	0.00	98.64	93.5
T802	19	7823	1.0-2.0	colorless	Olivine	40.61	0.03	0.00	0.04	0.02	5.62	0.11	0.29	52.45	0.02	0.00	0.00	99.19	94.3
T802	20	7823	1.0-2.0	colorless	Olivine	40.04	0.00	0.03	0.03	0.03	7.50	0.11	0.40	50.72	0.03	0.00	0.00	98.90	92.3
T802	21	7823	1.0-2.0	colorless	Olivine	39.89	0.03	0.01	0.00	0.00	8.43	0.13	0.35	49.31	0.03	0.00	0.01	98.18	91.2

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T802	22	7823	1.0-2.0	colorless	Olivine	39.87	0.00	0.01	0.02	0.03	6.47	0.07	0.35	51.38	0.00	0.00	0.02	98.22	93.4
T802	23	7823	1.0-2.0	colorless	Olivine	39.77	0.03	0.01	0.02	0.01	7.96	0.11	0.37	50.19	0.03	0.00	0.01	98.51	91.8
T783	66	7824	0.25-0.5	colorless	Olivine	40.16	0.04	0.05	0.07	0.00	8.07	0.12	0.30	49.82	0.39	0.00	0.01	99.02	91.7
T783	67	7824	0.25-0.5	colorless	Olivine	39.62	0.04	0.00	0.00	0.02	7.51	0.14	0.32	49.86	0.42	0.00	0.01	97.94	92.2
T783	68	7824	0.25-0.5	colorless	Olivine	40.37	0.07	0.02	0.02	0.00	7.43	0.11	0.30	50.44	0.07	0.00	0.00	98.82	92.4
T783	69	7824	0.25-0.5	colorless	Olivine	39.92	0.07	0.03	0.07	0.00	9.39	0.14	0.29	48.28	0.57	0.00	0.02	98.79	90.2
T783	70	7824	0.25-0.5	colorless	Olivine	40.38	0.00	0.01	0.01	0.01	5.97	0.11	0.35	51.55	0.46	0.00	0.01	98.87	93.9
T783	71	7824	0.25-0.5	colorless	Olivine	40.48	0.02	0.00	0.00	0.04	6.55	0.10	0.28	51.64	0.04	0.00	0.02	99.17	93.4
T783	72	7824	0.25-0.5	colorless	Olivine	40.50	0.04	0.01	0.00	0.04	6.44	0.10	0.29	51.86	0.02	0.00	0.00	99.31	93.5
T783	73	7824	0.25-0.5	colorless	Olivine	39.79	0.06	0.04	0.04	0.00	7.46	0.11	0.35	49.93	0.33	0.00	0.01	98.12	92.3
T783	74	7824	0.25-0.5	colorless	Olivine	40.44	0.05	0.04	0.00	0.00	7.52	0.16	0.46	50.89	0.04	0.00	0.00	99.60	92.3
T783	75	7824	0.25-0.5	colorless	Olivine	40.26	0.02	0.01	0.03	0.02	8.14	0.15	0.40	49.91	0.38	0.00	0.00	99.33	91.6
T783	76	7824	0.25-0.5	colorless	Olivine	40.28	0.04	0.04	0.01	0.05	8.02	0.21	0.39	50.30	0.01	0.00	0.01	99.37	91.8
T796	8	7824	0.50-1.00	colorless	Olivine	39.75	0.02	0.01	0.00	0.05	7.74	0.16	0.35	50.68	0.16	0.00	0.00	98.92	92.1
T796	9	7824	0.50-1.00	colorless	Olivine	40.41	0.02	0.03	0.02	0.01	6.68	0.12	0.29	51.58	0.10	0.00	0.01	99.28	93.2
T796	10	7824	0.50-1.00	colorless	Olivine	39.88	0.00	0.03	0.00	0.02	6.72	0.11	0.36	51.12	0.10	0.00	0.00	98.35	93.1
T796	11	7824	0.50-1.00	colorless	Olivine	40.24	0.03	0.00	0.01	0.04	7.15	0.08	0.29	51.12	0.06	0.00	0.02	99.03	92.7
T796	12	7824	0.50-1.00	colorless	Olivine	40.62	0.02	0.00	0.00	0.00	6.92	0.05	0.35	51.71	0.06	0.00	0.00	99.73	93.0
T796	13	7824	0.50-1.00	colorless	Olivine	40.94	0.02	0.02	0.01	0.00	7.93	0.12	0.28	51.39	0.11	0.00	0.02	100.84	92.0
T796	14	7824	0.50-1.00	colorless	Olivine	40.48	0.00	0.05	0.03	0.00	6.28	0.10	0.34	52.05	0.09	0.00	0.00	99.41	93.7
T796	15	7824	0.50-1.00	colorless	Olivine	39.79	0.01	0.05	0.02	0.04	8.24	0.15	0.42	50.42	0.12	0.00	0.00	99.26	91.6
T796	16	7824	0.50-1.00	colorless	Olivine	40.10	0.03	0.02	0.02	0.00	7.81	0.15	0.31	50.54	0.14	0.00	0.01	99.13	92.0
T796	17	7824	0.50-1.00	colorless	Olivine	40.47	0.00	0.02	0.00	0.00	6.98	0.14	0.33	51.61	0.07	0.00	0.00	99.61	93.0
T796	18	7824	0.50-1.00	colorless	Olivine	40.16	0.04	0.03	0.05	0.02	6.67	0.10	0.34	51.82	0.05	0.00	0.00	99.30	93.3
T796	19	7824	0.50-1.00	colorless	Olivine	40.21	0.02	0.02	0.00	0.06	7.53	0.14	0.35	51.12	0.11	0.00	0.00	99.56	92.4
T796	20	7824	0.50-1.00	colorless	Olivine	40.06	0.00	0.01	0.04	0.04	8.04	0.15	0.44	50.31	0.08	0.00	0.01	99.18	91.8
T796	21	7824	0.50-1.00	colorless	Olivine	40.17	0.05	0.00	0.01	0.03	7.08	0.10	0.32	51.14	0.11	0.00	0.00	99.00	92.8
T796	22	7824	0.50-1.00	colorless	Olivine	39.95	0.00	0.04	0.04	0.00	6.36	0.11	0.32	51.67	0.14	0.00	0.01	98.65	93.5
T796	23	7824	0.50-1.00	colorless	Olivine	40.02	0.01	0.00	0.00	0.04	7.64	0.14	0.34	50.49	0.02	0.00	0.01	98.72	92.2
T796	24	7824	0.50-1.00	colorless	Olivine	40.24	0.04	0.02	0.00	0.00	6.71	0.10	0.34	51.82	0.12	0.00	0.00	99.40	93.2
T796	25	7824	0.50-1.00	colorless	Olivine	39.42	0.05	0.01	0.03	0.01	8.30	0.15	0.39	49.95	0.18	0.00	0.00	98.49	91.5
T796	26	7824	0.50-1.00	colorless	Olivine	39.82	0.03	0.03	0.00	0.00	7.90	0.10	0.46	50.54	0.13	0.00	0.00	99.02	91.9
T796	27	7824	0.50-1.00	colorless	Olivine	40.30	0.02	0.00	0.00	0.01	6.34	0.15	0.33	51.74	0.08	0.00	0.00	98.96	93.6
T796	28	7824	0.50-1.00	colorless	Olivine	40.59	0.01	0.01	0.01	0.03	7.76	0.16	0.32	50.69	0.07	0.00	0.02	99.68	92.1
T796	29	7824	0.50-1.00	colorless	Olivine	39.61	0.05	0.02	0.00	0.05	7.78	0.16	0.32	50.44	0.06	0.00	0.01	98.49	92.0
T796	30	7824	0.50-1.00	colorless	Olivine	39.69	0.02	0.03	0.03	0.08	7.90	0.16	0.38	50.12	0.16	0.00	0.01	98.57	91.9
T796	31	7824	0.50-1.00	colorless	Olivine	40.14	0.04	0.00	0.00	0.01	6.67	0.16	0.28	51.36	0.19	0.00	0.00	98.85	93.2
T802	24	7824	1.0-2.0	colorless	Olivine	39.86	0.03	0.02	0.00	0.00	7.01	0.09	0.44	50.95	0.03	0.00	0.01	98.44	92.8
T802	25	7824	1.0-2.0	colorless	Olivine	39.82	0.03	0.05	0.00	0.06	8.12	0.19	0.40	50.03	0.02	0.00	0.04	98.76	91.7
T802	26	7824	1.0-2.0	colorless	Olivine	40.18	0.03	0.02	0.03	0.00	7.08	0.14	0.35	51.24	0.00	0.00	0.04	99.10	92.8
T802	27	7824	1.0-2.0	colorless	Olivine	40.18	0.04	0.01	0.00	0.03	7.08	0.12	0.35	50.77	0.04	0.00	0.02	98.65	92.7
T778	8	7825	0.25-0.5	colorless	Olivine	39.14	0.00	0.00	0.02	0.02	10.78	0.15	0.24	47.61	0.18	0.00	0.00	98.16	88.7
T783	89	7825	0.25-0.5	colorless	Olivine	39.88	0.04	0.02	0.06	0.05	8.03	0.10	0.37	49.39	0.59	0.00	0.00	98.55	91.6
T783	91	7825	0.25-0.5	colorless	Olivine	40.13	0.02	0.02	0.06	0.00	6.74	0.12	0.43	50.98	0.02	0.00	0.01	98.53	93.1
T783	93	7825	0.25-0.5	colorless	Olivine	40.41	0.01	0.02	0.00	0.04	6.77	0.07	0.34	51.48	0.00	0.00	0.01	99.14	93.1
T783	97	7825	0.25-0.5	colorless	Olivine	39.51	0.00	0.04	0.03	0.06	8.09	0.12	0.32	49.08	0.54	0.00	0.00	97.79	91.5

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T783	98	7825	0.25-0.5	colorless	Olivine	39.83	0.01	0.05	0.00	0.08	5.46	0.12	0.30	51.33	0.59	0.00	0.01	97.77	94.4
T783	99	7825	0.25-0.5	colorless	Olivine	40.23	0.00	0.02	0.00	0.01	5.70	0.11	0.34	51.21	0.60	0.00	0.00	98.22	94.1
T796	37	7825	0.50-1.00	colorless	Olivine	40.34	0.04	0.01	0.07	0.01	7.86	0.12	0.38	50.34	0.14	0.00	0.00	99.31	91.9
T796	39	7825	0.50-1.00	colorless	Olivine	39.37	0.02	0.05	0.02	0.00	9.09	0.11	0.40	49.08	0.12	0.00	0.02	98.29	90.6
T796	40	7825	0.50-1.00	colorless	Olivine	40.30	0.08	0.02	0.00	0.01	6.25	0.14	0.36	51.50	0.11	0.00	0.01	98.77	93.6
T796	41	7825	0.50-1.00	colorless	Olivine	40.34	0.01	0.02	0.03	0.00	5.82	0.10	0.39	52.11	0.09	0.00	0.02	98.91	94.1
T778	15	7826	0.25-0.5	colorless	Olivine	39.33	0.04	0.03	0.00	0.01	10.54	0.06	0.19	48.24	0.05	0.00	0.00	98.49	89.1
T778	16	7826	0.25-0.5	colorless	Olivine	40.22	0.01	0.01	0.00	0.04	7.36	0.13	0.37	50.53	0.18	0.00	0.00	98.85	92.4
T778	17	7826	0.25-0.5	colorless	Olivine	40.10	0.04	0.02	0.01	0.05	7.50	0.07	0.41	51.00	0.05	0.00	0.01	99.25	92.4
T778	18	7826	0.25-0.5	colorless	Olivine	39.35	0.01	0.02	0.02	0.07	8.19	0.16	0.44	50.31	0.04	0.00	0.00	98.62	91.6
T778	19	7826	0.25-0.5	colorless	Olivine	39.31	0.02	0.04	0.06	0.03	9.16	0.10	0.34	49.05	0.06	0.00	0.00	98.19	90.5
T778	20	7826	0.25-0.5	colorless	Olivine	39.13	0.01	0.03	0.00	0.00	8.61	0.11	0.30	49.30	0.02	0.00	0.01	97.52	91.1
T784	10	7826	0.25-0.5	colorless	Olivine	40.75	0.03	0.00	0.04	0.00	7.05	0.08	0.34	50.64	0.31	0.00	0.02	99.26	92.8
T784	11	7826	0.25-0.5	colorless	Olivine	41.34	0.00	0.03	0.02	0.00	7.36	0.10	0.31	50.70	0.21	0.00	0.01	100.08	92.5
T784	12	7826	0.25-0.5	colorless	Olivine	41.43	0.00	0.01	0.00	0.00	8.15	0.05	0.41	50.17	0.03	0.00	0.00	100.25	91.7
T784	13	7826	0.25-0.5	colorless	Olivine	41.30	0.05	0.00	0.02	0.00	7.20	0.14	0.30	51.29	0.02	0.00	0.01	100.34	92.7
T784	14	7826	0.25-0.5	colorless	Olivine	40.38	0.07	0.05	0.04	0.00	9.94	0.15	0.26	47.87	0.37	0.00	0.01	99.12	89.6
T784	15	7826	0.25-0.5	colorless	Olivine	41.50	0.01	0.05	0.00	0.01	6.68	0.10	0.38	51.54	0.01	0.00	0.00	100.28	93.2
T784	16	7826	0.25-0.5	colorless	Olivine	41.30	0.00	0.00	0.01	0.00	5.89	0.11	0.37	51.41	0.34	0.00	0.00	99.42	94.0
T784	17	7826	0.25-0.5	colorless	Olivine	41.48	0.04	0.01	0.00	0.00	8.06	0.06	0.34	50.64	0.01	0.00	0.01	100.64	91.8
T784	18	7826	0.25-0.5	colorless	Olivine	41.73	0.00	0.03	0.05	0.01	7.50	0.08	0.37	50.53	0.03	0.00	0.00	100.34	92.3
T784	19	7826	0.25-0.5	colorless	Olivine	42.14	0.03	0.02	0.00	0.00	7.52	0.10	0.35	50.89	0.01	0.00	0.00	101.06	92.3
T784	20	7826	0.25-0.5	colorless	Olivine	41.70	0.00	0.03	0.02	0.02	6.52	0.12	0.37	51.64	0.01	0.00	0.01	100.43	93.4
T784	21	7826	0.25-0.5	colorless	Olivine	41.32	0.04	0.04	0.04	0.03	7.36	0.13	0.34	50.77	0.11	0.00	0.01	100.18	92.5
T784	22	7826	0.25-0.5	colorless	Olivine	40.70	0.00	0.01	0.01	0.00	7.23	0.14	0.32	50.56	0.20	0.00	0.00	99.17	92.6
T784	23	7826	0.25-0.5	colorless	Olivine	41.07	0.02	0.05	0.00	0.06	7.08	0.07	0.40	50.90	0.12	0.00	0.00	99.78	92.8
T784	24	7826	0.25-0.5	colorless	Olivine	41.24	0.00	0.01	0.02	0.00	6.65	0.08	0.32	51.59	0.00	0.00	0.01	99.92	93.3
T784	25	7826	0.25-0.5	colorless	Olivine	41.28	0.00	0.02	0.08	0.00	6.95	0.07	0.42	51.17	0.11	0.00	0.00	100.11	92.9
T784	26	7826	0.25-0.5	colorless	Olivine	40.97	0.03	0.04	0.04	0.00	8.00	0.13	0.38	49.87	0.31	0.00	0.00	99.78	91.7
T784	27	7826	0.25-0.5	colorless	Olivine	40.62	0.06	0.04	0.00	0.00	8.26	0.13	0.39	50.20	0.08	0.00	0.01	99.78	91.6
T784	28	7826	0.25-0.5	colorless	Olivine	40.97	0.00	0.02	0.02	0.00	6.53	0.05	0.35	51.31	0.21	0.00	0.00	99.46	93.3
T784	29	7826	0.25-0.5	colorless	Olivine	40.91	0.01	0.00	0.01	0.01	7.96	0.09	0.39	50.21	0.05	0.00	0.01	99.66	91.8
T784	30	7826	0.25-0.5	colorless	Olivine	41.65	0.00	0.00	0.00	0.00	7.81	0.17	0.29	50.57	0.05	0.00	0.00	100.54	92.0
T784	31	7826	0.25-0.5	colorless	Olivine	40.84	0.01	0.00	0.00	0.02	6.39	0.14	0.31	51.60	0.02	0.00	0.00	99.34	93.5
T784	32	7826	0.25-0.5	colorless	Olivine	40.44	0.05	0.03	0.04	0.01	7.42	0.12	0.37	50.70	0.03	0.00	0.01	99.21	92.4
T784	33	7826	0.25-0.5	colorless	Olivine	40.95	0.01	0.04	0.01	0.00	7.07	0.12	0.36	50.35	0.35	0.00	0.00	99.25	92.7
T784	34	7826	0.25-0.5	colorless	Olivine	41.46	0.01	0.02	0.04	0.01	6.38	0.13	0.33	51.88	0.04	0.00	0.00	100.30	93.5
T796	47	7826	0.50-1.00	colorless	Olivine	40.57	0.03	0.02	0.00	0.00	6.49	0.12	0.41	52.10	0.12	0.00	0.01	99.87	93.5
T796	48	7826	0.50-1.00	colorless	Olivine	40.34	0.01	0.01	0.01	0.00	8.12	0.12	0.44	50.47	0.11	0.00	0.00	99.64	91.7
T796	49	7826	0.50-1.00	colorless	Olivine	39.60	0.01	0.01	0.00	0.00	8.13	0.14	0.33	49.96	0.09	0.00	0.01	98.28	91.6
T796	50	7826	0.50-1.00	colorless	Olivine	40.44	0.02	0.01	0.03	0.03	7.05	0.10	0.41	51.80	0.07	0.00	0.00	99.97	92.9
T796	51	7826	0.50-1.00	colorless	Olivine	40.04	0.00	0.02	0.03	0.02	7.17	0.08	0.33	51.00	0.08	0.00	0.02	98.78	92.7
T796	52	7826	0.50-1.00	colorless	Olivine	39.75	0.00	0.02	0.00	0.03	7.31	0.16	0.27	50.79	0.02	0.00	0.02	98.37	92.5
T796	53	7826	0.50-1.00	colorless	Olivine	40.38	0.02	0.00	0.05	0.01	6.52	0.10	0.36	51.64	0.12	0.00	0.02	99.23	93.4
T796	54	7826	0.50-1.00	colorless	Olivine	40.42	0.03	0.03	0.04	0.00	7.66	0.08	0.34	50.97	0.12	0.00	0.02	99.70	92.2
T796	55	7826	0.50-1.00	colorless	Olivine	39.84	0.00	0.04	0.05	0.00	7.38	0.11	0.45	50.62	0.09	0.00	0.02	98.58	92.4

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T796	56	7826	0.50-1.00	colorless	Olivine	39.91	0.05	0.02	0.00	0.00	8.10	0.14	0.36	50.36	0.04	0.00	0.01	99.00	91.7
T796	57	7826	0.50-1.00	colorless	Olivine	39.82	0.02	0.01	0.00	0.02	8.62	0.10	0.39	49.85	0.08	0.00	0.01	98.91	91.2
T796	58	7826	0.50-1.00	colorless	Olivine	39.94	0.00	0.03	0.01	0.08	8.70	0.16	0.36	49.85	0.08	0.00	0.00	99.20	91.1
T796	59	7826	0.50-1.00	colorless	Olivine	40.13	0.02	0.03	0.07	0.00	7.24	0.09	0.42	51.40	0.02	0.00	0.03	99.45	92.7
T796	60	7826	0.50-1.00	colorless	Olivine	40.83	0.04	0.00	0.03	0.01	6.35	0.08	0.30	52.00	0.08	0.00	0.01	99.73	93.6
T796	61	7826	0.50-1.00	colorless	Olivine	40.54	0.04	0.01	0.06	0.01	7.76	0.20	0.29	50.99	0.06	0.00	0.00	99.96	92.1
T796	62	7826	0.50-1.00	colorless	Olivine	40.22	0.03	0.00	0.00	0.04	7.11	0.11	0.40	51.21	0.08	0.00	0.01	99.23	92.8
T796	63	7826	0.50-1.00	colorless	Olivine	40.62	0.03	0.03	0.00	0.00	7.00	0.15	0.38	51.42	0.07	0.00	0.00	99.69	92.9
T796	64	7826	0.50-1.00	colorless	Olivine	39.32	0.00	0.03	0.00	0.03	7.97	0.17	0.40	49.92	0.09	0.00	0.01	97.94	91.8
T796	65	7826	0.50-1.00	colorless	Olivine	40.24	0.00	0.03	0.00	0.00	6.39	0.16	0.34	51.70	0.11	0.00	0.01	98.99	93.5
T796	66	7826	0.50-1.00	colorless	Olivine	40.30	0.00	0.04	0.00	0.00	7.16	0.08	0.43	51.03	0.16	0.00	0.02	99.23	92.7
T796	67	7826	0.50-1.00	colorless	Olivine	39.60	0.03	0.01	0.00	0.01	8.17	0.14	0.40	49.88	0.15	0.00	0.00	98.39	91.6
T796	68	7826	0.50-1.00	colorless	Olivine	39.67	0.08	0.05	0.03	0.02	8.71	0.12	0.37	49.81	0.15	0.00	0.00	99.02	91.1
T796	69	7826	0.50-1.00	colorless	Olivine	40.60	0.01	0.02	0.00	0.05	6.39	0.08	0.31	52.21	0.12	0.00	0.02	99.80	93.6
T802	28	7826	1.0-2.0	colorless	Olivine	40.25	0.03	0.02	0.00	0.02	7.88	0.10	0.44	50.36	0.04	0.00	0.00	99.14	91.9
T802	29	7826	1.0-2.0	colorless	Olivine	40.01	0.02	0.01	0.04	0.02	8.99	0.13	0.35	49.85	0.01	0.00	0.00	99.42	90.8
T802	30	7826	1.0-2.0	colorless	Olivine	40.42	0.00	0.01	0.02	0.00	8.24	0.13	0.36	50.22	0.03	0.00	0.02	99.45	91.6
T802	31	7826	1.0-2.0	colorless	Olivine	40.53	0.00	0.01	0.02	0.00	6.19	0.08	0.35	51.29	0.00	0.00	0.01	98.49	93.7
T802	32	7826	1.0-2.0	colorless	Olivine	40.31	0.02	0.02	0.02	0.00	7.83	0.13	0.34	50.46	0.02	0.00	0.01	99.16	92.0
T802	33	7826	1.0-2.0	colorless	Olivine	40.22	0.03	0.01	0.00	0.05	6.11	0.11	0.32	51.67	0.00	0.00	0.00	98.51	93.8
T802	34	7826	1.0-2.0	colorless	Olivine	40.50	0.02	0.04	0.00	0.00	6.95	0.14	0.40	51.04	0.03	0.00	0.00	99.12	92.9
T802	35	7826	1.0-2.0	colorless	Olivine	39.87	0.00	0.01	0.02	0.00	6.62	0.11	0.37	51.45	0.03	0.00	0.01	98.49	93.3
T802	36	7826	1.0-2.0	colorless	Olivine	40.18	0.01	0.03	0.06	0.04	6.92	0.11	0.38	51.15	0.02	0.00	0.01	98.90	92.9
T778	41	7827	0.25-0.5	colorless	Olivine	39.37	0.04	0.04	0.03	0.00	8.42	0.15	0.41	49.37	0.02	0.00	0.00	97.86	91.3
T778	41B	7827	0.25-0.5	colorless	Olivine	40.22	0.01	0.03	0.03	0.02	6.44	0.11	0.35	51.47	0.01	0.00	0.01	98.70	93.4
T778	42	7827	0.25-0.5	colorless	Olivine	39.41	0.02	0.03	0.01	0.01	7.95	0.13	0.29	50.03	0.03	0.00	0.00	97.91	91.8
T778	43	7827	0.25-0.5	colorless	Olivine	39.75	0.05	0.02	0.03	0.01	8.71	0.16	0.33	49.85	0.02	0.00	0.00	98.92	91.1
T778	44	7827	0.25-0.5	colorless	Olivine	39.45	0.03	0.05	0.09	0.00	9.34	0.08	0.40	48.81	0.09	0.00	0.00	98.34	90.3
T778	45	7827	0.25-0.5	colorless	Olivine	39.87	0.02	0.04	0.00	0.00	8.01	0.14	0.35	50.03	0.09	0.00	0.00	98.57	91.8
T778	46	7827	0.25-0.5	colorless	Olivine	36.13	0.00	0.06	0.05	0.03	9.13	0.08	0.39	49.05	0.04	0.00	0.00	94.96	90.5
T778	47	7827	0.25-0.5	colorless	Olivine	39.37	0.03	0.00	0.01	0.04	10.51	0.17	0.32	48.38	0.01	0.00	0.00	98.83	89.1
T778	48	7827	0.25-0.5	colorless	Olivine	39.79	0.03	0.04	0.00	0.01	7.36	0.07	0.36	50.73	0.00	0.00	0.00	98.39	92.5
T778	49	7827	0.25-0.5	colorless	Olivine	39.40	0.00	0.04	0.08	0.00	8.42	0.12	0.40	49.34	0.20	0.00	0.01	98.02	91.3
T778	50	7827	0.25-0.5	colorless	Olivine	39.58	0.04	0.05	0.00	0.00	7.93	0.10	0.45	49.74	0.19	0.00	0.02	98.09	91.8
T778	51	7827	0.25-0.5	colorless	Olivine	39.40	0.05	0.03	0.07	0.01	10.40	0.16	0.16	48.18	0.03	0.00	0.00	98.48	89.2
T778	52	7827	0.25-0.5	colorless	Olivine	40.34	0.05	0.03	0.06	0.00	7.68	0.18	0.41	50.17	0.07	0.00	0.01	98.99	92.1
T778	54	7827	0.25-0.5	colorless	Olivine	39.73	0.03	0.04	0.00	0.04	7.88	0.15	0.40	50.33	0.02	0.00	0.01	98.61	91.9
T778	55	7827	0.25-0.5	colorless	Olivine	40.03	0.03	0.02	0.00	0.00	7.53	0.13	0.31	50.08	0.22	0.00	0.00	98.35	92.2
T778	56	7827	0.25-0.5	colorless	Olivine	39.60	0.00	0.02	0.02	0.00	7.31	0.12	0.34	50.44	0.01	0.00	0.00	97.87	92.5
T778	57	7827	0.25-0.5	colorless	Olivine	40.01	0.04	0.02	0.06	0.00	9.17	0.16	0.27	49.04	0.00	0.00	0.00	98.78	90.5
T778	58	7827	0.25-0.5	colorless	Olivine	38.79	0.00	0.01	0.00	0.01	13.61	0.18	0.10	45.28	0.03	0.00	0.00	98.02	85.6
T778	59	7827	0.25-0.5	colorless	Olivine	39.21	0.06	0.06	0.00	0.01	12.73	0.12	0.12	46.18	0.01	0.00	0.00	98.51	86.6
T778	60	7827	0.25-0.5	colorless	Olivine	39.67	0.00	0.04	0.02	0.04	8.76	0.16	0.36	49.64	0.02	0.00	0.00	98.73	91.0
T778	61	7827	0.25-0.5	colorless	Olivine	40.05	0.03	0.04	0.00	0.02	8.57	0.11	0.46	49.70	0.02	0.00	0.00	98.99	91.2
T778	62	7827	0.25-0.5	colorless	Olivine	39.55	0.05	0.03	0.00	0.00	9.01	0.10	0.43	49.51	0.01	0.00	0.01	98.70	90.7
T778	63	7827	0.25-0.5	colorless	Olivine	39.72	0.00	0.02	0.00	0.00	8.24	0.15	0.38	49.37	0.19	0.00	0.00	98.07	91.4

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T778	64	7827	0.25-0.5	colorless	Olivine	39.89	0.03	0.03	0.06	0.03	8.11	0.19	0.36	49.89	0.00	0.00	0.00	98.59	91.6
T778	65	7827	0.25-0.5	colorless	Olivine	40.40	0.00	0.02	0.01	0.00	8.26	0.14	0.40	50.10	0.02	0.00	0.00	99.34	91.5
T784	38	7827	0.25-0.5	colorless	Olivine	41.37	0.00	0.03	0.00	0.04	7.34	0.15	0.33	51.10	0.03	0.00	0.00	100.39	92.5
T784	39	7827	0.25-0.5	colorless	Olivine	41.46	0.00	0.00	0.01	0.00	6.96	0.14	0.38	51.26	0.01	0.00	0.01	100.22	92.9
T784	40	7827	0.25-0.5	colorless	Olivine	41.25	0.02	0.04	0.00	0.07	5.76	0.10	0.39	52.25	0.14	0.00	0.02	100.03	94.2
T784	41	7827	0.25-0.5	colorless	Olivine	41.05	0.03	0.01	0.03	0.00	7.25	0.12	0.38	50.30	0.34	0.00	0.00	99.51	92.5
T784	42	7827	0.25-0.5	colorless	Olivine	40.73	0.03	0.04	0.07	0.00	8.52	0.07	0.43	49.60	0.09	0.00	0.01	99.60	91.2
T784	43	7827	0.25-0.5	colorless	Olivine	40.71	0.02	0.01	0.03	0.03	8.54	0.17	0.40	49.57	0.13	0.00	0.00	99.62	91.2
T784	44	7827	0.25-0.5	colorless	Olivine	41.23	0.06	0.00	0.02	0.03	7.19	0.14	0.28	51.01	0.03	0.00	0.01	100.00	92.7
T784	45	7827	0.25-0.5	colorless	Olivine	40.55	0.01	0.05	0.00	0.00	7.74	0.11	0.40	50.12	0.22	0.00	0.01	99.20	92.0
T784	46	7827	0.25-0.5	colorless	Olivine	40.20	0.03	0.05	0.02	0.00	8.60	0.15	0.43	49.72	0.06	0.00	0.01	99.29	91.2
T784	47	7827	0.25-0.5	colorless	Olivine	41.51	0.01	0.05	0.00	0.00	5.56	0.09	0.39	52.37	0.03	0.00	0.00	100.01	94.4
T784	48	7827	0.25-0.5	colorless	Olivine	41.07	0.03	0.03	0.04	0.00	7.90	0.14	0.35	50.74	0.07	0.00	0.01	100.35	92.0
T784	49	7827	0.25-0.5	colorless	Olivine	40.80	0.03	0.02	0.00	0.00	8.09	0.15	0.31	50.52	0.01	0.00	0.00	99.94	91.8
T784	50	7827	0.25-0.5	colorless	Olivine	40.24	0.02	0.04	0.03	0.00	8.42	0.08	0.36	49.68	0.17	0.00	0.01	99.04	91.3
T784	51	7827	0.25-0.5	colorless	Olivine	40.16	0.02	0.00	0.04	0.00	8.13	0.11	0.32	48.86	0.35	0.00	0.01	98.01	91.5
T784	52	7827	0.25-0.5	colorless	Olivine	41.14	0.03	0.01	0.02	0.00	7.99	0.14	0.46	50.38	0.04	0.00	0.00	100.22	91.8
T784	53	7827	0.25-0.5	colorless	Olivine	41.07	0.04	0.05	0.00	0.00	8.29	0.16	0.34	50.08	0.01	0.00	0.01	100.07	91.5
T784	54	7827	0.25-0.5	colorless	Olivine	41.17	0.03	0.04	0.05	0.00	7.70	0.09	0.34	50.62	0.07	0.00	0.01	100.11	92.1
T784	55	7827	0.25-0.5	colorless	Olivine	41.23	0.03	0.02	0.02	0.05	6.07	0.11	0.35	52.39	0.02	0.00	0.02	100.33	93.9
T784	56	7827	0.25-0.5	colorless	Olivine	41.16	0.02	0.03	0.00	0.04	8.61	0.15	0.42	50.20	0.00	0.00	0.03	100.65	91.2
T784	57	7827	0.25-0.5	colorless	Olivine	41.17	0.05	0.02	0.07	0.02	7.53	0.12	0.32	51.08	0.03	0.00	0.00	100.41	92.4
T784	58	7827	0.25-0.5	colorless	Olivine	41.03	0.01	0.02	0.03	0.09	6.39	0.08	0.36	51.61	0.02	0.00	0.00	99.64	93.5
T784	59	7827	0.25-0.5	colorless	Olivine	41.17	0.01	0.01	0.00	0.01	7.37	0.21	0.42	51.38	0.01	0.00	0.00	100.59	92.5
T784	60	7827	0.25-0.5	colorless	Olivine	40.84	0.03	0.01	0.00	0.00	6.22	0.08	0.38	51.95	0.02	0.00	0.00	99.54	93.7
T796	79	7827	0.50-1.00	colorless	Olivine	40.06	0.02	0.02	0.05	0.00	8.13	0.18	0.47	49.57	0.12	0.00	0.00	98.62	91.6
T796	80	7827	0.50-1.00	colorless	Olivine	39.82	0.03	0.02	0.03	0.07	8.24	0.16	0.35	50.40	0.14	0.00	0.01	99.27	91.6
T796	81	7827	0.50-1.00	colorless	Olivine	39.88	0.06	0.03	0.09	0.00	7.33	0.11	0.38	50.44	0.14	0.00	0.00	98.47	92.5
T796	82	7827	0.50-1.00	colorless	Olivine	39.56	0.01	0.02	0.03	0.01	8.25	0.15	0.37	49.78	0.10	0.00	0.01	98.31	91.5
T796	83	7827	0.50-1.00	colorless	Olivine	40.62	0.05	0.03	0.06	0.07	7.70	0.10	0.33	51.35	0.13	0.00	0.02	100.45	92.2
T796	84	7827	0.50-1.00	colorless	Olivine	40.22	0.00	0.03	0.00	0.00	7.78	0.14	0.38	51.04	0.13	0.00	0.01	99.72	92.1
T796	85	7827	0.50-1.00	colorless	Olivine	39.94	0.00	0.05	0.00	0.03	8.18	0.13	0.50	50.29	0.12	0.00	0.00	99.25	91.6
T796	86	7827	0.50-1.00	colorless	Olivine	40.58	0.01	0.01	0.00	0.01	7.93	0.11	0.43	50.15	0.12	0.00	0.01	99.37	91.9
T796	87	7827	0.50-1.00	colorless	Olivine	40.47	0.04	0.03	0.02	0.05	7.10	0.08	0.34	51.63	0.10	0.00	0.00	99.87	92.8
T796	88	7827	0.50-1.00	colorless	Olivine	39.98	0.02	0.02	0.01	0.03	8.05	0.10	0.32	50.75	0.08	0.00	0.02	99.38	91.8
T796	89	7827	0.50-1.00	colorless	Olivine	39.63	0.00	0.01	0.02	0.02	7.79	0.16	0.32	50.61	0.13	0.00	0.01	98.70	92.0
T796	90	7827	0.50-1.00	colorless	Olivine	40.11	0.00	0.04	0.00	0.01	8.04	0.15	0.42	50.35	0.17	0.00	0.00	99.31	91.8
T796	91	7827	0.50-1.00	colorless	Olivine	37.67	0.05	0.02	0.02	0.00	7.39	0.15	0.32	48.12	0.24	0.00	0.02	94.00	92.1
T796	92	7827	0.50-1.00	colorless	Olivine	39.61	0.02	0.02	0.04	0.00	8.03	0.08	0.36	49.74	0.10	0.00	0.00	98.01	91.7
T796	93	7827	0.50-1.00	colorless	Olivine	39.97	0.06	0.03	0.04	0.01	6.94	0.13	0.33	51.10	0.08	0.00	0.03	98.71	92.9
T796	94	7827	0.50-1.00	colorless	Olivine	39.71	0.07	0.02	0.02	0.01	8.16	0.12	0.28	50.03	0.13	0.00	0.00	98.54	91.6
T796	95	7827	0.50-1.00	colorless	Olivine	39.54	0.00	0.03	0.03	0.01	6.66	0.15	0.32	51.24	0.11	0.00	0.02	98.11	93.2
T796	96	7827	0.50-1.00	colorless	Olivine	39.41	0.00	0.05	0.01	0.00	7.89	0.13	0.45	49.98	0.12	0.00	0.03	98.06	91.9
T796	97	7827	0.50-1.00	colorless	Olivine	40.11	0.01	0.05	0.01	0.00	7.86	0.16	0.40	50.63	0.03	0.00	0.00	99.28	92.0
T796	98	7827	0.50-1.00	colorless	Olivine	40.00	0.06	0.10	0.03	0.00	8.62	0.11	0.36	49.80	0.11	0.00	0.01	99.20	91.2
T796	99	7827	0.50-1.00	colorless	Olivine	40.01	0.00	0.08	0.01	0.00	6.56	0.11	0.35	51.39	0.08	0.00	0.00	98.60	93.3



Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T796	100	7827	0.50-1.00	colorless	Olivine	40.03	0.00	0.04	0.03	0.01	6.77	0.08	0.31	51.41	0.06	0.00	0.00	98.74	93.1
T796	101	7827	0.50-1.00	colorless	Olivine	39.77	0.01	0.06	0.00	0.01	7.86	0.18	0.31	50.58	0.11	0.00	0.00	98.90	92.0
T796	102	7827	0.50-1.00	colorless	Olivine	40.14	0.00	0.03	0.04	0.02	6.50	0.12	0.39	51.59	0.06	0.00	0.00	98.90	93.4
T796	103	7827	0.50-1.00	colorless	Olivine	39.59	0.01	0.03	0.00	0.00	6.92	0.10	0.43	51.44	0.09	0.00	0.01	98.60	93.0
T796	104	7827	0.50-1.00	colorless	Olivine	39.60	0.02	0.00	0.04	0.02	8.25	0.15	0.46	50.22	0.04	0.00	0.00	98.81	91.6
T803	1	7827	1.0-2.0	colorless	Olivine	40.20	0.00	0.03	0.00	0.00	7.03	0.08	0.28	50.55	0.03	0.00	0.02	98.23	92.8
T803	2	7827	1.0-2.0	colorless	Olivine	39.99	0.01	0.02	0.00	0.00	8.16	0.14	0.36	49.46	0.02	0.00	0.00	98.16	91.5
T803	3	7827	1.0-2.0	colorless	Olivine	39.78	0.02	0.02	0.09	0.00	8.14	0.12	0.29	50.06	0.03	0.00	0.03	98.58	91.6
T803	4	7827	1.0-2.0	colorless	Olivine	40.33	0.03	0.06	0.00	0.08	7.01	0.11	0.32	51.01	0.02	0.00	0.00	98.97	92.8
T803	5	7827	1.0-2.0	colorless	Olivine	39.99	0.05	0.03	0.00	0.00	7.64	0.13	0.40	50.21	0.03	0.00	0.00	98.47	92.1
T803	6	7827	1.0-2.0	colorless	Olivine	40.14	0.02	0.03	0.00	0.00	6.59	0.10	0.33	50.97	0.03	0.00	0.00	98.20	93.2
T803	7	7827	1.0-2.0	colorless	Olivine	40.16	0.02	0.03	0.00	0.02	9.21	0.14	0.39	49.47	0.01	0.00	0.02	99.47	90.5
T803	8	7827	1.0-2.0	colorless	Olivine	40.10	0.00	0.02	0.07	0.00	6.64	0.09	0.38	50.97	0.01	0.00	0.01	98.27	93.2
T803	9	7827	1.0-2.0	colorless	Olivine	39.88	0.01	0.00	0.04	0.00	7.15	0.09	0.37	50.31	0.02	0.00	0.01	97.88	92.6
T803	10	7827	1.0-2.0	colorless	Olivine	39.83	0.00	0.04	0.07	0.01	7.00	0.13	0.33	51.12	0.03	0.00	0.01	98.59	92.9
T803	11	7827	1.0-2.0	colorless	Olivine	40.04	0.01	0.00	0.04	0.02	7.00	0.07	0.35	50.72	0.00	0.00	0.02	98.27	92.8
T803	12	7827	1.0-2.0	colorless	Olivine	39.87	0.03	0.02	0.00	0.00	7.52	0.10	0.34	49.86	0.02	0.00	0.01	97.78	92.2
T803	13	7827	1.0-2.0	colorless	Olivine	40.26	0.02	0.01	0.00	0.05	6.67	0.11	0.41	51.31	0.05	0.00	0.01	98.90	93.2
T803	14	7827	1.0-2.0	colorless	Olivine	39.62	0.00	0.03	0.02	0.06	6.59	0.13	0.35	51.25	0.03	0.00	0.00	98.09	93.3
T803	15	7827	1.0-2.0	colorless	Olivine	40.28	0.03	0.01	0.02	0.02	7.11	0.13	0.39	51.12	0.04	0.00	0.02	99.17	92.8
T803	16	7827	1.0-2.0	colorless	Olivine	40.21	0.01	0.02	0.00	0.00	6.38	0.13	0.31	51.35	0.01	0.00	0.01	98.43	93.5
T803	17	7827	1.0-2.0	colorless	Olivine	39.59	0.02	0.00	0.03	0.00	8.19	0.15	0.42	49.80	0.03	0.00	0.01	98.24	91.6
T803	18	7827	1.0-2.0	colorless	Olivine	37.07	0.01	0.00	0.02	0.00	6.82	0.08	0.41	51.15	0.02	0.00	0.04	95.63	93.0
T803	19	7827	1.0-2.0	colorless	Olivine	39.88	0.01	0.01	0.00	0.02	6.78	0.10	0.33	50.67	0.02	0.00	0.03	97.84	93.0
T803	20	7827	1.0-2.0	colorless	Olivine	40.18	0.02	0.03	0.05	0.05	6.42	0.05	0.36	51.59	0.02	0.00	0.03	98.80	93.5
T803	21	7827	1.0-2.0	colorless	Olivine	40.09	0.02	0.03	0.03	0.02	5.57	0.16	0.34	51.87	0.08	0.00	0.00	98.23	94.3
T803	22	7827	1.0-2.0	colorless	Olivine	40.07	0.03	0.05	0.04	0.00	7.21	0.10	0.35	50.79	0.00	0.00	0.00	98.66	92.6
T803	23	7827	1.0-2.0	colorless	Olivine	40.24	0.00	0.04	0.00	0.00	6.67	0.06	0.28	51.30	0.02	0.00	0.01	98.61	93.2
T803	24	7827	1.0-2.0	colorless	Olivine	40.24	0.00	0.03	0.00	0.07	5.80	0.09	0.35	51.81	0.02	0.00	0.02	98.43	94.1
T803	25	7827	1.0-2.0	colorless	Olivine	40.17	0.01	0.02	0.00	0.00	6.28	0.08	0.28	51.70	0.02	0.00	0.01	98.58	93.6
T803	26	7827	1.0-2.0	colorless	Olivine	39.65	0.01	0.01	0.02	0.06	7.67	0.17	0.33	50.39	0.03	0.00	0.01	98.36	92.1
T803	27	7827	1.0-2.0	colorless	Olivine	40.14	0.00	0.02	0.00	0.00	6.35	0.05	0.36	51.33	0.02	0.00	0.01	98.28	93.5
T803	28	7827	1.0-2.0	colorless	Olivine	40.00	0.01	0.05	0.04	0.00	7.16	0.10	0.47	50.57	0.04	0.00	0.01	98.45	92.6
T803	29	7827	1.0-2.0	colorless	Olivine	40.09	0.02	0.01	0.06	0.00	7.03	0.08	0.38	51.01	0.03	0.00	0.02	98.74	92.8
T803	30	7827	1.0-2.0	colorless	Olivine	40.08	0.00	0.04	0.03	0.03	6.82	0.12	0.42	51.14	0.06	0.00	0.00	98.75	93.0
T803	31	7827	1.0-2.0	colorless	Olivine	39.68	0.01	0.03	0.04	0.04	8.07	0.14	0.36	49.83	0.04	0.00	0.02	98.26	91.7
T803	32	7827	1.0-2.0	colorless	Olivine	39.87	0.03	0.04	0.04	0.06	7.20	0.09	0.42	50.84	0.01	0.00	0.01	98.60	92.6
T803	33	7827	1.0-2.0	colorless	Olivine	39.64	0.03	0.03	0.01	0.00	7.50	0.16	0.40	50.14	0.03	0.00	0.01	97.96	92.3
T803	34	7827	1.0-2.0	colorless	Olivine	40.08	0.02	0.05	0.01	0.00	7.75	0.15	0.45	50.13	0.04	0.00	0.03	98.73	92.0
T803	35	7827	1.0-2.0	colorless	Olivine	39.77	0.01	0.02	0.03	0.00	7.41	0.13	0.40	50.91	0.03	0.00	0.00	98.70	92.5
T803	36	7827	1.0-2.0	colorless	Olivine	39.68	0.02	0.02	0.03	0.00	7.37	0.11	0.32	50.04	0.02	0.00	0.02	97.62	92.4
T803	37	7827	1.0-2.0	colorless	Olivine	39.97	0.03	0.00	0.00	0.00	6.58	0.10	0.36	50.83	0.02	0.00	0.02	97.92	93.2
T803	38	7827	1.0-2.0	colorless	Olivine	40.30	0.03	0.05	0.02	0.01	6.56	0.09	0.39	51.53	0.02	0.00	0.02	99.03	93.3
T803	39	7827	1.0-2.0	colorless	Olivine	39.61	0.04	0.09	0.02	0.01	7.15	0.08	0.28	50.54	0.01	0.00	0.01	97.84	92.7
T763	90	7828	0.25-0.5	colorless	Olivine	40.84	0.04	0.04	0.00	0.00	7.92	0.10	0.43	50.33	0.26	0.00	0.02	99.98	91.9
T763	91	7828	0.25-0.5	colorless	Olivine	41.11	0.01	0.02	0.02	0.00	6.56	0.07	0.36	52.00	0.05	0.00	0.00	100.20	93.4

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T763	92	7828	0.25-0.5	colorless	Olivine	40.85	0.05	0.00	0.00	0.01	7.74	0.15	0.38	50.31	0.21	0.00	0.01	99.70	92.1
T763	93	7828	0.25-0.5	colorless	Olivine	40.73	0.00	0.03	0.00	0.11	7.48	0.13	0.30	51.03	0.08	0.00	0.00	99.88	92.4
T763	94	7828	0.25-0.5	colorless	Olivine	41.03	0.01	0.00	0.00	0.03	8.09	0.18	0.44	50.39	0.25	0.00	0.01	100.43	91.7
T763	95	7828	0.25-0.5	colorless	Olivine	40.93	0.03	0.04	0.07	0.00	7.87	0.13	0.23	50.61	0.34	0.00	0.00	100.24	92.0
T763	96	7828	0.25-0.5	colorless	Olivine	40.44	0.03	0.02	0.01	0.00	8.16	0.13	0.35	50.19	0.30	0.00	0.03	99.66	91.6
T763	97	7828	0.25-0.5	colorless	Olivine	40.57	0.06	0.03	0.09	0.00	10.24	0.13	0.31	48.53	0.31	0.00	0.00	100.25	89.4
T763	98	7828	0.25-0.5	colorless	Olivine	40.97	0.00	0.03	0.00	0.00	7.49	0.12	0.40	50.82	0.26	0.00	0.00	100.09	92.4
T763	99	7828	0.25-0.5	colorless	Olivine	40.26	0.03	0.04	0.06	0.01	8.83	0.14	0.38	50.02	0.15	0.00	0.01	99.92	91.0
T763	100	7828	0.25-0.5	colorless	Olivine	40.92	0.04	0.03	0.04	0.02	7.02	0.10	0.35	51.80	0.05	0.00	0.00	100.36	92.9
T763	101	7828	0.25-0.5	colorless	Olivine	40.82	0.01	0.03	0.00	0.00	9.44	0.16	0.33	49.87	0.02	0.00	0.02	100.70	90.4
T763	102	7828	0.25-0.5	colorless	Olivine	40.34	0.00	0.04	0.02	0.00	7.82	0.14	0.43	50.13	0.36	0.00	0.00	99.27	92.0
T763	103	7828	0.25-0.5	colorless	Olivine	41.00	0.03	0.03	0.04	0.00	7.81	0.16	0.37	50.96	0.06	0.00	0.00	100.46	92.1
T763	104	7828	0.25-0.5	colorless	Olivine	40.84	0.02	0.00	0.01	0.00	6.94	0.15	0.38	51.51	0.19	0.00	0.01	100.06	93.0
T763	105	7828	0.25-0.5	colorless	Olivine	41.47	0.00	0.02	0.00	0.00	8.25	0.10	0.40	50.66	0.05	0.00	0.02	100.95	91.6
T763	106	7828	0.25-0.5	colorless	Olivine	40.90	0.02	0.01	0.06	0.08	7.08	0.15	0.39	51.03	0.24	0.00	0.00	99.96	92.8
T763	107	7828	0.25-0.5	colorless	Olivine	40.57	0.06	0.05	0.00	0.00	8.27	0.13	0.39	50.74	0.01	0.00	0.00	100.22	91.6
T763	108	7828	0.25-0.5	colorless	Olivine	40.12	0.01	0.02	0.00	0.00	8.56	0.08	0.31	50.12	0.21	0.00	0.01	99.44	91.3
T763	109	7828	0.25-0.5	colorless	Olivine	40.66	0.06	0.10	0.08	0.01	9.44	0.08	0.38	49.43	0.12	0.00	0.01	100.38	90.3
T763	110	7828	0.25-0.5	colorless	Olivine	40.86	0.04	0.04	0.00	0.08	7.95	0.12	0.33	50.53	0.18	0.00	0.01	100.11	91.9
T773	64	7828	0.25-0.5	colorless	Olivine	39.37	0.02	0.03	0.04	0.00	7.85	0.21	0.30	50.08	0.00	0.00	0.01	97.90	91.9
T773	65	7828	0.25-0.5	colorless	Olivine	39.05	0.06	0.04	0.04	0.00	10.38	0.09	0.26	48.16	0.06	0.00	0.00	98.13	89.2
T773	66	7828	0.25-0.5	colorless	Olivine	38.85	0.04	0.05	0.05	0.00	10.09	0.12	0.32	48.46	0.03	0.00	0.02	98.03	89.5
T773	67	7828	0.25-0.5	colorless	Olivine	38.03	0.03	0.02	0.00	0.00	13.52	0.16	0.10	45.72	0.01	0.00	0.00	97.59	85.8
T773	68	7828	0.25-0.5	colorless	Olivine	38.92	0.02	0.04	0.13	0.01	9.22	0.12	0.38	48.70	0.03	0.00	0.01	97.59	90.4
T773	69	7828	0.25-0.5	colorless	Olivine	39.38	0.01	0.01	0.00	0.04	7.76	0.09	0.44	50.21	0.00	0.00	0.00	97.95	92.0
T773	70	7828	0.25-0.5	colorless	Olivine	39.74	0.01	0.02	0.02	0.00	6.84	0.10	0.36	50.88	0.02	0.00	0.00	98.01	93.0
T773	71	7828	0.25-0.5	colorless	Olivine	39.96	0.03	0.00	0.00	0.01	6.92	0.12	0.38	50.84	0.02	0.00	0.01	98.28	92.9
T773	72	7828	0.25-0.5	colorless	Olivine	38.64	0.04	0.02	0.00	0.04	13.47	0.14	0.05	45.95	0.02	0.00	0.00	98.36	85.9
T773	73	7828	0.25-0.5	colorless	Olivine	39.42	0.03	0.03	0.02	0.05	7.18	0.15	0.34	50.75	0.03	0.00	0.00	98.01	92.6
T773	74	7828	0.25-0.5	colorless	Olivine	39.39	0.06	0.05	0.08	0.00	8.28	0.16	0.38	49.60	0.06	0.00	0.02	98.07	91.4
T773	75	7828	0.25-0.5	colorless	Olivine	39.62	0.01	0.01	0.01	0.03	8.06	0.08	0.44	49.62	0.07	0.00	0.02	97.98	91.6
T773	76	7828	0.25-0.5	colorless	Olivine	39.93	0.03	0.05	0.13	0.00	8.10	0.11	0.34	49.68	0.09	0.00	0.01	98.47	91.6
T773	77	7828	0.25-0.5	colorless	Olivine	39.71	0.01	0.01	0.00	0.02	8.26	0.10	0.31	50.24	0.00	0.00	0.01	98.67	91.6
T773	78	7828	0.25-0.5	colorless	Olivine	39.44	0.07	0.06	0.05	0.00	9.24	0.14	0.40	48.88	0.06	0.00	0.00	98.34	90.4
T773	79	7828	0.25-0.5	colorless	Olivine	38.24	0.04	0.04	0.02	0.05	13.61	0.13	0.07	45.82	0.07	0.00	0.00	98.09	85.7
T773	80	7828	0.25-0.5	colorless	Olivine	39.65	0.03	0.03	0.01	0.00	6.62	0.10	0.37	51.28	0.01	0.00	0.00	98.11	93.3
T773	81	7828	0.25-0.5	colorless	Olivine	39.58	0.00	0.03	0.00	0.00	7.92	0.18	0.34	50.11	0.03	0.00	0.00	98.19	91.9
T773	82	7828	0.25-0.5	colorless	Olivine	39.44	0.05	0.04	0.00	0.00	8.34	0.11	0.40	49.95	0.01	0.00	0.02	98.37	91.4
T773	83	7828	0.25-0.5	colorless	Olivine	39.55	0.02	0.03	0.00	0.10	7.30	0.11	0.33	50.52	0.00	0.00	0.00	97.96	92.5
T773	84	7828	0.25-0.5	colorless	Olivine	39.06	0.05	0.02	0.01	0.06	8.66	0.11	0.36	49.76	0.03	0.00	0.02	98.14	91.1
T773	85	7828	0.25-0.5	colorless	Olivine	39.12	0.02	0.03	0.00	0.03	7.87	0.13	0.40	50.20	0.02	0.00	0.00	97.82	91.9
T773	86	7828	0.25-0.5	colorless	Olivine	39.48	0.01	0.02	0.00	0.00	6.53	0.06	0.37	51.13	0.00	0.00	0.00	97.61	93.3
T773	87	7828	0.25-0.5	colorless	Olivine	39.37	0.00	0.03	0.02	0.00	8.20	0.15	0.33	49.97	0.00	0.00	0.02	98.08	91.6
T773	88	7828	0.25-0.5	colorless	Olivine	39.16	0.02	0.01	0.02	0.00	8.36	0.13	0.32	49.93	0.01	0.00	0.00	97.95	91.4
T778	79	7828	0.25-0.5	colorless	(Olivine)	34.75	0.04	0.03	0.02	0.02	8.36	0.07	0.49	39.47	0.00	0.00	0.00	83.25	89.4
T778	80	7828	0.25-0.5	colorless	Olivine	39.12	0.02	0.01	0.05	0.00	8.15	0.13	0.39	49.70	0.09	0.00	0.02	97.68	91.6

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T778	81	7828	0.25-0.5	colorless	Olivine	40.12	0.01	0.03	0.00	0.04	7.68	0.12	0.39	50.40	0.07	0.00	0.01	98.87	92.1
T778	82	7828	0.25-0.5	colorless	Olivine	39.32	0.05	0.05	0.02	0.01	10.40	0.13	0.35	48.18	0.09	0.00	0.00	98.60	89.2
T778	83	7828	0.25-0.5	colorless	Olivine	40.24	0.01	0.03	0.02	0.01	7.90	0.16	0.43	50.15	0.02	0.00	0.00	98.96	91.9
T778	84	7828	0.25-0.5	colorless	Olivine	40.04	0.04	0.02	0.02	0.00	6.83	0.13	0.37	50.93	0.03	0.00	0.01	98.43	93.0
T778	85	7828	0.25-0.5	colorless	Olivine	39.59	0.02	0.02	0.04	0.00	10.45	0.24	0.15	47.86	0.14	0.00	0.00	98.51	89.1
T778	86	7828	0.25-0.5	colorless	Olivine	40.29	0.02	0.03	0.00	0.06	7.53	0.14	0.39	50.53	0.17	0.00	0.00	99.16	92.3
T778	87	7828	0.25-0.5	colorless	Olivine	40.02	0.03	0.01	0.00	0.00	7.26	0.13	0.29	50.70	0.18	0.00	0.01	98.63	92.6
T778	88	7828	0.25-0.5	colorless	Olivine	40.00	0.02	0.02	0.06	0.05	7.63	0.14	0.38	50.09	0.16	0.00	0.01	98.54	92.1
T778	89	7828	0.25-0.5	colorless	Olivine	39.96	0.02	0.07	0.04	0.04	9.36	0.08	0.33	48.60	0.16	0.00	0.02	98.66	90.2
T778	90	7828	0.25-0.5	colorless	Olivine	40.36	0.03	0.02	0.00	0.08	8.45	0.15	0.39	49.56	0.01	0.00	0.01	99.07	91.3
T778	91	7828	0.25-0.5	colorless	Olivine	39.69	0.02	0.03	0.00	0.00	8.42	0.14	0.40	49.90	0.05	0.00	0.01	98.66	91.4
T778	92	7828	0.25-0.5	colorless	Olivine	39.33	0.05	0.03	0.00	0.00	13.51	0.13	0.08	45.81	0.09	0.00	0.02	99.05	85.8
T778	93	7828	0.25-0.5	colorless	Olivine	39.57	0.02	0.03	0.04	0.03	10.63	0.24	0.29	47.81	0.15	0.00	0.00	98.80	88.9
T778	94	7828	0.25-0.5	colorless	Olivine	39.16	0.02	0.02	0.03	0.03	8.50	0.10	0.38	48.97	0.19	0.00	0.01	97.41	91.1
T778	94	7828	0.25-0.5	colorless	Olivine	39.80	0.07	0.03	0.00	0.08	8.47	0.13	0.38	49.76	0.13	0.00	0.01	98.84	91.3
T778	95	7828	0.25-0.5	colorless	Olivine	39.41	0.05	0.04	0.09	0.00	10.06	0.09	0.40	48.16	0.05	0.00	0.00	98.35	89.5
T778	96	7828	0.25-0.5	colorless	Olivine	39.66	0.01	0.03	0.00	0.01	8.71	0.10	0.35	48.67	0.22	0.00	0.01	97.76	90.9
T784	100	7828	0.25-0.5	colorless	Olivine	40.31	0.00	0.04	0.06	0.04	7.36	0.17	0.31	51.30	0.02	0.00	0.01	99.63	92.5
T784	101	7828	0.25-0.5	colorless	Olivine	40.34	0.04	0.03	0.00	0.02	6.83	0.13	0.30	51.61	0.02	0.00	0.00	99.32	93.1
T784	102	7828	0.25-0.5	colorless	Olivine	40.30	0.00	0.02	0.04	0.00	7.66	0.17	0.32	50.33	0.02	0.00	0.00	98.86	92.1
T784	103	7828	0.25-0.5	colorless	Olivine	40.07	0.06	0.05	0.04	0.02	8.14	0.09	0.36	50.22	0.07	0.00	0.03	99.18	91.7
T784	104	7828	0.25-0.5	colorless	Olivine	39.97	0.04	0.02	0.05	0.00	8.23	0.14	0.37	50.00	0.03	0.00	0.02	98.86	91.5
T784	105	7828	0.25-0.5	colorless	Olivine	39.95	0.05	0.04	0.02	0.02	7.21	0.15	0.33	51.31	0.00	0.00	0.00	99.09	92.7
T784	106	7828	0.25-0.5	colorless	Olivine	40.34	0.04	0.02	0.00	0.00	8.21	0.09	0.37	50.08	0.01	0.00	0.01	99.18	91.6
T784	107	7828	0.25-0.5	colorless	Olivine	40.24	0.00	0.01	0.00	0.01	8.07	0.11	0.33	50.60	0.02	0.00	0.00	99.39	91.8
T784	108	7828	0.25-0.5	colorless	Olivine	40.41	0.00	0.02	0.00	0.00	8.18	0.17	0.39	50.08	0.03	0.00	0.01	99.29	91.6
T784	109	7828	0.25-0.5	colorless	Olivine	40.98	0.02	0.02	0.04	0.02	6.26	0.09	0.37	51.91	0.01	0.00	0.01	99.74	93.7
T784	110	7828	0.25-0.5	colorless	Olivine	40.14	0.00	0.05	0.03	0.02	7.39	0.08	0.39	50.26	0.31	0.00	0.01	98.67	92.4
T784	111	7828	0.25-0.5	colorless	Olivine	40.40	0.03	0.00	0.02	0.00	8.36	0.11	0.31	50.32	0.04	0.00	0.00	99.59	91.5
T784	112	7828	0.25-0.5	colorless	Olivine	40.01	0.03	0.00	0.06	0.02	7.75	0.13	0.41	50.11	0.07	0.00	0.00	98.60	92.0
T784	113	7828	0.25-0.5	colorless	Olivine	39.74	0.02	0.06	0.11	0.03	8.18	0.14	0.38	50.27	0.07	0.00	0.03	99.02	91.6
T784	114	7828	0.25-0.5	colorless	Olivine	39.35	0.00	0.04	0.00	0.07	7.82	0.12	0.34	50.72	0.02	0.00	0.02	98.51	92.0
T784	115	7828	0.25-0.5	colorless	Olivine	40.11	0.01	0.00	0.03	0.00	6.85	0.07	0.32	51.49	0.00	0.00	0.00	98.89	93.1
T784	116	7828	0.25-0.5	colorless	Olivine	39.92	0.03	0.02	0.08	0.00	7.68	0.12	0.30	50.63	0.02	0.00	0.00	98.78	92.2
T784	117	7828	0.25-0.5	colorless	Olivine	40.02	0.03	0.01	0.00	0.02	7.90	0.13	0.37	51.15	0.01	0.00	0.00	99.64	92.0
T784	118	7828	0.25-0.5	colorless	Olivine	40.04	0.06	0.00	0.00	0.03	8.15	0.16	0.40	50.27	0.03	0.00	0.00	99.14	91.7
T784	119	7828	0.25-0.5	colorless	Olivine	39.99	0.04	0.03	0.02	0.00	7.01	0.12	0.35	51.03	0.00	0.00	0.02	98.60	92.8
T784	120	7828	0.25-0.5	colorless	Olivine	39.67	0.06	0.00	0.03	0.00	6.88	0.07	0.30	51.42	0.02	0.00	0.01	98.45	93.0
T784	121	7828	0.25-0.5	colorless	Olivine	39.78	0.02	0.00	0.00	0.02	6.35	0.08	0.30	52.04	0.02	0.00	0.01	98.62	93.6
T784	122	7828	0.25-0.5	colorless	Olivine	39.71	0.02	0.01	0.04	0.05	7.94	0.14	0.39	50.33	0.21	0.00	0.00	98.84	91.9
T784	123	7828	0.25-0.5	colorless	Olivine	39.51	0.05	0.03	0.03	0.00	7.87	0.10	0.34	50.38	0.03	0.00	0.02	98.37	91.9
T784	124	7828	0.25-0.5	colorless	Olivine	39.65	0.00	0.03	0.00	0.00	8.10	0.12	0.43	50.50	0.02	0.00	0.00	98.85	91.7
T797	55	7828	0.50-1.00	colorless	Olivine	39.71	0.03	0.01	0.03	0.00	8.12	0.14	0.37	50.41	0.03	0.00	0.00	98.85	91.7
T797	56	7828	0.50-1.00	colorless	Olivine	40.27	0.01	0.01	0.01	0.00	7.63	0.13	0.45	50.29	0.03	0.00	0.01	98.85	92.2
T797	57	7828	0.50-1.00	colorless	Olivine	39.80	0.04	0.03	0.00	0.00	7.50	0.16	0.39	50.70	0.02	0.00	0.00	98.63	92.3
T797	58	7828	0.50-1.00	colorless	Olivine	39.88	0.03	0.02	0.05	0.03	8.53	0.07	0.39	50.48	0.02	0.00	0.02	99.52	91.3

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T797	59	7828	0.50-1.00	colorless	Olivine	40.34	0.04	0.00	0.00	0.01	6.58	0.13	0.38	52.00	0.02	0.00	0.01	99.51	93.4
T797	60	7828	0.50-1.00	colorless	Olivine	40.04	0.04	0.03	0.01	0.00	7.92	0.09	0.42	50.77	0.02	0.00	0.02	99.36	92.0
T797	61	7828	0.50-1.00	colorless	Olivine	39.97	0.01	0.03	0.02	0.01	7.05	0.12	0.31	51.43	0.02	0.00	0.02	98.97	92.9
T797	62	7828	0.50-1.00	colorless	Olivine	40.28	0.04	0.02	0.03	0.01	7.48	0.15	0.44	50.90	0.01	0.00	0.01	99.37	92.4
T797	63	7828	0.50-1.00	colorless	Olivine	39.99	0.02	0.00	0.00	0.06	8.15	0.16	0.44	50.81	0.03	0.00	0.00	99.66	91.7
T797	64	7828	0.50-1.00	colorless	Olivine	40.40	0.00	0.02	0.00	0.00	8.21	0.16	0.49	50.87	0.03	0.00	0.00	100.20	91.7
T797	65	7828	0.50-1.00	colorless	Olivine	40.28	0.05	0.02	0.02	0.00	7.82	0.09	0.30	51.00	0.00	0.00	0.00	99.58	92.1
T797	66	7828	0.50-1.00	colorless	Olivine	39.67	0.06	0.05	0.00	0.00	6.84	0.11	0.35	50.71	0.01	0.00	0.00	97.80	93.0
T797	67	7828	0.50-1.00	colorless	Olivine	40.23	0.01	0.02	0.01	0.03	8.54	0.15	0.42	50.30	0.02	0.00	0.01	99.72	91.3
T797	68	7828	0.50-1.00	colorless	Olivine	39.82	0.00	0.02	0.03	0.00	7.29	0.11	0.36	51.42	0.03	0.00	0.01	99.09	92.6
T797	69	7828	0.50-1.00	colorless	Olivine	40.52	0.03	0.03	0.00	0.00	7.71	0.13	0.36	51.39	0.01	0.00	0.02	100.20	92.2
T797	70	7828	0.50-1.00	colorless	Olivine	39.61	0.01	0.03	0.00	0.00	8.09	0.16	0.41	50.09	0.04	0.00	0.00	98.43	91.7
T797	71	7828	0.50-1.00	colorless	Olivine	40.79	0.02	0.01	0.01	0.00	6.56	0.08	0.32	51.89	0.02	0.00	0.00	99.70	93.4
T797	72	7828	0.50-1.00	colorless	Olivine	40.13	0.00	0.03	0.00	0.05	5.91	0.10	0.37	52.07	0.01	0.00	0.00	98.66	94.0
T797	73	7828	0.50-1.00	colorless	Olivine	39.72	0.05	0.05	0.11	0.00	9.38	0.11	0.30	49.64	0.05	0.00	0.00	99.40	90.4
T797	74	7828	0.50-1.00	colorless	Olivine	41.11	0.05	0.03	0.03	0.01	5.47	0.05	0.32	52.52	0.01	0.00	0.01	99.62	94.5
T797	75	7828	0.50-1.00	colorless	Olivine	39.82	0.04	0.03	0.04	0.00	9.28	0.18	0.32	49.55	0.06	0.00	0.00	99.32	90.5
T797	76	7828	0.50-1.00	colorless	Olivine	40.13	0.01	0.00	0.01	0.00	6.78	0.09	0.38	51.53	0.00	0.00	0.01	98.94	93.1
T797	77	7828	0.50-1.00	colorless	Olivine	39.43	0.00	0.01	0.01	0.03	7.66	0.11	0.32	50.44	0.04	0.00	0.00	98.06	92.2
T797	78	7828	0.50-1.00	colorless	Olivine	40.14	0.02	0.04	0.01	0.01	7.04	0.15	0.31	51.89	0.03	0.00	0.01	99.64	92.9
T797	79	7828	0.50-1.00	colorless	Olivine	39.99	0.01	0.03	0.03	0.00	6.82	0.16	0.33	51.19	0.02	0.00	0.00	98.57	93.0
T797	80	7828	0.50-1.00	colorless	Olivine	40.08	0.00	0.01	0.01	0.00	6.86	0.11	0.34	51.01	0.00	0.00	0.00	98.42	93.0
T764	92	7829	0.25-0.5	colorless	Olivine	40.48	0.03	0.02	0.05	0.03	8.27	0.05	0.42	49.46	0.38	0.00	0.02	99.21	91.4
T764	93	7829	0.25-0.5	colorless	Olivine	40.45	0.03	0.02	0.02	0.03	8.93	0.12	0.32	49.34	0.08	0.00	0.00	99.35	90.8
T764	94	7829	0.25-0.5	colorless	Olivine	40.56	0.07	0.00	0.02	0.03	8.14	0.13	0.36	50.32	0.03	0.00	0.00	99.66	91.7
T764	95	7829	0.25-0.5	colorless	Olivine	40.51	0.04	0.04	0.07	0.01	7.71	0.11	0.37	49.89	0.29	0.00	0.00	99.04	92.0
T764	96	7829	0.25-0.5	colorless	Olivine	40.11	0.06	0.01	0.02	0.01	9.91	0.15	0.25	48.87	0.11	0.00	0.00	99.49	89.8
T764	97	7829	0.25-0.5	colorless	Olivine	40.43	0.04	0.03	0.11	0.04	9.02	0.13	0.40	49.13	0.13	0.00	0.01	99.47	90.7
T764	98	7829	0.25-0.5	colorless	Olivine	41.10	0.03	0.06	0.07	0.05	6.78	0.10	0.38	51.30	0.15	0.00	0.00	100.01	93.1
T764	99	7829	0.25-0.5	colorless	Olivine	41.03	0.02	0.02	0.03	0.01	6.69	0.13	0.39	51.26	0.25	0.00	0.01	99.86	93.2
T764	100	7829	0.25-0.5	colorless	Olivine	40.69	0.00	0.01	0.02	0.03	7.44	0.08	0.39	50.72	0.26	0.00	0.00	99.64	92.4
T764	101	7829	0.25-0.5	colorless	Olivine	39.74	0.05	0.01	0.06	0.01	13.82	0.20	0.05	45.75	0.13	0.00	0.03	99.86	85.5
T764	102	7829	0.25-0.5	colorless	Olivine	40.76	0.02	0.01	0.01	0.00	8.00	0.13	0.38	50.60	0.03	0.00	0.01	99.94	91.9
T764	103	7829	0.25-0.5	colorless	Olivine	41.09	0.02	0.03	0.01	0.02	8.26	0.15	0.38	51.07	0.01	0.00	0.00	101.04	91.7
T764	104	7829	0.25-0.5	colorless	Olivine	40.24	0.02	0.05	0.08	0.00	8.44	0.08	0.42	49.62	0.16	0.00	0.02	99.13	91.3
T764	105	7829	0.25-0.5	colorless	Olivine	40.74	0.00	0.03	0.03	0.04	7.86	0.12	0.37	49.88	0.31	0.00	0.01	99.40	91.9
T764	106	7829	0.25-0.5	colorless	Olivine	40.50	0.02	0.02	0.00	0.03	7.87	0.09	0.33	50.36	0.04	0.00	0.00	99.27	91.9
T764	107	7829	0.25-0.5	colorless	Olivine	40.82	0.02	0.02	0.13	0.00	7.92	0.15	0.42	50.50	0.14	0.00	0.00	100.12	91.9
T764	108	7829	0.25-0.5	colorless	Olivine	40.39	0.04	0.04	0.07	0.08	8.55	0.11	0.33	49.41	0.35	0.00	0.01	99.37	91.2
T764	109	7829	0.25-0.5	colorless	Olivine	40.81	0.03	0.02	0.02	0.02	6.85	0.07	0.34	51.44	0.10	0.00	0.01	99.71	93.0
T764	110	7829	0.25-0.5	colorless	Olivine	40.54	0.06	0.00	0.00	0.00	7.42	0.09	0.33	50.12	0.29	0.00	0.01	98.85	92.3
T764	111	7829	0.25-0.5	colorless	Olivine	40.41	0.04	0.02	0.00	0.04	7.11	0.15	0.33	50.81	0.30	0.00	0.01	99.22	92.7
T764	112	7829	0.25-0.5	colorless	Olivine	40.13	0.03	0.01	0.00	0.00	7.76	0.12	0.38	50.68	0.18	0.00	0.00	99.29	92.1
T764	113	7829	0.25-0.5	colorless	Olivine	40.76	0.01	0.01	0.00	0.00	6.43	0.14	0.39	51.92	0.25	0.00	0.00	99.91	93.5
T764	114	7829	0.25-0.5	colorless	Olivine	39.73	0.03	0.01	0.00	0.03	13.02	0.16	0.09	46.12	0.15	0.00	0.02	99.36	86.3
T764	115	7829	0.25-0.5	colorless	Olivine	40.52	0.03	0.02	0.01	0.05	8.45	0.09	0.48	49.94	0.30	0.00	0.02	99.90	91.3

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T764	116	7829	0.25-0.5	colorless	Olivine	40.78	0.00	0.00	0.02	0.00	8.42	0.12	0.47	49.98	0.10	0.00	0.00	99.88	91.4
T773	96	7829	0.25-0.5	colorless	Olivine	39.05	0.02	0.02	0.03	0.02	8.43	0.12	0.28	50.09	0.00	0.00	0.00	98.08	91.4
T773	97	7829	0.25-0.5	colorless	Olivine	39.26	0.00	0.02	0.03	0.01	7.54	0.15	0.38	50.31	0.01	0.00	0.01	97.73	92.2
T773	98	7829	0.25-0.5	colorless	Olivine	39.57	0.02	0.02	0.07	0.01	7.28	0.10	0.38	50.81	0.01	0.00	0.00	98.26	92.6
T773	99	7829	0.25-0.5	colorless	Olivine	39.31	0.03	0.05	0.06	0.00	8.48	0.10	0.40	49.62	0.05	0.00	0.00	98.11	91.3
T773	100	7829	0.25-0.5	colorless	Olivine	39.74	0.02	0.05	0.00	0.00	7.65	0.16	0.41	50.32	0.01	0.00	0.00	98.37	92.1
T773	101	7829	0.25-0.5	colorless	Olivine	38.89	0.07	0.01	0.01	0.03	10.75	0.08	0.20	47.84	0.04	0.00	0.01	97.92	88.8
T773	102	7829	0.25-0.5	colorless	Olivine	39.27	0.04	0.04	0.03	0.05	8.36	0.16	0.41	49.85	0.00	0.00	0.00	98.20	91.4
T773	103	7829	0.25-0.5	colorless	Olivine	38.50	0.02	0.04	0.00	0.02	13.75	0.19	0.13	45.46	0.02	0.00	0.02	98.14	85.5
T773	104	7829	0.25-0.5	colorless	Olivine	39.30	0.04	0.04	0.05	0.00	8.20	0.05	0.38	50.19	0.02	0.00	0.00	98.26	91.6
T773	105	7829	0.25-0.5	colorless	Olivine	38.91	0.01	0.03	0.00	0.03	8.18	0.14	0.36	49.75	0.01	0.00	0.00	97.41	91.6
T773	106	7829	0.25-0.5	colorless	Olivine	39.19	0.05	0.01	0.03	0.02	8.39	0.14	0.46	50.02	0.03	0.00	0.01	98.35	91.4
T773	107	7829	0.25-0.5	colorless	Olivine	38.66	0.03	0.04	0.03	0.05	9.27	0.12	0.33	48.93	0.06	0.00	0.02	97.53	90.4
T773	108	7829	0.25-0.5	colorless	Olivine	38.90	0.00	0.02	0.00	0.06	8.54	0.12	0.38	49.92	0.03	0.00	0.00	97.97	91.2
T773	109	7829	0.25-0.5	colorless	Olivine	38.92	0.01	0.02	0.00	0.01	9.28	0.10	0.44	49.44	0.02	0.00	0.02	98.27	90.5
T773	110	7829	0.25-0.5	colorless	Olivine	39.29	0.02	0.02	0.08	0.00	8.86	0.16	0.37	49.78	0.02	0.00	0.00	98.61	90.9
T773	111	7829	0.25-0.5	colorless	Olivine	39.65	0.03	0.03	0.02	0.00	7.34	0.07	0.39	50.59	0.06	0.00	0.00	98.18	92.5
T773	112	7829	0.25-0.5	colorless	Olivine	39.46	0.00	0.02	0.06	0.00	8.19	0.14	0.36	50.19	0.00	0.00	0.01	98.43	91.6
T773	113	7829	0.25-0.5	colorless	Olivine	39.70	0.02	0.00	0.05	0.02	8.00	0.12	0.38	50.34	0.00	0.00	0.00	98.64	91.8
T773	114	7829	0.25-0.5	colorless	Olivine	39.45	0.03	0.02	0.04	0.02	8.27	0.14	0.44	50.38	0.01	0.00	0.00	98.79	91.6
T773	115	7829	0.25-0.5	colorless	Olivine	39.45	0.00	0.03	0.07	0.00	8.32	0.14	0.37	50.00	0.08	0.00	0.01	98.46	91.5
T773	116	7829	0.25-0.5	colorless	Olivine	39.46	0.08	0.05	0.07	0.00	7.63	0.16	0.34	50.60	0.07	0.00	0.01	98.46	92.2
T773	117	7829	0.25-0.5	colorless	Olivine	40.02	0.03	0.03	0.00	0.00	7.79	0.08	0.42	50.33	0.04	0.00	0.00	98.75	92.0
T773	118	7829	0.25-0.5	colorless	Olivine	39.47	0.04	0.03	0.05	0.03	7.86	0.18	0.34	50.24	0.02	0.00	0.00	98.27	91.9
T773	119	7829	0.25-0.5	colorless	Olivine	39.51	0.01	0.02	0.00	0.00	9.30	0.20	0.31	49.32	0.00	0.00	0.00	98.67	90.4
T773	120	7829	0.25-0.5	colorless	Olivine	38.99	0.02	0.00	0.00	0.00	9.23	0.14	0.37	48.98	0.04	0.00	0.00	97.78	90.4
T779	7	7829	0.25-0.5	colorless	Olivine	40.09	0.01	0.00	0.02	0.00	8.07	0.11	0.30	50.12	0.03	0.00	0.00	98.76	91.7
T779	8	7829	0.25-0.5	colorless	Olivine	39.44	0.00	0.01	0.00	0.00	8.13	0.13	0.43	49.55	0.02	0.00	0.00	97.71	91.6
T779	9	7829	0.25-0.5	colorless	Olivine	39.10	0.00	0.02	0.02	0.00	9.34	0.11	0.33	48.59	0.14	0.00	0.01	97.66	90.3
T779	10	7829	0.25-0.5	colorless	Olivine	40.18	0.01	0.00	0.00	0.02	7.02	0.16	0.31	50.65	0.14	0.00	0.00	98.49	92.8
T779	11	7829	0.25-0.5	colorless	Olivine	39.89	0.05	0.04	0.00	0.05	10.51	0.10	0.33	47.68	0.09	0.00	0.01	98.75	89.0
T779	12	7829	0.25-0.5	colorless	Olivine	39.23	0.06	0.05	0.00	0.02	12.64	0.16	0.09	46.03	0.15	0.00	0.00	98.43	86.7
T779	13	7829	0.25-0.5	colorless	Olivine	39.47	0.03	0.02	0.01	0.00	7.51	0.15	0.35	49.89	0.13	0.00	0.00	97.57	92.2
T779	14	7829	0.25-0.5	colorless	Olivine	39.74	0.05	0.03	0.02	0.03	7.61	0.13	0.32	49.91	0.13	0.00	0.00	97.98	92.1
T779	15	7829	0.25-0.5	colorless	Olivine	39.46	0.07	0.04	0.01	0.00	10.37	0.10	0.35	48.36	0.10	0.00	0.03	98.90	89.3
T779	16	7829	0.25-0.5	colorless	Olivine	39.94	0.06	0.02	0.04	0.00	7.43	0.18	0.31	50.30	0.16	0.00	0.01	98.44	92.3
T779	17	7829	0.25-0.5	colorless	Olivine	39.83	0.00	0.00	0.03	0.05	8.82	0.10	0.30	49.16	0.16	0.00	0.00	98.46	90.9
T779	18	7829	0.25-0.5	colorless	Olivine	38.71	0.02	0.04	0.04	0.00	10.41	0.15	0.31	47.90	0.01	0.00	0.01	97.60	89.1
T779	19	7829	0.25-0.5	colorless	Olivine	40.29	0.01	0.02	0.03	0.02	6.84	0.14	0.37	51.13	0.04	0.00	0.01	98.90	93.0
T779	20	7829	0.25-0.5	colorless	Olivine	39.85	0.06	0.03	0.00	0.01	8.94	0.16	0.38	48.58	0.23	0.00	0.00	98.24	90.6
T779	21	7829	0.25-0.5	colorless	Olivine	39.04	0.05	0.02	0.08	0.00	9.83	0.12	0.34	48.38	0.21	0.00	0.02	98.08	89.8
T779	22	7829	0.25-0.5	colorless	Olivine	40.00	0.02	0.03	0.08	0.06	8.67	0.15	0.44	49.70	0.13	0.00	0.01	99.30	91.1
T779	23	7829	0.25-0.5	colorless	Olivine	39.38	0.06	0.03	0.03	0.00	10.86	0.11	0.32	47.51	0.04	0.00	0.02	98.38	88.6
T779	24	7829	0.25-0.5	colorless	Olivine	39.68	0.03	0.03	0.00	0.03	7.35	0.15	0.41	50.25	0.15	0.00	0.02	98.10	92.4
T779	25	7829	0.25-0.5	colorless	Olivine	39.77	0.04	0.00	0.00	0.04	7.06	0.09	0.31	50.94	0.04	0.00	0.00	98.28	92.8
T779	26	7829	0.25-0.5	colorless	Olivine	39.69	0.05	0.01	0.01	0.00	7.82	0.13	0.29	50.07	0.04	0.00	0.00	98.10	91.9

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T779	27	7829	0.25-0.5	colorless	Olivine	39.46	0.04	0.02	0.04	0.00	8.63	0.12	0.31	49.34	0.04	0.00	0.00	98.02	91.1
T779	28	7829	0.25-0.5	colorless	Olivine	39.94	0.00	0.02	0.00	0.03	6.66	0.19	0.50	50.98	0.00	0.00	0.00	98.33	93.2
T779	29	7829	0.25-0.5	colorless	Olivine	39.56	0.03	0.02	0.10	0.03	9.73	0.10	0.33	48.25	0.15	0.00	0.00	98.31	89.8
T779	30	7829	0.25-0.5	colorless	Olivine	39.61	0.02	0.02	0.02	0.02	7.47	0.10	0.41	50.26	0.00	0.00	0.03	97.96	92.3
T785	19	7829	0.25-0.5	colorless	Olivine	40.02	0.07	0.05	0.06	0.00	9.87	0.13	0.35	48.88	0.05	0.00	0.01	99.49	89.8
T785	20	7829	0.25-0.5	colorless	Olivine	39.57	0.02	0.02	0.00	0.02	6.81	0.10	0.34	51.00	0.02	0.00	0.03	97.92	93.0
T785	21	7829	0.25-0.5	colorless	Olivine	39.25	0.03	0.02	0.04	0.05	10.63	0.17	0.34	48.19	0.03	0.00	0.00	98.75	89.0
T785	22	7829	0.25-0.5	colorless	Olivine	39.59	0.00	0.03	0.05	0.00	8.35	0.20	0.46	49.95	0.05	0.00	0.00	98.69	91.4
T785	23	7829	0.25-0.5	colorless	Olivine	40.29	0.01	0.00	0.04	0.00	8.44	0.17	0.27	50.18	0.08	0.00	0.00	99.50	91.4
T785	24	7829	0.25-0.5	colorless	Olivine	40.29	0.00	0.03	0.05	0.00	7.51	0.12	0.31	51.13	0.00	0.00	0.02	99.46	92.4
T785	25	7829	0.25-0.5	colorless	Olivine	39.87	0.06	0.00	0.03	0.00	8.15	0.07	0.44	50.28	0.12	0.00	0.02	99.04	91.7
T785	26	7829	0.25-0.5	colorless	Olivine	40.16	0.04	0.02	0.02	0.00	8.16	0.11	0.32	50.57	0.12	0.00	0.00	99.52	91.7
T785	27	7829	0.25-0.5	colorless	Olivine	39.31	0.04	0.06	0.04	0.02	10.25	0.14	0.27	47.87	0.33	0.00	0.00	98.33	89.3
T785	28	7829	0.25-0.5	colorless	Olivine	40.44	0.04	0.00	0.02	0.00	7.25	0.10	0.35	51.13	0.13	0.00	0.00	99.45	92.6
T785	29	7829	0.25-0.5	colorless	Olivine	40.36	0.00	0.03	0.02	0.05	6.42	0.15	0.30	51.82	0.02	0.00	0.02	99.18	93.5
T785	30	7829	0.25-0.5	colorless	Olivine	39.59	0.01	0.05	0.09	0.00	11.50	0.14	0.17	47.82	0.33	0.00	0.01	99.70	88.1
T785	31	7829	0.25-0.5	colorless	Olivine	39.82	0.00	0.02	0.00	0.01	7.77	0.13	0.43	49.93	0.17	0.00	0.01	98.28	92.0
T785	32	7829	0.25-0.5	colorless	Olivine	40.29	0.06	0.02	0.06	0.00	7.86	0.18	0.34	51.08	0.00	0.00	0.01	99.89	92.1
T785	33	7829	0.25-0.5	colorless	Olivine	40.00	0.03	0.01	0.00	0.00	7.87	0.07	0.32	50.63	0.02	0.00	0.01	98.97	92.0
T785	34	7829	0.25-0.5	colorless	Olivine	40.52	0.03	0.02	0.03	0.00	6.65	0.08	0.41	51.77	0.01	0.00	0.02	99.56	93.3
T785	35	7829	0.25-0.5	colorless	Olivine	40.27	0.02	0.00	0.04	0.07	7.96	0.09	0.32	50.18	0.27	0.00	0.01	99.22	91.8
T785	36	7829	0.25-0.5	colorless	Olivine	40.55	0.04	0.03	0.00	0.03	8.21	0.12	0.42	50.27	0.02	0.00	0.01	99.71	91.6
T785	37	7829	0.25-0.5	colorless	Olivine	40.26	0.04	0.03	0.04	0.01	8.01	0.20	0.39	50.16	0.03	0.00	0.01	99.17	91.8
T785	38	7829	0.25-0.5	colorless	Olivine	39.62	0.02	0.03	0.02	0.01	10.88	0.15	0.31	48.05	0.04	0.00	0.01	99.16	88.7
T785	39	7829	0.25-0.5	colorless	Olivine	39.20	0.03	0.01	0.05	0.02	10.41	0.14	0.24	48.06	0.07	0.00	0.01	98.23	89.2
T785	40	7829	0.25-0.5	colorless	Olivine	39.65	0.00	0.02	0.07	0.00	6.29	0.17	0.32	51.29	0.31	0.00	0.00	98.11	93.6
T785	41	7829	0.25-0.5	colorless	Olivine	39.80	0.03	0.06	0.00	0.05	8.18	0.12	0.33	49.78	0.36	0.00	0.00	98.73	91.6
T785	43	7829	0.25-0.5	colorless	Olivine	40.11	0.02	0.03	0.01	0.02	7.26	0.12	0.38	50.95	0.03	0.00	0.00	98.94	92.6
T798	49	7829	0.50-1.00	colorless	Olivine	39.13	0.00	0.00	0.05	0.02	7.83	0.16	0.39	49.99	0.02	0.00	0.02	97.60	91.9
T798	50	7829	0.50-1.00	colorless	Olivine	39.58	0.01	0.02	0.03	0.00	7.11	0.10	0.46	51.00	0.02	0.00	0.00	98.33	92.7
T798	51	7829	0.50-1.00	colorless	Olivine	39.75	0.03	0.01	0.00	0.00	7.87	0.15	0.39	50.33	0.03	0.00	0.01	98.58	91.9
T798	52	7829	0.50-1.00	colorless	Olivine	39.99	0.05	0.04	0.00	0.00	8.59	0.07	0.38	50.08	0.05	0.00	0.00	99.26	91.2
T798	53	7829	0.50-1.00	colorless	Olivine	39.84	0.04	0.01	0.00	0.02	7.14	0.08	0.39	51.26	0.03	0.00	0.01	98.83	92.8
T798	54	7829	0.50-1.00	colorless	Olivine	39.71	0.00	0.00	0.01	0.00	7.30	0.12	0.34	51.41	0.01	0.00	0.03	98.93	92.6
T798	55	7829	0.50-1.00	colorless	Olivine	40.04	0.00	0.02	0.02	0.00	6.29	0.11	0.32	52.07	0.01	0.00	0.02	98.89	93.7
T798	56	7829	0.50-1.00	colorless	Olivine	40.27	0.03	0.02	0.06	0.01	8.45	0.16	0.48	50.11	0.03	0.00	0.01	99.63	91.4
T798	57	7829	0.50-1.00	colorless	Olivine	39.98	0.01	0.02	0.01	0.00	7.89	0.13	0.38	50.88	0.04	0.00	0.01	99.35	92.0
T798	58	7829	0.50-1.00	colorless	Olivine	40.01	0.02	0.02	0.03	0.01	8.07	0.16	0.44	50.41	0.03	0.00	0.01	99.22	91.8
T798	59	7829	0.50-1.00	colorless	Olivine	40.54	0.02	0.01	0.00	0.00	7.86	0.11	0.42	51.38	0.03	0.00	0.01	100.38	92.1
T798	60	7829	0.50-1.00	colorless	Olivine	39.52	0.01	0.02	0.00	0.00	10.54	0.17	0.37	48.77	0.01	0.00	0.00	99.40	89.2
T798	61	7829	0.50-1.00	colorless	Olivine	37.66	0.04	0.03	0.04	0.02	7.88	0.14	0.41	48.57	0.15	0.00	0.01	94.94	91.7
T798	62	7829	0.50-1.00	colorless	Olivine	40.03	0.01	0.04	0.01	0.00	8.12	0.13	0.41	50.65	0.04	0.00	0.00	99.44	91.7
T798	63	7829	0.50-1.00	colorless	Olivine	39.05	0.02	0.03	0.00	0.01	8.28	0.15	0.31	49.79	0.01	0.00	0.02	97.67	91.5
T798	64	7829	0.50-1.00	colorless	Olivine	39.26	0.04	0.05	0.01	0.03	10.45	0.15	0.31	48.07	0.10	0.00	0.00	98.45	89.1
T798	65	7829	0.50-1.00	colorless	Olivine	40.22	0.04	0.02	0.00	0.02	7.86	0.19	0.29	50.81	0.03	0.00	0.00	99.49	92.0
T798	66	7829	0.50-1.00	colorless	Olivine	39.67	0.02	0.03	0.08	0.02	8.07	0.09	0.36	50.39	0.02	0.00	0.00	98.74	91.8

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T798	67	7829	0.50-1.00	colorless	Olivine	40.12	0.01	0.02	0.04	0.00	7.41	0.11	0.23	50.69	0.00	0.00	0.01	98.64	92.4
T798	68	7829	0.50-1.00	colorless	Olivine	40.79	0.03	0.00	0.01	0.00	7.11	0.11	0.33	51.87	0.05	0.00	0.01	100.31	92.9
T798	69	7829	0.50-1.00	colorless	Olivine	40.62	0.02	0.02	0.00	0.00	6.74	0.10	0.37	52.26	0.01	0.00	0.00	100.13	93.3
T798	70	7829	0.50-1.00	colorless	Olivine	40.94	0.00	0.01	0.00	0.00	6.81	0.11	0.32	52.21	0.01	0.00	0.00	100.42	93.2
T798	71	7829	0.50-1.00	colorless	Olivine	41.15	0.00	0.05	0.00	0.00	8.95	0.11	0.35	50.06	0.03	0.00	0.00	100.70	90.9
T798	72	7829	0.50-1.00	colorless	Olivine	40.19	0.02	0.03	0.05	0.00	7.13	0.10	0.39	51.17	0.03	0.00	0.00	99.11	92.8
T798	73	7829	0.50-1.00	colorless	Olivine	40.21	0.00	0.01	0.00	0.01	8.10	0.17	0.37	50.91	0.01	0.00	0.00	99.79	91.8
T804	3	7829	1.0-2.0	colorless	Olivine	40.48	0.03	0.03	0.02	0.06	6.71	0.14	0.28	51.16	0.02	0.00	0.00	98.92	93.1
T804	4	7829	1.0-2.0	colorless	Olivine	40.30	0.04	0.03	0.00	0.01	6.63	0.10	0.31	51.57	0.04	0.00	0.00	99.03	93.3
T804	5	7829	1.0-2.0	colorless	Olivine	40.75	0.00	0.04	0.02	0.07	6.46	0.11	0.36	51.27	0.01	0.00	0.03	99.08	93.4
T804	6	7829	1.0-2.0	colorless	Olivine	40.85	0.04	0.02	0.03	0.00	5.19	0.03	0.39	52.34	0.01	0.00	0.00	98.89	94.7
T804	8	7829	1.0-2.0	colorless	Olivine	40.12	0.03	0.02	0.03	0.01	7.10	0.14	0.30	50.64	0.01	0.00	0.00	98.39	92.7
T804	9	7829	1.0-2.0	colorless	Olivine	40.41	0.05	0.04	0.07	0.00	6.09	0.08	0.33	51.66	0.01	0.00	0.01	98.73	93.8
T804	10	7829	1.0-2.0	colorless	Olivine	40.81	0.02	0.00	0.03	0.06	5.61	0.09	0.31	52.38	0.05	0.00	0.00	99.35	94.3
T804	11	7829	1.0-2.0	colorless	Olivine	40.59	0.01	0.05	0.03	0.02	7.15	0.09	0.30	51.26	0.03	0.00	0.00	99.52	92.7
T804	12	7829	1.0-2.0	colorless	Olivine	40.49	0.03	0.01	0.01	0.06	6.67	0.08	0.33	51.18	0.01	0.00	0.00	98.87	93.2
T804	13	7829	1.0-2.0	colorless	Olivine	40.52	0.01	0.02	0.05	0.00	6.98	0.13	0.37	50.80	0.01	0.00	0.03	98.89	92.8
T804	14	7829	1.0-2.0	colorless	Olivine	40.46	0.01	0.03	0.00	0.00	6.28	0.05	0.32	51.27	0.02	0.00	0.01	98.43	93.6
T804	15	7829	1.0-2.0	colorless	Olivine	40.44	0.00	0.01	0.04	0.08	7.25	0.09	0.40	50.56	0.02	0.00	0.00	98.88	92.6
T804	16	7829	1.0-2.0	colorless	Olivine	40.23	0.03	0.01	0.00	0.02	7.69	0.11	0.35	49.94	0.02	0.00	0.00	98.40	92.0
T804	17	7829	1.0-2.0	colorless	Olivine	40.52	0.02	0.01	0.00	0.00	6.77	0.09	0.27	51.21	0.02	0.00	0.01	98.89	93.1
T804	18	7829	1.0-2.0	colorless	Olivine	40.30	0.00	0.01	0.02	0.01	6.02	0.12	0.38	51.39	0.03	0.00	0.01	98.28	93.8
T804	20	7829	1.0-2.0	colorless	Olivine	40.01	0.01	0.03	0.01	0.00	7.07	0.17	0.32	50.48	0.03	0.00	0.00	98.12	92.7
T804	21	7829	1.0-2.0	colorless	Olivine	40.58	0.00	0.03	0.01	0.00	6.18	0.08	0.33	51.50	0.02	0.00	0.00	98.73	93.7
T804	22	7829	1.0-2.0	colorless	Olivine	40.11	0.04	0.01	0.00	0.00	7.62	0.10	0.34	50.32	0.02	0.00	0.00	98.57	92.2
T804	23	7829	1.0-2.0	colorless	Olivine	39.85	0.02	0.00	0.00	0.02	6.34	0.13	0.32	51.13	0.04	0.00	0.00	97.84	93.5
T785	52	7830	0.25-0.5	colorless	Olivine	39.92	0.02	0.02	0.01	0.00	7.95	0.15	0.35	50.32	0.02	0.00	0.01	98.78	91.9
T785	53	7830	0.25-0.5	colorless	Olivine	39.91	0.00	0.02	0.02	0.01	8.44	0.14	0.39	50.04	0.12	0.00	0.00	99.08	91.4
T785	54	7830	0.25-0.5	colorless	Olivine	38.90	0.09	0.05	0.04	0.01	12.22	0.18	0.24	46.10	0.55	0.00	0.00	98.38	87.1
T785	56	7830	0.25-0.5	colorless	Olivine	40.00	0.01	0.03	0.01	0.00	7.31	0.11	0.39	50.71	0.03	0.00	0.00	98.60	92.5
T785	59	7830	0.25-0.5	colorless	Olivine	39.63	0.03	0.03	0.01	0.02	8.17	0.11	0.42	50.03	0.03	0.00	0.01	98.49	91.6
T785	60	7830	0.25-0.5	colorless	Olivine	39.95	0.01	0.02	0.06	0.00	6.50	0.09	0.35	51.95	0.00	0.00	0.00	98.94	93.4
T799	2	7830	0.50-1.00	colorless	Olivine	40.48	0.00	0.02	0.00	0.00	6.97	0.10	0.33	51.68	0.06	0.00	0.00	99.64	93.0
T799	3	7830	0.50-1.00	colorless	Olivine	40.82	0.00	0.03	0.04	0.00	6.77	0.08	0.40	52.30	0.02	0.00	0.01	100.47	93.2
T799	4	7830	0.50-1.00	colorless	Olivine	40.79	0.03	0.06	0.00	0.00	6.90	0.11	0.39	52.06	0.00	0.00	0.00	100.34	93.1
T799	5	7830	0.50-1.00	colorless	Olivine	40.10	0.00	0.03	0.00	0.02	9.16	0.13	0.26	49.48	0.00	0.00	0.00	99.19	90.6
T799	6	7830	0.50-1.00	colorless	Olivine	40.71	0.01	0.00	0.09	0.02	6.24	0.14	0.37	52.05	0.00	0.00	0.01	99.63	93.7
T799	7	7830	0.50-1.00	colorless	Olivine	40.99	0.01	0.02	0.00	0.02	6.32	0.10	0.35	52.20	0.02	0.00	0.00	100.01	93.6
T799	8	7830	0.50-1.00	colorless	Olivine	40.28	0.05	0.02	0.00	0.00	6.94	0.14	0.31	51.88	0.04	0.00	0.01	99.66	93.0
T799	9	7830	0.50-1.00	colorless	Olivine	40.26	0.04	0.03	0.00	0.02	6.72	0.10	0.36	51.91	0.02	0.00	0.00	99.45	93.2
T799	10	7830	0.50-1.00	colorless	Olivine	39.86	0.00	0.00	0.04	0.00	8.30	0.11	0.39	50.17	0.03	0.00	0.00	98.89	91.5
T799	11	7830	0.50-1.00	colorless	Olivine	40.39	0.01	0.02	0.00	0.03	8.49	0.11	0.39	50.87	0.02	0.00	0.01	100.34	91.4
T799	17	7830	0.50-1.00	colorless	Olivine	40.38	0.00	0.01	0.02	0.00	7.80	0.10	0.27	51.35	0.01	0.00	0.00	99.95	92.1
T799	18	7830	0.50-1.00	colorless	Olivine	41.25	0.02	0.02	0.02	0.03	6.56	0.11	0.33	52.47	0.02	0.00	0.00	100.84	93.4
T799	19	7830	0.50-1.00	colorless	Olivine	40.00	0.05	0.02	0.02	0.01	7.61	0.14	0.33	51.57	0.00	0.00	0.01	99.74	92.4
T799	20	7830	0.50-1.00	colorless	Olivine	40.43	0.03	0.03	0.02	0.00	7.70	0.18	0.29	51.43	0.01	0.00	0.00	100.11	92.3

Appendix C.2 Microprobe data for olivines from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	Na2O	K2O	Total	100*Mg/(Mg+Fe)
T799	21	7830	0.50-1.00	colorless	Olivine	40.43	0.03	0.03	0.01	0.03	8.20	0.11	0.43	50.77	0.00	0.00	0.01	100.06	91.7
T804	24	7830	1.0-2.0	colorless	Olivine	39.97	0.02	0.03	0.03	0.03	7.16	0.06	0.31	50.34	0.03	0.00	0.01	97.97	92.6
T779	67	7831	0.25-0.5	colorless	Olivine	39.55	0.00	0.03	0.00	0.02	8.80	0.14	0.42	49.75	0.03	0.00	0.00	98.74	91.0
T804	25	7831	1.0-2.0	colorless	Olivine	41.54	0.04	0.00	0.07	0.14	7.15	0.11	0.32	50.58	0.04	0.00	0.01	100.00	92.7
T799	37	7834	0.50-1.00	colorless	Olivine	39.93	0.03	0.02	0.02	0.01	9.41	0.20	0.45	49.93	0.02	0.00	0.00	100.01	90.4
T799	38	7834	0.50-1.00	colorless	Olivine	40.93	0.00	0.03	0.00	0.07	6.26	0.09	0.36	52.48	0.03	0.00	0.00	100.27	93.7
T766	18	7835	0.25-0.5	colorless	Olivine	40.85	0.03	0.02	0.02	0.00	7.57	0.11	0.35	51.63	0.05	0.00	0.02	100.64	92.4
T786	9	7835	0.25-0.5	colorless	Olivine	40.48	0.01	0.01	0.00	0.00	6.64	0.06	0.39	51.93	0.00	0.00	0.01	99.53	93.3
T786	11	7835	0.25-0.5	colorless	Olivine	40.42	0.02	0.03	0.00	0.00	6.32	0.11	0.34	52.08	0.03	0.00	0.01	99.35	93.6
T786	28	7836	0.25-0.5	colorless	Olivine	40.09	0.02	0.07	0.09	0.01	7.84	0.09	0.36	50.07	0.09	0.00	0.00	98.72	91.9
T786	29	7836	0.25-0.5	colorless	Olivine	39.60	0.01	0.04	0.10	0.02	8.54	0.10	0.33	49.78	0.10	0.00	0.00	98.62	91.2
T786	30	7836	0.25-0.5	colorless	Olivine	40.17	0.05	0.02	0.02	0.00	6.67	0.08	0.34	51.52	0.03	0.00	0.00	98.89	93.2
T799	56	7836	0.50-1.00	colorless	Olivine	40.37	0.01	0.01	0.06	0.04	8.03	0.19	0.37	50.93	0.03	0.00	0.01	100.05	91.9
T799	57	7836	0.50-1.00	colorless	Olivine	40.32	0.01	0.07	0.08	0.02	7.42	0.10	0.38	51.40	0.05	0.00	0.00	99.87	92.5
T786	36	7837	0.25-0.5	colorless	Olivine	40.39	0.04	0.03	0.01	0.00	7.19	0.07	0.39	51.01	0.03	0.00	0.04	99.20	92.7
T786	37	7837	0.25-0.5	colorless	Olivine	39.85	0.02	0.04	0.01	0.01	9.09	0.14	0.37	49.39	0.02	0.00	0.00	98.93	90.6
T799	61	7837	0.50-1.00	colorless	Olivine	40.49	0.03	0.04	0.04	0.03	6.39	0.12	0.35	52.49	0.00	0.00	0.00	99.97	93.6
T799	62	7837	0.50-1.00	colorless	Olivine	40.14	0.02	0.02	0.01	0.02	9.25	0.07	0.25	50.19	0.03	0.00	0.00	100.00	90.6
T779	108	7838	0.25-0.5	colorless	Olivine	39.41	0.03	0.05	0.03	0.03	8.70	0.09	0.39	48.77	0.22	0.00	0.00	97.73	90.9
T779	109	7838	0.25-0.5	colorless	Olivine	39.46	0.04	0.03	0.11	0.02	8.54	0.13	0.38	48.88	0.20	0.00	0.00	97.79	91.1
T779	110	7838	0.25-0.5	colorless	Olivine	39.41	0.04	0.08	0.08	0.05	8.46	0.13	0.40	48.93	0.19	0.00	0.00	97.77	91.2
T786	41	7838	0.25-0.5	colorless	Olivine	40.05	0.01	0.04	0.01	0.00	7.40	0.12	0.35	51.12	0.03	0.00	0.00	99.14	92.5
T786	42	7838	0.25-0.5	colorless	Olivine	39.60	0.02	0.02	0.05	0.02	7.61	0.10	0.38	50.43	0.03	0.00	0.01	98.26	92.2
T786	42	7838	0.25-0.5	colorless	Olivine	39.76	0.04	0.04	0.04	0.00	7.64	0.14	0.35	50.45	0.03	0.00	0.00	98.49	92.2
T786	42	7838	0.25-0.5	colorless	Olivine	39.94	0.03	0.04	0.01	0.04	7.83	0.09	0.35	50.36	0.03	0.00	0.00	98.72	92.0



Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T754	3	7801	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.94	0.42	0.45	0.25	29.60	0.24	0.07	13.98	0.02	0.05	0.10	0.36	101.55
T754	4	7801	till	0.25-0.5	black	Mg-Ilmenite	0.01	53.91	0.31	1.02	0.34	32.26	0.28	0.15	12.03	0.00	0.00	0.05	0.22	100.59
T754	5	7801	till	0.25-0.5	black	Mg-Ilmenite	0.09	53.80	0.24	0.32	0.51	32.92	0.26	0.08	12.58	0.06	0.08	0.06	0.01	101.01
T754	6	7801	till	0.25-0.5	black	Mg-Ilmenite	0.01	53.24	0.34	1.24	0.25	32.23	0.39	0.15	11.67	0.03	0.10	0.09	0.00	99.74
T754	7	7801	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.22	0.37	0.67	0.39	31.29	0.36	0.08	13.52	0.02	0.04	0.05	0.00	102.05
T754	8	7801	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.46	0.30	0.50	0.39	27.21	0.48	0.00	16.09	0.05	0.09	0.05	0.08	101.80
T754	10	7801	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.82	0.41	0.60	0.43	31.49	0.33	0.06	13.35	0.02	0.06	0.03	0.09	101.74
T754	11	7801	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.47	0.33	0.66	0.43	31.35	0.37	0.12	13.14	0.01	0.08	0.06	0.22	101.34
T754	12	7801	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.61	0.31	0.64	0.49	32.72	0.24	0.06	12.74	0.04	0.00	0.01	0.14	101.10
T754	13	7801	till	0.25-0.5	black	Mg-Ilmenite	0.05	56.01	0.41	0.73	0.53	28.03	0.20	0.09	14.92	0.00	0.11	0.00	0.24	101.33
T754	14	7801	till	0.25-0.5	black	Mg-Ilmenite	0.06	51.77	0.25	1.59	0.39	35.19	0.31	0.06	10.52	0.04	0.03	0.00	0.14	100.36
T754	15	7801	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.88	1.45	0.66	0.34	23.26	0.37	0.20	17.50	0.25	0.03	0.07	0.25	100.29
T754	17	7801	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.99	0.45	0.41	0.42	26.46	0.36	0.13	15.93	0.00	0.06	0.11	0.00	101.40
T754	18	7801	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.03	0.26	0.18	0.47	29.40	0.44	0.04	14.31	0.01	0.00	0.00	0.46	100.64
T754	19	7801	till	0.25-0.5	black	Mg-Ilmenite	0.11	56.03	0.43	0.75	0.49	27.16	0.38	0.16	15.95	0.03	0.00	0.01	0.14	101.65
T754	20	7801	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.20	0.32	0.65	0.54	31.59	0.37	0.05	13.61	0.02	0.06	0.00	0.24	100.76
T754	22	7801	till	0.25-0.5	black	Mg-Ilmenite	0.06	56.38	0.39	0.61	0.40	27.60	0.34	0.02	15.03	0.00	0.01	0.00	0.00	100.83
T754	25	7801	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.84	0.48	0.59	0.38	25.86	0.41	0.12	16.37	0.01	0.03	0.00	0.09	100.31
T754	26	7801	till	0.25-0.5	black	Mg-Ilmenite	0.06	56.93	0.35	0.40	0.29	26.29	0.41	0.14	16.50	0.03	0.04	0.06	0.01	101.53
T754	28	7801	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.84	0.33	0.63	0.38	30.36	0.39	0.09	13.98	0.02	0.02	0.00	0.20	101.34
T754	29	7801	till	0.25-0.5	black	Mg-Ilmenite	0.03	56.83	0.39	0.59	0.63	26.10	0.27	0.17	15.82	0.04	0.11	0.04	0.00	101.03
T754	30	7801	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.82	0.31	0.41	0.35	30.36	0.34	0.06	13.11	0.03	0.08	0.00	0.25	100.19
T754	31	7801	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.91	0.38	0.61	0.46	27.94	0.39	0.04	15.22	0.06	0.00	0.10	0.12	101.26
T754	32	7801	till	0.25-0.5	black	Mg-Ilmenite	0.04	56.56	1.10	1.00	0.38	24.89	0.37	0.12	16.05	0.03	0.00	0.02	0.00	100.57
T754	33	7801	till	0.25-0.5	black	Mg-Ilmenite	0.09	53.56	0.25	0.51	0.45	33.64	0.26	0.00	12.17	0.04	0.09	0.14	0.49	101.70
T754	34	7801	till	0.25-0.5	black	Mg-Ilmenite	0.04	56.40	0.34	0.88	0.39	26.53	0.31	0.05	16.08	0.02	0.06	0.05	0.07	101.22
T754	35	7801	till	0.25-0.5	black	Mg-Ilmenite	0.12	56.52	0.31	1.40	0.48	23.85	0.45	0.12	17.96	0.02	0.04	0.01	0.07	101.35
T754	36	7801	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.40	0.31	0.39	0.39	32.97	0.28	0.10	12.23	0.01	0.03	0.04	0.09	101.40
T754	37	7801	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.13	0.46	0.75	0.42	29.79	0.28	0.15	13.83	0.04	0.07	0.00	0.07	101.06
T754	38	7801	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.83	0.61	0.95	0.41	28.38	0.30	0.06	15.05	0.01	0.03	0.02	0.17	100.90
T754	39	7801	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.46	0.26	0.55	0.36	31.12	0.28	0.12	12.83	0.05	0.10	0.00	0.09	100.29
T754	40	7801	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.30	0.41	0.59	0.54	27.74	0.34	0.13	14.76	0.00	0.02	0.07	0.09	101.07
T754	41	7801	till	0.25-0.5	black	Mg-Ilmenite	0.02	56.34	0.45	2.21	0.36	24.98	0.48	0.13	16.65	0.03	0.07	0.00	0.00	101.71
T754	44	7801	till	0.25-0.5	black	Mg-Ilmenite	0.03	56.56	0.45	1.17	0.44	25.94	0.29	0.19	15.82	0.04	0.07	0.05	0.14	101.17
T754	47	7801	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.29	0.26	0.39	0.51	32.74	0.32	0.12	12.04	0.05	0.07	0.03	0.01	100.93
T754	51	7801	till	0.25-0.5	black	Mg-Ilmenite	0.27	54.90	0.36	0.33	0.41	29.81	0.36	0.00	13.49	0.07	0.00	0.10	0.08	100.17
T754	52	7801	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.79	0.34	0.65	0.51	30.51	0.32	0.06	13.81	0.04	0.05	0.09	0.12	101.39
T754	61	7801	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.36	0.43	0.62	0.49	30.12	0.25	0.13	13.36	0.00	0.09	0.00	0.16	101.07
T767	4	7801	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.63	0.39	0.56	0.26	31.13	0.31	0.08	12.91	0.33	0.16	0.09	0.16	101.08
T767	5	7801	till	0.25-0.5	black	Mg-Ilmenite	0.09	52.48	0.23	0.27	0.42	35.43	0.42	0.05	10.50	0.01	0.07	0.00	0.15	100.12
T767	6	7801	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.35	0.32	0.46	0.42	31.28	0.32	0.06	12.61	0.02	0.00	0.07	0.09	100.05
T767	7	7801	till	0.25-0.5	black	Mg-Ilmenite	0.11	52.77	0.28	0.38	0.42	34.61	0.28	0.14	11.16	0.11	0.00	0.00	0.11	100.38
T767	10	7801	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.37	0.39	0.82	0.41	28.75	0.23	0.10	14.17	0.26	0.05	0.00	0.18	100.85
T767	21	7801	till	0.25-0.5	black	Mg-Ilmenite	0.15	53.99	0.34	0.29	0.47	32.31	0.28	0.04	11.82	0.23	0.07	0.00	0.12	100.12
T787	4	7801	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.81	0.47	0.64	0.51	28.39	0.39	0.12	14.96	0.31	0.00	0.00	0.27	100.85
T787	6	7801	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.80	0.29	0.44	0.64	33.32	0.35	0.07	11.52	0.06	0.06	0.01	0.26	100.82

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T787	8	7801	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.72	0.33	0.53	0.72	29.06	0.32	0.06	14.46	0.07	0.03	0.07	0.30	101.67
T787	10	7801	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.65	0.50	1.21	0.61	27.72	0.40	0.18	14.92	0.09	0.05	0.00	0.31	101.63
T787	11	7801	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.45	0.56	2.59	0.51	29.93	0.33	0.14	12.87	0.05	0.02	0.01	0.26	100.72
T787	12	7801	till	0.25-0.5	black	Mg-Ilmenite	0.02	56.15	0.43	1.07	0.63	27.32	0.35	0.17	14.79	0.13	0.05	0.00	0.32	101.41
T787	13	7801	till	0.25-0.5	black	Mg-Ilmenite	0.01	54.65	0.32	0.36	0.43	30.87	0.39	0.10	13.45	0.14	0.11	0.08	0.30	101.18
T787	15	7801	till	0.25-0.5	black	Mg-Ilmenite	0.02	56.04	0.48	0.40	0.67	29.71	0.32	0.13	14.15	0.05	0.03	0.14	0.16	102.27
T800	2	7801	till	1.00-2.00	black	Mg-Ilmenite	0.07	55.45	0.44	0.57	0.55	29.78	0.21	0.11	13.63	0.05	0.10	0.05	0.20	101.45
T754	21	7801	till	0.25-0.5	black	Ilmenite	0.02	51.52	0.00	0.04	0.06	45.13	3.42	0.00	0.16	0.00	0.14	0.00	0.01	100.52
T754	24	7801	till	0.25-0.5	black	Ilmenite	0.10	50.91	0.03	0.00	0.22	48.07	0.56	0.00	0.20	0.00	0.07	0.00	0.17	100.34
T754	27	7801	till	0.25-0.5	black	Ilmenite	0.09	53.43	0.12	0.00	0.29	45.13	0.79	0.00	1.73	0.00	0.05	0.02	0.00	101.64
T754	42	7801	till	0.25-0.5	black	Ilmenite	0.14	51.05	0.06	0.00	0.25	47.67	0.59	0.00	0.27	0.00	0.02	0.00	0.00	100.07
T754	43	7801	till	0.25-0.5	black	Ilmenite	0.05	51.39	0.13	0.11	0.28	45.56	0.56	0.00	1.77	0.05	0.00	0.06	0.00	99.96
T754	45	7801	till	0.25-0.5	black	Ilmenite	0.09	52.36	0.16	0.06	0.31	44.66	0.60	0.04	2.88	0.05	0.06	0.07	0.00	101.34
T754	48	7801	till	0.25-0.5	black	Ilmenite	0.10	51.91	0.13	0.00	0.27	46.55	1.82	0.00	0.08	0.03	0.03	0.02	0.16	101.09
T754	49	7801	till	0.25-0.5	black	Ilmenite	0.08	52.27	0.05	0.00	0.16	46.76	0.75	0.01	0.65	0.01	0.08	0.00	0.12	100.95
T754	53	7801	till	0.25-0.5	black	Ilmenite	0.05	51.58	0.05	0.05	0.21	47.23	0.54	0.07	0.65	0.01	0.07	0.00	0.08	100.59
T754	54	7801	till	0.25-0.5	black	Ilmenite	0.05	51.14	0.01	0.01	0.27	46.73	1.58	0.00	0.09	0.01	0.16	0.02	0.06	100.12
T754	55	7801	till	0.25-0.5	black	Ilmenite	0.10	53.13	0.12	0.00	0.28	45.51	0.61	0.00	1.12	0.02	0.10	0.09	0.00	101.07
T754	62	7801	till	0.25-0.5	black	Ilmenite (alt.)	0.03	45.63	0.04	0.01	0.14	50.49	1.19	0.05	0.24	0.00	0.05	0.04	0.00	97.92
T767	8	7801	till	0.25-0.5	black	Ilmenite	0.07	53.20	0.07	0.00	0.17	45.47	0.75	0.02	1.21	0.10	0.04	0.12	0.00	0.01
T767	14	7801	till	0.25-0.5	black	Ilmenite	0.02	52.13	0.02	0.00	0.19	47.49	0.72	0.00	0.69	0.00	0.01	0.10	0.00	0.00
T767	15	7801	till	0.25-0.5	black	Ilmenite	0.00	52.13	0.13	0.05	0.38	43.83	0.61	0.13	2.83	0.06	0.00	0.09	0.09	0.04
T767	17	7801	till	0.25-0.5	black	Ilmenite	0.04	50.99	0.00	0.01	0.23	47.42	1.41	0.08	0.08	0.01	0.07	0.13	0.02	0.02
T767	18	7801	till	0.25-0.5	black	Ilmenite	0.05	50.12	0.14	0.05	0.62	45.71	0.50	0.01	2.49	0.04	0.00	0.08	0.00	0.02
T767	19	7801	till	0.25-0.5	black	Ilmenite	0.11	51.43	0.07	0.04	0.21	45.92	0.65	0.03	0.96	0.25	0.07	0.05	0.02	0.03
T767	20	7801	till	0.25-0.5	black	Ilmenite	0.03	52.19	0.11	0.01	0.18	45.32	0.85	0.00	0.81	0.21	0.00	0.03	0.02	0.00
T754	83	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.13	53.18	0.29	0.61	0.28	33.67	0.28	0.05	11.55	0.02	0.04	0.02	0.24	100.36
T754	84	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	53.66	0.33	0.38	0.51	32.28	0.29	0.09	12.28	0.03	0.09	0.00	0.20	100.17
T754	85	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.01	53.81	0.28	0.57	0.58	32.44	0.43	0.03	12.34	0.03	0.03	0.02	0.26	100.85
T754	86	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.13	54.67	0.47	0.39	0.38	30.92	0.27	0.02	13.09	0.01	0.07	0.07	0.00	100.50
T754	87	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	54.88	0.37	0.82	0.58	30.10	0.22	0.09	13.48	0.00	0.06	0.03	0.00	100.69
T754	88	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.02	54.57	0.32	0.41	0.33	31.69	0.28	0.10	12.74	0.01	0.09	0.06	0.32	100.95
T754	89	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	55.65	0.48	1.05	0.35	28.59	0.17	0.15	14.52	0.03	0.01	0.00	0.21	101.30
T754	90	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	53.62	0.30	0.52	0.54	33.29	0.31	0.09	11.57	0.05	0.09	0.03	0.16	100.63
T754	93	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	53.56	0.26	0.35	0.26	32.87	0.36	0.02	12.25	0.03	0.06	0.03	0.12	100.25
T754	94	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.12	54.35	0.39	0.39	0.39	31.19	0.34	0.07	12.75	0.04	0.13	0.07	0.00	100.23
T754	95	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	54.42	0.44	0.45	0.47	31.52	0.30	0.05	12.50	0.00	0.14	0.00	0.20	100.56
T754	96	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	56.55	0.42	1.26	0.41	26.72	0.48	0.18	15.72	0.01	0.05	0.00	0.01	101.86
T754	97	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	54.44	0.26	0.35	0.64	29.38	0.31	0.10	14.50	0.00	0.04	0.03	0.17	100.29
T754	98	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	54.03	0.32	0.29	0.51	31.30	0.29	0.09	13.41	0.05	0.00	0.00	0.26	100.59
T754	99	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.01	53.33	0.29	0.50	0.52	33.66	0.33	0.15	11.33	0.06	0.13	0.02	0.28	100.60
T754	101	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	55.08	0.33	0.45	0.46	31.16	0.33	0.09	12.95	0.05	0.06	0.10	0.26	101.40
T754	102	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	53.13	0.27	0.30	0.33	33.88	0.27	0.00	11.21	0.00	0.01	0.20	0.21	99.86
T754	104	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	53.95	0.26	0.25	0.76	31.91	0.35	0.04	12.59	0.00	0.07	0.10	0.24	100.58
T754	105	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	55.32	0.53	1.05	0.40	29.53	0.20	0.14	13.51	0.02	0.07	0.06	0.00	100.94
T754	106	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	55.09	0.48	1.21	0.53	29.45	0.26	0.13	13.72	0.04	0.00	0.01	0.14	101.08

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T754	107	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	53.43	0.22	0.40	0.56	33.59	0.37	0.09	12.43	0.01	0.04	0.00	0.33	101.52
T754	108	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	52.94	0.21	0.31	0.41	34.89	0.33	0.04	10.90	0.04	0.00	0.03	0.00	100.14
T754	109	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	54.58	0.27	0.71	0.28	31.52	0.33	0.00	12.41	0.04	0.06	0.09	0.08	100.43
T754	110	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	54.90	0.51	2.85	0.51	28.06	0.29	0.11	13.74	0.06	0.04	0.14	0.00	101.30
T754	112	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	54.45	0.22	0.39	0.49	31.56	0.30	0.00	12.76	0.00	0.01	0.08	0.04	100.41
T754	113	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	55.13	0.54	0.53	0.47	30.74	0.26	0.16	13.04	0.01	0.00	0.00	0.13	101.03
T754	114	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	53.63	0.25	0.43	0.29	31.65	0.44	0.08	13.12	0.01	0.16	0.00	0.07	100.20
T755	1	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	55.01	0.32	0.49	0.49	30.80	0.34	0.03	13.19	0.03	0.10	0.03	0.00	100.89
T755	2	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.15	54.46	0.29	0.39	0.43	31.81	0.44	0.08	12.39	0.00	0.06	0.08	0.12	100.70
T755	3	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	55.38	0.60	1.88	0.41	27.26	0.29	0.21	14.66	0.04	0.12	0.16	0.25	101.37
T755	4	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.01	53.30	0.26	0.39	0.36	33.07	0.33	0.00	11.96	0.01	0.00	0.06	0.34	100.08
T755	5	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	55.26	0.54	0.58	0.43	30.91	0.24	0.04	13.26	0.01	0.00	0.00	0.00	101.37
T755	7	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	53.88	0.26	0.96	0.37	32.90	0.22	0.07	12.32	0.02	0.09	0.03	0.09	101.29
T755	8	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	54.80	0.31	0.32	0.52	31.99	0.24	0.01	12.10	0.03	0.04	0.05	0.30	100.77
T755	9	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	52.81	0.21	0.46	0.30	32.26	0.35	0.12	12.86	0.05	0.10	0.13	0.36	100.11
T755	10	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	53.50	0.31	0.45	0.36	33.86	0.34	0.02	11.24	0.00	0.07	0.08	0.32	100.57
T755	11	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	55.69	0.48	1.13	0.48	28.82	0.33	0.09	14.09	0.03	0.06	0.01	0.16	101.40
T755	12	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	53.25	0.21	0.33	0.45	34.74	0.31	0.03	10.86	0.01	0.07	0.08	0.34	100.75
T755	13	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	52.85	0.27	0.43	0.34	33.51	0.58	0.00	12.90	0.05	0.14	0.00	0.40	101.50
T755	14	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	55.51	0.50	0.43	0.34	30.73	0.28	0.06	13.18	0.03	0.06	0.02	0.12	101.32
T755	15	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	55.33	0.38	0.60	0.56	29.65	0.30	0.01	13.73	0.01	0.05	0.07	0.25	100.99
T755	17	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	55.29	0.35	0.38	0.42	32.03	0.33	0.00	12.63	0.04	0.05	0.05	0.50	102.17
T755	19	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.16	55.54	0.61	0.34	0.42	30.56	0.29	0.06	13.16	0.05	0.11	0.02	0.00	101.32
T755	20	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	53.96	0.35	0.99	0.42	33.13	0.27	0.08	11.85	0.00	0.02	0.00	0.18	101.31
T755	21	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.12	55.18	0.48	0.40	0.51	29.23	0.26	0.11	14.25	0.02	0.07	0.00	0.32	100.96
T755	22	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	55.75	0.39	0.67	0.54	27.95	0.32	0.13	14.82	0.02	0.02	0.04	0.24	100.95
T755	23	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	55.14	0.36	0.55	0.51	30.73	0.35	0.06	12.94	0.03	0.08	0.07	0.14	101.06
T755	24	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	55.36	0.38	0.60	0.46	29.03	0.47	0.08	14.88	0.00	0.08	0.00	0.16	101.55
T755	25	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	56.93	0.37	0.53	0.34	25.62	0.40	0.15	17.10	0.07	0.08	0.00	0.03	101.66
T755	26	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	55.96	0.50	2.03	0.44	26.92	0.39	0.23	15.24	0.06	0.07	0.13	0.14	102.20
T755	27	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	52.62	0.25	0.32	0.57	35.44	0.30	0.06	10.57	0.00	0.09	0.01	0.17	100.49
T755	28	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.02	53.83	0.25	0.87	0.32	29.99	0.40	0.10	14.53	0.02	0.04	0.00	0.33	100.69
T755	29	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.02	56.63	0.31	1.48	0.46	27.25	0.32	0.11	14.91	0.01	0.00	0.13	0.05	101.68
T755	30	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	55.15	0.32	0.75	0.38	29.36	0.33	0.11	14.24	0.00	0.13	0.04	0.24	101.15
T755	31	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	55.14	0.42	0.89	0.39	30.50	0.27	0.23	13.19	0.01	0.03	0.14	0.38	101.65
T755	32	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	56.85	0.42	0.99	0.48	25.16	0.46	0.16	16.92	0.00	0.07	0.06	0.04	101.66
T755	33	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	51.26	0.24	0.27	0.56	36.07	0.29	0.06	10.38	0.03	0.05	0.09	0.04	99.38
T755	34	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	55.82	0.48	1.20	0.49	27.90	0.28	0.15	14.22	0.01	0.00	0.07	0.08	100.78
T755	35	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	55.13	0.35	0.43	0.55	31.00	0.16	0.04	12.82	0.05	0.02	0.06	0.34	101.04
T755	36	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	54.48	0.84	2.24	0.31	29.01	0.22	0.15	13.67	0.00	0.06	0.11	0.28	101.43
T755	37	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	54.25	0.35	0.88	0.53	31.19	0.28	0.15	13.34	0.01	0.00	0.06	0.00	101.11
T755	38	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.02	55.04	0.43	0.63	0.50	30.88	0.23	0.09	13.17	0.04	0.07	0.00	0.09	101.18
T755	39	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	55.90	0.48	1.05	0.43	28.43	0.25	0.07	14.64	0.02	0.00	0.10	0.28	101.72
T755	40	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	55.86	0.45	1.25	0.33	27.71	0.40	0.12	15.06	0.00	0.10	0.01	0.00	101.38
T755	41	7810	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	55.46	0.30	0.49	0.57	29.15	0.33	0.03	14.29	0.07	0.05	0.04	0.22	101.08
T817	1	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	55.27	0.40	0.60	0.43	32.41	0.33	0.16	12.56	0.02	0.06	0.11	0.00	102.36

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T817	2	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.09	56.50	1.22	0.48	0.39	27.26	0.26	0.09	14.81	0.01	0.00	0.06	0.04	101.22
T817	3	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	53.60	0.22	0.41	0.48	34.79	0.29	0.07	10.54	0.01	0.05	0.03	0.40	100.90
T817	4	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	55.11	0.33	0.44	0.45	32.06	0.34	0.03	12.30	0.01	0.09	0.00	0.13	101.30
T817	5	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	57.05	0.52	1.05	0.49	28.55	0.23	0.18	14.28	0.00	0.06	0.02	0.13	102.59
T817	6	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	52.53	0.27	0.34	0.52	36.75	0.27	0.03	10.35	0.06	0.06	0.00	0.45	101.62
T817	7	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	55.32	0.25	0.58	0.43	33.20	0.30	0.10	11.36	0.00	0.08	0.19	0.00	101.81
T817	8	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	56.02	0.36	0.53	0.47	31.91	0.28	0.19	12.16	0.03	0.06	0.13	0.16	102.35
T817	9	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	56.71	0.43	1.02	0.46	29.22	0.23	0.10	13.50	0.08	0.01	0.01	0.09	101.88
T817	10	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.09	57.40	0.48	1.48	0.43	26.73	0.36	0.24	14.48	0.04	0.01	0.00	0.36	102.10
T817	11	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	56.39	0.45	0.42	0.48	29.94	0.28	0.09	12.60	0.05	0.09	0.00	0.05	100.88
T817	13	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	55.68	0.26	0.28	0.49	31.84	0.25	0.07	12.79	0.03	0.10	0.10	0.13	102.03
T817	14	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	53.05	0.27	0.42	0.48	35.81	0.36	0.02	10.45	0.03	0.05	0.10	0.18	101.24
T817	15	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	56.96	0.47	2.16	0.37	27.31	0.27	0.08	14.67	0.01	0.03	0.00	0.13	102.48
T817	16	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	56.42	0.34	0.45	0.50	31.32	0.32	0.16	12.97	0.00	0.04	0.00	0.22	102.73
T817	17	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	55.79	0.34	0.46	0.52	32.16	0.22	0.00	12.39	0.03	0.07	0.01	0.00	102.00
T817	18	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	56.97	0.57	0.98	0.28	28.66	0.31	0.11	14.49	0.04	0.06	0.12	0.16	102.81
T817	19	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	56.65	0.53	1.03	0.54	28.81	0.26	0.13	14.52	0.00	0.10	0.08	0.24	102.94
T817	20	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	56.87	0.44	1.10	0.39	28.64	0.29	0.18	14.22	0.05	0.05	0.04	0.22	102.54
T817	21	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	56.25	0.53	0.51	0.50	30.52	0.23	0.07	13.51	0.01	0.02	0.00	0.04	102.23
T817	22	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	54.12	0.19	0.60	0.59	34.42	0.28	0.14	10.77	0.03	0.00	0.00	0.11	101.25
T812	53	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	52.48	0.17	0.94	0.60	36.42	0.36	0.00	10.12	0.04	0.00	0.04	0.23	101.22
T812	53	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	56.70	0.56	0.93	0.74	28.58	0.24	0.05	13.93	0.02	0.10	0.09	0.25	101.96
T812	54	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	56.53	1.08	2.02	0.41	26.84	0.17	0.14	14.82	0.00	0.14	0.05	0.13	102.25
T812	55	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.08	49.83	0.19	3.44	0.78	36.44	0.29	0.17	9.40	0.01	0.01	0.01	0.58	100.66
T812	56	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	55.22	0.41	0.40	0.48	33.00	0.33	0.09	11.82	0.04	0.04	0.03	0.00	101.89
T812	57	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	47.90	0.38	6.05	0.51	33.67	0.34	0.28	10.21	0.51	0.12	0.05	0.45	100.04
T812	58	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	54.17	0.29	0.33	0.71	33.98	0.39	0.02	11.54	0.04	0.01	0.00	0.11	101.50
T812	59	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	53.40	0.25	0.48	0.81	35.09	0.33	0.01	10.79	0.00	0.09	0.09	0.29	101.39
T812	63	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	54.29	0.34	0.50	0.73	33.79	0.37	0.08	11.26	0.01	0.04	0.00	0.27	101.45
T812	64	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	53.19	0.16	0.43	0.77	35.91	0.30	0.06	10.48	0.06	0.00	0.02	0.16	101.38
T812	65	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.11	55.63	0.36	0.51	0.74	31.48	0.30	0.09	12.74	0.03	0.00	0.02	0.25	102.00
T812	66	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	54.66	0.27	0.88	0.64	32.69	0.43	0.09	11.93	0.05	0.04	0.00	0.25	101.74
T812	67	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	57.02	0.44	0.66	0.56	26.63	0.40	0.06	16.01	0.06	0.04	0.13	0.05	102.03
T812	68	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	54.69	0.33	0.67	0.56	31.84	0.22	0.12	12.86	0.01	0.02	0.02	0.23	101.37
T812	69	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	51.42	0.19	0.42	0.67	36.73	0.40	0.00	9.55	0.06	0.10	0.13	0.25	99.67
T812	70	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	52.78	0.21	0.62	0.67	37.52	0.28	0.03	9.59	0.04	0.05	0.06	0.27	101.85
T812	71	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	56.07	0.36	0.52	0.53	29.32	0.31	0.17	13.66	0.05	0.01	0.00	0.05	101.01
T812	72	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	54.82	0.37	0.48	0.48	32.42	0.37	0.06	12.04	0.01	0.07	0.06	0.00	101.20
T812	74	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	54.33	0.26	0.26	0.74	33.76	0.35	0.06	10.88	0.04	0.05	0.00	0.31	100.78
T812	75	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	54.49	0.32	0.29	0.60	34.10	0.34	0.00	11.25	0.05	0.00	0.00	0.33	101.43
T812	76	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	55.46	0.40	0.69	0.49	30.06	0.31	0.06	13.39	0.00	0.08	0.00	0.05	101.00
T812	78	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	56.35	0.35	0.35	0.55	31.16	0.22	0.09	13.04	0.01	0.02	0.06	0.19	102.21
T812	79	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	54.86	0.34	0.32	0.59	31.97	0.28	0.08	12.87	0.01	0.14	0.00	0.39	101.45
T812	80	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	53.22	0.26	0.30	0.69	35.64	0.37	0.01	10.74	0.04	0.07	0.15	0.32	101.49
T812	81	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	52.29	0.16	1.00	0.58	35.83	0.39	0.03	10.05	0.01	0.00	0.13	0.25	100.49
T812	82	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.08	56.99	0.45	1.00	0.52	27.76	0.35	0.11	14.22	0.00	0.07	0.06	0.20	101.63

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T812	83	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.11	55.33	0.36	0.30	0.73	31.06	0.19	0.05	13.17	0.14	0.09	0.08	0.00	101.61
T812	84	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	56.06	0.51	1.30	0.60	28.54	0.21	0.15	14.23	0.04	0.08	0.01	0.00	101.79
T812	85	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	54.67	0.28	0.69	0.52	32.94	0.34	0.06	11.78	0.01	0.01	0.03	0.23	101.34
T812	86	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	55.99	0.38	0.69	0.65	29.57	0.28	0.11	13.87	0.02	0.08	0.00	0.09	101.69
T812	87	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	56.97	0.46	0.59	0.60	27.83	0.32	0.14	15.40	0.01	0.00	0.15	0.17	102.49
T812	88	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	56.38	0.44	0.57	0.52	28.90	0.40	0.19	14.64	0.04	0.04	0.17	0.21	102.33
T812	90	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.08	57.22	0.43	0.74	0.77	27.53	0.30	0.06	14.67	0.02	0.07	0.00	0.00	101.89
T812	91	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	55.82	0.36	0.42	0.63	28.75	0.51	0.03	15.05	0.07	0.07	0.15	0.00	101.92
T812	92	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	53.72	0.21	0.32	0.62	35.19	0.25	0.03	10.83	0.00	0.14	0.14	0.27	101.47
T812	93	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	51.11	0.25	1.17	0.67	37.27	0.38	0.10	10.04	0.01	0.08	0.09	0.44	101.17
T813	1	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.08	55.94	0.37	0.73	0.58	29.54	0.32	0.06	13.57	0.02	0.00	0.00	0.28	101.18
T813	2	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	55.20	0.41	0.27	0.75	32.83	0.27	0.03	12.36	0.00	0.03	0.13	0.19	102.30
T813	3	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	55.89	0.37	1.15	0.58	30.22	0.28	0.05	12.87	0.01	0.00	0.10	0.31	101.54
T813	4	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	58.24	0.28	0.42	0.63	26.13	0.44	0.07	16.40	0.01	0.00	0.03	0.05	102.67
T813	6	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	55.16	0.34	0.65	0.69	32.54	0.29	0.09	12.01	0.03	0.13	0.00	0.31	101.98
T813	7	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	54.03	0.31	0.80	0.79	33.59	0.40	0.11	12.12	0.01	0.00	0.07	0.31	102.25
T813	9	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	56.91	0.40	0.87	0.49	27.96	0.29	0.20	14.93	0.00	0.05	0.00	0.16	102.12
T813	10	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	55.05	0.32	0.72	0.51	32.73	0.29	0.09	11.86	0.04	0.01	0.05	0.19	101.75
T813	11	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	53.28	0.18	0.63	0.64	35.21	0.36	0.11	10.92	0.02	0.04	0.04	0.20	101.45
T813	12	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	54.31	0.25	0.51	0.60	31.81	0.35	0.04	13.64	0.01	0.02	0.09	0.07	101.67
T813	13	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	54.31	0.25	0.72	0.74	34.62	0.24	0.05	11.52	0.00	0.04	0.06	0.07	102.60
T813	14	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	56.04	0.38	0.71	0.63	30.67	0.33	0.11	12.96	0.02	0.08	0.00	0.16	101.96
T813	15	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	53.87	0.26	0.53	0.60	33.55	0.38	0.05	11.86	0.02	0.07	0.06	0.00	101.28
T813	16	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	52.04	0.23	0.28	0.72	36.10	0.29	0.01	11.60	0.03	0.06	0.03	0.07	101.43
T813	17	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.09	55.58	0.57	1.14	0.51	30.19	0.19	0.16	13.51	0.01	0.04	0.11	0.11	102.09
T813	18	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	55.11	0.37	1.06	0.64	30.16	0.23	0.03	13.68	0.04	0.07	0.07	0.00	101.53
T813	20	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	54.79	0.27	0.57	0.54	32.54	0.41	0.10	12.24	0.05	0.08	0.00	0.19	101.67
T813	21	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	57.73	0.34	0.32	0.65	25.69	0.39	0.01	15.81	0.90	0.06	0.05	0.03	101.99
T813	22	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	55.42	0.31	0.31	0.64	32.74	0.25	0.05	12.44	0.00	0.00	0.03	0.13	102.24
T813	23	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	58.10	0.39	0.80	0.80	23.32	0.42	0.12	17.96	0.01	0.10	0.03	0.09	102.08
T813	24	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	56.16	0.39	0.46	0.55	30.56	0.32	0.12	14.11	0.01	0.02	0.16	0.21	102.91
T813	25	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	56.75	0.46	0.70	0.60	28.45	0.45	0.17	14.94	0.01	0.07	0.05	0.00	102.65
T813	26	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	54.66	0.28	0.47	0.36	33.05	0.29	0.06	12.28	0.01	0.07	0.00	0.00	101.55
T813	29	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	54.79	0.25	0.42	0.75	32.90	0.31	0.00	12.27	0.03	0.12	0.05	0.16	101.94
T813	30	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.08	54.91	0.34	0.57	0.61	32.84	0.34	0.05	12.18	0.04	0.06	0.04	0.05	102.07
T813	31	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	57.00	0.47	0.55	0.62	26.80	0.46	0.16	15.86	0.02	0.03	0.00	0.00	101.97
T813	32	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	57.47	0.43	0.48	0.70	26.70	0.30	0.03	16.18	0.04	0.00	0.03	0.16	102.38
T813	33	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	55.36	0.31	1.18	0.59	28.96	0.46	0.07	14.68	0.06	0.10	0.06	0.00	101.87
T813	34	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	54.72	0.29	0.57	0.70	33.20	0.20	0.11	11.86	0.05	0.10	0.11	0.39	101.90
T813	43	7810	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	55.69	0.41	0.49	0.58	28.97	0.37	0.02	13.63	0.06	0.07	0.04	0.20	100.34
T814	17	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	53.34	0.20	0.44	0.76	35.56	0.36	0.06	10.35	0.03	0.11	0.00	0.13	101.24
T814	18	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.05	55.80	0.21	0.27	0.51	33.04	0.30	0.08	12.45	0.02	0.00	0.00	0.07	102.73
T814	19	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.00	56.04	0.38	0.46	0.69	32.25	0.23	0.06	12.97	0.01	0.08	0.00	0.24	103.16
T814	20	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.02	55.50	0.29	1.28	0.61	31.55	0.24	0.13	13.03	0.00	0.05	0.00	0.04	102.71
T814	21	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.02	54.47	0.31	0.65	0.62	33.69	0.35	0.05	11.43	0.04	0.04	0.05	0.00	101.72
T814	22	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	54.88	0.30	0.48	0.73	33.36	0.34	0.00	11.54	0.03	0.05	0.11	0.35	101.85

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T814	23	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.02	53.71	0.16	0.67	0.64	35.01	0.33	0.02	10.79	0.01	0.12	0.04	0.20	101.52
T814	24	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.00	55.35	0.32	1.40	0.69	29.23	0.25	0.13	13.96	0.00	0.10	0.03	0.21	101.47
T814	25	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	54.57	0.30	0.52	0.65	34.50	0.50	0.02	11.20	0.00	0.00	0.07	0.39	102.35
T814	26	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.00	54.68	0.29	0.57	0.63	33.74	0.33	0.06	11.53	0.06	0.11	0.00	0.03	102.00
T814	27	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	53.29	0.19	0.30	0.63	36.76	0.33	0.05	10.18	0.01	0.10	0.00	0.11	101.88
T814	28	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.05	54.93	0.35	0.49	0.55	34.03	0.32	0.06	11.60	0.00	0.04	0.18	0.16	102.60
T814	29	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.07	54.57	0.25	0.39	0.57	34.12	0.30	0.00	11.39	0.00	0.09	0.02	0.03	101.77
T814	30	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.04	55.95	0.32	0.59	0.64	31.31	0.28	0.01	12.91	0.03	0.07	0.00	0.17	102.15
T814	31	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.05	57.20	0.45	2.14	0.50	28.14	0.32	0.17	14.69	0.03	0.02	0.06	0.08	103.76
T814	32	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.01	55.29	0.30	0.94	0.70	32.25	0.30	0.09	12.01	0.03	0.00	0.09	0.25	102.01
T814	33	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.04	54.34	0.21	0.41	0.53	35.18	0.27	0.02	11.99	0.04	0.13	0.01	0.07	103.18
T814	34	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	53.99	0.23	0.36	0.51	35.49	0.23	0.04	10.70	0.01	0.07	0.00	0.31	101.66
T814	35	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.05	55.56	0.30	0.48	0.70	30.88	0.39	0.02	13.98	0.03	0.12	0.16	0.03	102.68
T814	36	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.01	55.83	0.33	0.56	0.55	31.05	0.37	0.17	13.24	0.03	0.05	0.00	0.16	102.19
T814	37	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.05	56.68	0.51	1.13	0.56	28.30	0.26	0.13	14.13	0.03	0.04	0.01	0.15	101.82
T814	38	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.06	56.43	0.33	0.45	0.57	30.83	0.30	0.03	13.45	0.05	0.02	0.00	0.01	102.53
T814	39	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.07	53.51	0.27	0.51	0.78	35.67	0.37	0.06	10.35	0.04	0.07	0.13	0.00	101.83
T814	40	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.04	54.60	0.28	0.55	0.52	34.35	0.30	0.04	11.61	0.03	0.08	0.04	0.32	102.45
T814	41	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.00	56.36	0.37	0.68	0.55	29.90	0.34	0.13	13.79	0.02	0.11	0.00	0.00	102.26
T814	42	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.00	56.84	0.42	0.99	0.50	28.60	0.31	0.15	14.63	0.01	0.01	0.01	0.17	102.47
T814	43	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	54.42	0.35	0.30	0.68	31.49	0.40	0.08	13.74	0.01	0.01	0.04	0.21	101.56
T814	44	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.08	54.24	0.25	0.33	0.73	35.02	0.25	0.00	11.01	0.03	0.05	0.03	0.40	102.02
T814	45	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.09	56.73	0.56	2.07	0.46	27.52	0.33	0.17	14.41	0.01	0.03	0.09	0.00	102.47
T814	46	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	55.16	0.42	2.81	0.52	28.82	0.28	0.10	13.64	0.03	0.05	0.11	0.17	101.98
T814	47	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.01	54.05	0.24	0.30	0.85	34.95	0.36	0.00	11.17	0.01	0.05	0.07	0.16	102.07
T814	48	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.06	54.00	0.28	0.70	0.74	34.87	0.33	0.05	11.05	0.06	0.04	0.12	0.47	102.30
T814	49	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.00	53.41	0.19	0.34	0.67	36.61	0.26	0.00	10.40	0.05	0.05	0.05	0.15	102.01
T814	50	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.01	51.88	0.23	0.36	0.72	38.14	0.31	0.14	9.64	0.00	0.05	0.03	0.21	101.49
T814	51	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.01	54.72	0.25	0.43	0.75	32.52	0.28	0.13	12.54	0.02	0.00	0.00	0.19	101.66
T814	52	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.02	51.83	0.18	0.30	0.76	37.61	0.35	0.04	9.53	0.00	0.05	0.12	0.29	100.81
T814	53	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.05	52.81	0.20	0.37	0.76	36.62	0.37	0.10	10.27	0.00	0.03	0.04	0.52	101.62
T814	54	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.08	54.58	0.41	0.80	0.47	32.74	0.34	0.00	12.48	0.03	0.02	0.10	0.29	102.06
T814	55	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.06	55.03	0.44	1.04	0.45	31.60	0.27	0.07	12.37	0.04	0.10	0.00	0.11	101.49
T815	1	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.07	56.71	0.52	1.07	0.58	28.88	0.19	0.15	14.61	0.02	0.12	0.07	0.39	102.99
T815	2	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	56.51	0.50	1.26	0.41	29.18	0.37	0.10	14.18	0.05	0.09	0.00	0.00	102.68
T815	4	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.08	54.73	0.24	0.59	0.50	34.11	0.34	0.18	11.28	0.00	0.01	0.06	0.03	102.14
T815	5	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.01	54.81	0.35	0.90	0.42	32.90	0.30	0.14	11.68	0.01	0.04	0.00	0.04	101.56
T815	6	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.05	55.19	0.32	0.43	0.67	32.37	0.30	0.04	12.64	0.03	0.09	0.00	0.23	102.14
T815	7	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	53.54	0.25	0.83	0.56	34.34	0.35	0.12	11.15	0.00	0.07	0.01	0.11	101.25
T815	8	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.01	54.69	0.26	0.28	0.68	35.20	0.39	0.04	10.77	0.02	0.08	0.05	0.31	102.46
T815	9	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.08	55.40	0.40	0.63	0.62	31.16	0.32	0.06	12.74	0.02	0.08	0.07	0.01	101.58
T815	10	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.00	53.24	0.23	0.44	0.74	36.48	0.23	0.00	10.28	0.00	0.06	0.01	0.36	101.72
T815	12	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.04	55.90	0.41	0.39	0.67	31.43	0.25	0.05	13.02	0.00	0.06	0.00	0.20	102.21
T815	13	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.02	54.74	0.23	0.44	0.69	32.82	0.32	0.08	12.48	0.03	0.17	0.00	0.27	102.04
T815	15	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.06	56.72	0.60	2.34	0.60	27.09	0.25	0.08	14.73	0.02	0.08	0.07	0.05	102.63
T815	16	7810	kimb	1.0-2.0	black	Mg-Ilmenite	0.00	56.41	0.38	0.46	0.65	28.42	0.32	0.14	15.21	0.04	0.04	0.00	0.13	102.06

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T815	17	7810	kimb	1.0-2.0	black	Mg-ilmenite	0.00	54.29	0.22	0.45	0.61	35.72	0.36	0.03	10.74	0.05	0.05	0.12	0.15	102.64
T815	18	7810	kimb	1.0-2.0	black	Mg-ilmenite	0.04	56.75	0.45	0.92	0.69	28.61	0.29	0.10	14.66	0.03	0.00	0.08	0.00	102.60
T815	19	7810	kimb	1.0-2.0	black	Mg-ilmenite	0.00	54.75	0.25	0.55	0.53	34.28	0.34	0.12	11.31	0.03	0.11	0.00	0.13	102.27
T815	20	7810	kimb	1.0-2.0	black	Mg-ilmenite	0.02	54.77	0.20	0.46	0.66	33.39	0.35	0.11	13.01	0.06	0.00	0.03	0.19	103.04
T815	21	7810	kimb	1.0-2.0	black	Mg-ilmenite	0.06	55.65	0.34	0.47	0.55	32.52	0.24	0.02	12.48	0.03	0.07	0.06	0.32	102.48
T806	1	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	54.28	0.27	0.75	0.62	34.50	0.29	0.14	10.72	0.01	0.01	0.06	0.16	101.80
T806	2	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	54.52	0.20	0.74	0.64	35.39	0.27	0.06	10.65	0.03	0.00	0.06	0.44	102.99
T806	3	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.02	55.74	0.32	0.51	0.50	31.88	0.37	0.05	13.08	0.04	0.13	0.07	0.03	102.73
T806	4	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.04	54.33	0.26	0.86	0.73	34.65	0.39	0.07	10.93	0.04	0.11	0.07	0.13	102.62
T806	5	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.04	57.05	0.68	2.25	0.67	27.17	0.27	0.15	14.83	0.05	0.00	0.01	0.00	103.18
T806	6	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.01	54.23	0.29	0.61	0.60	34.21	0.27	0.05	11.11	0.02	0.09	0.05	0.04	101.58
T806	7	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.04	54.51	0.27	0.46	0.53	33.50	0.29	0.11	11.30	0.04	0.03	0.02	0.24	101.34
T806	8	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.04	53.64	0.16	0.38	0.62	36.27	0.24	0.05	10.38	0.03	0.00	0.09	0.36	102.27
T806	9	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.03	57.21	0.46	0.97	0.59	28.32	0.26	0.04	14.31	0.03	0.00	0.01	0.20	102.43
T806	10	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.07	56.46	0.44	0.49	0.59	31.46	0.29	0.03	12.65	0.05	0.05	0.04	0.41	103.03
T806	12	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.04	53.91	0.25	0.25	0.61	36.73	0.38	0.06	10.18	0.05	0.08	0.06	0.48	103.08
T806	13	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	55.48	0.35	0.46	0.54	32.94	0.31	0.09	12.42	0.04	0.00	0.00	0.08	102.72
T806	14	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.07	54.28	0.20	0.67	0.72	34.54	0.28	0.00	11.00	0.03	0.00	0.11	0.32	102.24
T806	15	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	56.01	0.41	0.51	0.63	32.31	0.37	0.11	12.60	0.04	0.05	0.12	0.04	103.20
T806	16	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.07	54.96	0.31	0.52	0.73	34.20	0.38	0.10	11.16	0.03	0.10	0.07	0.13	102.76
T806	17	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.03	57.50	0.46	1.04	0.50	29.02	0.32	0.09	14.09	0.02	0.00	0.02	0.20	103.30
T806	18	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.01	57.05	0.45	0.93	0.54	28.77	0.35	0.15	13.86	0.03	0.00	0.04	0.13	102.32
T806	19	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.06	53.96	0.19	0.35	0.67	36.05	0.40	0.02	10.19	0.00	0.00	0.05	0.45	102.38
T806	20	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	54.60	0.28	0.45	0.64	34.21	0.30	0.07	11.47	0.01	0.04	0.09	0.16	102.32
T806	21	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.14	56.65	0.28	1.08	0.63	28.98	0.27	0.14	8.70	0.08	0.04	0.05	0.21	97.25
T806	22	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.01	56.17	0.57	2.50	0.59	27.92	0.27	0.16	14.34	0.01	0.03	0.04	0.11	102.73
T806	23	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.06	53.76	0.20	0.37	0.72	34.81	0.37	0.00	11.09	0.07	0.00	0.06	0.40	101.90
T806	24	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.02	55.27	0.32	0.92	0.55	32.54	0.38	0.05	12.05	0.00	0.04	0.07	0.08	102.29
T806	25	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.03	56.52	0.47	0.46	0.69	29.72	0.37	0.05	14.05	0.08	0.00	0.10	0.01	102.57
T806	26	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.02	56.35	0.58	1.12	0.65	28.52	0.21	0.15	14.53	0.08	0.00	0.02	0.07	102.29
T806	27	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.03	56.64	0.34	0.70	0.62	29.42	0.27	0.10	13.89	0.02	0.10	0.03	0.00	102.15
T806	28	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.03	57.18	0.49	1.09	0.56	28.57	0.27	0.09	14.04	0.04	0.00	0.01	0.31	102.67
T806	32	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	56.77	0.44	0.47	0.53	30.30	0.27	0.06	13.43	0.07	0.01	0.10	0.03	102.47
T806	33	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.07	54.60	0.83	3.16	0.45	28.84	0.34	0.08	13.26	0.06	0.11	0.15	0.00	101.95
T806	35	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.07	57.00	0.46	1.01	0.61	28.46	0.36	0.15	14.06	0.05	0.03	0.12	0.08	102.45
T806	36	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.05	53.63	0.23	0.78	0.76	35.06	0.37	0.14	10.97	0.06	0.06	0.06	0.29	102.46
T806	37	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.04	53.26	0.19	0.35	0.84	36.39	0.25	0.07	10.19	0.04	0.07	0.02	0.49	102.20
T806	38	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.09	53.54	0.24	0.44	0.71	36.24	0.35	0.02	10.21	0.04	0.00	0.08	0.49	102.44
T806	39	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.11	55.75	0.63	0.89	0.56	30.22	0.23	0.06	13.32	0.06	0.00	0.08	0.31	102.21
T806	40	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.05	54.16	0.22	0.68	0.75	34.58	0.29	0.00	10.89	0.10	0.07	0.08	0.23	102.11
T806	41	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.03	57.28	0.52	1.23	0.71	28.67	0.28	0.12	14.13	0.12	0.00	0.00	0.21	103.30
T806	42	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	57.53	0.48	1.05	0.63	28.61	0.26	0.14	14.29	0.04	0.11	0.05	0.13	103.33
T806	43	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.05	56.19	0.34	0.43	0.50	31.22	0.35	0.09	12.72	0.03	0.00	0.03	0.11	102.06
T806	44	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	56.28	0.35	0.50	0.60	30.66	0.34	0.06	12.96	0.03	0.04	0.06	0.40	102.28
T806	45	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.02	53.78	0.27	0.58	0.61	34.90	0.29	0.14	10.86	0.04	0.00	0.04	0.00	101.54
T806	46	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.03	56.15	0.28	0.41	0.76	32.12	0.34	0.06	12.01	0.01	0.01	0.14	0.00	102.34

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T806	47	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.02	56.59	0.43	0.66	0.56	30.74	0.30	0.05	13.16	0.05	0.00	0.01	0.12	102.69
T806	48	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.05	57.08	0.45	1.16	0.59	28.64	0.22	0.05	14.21	0.01	0.02	0.00	0.20	102.68
T806	49	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.03	54.02	0.21	0.46	0.71	34.52	0.29	0.00	11.61	0.03	0.00	0.07	0.21	102.17
T806	51	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.08	54.77	0.28	0.56	0.44	34.26	0.24	0.13	11.18	0.06	0.00	0.05	0.20	102.25
T806	52	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.04	56.44	0.37	0.45	0.62	31.23	0.30	0.10	12.95	0.05	0.11	0.04	0.25	102.97
T806	53	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.05	56.53	0.36	0.61	0.56	30.09	0.32	0.11	13.20	0.04	0.09	0.12	0.21	102.29
T806	54	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	53.15	0.21	0.32	0.64	36.28	0.36	0.00	10.45	0.00	0.00	0.10	0.27	101.79
T806	63	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.06	57.08	0.94	2.07	0.61	26.21	0.40	0.13	15.07	0.04	0.09	0.02	0.00	102.72
T806	103	7810	kimb	0.25-0.5	black	Mg-ilmenite	0.00	53.54	0.20	0.84	0.52	34.41	0.34	0.01	10.89	0.01	0.10	0.12	0.37	101.35
T755	44	7811	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.00	0.38	0.43	0.48	30.94	0.35	0.06	12.87	0.05	0.10	0.02	0.03	100.74
T755	51	7811	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.13	0.51	0.57	0.50	29.57	0.35	0.09	13.87	0.02	0.00	0.01	0.00	100.68
T756	2	7811	till	0.25-0.5	black	Mg-Ilmenite	0.06	56.52	0.42	0.55	0.57	25.87	0.45	0.06	16.36	0.06	0.00	0.08	0.00	101.00
T756	4	7811	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.86	0.32	1.02	0.28	29.83	0.30	0.08	14.14	0.05	0.06	0.10	0.00	101.15
T756	5	7811	till	0.25-0.5	black	Mg-Ilmenite	0.05	56.48	0.41	0.60	0.45	28.05	0.29	0.12	14.68	0.06	0.10	0.00	0.38	101.68
T756	7	7811	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.58	0.36	0.60	0.43	30.06	0.26	0.07	13.55	0.00	0.11	0.03	0.21	101.37
T756	9	7811	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.85	0.38	0.67	0.41	29.14	0.34	0.08	14.25	0.03	0.05	0.10	0.16	101.53
T756	12	7811	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.57	0.33	0.57	0.50	31.07	0.26	0.08	13.25	0.01	0.09	0.00	0.00	101.78
T756	14	7811	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.29	0.64	0.89	0.35	26.54	0.23	0.15	15.84	0.07	0.03	0.00	0.14	101.24
T756	15	7811	till	0.25-0.5	black	Mg-Ilmenite	0.06	56.19	0.40	0.51	0.71	28.38	0.34	0.08	14.70	0.02	0.04	0.00	0.14	101.56
T756	16	7811	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.31	0.34	0.72	0.49	27.43	0.31	0.09	15.28	0.04	0.05	0.08	0.08	101.30
T767	40	7811	till	0.25-0.5	black	Mg-Ilmenite	0.14	52.62	0.29	0.43	0.49	34.13	0.24	0.07	11.64	0.26	0.06	0.00	0.16	100.53
T756	3	7811	till	0.25-0.5	black	Ilmenite	0.05	52.41	0.12	0.05	0.33	44.39	0.54	0.12	2.84	0.02	0.00	0.00	0.16	101.02
T756	6	7811	till	0.25-0.5	black	Ilmenite	0.05	51.96	0.11	0.12	0.22	46.50	0.66	0.02	0.95	0.01	0.13	0.04	0.10	100.88
T756	8	7811	till	0.25-0.5	black	Ilmenite	0.10	51.61	0.05	0.05	0.30	46.97	0.71	0.06	0.17	0.01	0.04	0.00	0.38	100.45
T756	10	7811	till	0.25-0.5	black	Ilmenite	0.07	50.38	0.00	0.00	0.17	46.77	2.83	0.00	0.00	0.01	0.02	0.00	0.22	100.47
T767	36	7811	till	0.25-0.5	black	Ilmenite	0.08	51.28	0.07	0.00	0.22	47.30	0.73	0.12	0.46	0.02	0.00	0.00	0.11	0.00
T767	38	7811	till	0.25-0.5	black	Ilmenite	0.58	51.25	0.04	0.00	0.07	45.38	0.70	0.08	0.01	0.34	0.04	0.00	0.00	0.00
T756	17	7812	till	0.25-0.5	black	Mg-Ilmenite	0.07	52.20	0.29	0.74	0.56	35.22	0.32	0.01	11.07	0.01	0.07	0.00	0.09	100.63
T756	18	7812	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.27	0.24	0.31	0.31	29.15	0.42	0.11	14.35	0.03	0.02	0.00	0.14	100.37
T756	19	7812	till	0.25-0.5	black	Mg-Ilmenite	0.01	55.76	0.40	0.56	0.34	30.40	0.26	0.07	13.43	0.02	0.07	0.07	0.04	101.45
T756	21	7812	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.19	0.34	0.52	0.63	31.81	0.26	0.11	12.45	0.03	0.03	0.00	0.11	100.52
T757	1	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	56.34	0.52	0.48	0.46	27.09	0.39	0.04	15.29	0.05	0.03	0.06	0.01	100.91
T757	2	7813	till	0.25-0.5	black	Mg-Ilmenite	0.24	56.33	0.62	0.80	0.39	26.87	0.45	0.02	15.78	0.03	0.00	0.12	0.13	101.79
T757	4	7813	till	0.25-0.5	black	Mg-Ilmenite	0.26	56.01	0.47	1.44	0.52	26.17	0.38	0.14	16.10	0.04	0.06	0.02	0.20	101.81
T757	6	7813	till	0.25-0.5	black	Mg-Ilmenite	0.21	51.92	0.19	0.55	0.42	33.85	0.39	0.03	12.06	0.00	0.03	0.07	0.29	100.01
T757	7	7813	till	0.25-0.5	black	Mg-Ilmenite	0.26	54.83	0.31	0.40	0.41	31.70	0.28	0.06	12.90	0.02	0.02	0.00	0.12	101.31
T757	8	7813	till	0.25-0.5	black	Mg-Ilmenite	0.24	54.51	0.27	0.71	0.42	30.94	0.34	0.09	13.23	0.01	0.07	0.09	0.08	100.99
T757	9	7813	till	0.25-0.5	black	Mg-Ilmenite	0.37	52.97	0.17	1.08	0.35	33.01	0.43	0.06	12.12	0.00	0.06	0.16	0.12	100.91
T757	10	7813	till	0.25-0.5	black	Mg-Ilmenite	0.26	53.61	0.24	0.44	0.53	34.19	0.29	0.09	11.51	0.01	0.07	0.03	0.20	101.46
T757	12	7813	till	0.25-0.5	black	Mg-Ilmenite	0.20	53.13	0.19	0.47	0.51	33.55	0.30	0.06	12.11	0.06	0.00	0.03	0.52	101.13
T757	13	7813	till	0.25-0.5	black	Mg-Ilmenite	0.19	53.85	0.42	2.51	0.52	29.94	0.25	0.21	12.51	0.04	0.11	0.04	0.03	100.60
T757	14	7813	till	0.25-0.5	black	Mg-Ilmenite	0.19	52.50	0.24	0.43	0.38	34.51	0.24	0.03	11.02	0.02	0.15	0.09	0.28	100.07
T757	15	7813	till	0.25-0.5	black	Mg-Ilmenite	0.42	55.68	0.69	0.90	0.38	26.21	0.40	0.15	15.84	0.05	0.10	0.00	0.13	100.96
T757	16	7813	till	0.25-0.5	black	Mg-Ilmenite	0.35	56.54	0.62	0.65	0.42	28.05	0.33	0.13	14.94	0.03	0.04	0.06	0.09	102.26
T757	18	7813	till	0.25-0.5	black	Mg-Ilmenite	0.42	55.57	0.40	0.64	0.44	30.97	0.31	0.07	12.75	0.04	0.09	0.00	0.05	101.76
T757	20	7813	till	0.25-0.5	black	Mg-Ilmenite	0.28	53.63	0.22	0.59	0.34	31.26	0.21	0.04	12.87	0.05	0.04	0.02	0.36	99.90



Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T757	21	7813	till	0.25-0.5	black	Mg-Ilmenite	0.21	53.32	0.27	0.36	0.55	33.00	0.38	0.11	12.55	0.04	0.06	0.03	0.17	101.05
T757	22	7813	till	0.25-0.5	black	Mg-Ilmenite	0.57	54.17	0.34	0.68	0.30	32.59	0.28	0.07	11.93	0.03	0.13	0.00	0.00	101.10
T757	23	7813	till	0.25-0.5	black	Mg-Ilmenite	0.36	56.02	0.41	0.56	0.44	28.53	0.38	0.13	14.32	0.00	0.06	0.00	0.04	101.26
T757	24	7813	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.67	0.36	0.93	0.43	29.91	0.35	0.07	14.54	0.01	0.05	0.07	0.39	101.90
T757	25	7813	till	0.25-0.5	black	Mg-Ilmenite	0.26	54.70	0.31	0.37	0.61	30.86	0.19	0.11	13.53	0.02	0.05	0.00	0.05	101.07
T757	27	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.82	0.34	0.47	0.39	29.09	0.40	0.12	14.73	0.08	0.01	0.01	0.19	100.83
T757	29	7813	till	0.25-0.5	black	Mg-Ilmenite	0.24	56.05	0.37	0.79	0.50	26.00	0.42	0.15	16.45	0.05	0.00	0.00	0.16	101.20
T757	30	7813	till	0.25-0.5	black	Mg-Ilmenite	0.16	53.95	0.27	0.37	0.35	33.22	0.42	0.04	11.56	0.03	0.00	0.04	0.25	100.67
T757	31	7813	till	0.25-0.5	black	Mg-Ilmenite	0.29	54.69	0.53	0.44	0.38	30.17	0.28	0.19	13.48	0.03	0.07	0.05	0.08	100.66
T757	32	7813	till	0.25-0.5	black	Mg-Ilmenite	0.28	56.03	0.53	0.68	0.42	27.98	0.29	0.18	14.93	0.06	0.09	0.09	0.21	101.76
T757	33	7813	till	0.25-0.5	black	Mg-Ilmenite	0.27	54.37	0.21	0.34	0.52	31.55	0.34	0.15	13.21	0.03	0.11	0.06	0.15	101.29
T757	35	7813	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.77	0.30	0.96	0.49	30.35	0.31	0.07	13.36	0.03	0.01	0.01	0.07	100.86
T757	36	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.48	0.32	0.67	0.29	32.15	0.39	0.10	13.23	0.01	0.00	0.15	0.46	102.41
T757	37	7813	till	0.25-0.5	black	Mg-Ilmenite	0.22	55.86	0.42	0.74	0.26	28.70	0.32	0.10	14.59	0.00	0.14	0.00	0.32	101.66
T757	39	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	55.54	0.45	0.47	0.27	28.82	0.30	0.09	14.55	0.01	0.00	0.04	0.00	100.70
T757	40	7813	till	0.25-0.5	black	Mg-Ilmenite	0.42	54.18	0.43	0.56	0.36	30.04	0.33	0.05	13.34	0.03	0.00	0.00	0.46	100.19
T757	42	7813	till	0.25-0.5	black	Mg-Ilmenite	0.18	54.53	0.31	0.47	0.50	32.16	0.38	0.04	12.40	0.05	0.09	0.00	0.36	101.47
T757	44	7813	till	0.25-0.5	black	Mg-Ilmenite	0.34	55.66	0.54	1.04	0.49	27.07	0.39	0.11	14.70	0.02	0.03	0.02	0.07	100.47
T757	46	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	56.21	0.40	0.54	0.51	27.64	0.39	0.07	14.62	0.01	0.05	0.01	0.37	101.00
T757	47	7813	till	0.25-0.5	black	Mg-Ilmenite	0.23	53.06	0.24	0.37	0.51	33.06	0.34	0.08	12.20	0.06	0.06	0.06	0.15	100.43
T757	48	7813	till	0.25-0.5	black	Mg-Ilmenite	0.26	55.89	0.42	0.61	0.31	29.31	0.25	0.12	13.91	0.04	0.14	0.10	0.15	101.51
T757	49	7813	till	0.25-0.5	black	Mg-Ilmenite	0.25	55.22	0.32	0.44	0.50	30.34	0.34	0.04	13.71	0.01	0.08	0.00	0.04	101.30
T757	50	7813	till	0.25-0.5	black	Mg-Ilmenite	0.21	55.65	0.49	0.40	0.57	30.41	0.32	0.04	13.52	0.03	0.05	0.06	0.15	101.91
T757	52	7813	till	0.25-0.5	black	Mg-Ilmenite	0.19	53.78	0.18	0.60	0.43	32.28	0.26	0.00	11.96	0.01	0.01	0.11	0.13	99.95
T757	53	7813	till	0.25-0.5	black	Mg-Ilmenite	0.23	55.27	0.49	0.47	0.36	28.97	0.31	0.16	14.16	0.05	0.03	0.00	0.44	100.92
T757	54	7813	till	0.25-0.5	black	Mg-Ilmenite	0.24	55.97	0.45	0.69	0.35	28.03	0.35	0.00	14.83	0.03	0.06	0.02	0.09	101.11
T757	57	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	55.73	0.37	0.53	0.44	29.07	0.36	0.04	14.40	0.03	0.00	0.02	0.29	101.46
T757	60	7813	till	0.25-0.5	black	Mg-Ilmenite	0.21	55.35	0.54	0.79	0.24	27.84	0.44	0.10	14.94	0.03	0.00	0.17	0.21	100.89
T757	61	7813	till	0.25-0.5	black	Mg-Ilmenite	0.45	54.58	0.45	0.46	0.53	29.87	0.24	0.10	13.50	0.04	0.06	0.00	0.00	100.28
T757	64	7813	till	0.25-0.5	black	Mg-Ilmenite	0.32	54.07	0.32	0.67	0.46	30.98	0.33	0.10	13.28	0.05	0.05	0.03	0.11	100.78
T757	66	7813	till	0.25-0.5	black	Mg-Ilmenite	0.18	56.03	0.40	0.69	0.52	23.99	0.50	0.13	18.05	0.06	0.07	0.00	0.15	100.77
T757	67	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.95	0.25	0.28	0.48	30.80	0.37	0.10	14.01	0.03	0.12	0.16	0.36	102.05
T757	68	7813	till	0.25-0.5	black	Mg-Ilmenite	0.14	56.26	0.35	0.76	0.55	27.06	0.39	0.04	16.17	0.04	0.04	0.00	0.23	102.02
T757	69	7813	till	0.25-0.5	black	Mg-Ilmenite	0.24	56.71	0.38	0.87	0.31	26.28	0.29	0.11	15.47	0.03	0.05	0.00	0.07	100.83
T757	70	7813	till	0.25-0.5	black	Mg-Ilmenite	0.35	54.27	0.31	0.30	0.57	28.98	0.37	0.08	15.35	0.05	0.05	0.00	0.17	100.84
T757	72	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	56.10	0.46	0.57	0.42	28.51	0.27	0.04	13.92	0.05	0.02	0.02	0.11	100.66
T757	73	7813	till	0.25-0.5	black	Mg-Ilmenite	0.38	56.16	0.50	1.09	0.41	28.33	0.28	0.16	14.37	0.01	0.04	0.09	0.27	102.09
T757	74	7813	till	0.25-0.5	black	Mg-Ilmenite	0.18	55.39	0.34	0.53	0.44	30.72	0.23	0.08	13.68	0.04	0.06	0.04	0.15	101.86
T757	75	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	55.27	0.31	0.46	0.40	29.05	0.37	0.13	13.93	0.01	0.07	0.04	0.17	100.40
T757	76	7813	till	0.25-0.5	black	Mg-Ilmenite	0.21	53.68	0.15	0.27	0.48	32.74	0.36	0.15	11.91	0.02	0.10	0.07	0.36	100.50
T757	78	7813	till	0.25-0.5	black	Mg-Ilmenite	0.22	54.39	0.40	0.40	0.52	32.94	0.30	0.14	12.38	0.02	0.02	0.10	0.23	102.06
T757	79	7813	till	0.25-0.5	black	Mg-Ilmenite	0.19	54.93	0.34	0.54	0.30	30.86	0.40	0.09	13.35	0.03	0.06	0.08	0.37	101.54
T757	80	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	56.26	0.55	1.19	0.42	26.12	0.39	0.17	15.62	0.00	0.02	0.05	0.09	101.03
T757	82	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	53.62	0.57	0.22	0.40	33.66	0.26	0.06	11.58	0.05	0.09	0.09	0.08	100.84
T757	83	7813	till	0.25-0.5	black	Mg-Ilmenite	0.22	53.79	0.26	0.38	0.57	32.87	0.29	0.00	12.06	0.03	0.07	0.05	0.11	100.70
T757	86	7813	till	0.25-0.5	black	Mg-Ilmenite	0.32	56.16	0.47	2.16	0.42	25.87	0.19	0.21	14.85	0.02	0.10	0.00	0.17	100.95

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T757	87	7813	till	0.25-0.5	black	Mg-Ilmenite	0.51	55.12	0.44	0.44	0.45	28.67	0.30	0.05	14.53	0.02	0.13	0.00	0.21	100.86
T757	89	7813	till	0.25-0.5	black	Mg-Ilmenite	0.25	53.91	0.30	1.59	0.36	28.01	0.44	0.13	15.32	0.03	0.05	0.03	0.00	100.42
T757	94	7813	till	0.25-0.5	black	Mg-Ilmenite	0.29	55.96	0.67	2.10	0.43	26.38	0.39	0.12	15.06	0.03	0.06	0.00	0.01	101.50
T757	95	7813	till	0.25-0.5	black	Mg-Ilmenite	0.14	57.22	0.42	0.74	0.47	22.19	0.46	0.16	18.64	0.08	0.11	0.04	0.16	100.83
T757	96	7813	till	0.25-0.5	black	Mg-Ilmenite	0.19	56.15	0.71	0.92	0.35	27.67	0.35	0.18	14.80	0.02	0.12	0.02	0.23	101.69
T757	97	7813	till	0.25-0.5	black	Mg-Ilmenite	0.12	56.22	0.60	1.74	0.36	26.70	0.30	0.14	15.20	0.03	0.08	0.00	0.08	101.58
T757	98	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.34	0.62	1.66	0.48	28.59	0.33	0.21	14.32	0.05	0.04	0.00	0.04	101.82
T757	104	7813	till	0.25-0.5	black	Mg-Ilmenite	0.26	56.82	0.34	0.61	0.47	28.24	0.30	0.04	14.49	0.00	0.00	0.06	0.20	101.85
T757	105	7813	till	0.25-0.5	black	Mg-Ilmenite	0.30	54.65	0.34	0.65	0.42	32.23	0.25	0.09	12.60	0.00	0.06	0.05	0.09	101.74
T757	106	7813	till	0.25-0.5	black	Mg-Ilmenite	0.21	52.61	0.26	0.34	0.51	34.54	0.24	0.02	11.49	0.00	0.07	0.10	0.12	100.51
T757	111	7813	till	0.25-0.5	black	Mg-Ilmenite	0.20	54.06	0.26	0.82	0.51	31.53	0.35	0.13	12.58	0.04	0.03	0.02	0.00	100.52
T757	120	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.87	0.37	0.36	0.60	30.21	0.27	0.06	13.63	0.04	0.00	0.00	0.00	101.57
T757	124	7813	till	0.25-0.5	black	Mg-Ilmenite	0.16	55.54	0.44	0.51	0.40	28.47	0.37	0.12	14.68	0.01	0.11	0.06	0.00	100.88
T757	125	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.14	0.26	0.84	0.33	30.85	0.27	0.09	13.05	0.01	0.00	0.02	0.00	100.03
T757	130	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	56.80	0.40	0.76	0.44	24.33	0.50	0.05	17.12	0.06	0.03	0.02	0.17	100.83
T756	25	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.04	0.28	0.79	0.62	33.25	0.40	0.03	11.38	0.01	0.06	0.02	0.17	100.16
T756	26	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.25	0.33	0.32	0.50	30.76	0.27	0.16	13.10	0.00	0.12	0.00	0.12	100.09
T756	28	7813	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.27	0.42	1.43	0.32	30.16	0.23	0.08	13.21	0.04	0.06	0.09	0.07	100.42
T756	29	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.08	0.26	1.40	0.37	26.81	0.38	0.22	14.89	0.02	0.06	0.00	0.26	100.81
T756	32	7813	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.70	0.67	1.60	0.42	26.44	0.31	0.19	15.34	0.04	0.05	0.00	0.00	100.91
T756	33	7813	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.68	0.28	0.41	0.61	30.13	0.39	0.09	13.96	0.00	0.00	0.08	0.21	100.95
T756	34	7813	till	0.25-0.5	black	Mg-Ilmenite	0.04	54.86	0.25	0.37	0.38	30.48	0.24	0.02	13.55	0.04	0.04	0.08	0.00	100.36
T756	35	7813	till	0.25-0.5	black	Mg-Ilmenite	0.03	54.58	0.30	0.51	0.53	31.11	0.33	0.05	13.38	0.00	0.05	0.00	0.36	101.24
T756	36	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.60	0.41	0.50	0.37	30.99	0.32	0.12	12.87	0.02	0.05	0.04	0.01	100.40
T756	39	7813	till	0.25-0.5	black	Mg-Ilmenite	0.04	51.05	0.17	0.89	0.53	36.31	0.29	0.00	10.45	0.01	0.13	0.10	0.47	100.43
T756	40	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	52.51	0.22	0.31	0.50	34.70	0.38	0.08	11.22	0.01	0.03	0.12	0.09	100.25
T756	43	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.49	0.29	0.50	0.46	30.57	0.37	0.00	13.44	0.04	0.00	0.15	0.00	101.38
T756	44	7813	till	0.25-0.5	black	Mg-Ilmenite	0.05	52.26	0.22	0.36	0.33	36.24	0.32	0.01	10.26	0.00	0.09	0.03	0.34	100.53
T756	46	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.76	0.23	0.36	0.36	30.21	0.33	0.07	14.20	0.08	0.01	0.09	0.28	102.04
T756	47	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.85	0.34	0.49	0.46	29.98	0.34	0.09	14.16	0.03	0.10	0.14	0.24	101.32
T756	48	7813	till	0.25-0.5	black	Mg-Ilmenite	0.04	52.38	0.17	0.28	0.43	34.68	0.36	0.10	11.62	0.00	0.10	0.00	0.34	100.50
T756	49	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.16	0.26	0.64	0.46	34.97	0.32	0.11	10.53	0.01	0.09	0.00	0.12	100.73
T756	50	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.59	0.37	0.65	0.49	29.72	0.35	0.06	13.99	0.01	0.07	0.10	0.00	101.45
T756	51	7813	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.44	0.49	0.47	0.48	28.89	0.29	0.10	14.00	0.04	0.06	0.04	0.16	100.58
T756	52	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.56	0.67	0.63	0.36	26.29	0.39	0.17	15.83	0.04	0.02	0.07	0.17	101.31
T756	53	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.54	0.37	0.72	0.29	32.15	0.23	0.13	12.44	0.00	0.01	0.17	0.09	101.25
T756	54	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.49	0.37	0.51	0.51	28.61	0.38	0.12	14.33	0.03	0.02	0.11	0.07	100.62
T756	55	7813	till	0.25-0.5	black	Mg-Ilmenite	0.16	56.50	0.36	0.49	0.39	27.18	0.38	0.09	15.18	0.02	0.00	0.00	0.16	100.90
T756	56	7813	till	0.25-0.5	black	Mg-Ilmenite	0.04	53.76	0.33	0.42	0.43	33.36	0.27	0.06	12.07	0.00	0.08	0.03	0.18	101.04
T756	57	7813	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.10	0.50	1.04	0.38	28.56	0.26	0.13	14.53	0.01	0.04	0.00	0.05	100.73
T756	58	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.37	0.48	0.98	0.46	26.59	0.42	0.17	15.75	0.01	0.07	0.07	0.11	101.56
T756	59	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.54	0.26	0.21	0.44	29.62	0.26	0.12	14.18	0.05	0.00	0.00	0.34	101.13
T756	60	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.95	0.46	0.53	0.48	26.39	0.30	0.15	15.86	0.02	0.10	0.05	0.41	101.78
T756	61	7813	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.50	0.44	0.03	0.38	31.95	0.28	0.01	12.58	0.02	0.03	0.03	0.00	100.39
T756	62	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	57.75	0.41	1.13	0.36	23.98	0.53	0.15	17.26	0.07	0.02	0.01	0.12	101.89
T756	64	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.79	0.21	0.55	0.35	32.44	0.25	0.10	12.32	0.00	0.09	0.03	0.04	100.27

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T756	65	7813	till	0.25-0.5	black	Mg-Ilmenite	0.00	56.38	0.36	0.77	0.46	28.49	0.25	0.18	14.57	0.02	0.05	0.00	0.08	101.62
T756	66	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.93	0.35	0.51	0.45	32.61	0.31	0.06	12.25	0.01	0.05	0.02	0.11	100.77
T756	68	7813	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.40	0.18	0.59	0.54	31.68	0.20	0.07	13.33	0.04	0.02	0.00	0.17	100.32
T756	69	7813	till	0.25-0.5	black	Mg-Ilmenite	0.05	52.81	0.22	0.68	0.28	33.74	0.33	0.10	11.97	0.00	0.08	0.09	0.13	100.47
T756	70	7813	till	0.25-0.5	black	Mg-Ilmenite	0.03	53.29	0.24	0.62	0.38	34.26	0.38	0.06	11.33	0.01	0.05	0.13	0.17	100.96
T756	71	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.21	0.39	0.69	0.57	27.64	0.30	0.00	14.91	0.02	0.09	0.10	0.11	101.10
T756	72	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.93	0.20	2.42	0.38	27.18	0.37	0.30	14.56	0.02	0.07	0.11	0.04	101.65
T756	74	7813	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.65	0.30	0.41	0.42	31.53	0.36	0.05	13.25	0.05	0.03	0.01	0.04	101.26
T756	76	7813	till	0.25-0.5	black	Mg-Ilmenite	0.05	51.22	0.24	0.44	0.51	38.65	0.26	0.08	9.14	0.03	0.08	0.07	0.13	100.92
T756	77	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	54.53	0.39	0.61	0.52	31.03	0.32	0.14	13.17	0.04	0.06	0.07	0.37	101.41
T756	78	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	57.72	0.31	1.13	0.36	21.61	0.51	0.14	18.89	0.11	0.06	0.00	0.25	101.25
T756	79	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.36	0.37	0.26	0.55	30.80	0.28	0.04	13.61	0.06	0.07	0.00	0.28	100.72
T756	81	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.35	0.34	0.68	0.53	32.53	0.35	0.11	12.26	0.02	0.07	0.02	0.13	101.44
T756	82	7813	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.32	0.61	1.97	0.55	27.52	0.23	0.15	14.34	0.02	0.05	0.02	0.00	100.82
T756	83	7813	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.30	0.27	0.34	0.45	33.85	0.31	0.05	11.86	0.03	0.00	0.00	0.29	101.88
T756	84	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	52.51	0.18	0.50	0.49	33.71	0.51	0.03	12.45	0.04	0.06	0.00	0.44	101.00
T756	85	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	53.21	0.26	0.38	0.53	34.74	0.26	0.05	11.18	0.03	0.05	0.00	0.00	100.77
T756	86	7813	till	0.25-0.5	black	Mg-Ilmenite	0.03	56.43	0.36	0.53	0.41	27.96	0.30	0.02	14.91	0.02	0.00	0.05	0.20	101.23
T756	87	7813	till	0.25-0.5	black	Mg-Ilmenite	0.14	56.62	0.47	0.68	0.36	26.54	0.31	0.09	15.32	0.00	0.04	0.06	0.32	100.94
T756	88	7813	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.49	0.36	0.83	0.38	28.37	0.39	0.11	15.05	0.03	0.12	0.00	0.09	101.32
T756	89	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.30	0.24	0.28	0.54	31.63	0.33	0.05	12.72	0.00	0.00	0.06	0.17	100.39
T756	90	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.31	0.53	1.97	0.57	30.59	0.36	0.09	13.03	0.00	0.08	0.09	0.00	100.72
T756	91	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.06	0.49	0.74	0.51	33.84	0.23	0.10	11.34	0.03	0.03	0.08	0.00	100.51
T756	93	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.44	0.32	0.39	0.34	31.22	0.33	0.09	12.95	0.03	0.05	0.08	0.13	100.44
T756	94	7813	till	0.25-0.5	black	Mg-Ilmenite	0.04	54.35	0.63	0.31	0.32	30.25	0.48	0.14	14.06	0.02	0.00	0.04	0.20	100.85
T756	95	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.76	0.53	0.73	0.53	30.25	0.30	0.03	13.70	0.04	0.04	0.10	0.16	101.25
T756	96	7813	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.58	0.23	1.28	0.29	30.05	0.41	0.04	14.16	0.00	0.04	0.00	0.18	101.31
T756	97	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	51.26	0.13	3.61	0.48	31.55	0.37	0.13	11.56	0.03	0.05	0.00	0.16	99.40
T756	98	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.27	0.43	0.41	0.34	27.85	0.27	0.08	14.70	0.06	0.07	0.07	0.14	100.80
T756	100	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.18	0.40	0.63	0.41	28.35	0.27	0.04	14.93	0.03	0.10	0.01	0.09	101.52
T756	101	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	53.58	0.20	0.42	0.59	33.53	0.34	0.06	11.73	0.01	0.00	0.01	0.12	100.68
T756	102	7813	till	0.25-0.5	black	Mg-Ilmenite	0.00	54.86	0.33	0.57	0.43	31.18	0.33	0.02	12.44	0.02	0.00	0.00	0.16	100.34
T756	103	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.59	0.22	0.31	0.53	30.47	0.36	0.04	15.02	0.06	0.04	0.00	0.26	100.98
T756	104	7813	till	0.25-0.5	black	Mg-Ilmenite	0.03	53.47	0.22	0.31	0.52	31.10	0.29	0.07	13.82	0.00	0.03	0.17	0.40	100.41
T756	105	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.78	0.49	1.03	0.51	29.37	0.34	0.14	13.96	0.02	0.00	0.00	0.18	100.93
T756	106	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.43	0.45	0.65	0.58	26.29	0.38	0.16	15.92	0.01	0.07	0.14	0.12	101.28
T756	107	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.40	0.63	0.30	0.50	28.95	0.39	0.06	14.83	0.03	0.00	0.12	0.46	101.72
T756	108	7813	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.35	0.29	0.67	0.39	31.19	0.31	0.10	12.90	0.00	0.08	0.03	0.25	100.66
T756	109	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.64	0.32	0.41	0.60	29.89	0.28	0.05	13.65	0.03	0.10	0.08	0.16	100.29
T756	110	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	52.82	0.21	0.33	0.40	34.59	0.31	0.03	11.37	0.00	0.00	0.04	0.57	100.76
T756	111	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	52.82	0.17	0.30	0.60	34.00	0.31	0.04	11.57	0.02	0.11	0.09	0.05	100.15
T756	112	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.39	0.29	0.63	0.30	30.42	0.36	0.06	13.29	0.02	0.09	0.00	0.00	100.90
T756	113	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.87	0.41	0.32	0.50	30.90	0.28	0.00	13.35	0.07	0.01	0.00	0.00	100.79
T756	113	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.51	0.22	0.37	0.58	30.00	0.42	0.02	14.72	0.02	0.04	0.02	0.22	100.21
T758	5	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.84	0.49	1.66	0.43	30.12	0.28	0.09	13.03	0.03	0.02	0.05	0.00	100.09
T767	53	7813	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.55	0.52	0.50	0.54	28.18	0.29	0.05	14.89	0.00	0.11	0.00	0.21	100.95

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	CR2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZNO	NB2O5	TOTAL
T767	54	7813	till	0.25-0.5	black	Mg-Ilmenite	0.42	53.69	0.44	0.49	0.55	30.49	0.36	0.12	12.87	0.32	0.13	0.00	0.16	100.03
T767	55	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.23	0.31	0.78	0.33	30.72	0.34	0.10	13.65	0.06	0.21	0.00	0.18	101.07
T767	56	7813	till	0.25-0.5	black	Mg-Ilmenite	0.26	54.61	0.35	0.28	0.32	29.76	0.35	0.03	13.53	0.35	0.07	0.06	0.20	100.17
T767	57	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	53.77	0.21	0.56	0.53	33.06	0.30	0.08	12.18	0.01	0.12	0.00	0.14	101.11
T767	58	7813	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.09	0.37	0.43	0.57	30.74	0.27	0.06	13.13	0.08	0.05	0.00	0.10	101.02
T767	59	7813	till	0.25-0.5	black	Mg-Ilmenite	0.23	55.03	0.59	0.60	0.43	28.63	0.32	0.09	14.75	0.09	0.10	0.04	0.01	100.93
T767	60	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.39	0.29	0.56	0.57	32.01	0.30	0.13	12.72	0.04	0.01	0.10	0.12	100.33
T767	62	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.27	0.26	0.41	0.61	32.01	0.38	0.14	12.42	0.24	0.07	0.00	0.16	101.04
T767	63	7813	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.55	0.36	0.84	0.43	30.03	0.26	0.05	13.65	0.04	0.14	0.00	0.26	100.67
T767	64	7813	till	0.25-0.5	black	Mg-Ilmenite	0.28	55.00	0.65	0.57	0.45	27.50	0.30	0.08	14.76	0.38	0.07	0.00	0.24	100.29
T767	65	7813	till	0.25-0.5	black	Mg-Ilmenite	0.16	51.89	0.23	0.62	0.40	34.92	0.38	0.00	10.69	0.21	0.06	0.07	0.10	99.72
T767	66	7813	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.37	0.32	0.42	0.28	30.16	0.40	0.08	14.29	0.01	0.10	0.08	0.11	101.75
T767	67	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.98	0.23	0.42	0.38	33.65	0.20	0.13	12.02	0.01	0.00	0.00	0.15	101.28
T767	68	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.90	0.36	0.60	0.49	29.74	0.33	0.07	13.37	0.33	0.10	0.01	0.28	100.68
T767	70	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.26	0.41	1.00	0.40	28.34	0.18	0.08	14.21	0.05	0.10	0.00	0.11	101.21
T767	71	7813	till	0.25-0.5	black	Mg-Ilmenite	0.14	56.12	0.40	0.60	0.50	29.12	0.27	0.14	13.91	0.06	0.12	0.04	0.11	101.53
T767	72	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.35	0.29	0.29	0.54	33.27	0.22	0.07	11.97	0.00	0.00	0.03	0.19	100.32
T767	73	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.92	0.44	0.95	0.48	28.40	0.31	0.09	14.59	0.00	0.10	0.05	0.25	101.67
T767	74	7813	till	0.25-0.5	black	Mg-Ilmenite	0.22	54.47	0.30	0.77	0.27	30.16	0.26	0.02	13.40	0.06	0.17	0.04	0.12	100.26
T767	75	7813	till	0.25-0.5	black	Mg-Ilmenite	0.14	52.97	0.26	0.42	0.31	32.93	0.33	0.02	12.08	0.34	0.05	0.13	0.13	100.10
T767	76	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	53.12	0.18	0.27	0.30	34.76	0.26	0.07	10.85	0.16	0.04	0.16	0.07	100.32
T767	77	7813	till	0.25-0.5	black	Mg-Ilmenite	0.23	56.08	0.34	0.48	0.40	27.46	0.39	0.12	15.39	0.07	0.07	0.05	0.08	101.16
T767	78	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	55.72	0.62	0.69	0.33	27.89	0.30	0.06	14.69	0.46	0.15	0.10	0.10	101.31
T767	79	7813	till	0.25-0.5	black	Mg-Ilmenite	0.21	56.00	0.34	0.39	0.53	27.47	0.32	0.14	14.93	0.38	0.00	0.00	0.21	100.91
T767	80	7813	till	0.25-0.5	black	Mg-Ilmenite	0.16	55.90	0.30	0.60	0.55	28.44	0.21	0.05	14.14	0.28	0.00	0.00	0.13	100.75
T767	81	7813	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.42	0.29	0.57	0.18	30.21	0.35	0.11	13.74	0.34	0.08	0.00	0.22	100.66
T767	82	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.77	0.50	0.93	0.44	28.39	0.17	0.00	14.46	0.25	0.17	0.09	0.23	101.49
T767	83	7813	till	0.25-0.5	black	Mg-Ilmenite	0.18	53.92	0.64	4.45	0.44	27.18	0.31	0.02	14.22	0.03	0.15	0.04	0.20	101.80
T767	84	7813	till	0.25-0.5	black	Mg-Ilmenite	0.15	53.06	0.24	0.66	0.55	32.65	0.25	0.04	12.49	0.23	0.11	0.16	0.13	100.74
T767	85	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.48	0.36	0.49	0.61	29.44	0.33	0.06	13.77	0.20	0.11	0.03	0.17	101.13
T767	86	7813	till	0.25-0.5	black	Mg-Ilmenite	0.12	56.13	0.35	0.33	0.54	30.63	0.25	0.11	13.68	0.03	0.05	0.00	0.05	102.26
T767	87	7813	till	0.25-0.5	black	Mg-Ilmenite	0.18	54.48	0.60	1.08	0.47	29.22	0.26	0.03	13.41	0.27	0.15	0.12	0.24	100.51
T767	88	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.81	0.20	0.44	0.45	32.24	0.22	0.01	12.92	0.12	0.03	0.09	0.21	100.84
T767	89	7813	till	0.25-0.5	black	(Mg-Ilmenite)	0.40	52.62	0.22	0.55	0.37	30.87	0.31	0.03	8.44	0.54	0.08	0.07	0.03	94.53
T767	91	7813	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.43	0.59	2.04	0.38	27.21	0.17	0.06	14.42	0.43	0.17	0.00	0.19	100.25
T767	92	7813	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.87	0.28	0.45	0.37	32.85	0.28	0.01	11.84	0.09	0.05	0.00	0.10	100.31
T767	93	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.37	0.25	0.51	0.53	32.53	0.35	0.07	12.29	0.14	0.11	0.03	0.18	100.45
T767	94	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	55.17	0.30	0.64	0.26	28.96	0.37	0.03	14.09	0.32	0.11	0.01	0.15	100.60
T767	95	7813	till	0.25-0.5	black	Mg-Ilmenite	0.17	53.86	0.29	0.81	0.51	31.39	0.21	0.03	12.60	0.30	0.10	0.06	0.16	100.47
T767	96	7813	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.21	0.60	1.10	0.49	27.65	0.23	0.07	14.58	0.41	0.05	0.00	0.11	100.55
T767	97	7813	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.95	0.41	0.59	0.46	29.81	0.28	0.07	13.60	0.08	0.16	0.03	0.23	101.75
T767	98	7813	till	0.25-0.5	black	Mg-Ilmenite	0.20	54.22	0.38	0.44	0.50	31.59	0.22	0.00	12.56	0.34	0.04	0.02	0.16	100.68
T767	99	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.40	0.48	2.54	0.51	27.80	0.31	0.06	14.40	0.00	0.16	0.00	0.28	101.04
T767	100	7813	till	0.25-0.5	black	Mg-Ilmenite	0.08	53.60	0.44	0.50	0.42	31.54	0.26	0.05	13.80	0.00	0.18	0.00	0.08	100.96
T767	101	7813	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.30	0.30	1.35	0.15	31.17	0.26	0.01	12.75	0.03	0.15	0.17	0.21	101.01
T767	102	7813	till	0.25-0.5	black	Mg-Ilmenite	0.10	52.66	0.21	0.51	0.48	35.24	0.37	0.07	11.29	0.02	0.12	0.00	0.11	101.19

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T767	105	7813	till	0.25-0.5	black	Mg-ilmenite	0.12	55.65	0.46	0.78	0.41	28.87	0.33	0.02	14.54	0.08	0.16	0.00	0.19	101.61
T767	106	7813	till	0.25-0.5	black	Mg-ilmenite	0.08	55.05	0.37	0.55	0.34	29.94	0.34	0.05	14.15	0.11	0.08	0.01	0.22	101.31
T767	111	7813	till	0.25-0.5	black	Mg-ilmenite	0.05	54.14	0.31	0.94	0.36	31.47	0.25	0.09	13.20	0.17	0.19	0.04	0.20	101.41
T767	117	7813	till	0.25-0.5	black	Mg-ilmenite	0.08	56.41	0.49	2.10	0.38	27.11	0.28	0.00	14.90	0.02	0.27	0.09	0.18	102.31
T780	92	7813	till	0.25-0.5	black	Mg-ilmenite	0.06	56.42	0.40	0.68	0.62	24.69	0.42	0.14	16.90	0.21	0.06	0.05	0.21	100.86
T788	24	7813	till	0.5-1.0	black	Mg-ilmenite	0.05	55.26	0.29	0.58	0.80	30.18	0.28	0.10	11.68	0.00	0.15	0.03	0.16	99.58
T788	25	7813	till	0.5-1.0	black	Mg-ilmenite	0.01	53.35	0.23	0.62	0.70	32.71	0.32	0.03	11.02	0.00	0.00	0.00	0.29	99.29
T788	26	7813	till	0.5-1.0	black	Mg-ilmenite	0.02	53.03	0.17	0.73	0.82	33.25	0.33	0.09	9.90	0.03	0.08	0.00	0.27	98.71
T788	27	7813	till	0.5-1.0	black	Mg-ilmenite	0.01	52.62	0.19	0.22	0.71	34.47	0.28	0.00	9.61	0.00	0.06	0.11	0.08	98.39
T788	28	7813	till	0.5-1.0	black	Mg-ilmenite	0.07	56.18	0.56	2.44	0.54	25.13	0.21	0.21	14.54	0.03	0.02	0.02	0.07	99.99
T788	29	7813	till	0.5-1.0	black	Mg-ilmenite	0.02	54.31	0.30	0.42	0.84	31.49	0.23	0.02	11.04	0.01	0.05	0.16	0.29	99.17
T756	27	7813	till	0.25-0.5	black	Ilmenite	0.06	52.41	0.15	0.00	0.27	46.17	0.68	0.00	1.85	0.02	0.00	0.06	0.00	101.67
T756	30	7813	till	0.25-0.5	black	Ilmenite	0.01	51.86	0.13	0.00	0.40	45.53	0.56	0.05	1.72	0.00	0.09	0.00	0.00	100.35
T756	37	7813	till	0.25-0.5	black	Ilmenite	0.06	52.76	0.09	0.02	0.25	43.87	0.57	0.00	2.74	0.02	0.01	0.00	0.00	100.39
T756	41	7813	till	0.25-0.5	black	Ilmenite	0.06	50.99	0.07	0.02	0.24	46.21	2.18	0.00	0.06	0.02	0.06	0.09	0.00	99.99
T756	45	7813	till	0.25-0.5	black	Ilmenite	0.11	53.11	0.11	0.11	0.35	45.63	0.61	0.07	1.58	0.05	0.04	0.04	0.00	101.81
T756	73	7813	till	0.25-0.5	black	Ilmenite	0.08	52.50	0.10	0.04	0.49	44.59	0.52	0.00	2.53	0.00	0.12	0.00	0.12	101.10
T756	75	7813	till	0.25-0.5	black	Ilmenite	0.09	51.41	0.07	0.00	0.18	44.79	4.12	0.05	0.03	0.02	0.16	0.00	0.10	101.03
T756	80	7813	till	0.25-0.5	black	Ilmenite	0.12	52.99	0.06	0.05	0.14	43.25	4.02	0.00	0.15	0.03	0.06	0.00	0.13	100.99
T756	92	7813	till	0.25-0.5	black	Ilmenite	0.06	51.32	0.07	0.13	0.29	44.61	3.90	0.06	0.10	0.00	0.05	0.06	0.00	100.65
T756	99	7813	till	0.25-0.5	black	Ilmenite	0.02	54.02	0.12	0.01	0.29	44.94	2.04	0.00	0.20	0.00	0.06	0.15	0.03	101.88
T757	3	7813	till	0.25-0.5	black	Ilmenite	0.26	50.43	0.07	0.02	0.55	46.81	3.11	0.01	0.09	0.05	0.12	0.01	0.03	101.56
T757	5	7813	till	0.25-0.5	black	Ilmenite	0.17	50.36	0.04	0.00	0.40	45.50	3.11	0.00	0.06	0.04	0.02	0.05	0.07	99.83
T757	11	7813	till	0.25-0.5	black	Ilmenite	0.18	50.79	0.08	0.03	0.19	47.89	0.66	0.03	0.09	0.02	0.06	0.13	0.00	100.14
T757	17	7813	till	0.25-0.5	black	Ilmenite	0.32	49.95	0.08	0.02	0.24	47.44	1.97	0.07	0.06	0.00	0.05	0.06	0.00	100.26
T757	19	7813	till	0.25-0.5	black	Ilmenite	0.42	51.69	0.15	0.00	0.23	45.19	0.53	0.01	1.90	0.02	0.05	0.04	0.05	100.28
T757	26	7813	till	0.25-0.5	black	Ilmenite	0.28	49.43	0.00	0.02	0.46	46.12	3.20	0.10	0.04	0.11	0.09	0.03	0.04	99.93
T757	38	7813	till	0.25-0.5	black	Ilmenite	0.15	52.01	0.06	0.00	0.16	46.21	0.70	0.05	0.42	0.00	0.04	0.12	0.00	99.92
T757	43	7813	till	0.25-0.5	black	Ilmenite	0.06	51.22	0.05	0.12	0.25	46.14	1.99	0.00	0.22	0.00	0.10	0.11	0.03	100.27
T757	45	7813	till	0.25-0.5	black	Ilmenite	0.17	52.23	0.06	0.02	0.37	46.19	0.66	0.06	1.27	0.00	0.02	0.02	0.12	101.19
T757	51	7813	till	0.25-0.5	black	Ilmenite	0.40	52.85	0.10	0.03	0.23	43.22	0.45	0.00	2.57	0.02	0.08	0.00	0.00	99.97
T757	56	7813	till	0.25-0.5	black	Ilmenite	0.23	53.00	0.05	0.07	0.29	44.47	0.51	0.00	1.44	0.02	0.10	0.07	0.00	100.26
T757	58	7813	till	0.25-0.5	black	Ilmenite	0.10	52.82	0.08	0.03	0.24	45.57	0.59	0.00	1.40	0.00	0.06	0.10	0.00	100.99
T757	62	7813	till	0.25-0.5	black	Ilmenite	0.15	52.28	0.10	0.09	0.26	45.36	0.64	0.07	1.64	0.03	0.00	0.00	0.00	100.61
T757	71	7813	till	0.25-0.5	black	Ilmenite	0.25	52.88	0.05	0.03	0.36	44.83	0.73	0.07	1.71	0.00	0.06	0.10	0.12	101.19
T757	81	7813	till	0.25-0.5	black	Ilmenite	0.17	52.03	0.00	0.07	0.20	43.97	3.61	0.02	0.17	0.00	0.00	0.14	0.00	100.37
T757	84	7813	till	0.25-0.5	black	Ilmenite	0.24	51.39	0.07	0.06	0.25	44.62	4.34	0.03	0.08	0.07	0.09	0.00	0.20	101.44
T757	91	7813	till	0.25-0.5	black	Ilmenite	0.12	50.54	0.05	0.00	0.20	44.73	3.77	0.00	0.03	0.00	0.09	0.07	0.00	99.61
T757	92	7813	till	0.25-0.5	black	Ilmenite (alt.)	0.22	48.82	0.08	0.07	0.31	48.30	1.98	0.02	0.02	0.01	0.14	0.05	0.00	100.01
T757	93	7813	till	0.25-0.5	black	Ilmenite	1.85	50.70	0.03	0.13	0.55	43.94	1.41	0.00	0.12	0.04	0.11	0.02	0.11	99.01
T757	99	7813	till	0.25-0.5	black	Ilmenite	0.29	51.43	0.01	0.00	0.31	47.08	1.40	0.00	0.10	0.03	0.04	0.11	0.04	100.83
T757	100	7813	till	0.25-0.5	black	Ilmenite	0.34	52.03	0.03	0.00	0.00	47.29	0.77	0.11	0.51	0.00	0.00	0.09	0.19	101.34
T757	107	7813	till	0.25-0.5	black	Ilmenite	0.13	53.81	0.15	0.00	0.32	44.48	0.61	0.06	2.01	0.00	0.01	0.00	0.09	101.67
T757	110	7813	till	0.25-0.5	black	Ilmenite (alt.)	0.18	45.18	0.05	0.06	0.60	52.68	0.71	0.01	0.10	0.02	0.03	0.02	0.00	99.65
T757	112	7813	till	0.25-0.5	black	Ilmenite (alt.)	0.23	43.25	0.06	0.12	0.27	51.43	2.65	0.00	0.10	0.00	0.01	0.03	0.19	98.34
T757	113	7813	till	0.25-0.5	black	Ilmenite	0.27	53.20	0.11	0.12	0.24	45.43	1.00	0.00	0.82	0.04	0.11	0.03	0.09	101.45

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T757	114	7813	till	0.25-0.5	black	Ilmenite	0.33	50.47	0.00	0.03	0.22	45.80	3.35	0.00	0.10	0.02	0.03	0.02	0.12	100.48
T757	115	7813	till	0.25-0.5	black	Ilmenite (alt.)	0.85	48.53	0.17	0.00	0.49	48.21	2.19	0.07	0.32	0.03	0.04	0.00	0.20	101.11
T757	118	7813	till	0.25-0.5	black	Ilmenite	0.18	51.03	0.07	0.02	0.26	47.66	1.70	0.01	0.07	0.01	0.08	0.07	0.04	101.20
T757	119	7813	till	0.25-0.5	black	Ilmenite	0.23	49.41	0.05	0.08	0.20	46.33	2.50	0.04	0.02	0.05	0.08	0.17	0.23	99.39
T757	122	7813	till	0.25-0.5	black	Ilmenite	0.18	49.55	0.01	0.01	0.50	48.47	1.36	0.07	0.08	0.01	0.03	0.01	0.09	100.35
T757	128	7813	till	0.25-0.5	black	Ilmenite	0.23	51.82	0.06	0.00	0.20	46.30	1.69	0.01	0.12	0.03	0.11	0.14	0.00	100.71
T757	129	7813	till	0.25-0.5	black	Ilmenite	0.17	52.55	0.03	0.00	0.23	46.19	0.81	0.00	0.33	0.02	0.08	0.12	0.21	100.74
T758	4	7813	till	0.25-0.5	black	Ilmenite	0.06	50.19	0.00	0.04	0.50	48.07	2.05	0.06	0.06	0.02	0.14	0.00	0.12	101.31
T758	6	7813	till	0.25-0.5	black	Ilmenite	0.14	49.97	0.04	0.01	0.34	48.58	1.61	0.06	0.00	0.00	0.03	0.00	0.23	101.02
T758	9	7813	till	0.25-0.5	black	Ilmenite	0.27	53.24	0.06	0.00	0.20	43.13	3.15	0.03	0.00	0.72	0.10	0.00	0.12	101.02
T767	103	7813	till	0.25-0.5	black	Ilmenite	0.12	52.90	0.09	0.11	0.17	45.17	0.91	0.03	1.17	0.17	0.01	0.13	0.01	0.05
T767	104	7813	till	0.25-0.5	black	Ilmenite	0.09	53.44	0.10	0.05	0.20	45.08	0.71	0.00	1.85	0.02	0.00	0.00	0.00	0.00
T767	107	7813	till	0.25-0.5	black	Ilmenite	0.04	52.42	0.09	0.03	0.25	45.63	0.75	0.04	0.92	0.29	0.00	0.00	0.00	0.14
T767	108	7813	till	0.25-0.5	black	Ilmenite	0.05	52.71	0.08	0.00	0.21	47.73	0.69	0.06	0.56	0.03	0.03	0.00	0.01	0.00
T767	112	7813	till	0.25-0.5	black	Ilmenite	0.10	52.90	0.10	0.11	0.56	44.80	0.68	0.00	1.94	0.02	0.06	0.03	0.02	0.09
T767	113	7813	till	0.25-0.5	black	Ilmenite	0.02	53.16	0.09	0.03	0.36	46.22	0.88	0.02	0.57	0.25	0.04	0.05	0.00	0.00
T767	115	7813	till	0.25-0.5	black	Ilmenite	0.10	53.64	0.09	0.00	0.27	44.39	0.63	0.01	1.05	0.24	0.00	0.03	0.00	0.00
T767	124	7813	till	0.25-0.5	black	Ilmenite	0.12	52.13	0.03	0.10	0.24	47.12	0.90	0.00	0.42	0.00	0.00	0.02	0.07	0.00
T767	124	7813	till	0.25-0.5	black	Ilmenite	0.05	52.41	0.02	0.09	0.20	46.96	0.90	0.00	0.36	0.03	0.00	0.07	0.07	0.01
T767	124	7813	till	0.25-0.5	black	Ilmenite	0.00	52.83	0.03	0.10	0.37	46.73	0.95	0.03	0.41	0.03	0.05	0.01	0.01	0.02
T771	11	7813	till	0.20-0.50	black	Ilmenite	0.05	50.65	0.04	0.02	0.26	47.05	2.54	0.06	0.05	0.02	0.01	0.01	0.00	0.07
T768	38	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	55.50	0.37	0.55	0.39	29.15	0.33	0.00	14.20	0.04	0.06	0.07	0.18	100.93
T768	39	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	59.15	0.11	2.52	0.32	20.31	0.32	0.02	16.94	0.05	0.20	0.01	0.21	100.26
T768	40	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	54.39	0.30	0.39	0.45	32.46	0.27	0.14	11.83	0.03	0.03	0.11	0.19	100.68
T768	41	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.17	54.32	0.36	0.32	0.19	32.74	0.31	0.12	11.86	0.11	0.10	0.00	0.20	100.81
T768	43	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	54.05	0.29	0.66	0.41	32.09	0.22	0.00	12.31	0.03	0.09	0.00	0.21	100.42
T768	46	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	54.49	0.38	0.61	0.40	30.75	0.28	0.05	13.14	0.04	0.09	0.00	0.19	100.49
T768	47	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	54.55	0.37	0.44	0.40	31.86	0.23	0.00	12.62	0.00	0.05	0.00	0.06	100.64
T768	48	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.14	54.86	0.48	0.34	0.54	29.63	0.24	0.07	13.67	0.01	0.09	0.00	0.14	100.20
T768	52	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	53.80	0.35	0.36	0.38	32.15	0.20	0.11	11.84	0.00	0.05	0.00	0.02	99.34
T768	54	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	55.27	0.32	0.30	0.41	30.31	0.39	0.02	13.64	0.02	0.03	0.02	0.11	100.88
T768	57	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	54.35	0.52	0.00	0.36	32.42	0.35	0.08	11.71	0.04	0.15	0.01	0.12	100.18
T768	58	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	54.77	0.33	0.52	0.47	30.34	0.32	0.11	13.46	0.02	0.03	0.03	0.18	100.63
T768	59	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	52.84	0.23	0.28	0.41	35.09	0.35	0.05	10.49	0.02	0.00	0.09	0.19	100.08
T768	61	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	52.51	0.24	0.39	0.58	35.14	0.42	0.07	10.46	0.02	0.02	0.00	0.10	100.05
T768	62	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.17	55.57	0.67	1.23	0.52	27.82	0.31	0.00	14.73	0.00	0.13	0.00	0.13	101.29
T768	64	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	54.56	0.29	0.56	0.45	29.42	0.41	0.14	14.09	0.07	0.00	0.03	0.07	100.12
T768	65	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	54.37	0.46	0.85	0.45	30.59	0.25	0.01	12.54	0.06	0.15	0.00	0.19	100.02
T768	66	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	54.42	0.32	0.49	0.40	31.31	0.21	0.03	12.76	0.03	0.09	0.04	0.16	100.30
T768	69	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.15	56.27	0.49	0.85	0.43	26.87	0.33	0.00	15.15	0.04	0.03	0.00	0.19	100.81
T768	72	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.18	53.17	0.39	0.32	0.53	33.60	0.42	0.04	11.34	0.04	0.02	0.00	0.08	100.13
T768	76	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	55.13	0.38	0.48	0.48	30.67	0.35	0.06	12.87	0.00	0.00	0.06	0.15	100.69
T768	77	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	53.44	0.52	2.62	0.51	30.31	0.33	0.05	12.57	0.02	0.19	0.00	0.06	100.69
T768	81	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	55.08	0.38	0.47	0.62	30.01	0.38	0.08	13.44	0.01	0.06	0.06	0.29	100.96
T768	82	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.15	55.18	0.60	0.72	0.39	30.33	0.24	0.00	13.28	0.05	0.16	0.12	0.22	101.44
T768	83	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	55.33	0.34	0.81	0.38	28.25	0.27	0.08	14.69	0.00	0.01	0.11	0.29	100.66

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T768	84	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	55.77	0.39	0.49	0.54	28.41	0.33	0.06	14.58	0.04	0.15	0.09	0.18	101.11
T768	86	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	54.63	0.68	1.07	0.56	28.10	0.31	0.05	14.30	0.00	0.21	0.10	0.21	100.33
T768	87	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	53.36	0.34	0.61	0.56	33.71	0.25	0.07	11.33	0.03	0.07	0.00	0.19	100.58
T768	88	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	53.00	0.25	0.40	0.46	34.30	0.29	0.13	11.36	0.00	0.00	0.00	0.18	100.45
T768	89	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	55.23	0.44	0.66	0.30	27.55	0.42	0.00	14.89	0.05	0.05	0.04	0.18	99.94
T768	91	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	52.67	0.24	0.44	0.48	34.81	0.34	0.05	10.97	0.01	0.07	0.06	0.03	100.27
T768	100	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	53.82	0.34	0.40	0.50	32.54	0.36	0.07	12.25	0.00	0.04	0.08	0.18	100.66
T768	101	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	54.27	0.27	0.45	0.54	32.34	0.33	0.05	12.22	0.02	0.05	0.07	0.13	100.82
T768	102	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.13	53.70	0.59	0.20	0.42	31.55	0.35	0.02	12.51	0.02	0.11	0.00	0.25	99.84
T768	103	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	54.93	0.48	0.71	0.19	31.32	0.20	0.00	12.56	0.04	0.11	0.05	0.08	100.79
T789	59	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	56.21	0.39	1.42	0.47	28.33	0.27	0.17	14.52	0.03	0.09	0.00	0.30	102.20
T789	61	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.01	54.66	0.35	0.52	0.67	31.60	0.28	0.00	12.68	0.03	0.12	0.00	0.29	101.20
T789	64	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.00	54.39	0.33	0.46	0.61	31.49	0.33	0.01	12.64	0.04	0.07	0.04	0.22	100.62
T789	65	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.02	54.94	0.23	0.42	0.64	32.01	0.35	0.06	12.53	0.07	0.13	0.00	0.20	101.58
T789	66	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	54.31	0.46	0.33	0.48	32.29	0.39	0.03	12.31	0.04	0.08	0.00	0.35	101.07
T789	67	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.02	53.54	0.25	0.34	0.48	35.15	0.29	0.06	10.84	0.04	0.01	0.00	0.21	101.22
T789	68	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	54.79	0.57	1.55	0.59	28.81	0.30	0.09	13.81	0.05	0.13	0.09	0.06	100.83
T789	69	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.01	52.75	0.22	0.59	0.59	35.66	0.36	0.10	10.61	0.00	0.04	0.00	0.26	101.19
T789	71	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.02	55.42	0.43	0.72	0.62	29.90	0.35	0.14	13.73	0.03	0.06	0.00	0.30	101.71
T789	73	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	55.98	0.56	2.11	0.48	24.44	0.33	0.16	16.87	0.08	0.07	0.08	0.35	101.52
T789	75	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	54.82	0.52	1.71	0.74	30.57	0.27	0.16	12.97	0.07	0.09	0.04	0.24	102.19
T789	76	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	55.69	0.61	1.47	0.50	26.95	0.28	0.15	15.08	0.05	0.07	0.00	0.31	101.15
T789	77	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	54.17	0.36	0.39	0.59	32.28	0.32	0.05	12.24	0.03	0.06	0.08	0.25	100.81
T789	78	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	53.51	0.30	0.47	0.66	33.02	0.29	0.12	11.92	0.07	0.07	0.00	0.33	100.74
T789	81	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	54.53	0.32	0.53	0.71	29.22	0.37	0.14	14.21	0.24	0.03	0.00	0.15	100.44
T789	83	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	54.75	0.54	0.54	0.41	30.63	0.21	0.00	13.41	0.21	0.01	0.00	0.20	100.90
T793	6	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.00	54.49	0.28	0.54	0.53	30.01	0.35	0.14	14.51	0.00	0.06	0.14	0.14	101.20
T793	20	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	53.27	0.28	0.25	0.61	33.98	0.35	0.03	11.38	0.00	0.09	0.00	0.21	100.46
T793	22	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.01	53.71	0.25	0.35	0.69	33.83	0.28	0.00	12.16	0.01	0.00	0.00	0.29	101.58
T793	23	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.02	54.69	0.38	0.53	0.54	32.65	0.25	0.13	12.29	0.02	0.01	0.00	0.26	101.74
T793	38	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	54.36	0.37	0.88	0.61	31.27	0.23	0.04	12.94	0.00	0.07	0.00	0.24	101.02
T793	47	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	54.97	0.43	1.36	0.36	29.71	0.30	0.14	13.77	0.04	0.00	0.10	0.14	101.32
T793	49	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.05	53.70	0.12	0.27	0.72	35.11	0.31	0.06	10.99	0.03	0.05	0.00	0.25	101.61
T793	50	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	54.43	0.53	1.10	0.58	30.73	0.20	0.05	13.00	0.05	0.12	0.00	0.17	100.95
T793	52	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	53.70	0.44	0.16	0.47	33.92	0.36	0.01	11.12	0.04	0.00	0.03	0.28	100.52
T793	54	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.03	55.80	0.54	0.60	0.69	29.12	0.24	0.05	14.27	0.03	0.12	0.00	0.24	101.70
T793	55	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.07	54.39	0.47	0.50	0.47	30.09	0.24	0.15	13.97	0.03	0.00	0.00	0.22	100.53
T769	2	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	53.85	0.24	0.34	0.56	33.46	0.35	0.07	11.79	0.05	0.02	0.10	0.00	100.90
T769	3	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.13	54.18	0.43	0.31	0.49	32.67	0.28	0.11	12.17	0.02	0.09	0.04	0.01	100.95
T769	4	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	56.67	0.65	1.00	0.32	27.10	0.25	0.12	14.84	0.03	0.05	0.00	0.01	101.15
T769	6	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	53.37	0.28	0.47	0.46	34.47	0.39	0.05	10.81	0.04	0.01	0.07	0.11	100.63
T769	7	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.06	56.13	0.17	3.82	0.18	23.14	0.54	0.13	16.46	0.29	0.06	0.12	0.11	101.20
T769	8	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	55.12	0.38	0.49	0.24	30.44	0.21	0.11	13.64	0.01	0.00	0.10	0.00	100.83
T769	9	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	54.90	0.25	0.47	0.30	32.29	0.25	0.15	12.21	0.05	0.09	0.00	0.14	101.19
T769	11	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.01	54.24	0.24	0.70	0.41	33.06	0.27	0.06	11.78	0.04	0.11	0.00	0.12	101.03
T769	13	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.20	54.89	0.32	0.57	0.38	31.53	0.37	0.08	12.58	0.07	0.01	0.00	0.17	101.17

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T769	14	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	55.45	0.45	1.47	0.42	28.40	0.25	0.15	14.04	0.04	0.04	0.07	0.20	101.08
T769	15	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	54.31	0.74	3.47	0.39	27.39	0.21	0.17	13.75	0.03	0.03	0.02	0.00	100.57
T769	20	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	56.62	0.28	1.68	0.34	26.74	0.33	0.11	15.16	0.00	0.07	0.00	0.00	101.38
T769	23	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	55.51	0.44	0.83	0.43	29.03	0.46	0.12	14.12	0.01	0.02	0.07	0.17	101.29
T769	27	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	50.92	0.26	0.67	0.49	37.53	0.38	0.08	9.45	0.02	0.08	0.00	0.34	100.33
T769	30	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	55.85	0.33	0.50	0.56	30.34	0.35	0.12	13.33	0.00	0.07	0.01	0.00	101.53
T769	31	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.11	56.62	0.52	1.12	0.44	27.46	0.25	0.18	15.07	0.05	0.07	0.00	0.08	101.99
T769	33	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.04	56.17	0.35	1.01	0.31	28.77	0.30	0.13	13.74	0.06	0.06	0.09	0.07	101.10
T769	48	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.08	56.56	0.49	0.43	0.37	27.60	0.43	0.24	15.24	0.05	0.02	0.00	0.11	101.62
T769	75	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.10	55.06	0.48	1.46	0.43	31.08	0.35	0.10	13.12	0.01	0.05	0.04	0.38	102.66
T769	89	7814	kimb	0.25-0.5	black	Mg-Ilmenite	0.09	56.49	0.38	0.38	0.51	29.05	0.38	0.05	14.40	0.00	0.03	0.09	0.15	102.00
T790	1	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	53.47	0.26	0.37	0.57	34.83	0.23	0.08	10.53	0.07	0.00	0.00	0.34	100.79
T790	2	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	56.36	0.52	0.69	0.37	30.10	0.32	0.18	13.70	0.04	0.04	0.00	0.21	102.55
T790	6	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	54.87	0.44	0.84	0.49	32.14	0.25	0.03	12.06	0.03	0.06	0.09	0.01	101.37
T790	8	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	56.96	0.46	0.64	0.51	28.88	0.30	0.07	14.58	0.03	0.12	0.01	0.25	102.81
T790	9	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	53.86	0.26	0.36	0.49	34.67	0.29	0.03	11.07	0.00	0.01	0.01	0.12	101.16
T790	11	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	55.94	0.37	0.47	0.36	29.82	0.29	0.08	14.12	0.05	0.06	0.10	0.28	101.99
T790	12	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	56.79	0.35	0.51	0.35	28.60	0.34	0.03	14.64	0.05	0.03	0.10	0.00	101.82
T790	14	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	54.39	0.29	0.52	0.45	33.74	0.25	0.05	11.86	0.02	0.04	0.02	0.20	101.86
T790	15	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	56.10	0.51	0.57	0.51	30.19	0.30	0.02	13.28	0.05	0.11	0.00	0.00	101.67
T790	16	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	52.90	0.23	0.32	0.42	36.71	0.40	0.06	10.13	0.01	0.08	0.12	0.34	101.76
T790	19	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.10	55.90	0.39	0.52	0.58	31.55	0.28	0.07	12.60	0.05	0.05	0.10	0.16	102.33
T790	20	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	56.27	0.49	0.44	0.32	30.00	0.27	0.12	13.67	0.04	0.04	0.11	0.45	102.27
T790	21	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	56.07	0.47	1.39	0.48	28.49	0.28	0.17	14.22	0.04	0.09	0.00	0.08	101.79
T790	23	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	54.48	0.27	0.47	0.39	33.20	0.30	0.11	11.59	0.04	0.06	0.00	0.18	101.11
T790	25	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	53.57	0.19	0.40	0.44	34.96	0.34	0.01	10.96	0.05	0.06	0.00	0.04	101.04
T790	26	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.10	53.82	0.22	0.77	0.48	34.62	0.45	0.06	11.15	0.04	0.10	0.01	0.24	102.06
T790	27	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.08	56.77	0.60	1.93	0.52	27.71	0.31	0.17	14.88	0.04	0.04	0.00	0.04	103.10
T790	30	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	55.40	0.58	1.19	0.49	29.20	0.31	0.04	13.96	0.02	0.05	0.13	0.34	101.78
T790	32	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.08	54.84	0.32	0.76	0.43	33.15	0.25	0.00	12.19	0.05	0.07	0.07	0.22	102.44
T790	37	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	56.34	0.46	0.92	0.37	28.41	0.29	0.19	14.31	0.01	0.09	0.09	0.28	101.74
T790	39	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	56.49	0.38	0.42	0.54	29.45	0.30	0.05	13.76	0.05	0.00	0.07	0.11	101.63
T790	40	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	53.66	0.18	0.33	0.44	35.96	0.33	0.06	10.67	0.05	0.11	0.05	0.38	102.25
T790	41	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	56.31	0.40	0.68	0.46	29.35	0.22	0.09	13.86	0.01	0.06	0.17	0.20	101.88
T790	43	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.10	54.91	0.37	0.33	0.44	32.43	0.24	0.11	11.95	0.03	0.08	0.02	0.04	101.04
T790	45	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	54.78	0.27	0.37	0.46	31.80	0.35	0.08	13.86	0.00	0.00	0.03	0.28	102.32
T790	46	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	56.27	0.38	0.93	0.52	28.47	0.32	0.10	14.03	0.02	0.00	0.00	0.04	101.12
T790	47	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	56.28	0.46	1.41	0.43	27.70	0.32	0.07	14.29	0.07	0.12	0.06	0.12	101.35
T790	48	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	52.25	0.13	0.71	0.62	36.34	0.30	0.17	10.16	0.06	0.10	0.00	0.26	101.16
T790	49	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.08	56.02	0.55	0.72	0.47	30.91	0.25	0.11	12.76	0.03	0.07	0.05	0.17	102.20
T790	51	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	56.38	0.46	1.21	0.59	28.53	0.25	0.10	14.08	0.06	0.07	0.03	0.26	102.06
T790	53	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.01	56.17	0.43	0.60	0.37	29.25	0.34	0.15	14.29	0.00	0.00	0.06	0.42	102.11
T790	54	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.11	54.07	0.21	0.31	0.51	35.29	0.31	0.08	10.92	0.00	0.05	0.04	0.37	102.27
T790	58	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	57.12	0.34	0.77	0.42	29.06	0.18	0.09	13.81	0.04	0.03	0.00	0.12	102.04
T790	59	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	55.69	0.36	0.53	0.45	29.90	0.34	0.12	13.86	0.03	0.07	0.04	0.36	101.81
T790	61	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	55.49	0.27	0.37	0.64	31.11	0.30	0.09	13.02	0.04	0.00	0.00	0.16	101.49



Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T790	64	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	55.41	0.32	0.69	0.44	30.57	0.21	0.02	13.21	0.04	0.04	0.05	0.20	101.21
T790	65	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	52.22	0.22	0.60	0.42	36.52	0.36	0.09	10.54	0.04	0.08	0.00	0.33	101.48
T790	67	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	56.31	0.66	0.73	0.46	28.41	0.27	0.02	14.24	0.02	0.06	0.03	0.13	101.36
T791	4	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	55.34	0.46	0.62	0.44	30.70	0.32	0.08	12.49	0.03	0.05	0.02	0.03	100.63
T791	5	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	56.77	0.48	0.92	0.42	28.46	0.26	0.11	14.27	0.03	0.02	0.05	0.18	101.96
T791	6	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	54.69	0.41	0.11	0.56	32.88	0.21	0.00	11.87	0.05	0.09	0.00	0.09	101.01
T791	8	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	54.30	0.32	0.31	0.49	33.81	0.37	0.00	11.55	0.05	0.06	0.16	0.33	101.77
T791	9	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.10	55.33	0.35	0.48	0.45	30.04	0.31	0.14	13.59	0.04	0.00	0.00	0.00	100.83
T791	13	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	53.35	0.25	0.38	0.44	34.80	0.35	0.00	10.88	0.07	0.00	0.08	0.29	100.89
T791	14	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	54.00	0.27	0.44	0.52	35.48	0.26	0.01	10.95	0.04	0.09	0.03	0.42	102.50
T791	15	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	54.86	0.38	0.48	0.62	33.01	0.34	0.02	12.04	0.05	0.05	0.00	0.14	102.05
T791	16	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	57.78	0.42	1.07	0.45	26.32	0.31	0.16	15.49	0.00	0.01	0.01	0.11	102.17
T791	17	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	53.03	0.18	0.34	0.42	35.52	0.37	0.04	10.67	0.02	0.12	0.06	0.09	100.87
T791	18	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	55.55	0.32	0.48	0.35	30.21	0.24	0.07	13.08	0.05	0.13	0.00	0.01	100.54
T791	19	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	55.41	0.63	2.85	0.53	26.62	0.13	0.29	14.15	0.03	0.10	0.00	0.17	100.96
T791	20	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	56.77	0.53	1.25	0.34	25.88	0.35	0.07	16.03	0.02	0.03	0.01	0.21	101.54
T791	21	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	52.04	0.21	0.40	0.45	36.29	0.35	0.05	9.89	0.01	0.00	0.07	0.60	100.40
T791	22	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	53.27	0.27	0.67	0.44	33.73	0.27	0.00	10.76	0.00	0.04	0.00	0.32	99.76
T791	23	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	53.92	0.27	0.39	0.23	33.14	0.32	0.02	11.60	0.05	0.06	0.08	0.00	100.08
T791	25	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	55.94	0.48	0.59	0.35	28.78	0.31	0.10	14.95	0.05	0.00	0.03	0.12	101.76
T791	26	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	55.80	0.56	0.57	0.38	28.98	0.36	0.20	15.15	0.04	0.12	0.01	0.00	102.17
T791	27	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	57.95	0.55	0.96	0.47	25.56	0.24	0.14	16.18	0.03	0.05	0.09	0.00	102.29
T791	28	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	57.12	0.47	0.72	0.40	28.45	0.27	0.14	14.58	0.03	0.00	0.10	0.00	102.32
T791	33	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	55.77	0.40	0.81	0.31	29.24	0.32	0.06	13.69	0.02	0.06	0.00	0.09	100.80
T791	36	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	55.01	0.28	0.30	0.35	32.15	0.38	0.08	12.63	0.02	0.07	0.00	0.11	101.39
T791	38	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	55.80	0.35	0.33	0.31	31.05	0.28	0.02	12.72	0.04	0.06	0.14	0.07	101.19
T791	41	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	54.65	0.33	0.85	0.57	32.09	0.29	0.11	12.61	0.03	0.08	0.00	0.38	101.98
T791	42	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	54.69	0.32	0.35	0.42	32.37	0.32	0.08	12.17	0.04	0.04	0.16	0.46	101.41
T791	44	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.05	56.72	0.58	0.68	0.38	29.16	0.23	0.01	14.20	0.06	0.00	0.03	0.11	102.20
T791	57	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.02	55.09	0.29	0.49	0.48	31.20	0.25	0.14	13.72	0.05	0.03	0.00	0.08	101.85
T791	64	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.07	53.58	0.33	0.36	0.68	33.13	0.39	0.10	11.34	0.00	0.04	0.00	0.00	100.02
T792	2	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.04	55.89	0.39	0.59	0.57	29.94	0.29	0.09	13.40	0.04	0.03	0.00	0.25	101.52
T792	10	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	56.78	0.50	0.84	0.28	28.01	0.34	0.11	15.00	0.07	0.02	0.03	0.12	102.16
T792	11	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.08	57.18	0.32	0.64	0.56	26.83	0.38	0.11	15.36	0.04	0.05	0.00	0.46	102.00
T792	17	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	55.66	0.28	0.31	0.46	29.34	0.31	0.07	14.53	0.11	0.02	0.00	0.00	101.09
T792	19	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.03	56.29	0.32	0.53	0.61	29.78	0.32	0.10	13.42	0.04	0.00	0.00	0.00	101.44
T792	32	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.06	54.93	0.65	2.61	0.24	29.62	0.31	0.12	13.37	0.05	0.02	0.00	0.00	101.98
T792	34	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.11	56.03	0.29	0.36	0.35	30.81	0.29	0.06	13.39	0.04	0.05	0.15	0.26	102.18
T792	36	7814	kimb	0.5-1.0	black	Mg-Ilmenite	0.00	55.39	0.47	1.15	0.38	30.55	0.26	0.18	12.53	0.00	0.04	0.17	0.17	101.29
T810	10	7814	kimb	1.0-2.0	black	Mg-Ilmenite	0.00	55.26	0.43	0.59	0.59	30.86	0.37	0.13	13.43	0.03	0.04	0.00	0.27	101.72
T810	11	7814	kimb	1.0-2.0	black	Mg-Ilmenite	0.05	54.27	0.32	1.59	0.58	31.62	0.37	0.11	12.31	0.01	0.00	0.01	0.07	101.25
T810	12	7814	kimb	1.0-2.0	black	Mg-Ilmenite	0.06	56.79	0.43	0.54	0.64	27.77	0.29	0.11	15.14	0.06	0.04	0.00	0.23	101.87
T810	14	7814	kimb	1.0-2.0	black	Mg-Ilmenite	0.03	54.33	0.28	0.74	0.63	31.03	0.41	0.05	12.71	0.00	0.05	0.10	0.24	100.36
T810	15	7814	kimb	1.0-2.0	black	Mg-Ilmenite	0.04	55.66	0.26	0.74	0.59	31.42	0.28	0.03	12.84	0.01	0.04	0.00	0.24	101.91
T808	20	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.04	57.25	0.48	0.58	0.54	27.93	0.40	0.09	15.63	0.01	0.03	0.03	0.20	103.20
T808	21	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.09	56.21	0.48	0.72	0.48	29.56	0.30	0.20	14.49	0.05	0.15	0.12	0.04	102.88

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T808	24	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.08	56.94	0.49	0.71	0.68	28.58	0.27	0.09	14.91	0.08	0.05	0.02	0.21	103.13
T808	26	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.08	55.22	0.59	3.67	0.75	27.70	0.28	0.18	14.08	0.01	0.12	0.06	0.00	102.73
T808	29	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.00	56.27	0.46	0.44	0.64	29.92	0.25	0.09	14.01	0.05	0.00	0.07	0.00	102.20
T808	31	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.06	55.35	0.39	0.90	0.66	31.43	0.23	0.05	12.66	0.04	0.00	0.07	0.08	101.92
T808	35	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.04	54.08	0.21	0.51	0.66	35.21	0.42	0.01	11.07	0.07	0.05	0.02	0.09	102.44
T808	39	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.02	55.89	0.37	0.86	0.71	30.66	0.29	0.08	14.02	0.08	0.00	0.12	0.31	103.42
T808	40	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.01	56.47	0.31	0.49	0.68	31.09	0.28	0.02	13.60	0.04	0.00	0.07	0.09	103.16
T808	41	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.05	56.36	0.36	0.53	0.52	30.67	0.34	0.09	13.16	0.03	0.00	0.02	0.08	102.20
T808	45	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.05	55.08	0.36	0.83	0.68	32.45	0.26	0.03	12.70	0.03	0.00	0.04	0.13	102.65
T808	46	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.08	56.84	0.53	1.36	0.57	27.63	0.29	0.10	15.21	0.00	0.06	0.03	0.12	102.82
T808	50	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.05	56.74	0.40	0.55	0.56	29.63	0.27	0.09	14.30	0.08	0.03	0.02	0.09	102.81
T808	51	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.07	55.51	0.44	0.48	0.65	31.74	0.26	0.14	12.61	0.03	0.15	0.10	0.27	102.45
T808	52	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.07	55.40	0.53	0.46	0.57	32.66	0.34	0.12	12.03	0.07	0.03	0.04	0.13	102.44
T808	58	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.01	56.35	0.66	0.99	0.68	29.23	0.19	0.14	14.27	0.06	0.00	0.06	0.00	102.63
T809	22	7814	kimb	0.25-0.5	black	Mg-ilmenite	0.10	56.88	0.61	0.72	0.56	27.55	0.29	0.14	14.73	0.01	0.04	0.04	0.17	101.85
T758	25	7815	till	0.25-0.5	black	Mg-Ilmenite	0.00	51.95	0.18	0.31	0.57	36.54	0.33	0.04	10.03	0.00	0.06	0.00	0.25	100.26
T758	26	7815	till	0.25-0.5	black	Mg-Ilmenite	0.03	56.84	0.47	0.45	0.45	26.89	0.28	0.09	15.59	0.04	0.00	0.05	0.13	101.31
T758	27	7815	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.33	0.52	1.08	0.50	28.68	0.26	0.04	14.11	0.02	0.13	0.10	0.28	101.17
T758	28	7815	till	0.25-0.5	black	Mg-Ilmenite	0.06	57.03	0.49	0.90	0.42	27.53	0.33	0.08	14.77	0.00	0.08	0.03	0.00	101.73
T758	29	7815	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.20	0.37	0.44	0.54	29.20	0.23	0.17	14.09	0.04	0.10	0.00	0.12	101.57
T758	30	7815	till	0.25-0.5	black	Mg-Ilmenite	0.03	54.86	0.39	0.63	0.46	29.87	0.28	0.09	12.98	0.02	0.05	0.13	0.16	99.95
T758	31	7815	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.41	0.54	1.14	0.44	26.98	0.25	0.10	14.92	0.01	0.04	0.06	0.11	101.10
T758	32	7815	till	0.25-0.5	black	Mg-Ilmenite	0.05	52.75	0.17	0.39	0.44	34.29	0.43	0.10	11.95	0.04	0.00	0.04	0.29	100.94
T758	34	7815	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.63	0.58	0.48	0.59	26.93	0.33	0.17	15.77	0.04	0.00	0.04	0.07	100.68
T758	39	7815	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.98	0.42	0.42	0.52	30.27	0.16	0.06	13.79	0.00	0.07	0.12	0.45	101.37
T758	42	7815	till	0.25-0.5	black	Ilmenite	0.07	53.69	0.11	0.00	0.44	43.35	0.45	0.03	2.83	0.00	0.06	0.04	0.00	101.07
T758	43	7815	till	0.25-0.5	black	Ilmenite	0.11	52.67	0.09	0.02	0.33	45.44	0.61	0.08	1.15	0.00	0.00	0.08	0.00	100.58
T771	27	7815	till	0.20-0.50	black	Ilmenite	0.09	52.98	0.03	0.00	0.14	45.67	0.65	0.11	0.90	0.02	0.11	0.04	0.00	0.00
T771	30	7815	till	0.20-0.50	black	Ilmenite	0.04	52.78	0.03	0.00	0.20	45.09	0.66	0.03	1.43	0.01	0.07	0.04	0.03	0.00
T758	51	7816	till	0.25-0.5	black	Mg-Ilmenite	0.04	53.16	0.24	0.24	0.50	34.97	0.33	0.07	11.23	0.02	0.09	0.00	0.28	101.18
T758	52	7816	till	0.25-0.5	black	Mg-Ilmenite	0.03	54.56	0.29	0.37	0.46	30.82	0.26	0.08	13.59	0.01	0.06	0.01	0.25	100.78
T758	53	7816	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.37	0.24	0.39	0.47	29.45	0.36	0.11	13.98	0.24	0.05	0.04	0.30	102.08
T758	57	7816	till	0.25-0.5	black	Mg-Ilmenite	0.02	50.63	0.14	1.02	0.46	37.28	0.26	0.07	9.66	0.04	0.08	0.00	0.33	99.97
T758	62	7816	till	0.25-0.5	black	Mg-Ilmenite	0.03	54.17	0.26	0.63	0.48	32.67	0.28	0.04	11.83	0.04	0.05	0.00	0.08	100.56
T758	64	7816	till	0.25-0.5	black	Mg-Ilmenite	0.06	51.82	0.77	0.61	0.53	35.32	0.30	0.07	10.84	0.07	0.11	0.03	0.00	100.53
T758	66	7816	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.53	0.39	0.42	0.39	29.41	0.34	0.07	14.58	0.03	0.04	0.00	0.13	101.38
T758	72	7816	till	0.25-0.5	black	Mg-Ilmenite	0.00	50.70	0.28	0.62	0.72	38.02	0.32	0.00	9.55	0.02	0.01	0.09	0.34	100.67
T758	49	7816	till	0.25-0.5	black	Ilmenite	0.05	50.15	0.05	0.00	0.16	46.29	3.33	0.05	0.01	0.01	0.01	0.02	0.05	100.16
T758	50	7816	till	0.25-0.5	black	Ilmenite (alt.)	0.04	48.36	0.34	0.05	0.40	48.70	2.13	0.02	0.07	0.02	0.07	0.06	0.07	100.32
T758	54	7816	till	0.25-0.5	black	Ilmenite	0.14	53.33	0.04	0.04	0.22	44.26	3.20	0.11	0.13	0.08	0.07	0.03	0.00	101.65
T758	55	7816	till	0.25-0.5	black	Ilmenite	0.07	50.05	0.08	0.00	0.28	46.23	2.62	0.05	0.02	0.01	0.04	0.11	0.12	99.68
T758	56	7816	till	0.25-0.5	black	Ilmenite (alt.)	0.04	48.43	0.03	0.06	0.38	48.47	2.77	0.00	0.02	0.01	0.12	0.18	0.00	100.51
T758	58	7816	till	0.25-0.5	black	Ilmenite	0.45	50.38	0.10	0.09	0.25	44.59	2.81	0.03	0.32	0.07	0.08	0.00	0.04	99.20
T758	59	7816	till	0.25-0.5	black	Ilmenite	0.06	51.91	0.05	0.00	0.21	46.15	0.84	0.05	0.40	0.01	0.14	0.13	0.00	99.95
T758	60	7816	till	0.25-0.5	black	Ilmenite	0.04	52.29	0.11	0.05	0.40	45.06	0.61	0.08	2.37	0.05	0.05	0.15	0.01	101.28
T758	63	7816	till	0.25-0.5	black	Ilmenite	0.02	52.25	0.08	0.00	0.22	46.30	0.67	0.00	0.75	0.00	0.02	0.08	0.25	100.65

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T758	65	7816	till	0.25-0.5	black	Ilmenite	0.05	51.77	0.07	0.00	0.15	47.06	0.64	0.00	0.91	0.00	0.06	0.07	0.09	100.87
T758	67	7816	till	0.25-0.5	black	Ilmenite	0.13	52.10	0.09	0.00	0.32	44.20	0.69	0.00	2.58	0.00	0.10	0.16	0.04	100.40
T758	68	7816	till	0.25-0.5	black	Ilmenite	0.06	52.62	0.03	0.11	0.24	44.49	0.70	0.10	2.23	0.03	0.00	0.15	0.17	100.92
T758	71	7816	till	0.25-0.5	black	Ilmenite	0.04	51.54	0.05	0.00	0.40	44.77	4.19	0.03	0.02	0.16	0.11	0.13	0.00	101.45
T758	73	7816	till	0.25-0.5	black	Ilmenite (alt.)	0.02	36.60	0.06	0.02	0.34	58.44	1.36	0.00	0.07	0.00	0.00	0.01	0.00	96.92
T758	74	7816	till	0.25-0.5	black	Ilmenite (alt.)	0.06	39.07	0.03	0.00	0.29	58.06	1.10	0.14	0.05	0.03	0.05	0.00	0.00	98.88
T758	75	7816	till	0.25-0.5	black	Ilmenite	0.01	51.82	0.11	0.09	0.32	45.16	0.55	0.00	2.23	0.06	0.03	0.00	0.01	100.40
T758	76	7816	till	0.25-0.5	black	Ilmenite	0.04	51.72	0.00	0.04	0.19	44.40	3.16	0.08	0.25	0.02	0.08	0.12	0.00	100.12
T758	77	7816	till	0.25-0.5	black	Ilmenite	0.06	52.36	0.36	0.02	0.40	44.01	0.67	0.04	1.99	0.00	0.11	0.16	0.23	100.42
T771	46	7817	till	0.25-0.5	black	Mg-Ilmenite	0.15	54.88	0.44	0.53	0.33	28.63	0.38	0.08	14.87	0.01	0.03	0.06	0.14	100.55
T771	49	7817	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.06	0.32	0.31	0.49	29.16	0.44	0.05	14.74	0.05	0.04	0.00	0.11	100.85
T771	51	7817	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.40	0.58	0.61	0.30	28.17	0.32	0.07	14.52	0.05	0.03	0.00	0.23	100.35
T771	45	7817	till	0.20-0.50	black	Ilmenite	0.08	53.26	0.10	0.02	0.53	42.87	0.49	0.06	3.45	0.00	0.05	0.08	0.07	0.00
T771	47	7817	till	0.20-0.50	black	Ilmenite	0.11	53.41	0.11	0.03	0.22	44.53	0.63	0.03	1.55	0.00	0.07	0.06	0.00	0.08
T771	48	7817	till	0.20-0.50	black	Ilmenite	0.00	51.50	0.09	0.12	0.17	47.61	0.93	0.01	0.07	0.01	0.05	0.06	0.05	0.00
T771	50	7817	till	0.20-0.50	black	Ilmenite	0.07	52.39	0.12	0.06	0.30	44.77	0.64	0.07	1.98	0.02	0.02	0.00	0.10	0.00
T758	82	7819	till	0.25-0.5	black	Mg-Ilmenite	0.04	54.28	0.24	0.58	0.47	32.82	0.34	0.06	11.86	0.00	0.06	0.11	0.14	101.00
T758	83	7819	till	0.25-0.5	black	Ilmenite	0.04	51.71	0.09	0.11	0.30	45.51	0.58	0.00	1.38	0.04	0.06	0.04	0.05	99.90
T758	84	7819	till	0.25-0.5	black	Ilmenite	0.04	54.00	0.07	0.00	0.19	45.03	0.74	0.01	1.55	0.00	0.11	0.11	0.08	101.92
T758	85	7819	till	0.25-0.5	black	Ilmenite	0.05	50.74	0.02	0.00	0.35	46.31	2.79	0.02	0.05	0.02	0.01	0.07	0.00	100.44
T758	86	7819	till	0.25-0.5	black	Ilmenite	0.05	51.99	0.10	0.00	0.22	46.60	0.69	0.00	1.01	0.02	0.10	0.00	0.00	100.80
T758	88	7819	till	0.25-0.5	black	Ilmenite	0.08	49.39	0.27	0.00	0.19	46.73	2.74	0.01	0.08	0.02	0.04	0.06	0.00	99.60
T758	89	7819	till	0.25-0.5	black	Ilmenite	0.06	52.23	0.13	0.00	0.15	46.30	0.81	0.00	0.69	0.02	0.04	0.13	0.00	100.57
T758	90	7819	till	0.25-0.5	black	Ilmenite	0.06	52.25	0.05	0.13	0.22	44.45	3.81	0.06	0.11	0.00	0.12	0.00	0.10	101.36
T758	91	7819	till	0.25-0.5	black	Ilmenite (alt.)	0.00	47.80	0.05	0.02	0.31	50.44	0.75	0.00	0.03	0.02	0.03	0.00	0.08	99.52
T758	92	7819	till	0.25-0.5	black	Ilmenite	0.10	52.56	0.12	0.00	0.31	45.66	0.71	0.02	1.31	0.00	0.08	0.00	0.10	100.97
T771	62	7819	till	0.20-0.50	black	Ilmenite	0.07	51.23	0.14	0.00	0.30	45.63	0.52	0.11	2.63	0.00	0.06	0.06	0.00	0.00
T758	98	7820	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.52	0.23	1.35	0.55	30.31	0.28	0.11	13.44	0.00	0.03	0.13	0.34	101.39
T758	99	7820	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.56	0.35	0.46	0.46	32.80	0.23	0.07	12.45	0.04	0.08	0.03	0.00	101.60
T758	100	7820	till	0.25-0.5	black	Mg-Ilmenite	0.01	55.14	0.39	0.49	0.39	29.85	0.34	0.12	14.39	0.05	0.07	0.02	0.18	101.45
T758	101	7820	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.80	0.24	0.90	0.41	29.20	0.38	0.12	14.02	0.00	0.07	0.03	0.16	101.37
T758	104	7820	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.30	0.45	0.50	0.43	30.17	0.30	0.16	13.62	0.04	0.03	0.00	0.11	101.21
T758	105	7820	till	0.25-0.5	black	Mg-Ilmenite	0.04	52.65	0.28	0.60	0.45	33.23	0.30	0.10	12.11	0.00	0.05	0.02	0.11	99.94
T758	108	7820	till	0.25-0.5	black	Mg-Ilmenite	0.03	52.94	0.27	0.30	0.51	34.53	0.27	0.03	11.93	0.01	0.00	0.02	0.25	101.09
T758	103	7820	till	0.25-0.5	black	Ilmenite	0.10	50.97	0.07	0.01	0.31	46.32	2.00	0.04	0.62	0.00	0.03	0.07	0.01	100.57
T759	3	7820	till	0.25-0.5	black	Ilmenite	0.42	52.89	0.04	0.02	0.61	39.04	0.08	0.05	0.11	0.07	0.04	0.00	0.00	93.37
T759	8	7821	till	0.25-0.5	black	Mg-Ilmenite	0.18	54.25	0.39	0.79	0.32	31.94	0.31	0.03	12.51	0.01	0.01	0.06	0.20	101.01
T759	9	7821	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.95	0.40	0.41	0.36	30.67	0.28	0.07	12.95	0.03	0.02	0.03	0.00	100.29
T759	10	7821	till	0.25-0.5	black	Mg-Ilmenite	0.16	56.41	0.39	1.21	0.44	27.03	0.24	0.17	14.90	0.02	0.12	0.08	0.00	101.16
T759	11	7821	till	0.25-0.5	black	Mg-Ilmenite	0.11	56.68	0.62	1.02	0.41	26.30	0.26	0.08	15.36	0.04	0.03	0.00	0.13	101.05
T759	13	7821	till	0.25-0.5	black	Mg-Ilmenite	0.20	52.65	0.20	0.42	0.40	35.00	0.42	0.02	11.20	0.01	0.05	0.06	0.16	100.80
T759	14	7821	till	0.25-0.5	black	Mg-Ilmenite	0.14	54.38	0.28	0.64	0.40	32.97	0.25	0.05	11.59	0.04	0.07	0.02	0.21	101.05
T759	15	7821	till	0.25-0.5	black	Mg-Ilmenite	0.18	54.24	0.29	0.34	0.32	31.56	0.37	0.03	12.69	0.00	0.02	0.05	0.19	100.27
T759	16	7821	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.66	0.45	0.55	0.34	30.63	0.29	0.14	13.31	0.03	0.03	0.00	0.19	100.67
T759	17	7821	till	0.25-0.5	black	Mg-Ilmenite	0.10	52.69	0.26	0.39	0.47	34.10	0.35	0.06	11.30	0.01	0.02	0.14	0.29	100.17
T759	18	7821	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.16	0.57	1.34	0.45	29.05	0.27	0.12	14.00	0.04	0.11	0.11	0.08	101.40

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T759	19	7821	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.68	0.31	0.42	0.46	31.41	0.34	0.02	12.82	0.03	0.00	0.05	0.00	100.69
T759	21	7821	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.73	0.36	0.57	0.49	27.82	0.44	0.07	14.85	0.00	0.00	0.04	0.15	100.61
T759	22	7821	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.31	0.59	0.90	0.28	29.67	0.24	0.12	13.32	0.02	0.16	0.00	0.00	100.72
T759	23	7821	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.88	0.41	0.46	0.20	32.41	0.25	0.02	12.06	0.01	0.04	0.04	0.01	99.89
T759	24	7821	till	0.25-0.5	black	Mg-Ilmenite	0.18	56.21	0.51	1.10	0.28	26.33	0.35	0.11	15.16	0.03	0.15	0.03	0.00	100.45
T759	25	7821	till	0.25-0.5	black	Mg-Ilmenite	0.18	54.89	0.37	0.42	0.50	28.98	0.33	0.05	14.61	0.02	0.00	0.00	0.05	100.41
T759	26	7821	till	0.25-0.5	black	Mg-Ilmenite	0.21	54.72	0.34	0.46	0.59	28.41	0.38	0.06	15.09	0.04	0.14	0.00	0.09	100.54
T759	27	7821	till	0.25-0.5	black	Mg-Ilmenite	0.13	53.70	0.28	0.61	0.36	31.08	0.37	0.21	13.48	0.05	0.03	0.20	0.23	100.75
T759	28	7821	till	0.25-0.5	black	Mg-Ilmenite	0.24	54.79	0.36	0.33	0.41	28.64	0.39	0.11	14.91	0.02	0.02	0.04	0.00	100.26
T759	29	7821	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.28	0.34	0.66	0.38	32.42	0.38	0.03	12.29	0.05	0.05	0.03	0.13	101.16
T759	31	7821	till	0.25-0.5	black	Mg-Ilmenite	0.12	56.34	0.57	0.80	0.43	26.19	0.43	0.09	15.59	0.02	0.08	0.04	0.07	100.77
T759	32	7821	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.84	0.37	0.53	0.32	31.50	0.28	0.03	12.38	0.02	0.08	0.05	0.04	100.61
T759	33	7821	till	0.25-0.5	black	Mg-Ilmenite	0.11	52.20	0.22	0.34	0.31	35.58	0.29	0.00	10.82	0.01	0.07	0.00	0.12	100.08
T759	34	7821	till	0.25-0.5	black	Mg-Ilmenite	0.18	53.56	0.35	0.70	0.44	32.70	0.36	0.10	11.82	0.01	0.06	0.00	0.23	100.49
T759	35	7821	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.48	0.32	0.46	0.33	31.85	0.43	0.07	11.83	0.07	0.11	0.01	0.25	100.35
T759	36	7821	till	0.25-0.5	black	Mg-Ilmenite	0.21	55.94	0.32	0.59	0.45	30.32	0.22	0.07	12.77	0.00	0.05	0.09	0.43	101.44
T759	38	7821	till	0.25-0.5	black	Mg-Ilmenite	0.14	53.22	0.22	0.47	0.37	32.32	0.35	0.05	11.97	0.06	0.05	0.01	0.09	99.34
T759	39	7821	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.00	0.49	0.42	0.49	32.87	0.31	0.06	12.39	0.04	0.08	0.07	0.04	101.33
T759	40	7821	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.57	0.45	1.11	0.51	28.60	0.25	0.20	13.66	0.07	0.01	0.03	0.00	100.61
T759	42	7821	till	0.25-0.5	black	Mg-Ilmenite	0.02	53.26	0.54	0.08	0.54	35.64	0.22	0.11	10.59	0.05	0.02	0.14	0.08	101.29
T759	43	7821	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.59	0.42	0.54	0.48	28.47	0.34	0.17	15.12	0.05	0.06	0.10	0.12	101.56
T759	44	7821	till	0.25-0.5	black	Mg-Ilmenite	0.15	56.04	0.30	0.31	0.26	28.17	0.28	0.11	14.64	0.00	0.01	0.00	0.00	100.27
T759	45	7821	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.29	0.30	0.69	0.48	31.58	0.35	0.06	13.06	0.03	0.07	0.00	0.44	101.50
T759	46	7821	till	0.25-0.5	black	Mg-Ilmenite	0.28	54.22	0.37	1.29	0.40	29.65	0.29	0.12	13.85	0.04	0.06	0.00	0.20	100.79
T759	47	7821	till	0.25-0.5	black	Mg-Ilmenite	0.18	53.97	0.52	1.52	0.47	30.36	0.30	0.12	13.07	0.03	0.02	0.06	0.00	100.62
T759	52	7821	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.53	0.28	0.40	0.39	31.92	0.30	0.14	13.16	0.00	0.12	0.00	0.25	100.55
T759	54	7821	till	0.25-0.5	black	Mg-Ilmenite	0.15	53.37	0.21	0.44	0.40	33.30	0.28	0.08	12.21	0.03	0.00	0.00	0.21	100.69
T759	55	7821	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.47	0.47	0.55	0.40	28.36	0.43	0.05	15.45	0.06	0.01	0.03	0.00	101.42
T759	57	7821	till	0.25-0.5	black	Mg-Ilmenite	0.17	56.09	0.48	0.51	0.41	29.34	0.25	0.05	14.16	0.01	0.14	0.03	0.23	101.87
T759	58	7821	till	0.25-0.5	black	Mg-Ilmenite	0.13	52.80	0.21	0.36	0.56	31.43	0.33	0.02	13.73	0.01	0.09	0.02	0.20	99.91
T759	59	7821	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.98	0.40	0.28	0.39	30.52	0.27	0.08	13.74	0.05	0.17	0.00	0.08	102.05
T759	62	7821	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.29	0.36	0.49	0.29	32.23	0.34	0.09	12.68	0.02	0.00	0.00	0.28	101.12
T759	63	7821	till	0.25-0.5	black	Mg-Ilmenite	0.11	56.47	0.55	0.69	0.35	25.25	0.39	0.16	16.45	0.01	0.10	0.06	0.12	100.71
T759	64	7821	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.70	0.35	2.01	0.27	27.61	0.19	0.08	14.92	0.00	0.05	0.04	0.24	101.59
T759	65	7821	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.25	0.27	0.65	0.39	31.77	0.29	0.12	12.89	0.00	0.00	0.10	0.09	100.94
T759	66	7821	till	0.25-0.5	black	Mg-Ilmenite	0.21	53.05	0.53	0.22	0.32	33.79	0.29	0.16	11.52	0.02	0.05	0.14	0.00	100.30
T759	67	7821	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.15	0.43	0.85	0.48	27.03	0.32	0.14	15.34	0.02	0.00	0.08	0.19	101.11
T759	68	7821	till	0.25-0.5	black	Mg-Ilmenite	0.19	53.37	0.41	3.02	0.41	29.74	0.21	0.19	13.45	0.02	0.10	0.04	0.28	101.42
T759	69	7821	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.85	0.50	1.24	0.49	27.07	0.23	0.15	15.09	0.00	0.06	0.06	0.20	101.04
T759	70	7821	till	0.25-0.5	black	Mg-Ilmenite	0.12	39.01	0.46	0.29	0.19	43.16	0.47	0.12	15.02	0.15	0.07	0.03	0.00	99.08
T759	71	7821	till	0.25-0.5	black	Mg-Ilmenite	0.12	53.98	0.25	1.03	0.49	31.19	0.40	0.09	12.84	0.04	0.08	0.06	0.21	100.78
T759	72	7821	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.54	0.34	0.52	0.56	31.71	0.38	0.07	13.48	0.00	0.06	0.00	0.21	100.98
T759	73	7821	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.12	0.34	1.92	0.58	28.85	0.34	0.06	14.28	0.04	0.04	0.06	0.00	100.75
T759	77	7821	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.43	0.43	1.32	0.38	30.27	0.27	0.08	13.22	0.05	0.00	0.08	0.03	100.64
T759	78	7821	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.66	0.57	0.48	0.46	30.18	0.35	0.11	12.84	0.05	0.04	0.04	0.03	99.89
T759	79	7821	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.65	0.52	0.64	0.48	29.95	0.26	0.19	13.25	0.03	0.03	0.07	0.15	101.34

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T759	80	7821	till	0.25-0.5	black	Mg-Ilmenite	0.16	55.11	0.60	1.78	0.47	27.13	0.39	0.11	14.97	0.04	0.02	0.00	0.04	100.82
T759	81	7821	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.90	0.39	0.46	0.40	29.10	0.47	0.03	14.76	0.01	0.04	0.01	0.20	100.85
T759	82	7821	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.14	0.27	0.31	0.33	30.18	0.37	0.13	14.74	0.03	0.04	0.11	0.04	100.79
T759	83	7821	till	0.25-0.5	black	Mg-Ilmenite	0.04	53.52	0.17	0.71	0.39	31.37	0.37	0.08	13.47	0.01	0.13	0.12	0.09	100.47
T759	84	7821	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.39	0.42	1.07	0.37	28.08	0.30	0.09	13.94	0.04	0.06	0.00	0.00	99.82
T759	90	7821	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.67	0.27	1.93	0.29	26.52	0.26	0.18	14.98	0.00	0.00	0.02	0.17	100.43
T759	91	7821	till	0.25-0.5	black	Mg-Ilmenite	0.21	53.26	0.30	0.98	0.55	32.80	0.40	0.06	11.80	0.04	0.12	0.00	0.05	100.58
T759	92	7821	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.14	0.45	1.14	0.63	30.41	0.29	0.03	13.97	0.01	0.08	0.02	0.12	100.35
T759	93	7821	till	0.25-0.5	black	Mg-Ilmenite	0.01	52.90	0.21	0.89	0.29	31.67	0.36	0.14	13.24	0.06	0.11	0.02	0.31	100.19
T771	75	7821	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.92	0.47	0.62	0.42	29.52	0.29	0.00	13.62	0.02	0.08	0.09	0.08	101.20
T771	77	7821	till	0.25-0.5	black	Mg-Ilmenite	0.07	52.70	0.50	2.62	0.52	31.08	0.20	0.13	12.26	0.00	0.08	0.01	0.18	100.36
T771	78	7821	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.04	0.41	0.86	0.66	30.00	0.31	0.14	13.52	0.05	0.14	0.07	0.06	101.34
T771	79	7821	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.10	0.22	0.59	0.27	34.06	0.22	0.09	10.67	0.00	0.08	0.03	0.12	99.52
T771	80	7821	till	0.25-0.5	black	Mg-Ilmenite	0.05	53.96	0.46	0.77	0.51	32.33	0.26	0.04	11.75	0.01	0.09	0.07	0.16	100.47
T771	81	7821	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.51	0.30	1.49	0.40	31.77	0.29	0.08	12.46	0.01	0.04	0.14	0.09	100.65
T771	82	7821	till	0.25-0.5	black	Mg-Ilmenite	0.04	56.75	0.44	1.77	0.51	25.62	0.25	0.04	16.06	0.06	0.05	0.02	0.32	101.92
T771	83	7821	till	0.25-0.5	black	Mg-Ilmenite	0.09	53.24	0.22	0.26	0.48	34.09	0.26	0.02	10.94	0.05	0.11	0.08	0.14	100.00
T771	84	7821	till	0.25-0.5	black	Mg-Ilmenite	0.02	54.61	0.34	0.52	0.28	32.17	0.26	0.09	12.03	0.00	0.08	0.00	0.07	100.47
T771	86	7821	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.06	0.23	0.44	0.41	33.13	0.29	0.06	11.58	0.01	0.00	0.05	0.18	100.53
T771	89	7821	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.41	0.48	1.27	0.49	28.73	0.23	0.10	13.55	0.06	0.18	0.00	0.14	100.73
T771	90	7821	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.96	0.43	0.71	0.56	31.78	0.34	0.14	12.28	0.02	0.00	0.01	0.21	100.55
T771	102	7821	till	0.25-0.5	black	Mg-Ilmenite	0.02	52.31	0.23	0.34	0.51	35.26	0.38	0.04	10.38	0.06	0.04	0.04	0.18	99.80
T771	104	7821	till	0.25-0.5	black	Mg-Ilmenite	0.04	53.53	0.58	2.49	0.42	30.66	0.29	0.07	12.81	0.05	0.04	0.06	0.16	101.19
T771	106	7821	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.20	0.39	0.56	0.41	29.92	0.29	0.00	13.92	0.00	0.12	0.00	0.11	101.03
T771	108	7821	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.62	0.23	0.46	0.49	33.44	0.38	0.09	11.59	0.02	0.03	0.00	0.13	100.57
T771	109	7821	till	0.25-0.5	black	Mg-Ilmenite	0.06	57.33	0.37	1.52	0.28	23.14	0.47	0.01	17.30	0.03	0.09	0.08	0.20	100.88
T771	113	7821	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.50	0.25	0.71	0.44	28.24	0.42	0.00	14.80	0.00	0.00	0.00	0.15	100.55
T771	117	7821	till	0.25-0.5	black	Mg-Ilmenite	0.07	52.93	0.18	0.39	0.62	32.92	0.34	0.18	12.73	0.06	0.00	0.11	0.12	100.64
T771	118	7821	till	0.25-0.5	black	Mg-Ilmenite	0.12	53.10	0.25	0.35	0.57	32.38	0.41	0.06	12.83	0.04	0.10	0.04	0.19	100.45
T771	119	7821	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.64	1.15	0.75	0.47	25.35	0.43	0.09	16.42	0.43	0.07	0.03	0.17	100.09
T771	120	7821	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.48	0.48	0.48	0.59	30.70	0.30	0.11	13.02	0.00	0.02	0.00	0.14	101.41
T771	121	7821	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.69	0.28	0.34	0.26	31.65	0.36	0.06	12.29	0.00	0.13	0.06	0.01	100.24
T771	122	7821	till	0.25-0.5	black	Mg-Ilmenite	0.03	54.67	0.36	0.47	0.59	29.48	0.30	0.04	13.98	0.02	0.07	0.08	0.04	100.13
T795	3	7821	till	0.5-1.0	black	Mg-Ilmenite	0.06	54.35	0.30	0.43	0.64	33.03	0.36	0.13	11.70	0.07	0.13	0.10	0.12	101.58
T795	4	7821	till	0.5-1.0	black	Mg-Ilmenite	0.05	54.38	0.45	0.65	0.50	32.84	0.24	0.13	11.90	0.05	0.03	0.00	0.08	101.50
T759	30	7821	till	0.25-0.5	black	Ilmenite	0.05	52.48	0.10	0.01	0.20	45.26	0.56	0.00	1.45	0.03	0.00	0.04	0.12	100.29
T759	41	7821	till	0.25-0.5	black	Ilmenite	0.05	52.29	0.21	0.05	0.33	44.43	0.62	0.00	2.41	0.00	0.03	0.09	0.01	100.54
T759	51	7821	till	0.25-0.5	black	Ilmenite	0.11	51.18	0.14	0.00	0.27	44.71	3.40	0.02	0.02	0.01	0.15	0.00	0.01	100.03
T759	53	7821	till	0.25-0.5	black	Ilmenite	0.09	49.63	0.07	0.11	0.25	45.35	3.91	0.11	0.30	0.00	0.09	0.06	0.20	100.17
T759	85	7821	till	0.25-0.5	black	Ilmenite	0.08	49.84	0.04	0.00	0.25	48.06	0.78	0.00	0.16	0.02	0.08	0.00	0.00	99.31
T759	86	7821	till	0.25-0.5	black	Ilmenite	0.06	51.04	0.07	0.05	0.24	47.17	2.09	0.00	0.07	0.02	0.08	0.09	0.20	101.18
T759	88	7821	till	0.25-0.5	black	Ilmenite	0.13	49.22	0.04	0.05	0.40	46.06	3.64	0.01	0.07	0.01	0.07	0.14	0.00	99.85
T759	95	7821	till	0.25-0.5	black	Ilmenite	0.12	51.52	0.03	0.02	0.22	47.05	0.83	0.03	0.27	0.00	0.00	0.05	0.24	100.38
T771	76	7821	till	0.20-0.50	black	Ilmenite	0.00	53.04	0.11	0.00	0.35	43.91	0.66	0.07	1.98	0.02	0.02	0.03	0.08	0.00
T771	85	7821	till	0.20-0.50	black	Ilmenite	0.06	52.70	0.13	0.00	0.40	43.50	0.57	0.07	2.57	0.00	0.02	0.08	0.00	0.00
T771	87	7821	till	0.20-0.50	black	Ilmenite	0.07	52.99	0.18	0.00	0.45	42.88	0.59	0.14	3.32	0.00	0.00	0.00	0.00	0.09

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T771	91	7821	till	0.20-0.50	black	Ilmenite	0.10	53.27	0.10	0.01	0.36	42.78	0.58	0.00	2.51	0.01	0.02	0.06	0.06	0.00
T771	93	7821	till	0.20-0.50	black	Ilmenite	0.01	52.54	0.05	0.00	0.24	47.07	1.12	0.04	0.11	0.01	0.03	0.06	0.10	0.00
T771	94	7821	till	0.20-0.50	black	Ilmenite	0.06	52.04	0.12	0.00	0.21	45.34	0.75	0.00	1.25	0.04	0.10	0.09	0.00	0.00
T771	97	7821	till	0.20-0.50	black	Ilmenite	0.07	52.45	0.09	0.00	0.13	45.74	0.96	0.08	0.78	0.03	0.03	0.11	0.08	0.00
T771	112	7821	till	0.20-0.50	black	Ilmenite	0.06	52.77	0.05	0.06	0.15	44.79	0.81	0.06	1.30	0.02	0.06	0.00	0.00	0.01
T759	101	7822	till	0.25-0.5	black	Mg-Ilmenite	0.00	46.30	0.14	1.94	0.56	42.35	0.36	0.11	7.30	0.06	0.09	0.07	0.43	99.70
T759	105	7822	till	0.25-0.5	black	Mg-Ilmenite	0.03	51.74	0.30	0.28	0.42	36.10	0.37	0.00	10.27	0.02	0.10	0.00	0.28	99.91
T759	114	7822	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.01	0.24	0.45	0.50	31.14	0.34	0.13	12.97	0.03	0.09	0.04	0.44	101.44
T759	119	7822	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.11	0.36	0.41	0.42	33.55	0.26	0.04	11.57	0.00	0.00	0.00	0.05	99.90
T759	120	7822	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.80	0.48	0.62	0.54	29.03	0.27	0.03	14.37	0.03	0.00	0.04	0.15	101.40
T760	3	7822	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.25	0.69	0.44	0.47	29.63	0.21	0.09	14.18	0.05	0.04	0.01	0.17	101.35
T772	2	7822	till	0.25-0.5	black	Mg-Ilmenite	0.05	56.76	0.51	1.15	0.41	29.03	0.30	0.11	14.74	0.02	0.01	0.03	0.00	103.11
T772	4	7822	till	0.25-0.5	black	Mg-Ilmenite	0.05	56.24	0.51	0.85	0.33	30.43	0.27	0.08	13.00	0.03	0.11	0.05	0.13	102.07
T772	5	7822	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.16	1.05	3.46	0.40	26.23	0.30	0.15	14.92	0.04	0.07	0.02	0.21	102.15
T795	35	7822	till	0.5-1.0	black	Mg-Ilmenite	0.01	55.41	0.50	0.68	0.54	28.80	0.32	0.14	14.33	0.04	0.07	0.03	0.20	101.41
T759	98	7822	till	0.25-0.5	black	Ilmenite	0.13	50.83	0.12	0.00	0.23	45.18	2.88	0.00	0.00	0.01	0.00	0.06	0.03	99.47
T759	100	7822	till	0.25-0.5	black	Ilmenite	0.06	51.41	0.05	0.06	0.18	45.92	1.96	0.00	0.23	0.02	0.03	0.00	0.09	100.00
T759	102	7822	till	0.25-0.5	black	Ilmenite	0.09	51.93	0.14	0.04	0.21	45.15	0.93	0.00	1.37	0.01	0.05	0.04	0.00	99.94
T759	103	7822	till	0.25-0.5	black	Ilmenite (alt.)	0.10	48.00	0.05	0.00	0.20	48.85	2.31	0.02	0.24	0.01	0.00	0.09	0.09	99.96
T759	104	7822	till	0.25-0.5	black	Ilmenite	0.10	52.19	0.12	0.13	0.14	45.82	0.85	0.06	1.56	0.00	0.05	0.03	0.17	101.21
T759	106	7822	till	0.25-0.5	black	Ilmenite	0.06	52.36	0.08	0.00	0.29	45.25	0.62	0.00	1.84	0.02	0.04	0.05	0.17	100.79
T759	107	7822	till	0.25-0.5	black	Ilmenite	0.09	52.47	0.03	0.00	0.28	44.88	0.76	0.12	1.32	0.02	0.10	0.12	0.04	100.23
T759	110	7822	till	0.25-0.5	black	Ilmenite	0.14	51.53	0.06	0.06	0.27	47.20	0.49	0.05	0.59	0.01	0.00	0.10	0.17	100.68
T759	111	7822	till	0.25-0.5	black	Ilmenite	0.06	50.61	0.03	0.00	0.17	48.04	0.58	0.04	0.21	0.00	0.07	0.00	0.16	99.96
T759	112	7822	till	0.25-0.5	black	Ilmenite	0.06	52.58	0.11	0.10	0.31	45.21	0.53	0.03	1.99	0.00	0.11	0.11	0.01	101.14
T759	113	7822	till	0.25-0.5	black	Ilmenite	0.10	49.65	0.18	0.07	0.37	46.69	2.54	0.04	0.09	0.02	0.07	0.13	0.24	100.18
T759	115	7822	till	0.25-0.5	black	Ilmenite	0.12	52.52	0.07	0.02	0.21	46.33	0.81	0.04	0.92	0.00	0.06	0.07	0.16	101.32
T759	116	7822	till	0.25-0.5	black	Ilmenite	0.07	50.49	0.05	0.06	0.18	46.96	0.77	0.02	0.32	0.00	0.04	0.04	0.05	99.05
T759	121	7822	till	0.25-0.5	black	Ilmenite	0.04	51.46	0.10	0.00	0.18	45.93	0.95	0.04	0.41	0.03	0.09	0.12	0.00	99.36
T760	2	7822	till	0.25-0.5	black	Ilmenite	0.11	52.91	0.03	0.00	0.39	45.64	1.05	0.03	0.10	0.02	0.01	0.00	0.18	100.48
T795	34	7822	till	0.5-1.0	black	Ilmenite	0.06	52.07	0.12	0.02	0.55	45.13	0.61	0.05	0.06	0.10	2.33	0.03	0.16	0.00
T760	5	7823	till	0.25-0.5	black	Mg-Ilmenite	0.14	57.04	0.34	1.08	0.48	23.99	0.56	0.11	17.05	0.02	0.00	0.05	0.08	100.92
T760	6	7823	till	0.25-0.5	black	Mg-Ilmenite	0.12	52.73	0.53	1.88	0.29	31.18	0.35	0.08	13.07	0.04	0.01	0.00	0.09	100.38
T760	7	7823	till	0.25-0.5	black	Mg-Ilmenite	0.18	54.37	0.31	0.54	0.38	29.89	0.35	0.12	14.06	0.02	0.03	0.03	0.46	100.73
T760	8	7823	till	0.25-0.5	black	Mg-Ilmenite	0.13	53.14	0.26	0.39	0.63	32.89	0.32	0.04	11.76	0.07	0.08	0.13	0.19	100.02
T760	10	7823	till	0.25-0.5	black	Mg-Ilmenite	0.15	54.61	0.55	0.71	0.39	30.65	0.17	0.02	13.27	0.02	0.06	0.02	0.25	100.89
T760	11	7823	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.48	0.41	0.50	0.50	30.05	0.24	0.04	13.41	0.03	0.14	0.01	0.31	100.23
T760	12	7823	till	0.25-0.5	black	Mg-Ilmenite	0.22	54.01	0.51	1.18	0.36	29.86	0.29	0.12	13.50	0.05	0.15	0.04	0.00	100.28
T760	13	7823	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.75	0.31	0.26	0.47	31.25	0.17	0.17	13.03	0.04	0.04	0.11	0.23	100.99
T760	14	7823	till	0.25-0.5	black	Mg-Ilmenite	0.11	56.31	0.44	0.92	0.43	26.02	0.31	0.14	15.98	0.03	0.09	0.02	0.24	101.05
T760	15	7823	till	0.25-0.5	black	Mg-Ilmenite	0.14	54.73	0.49	0.26	0.32	30.07	0.34	0.10	13.89	0.02	0.00	0.01	0.12	100.49
T760	16	7823	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.31	0.42	1.24	0.38	28.51	0.34	0.14	14.36	0.02	0.03	0.05	0.00	100.93
T760	17	7823	till	0.25-0.5	black	Mg-Ilmenite	0.09	52.59	0.49	2.77	0.49	30.65	0.33	0.14	12.58	0.03	0.07	0.24	0.00	100.48
T760	18	7823	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.15	0.39	0.61	0.46	32.49	0.31	0.04	12.10	0.03	0.00	0.08	0.19	100.98
T760	19	7823	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.46	0.45	0.82	0.56	28.12	0.40	0.10	14.61	0.01	0.00	0.00	0.12	100.82
T760	20	7823	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.85	0.23	2.37	0.40	24.22	0.35	0.11	16.89	0.29	0.17	0.07	0.03	102.07

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T760	22	7823	till	0.25-0.5	black	Mg-Ilmenite	0.17	56.34	0.55	0.87	0.40	27.72	0.21	0.09	14.71	0.08	0.05	0.07	0.00	101.24
T760	23	7823	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.58	0.43	0.45	0.42	28.92	0.29	0.23	14.46	0.07	0.02	0.08	0.13	101.22
T760	24	7823	till	0.25-0.5	black	Mg-Ilmenite	0.25	55.93	0.45	0.76	0.25	26.42	0.32	0.04	15.51	0.06	0.05	0.09	0.09	100.22
T760	25	7823	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.59	0.48	1.05	0.42	26.46	0.27	0.11	16.00	0.06	0.00	0.00	0.19	100.79
T760	26	7823	till	0.25-0.5	black	Mg-Ilmenite	0.17	46.86	0.13	4.10	0.41	38.12	0.43	0.13	8.72	0.01	0.07	0.00	0.46	99.61
T760	27	7823	till	0.25-0.5	black	Mg-Ilmenite	0.06	50.95	0.23	0.37	0.52	36.55	0.16	0.00	10.86	0.01	0.09	0.00	0.50	100.30
T760	28	7823	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.48	0.33	0.62	0.20	30.45	0.27	0.10	13.63	0.00	0.11	0.07	0.11	100.54
T760	29	7823	till	0.25-0.5	black	Mg-Ilmenite	0.09	53.14	0.27	0.40	0.52	34.34	0.40	0.02	11.45	0.05	0.09	0.12	0.16	101.05
T760	30	7823	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.49	0.36	0.69	0.34	27.74	0.31	0.06	14.96	0.03	0.07	0.04	0.19	100.39
T760	31	7823	till	0.25-0.5	black	Mg-Ilmenite	0.16	53.72	0.35	0.57	0.39	33.42	0.19	0.07	11.88	0.01	0.05	0.00	0.00	100.82
T760	32	7823	till	0.25-0.5	black	Mg-Ilmenite	0.17	55.99	0.60	0.89	0.58	27.82	0.34	0.19	15.09	0.02	0.07	0.09	0.16	102.01
T760	33	7823	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.72	0.40	0.61	0.45	29.43	0.37	0.03	13.78	0.02	0.08	0.00	0.04	101.06
T760	34	7823	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.69	0.47	0.66	0.46	28.85	0.33	0.17	14.01	0.01	0.07	0.00	0.00	100.87
T760	35	7823	till	0.25-0.5	black	Mg-Ilmenite	0.16	55.78	0.31	1.09	0.44	26.96	0.34	0.11	15.59	0.08	0.11	0.00	0.24	101.21
T760	36	7823	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.37	0.46	0.50	0.53	31.64	0.25	0.07	12.66	0.07	0.12	0.05	0.20	101.04
T760	37	7823	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.44	0.59	0.61	0.33	30.83	0.26	0.10	12.83	0.05	0.00	0.13	0.12	100.47
T760	38	7823	till	0.25-0.5	black	Mg-Ilmenite	0.15	53.33	0.54	0.12	0.52	32.36	0.27	0.09	12.73	0.01	0.00	0.06	0.03	100.22
T760	39	7823	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.15	0.64	0.57	0.39	28.48	0.22	0.14	14.43	0.05	0.07	0.12	0.04	100.44
T760	40	7823	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.57	0.50	1.50	0.61	27.29	0.32	0.10	15.57	0.03	0.01	0.05	0.31	102.01
T760	41	7823	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.79	0.47	0.98	0.32	29.87	0.32	0.09	13.52	0.00	0.07	0.00	0.09	100.70
T760	42	7823	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.95	0.47	0.62	0.58	29.19	0.26	0.09	14.03	0.01	0.14	0.00	0.21	100.71
T760	44	7823	till	0.25-0.5	black	Mg-Ilmenite	0.21	55.69	0.52	0.27	0.49	27.23	0.38	0.00	15.83	0.06	0.02	0.06	0.00	100.76
T760	45	7823	till	0.25-0.5	black	Mg-Ilmenite	0.14	56.26	0.34	0.54	0.57	28.22	0.29	0.13	15.00	0.00	0.02	0.00	0.19	101.70
T760	46	7823	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.57	0.39	0.72	0.42	28.40	0.30	0.11	14.80	0.01	0.00	0.06	0.01	100.93
T760	50	7823	till	0.25-0.5	black	Mg-Ilmenite	0.18	54.67	0.33	0.85	0.35	29.49	0.34	0.07	13.65	0.03	0.04	0.00	0.25	100.26
T760	51	7823	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.31	0.57	0.92	0.34	28.91	0.27	0.06	14.22	0.02	0.00	0.00	0.00	100.78
T760	52	7823	till	0.25-0.5	black	Mg-Ilmenite	0.20	52.27	0.28	0.46	0.59	35.07	0.23	0.02	11.11	0.00	0.07	0.00	0.36	100.66
T760	53	7823	till	0.25-0.5	black	Mg-Ilmenite	0.13	53.40	0.27	0.37	0.46	33.15	0.25	0.09	11.47	0.00	0.03	0.02	0.33	99.98
T760	54	7823	till	0.25-0.5	black	Mg-Ilmenite	0.18	53.92	0.34	0.53	0.40	30.94	0.28	0.00	13.33	0.02	0.00	0.05	0.20	100.18
T760	55	7823	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.70	0.33	0.47	0.43	28.53	0.36	0.05	14.79	0.02	0.11	0.13	0.00	100.02
T760	56	7823	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.07	0.46	1.01	0.33	29.80	0.28	0.17	13.95	0.00	0.06	0.01	0.00	101.29
T760	58	7823	till	0.25-0.5	black	Mg-Ilmenite	0.19	57.04	0.40	0.66	0.45	25.53	0.43	0.20	16.88	0.08	0.07	0.05	0.17	102.16
T760	59	7823	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.87	0.38	0.58	0.34	28.51	0.47	0.07	14.67	0.03	0.00	0.05	0.13	101.25
T760	60	7823	till	0.25-0.5	black	Mg-Ilmenite	0.57	53.78	0.61	2.11	0.48	29.39	0.33	0.21	13.04	0.01	0.10	0.02	0.09	100.73
T760	61	7823	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.12	0.24	1.39	0.54	31.60	0.39	0.14	12.58	0.04	0.03	0.02	0.16	101.42
T760	66	7823	till	0.25-0.5	black	(Mg-Ilmenite)	0.14	48.76	0.13	2.06	0.54	39.03	0.30	0.09	9.05	0.06	0.11	0.03	0.32	100.63
T760	68	7823	till	0.25-0.5	black	Mg-Ilmenite	0.12	52.39	0.28	0.31	0.51	36.52	0.28	0.01	10.05	0.02	0.02	0.00	0.53	101.05
T760	69	7823	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.81	0.50	1.03	0.32	27.36	0.40	0.08	15.10	0.04	0.09	0.05	0.24	102.12
T772	17	7823	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.09	0.41	0.42	0.32	31.83	0.30	0.04	12.38	0.04	0.13	0.01	0.24	102.30
T772	18	7823	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.40	0.30	0.49	0.50	32.09	0.29	0.10	12.26	0.02	0.05	0.05	0.34	101.96
T772	20	7823	till	0.25-0.5	black	Mg-Ilmenite	0.11	57.25	0.44	0.66	0.56	29.60	0.30	0.08	14.01	0.07	0.07	0.04	0.11	103.28
T772	22	7823	till	0.25-0.5	black	Mg-Ilmenite	0.13	57.02	0.51	1.46	0.50	27.41	0.30	0.16	14.89	0.00	0.09	0.01	0.00	102.49
T772	25	7823	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.96	0.37	0.44	0.37	31.77	0.34	0.12	12.43	0.02	0.03	0.00	0.00	101.92
T772	27	7823	till	0.25-0.5	black	Mg-Ilmenite	0.09	53.74	0.30	0.34	0.62	33.46	0.32	0.05	12.71	0.08	0.10	0.13	0.30	102.24
T772	28	7823	till	0.25-0.5	black	Mg-Ilmenite	0.05	57.05	0.29	0.51	0.64	27.51	0.37	0.14	15.42	0.06	0.04	0.07	0.24	102.38
T772	35	7823	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.80	0.47	0.54	0.51	30.75	0.30	0.11	13.13	0.04	0.03	0.05	0.00	101.76

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T772	36	7823	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.27	0.33	0.54	0.50	31.61	0.27	0.10	13.32	0.06	0.01	0.00	0.32	102.42
T772	37	7823	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.60	0.31	1.41	0.67	31.28	0.18	0.14	12.31	0.08	0.02	0.15	0.29	102.51
T772	38	7823	till	0.25-0.5	black	Mg-Ilmenite	0.02	56.03	0.26	0.44	0.45	31.18	0.31	0.09	12.54	0.02	0.09	0.08	0.18	101.69
T772	39	7823	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.79	0.59	0.39	0.46	31.58	0.26	0.11	13.11	0.00	0.05	0.03	0.00	102.46
T772	44	7823	till	0.25-0.5	black	Mg-Ilmenite	0.00	56.52	0.34	0.61	0.39	28.91	0.30	0.03	14.51	0.05	0.02	0.10	0.33	102.12
T772	45	7823	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.48	0.64	0.43	0.45	29.97	0.35	0.08	13.61	0.00	0.03	0.05	0.09	102.26
T772	47	7823	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.69	0.38	0.58	0.53	31.20	0.26	0.11	12.70	0.03	0.00	0.03	0.20	102.81
T772	49	7823	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.73	0.44	0.68	0.34	30.53	0.22	0.10	13.05	0.02	0.09	0.09	0.21	101.55
T772	51	7823	till	0.25-0.5	black	Mg-Ilmenite	0.06	56.36	0.31	0.48	0.47	30.46	0.32	0.00	13.36	0.03	0.00	0.01	0.37	102.23
T772	54	7823	till	0.25-0.5	black	Mg-Ilmenite	0.08	49.46	0.21	1.82	0.54	39.38	0.26	0.18	8.92	0.06	0.00	0.00	0.48	101.37
T772	56	7823	till	0.25-0.5	black	Mg-Ilmenite	0.02	57.33	0.53	1.14	0.44	27.41	0.32	0.17	15.15	0.07	0.07	0.00	0.07	102.70
T772	59	7823	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.98	0.44	1.41	0.59	27.56	0.32	0.13	15.12	0.01	0.13	0.00	0.08	102.86
T795	62	7823	till	0.5-1.0	black	Mg-Ilmenite	0.06	55.44	0.47	0.83	0.51	30.66	0.32	0.03	13.18	0.15	0.03	0.00	0.00	101.81
T795	63	7823	till	0.5-1.0	black	Mg-Ilmenite	0.02	55.06	0.42	0.25	0.44	32.03	0.29	0.09	12.14	0.10	0.09	0.08	0.13	101.39
T795	64	7823	till	0.5-1.0	black	Mg-Ilmenite	0.02	56.00	0.40	0.68	0.49	29.23	0.31	0.07	14.16	0.09	0.00	0.00	0.12	101.84
T795	67	7823	till	0.5-1.0	black	Mg-Ilmenite	0.00	51.28	0.17	0.28	0.54	37.05	0.28	0.03	9.82	0.00	0.03	0.16	0.07	99.99
T795	68	7823	till	0.5-1.0	black	Mg-Ilmenite	0.03	55.92	0.44	0.79	0.50	29.03	0.18	0.07	13.82	0.05	0.07	0.00	0.09	101.40
T795	69	7823	till	0.5-1.0	black	Mg-Ilmenite	0.03	55.64	0.42	1.06	0.56	29.32	0.33	0.10	13.67	0.09	0.05	0.05	0.29	101.93
T795	70	7823	till	0.5-1.0	black	Mg-Ilmenite	0.10	55.28	0.51	0.60	0.53	29.31	0.27	0.16	13.36	0.04	0.05	0.07	0.03	100.51
T795	71	7823	till	0.5-1.0	black	Mg-Ilmenite	0.00	52.83	0.30	0.32	0.54	31.77	0.35	0.14	13.28	0.02	0.08	0.04	0.25	100.26
T795	72	7823	till	0.5-1.0	black	Mg-Ilmenite	0.07	53.46	0.27	0.40	0.80	31.83	0.42	0.11	13.21	0.15	0.10	0.00	0.32	101.31
T795	73	7823	till	0.5-1.0	black	Mg-Ilmenite	0.03	55.64	0.52	2.35	0.47	27.50	0.22	0.17	14.19	0.03	0.04	0.01	0.04	101.51
T795	74	7823	till	0.5-1.0	black	Mg-Ilmenite	0.08	54.67	0.30	0.36	0.61	32.70	0.22	0.07	12.00	0.09	0.00	0.01	0.24	101.59
T795	75	7823	till	0.5-1.0	black	Mg-Ilmenite	0.06	55.43	0.43	0.59	0.51	28.61	0.37	0.02	14.76	0.09	0.07	0.15	0.38	101.87
T760	47	7823	till	0.25-0.5	black	Ilmenite	0.18	52.83	0.12	0.01	0.34	44.90	0.58	0.00	1.75	0.03	0.14	0.06	0.00	100.95
T760	64	7823	till	0.25-0.5	black	Ilmenite (alt.)	0.06	48.39	0.01	0.09	0.38	46.65	3.44	0.00	0.09	0.00	0.04	0.02	0.00	99.15
T760	67	7823	till	0.25-0.5	black	Ilmenite	0.13	49.51	0.12	0.00	0.42	46.24	3.14	0.07	0.15	0.03	0.15	0.01	0.00	99.96
T772	24	7823	till	0.25-0.5	black	Ilmenite	0.04	53.54	0.09	0.07	0.23	45.43	0.65	0.02	1.68	0.00	0.06	0.05	0.05	0.00
T772	46	7823	till	0.25-0.5	black	Ilmenite	0.02	53.95	0.06	0.04	0.24	44.88	0.60	0.05	1.20	0.03	0.08	0.15	0.03	0.03
T772	50	7823	till	0.25-0.5	black	Ilmenite	0.00	53.87	0.09	0.04	0.18	45.24	0.69	0.00	1.29	0.04	0.00	0.16	0.00	0.07
T772	52	7823	till	0.25-0.5	black	Ilmenite	0.07	54.27	0.13	0.06	0.54	43.84	0.62	0.02	2.48	0.04	0.06	0.08	0.09	0.01
T772	53	7823	till	0.25-0.5	black	Ilmenite	0.06	53.65	0.09	0.00	0.24	44.47	0.57	0.06	2.55	0.01	0.21	0.04	0.00	0.05
T772	55	7823	till	0.25-0.5	black	Ilmenite	0.04	51.90	0.05	0.00	0.36	47.30	0.62	0.00	0.57	0.00	0.12	0.00	0.02	0.00
T772	57	7823	till	0.25-0.5	black	Ilmenite	0.09	53.13	0.08	0.00	0.27	46.58	0.76	0.07	0.46	0.01	0.06	0.09	0.00	0.03
T772	58	7823	till	0.25-0.5	black	Ilmenite	0.01	51.94	0.03	0.03	0.52	46.29	2.19	0.10	0.14	0.03	0.01	0.06	0.00	0.00
T760	75	7824	till	0.25-0.5	black	Mg-Ilmenite	0.20	54.65	0.45	1.44	0.41	30.41	0.28	0.10	13.50	0.03	0.04	0.11	0.31	101.92
T760	76	7824	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.22	0.85	0.83	0.46	28.12	0.29	0.17	15.04	0.04	0.11	0.04	0.63	101.93
T760	77	7824	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.24	0.49	1.49	0.32	26.81	0.30	0.17	15.03	0.04	0.06	0.00	0.00	101.02
T760	78	7824	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.85	0.33	1.08	0.34	26.52	0.45	0.18	15.92	0.08	0.11	0.00	0.40	101.35
T760	79	7824	till	0.25-0.5	black	Mg-Ilmenite	0.26	56.70	0.52	1.03	0.43	26.34	0.39	0.09	15.85	0.03	0.04	0.00	0.03	101.70
T760	80	7824	till	0.25-0.5	black	Mg-Ilmenite	0.21	53.45	0.30	0.37	0.49	34.19	0.33	0.09	11.57	0.01	0.04	0.05	0.15	101.24
T760	81	7824	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.43	0.58	0.34	0.21	30.76	0.30	0.13	13.03	0.03	0.07	0.09	0.13	101.26
T760	82	7824	till	0.25-0.5	black	Mg-Ilmenite	0.17	51.38	0.28	1.50	0.37	35.95	0.29	0.07	10.78	0.04	0.10	0.05	0.09	101.08
T760	83	7824	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.34	0.46	0.52	0.28	29.03	0.32	0.15	14.43	0.02	0.00	0.02	0.00	100.69
T760	84	7824	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.65	0.34	0.34	0.53	29.16	0.47	0.03	14.73	0.02	0.06	0.10	0.21	100.76
T760	85	7824	till	0.25-0.5	black	Mg-Ilmenite	0.08	57.16	0.41	0.46	0.41	24.38	0.43	0.18	17.13	0.03	0.06	0.00	0.00	100.73



Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T760	86	7824	till	0.25-0.5	black	Mg-Ilmenite	0.13	56.34	0.45	0.56	0.55	25.83	0.35	0.06	16.39	0.03	0.08	0.01	0.12	100.91
T760	87	7824	till	0.25-0.5	black	Mg-Ilmenite	0.18	55.28	0.36	0.34	0.51	31.70	0.24	0.02	12.59	0.03	0.04	0.03	0.04	101.34
T760	88	7824	till	0.25-0.5	black	Mg-Ilmenite	0.15	58.01	0.45	1.11	0.48	25.54	0.45	0.20	16.46	0.02	0.02	0.00	0.12	103.03
T760	89	7824	till	0.25-0.5	black	Mg-Ilmenite	0.23	51.56	0.26	0.50	0.60	36.26	0.29	0.00	10.65	0.02	0.06	0.00	0.24	100.68
T760	90	7824	till	0.25-0.5	black	Mg-Ilmenite	0.17	55.70	0.38	0.63	0.44	28.31	0.34	0.07	14.75	0.01	0.06	0.00	0.01	100.87
T760	91	7824	till	0.25-0.5	black	Mg-Ilmenite	0.18	56.67	1.26	1.11	0.35	25.44	0.51	0.03	16.33	0.06	0.02	0.05	0.28	102.29
T760	93	7824	till	0.25-0.5	black	Mg-Ilmenite	0.15	54.55	0.30	0.50	0.43	32.22	0.26	0.07	12.20	0.04	0.00	0.08	0.31	101.11
T760	94	7824	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.38	0.31	0.37	0.25	30.81	0.39	0.14	13.97	0.02	0.08	0.07	0.30	101.23
T760	95	7824	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.88	0.36	0.67	0.30	28.33	0.37	0.07	15.23	0.03	0.04	0.00	0.24	101.65
T760	96	7824	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.70	0.33	0.37	0.44	32.56	0.33	0.04	12.58	0.02	0.08	0.04	0.28	101.95
T760	97	7824	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.35	0.58	2.59	0.28	27.89	0.33	0.14	14.14	0.04	0.10	0.00	0.31	100.90
T760	98	7824	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.15	0.58	1.30	0.44	29.82	0.19	0.20	13.09	0.03	0.07	0.12	0.16	100.28
T760	100	7824	till	0.25-0.5	black	Mg-Ilmenite	0.18	56.87	0.62	0.83	0.41	24.56	0.43	0.11	17.09	0.02	0.03	0.05	0.21	101.41
T760	103	7824	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.25	0.63	2.56	0.39	28.01	0.21	0.22	14.50	0.03	0.05	0.05	0.04	101.07
T760	104	7824	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.69	0.40	0.55	0.57	30.09	0.25	0.06	14.50	0.03	0.13	0.04	0.20	101.62
T760	105	7824	till	0.25-0.5	black	Mg-Ilmenite	0.18	56.04	0.56	1.27	0.54	27.12	0.25	0.07	14.43	0.00	0.10	0.08	0.19	100.83
T760	106	7824	till	0.25-0.5	black	Mg-Ilmenite	0.16	55.15	0.35	0.82	0.40	30.40	0.35	0.11	13.35	0.03	0.11	0.00	0.08	101.31
T760	107	7824	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.02	0.34	0.51	0.42	29.39	0.27	0.10	14.18	0.02	0.08	0.18	0.16	100.81
T761	3	7824	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.25	0.25	0.49	0.50	31.75	0.28	0.06	13.13	0.04	0.06	0.00	0.17	102.06
T761	7	7824	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.19	0.34	0.44	0.38	30.94	0.32	0.00	13.41	0.01	0.10	0.05	0.13	101.38
T777	81	7824	till	0.25-0.5	black	Mg-Ilmenite	0.02	54.60	0.51	1.10	0.62	28.99	0.32	0.03	13.48	0.00	0.09	0.00	0.17	99.93
T777	82	7824	till	0.25-0.5	black	Mg-Ilmenite	0.00	54.08	0.67	2.28	0.37	28.07	0.20	0.05	13.86	0.01	0.15	0.06	0.20	100.00
T796	1	7824	till	0.5-1.0	black	Mg-Ilmenite	0.00	49.48	0.23	1.30	0.64	37.03	0.30	0.06	10.43	0.14	0.08	0.16	0.45	100.63
T796	2	7824	till	0.5-1.0	black	Mg-Ilmenite	0.01	55.16	0.55	1.34	0.62	29.50	0.33	0.12	14.24	0.11	0.00	0.02	0.37	102.61
T796	3	7824	till	0.5-1.0	black	Mg-Ilmenite	0.00	56.68	0.60	1.47	0.59	26.61	0.30	0.07	15.44	0.01	0.06	0.12	0.19	102.37
T796	4	7824	till	0.5-1.0	black	Mg-Ilmenite	0.06	54.92	0.41	0.72	0.69	29.35	0.38	0.10	13.90	0.10	0.01	0.01	0.34	101.31
T796	6	7824	till	0.5-1.0	black	Mg-Ilmenite	0.00	54.48	0.41	0.37	0.62	32.52	0.24	0.10	12.05	0.06	0.03	0.00	0.20	101.25
T760	92	7824	till	0.25-0.5	black	Ilmenite	0.28	52.22	0.17	0.08	0.28	44.76	0.65	0.04	2.34	0.03	0.10	0.00	0.00	100.95
T760	99	7824	till	0.25-0.5	black	Ilmenite	0.16	52.37	0.02	0.00	0.22	46.03	0.71	0.02	1.35	0.01	0.04	0.05	0.03	101.01
T760	101	7824	till	0.25-0.5	black	Ilmenite	0.07	52.88	0.06	0.05	0.30	44.56	0.73	0.05	1.67	0.00	0.05	0.10	0.00	100.52
T760	102	7824	till	0.25-0.5	black	Ilmenite	0.13	51.68	0.03	0.19	0.30	44.74	3.60	0.02	0.13	0.01	0.00	0.02	0.00	100.84
T761	2	7824	till	0.25-0.5	black	Ilmenite	0.04	50.16	0.13	0.00	0.32	45.97	3.23	0.02	0.03	0.00	0.14	0.03	0.12	100.19
T761	4	7824	till	0.25-0.5	black	Ilmenite	0.00	52.39	0.09	0.00	0.33	45.61	0.64	0.00	1.86	0.02	0.03	0.11	0.08	101.16
T761	6	7824	till	0.25-0.5	black	Ilmenite	0.08	52.49	0.13	0.02	0.30	45.99	0.62	0.01	1.04	0.00	0.04	0.07	0.08	100.86
T761	9	7824	till	0.25-0.5	black	Ilmenite	0.12	49.71	0.14	0.06	0.33	45.35	4.78	0.03	0.04	0.06	0.05	0.00	0.03	100.69
T796	5	7824	till	0.5-1.0	black	Ilmenite (alt.)	0.02	44.20	0.16	2.31	0.47	44.82	0.29	0.07	0.07	0.04	5.80	0.05	0.12	0.01
T761	11	7825	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.93	0.40	0.45	0.38	30.16	0.31	0.02	13.37	0.04	0.13	0.00	0.24	101.48
T761	14	7825	till	0.25-0.5	black	Mg-Ilmenite	0.09	46.16	0.06	2.61	0.57	42.05	0.30	0.00	7.92	0.01	0.07	0.00	0.26	100.09
T761	15	7825	till	0.25-0.5	black	Mg-Ilmenite	0.04	48.25	0.08	4.86	0.44	35.80	0.37	0.00	10.04	0.02	0.13	0.06	0.49	100.59
T761	16	7825	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.63	0.35	0.77	0.50	32.21	0.22	0.10	12.63	0.05	0.00	0.06	0.29	101.89
T761	19	7825	till	0.25-0.5	black	Mg-Ilmenite	0.06	50.03	0.18	0.65	0.32	40.48	0.36	0.05	8.12	0.01	0.04	0.00	0.36	100.65
T761	23	7825	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.26	0.27	0.57	0.35	31.70	0.33	0.09	12.81	0.00	0.05	0.00	0.24	100.74
T761	25	7825	till	0.25-0.5	black	Mg-Ilmenite	0.12	56.29	0.49	0.28	0.39	29.17	0.25	0.11	14.61	0.03	0.00	0.10	0.24	102.07
T761	27	7825	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.14	0.34	0.35	0.40	30.17	0.33	0.02	14.14	0.06	0.05	0.06	0.22	101.32
T772	65	7825	till	0.25-0.5	black	Mg-Ilmenite	0.02	56.12	0.31	0.23	0.51	31.51	0.22	0.03	12.58	0.06	0.00	0.00	0.31	101.90
T772	67	7825	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.32	0.37	1.29	0.51	31.49	0.34	0.05	12.21	0.02	0.00	0.00	0.03	100.72

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T772	69	7825	till	0.25-0.5	black	Mg-Ilmenite	0.04	56.92	0.46	0.96	0.39	28.42	0.28	0.05	14.88	0.05	0.03	0.06	0.00	102.55
T772	70	7825	till	0.25-0.5	black	Mg-Ilmenite	0.04	51.20	0.29	1.65	0.51	37.38	0.23	0.05	9.57	0.02	0.05	0.11	0.00	101.10
T772	71	7825	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.71	0.47	0.90	0.37	28.65	0.17	0.03	14.06	0.03	0.14	0.00	0.33	101.93
T772	72	7825	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.50	0.43	0.66	0.47	28.71	0.24	0.07	14.00	0.05	0.06	0.04	0.00	101.32
T796	34	7825	till	0.5-1.0	black	Mg-Ilmenite	0.00	54.16	0.56	0.19	0.62	33.56	0.34	0.05	11.30	0.06	0.05	0.00	0.21	101.25
T761	12	7825	till	0.25-0.5	black	Ilmenite	0.02	50.50	0.05	0.07	0.31	44.95	4.65	0.00	0.01	0.00	0.08	0.05	0.07	100.75
T761	13	7825	till	0.25-0.5	black	Ilmenite	0.02	51.02	0.02	0.06	0.23	48.57	1.02	0.00	0.03	0.00	0.13	0.05	0.17	101.32
T761	17	7825	till	0.25-0.5	black	Ilmenite	0.07	52.80	0.13	0.00	0.42	44.70	0.60	0.00	1.67	0.02	0.07	0.00	0.13	100.61
T761	18	7825	till	0.25-0.5	black	Ilmenite	0.01	51.07	0.06	0.01	0.22	45.89	3.08	0.03	0.32	0.01	0.05	0.04	0.00	100.80
T761	20	7825	till	0.25-0.5	black	Ilmenite	0.04	53.83	0.05	0.03	0.26	44.23	0.61	0.07	2.16	0.01	0.07	0.11	0.13	101.61
T761	21	7825	till	0.25-0.5	black	Ilmenite (alt.)	0.00	48.68	0.03	0.22	0.61	46.22	4.29	0.00	0.15	0.00	0.04	0.00	0.00	100.26
T761	24	7825	till	0.25-0.5	black	Ilmenite	0.02	51.88	0.05	0.00	0.34	47.32	1.07	0.06	0.33	0.00	0.14	0.02	0.14	101.38
T761	26	7825	till	0.25-0.5	black	Ilmenite (alt.)	0.06	47.00	0.06	0.08	0.55	50.02	1.97	0.08	0.16	0.00	0.09	0.11	0.00	100.19
T761	28	7825	till	0.25-0.5	black	Ilmenite (alt.)	0.05	48.37	0.13	0.00	0.27	48.46	2.15	0.07	0.10	0.00	0.08	0.15	0.00	99.82
T796	35	7825	till	0.5-1.0	black	Ilmenite (alt.)	0.00	46.97	0.13	0.08	0.76	49.91	1.44	0.04	0.02	0.10	0.23	0.10	0.06	0.04
T761	30	7826	till	0.25-0.5	black	Mg-Ilmenite	0.04	50.39	0.43	0.18	0.40	38.77	0.31	0.00	8.85	0.02	0.09	0.03	0.11	99.63
T761	31	7826	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.95	0.37	0.58	0.25	30.05	0.26	0.06	13.37	0.02	0.00	0.00	0.20	101.18
T761	33	7826	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.83	0.57	2.41	0.33	26.36	0.16	0.08	14.49	0.02	0.00	0.00	0.25	100.54
T761	35	7826	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.93	0.60	0.19	0.52	30.86	0.38	0.08	13.85	0.07	0.04	0.07	0.00	101.67
T761	36	7826	till	0.25-0.5	black	Mg-Ilmenite	0.04	50.90	0.15	0.68	0.49	38.35	0.34	0.00	9.18	0.04	0.07	0.11	0.33	100.68
T761	38	7826	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.44	0.41	0.53	0.51	30.26	0.40	0.09	13.04	0.01	0.09	0.00	0.26	101.11
T772	73	7826	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.50	0.24	0.37	0.51	31.68	0.23	0.02	12.60	0.01	0.05	0.00	0.05	101.28
T772	74	7826	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.69	0.26	0.30	0.57	33.16	0.35	0.05	11.74	0.04	0.04	0.06	0.03	101.34
T772	75	7826	till	0.25-0.5	black	Mg-Ilmenite	0.11	56.14	0.50	0.53	0.39	30.61	0.43	0.11	12.54	0.01	0.13	0.03	0.12	101.64
T772	78	7826	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.09	0.44	1.51	0.46	28.04	0.28	0.16	14.69	0.04	0.08	0.03	0.00	100.90
T796	45	7826	till	0.5-1.0	black	Mg-Ilmenite	0.04	55.53	0.42	0.67	0.65	29.14	0.41	0.06	13.44	0.06	0.01	0.00	0.18	101.01
T761	32	7826	till	0.25-0.5	black	Ilmenite	0.06	52.26	0.07	0.03	0.20	47.04	0.60	0.04	0.88	0.01	0.04	0.03	0.03	101.29
T761	34	7826	till	0.25-0.5	black	Ilmenite	0.07	52.46	0.12	0.09	0.40	45.35	0.57	0.00	2.54	0.03	0.08	0.00	0.00	101.71
T761	37	7826	till	0.25-0.5	black	Ilmenite	0.03	52.28	0.03	0.02	0.31	46.40	1.64	0.13	0.08	0.00	0.04	0.06	0.00	101.03
T761	40	7826	till	0.25-0.5	black	Ilmenite	0.09	53.29	0.09	0.00	0.45	43.77	0.59	0.01	1.76	0.01	0.03	0.00	0.00	100.09
T761	44	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	49.27	0.20	1.32	0.58	39.13	0.37	0.07	9.02	0.04	0.05	0.00	0.43	100.55
T761	45	7827	till	0.25-0.5	black	Mg-Ilmenite	0.01	53.59	0.26	0.43	0.56	32.91	0.35	0.02	12.89	0.03	0.00	0.05	0.29	101.38
T761	46	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.62	0.32	0.51	0.34	32.06	0.30	0.10	12.73	0.03	0.06	0.00	0.03	101.14
T761	47	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.64	1.02	0.92	0.37	30.27	0.31	0.16	13.21	0.00	0.10	0.00	0.12	101.22
T761	48	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	49.20	0.13	1.30	0.55	37.87	0.31	0.08	9.90	0.02	0.05	0.01	0.47	99.97
T761	49	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.94	0.48	1.20	0.46	30.19	0.26	0.09	13.33	0.03	0.07	0.00	0.00	101.14
T761	50	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.83	0.42	0.78	0.39	29.45	0.26	0.08	13.85	0.03	0.09	0.06	0.14	101.47
T761	51	7827	till	0.25-0.5	black	Mg-Ilmenite	0.14	54.74	0.42	0.38	0.46	31.47	0.23	0.13	12.63	0.03	0.04	0.06	0.16	100.88
T761	52	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.54	0.24	0.42	0.35	32.42	0.36	0.06	12.42	0.03	0.03	0.07	0.33	101.35
T761	53	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.68	0.31	0.43	0.42	28.63	0.42	0.02	15.03	0.08	0.10	0.03	0.00	101.24
T761	54	7827	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.73	0.54	1.12	0.50	29.78	0.27	0.15	13.49	0.00	0.21	0.00	0.08	100.91
T761	55	7827	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.63	0.45	0.71	0.37	27.54	0.44	0.12	14.92	0.02	0.08	0.02	0.28	100.62
T761	56	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	52.42	0.32	0.55	0.43	36.19	0.26	0.04	10.77	0.05	0.11	0.04	0.03	101.29
T761	57	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.61	1.14	1.10	0.41	30.12	0.43	0.10	13.22	0.01	0.02	0.06	0.01	101.30
T761	58	7827	till	0.25-0.5	black	Mg-Ilmenite	0.02	55.53	0.35	0.46	0.48	30.29	0.35	0.07	13.53	0.02	0.02	0.05	0.20	101.38
T761	59	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.45	0.50	1.11	0.41	29.98	0.32	0.14	13.60	0.05	0.03	0.00	0.01	101.69

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T761	60	7827	till	0.25-0.5	black	Mg-Ilmenite	0.00	55.64	0.46	1.49	0.43	28.28	0.24	0.08	14.02	0.04	0.06	0.00	0.08	100.82
T761	61	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	54.80	0.37	0.33	0.36	32.55	0.36	0.12	12.23	0.01	0.05	0.00	0.00	101.25
T761	62	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.45	0.52	0.98	0.60	29.90	0.30	0.11	13.21	0.00	0.14	0.12	0.01	101.42
T761	64	7827	till	0.25-0.5	black	Mg-Ilmenite	0.03	54.85	0.29	0.32	0.53	31.74	0.27	0.00	12.67	0.00	0.05	0.09	0.22	101.07
T761	66	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	54.31	0.27	0.35	0.41	33.17	0.31	0.06	12.20	0.03	0.03	0.08	0.20	101.46
T761	68	7827	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.44	0.65	0.15	0.44	32.74	0.22	0.13	12.05	0.04	0.02	0.00	0.07	101.00
T761	69	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	52.29	0.16	0.69	0.51	35.47	0.36	0.07	11.00	0.00	0.11	0.07	0.24	101.03
T761	70	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.95	0.23	0.41	0.43	33.68	0.27	0.00	11.82	0.02	0.03	0.03	0.13	101.12
T761	71	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.77	0.27	0.31	0.30	32.74	0.37	0.00	12.38	0.03	0.08	0.00	0.13	100.45
T761	72	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	57.02	0.42	0.48	0.59	27.88	0.29	0.00	15.28	0.00	0.00	0.06	0.18	102.25
T761	73	7827	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.11	0.44	1.18	0.43	27.87	0.40	0.08	14.48	0.00	0.00	0.14	0.07	100.23
T761	75	7827	till	0.25-0.5	black	Mg-Ilmenite	0.00	54.96	0.37	0.56	0.47	30.69	0.27	0.09	13.54	0.04	0.06	0.08	0.00	101.12
T761	76	7827	till	0.25-0.5	black	Mg-Ilmenite	0.08	57.61	0.53	0.80	0.35	23.82	0.49	0.14	18.05	0.06	0.02	0.01	0.00	101.97
T761	77	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	53.49	0.34	0.42	0.68	33.86	0.39	0.00	11.83	0.02	0.11	0.00	0.14	101.32
T761	78	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.65	0.35	0.48	0.37	28.86	0.37	0.04	14.90	0.04	0.00	0.04	0.03	101.16
T761	79	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.66	0.54	1.46	0.38	27.80	0.29	0.20	14.66	0.02	0.03	0.00	0.01	101.13
T761	80	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.29	0.28	0.76	0.36	32.01	0.29	0.07	12.83	0.00	0.09	0.07	0.00	101.14
T761	81	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.01	0.23	0.59	0.45	31.94	0.46	0.01	13.45	0.01	0.09	0.04	0.00	100.37
T761	82	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	54.70	0.33	0.31	0.41	32.47	0.29	0.12	12.62	0.00	0.05	0.11	0.09	101.55
T761	83	7827	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.58	0.32	0.36	0.55	30.10	0.29	0.04	13.90	0.00	0.05	0.14	0.17	101.58
T761	84	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.33	0.41	0.32	0.30	27.58	0.45	0.06	15.54	0.02	0.03	0.11	0.07	101.30
T761	84	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.35	0.37	0.35	0.33	28.69	0.29	0.17	14.86	0.00	0.01	0.07	0.14	101.71
T761	85	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.53	0.38	0.42	0.51	29.85	0.34	0.05	14.12	0.00	0.05	0.04	0.21	101.56
T761	86	7827	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.19	0.21	0.65	0.52	32.31	0.36	0.07	12.15	0.00	0.02	0.08	0.13	100.80
T761	89	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.26	0.27	0.45	0.49	27.89	0.42	0.08	16.26	0.06	0.00	0.03	0.08	100.36
T761	90	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.77	0.65	1.28	0.28	27.24	0.28	0.06	15.53	0.03	0.00	0.05	0.00	101.22
T761	91	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	56.42	0.31	1.65	0.47	22.90	0.48	0.13	18.37	0.97	0.10	0.00	0.13	101.97
T761	92	7827	till	0.25-0.5	black	Mg-Ilmenite	0.00	56.13	0.36	0.48	0.52	27.62	0.46	0.10	15.50	0.06	0.00	0.07	0.00	101.31
T762	1	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.78	0.49	1.57	0.29	24.95	0.39	0.09	16.33	0.36	0.15	0.02	0.21	100.69
T762	2	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.26	0.40	1.16	0.44	29.43	0.34	0.02	13.82	0.32	0.09	0.00	0.27	100.61
T762	3	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	53.81	0.29	0.76	0.27	27.66	0.38	0.06	13.84	2.95	0.07	0.02	0.10	100.25
T762	4	7827	till	0.25-0.5	black	Mg-Ilmenite	0.12	57.42	0.40	1.04	0.43	24.44	0.48	0.00	16.99	0.06	0.13	0.00	0.17	101.69
T762	5	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.07	0.32	0.51	0.52	26.10	0.37	0.11	16.64	0.05	0.11	0.00	0.23	101.12
T762	6	7827	till	0.25-0.5	black	Mg-Ilmenite	0.11	56.27	0.49	0.54	0.50	26.78	0.41	0.01	15.79	0.04	0.15	0.07	0.34	101.51
T762	7	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.49	0.26	0.37	0.53	32.29	0.21	0.06	12.42	0.01	0.00	0.07	0.24	101.03
T762	9	7827	till	0.25-0.5	black	Mg-Ilmenite	0.03	53.56	0.21	0.51	0.56	32.28	0.35	0.00	12.10	0.29	0.10	0.00	0.15	100.14
T762	10	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.31	0.40	0.59	0.46	29.25	0.29	0.07	14.12	0.06	0.07	0.07	0.25	101.04
T762	11	7827	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.27	0.46	1.09	0.41	28.44	0.44	0.06	14.03	0.26	0.16	0.00	0.14	100.91
T762	12	7827	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.05	0.49	1.18	0.50	29.69	0.25	0.10	13.32	0.25	0.07	0.01	0.20	100.28
T762	14	7827	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.11	0.46	2.28	0.31	25.29	0.31	0.06	15.62	0.33	0.18	0.00	0.27	100.36
T762	15	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.56	0.48	0.51	0.46	27.27	0.38	0.09	15.21	0.01	0.16	0.16	0.23	101.60
T762	16	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.14	0.97	1.22	0.15	26.89	0.32	0.00	14.87	0.03	0.20	0.04	0.21	100.12
T762	17	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.40	0.33	1.19	0.38	29.50	0.31	0.11	13.59	0.04	0.09	0.00	0.17	100.20
T762	18	7827	till	0.25-0.5	black	Mg-Ilmenite	0.11	56.58	0.29	0.70	0.37	24.52	0.38	0.08	17.28	0.06	0.03	0.00	0.31	100.69
T762	19	7827	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.07	0.39	0.55	0.65	29.12	0.33	0.04	14.14	0.06	0.04	0.03	0.24	100.68
T762	21	7827	till	0.25-0.5	black	Mg-Ilmenite	0.11	56.68	0.39	1.22	0.32	23.56	0.43	0.11	18.32	0.08	0.00	0.11	0.24	101.58

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T762	22	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	53.65	0.26	0.39	0.49	30.35	0.34	0.03	13.66	0.04	0.05	0.00	0.24	99.60
T762	23	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.41	0.27	0.84	0.44	30.29	0.29	0.06	13.91	0.04	0.04	0.08	0.16	100.90
T762	24	7827	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.96	0.35	0.42	0.54	23.48	0.58	0.06	18.72	0.08	0.03	0.04	0.15	101.48
T762	25	7827	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.50	0.42	0.48	0.38	27.67	0.30	0.00	15.57	0.05	0.18	0.05	0.22	100.95
T762	26	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.82	0.37	1.24	0.40	29.47	0.29	0.07	14.23	0.04	0.05	0.00	0.20	100.29
T762	28	7827	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.00	0.56	1.71	0.46	27.83	0.32	0.00	14.63	0.02	0.11	0.01	0.12	100.82
T762	29	7827	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.70	0.36	1.34	0.35	29.16	0.37	0.09	14.05	0.07	0.13	0.03	0.17	100.93
T762	30	7827	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.06	0.35	0.75	0.33	33.07	0.26	0.13	11.95	0.00	0.14	0.02	0.08	101.18
T762	31	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	56.68	0.29	0.87	0.43	24.78	0.45	0.05	17.00	0.02	0.04	0.04	0.27	100.98
T762	32	7827	till	0.25-0.5	black	Mg-Ilmenite	0.15	54.59	0.34	0.41	0.26	32.26	0.36	0.08	12.43	0.00	0.02	0.00	0.24	101.12
T762	33	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.45	0.24	0.34	0.37	33.43	0.37	0.03	12.04	0.03	0.03	0.02	0.08	100.50
T762	34	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	57.10	0.35	1.18	0.46	24.70	0.29	0.10	17.71	0.03	0.05	0.05	0.25	102.35
T762	36	7827	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.31	0.37	0.45	0.47	29.78	0.40	0.09	14.51	0.03	0.05	0.06	0.25	101.88
T762	37	7827	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.61	0.79	1.19	0.37	28.49	0.36	0.10	14.82	0.07	0.16	0.02	0.07	101.16
T762	38	7827	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.97	0.31	1.25	0.49	28.62	0.41	0.00	15.40	0.04	0.15	0.15	0.25	102.12
T762	39	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.32	0.32	1.28	0.63	30.34	0.29	0.03	13.60	0.05	0.13	0.00	0.21	101.28
T762	40	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.60	0.35	1.18	0.38	24.97	0.47	0.00	17.03	0.05	0.04	0.06	0.19	101.38
T762	42	7827	till	0.25-0.5	black	Mg-Ilmenite	0.14	52.53	0.23	0.38	0.58	33.74	0.18	0.00	11.71	0.00	0.00	0.00	0.21	99.70
T762	44	7827	till	0.25-0.5	black	Mg-Ilmenite	0.12	52.06	0.18	0.39	0.49	33.25	0.37	0.09	12.56	0.35	0.07	0.07	0.09	100.09
T762	45	7827	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.15	0.46	1.34	0.49	26.40	0.44	0.09	15.70	0.34	0.15	0.02	0.14	100.87
T762	47	7827	till	0.25-0.5	black	Mg-Ilmenite	0.66	53.42	0.17	0.67	0.43	30.57	0.87	0.08	11.77	0.56	0.02	0.07	0.23	99.53
T762	48	7827	till	0.25-0.5	black	Mg-Ilmenite	0.15	55.29	0.32	1.52	0.43	23.66	0.50	0.01	16.83	0.38	0.14	0.04	0.18	99.46
T762	49	7827	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.95	0.46	0.53	0.60	28.92	0.25	0.05	14.39	0.39	0.11	0.01	0.14	100.91
T762	52	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.06	0.39	1.29	0.51	30.08	0.25	0.03	13.26	0.15	0.11	0.04	0.15	100.39
T762	53	7827	till	0.25-0.5	black	Mg-Ilmenite	0.02	56.01	0.28	1.92	0.24	26.32	0.33	0.10	15.73	0.04	0.10	0.09	0.18	101.37
T762	56	7827	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.23	0.11	2.25	0.46	28.25	0.27	0.00	14.01	0.33	0.09	0.13	0.17	99.41
T762	57	7827	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.09	0.41	1.24	0.40	26.02	0.39	0.01	16.10	0.36	0.04	0.09	0.13	100.40
T762	58	7827	till	0.25-0.5	black	Mg-Ilmenite	0.15	53.38	0.32	0.46	0.49	28.63	0.47	0.04	15.71	0.41	0.10	0.04	0.21	100.41
T762	59	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	54.01	0.29	1.55	0.45	28.59	0.42	0.13	14.72	0.16	0.12	0.00	0.18	100.68
T762	60	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.05	0.28	0.32	0.32	27.67	0.53	0.16	15.89	0.34	0.12	0.04	0.22	101.02
T762	61	7827	till	0.25-0.5	black	Mg-Ilmenite	0.15	51.78	0.22	0.83	0.35	32.51	0.45	0.03	12.48	0.30	0.10	0.00	0.27	99.47
T762	62	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.65	0.29	0.61	0.56	29.51	0.43	0.04	13.97	0.30	0.03	0.08	0.23	99.81
T762	63	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.88	0.35	1.18	0.38	26.70	0.41	0.13	15.59	0.21	0.14	0.01	0.23	101.25
T762	64	7827	till	0.25-0.5	black	Mg-Ilmenite	0.14	56.35	0.33	0.45	0.37	24.68	0.46	0.00	17.21	0.15	0.11	0.00	0.18	100.43
T762	65	7827	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.21	0.42	0.65	0.36	26.56	0.40	0.05	16.12	0.15	0.13	0.06	0.28	100.50
T762	66	7827	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.36	0.26	0.34	0.61	27.66	0.40	0.06	16.20	0.22	0.09	0.01	0.19	100.54
T762	67	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	57.03	0.28	0.84	0.31	22.48	0.47	0.00	18.32	0.44	0.07	0.03	0.27	100.61
T762	68	7827	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.19	0.33	0.51	0.45	27.86	0.39	0.14	15.35	0.10	0.14	0.10	0.22	100.89
T762	69	7827	till	0.25-0.5	black	(Mg-Ilmenite)	0.13	40.93	1.49	0.83	0.30	34.28	0.58	0.06	8.83	7.99	0.11	0.05	0.11	95.68
T762	70	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.69	0.32	1.44	0.41	25.61	0.34	0.04	15.51	0.41	0.11	0.00	0.25	100.25
T762	71	7827	till	0.25-0.5	black	Mg-Ilmenite	0.30	53.28	0.27	0.60	0.49	28.79	0.42	0.02	14.76	0.41	0.01	0.13	0.28	99.75
T762	72	7827	till	0.25-0.5	black	Mg-Ilmenite	0.18	54.15	0.24	0.30	0.47	27.63	0.43	0.08	15.55	0.44	0.02	0.05	0.14	99.69
T762	73	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.56	0.49	0.56	0.41	28.81	0.31	0.06	13.93	0.36	0.06	0.06	0.09	99.78
T762	76	7827	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.20	0.70	0.47	0.48	27.36	0.26	0.08	14.82	0.34	0.14	0.04	0.21	100.23
T762	77	7827	till	0.25-0.5	black	Mg-Ilmenite	0.12	56.04	0.24	1.19	0.26	24.17	0.41	0.08	16.75	0.35	0.08	0.06	0.23	99.97
T762	79	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.55	0.29	0.44	0.40	31.69	0.20	0.00	12.60	0.40	0.01	0.04	0.18	99.87

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T762	80	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.44	0.29	1.00	0.38	22.17	0.45	0.04	18.29	0.44	0.09	0.06	0.20	99.93
T762	81	7827	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.83	0.24	2.37	0.28	23.17	0.53	0.08	16.83	0.41	0.14	0.00	0.43	100.37
T762	82	7827	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.95	0.32	1.11	0.47	26.55	0.47	0.00	16.20	0.37	0.15	0.00	0.24	100.91
T772	82	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	56.19	0.58	2.13	0.58	26.72	0.27	0.19	14.56	0.03	0.03	0.14	0.20	101.67
T772	83	7827	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.35	0.36	1.04	0.57	30.43	0.34	0.04	13.68	0.07	0.10	0.08	0.32	102.46
T772	84	7827	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.20	1.20	1.16	0.36	29.21	0.24	0.11	13.76	0.03	0.11	0.00	0.24	101.63
T772	85	7827	till	0.25-0.5	black	Mg-Ilmenite	0.03	56.06	0.48	0.46	0.38	30.67	0.35	0.00	12.97	0.03	0.05	0.12	0.00	101.60
T772	86	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.95	0.49	0.65	0.47	30.29	0.30	0.03	13.06	0.02	0.03	0.07	0.35	101.78
T772	87	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.45	0.48	1.16	0.33	30.66	0.27	0.12	13.20	0.04	0.08	0.04	0.14	102.05
T772	89	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	57.15	0.60	1.48	0.39	27.84	0.25	0.23	14.49	0.02	0.00	0.09	0.09	102.68
T772	90	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.17	0.44	0.40	0.41	32.14	0.37	0.00	11.68	0.01	0.11	0.12	0.00	100.95
T772	91	7827	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.14	0.36	1.16	0.52	29.14	0.36	0.13	14.30	0.01	0.02	0.00	0.09	102.30
T772	92	7827	till	0.25-0.5	black	Mg-Ilmenite	0.02	55.46	0.49	1.21	0.39	30.10	0.29	0.17	13.38	0.00	0.08	0.04	0.21	101.85
T772	93	7827	till	0.25-0.5	black	Mg-Ilmenite	0.04	57.45	0.57	1.07	0.39	27.84	0.24	0.15	14.82	0.03	0.10	0.02	0.26	102.98
T772	94	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.29	0.31	0.34	0.53	32.46	0.40	0.01	12.19	0.01	0.07	0.00	0.18	101.89
T772	95	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.95	0.51	1.77	0.50	28.20	0.23	0.16	13.79	0.03	0.05	0.00	0.30	101.57
T772	96	7827	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.79	0.26	0.41	0.38	31.76	0.36	0.18	12.42	0.00	0.08	0.10	0.22	102.03
T772	98	7827	till	0.25-0.5	black	Mg-Ilmenite	0.09	57.08	0.51	1.22	0.32	26.50	0.33	0.14	15.37	0.05	0.08	0.02	0.18	101.89
T772	100	7827	till	0.25-0.5	black	Mg-Ilmenite	0.05	56.44	0.42	0.61	0.51	29.08	0.33	0.08	14.00	0.04	0.04	0.14	0.14	101.87
T772	102	7827	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.53	0.73	2.42	0.47	27.52	0.17	0.07	14.21	0.04	0.00	0.04	0.16	101.44
T796	70	7827	till	0.5-1.0	black	Mg-Ilmenite	0.01	56.01	0.17	0.56	0.63	30.28	0.31	0.12	12.82	0.09	0.08	0.00	0.00	101.33
T796	71	7827	till	0.5-1.0	black	Mg-Ilmenite	0.07	54.86	0.54	1.19	0.60	29.65	0.25	0.03	13.31	0.09	0.01	0.00	0.05	100.95
T796	72	7827	till	0.5-1.0	black	Mg-Ilmenite	0.07	54.75	0.41	0.45	0.68	31.91	0.24	0.04	12.81	0.18	0.05	0.03	0.30	102.19
T796	73	7827	till	0.5-1.0	black	Mg-Ilmenite	0.04	54.95	0.41	1.19	0.71	29.74	0.19	0.17	13.30	0.09	0.09	0.03	0.03	101.26
T796	74	7827	till	0.5-1.0	black	Mg-Ilmenite	0.07	55.23	0.33	0.48	0.68	29.75	0.46	0.04	14.15	0.14	0.11	0.03	0.08	101.77
T796	75	7827	till	0.5-1.0	black	Mg-Ilmenite	0.07	54.83	0.54	1.21	0.65	29.46	0.28	0.10	13.53	0.14	0.05	0.00	0.01	101.15
T796	76	7827	till	0.5-1.0	black	Mg-Ilmenite	0.00	53.81	0.27	0.48	0.51	32.97	0.46	0.06	11.96	0.06	0.08	0.02	0.05	100.93
T796	77	7827	till	0.5-1.0	black	Mg-Ilmenite	0.03	54.82	0.54	1.19	0.67	30.04	0.27	0.05	13.11	0.17	0.05	0.00	0.09	101.22
T796	78	7827	till	0.5-1.0	black	Mg-Ilmenite	0.03	56.28	0.28	0.37	0.68	28.70	0.40	0.04	14.82	0.05	0.01	0.03	0.00	101.98
T761	63	7827	till	0.25-0.5	black	Ilmenite	0.06	53.05	0.07	0.05	0.23	45.36	0.62	0.04	2.02	0.00	0.04	0.02	0.20	101.76
T761	65	7827	till	0.25-0.5	black	Ilmenite	0.02	51.72	0.14	0.10	0.27	45.27	0.57	0.00	2.04	0.02	0.09	0.12	0.05	100.43
T761	74	7827	till	0.25-0.5	black	Ilmenite	0.04	52.97	0.06	0.04	0.04	42.67	4.33	0.06	0.41	0.00	0.08	0.00	0.00	100.70
T762	8	7827	till	0.25-0.5	black	Ilmenite	0.07	50.66	0.15	0.11	0.39	45.15	0.69	0.05	2.42	0.33	0.09	0.04	0.08	0.00
T762	35	7827	till	0.25-0.5	black	Ilmenite	0.11	51.11	0.04	0.11	0.22	44.88	3.26	0.15	0.29	0.01	0.00	0.07	0.00	0.05
T762	43	7827	till	0.25-0.5	black	Ilmenite	0.06	52.25	0.04	0.00	0.28	44.55	0.75	0.00	1.72	0.20	0.04	0.00	0.06	0.00
T762	46	7827	till	0.25-0.5	black	Ilmenite	0.05	49.40	0.05	0.01	0.30	48.08	2.41	0.04	0.04	0.01	0.00	0.08	0.06	100.53
T762	51	7827	till	0.25-0.5	black	Ilmenite	0.05	52.68	0.19	0.00	0.37	43.80	0.49	0.09	3.12	0.02	0.00	0.02	0.00	0.09
T762	54	7827	till	0.25-0.5	black	Ilmenite	0.05	50.29	0.06	0.05	0.43	46.48	2.76	0.05	0.09	0.02	0.00	0.04	0.19	0.03
T762	83	7827	till	0.25-0.5	black	Ilmenite	0.04	50.79	0.08	0.06	0.21	45.67	2.24	0.04	0.03	0.31	0.05	0.10	0.00	0.03
T772	88	7827	till	0.25-0.5	black	Ilmenite	0.06	53.48	0.14	0.05	0.27	45.30	0.61	0.00	2.10	0.02	0.05	0.14	0.07	0.00
T772	97	7827	till	0.25-0.5	black	Ilmenite	0.02	52.84	0.18	0.10	0.40	44.58	0.67	0.01	3.10	0.03	0.00	0.00	0.05	0.03
T772	99	7827	till	0.25-0.5	black	Ilmenite	0.12	54.29	0.09	0.12	0.26	44.95	0.70	0.09	1.51	0.07	0.06	0.05	0.02	0.04
T772	101	7827	till	0.25-0.5	black	Ilmenite	0.05	53.30	0.07	0.05	0.33	44.75	0.52	0.00	2.65	0.03	0.00	0.04	0.12	0.03
T778	26	7827	till	0.25-0.5	black	Ilmenite	0.06	52.86	0.06	0.00	0.37	45.20	0.72	0.02	0.06	0.07	1.25	0.06	0.00	
T778	31	7827	till	0.25-0.5	black	Ilmenite	0.00	52.23	0.08	0.05	0.44	45.68	0.71	0.00	0.00	0.00	1.75	0.02	0.01	
T778	34	7827	till	0.25-0.5	black	Ilmenite	0.05	52.86	0.14	0.00	0.38	44.16	0.52	0.10	0.10	0.00	2.17	0.20	0.00	

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T773	6	7828	till	0.25-0.5	black	Mg-Ilmenite	0.16	55.21	0.38	0.44	0.32	30.55	0.25	0.06	12.86	0.04	0.16	0.00	0.29	100.72
T773	7	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.75	0.38	0.50	0.44	30.15	0.32	0.04	12.98	0.04	0.02	0.04	0.15	100.88
T773	9	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.78	0.34	0.67	0.37	32.13	0.38	0.07	12.02	0.00	0.03	0.03	0.12	99.99
T773	10	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.44	0.43	1.12	0.52	28.01	0.30	0.11	14.01	0.07	0.05	0.04	0.02	100.21
T773	11	7828	till	0.25-0.5	black	Mg-Ilmenite	0.02	53.77	0.50	0.15	0.33	33.61	0.24	0.09	11.28	0.02	0.09	0.00	0.14	100.25
T773	12	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.43	0.34	0.46	0.30	32.13	0.35	0.10	11.95	0.04	0.05	0.00	0.06	100.28
T773	13	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.58	0.41	0.50	0.27	30.51	0.32	0.07	13.18	0.03	0.01	0.04	0.18	101.22
T773	14	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.59	0.29	0.36	0.51	31.63	0.32	0.06	12.37	0.01	0.00	0.07	0.20	100.48
T773	15	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.76	0.36	1.27	0.39	32.14	0.19	0.11	11.96	0.03	0.14	0.08	0.14	100.61
T773	16	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.45	0.33	0.48	0.27	31.73	0.26	0.00	12.51	0.01	0.09	0.14	0.06	100.42
T773	20	7828	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.96	0.37	0.51	0.59	29.96	0.27	0.02	13.24	0.05	0.01	0.08	0.17	101.28
T773	21	7828	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.65	0.36	0.52	0.49	31.68	0.23	0.07	12.50	0.02	0.03	0.06	0.24	100.89
T773	22	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	53.84	0.37	0.46	0.45	32.01	0.27	0.06	12.20	0.00	0.13	0.01	0.17	100.05
T773	23	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.67	0.52	0.51	0.36	31.02	0.21	0.02	12.39	0.02	0.11	0.07	0.22	100.21
T773	24	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.33	0.30	0.32	0.43	32.64	0.35	0.10	11.94	0.01	0.05	0.00	0.14	100.71
T773	25	7828	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.29	0.23	0.63	0.36	29.60	0.43	0.01	14.04	0.00	0.06	0.13	0.13	100.95
T773	26	7828	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.39	0.37	0.24	0.46	29.74	0.27	0.05	13.21	0.01	0.14	0.01	0.29	100.24
T773	29	7828	till	0.25-0.5	black	Mg-Ilmenite	0.18	55.30	0.43	0.84	0.41	29.06	0.24	0.01	13.66	0.00	0.14	0.01	0.20	100.48
T773	30	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.81	0.43	0.88	0.48	29.22	0.24	0.00	13.97	0.02	0.05	0.00	0.11	101.27
T773	32	7828	till	0.25-0.5	black	Mg-Ilmenite	0.23	55.08	0.31	0.54	0.42	28.42	0.60	0.03	14.80	0.02	0.08	0.00	0.14	100.69
T773	33	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.04	0.36	1.89	0.37	30.39	0.25	0.00	12.71	0.02	0.18	0.09	0.21	100.61
T773	34	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.05	0.29	0.51	0.35	29.77	0.29	0.04	13.30	0.05	0.13	0.08	0.13	100.11
T773	35	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.80	0.38	0.68	0.42	25.19	0.45	0.02	16.00	0.10	0.14	0.06	0.29	100.61
T773	38	7828	till	0.25-0.5	black	Mg-Ilmenite	0.03	52.73	0.36	0.47	0.49	34.25	0.37	0.05	11.35	0.03	0.05	0.00	0.19	100.37
T773	39	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.95	0.38	0.71	0.48	30.25	0.36	0.00	13.07	0.05	0.12	0.08	0.15	100.68
T773	40	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	53.55	0.30	0.56	0.49	32.10	0.37	0.03	12.11	0.06	0.10	0.08	0.07	99.88
T773	42	7828	till	0.25-0.5	black	Mg-Ilmenite	0.18	55.29	0.33	0.38	0.37	31.25	0.25	0.09	12.69	0.00	0.09	0.01	0.13	101.07
T773	43	7828	till	0.25-0.5	black	Mg-Ilmenite	0.14	54.74	0.60	2.59	0.62	27.57	0.24	0.06	14.01	0.02	0.21	0.00	0.16	100.96
T773	44	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.34	0.47	0.61	0.47	28.17	0.39	0.00	15.03	0.03	0.11	0.00	0.08	100.79
T773	45	7828	till	0.25-0.5	black	Mg-Ilmenite	0.15	56.65	0.34	0.99	0.49	25.25	0.45	0.05	15.95	0.01	0.05	0.00	0.19	100.56
T773	47	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.46	0.21	0.49	0.54	32.18	0.32	0.07	11.89	0.04	0.00	0.00	0.19	100.46
T773	48	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.35	0.30	0.56	0.46	30.10	0.30	0.07	13.35	0.03	0.13	0.13	0.18	101.05
T773	49	7828	till	0.25-0.5	black	Mg-Ilmenite	0.23	55.75	0.77	0.10	0.26	28.78	0.39	0.13	13.96	0.05	0.05	0.03	0.15	100.65
T773	51	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.63	0.31	0.51	0.37	28.65	0.40	0.06	13.97	0.04	0.06	0.11	0.11	100.32
T773	54	7828	till	0.25-0.5	black	Mg-Ilmenite	0.16	55.18	0.36	0.75	0.56	27.60	0.46	0.00	15.22	0.10	0.04	0.00	0.23	100.66
T762	92	7828	till	0.25-0.5	black	Mg-Ilmenite	0.19	54.65	0.37	0.53	0.48	29.03	0.38	0.03	14.82	0.41	0.11	0.00	0.17	101.17
T762	93	7828	till	0.25-0.5	black	Mg-Ilmenite	0.05	53.07	0.33	0.38	0.38	33.38	0.24	0.10	12.24	0.36	0.00	0.04	0.09	100.65
T762	94	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.04	0.46	0.93	0.27	25.37	0.53	0.10	16.77	0.34	0.00	0.00	0.26	101.16
T762	95	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.21	0.33	0.49	0.42	26.40	0.48	0.06	15.89	0.11	0.10	0.02	0.22	100.81
T762	96	7828	till	0.25-0.5	black	Mg-Ilmenite	0.16	56.01	0.38	0.47	0.50	25.96	0.45	0.02	15.69	0.33	0.16	0.00	0.23	100.36
T762	98	7828	till	0.25-0.5	black	Mg-Ilmenite	0.18	55.78	0.41	0.39	0.42	25.61	0.39	0.00	16.04	0.32	0.14	0.05	0.17	99.90
T762	99	7828	till	0.25-0.5	black	Mg-Ilmenite	0.01	58.89	0.14	3.32	0.53	18.16	0.43	0.00	19.72	0.38	0.06	0.03	0.27	101.94
T762	101	7828	till	0.25-0.5	black	(Mg-Ilmenite)	0.22	47.41	1.07	0.36	0.18	28.53	0.42	0.14	15.16	2.65	0.11	0.00	0.11	96.36
T762	102	7828	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.18	0.41	0.57	0.38	28.49	0.33	0.00	14.73	0.42	0.13	0.04	0.20	100.02
T762	105	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	51.54	0.52	1.50	0.35	33.91	0.31	0.09	10.87	0.36	0.11	0.00	0.03	99.67
T762	106	7828	till	0.25-0.5	black	Mg-Ilmenite	0.18	55.45	0.38	0.49	0.38	27.20	0.43	0.10	15.27	0.32	0.13	0.04	0.16	100.53

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T763	1	7828	till	0.25-0.5	black	Mg-Ilmenite	0.01	51.66	0.22	0.49	0.50	31.93	0.40	0.00	13.82	0.17	0.10	0.12	0.13	99.55
T763	2	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.99	0.41	0.09	0.53	28.06	0.28	0.06	14.93	0.34	0.05	0.00	0.18	100.02
T763	3	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.59	0.40	0.85	0.30	25.89	0.42	0.07	16.30	0.19	0.11	0.05	0.14	100.42
T763	4	7828	till	0.25-0.5	black	Mg-Ilmenite	0.14	53.13	0.20	0.41	0.53	32.16	0.21	0.10	12.25	0.25	0.00	0.17	0.14	99.69
T763	5	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	52.36	0.21	0.40	0.39	34.45	0.39	0.05	11.67	0.27	0.00	0.04	0.22	100.55
T763	7	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.61	0.58	2.46	0.55	25.14	0.32	0.08	15.75	0.27	0.04	0.08	0.26	101.24
T763	8	7828	till	0.25-0.5	black	Mg-Ilmenite	0.46	52.08	0.55	0.38	0.36	33.48	0.31	0.10	11.27	0.24	0.15	0.07	0.21	99.66
T763	9	7828	till	0.25-0.5	black	Mg-Ilmenite	0.03	53.39	0.25	0.22	0.48	31.64	0.32	0.07	13.70	0.24	0.16	0.12	0.26	100.89
T763	10	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	51.83	0.19	0.45	0.48	35.19	0.33	0.08	11.01	0.26	0.07	0.00	0.13	100.08
T763	11	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.76	0.64	0.26	0.36	31.30	0.29	0.04	12.95	0.26	0.13	0.02	0.14	101.24
T763	12	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	57.06	0.37	0.58	0.42	25.76	0.41	0.02	15.90	0.36	0.05	0.01	0.21	101.24
T763	13	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.22	0.26	0.33	0.41	33.67	0.35	0.01	11.02	0.27	0.09	0.11	0.18	99.98
T763	14	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.26	0.40	0.57	0.42	29.29	0.32	0.00	14.23	0.21	0.11	0.01	0.08	99.98
T763	15	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.72	0.26	0.68	0.43	31.36	0.34	0.10	12.49	0.37	0.15	0.00	0.06	100.03
T763	17	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.93	0.29	0.52	0.56	31.24	0.35	0.04	13.03	0.25	0.08	0.17	0.06	100.63
T763	18	7828	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.01	0.41	0.68	0.51	28.86	0.21	0.12	14.06	0.24	0.12	0.06	0.15	100.53
T763	19	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	56.37	0.38	0.62	0.59	25.51	0.45	0.06	16.16	0.31	0.05	0.02	0.14	100.72
T763	20	7828	till	0.25-0.5	black	Mg-Ilmenite	0.12	51.31	0.20	0.41	0.52	35.65	0.25	0.07	10.48	0.31	0.04	0.00	0.14	99.50
T763	21	7828	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.67	0.44	0.15	0.50	31.91	0.26	0.06	12.72	0.30	0.10	0.09	0.11	101.43
T763	22	7828	till	0.25-0.5	black	Mg-Ilmenite	0.17	55.67	0.33	0.48	0.34	27.73	0.47	0.09	15.22	0.27	0.09	0.03	0.16	101.04
T763	23	7828	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.27	0.34	0.40	0.33	29.66	0.32	0.02	13.82	0.43	0.12	0.07	0.18	100.09
T763	24	7828	till	0.25-0.5	black	Mg-Ilmenite	0.12	53.98	0.42	0.79	0.40	29.80	0.43	0.09	13.49	0.27	0.11	0.00	0.04	99.94
T763	25	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	57.12	1.43	0.51	0.43	21.45	0.54	0.03	18.68	0.41	0.10	0.18	0.24	101.23
T763	26	7828	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.51	0.38	0.35	0.56	27.49	0.35	0.00	14.86	0.24	0.10	0.13	0.18	100.20
T763	27	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.35	0.21	0.96	0.33	30.15	0.37	0.06	13.32	0.26	0.15	0.04	0.28	100.54
T763	28	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.43	0.24	0.87	0.47	31.40	0.38	0.07	12.37	0.30	0.07	0.10	0.22	101.02
T763	29	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.84	0.33	0.38	0.36	30.41	0.23	0.04	13.24	0.20	0.06	0.00	0.16	100.36
T763	30	7828	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.30	0.25	0.56	0.49	29.35	0.37	0.00	14.47	0.19	0.10	0.11	0.22	100.55
T763	31	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.61	0.43	0.35	0.39	29.26	0.51	0.00	14.50	0.39	0.07	0.12	0.20	100.90
T763	33	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	52.78	0.23	0.52	0.40	31.20	0.36	0.13	13.53	0.29	0.06	0.05	0.15	99.78
T763	34	7828	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.29	0.30	0.53	0.42	31.35	0.33	0.07	12.25	0.32	0.15	0.06	0.18	100.29
T763	35	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.68	0.51	1.01	0.43	29.14	0.30	0.02	14.14	0.21	0.08	0.00	0.25	99.82
T763	36	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.51	0.28	0.65	0.42	32.75	0.26	0.00	11.46	0.27	0.12	0.18	0.20	100.16
T763	37	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.24	0.47	1.33	0.45	29.66	0.27	0.03	13.12	0.24	0.16	0.18	0.22	100.46
T763	38	7828	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.68	0.31	0.91	0.38	28.33	0.34	0.03	14.08	0.24	0.07	0.12	0.19	99.84
T763	39	7828	till	0.25-0.5	black	Mg-Ilmenite	0.04	51.07	0.22	0.34	0.50	37.32	0.35	0.05	9.63	0.23	0.06	0.03	0.01	99.85
T763	40	7828	till	0.25-0.5	black	Mg-Ilmenite	0.12	56.07	0.39	0.67	0.37	27.84	0.28	0.05	14.45	0.23	0.15	0.00	0.15	100.75
T763	41	7828	till	0.25-0.5	black	Mg-Ilmenite	0.00	53.75	0.29	0.37	0.45	31.28	0.34	0.09	12.55	0.25	0.05	0.00	0.21	99.64
T763	42	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.90	0.34	0.83	0.50	32.59	0.27	0.04	11.68	0.23	0.11	0.00	0.13	100.69
T763	43	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.31	0.46	0.28	0.39	29.06	0.31	0.00	13.40	0.31	0.12	0.06	0.09	99.88
T763	44	7828	till	0.25-0.5	black	Mg-Ilmenite	0.16	52.88	0.25	0.37	0.61	34.37	0.36	0.05	11.02	0.33	0.01	0.13	0.07	100.61
T763	45	7828	till	0.25-0.5	black	Mg-Ilmenite	0.14	51.52	0.27	0.40	0.53	35.63	0.42	0.05	10.31	0.34	0.07	0.00	0.13	99.81
T763	46	7828	till	0.25-0.5	black	Mg-Ilmenite	0.16	49.88	0.16	1.08	0.68	37.67	0.39	0.13	9.56	0.27	0.13	0.21	0.04	100.37
T763	48	7828	till	0.25-0.5	black	Mg-Ilmenite	0.14	54.50	0.44	1.33	0.35	30.15	0.36	0.03	12.98	0.33	0.16	0.00	0.18	100.94
T763	50	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.59	0.23	0.67	0.33	31.91	0.39	0.05	12.23	0.31	0.02	0.00	0.12	99.94
T763	51	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.02	0.27	0.58	0.42	31.81	0.33	0.01	11.94	0.21	0.10	0.00	0.19	99.99

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T763	53	7828	till	0.25-0.5	black	Mg-Ilmenite	0.19	53.14	0.45	2.85	0.33	30.37	0.29	0.06	12.91	0.23	0.06	0.05	0.11	101.04
T763	54	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	52.72	0.22	0.20	0.50	34.52	0.30	0.00	10.88	0.30	0.00	0.00	0.05	99.77
T763	55	7828	till	0.25-0.5	black	Mg-Ilmenite	0.15	54.51	0.32	0.50	0.43	30.02	0.35	0.07	14.08	0.08	0.07	0.00	0.29	100.85
T763	56	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.32	0.27	0.60	0.28	30.27	0.34	0.06	13.39	0.29	0.08	0.03	0.21	100.23
T763	57	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.09	0.38	0.60	0.46	30.82	0.28	0.08	12.76	0.34	0.06	0.14	0.21	100.31
T763	58	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.45	0.29	0.46	0.49	32.00	0.33	0.04	12.05	0.37	0.08	0.00	0.21	100.84
T763	59	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	53.45	0.16	0.63	0.36	32.48	0.36	0.01	12.56	0.26	0.07	0.00	0.15	100.59
T763	60	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.38	0.31	0.38	0.51	30.76	0.28	0.02	12.75	0.23	0.03	0.06	0.06	99.85
T763	61	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.43	0.30	0.53	0.38	31.14	0.36	0.00	12.90	0.19	0.03	0.00	0.10	100.43
T763	62	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.32	0.49	1.08	0.47	26.06	0.38	0.03	15.59	0.28	0.11	0.08	0.15	101.14
T763	64	7828	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.03	0.21	0.31	0.49	30.16	0.31	0.06	13.70	0.39	0.08	0.00	0.22	100.08
T763	65	7828	till	0.25-0.5	black	Mg-Ilmenite	0.14	53.27	0.39	0.13	0.49	33.39	0.26	0.02	11.26	0.26	0.10	0.00	0.00	99.70
T763	66	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.05	0.56	1.49	0.30	24.83	0.39	0.00	15.64	0.27	0.09	0.00	0.16	99.89
T763	68	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.33	0.44	0.52	0.26	27.58	0.25	0.05	14.96	0.15	0.07	0.00	0.30	99.98
T763	69	7828	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.00	0.40	0.65	0.40	26.77	0.37	0.05	15.43	0.30	0.11	0.06	0.16	99.74
T763	70	7828	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.30	0.31	0.39	0.55	30.92	0.34	0.01	13.06	0.19	0.10	0.02	0.10	100.35
T763	71	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	52.37	0.20	0.89	0.38	34.47	0.28	0.10	10.82	0.25	0.06	0.09	0.03	100.06
T763	72	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.09	0.33	0.32	0.53	30.48	0.24	0.00	12.86	0.26	0.00	0.10	0.07	99.39
T763	73	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	52.82	0.23	0.35	0.40	35.12	0.36	0.11	10.32	0.28	0.01	0.06	0.10	100.26
T763	74	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.02	0.37	0.72	0.49	32.55	0.29	0.09	11.91	0.21	0.07	0.07	0.11	101.01
T763	75	7828	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.84	0.33	0.46	0.36	28.65	0.45	0.09	14.63	0.20	0.10	0.07	0.14	100.40
T763	76	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.74	0.40	1.12	0.35	28.96	0.33	0.06	13.77	0.26	0.12	0.08	0.19	100.48
T763	77	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.48	0.29	0.61	0.43	29.18	0.38	0.05	14.53	0.34	0.08	0.10	0.22	100.77
T763	78	7828	till	0.25-0.5	black	Mg-Ilmenite	0.13	52.79	0.23	0.51	0.23	33.02	0.32	0.07	11.59	0.29	0.06	0.00	0.07	99.31
T763	80	7828	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.48	0.32	0.52	0.43	29.31	0.39	0.07	14.13	0.24	0.02	0.00	0.10	100.12
T763	81	7828	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.44	0.34	0.43	0.40	29.85	0.29	0.01	13.36	0.20	0.09	0.01	0.16	99.64
T763	82	7828	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.37	0.33	0.40	0.37	30.82	0.31	0.07	13.09	0.29	0.08	0.00	0.21	100.43
T763	83	7828	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.19	0.43	0.78	0.65	29.13	0.26	0.00	14.11	0.26	0.10	0.04	0.06	101.12
T797	5	7828	till	0.5-1.0	black	Mg-Ilmenite	0.07	51.98	0.19	0.54	0.64	36.11	0.42	0.02	10.22	0.00	0.02	0.04	0.22	100.73
T797	6	7828	till	0.5-1.0	black	Mg-Ilmenite	0.03	53.31	0.22	0.45	0.66	34.90	0.31	0.00	11.08	0.04	0.03	0.00	0.21	101.47
T797	8	7828	till	0.5-1.0	black	Mg-Ilmenite	0.04	52.23	0.25	0.75	0.69	34.09	0.20	0.04	12.23	0.09	0.10	0.01	0.40	101.34
T797	9	7828	till	0.5-1.0	black	Mg-Ilmenite	0.06	55.46	0.40	0.54	0.54	28.82	0.39	0.16	15.05	0.02	0.00	0.00	0.00	101.82
T797	10	7828	till	0.5-1.0	black	Mg-Ilmenite	0.05	55.05	0.47	0.52	0.79	29.23	0.26	0.05	14.28	0.02	0.00	0.00	0.24	101.25
T797	11	7828	till	0.5-1.0	black	Mg-Ilmenite	0.01	55.60	0.40	0.42	0.72	30.84	0.38	0.12	13.21	0.07	0.07	0.05	0.13	102.28
T797	12	7828	till	0.5-1.0	black	Mg-Ilmenite	0.03	55.46	0.24	0.45	0.43	30.60	0.34	0.05	13.05	0.05	0.07	0.09	0.04	101.06
T797	13	7828	till	0.5-1.0	black	Mg-Ilmenite	0.01	54.23	0.30	0.48	0.61	32.67	0.31	0.05	12.13	0.04	0.00	0.04	0.18	101.44
T797	14	7828	till	0.5-1.0	black	Mg-Ilmenite	0.04	54.70	0.44	0.53	0.51	31.84	0.32	0.15	13.01	0.08	0.10	0.00	0.17	102.04
T797	15	7828	till	0.5-1.0	black	Mg-Ilmenite	0.02	55.31	0.29	0.62	0.46	29.87	0.29	0.08	13.86	0.04	0.09	0.05	0.22	101.50
T797	16	7828	till	0.5-1.0	black	Mg-Ilmenite	0.00	54.69	0.34	0.34	0.66	30.61	0.36	0.07	14.02	0.08	0.06	0.11	0.25	101.84
T797	18	7828	till	0.5-1.0	black	Mg-Ilmenite	0.03	55.59	0.32	0.40	0.75	30.56	0.24	0.00	13.31	0.04	0.04	0.05	0.11	101.67
T797	19	7828	till	0.5-1.0	black	Mg-Ilmenite	0.04	55.20	0.33	0.27	0.72	29.48	0.31	0.09	13.81	0.07	0.01	0.00	0.20	100.73
T797	20	7828	till	0.5-1.0	black	Mg-Ilmenite	0.07	54.67	0.49	0.50	0.58	31.39	0.27	0.14	12.82	0.07	0.00	0.08	0.03	101.33
T797	21	7828	till	0.5-1.0	black	Mg-Ilmenite	0.07	54.90	0.57	0.30	0.57	31.65	0.27	0.12	12.69	0.04	0.05	0.00	0.15	101.76
T797	22	7828	till	0.5-1.0	black	Mg-Ilmenite	0.00	56.20	0.40	0.53	0.63	28.66	0.31	0.15	14.72	0.06	0.08	0.04	0.07	102.13
T797	23	7828	till	0.5-1.0	black	Mg-Ilmenite	0.11	53.41	0.33	0.52	0.51	34.33	0.23	0.05	11.46	0.00	0.07	0.04	0.01	101.30
T797	24	7828	till	0.5-1.0	black	Mg-Ilmenite	0.04	53.73	0.35	0.66	0.66	33.75	0.34	0.11	11.77	0.03	0.02	0.00	0.00	101.58



Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T797	26	7828	till	0.5-1.0	black	Mg-Ilmenite	0.04	55.14	0.37	0.54	0.64	30.69	0.28	0.06	12.88	0.05	0.00	0.00	0.21	101.27
T797	28	7828	till	0.5-1.0	black	Mg-Ilmenite	0.02	55.54	0.50	0.69	0.59	26.82	0.40	0.08	15.51	0.08	0.00	0.04	0.09	100.69
T797	29	7828	till	0.5-1.0	black	Mg-Ilmenite	0.06	54.49	0.40	0.33	0.48	30.68	0.27	0.08	13.87	0.09	0.00	0.00	0.28	101.23
T797	30	7828	till	0.5-1.0	black	Mg-Ilmenite	0.06	53.97	0.31	0.41	0.56	30.68	0.27	0.11	13.55	0.08	0.04	0.03	0.11	100.46
T797	31	7828	till	0.5-1.0	black	Mg-Ilmenite	0.03	53.54	0.30	0.77	0.64	32.75	0.34	0.05	11.83	0.04	0.05	0.09	0.24	100.94
T797	32	7828	till	0.5-1.0	black	Mg-Ilmenite	0.02	55.81	0.38	0.47	0.54	29.18	0.30	0.05	14.38	0.09	0.12	0.00	0.24	101.87
T797	33	7828	till	0.5-1.0	black	Mg-Ilmenite	0.01	54.92	0.36	0.39	0.53	31.07	0.31	0.09	12.87	0.05	0.07	0.07	0.00	100.96
T797	34	7828	till	0.5-1.0	black	Mg-Ilmenite	0.03	53.58	0.30	0.57	0.60	32.92	0.36	0.08	12.29	0.08	0.02	0.00	0.19	101.30
T797	35	7828	till	0.5-1.0	black	Mg-Ilmenite	0.04	52.14	0.27	0.55	0.60	36.68	0.27	0.04	9.90	0.05	0.04	0.15	0.16	101.05
T797	36	7828	till	0.5-1.0	black	Mg-Ilmenite	0.04	54.72	0.37	0.23	0.69	30.91	0.25	0.12	12.77	0.01	0.02	0.01	0.08	100.50
T797	38	7828	till	0.5-1.0	black	Mg-Ilmenite	0.02	55.48	0.33	0.58	0.74	31.01	0.29	0.06	12.83	0.06	0.07	0.00	0.17	102.05
T797	39	7828	till	0.5-1.0	black	Mg-Ilmenite	0.03	55.96	0.48	0.51	0.49	29.44	0.20	0.10	14.33	0.04	0.04	0.07	0.00	102.01
T797	40	7828	till	0.5-1.0	black	Mg-Ilmenite	0.05	55.61	0.40	0.38	0.26	29.57	0.23	0.05	13.91	0.05	0.00	0.04	0.03	100.75
T797	41	7828	till	0.5-1.0	black	Mg-Ilmenite	0.02	52.72	0.23	0.36	0.54	34.84	0.31	0.03	11.71	0.01	0.09	0.09	0.00	101.15
T797	43	7828	till	0.5-1.0	black	Mg-Ilmenite	0.05	54.41	0.51	0.54	0.64	32.08	0.27	0.04	12.55	0.05	0.00	0.04	0.17	101.57
T797	44	7828	till	0.5-1.0	black	Mg-Ilmenite	0.08	56.09	0.48	1.59	0.65	26.82	0.25	0.18	15.02	0.09	0.14	0.06	0.21	101.77
T797	45	7828	till	0.5-1.0	black	Mg-Ilmenite	0.08	55.89	0.41	0.45	0.55	28.58	0.28	0.08	14.49	0.12	0.05	0.12	0.34	101.81
T797	46	7828	till	0.5-1.0	black	Mg-Ilmenite	0.02	55.19	0.33	0.35	0.56	30.20	0.39	0.04	13.73	0.06	0.13	0.01	0.01	101.18
T797	47	7828	till	0.5-1.0	black	Mg-Ilmenite	0.03	56.04	0.44	1.51	0.61	26.99	0.20	0.26	15.19	0.06	0.09	0.09	0.15	101.90
T797	48	7828	till	0.5-1.0	black	Mg-Ilmenite	0.04	55.01	0.41	0.48	0.61	30.76	0.32	0.11	13.42	0.12	0.03	0.07	0.05	101.57
T797	49	7828	till	0.5-1.0	black	Mg-Ilmenite	0.00	53.25	0.25	0.59	0.57	33.77	0.26	0.07	11.67	0.12	0.06	0.00	0.05	100.90
T797	50	7828	till	0.5-1.0	black	Mg-Ilmenite	0.00	55.59	0.34	0.38	0.38	30.60	0.31	0.00	13.58	0.06	0.05	0.08	0.24	101.94
T778	73	7828	till	0.25-0.5	black	Mg-Ilmenite	0.00	55.90	0.55	0.98	0.51	27.86	0.23	0.10	14.49	0.15	0.08	0.02	0.04	100.91
T762	100	7828	till	0.25-0.5	black	Ilmenite	0.04	51.91	0.12	0.05	0.17	45.35	0.66	0.02	1.51	0.38	0.03	0.04	0.04	0.00
T762	107	7828	till	0.25-0.5	black	Ilmenite	0.04	51.88	0.15	0.09	0.23	44.68	0.50	0.01	2.02	0.27	0.06	0.11	0.06	0.17
T762	107	7828	till	0.25-0.5	black	Ilmenite	0.10	52.22	0.12	0.05	0.24	44.80	0.56	0.00	1.97	0.26	0.03	0.00	0.06	0.03
T762	107	7828	till	0.25-0.5	black	Ilmenite	0.08	52.22	0.10	0.00	0.43	43.98	0.56	0.05	2.09	0.29	0.05	0.08	0.12	0.00
T763	16	7828	till	0.25-0.5	black	Ilmenite	0.10	52.62	0.08	0.10	0.29	45.00	0.70	0.05	1.32	0.30	0.04	0.00	0.00	0.08
T763	32	7828	till	0.25-0.5	black	Ilmenite	0.08	52.20	0.04	0.02	0.28	45.03	0.84	0.02	0.73	0.21	0.00	0.02	0.00	0.00
T763	63	7828	till	0.25-0.5	black	Ilmenite	0.06	52.22	0.16	0.00	0.32	43.51	0.54	0.03	2.76	0.33	0.03	0.11	0.09	0.04
T763	67	7828	till	0.25-0.5	black	Ilmenite	0.08	51.96	0.10	0.00	0.29	43.72	0.54	0.09	2.80	0.24	0.00	0.07	0.00	0.05
T773	17	7828	till	0.20-0.50	black	Ilmenite	0.07	52.67	0.07	0.00	0.29	45.19	0.64	0.10	1.16	0.05	0.00	0.14	0.02	0.11
T773	36	7828	till	0.20-0.50	black	Ilmenite	0.13	52.18	0.06	0.03	0.20	46.18	1.90	0.00	0.37	0.00	0.07	0.00	0.07	0.09
T773	50	7828	till	0.20-0.50	black	Ilmenite	0.20	51.61	0.14	0.00	0.32	46.19	0.59	0.04	0.99	0.00	0.01	0.13	0.02	0.00
T773	52	7828	till	0.20-0.50	black	Ilmenite	0.12	52.33	0.09	0.03	0.30	44.93	0.52	0.10	1.94	0.02	0.00	0.05	0.07	0.03
T773	53	7828	till	0.20-0.50	black	Ilmenite	0.13	52.79	0.00	0.14	0.37	45.38	1.16	0.00	0.40	0.02	0.10	0.00	0.03	0.00
T797	25	7828	till	0.5-1.0	black	Ilmenite	0.00	52.64	0.12	0.00	0.73	44.01	0.56	0.00	0.02	0.05	3.03	0.02	0.02	0.03
T773	89	7829	till	0.25-0.5	black	Mg-Ilmenite	0.09	52.88	0.27	0.42	0.66	33.58	0.27	0.09	10.98	0.03	0.00	0.02		99.28
T773	90	7829	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.50	0.43	0.74	0.43	28.63	0.35	0.14	14.37	0.01	0.01	0.03	0.23	100.91
T773	91	7829	till	0.25-0.5	black	Mg-Ilmenite	0.12	52.22	0.40	1.68	0.45	32.98	0.28	0.02	11.54	0.00	0.06	0.07	0.17	99.99
T773	92	7829	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.86	0.38	0.77	0.43	30.47	0.21	0.09	13.22	0.04	0.08	0.06	0.18	100.89
T764	1	7829	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.26	0.31	0.33	0.44	27.37	0.42	0.09	15.27	0.17	0.10	0.06	0.27	100.18
T764	2	7829	till	0.25-0.5	black	Mg-Ilmenite	0.16	57.07	0.34	0.73	0.46	23.42	0.48	0.04	17.97	0.12	0.19	0.06	0.17	101.21
T764	3	7829	till	0.25-0.5	black	Mg-Ilmenite	0.18	52.62	0.15	0.37	0.57	31.35	0.43	0.01	13.79	0.22	0.04	0.05	0.16	99.93
T764	4	7829	till	0.25-0.5	black	Mg-Ilmenite	0.33	55.06	0.34	0.50	0.44	27.66	0.39	0.08	14.62	0.33	0.10	0.07	0.09	100.02
T764	6	7829	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.19	0.30	0.91	0.37	25.74	0.35	0.02	16.07	0.33	0.08	0.02	0.34	100.81

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T764	7	7829	till	0.25-0.5	black	Mg-Ilmenite	0.11	56.15	0.49	0.53	0.55	28.60	0.22	0.06	14.40	0.28	0.14	0.00	0.15	101.67
T764	8	7829	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.43	0.46	0.24	0.49	31.51	0.27	0.05	12.58	0.34	0.01	0.06	0.17	100.68
T764	9	7829	till	0.25-0.5	black	Mg-Ilmenite	0.15	53.83	0.22	0.35	0.51	31.47	0.42	0.05	12.73	0.31	0.00	0.04	0.15	100.23
T764	10	7829	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.23	0.27	0.43	0.50	31.68	0.49	0.09	12.85	0.28	0.03	0.00	0.14	100.09
T764	11	7829	till	0.25-0.5	black	Mg-Ilmenite	0.10	56.05	0.39	0.71	0.45	23.79	0.55	0.08	17.19	0.41	0.09	0.00	0.19	100.01
T764	12	7829	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.43	0.34	1.42	0.50	29.58	0.39	0.03	13.43	0.02	0.12	0.04	0.18	100.58
T764	14	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	56.01	0.33	0.48	0.35	27.65	0.48	0.03	15.36	0.16	0.09	0.08	0.28	101.42
T764	15	7829	till	0.25-0.5	black	Mg-Ilmenite	0.24	54.04	0.50	0.63	0.51	31.14	0.27	0.00	12.53	0.29	0.09	0.00	0.18	100.42
T764	16	7829	till	0.25-0.5	black	Mg-Ilmenite	0.14	53.76	0.27	0.64	0.49	33.35	0.23	0.08	11.47	0.05	0.18	0.00	0.18	100.84
T764	17	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.49	0.31	0.45	0.52	26.90	0.48	0.06	15.30	0.34	0.09	0.06	0.21	100.35
T764	18	7829	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.51	0.36	0.94	0.46	28.77	0.24	0.08	14.19	0.30	0.00	0.00	0.17	101.15
T764	19	7829	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.05	0.25	0.44	0.52	33.75	0.29	0.01	11.02	0.33	0.08	0.02	0.03	99.88
T764	21	7829	till	0.25-0.5	black	Mg-Ilmenite	0.10	52.77	0.26	0.38	0.55	30.19	0.57	0.09	14.53	0.35	0.03	0.00	0.22	100.04
T764	22	7829	till	0.25-0.5	black	Mg-Ilmenite	0.09	53.66	0.27	0.45	0.53	32.44	0.32	0.10	12.19	0.04	0.08	0.04	0.12	100.33
T764	23	7829	till	0.25-0.5	black	Mg-Ilmenite	0.30	51.71	0.69	0.35	0.53	35.21	0.27	0.07	10.36	0.32	0.02	0.01	0.04	99.89
T764	24	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.70	0.31	0.40	0.55	32.08	0.34	0.07	12.22	0.04	0.00	0.00	0.09	100.94
T764	25	7829	till	0.25-0.5	black	Mg-Ilmenite	0.15	52.88	0.28	0.33	0.44	34.00	0.29	0.09	10.84	0.37	0.03	0.00	0.24	99.93
T764	27	7829	till	0.25-0.5	black	Mg-Ilmenite	0.14	54.58	0.39	0.49	0.40	32.01	0.24	0.04	11.70	0.45	0.00	0.07	0.17	100.69
T764	28	7829	till	0.25-0.5	black	Mg-Ilmenite	0.09	51.63	0.20	0.36	0.43	36.46	0.34	0.00	9.94	0.33	0.03	0.04	0.19	100.05
T764	29	7829	till	0.25-0.5	black	Mg-Ilmenite	0.11	57.14	0.36	0.97	0.52	24.46	0.48	0.00	16.32	0.39	0.10	0.16	0.18	101.19
T764	31	7829	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.88	0.23	0.77	0.44	26.37	0.53	0.03	16.28	0.33	0.04	0.11	0.21	101.36
T764	33	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	53.80	0.37	0.53	0.49	30.56	0.22	0.12	12.94	0.36	0.14	0.00	0.17	99.85
T764	34	7829	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.57	0.45	0.45	0.36	30.72	0.32	0.09	12.94	0.37	0.05	0.05	0.19	100.63
T764	35	7829	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.72	0.21	1.52	0.31	27.44	0.24	0.07	15.09	0.04	0.16	0.11	0.15	102.12
T764	36	7829	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.94	0.39	0.69	0.46	28.26	0.27	0.13	13.78	0.28	0.01	0.09	0.24	100.64
T764	37	7829	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.97	0.31	0.33	0.50	29.24	0.39	0.05	13.74	0.33	0.07	0.00	0.00	100.04
T764	39	7829	till	0.25-0.5	black	Mg-Ilmenite	0.12	57.39	0.21	1.48	0.49	23.32	0.39	0.07	17.34	0.34	0.12	0.00	0.20	101.47
T764	41	7829	till	0.25-0.5	black	Mg-Ilmenite	0.15	54.64	0.37	0.54	0.42	30.31	0.36	0.06	13.31	0.29	0.06	0.00	0.08	100.59
T764	42	7829	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.00	0.36	0.72	0.29	29.99	0.27	0.00	13.03	0.31	0.06	0.05	0.11	99.33
T764	44	7829	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.02	0.38	0.67	0.50	30.72	0.32	0.07	13.07	0.32	0.09	0.04	0.20	100.56
T764	45	7829	till	0.25-0.5	black	Mg-Ilmenite	0.18	54.84	0.37	0.63	0.36	30.62	0.24	0.00	12.90	0.41	0.12	0.02	0.14	100.83
T764	46	7829	till	0.25-0.5	black	Mg-Ilmenite	0.15	54.84	0.26	0.58	0.39	28.44	0.40	0.02	14.63	0.42	0.07	0.05	0.19	100.45
T764	47	7829	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.94	0.33	0.43	0.52	26.19	0.44	0.05	15.90	0.04	0.08	0.00	0.23	101.22
T764	49	7829	till	0.25-0.5	black	Mg-Ilmenite	0.12	55.78	0.51	0.46	0.16	28.31	0.26	0.07	14.23	0.26	0.07	0.05	0.31	100.60
T764	50	7829	till	0.25-0.5	black	Mg-Ilmenite	0.12	52.90	0.25	0.34	0.53	34.05	0.34	0.04	11.09	0.32	0.06	0.07	0.15	100.25
T764	52	7829	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.84	0.44	0.65	0.46	29.83	0.27	0.04	12.96	0.28	0.08	0.03	0.18	100.19
T764	53	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	56.08	0.56	1.18	0.30	26.88	0.23	0.06	14.68	0.32	0.06	0.00	0.26	100.74
T764	54	7829	till	0.25-0.5	black	Mg-Ilmenite	0.12	56.84	0.36	1.50	0.42	23.31	0.51	0.03	17.42	0.12	0.20	0.00	0.21	101.05
T764	55	7829	till	0.25-0.5	black	Mg-Ilmenite	0.04	53.42	0.26	0.44	0.52	34.30	0.26	0.03	11.07	0.12	0.08	0.10	0.17	100.82
T764	56	7829	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.47	0.28	0.55	0.42	30.03	0.41	0.08	13.49	0.31	0.08	0.02	0.23	100.47
T764	57	7829	till	0.25-0.5	black	Mg-Ilmenite	0.19	52.75	0.22	0.96	0.56	30.68	0.57	0.02	13.86	0.35	0.04	0.05	0.16	100.41
T764	58	7829	till	0.25-0.5	black	Mg-Ilmenite	0.08	57.62	0.23	1.52	0.33	22.48	0.56	0.03	17.97	0.33	0.05	0.09	0.25	101.52
T764	59	7829	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.27	0.29	0.48	0.45	31.08	0.26	0.06	12.97	0.33	0.09	0.02	0.14	100.55
T764	60	7829	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.53	0.31	0.40	0.54	31.51	0.19	0.07	12.68	0.27	0.03	0.00	0.08	100.71
T764	62	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.41	0.38	1.36	0.27	30.54	0.23	0.08	12.93	0.27	0.06	0.06	0.20	100.91
T764	63	7829	till	0.25-0.5	black	Mg-Ilmenite	0.21	53.86	0.36	1.26	0.48	30.69	0.28	0.00	12.56	0.38	0.10	0.00	0.28	100.44

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T764	64	7829	till	0.25-0.5	black	Mg-Ilmenite	0.17	54.08	0.25	0.38	0.40	32.70	0.31	0.04	11.43	0.28	0.09	0.04	0.19	100.34
T764	65	7829	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.58	0.32	0.37	0.44	29.85	0.38	0.03	12.63	0.41	0.07	0.00	0.18	100.37
T764	67	7829	till	0.25-0.5	black	Mg-Ilmenite	0.08	53.41	0.18	0.52	0.53	34.30	0.33	0.08	11.01	0.26	0.10	0.08	0.22	101.11
T764	68	7829	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.80	0.32	0.61	0.35	30.16	0.25	0.02	12.97	0.35	0.06	0.04	0.18	100.20
T764	69	7829	till	0.25-0.5	black	Mg-Ilmenite	0.14	55.74	0.40	1.04	0.51	26.20	0.32	0.08	15.56	0.36	0.02	0.03	0.12	100.53
T764	70	7829	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.01	0.31	0.33	0.43	32.24	0.37	0.03	11.89	0.18	0.08	0.07	0.13	100.16
T764	72	7829	till	0.25-0.5	black	Mg-Ilmenite	0.12	52.55	0.22	0.39	0.55	33.95	0.38	0.03	11.10	0.26	0.08	0.08	0.09	99.80
T764	73	7829	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.77	0.41	1.71	0.31	27.01	0.24	0.13	14.71	0.29	0.16	0.13	0.28	101.25
T764	74	7829	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.59	0.42	0.67	0.51	28.13	0.22	0.05	14.50	0.26	0.12	0.00	0.04	100.60
T764	75	7829	till	0.25-0.5	black	Mg-Ilmenite	0.14	56.25	0.55	1.00	0.25	25.04	0.36	0.10	15.71	0.36	0.13	0.05	0.17	100.11
T764	77	7829	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.14	0.34	0.31	0.49	32.18	0.39	0.06	12.24	0.30	0.09	0.00	0.24	100.87
T764	78	7829	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.45	0.39	0.56	0.35	26.90	0.39	0.00	14.89	0.15	0.15	0.08	0.18	99.58
T764	79	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	52.56	0.24	0.39	0.61	34.02	0.33	0.00	11.11	0.26	0.07	0.13	0.10	99.96
T764	81	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.49	0.42	0.52	0.20	27.92	0.28	0.10	14.47	0.32	0.11	0.03	0.06	100.05
T764	82	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	55.19	0.39	0.41	0.56	26.86	0.41	0.02	15.57	0.36	0.03	0.04	0.25	100.23
T764	83	7829	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.26	0.33	0.37	0.25	29.05	0.31	0.04	13.96	0.34	0.10	0.16	0.16	99.41
T764	84	7829	till	0.25-0.5	black	Mg-Ilmenite	0.19	52.58	0.21	0.43	0.55	33.49	0.35	0.00	12.20	0.13	0.11	0.02	0.24	100.50
T764	85	7829	till	0.25-0.5	black	Mg-Ilmenite	0.16	54.11	0.36	0.71	0.39	31.03	0.26	0.05	12.31	0.36	0.12	0.00	0.21	100.06
T764	86	7829	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.42	0.21	1.46	0.44	28.77	0.44	0.00	13.91	0.29	0.10	0.14	0.24	100.54
T764	87	7829	till	0.25-0.5	black	Mg-Ilmenite	0.09	56.25	0.54	0.58	0.32	27.64	0.24	0.00	14.07	0.27	0.08	0.00	0.19	100.27
T798	1	7829	till	0.5-1.0	black	Mg-Ilmenite	0.06	55.45	0.50	0.52	0.62	28.14	0.29	0.06	14.22	0.17	0.04	0.00	0.07	100.29
T798	2	7829	till	0.5-1.0	black	Mg-Ilmenite	0.01	54.27	0.42	0.78	0.72	32.73	0.27	0.11	12.06	0.12	0.09	0.04	0.00	101.72
T798	3	7829	till	0.5-1.0	black	Mg-Ilmenite	0.05	53.96	0.33	0.60	0.77	33.29	0.31	0.03	11.38	0.10	0.06	0.00	0.36	101.56
T798	4	7829	till	0.5-1.0	black	Mg-Ilmenite	0.00	53.52	0.25	0.40	0.47	33.71	0.38	0.07	11.18	0.06	0.05	0.00	0.21	100.58
T798	5	7829	till	0.5-1.0	black	Mg-Ilmenite	0.07	54.05	0.27	0.48	0.63	33.23	0.29	0.00	12.08	0.13	0.09	0.06	0.05	101.61
T798	6	7829	till	0.5-1.0	black	Mg-Ilmenite	0.00	53.78	0.29	0.54	0.54	33.77	0.26	0.01	11.65	0.07	0.06	0.00	0.16	101.31
T798	7	7829	till	0.5-1.0	black	Mg-Ilmenite	0.03	53.55	0.40	0.61	0.60	32.79	0.32	0.11	12.24	0.11	0.00	0.00	0.22	101.25
T798	9	7829	till	0.5-1.0	black	Mg-Ilmenite	0.06	56.61	0.51	0.61	0.49	27.93	0.30	0.23	14.60	0.09	0.06	0.11	0.00	101.79
T798	10	7829	till	0.5-1.0	black	Mg-Ilmenite	0.02	54.09	0.28	0.91	0.51	31.94	0.29	0.15	12.31	0.10	0.08	0.06	0.28	101.32
T798	11	7829	till	0.5-1.0	black	Mg-Ilmenite	0.02	53.04	0.28	0.46	0.53	34.88	0.33	0.06	10.93	0.07	0.03	0.01	0.17	100.95
T798	12	7829	till	0.5-1.0	black	Mg-Ilmenite	0.04	53.29	0.30	0.53	0.72	34.51	0.27	0.12	10.83	0.09	0.00	0.00	0.00	101.01
T798	13	7829	till	0.5-1.0	black	Mg-Ilmenite	0.00	54.32	0.38	0.58	0.43	31.20	0.38	0.09	12.65	0.13	0.08	0.04	0.21	100.78
T798	14	7829	till	0.5-1.0	black	Mg-Ilmenite	0.02	54.29	0.29	0.60	0.56	31.41	0.30	0.02	13.13	0.13	0.06	0.00	0.12	101.14
T798	15	7829	till	0.5-1.0	black	Mg-Ilmenite	0.00	55.79	0.38	1.59	0.53	27.27	0.28	0.15	15.01	0.12	0.08	0.06	0.08	101.60
T798	16	7829	till	0.5-1.0	black	Mg-Ilmenite	0.06	53.25	0.28	0.43	0.59	34.42	0.39	0.05	11.18	0.20	0.02	0.00	0.32	101.50
T798	17	7829	till	0.5-1.0	black	Mg-Ilmenite	0.00	53.47	0.30	0.30	0.73	32.75	0.42	0.12	11.95	0.10	0.05	0.09	0.30	100.77
T798	18	7829	till	0.5-1.0	black	Mg-Ilmenite	0.02	55.79	0.55	1.07	0.45	28.06	0.26	0.09	14.41	0.12	0.10	0.00	0.16	101.28
T798	19	7829	till	0.5-1.0	black	Mg-Ilmenite	0.00	53.37	0.28	0.44	0.63	34.44	0.35	0.07	11.17	0.15	0.03	0.00	0.21	101.36
T798	20	7829	till	0.5-1.0	black	Mg-Ilmenite	0.02	54.47	0.40	0.60	0.62	31.49	0.30	0.11	12.38	0.10	0.05	0.06	0.19	101.13
T798	21	7829	till	0.5-1.0	black	Mg-Ilmenite	0.00	53.65	0.24	0.36	0.55	32.18	0.43	0.06	13.13	0.16	0.07	0.08	0.28	101.40
T798	22	7829	till	0.5-1.0	black	Mg-Ilmenite	0.05	54.61	0.28	0.41	0.69	31.88	0.31	0.06	12.21	0.13	0.01	0.00	0.24	101.28
T798	23	7829	till	0.5-1.0	black	Mg-Ilmenite	0.06	54.21	0.30	0.53	0.68	32.24	0.25	0.00	12.44	0.13	0.13	0.09	0.30	101.50
T798	24	7829	till	0.5-1.0	black	Mg-Ilmenite	0.02	56.90	0.37	0.58	0.66	25.91	0.47	0.08	16.17	0.09	0.02	0.13	0.17	101.99
T798	25	7829	till	0.5-1.0	black	Mg-Ilmenite	0.07	55.39	0.36	0.56	0.62	29.71	0.25	0.06	13.21	0.12	0.09	0.00	0.12	100.81
T798	26	7829	till	0.5-1.0	black	Mg-Ilmenite	0.05	55.53	0.46	0.47	0.64	27.67	0.26	0.09	14.62	0.13	0.08	0.02	0.05	100.37
T798	27	7829	till	0.5-1.0	black	Mg-Ilmenite	0.06	55.53	0.45	0.23	0.51	30.79	0.30	0.01	13.08	0.10	0.15	0.00	0.11	101.50

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T798	28	7829	till	0.5-1.0	black	Mg-ilmenite	0.05	53.18	0.29	0.45	0.54	34.06	0.29	0.01	11.19	0.16	0.04	0.07	0.15	100.71
T798	29	7829	till	0.5-1.0	black	Mg-ilmenite	0.06	51.02	0.18	1.01	0.73	36.30	0.43	0.06	10.26	0.07	0.02	0.00	0.40	100.78
T798	30	7829	till	0.5-1.0	black	Mg-ilmenite	0.00	51.51	0.24	0.46	0.74	35.28	0.47	0.08	10.72	0.09	0.08	0.11	0.46	100.54
T798	32	7829	till	0.5-1.0	black	Mg-ilmenite	0.01	54.08	0.32	0.92	0.60	31.90	0.28	0.07	12.77	0.06	0.13	0.18	0.21	101.83
T798	33	7829	till	0.5-1.0	black	Mg-ilmenite	0.03	55.05	0.30	0.33	0.74	30.78	0.19	0.11	12.97	0.08	0.00	0.00	0.16	101.00
T798	36	7829	till	0.5-1.0	black	Mg-ilmenite	0.05	54.17	0.28	0.55	0.45	30.72	0.31	0.06	13.42	0.12	0.06	0.02	0.30	100.83
T798	37	7829	till	0.5-1.0	black	Mg-ilmenite	0.06	53.26	0.22	0.38	0.57	34.26	0.20	0.00	11.16	0.04	0.10	0.07	0.37	100.97
T798	38	7829	till	0.5-1.0	black	Mg-ilmenite	0.06	52.94	0.26	0.35	0.63	35.19	0.30	0.07	10.61	0.13	0.06	0.00	0.33	101.10
T798	40	7829	till	0.5-1.0	black	Mg-ilmenite	0.03	55.12	0.30	0.27	0.43	30.00	0.31	0.00	13.90	0.13	0.12	0.06	0.24	101.15
T798	43	7829	till	0.5-1.0	black	Mg-ilmenite	0.04	54.61	0.45	0.24	0.48	30.85	0.33	0.04	12.10	0.11	0.02	0.09	0.00	99.69
T798	44	7829	till	0.5-1.0	black	Mg-ilmenite	0.02	55.77	0.26	0.78	0.66	29.30	0.29	0.19	13.81	0.12	0.03	0.10	0.17	101.75
T798	46	7829	till	0.5-1.0	black	Mg-ilmenite	0.06	54.22	0.24	0.35	0.64	32.98	0.42	0.11	11.88	0.11	0.05	0.03	0.29	101.69
T804	2	7829	till	1.0-2.0	black	Mg-ilmenite	0.06	54.64	0.29	0.21	0.80	31.96	0.38	0.07	11.30	0.03	0.02	0.05	0.13	99.94
T764	38	7829	till	0.25-0.5	black	Ilmenite	0.13	50.13	0.00	0.02	0.16	47.10	1.68	0.00	0.16	0.32	0.03	0.11	0.00	0.08
T774	1	7830	till	0.25-0.5	black	Mg-ilmenite	0.06	54.81	0.35	0.41	0.39	31.54	0.31	0.02	12.93	0.04	0.10	0.06	0.01	101.02
T774	2	7830	till	0.25-0.5	black	Mg-ilmenite	0.06	53.54	0.27	0.50	0.47	33.47	0.26	0.06	11.20	0.02	0.07	0.08	0.24	100.25
T774	3	7830	till	0.25-0.5	black	Mg-ilmenite	0.07	56.39	0.60	1.83	0.48	27.79	0.18	0.13	15.31	0.06	0.08	0.08	0.12	103.12
T774	5	7830	till	0.25-0.5	black	Mg-ilmenite	0.07	54.28	0.28	0.47	0.34	32.68	0.32	0.05	11.31	0.04	0.09	0.05	0.20	100.17
T774	6	7830	till	0.25-0.5	black	Mg-ilmenite	0.09	54.26	0.28	0.52	0.51	33.24	0.22	0.01	11.84	0.03	0.09	0.10	0.00	101.19
T774	8	7830	till	0.25-0.5	black	Mg-ilmenite	0.10	55.82	0.56	0.78	0.47	28.46	0.35	0.03	14.51	0.00	0.05	0.00	0.11	101.23
T774	11	7830	till	0.25-0.5	black	Mg-ilmenite	0.05	51.04	0.17	0.33	0.49	38.02	0.33	0.05	9.34	0.00	0.03	0.04	0.50	100.40
T774	12	7830	till	0.25-0.5	black	Mg-ilmenite	0.08	54.22	0.26	0.27	0.48	32.69	0.30	0.04	12.09	0.02	0.01	0.06	0.36	100.88
T774	13	7830	till	0.25-0.5	black	Mg-ilmenite	0.09	54.82	0.38	0.42	0.45	31.15	0.25	0.13	12.37	0.01	0.00	0.05	100.11	
T774	14	7830	till	0.25-0.5	black	Mg-ilmenite	0.07	55.38	0.48	1.25	0.37	27.99	0.31	0.12	14.03	0.04	0.11	0.02	0.15	100.32
T774	15	7830	till	0.25-0.5	black	Mg-ilmenite	0.09	56.24	0.56	0.95	0.24	27.22	0.31	0.00	14.47	0.04	0.00	0.05	0.23	100.39
T774	16	7830	till	0.25-0.5	black	Mg-ilmenite	0.06	55.73	0.45	0.54	0.36	30.16	0.24	0.13	13.41	0.02	0.03	0.01	0.29	101.43
T774	18	7830	till	0.25-0.5	black	Mg-ilmenite	0.00	54.27	0.38	0.37	0.30	31.90	0.37	0.08	11.85	0.02	0.00	0.00	0.00	99.53
T774	19	7830	till	0.25-0.5	black	Mg-ilmenite	0.08	55.77	0.61	1.82	0.50	26.62	0.21	0.21	15.21	0.03	0.01	0.08	0.08	101.21
T774	20	7830	till	0.25-0.5	black	Mg-ilmenite	0.05	54.98	0.55	1.56	0.40	28.27	0.07	0.07	14.21	0.05	0.06	0.04	0.19	100.48
T774	22	7830	till	0.25-0.5	black	Mg-ilmenite	0.03	55.47	0.40	0.47	0.41	30.57	0.31	0.08	12.92	0.00	0.03	0.05	0.21	100.94
T774	23	7830	till	0.25-0.5	black	Mg-ilmenite	0.06	54.95	0.38	0.53	0.41	29.81	0.33	0.06	13.23	0.02	0.06	0.18	0.08	100.11
T774	24	7830	till	0.25-0.5	black	Mg-ilmenite	0.09	56.99	0.85	1.00	0.33	26.12	0.26	0.22	15.37	0.04	0.01	0.09	0.15	101.53
T774	25	7830	till	0.25-0.5	black	Mg-ilmenite	0.10	51.26	0.21	0.51	0.36	37.12	0.32	0.05	9.69	0.00	0.07	0.03	0.31	100.02
T774	26	7830	till	0.25-0.5	black	Mg-ilmenite	0.11	55.19	0.47	1.42	0.42	29.17	0.31	0.12	13.91	0.03	0.00	0.03	0.19	101.37
T774	28	7830	till	0.25-0.5	black	Mg-ilmenite	0.09	55.92	0.73	1.39	0.40	26.52	0.35	0.08	14.86	0.04	0.06	0.08	0.15	100.67
T774	30	7830	till	0.25-0.5	black	Mg-ilmenite	0.04	54.92	0.44	0.57	0.31	30.61	0.35	0.05	12.89	0.00	0.01	0.07	0.07	100.31
T765	1	7830	till	0.25-0.5	black	Mg-ilmenite	0.03	52.36	0.25	0.40	0.55	34.46	0.31	0.09	10.83	0.03	0.02	0.02	0.09	99.44
T765	2	7830	till	0.25-0.5	black	Mg-ilmenite	0.02	53.21	0.23	0.27	0.48	34.79	0.33	0.05	10.62	0.04	0.00	0.00	0.16	100.19
T765	3	7830	till	0.25-0.5	black	Mg-ilmenite	0.12	54.81	0.34	0.34	0.40	31.35	0.27	0.10	12.59	0.04	0.07	0.02	0.28	100.72
T765	4	7830	till	0.25-0.5	black	Mg-ilmenite	0.04	56.81	0.62	1.07	0.38	26.41	0.29	0.14	15.01	0.05	0.16	0.10	0.29	101.36
T765	5	7830	till	0.25-0.5	black	Mg-ilmenite	0.06	50.07	0.21	1.09	0.49	39.45	0.31	0.04	8.42	0.05	0.01	0.04	0.13	100.36
T765	6	7830	till	0.25-0.5	black	Mg-ilmenite	0.06	54.49	0.44	0.73	0.15	31.18	0.25	0.06	12.85	0.13	0.09	0.02	0.24	100.70
T765	7	7830	till	0.25-0.5	black	Mg-ilmenite	0.05	55.41	0.34	0.39	0.59	31.79	0.26	0.09	12.72	0.10	0.01	0.00	0.13	101.88
T765	9	7830	till	0.25-0.5	black	Mg-ilmenite	0.12	56.04	0.49	0.70	0.62	27.50	0.21	0.15	14.91	0.30	0.11	0.00	0.18	101.34
T765	10	7830	till	0.25-0.5	black	Mg-ilmenite	0.07	54.29	0.31	0.58	0.51	32.33	0.26	0.03	12.08	0.01	0.21	0.04	0.22	100.95
T765	11	7830	till	0.25-0.5	black	Mg-ilmenite	0.11	55.32	0.39	0.37	0.47	31.82	0.29	0.06	13.08	0.06	0.08	0.08	0.04	102.19

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T765	14	7830	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.42	0.37	0.52	0.46	29.81	0.35	0.07	13.37	0.05	0.04	0.00	0.23	100.75
T765	17	7830	till	0.25-0.5	black	Mg-Ilmenite	0.11	55.19	0.65	0.24	0.45	32.53	0.18	0.06	11.78	0.03	0.09	0.03	0.04	101.40
T765	18	7830	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.03	0.70	3.92	0.48	30.33	0.21	0.02	12.84	0.04	0.18	0.03	0.11	101.95
T765	19	7830	till	0.25-0.5	black	Mg-Ilmenite	0.02	53.50	0.26	0.49	0.40	33.71	0.32	0.06	11.82	0.02	0.03	0.06	0.06	100.75
T765	20	7830	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.27	0.32	0.43	0.52	33.67	0.33	0.00	11.54	0.06	0.04	0.05	0.22	100.50
T765	25	7830	till	0.25-0.5	black	Mg-Ilmenite	0.00	55.31	0.72	2.53	0.27	27.45	0.21	0.04	14.50	0.05	0.16	0.09	0.20	101.52
T765	28	7830	till	0.25-0.5	black	Mg-Ilmenite	0.07	53.86	0.34	0.56	0.40	31.98	0.22	0.10	12.06	0.00	0.05	0.00	0.15	99.80
T799	12	7830	till	0.5-1.0	black	Mg-Ilmenite	0.03	55.08	0.22	0.37	0.63	31.32	0.27	0.11	13.16	0.02	0.05	0.03	0.29	101.92
T799	13	7830	till	0.5-1.0	black	Mg-Ilmenite	0.03	50.30	0.26	1.27	0.49	38.69	0.33	0.01	8.75	0.00	0.00	0.11	0.00	100.48
T799	15	7830	till	0.5-1.0	black	Mg-Ilmenite	0.10	55.75	0.54	1.27	0.53	27.06	0.26	0.18	14.72	0.08	0.05	0.11	0.08	100.96
T799	16	7830	till	0.5-1.0	black	Mg-Ilmenite	0.07	54.79	0.35	0.34	0.70	32.18	0.36	0.03	12.37	0.07	0.00	0.09	0.07	101.78
T779	37	7830	till	0.25-0.5	black	Mg-Ilmenite	0.07	55.51	0.58	2.52	0.61	26.87	0.26	0.18	14.24	0.15	0.00	0.04	0.12	101.14
T779	42	7830	till	0.25-0.5	black	Mg-Ilmenite	0.01	54.45	0.32	0.82	0.51	30.93	0.27	0.08	12.71	0.15	0.02	0.11	0.00	100.38
T765	13	7830	till	0.25-0.5	black	Ilmenite	0.00	52.12	0.05	0.10	0.13	46.29	0.63	0.12	0.51	0.03	0.01	0.09	0.00	0.00
T765	15	7830	till	0.25-0.5	black	Ilmenite	0.11	52.92	0.19	0.06	0.21	44.20	0.57	0.09	1.86	0.09	0.00	0.08	0.00	0.00
T765	21	7830	till	0.25-0.5	black	Ilmenite	0.09	51.36	0.04	0.00	0.19	46.19	2.22	0.06	0.00	0.00	0.00	0.02	0.00	0.00
T765	22	7830	till	0.25-0.5	black	Ilmenite	0.09	53.52	0.04	0.10	0.24	44.79	2.66	0.07	0.05	0.04	0.07	0.00	0.00	0.04
T765	23	7830	till	0.25-0.5	black	Ilmenite	0.06	52.46	0.07	0.00	0.37	45.69	0.67	0.02	1.19	0.03	0.00	0.06	0.04	0.05
T765	24	7830	till	0.25-0.5	black	Ilmenite	0.06	49.35	0.04	0.05	0.15	48.09	2.30	0.00	0.00	0.00	0.01	0.03	0.10	100.17
T765	27	7830	till	0.25-0.5	black	Ilmenite	0.05	49.78	0.04	0.04	0.53	45.23	5.04	0.06	0.14	0.00	0.00	0.04	0.00	100.96
T765	29	7830	till	0.25-0.5	black	Ilmenite	0.05	53.45	0.17	0.00	0.24	44.86	0.59	0.09	1.71	0.04	0.01	0.01	0.04	0.00
T765	31	7830	till	0.25-0.5	black	Ilmenite	0.09	52.92	0.02	0.02	0.21	44.73	0.80	0.08	1.15	0.03	0.00	0.08	0.04	0.01
T774	43	7831	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.09	0.51	0.98	0.54	27.99	0.25	0.06	14.05	0.02	0.03	0.06	0.13	99.79
T774	47	7831	till	0.25-0.5	black	Mg-Ilmenite	0.03	54.38	0.57	2.60	0.53	27.67	0.39	0.32	13.57	0.02	0.01	0.00	0.00	100.08
T774	49	7831	till	0.25-0.5	black	Mg-Ilmenite	0.07	56.47	0.53	1.21	0.40	26.51	0.17	0.09	15.02	0.03	0.03	0.10	0.16	100.79
T774	50	7831	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.18	0.28	0.71	0.36	32.44	0.29	0.08	12.23	0.00	0.01	0.00	0.15	99.78
T774	52	7831	till	0.25-0.5	black	Mg-Ilmenite	0.08	55.63	0.60	2.06	0.41	28.40	0.34	0.14	13.49	0.02	0.04	0.00	0.00	101.22
T774	59	7831	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.72	0.27	0.39	0.43	32.89	0.29	0.00	11.98	0.02	0.00	0.21	0.21	100.53
T765	39	7831	till	0.25-0.5	black	Mg-Ilmenite	0.13	54.20	0.64	2.62	0.46	27.57	0.29	0.00	14.11	0.11	0.26	0.10	0.22	100.72
T765	41	7831	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.36	0.53	1.23	0.43	26.72	0.27	0.07	15.13	0.02	0.17	0.00	0.25	101.26
T765	42	7831	till	0.25-0.5	black	Mg-Ilmenite	0.12	56.20	0.58	1.31	0.46	26.70	0.36	0.06	15.10	0.03	0.15	0.00	0.27	101.35
T765	43	7831	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.41	0.57	2.75	0.35	27.00	0.27	0.06	14.85	0.02	0.15	0.00	0.27	100.75
T765	44	7831	till	0.25-0.5	black	(Mg-Ilmenite)	0.05	48.31	0.17	2.54	0.42	39.21	0.34	0.11	8.35	0.04	0.17	0.12	0.05	99.87
T765	46	7831	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.24	0.44	1.85	0.36	30.15	0.22	0.07	13.17	0.06	0.15	0.05	0.19	101.03
T765	48	7831	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.82	0.39	0.56	0.53	29.47	0.33	0.00	13.57	0.16	0.05	0.04	0.09	100.14
T765	53	7831	till	0.25-0.5	black	Mg-Ilmenite	0.13	51.52	0.31	0.43	0.42	35.89	0.31	0.15	10.42	0.03	0.00	0.11	0.10	99.83
T765	54	7831	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.69	0.35	0.30	0.46	33.49	0.29	0.00	11.45	0.05	0.00	0.00	0.19	100.33
T765	45	7831	till	0.25-0.5	black	Ilmenite	0.04	52.57	0.14	0.10	0.35	44.58	0.68	0.08	2.38	0.09	0.07	0.00	0.00	0.00
T765	47	7831	till	0.25-0.5	black	Ilmenite	0.05	53.37	0.07	0.00	0.24	43.94	0.66	0.10	1.71	0.00	0.06	0.09	0.00	0.00
T774	45	7831	till	0.25-0.5	black	Ilmenite	0.08	53.38	0.13	0.00	0.40	43.10	0.44	0.05	3.24	0.00	0.00	0.00	0.00	100.82
T774	58	7831	till	0.25-0.5	black	Ilmenite	0.03	49.91	0.00	0.08	0.42	44.39	4.12	0.07	0.09	0.07	0.11	0.08	0.00	99.37
T774	107	7832	till	0.25-0.5	black	Mg-Ilmenite	0.08	56.81	0.84	0.88	0.31	26.82	0.27	0.30	14.93	0.04	0.09	0.07	0.09	101.53
T774	108	7832	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.42	0.39	1.13	0.40	29.95	0.28	0.10	13.53	0.02	0.07	0.13	0.16	101.67
T774	109	7832	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.35	0.66	1.47	0.55	27.33	0.36	0.16	14.40	0.07	0.09	0.00	0.00	99.54
T774	110	7832	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.56	0.57	2.18	0.36	28.45	0.24	0.25	13.96	0.01	0.05	0.02	0.04	100.75
T774	111	7832	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.56	0.46	0.45	0.38	29.05	0.30	0.18	14.36	0.03	0.09	0.02	0.16	101.15

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T765	61	7832	till	0.25-0.5	black	Mg-Ilmenite	0.15	54.07	0.64	3.54	0.40	26.69	0.28	0.08	14.18	0.10	0.23	0.13	0.18	100.66
T765	62	7832	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.27	0.27	0.39	0.46	32.52	0.20	0.03	12.11	0.08	0.00	0.05	0.16	100.66
T765	64	7832	till	0.25-0.5	black	Mg-Ilmenite	0.05	49.16	0.17	1.38	0.61	35.93	0.25	0.10	11.00	0.00	0.02	0.14	0.18	98.99
T765	65	7832	till	0.25-0.5	black	Mg-Ilmenite	0.10	53.63	0.57	1.60	0.48	30.66	0.29	0.00	13.08	0.10	0.10	0.08	0.15	100.85
T765	66	7832	till	0.25-0.5	black	Mg-Ilmenite	0.13	53.55	0.61	3.24	0.55	27.90	0.31	0.03	13.91	0.11	0.18	0.00	0.15	100.66
T765	69	7832	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.64	0.29	0.47	0.47	29.82	0.33	0.10	13.46	0.05	0.03	0.10	0.23	101.03
T765	71	7832	till	0.25-0.5	black	Mg-Ilmenite	0.09	47.65	0.29	1.66	0.48	39.69	0.31	0.03	8.83	0.01	0.10	0.00	0.17	99.31
T765	76	7832	till	0.25-0.5	black	(Mg-Ilmenite)	0.52	32.75	0.75	0.31	0.26	16.99	0.15	0.01	11.16	1.41	0.02	0.00	0.07	64.41
T799	26	7832	till	0.5-1.0	black	Mg-Ilmenite	0.06	54.77	0.53	1.37	0.53	30.41	0.28	0.20	12.80	0.04	0.04	0.04	0.07	101.43
T799	27	7832	till	0.5-1.0	black	Mg-Ilmenite	0.00	55.13	0.41	0.62	0.59	31.25	0.34	0.06	12.89	0.04	0.06	0.01	0.04	101.71
T799	28	7832	till	0.5-1.0	black	Mg-Ilmenite	0.04	55.80	0.47	0.69	0.65	29.41	0.31	0.09	13.81	0.04	0.09	0.02	0.20	101.81
T799	29	7832	till	0.5-1.0	black	Mg-Ilmenite	0.00	56.13	0.48	1.72	0.60	27.05	0.25	0.17	14.60	0.10	0.01	0.10	0.00	101.58
T779	71	7832	till	0.25-0.5	black	Mg-Ilmenite	0.09	54.38	0.39	0.53	0.48	32.48	0.33	0.06	12.27	0.05	0.05	0.09	0.42	101.61
T765	67	7832	till	0.25-0.5	black	Ilmenite	0.10	52.53	0.07	0.00	0.35	47.17	0.86	0.00	0.42	0.00	0.02	0.09	0.09	0.04
T765	68	7832	till	0.25-0.5	black	Ilmenite	0.03	51.92	0.03	0.27	0.33	46.78	1.04	0.03	0.43	0.06	0.01	0.00	0.00	0.00
T765	70	7832	till	0.25-0.5	black	Ilmenite	0.00	50.10	0.07	0.12	0.47	48.66	0.81	0.00	0.09	0.06	0.00	0.01	0.00	0.01
T765	72	7832	till	0.25-0.5	black	Ilmenite	0.10	51.63	0.15	0.13	0.37	45.96	0.55	0.00	0.97	0.27	0.04	0.00	0.00	0.03
T765	73	7832	till	0.25-0.5	black	Ilmenite	0.08	51.88	0.04	0.05	0.32	46.53	0.57	0.04	0.42	0.28	0.07	0.01	0.02	0.00
T765	74	7832	till	0.25-0.5	black	Ilmenite	0.13	50.80	0.17	0.06	0.38	44.33	0.54	0.09	2.50	0.34	0.01	0.05	0.11	0.00
T799	25	7832	till	0.5-1.0	black	Ilmenite (alt.)	0.01	44.73	0.19	2.11	0.67	44.82	0.21	0.04	0.01	0.00	6.20	0.02	0.22	0.10
T775	7	7834	till	0.25-0.5	black	Mg-Ilmenite	0.04	54.55	0.25	0.22	0.42	31.79	0.22	0.04	12.26	0.04	0.02	0.03	0.07	99.95
T775	8	7834	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.66	0.41	0.78	0.56	31.54	0.39	0.03	12.57	0.01	0.11	0.00	0.20	101.37
T775	11	7834	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.29	0.58	2.73	0.30	28.68	0.30	0.01	13.35	0.05	0.23	0.13	0.13	100.90
T775	12	7834	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.39	0.41	0.43	0.40	30.45	0.35	0.01	12.77	0.00	0.12	0.07	0.12	100.57
T765	81	7834	till	0.25-0.5	black	Mg-Ilmenite	0.05	48.11	0.35	0.30	0.40	42.72	0.39	0.11	7.47	0.00	0.00	0.09	0.14	100.13
T765	88	7834	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.15	0.34	0.50	0.35	32.88	0.41	0.07	12.13	0.01	0.15	0.10	0.11	101.26
T765	91	7834	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.04	0.33	0.66	0.61	34.29	0.22	0.01	11.08	0.06	0.16	0.06	0.10	100.72
T765	92	7834	till	0.25-0.5	black	Mg-Ilmenite	0.02	52.45	0.56	0.73	0.74	32.69	0.29	0.07	12.41	0.09	0.11	0.10	0.10	100.37
T765	93	7834	till	0.25-0.5	black	Mg-Ilmenite	0.10	55.07	0.37	0.61	0.38	30.21	0.29	0.11	13.03	0.28	0.09	0.09	0.16	100.80
T765	99	7834	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.29	0.68	1.95	0.45	30.56	0.30	0.08	12.84	0.03	0.18	0.07	0.23	100.77
T765	104	7834	till	0.25-0.5	black	Mg-Ilmenite	0.04	55.82	0.37	0.57	0.45	29.91	0.26	0.02	13.59	0.00	0.14	0.05	0.15	101.36
T765	107	7834	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.51	0.28	0.30	0.55	32.74	0.22	0.05	11.97	0.04	0.08	0.03	0.18	101.02
T765	110	7834	till	0.25-0.5	black	Mg-Ilmenite	0.11	47.99	0.46	0.25	0.44	42.79	0.21	0.00	7.52	0.03	0.01	0.00	0.10	99.90
T799	32	7834	till	0.5-1.0	black	Mg-Ilmenite	0.05	51.78	0.36	1.16	0.59	35.02	0.32	0.12	10.74	0.03	0.00	0.04	0.03	100.36
T799	34	7834	till	0.5-1.0	black	Mg-Ilmenite	0.04	50.40	0.26	1.06	0.58	38.41	0.25	0.09	9.10	0.03	0.00	0.00	0.00	100.42
T799	35	7834	till	0.5-1.0	black	Mg-Ilmenite	0.04	55.13	0.32	0.42	0.73	31.80	0.27	0.14	12.66	0.01	0.08	0.08	0.17	102.06
T779	78	7834	till	0.25-0.5	black	Mg-Ilmenite	0.00	56.27	0.62	0.99	0.58	27.20	0.45	0.03	14.31	0.11	0.02	0.01	0.28	100.89
T765	83	7834	till	0.25-0.5	black	Ilmenite	0.08	53.21	0.14	0.05	0.27	44.04	0.63	0.04	2.54	0.03	0.08	0.09	0.09	0.03
T765	84	7834	till	0.25-0.5	black	Ilmenite	0.11	53.21	0.04	0.00	0.16	46.37	1.26	0.02	0.34	0.03	0.04	0.07	0.04	0.03
T765	94	7834	till	0.25-0.5	black	Ilmenite	0.07	50.99	0.04	0.14	0.09	45.28	3.68	0.06	0.17	0.14	0.00	0.00	0.00	0.01
T765	95	7834	till	0.25-0.5	black	Ilmenite	0.02	50.44	0.15	0.08	0.45	46.60	2.67	0.02	0.07	0.01	0.10	0.06	0.06	0.09
T765	97	7834	till	0.25-0.5	black	Ilmenite	0.12	52.45	0.17	0.06	0.17	45.60	2.09	0.10	0.11	0.03	0.02	0.03	0.00	0.01
T765	98	7834	till	0.25-0.5	black	Ilmenite	0.06	52.49	0.05	0.04	0.31	44.19	0.58	0.01	2.87	0.00	0.00	0.00	0.00	0.03
T765	100	7834	till	0.25-0.5	black	Ilmenite	0.02	51.88	0.13	0.04	0.31	45.36	0.53	0.04	1.98	0.03	0.01	0.10	0.06	0.00
T765	101	7834	till	0.25-0.5	black	Ilmenite	0.05	52.50	0.12	0.04	0.20	45.72	0.72	0.08	1.20	0.02	0.03	0.03	0.00	0.02
T765	102	7834	till	0.25-0.5	black	Ilmenite	0.09	50.55	0.10	0.10	0.37	46.02	0.58	0.09	1.71	0.20	0.05	0.06	0.04	0.00

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T765	103	7834	till	0.25-0.5	black	Ilmenite (alt.)	0.04	45.91	0.00	0.30	0.52	49.93	2.57	0.01	0.18	0.00	0.03	0.00	0.00	99.49
T765	105	7834	till	0.25-0.5	black	Ilmenite	0.00	53.21	0.13	0.00	0.22	44.59	0.77	0.06	2.00	0.00	0.00	0.09	0.00	0.00
T765	106	7834	till	0.25-0.5	black	Ilmenite	0.01	52.25	0.08	0.02	0.12	46.22	1.73	0.00	0.10	0.04	0.00	0.12	0.00	0.00
T765	109	7834	till	0.25-0.5	black	Ilmenite	0.09	50.53	0.01	0.00	0.29	46.40	2.69	0.00	0.09	0.01	0.06	0.15	0.03	0.01
T766	1	7834	till	0.25-0.5	black	Ilmenite	0.09	51.15	0.07	0.15	0.13	45.40	3.04	0.00	0.24	0.04	0.05	0.00	0.05	0.01
T766	3	7834	till	0.25-0.5	black	Ilmenite	0.06	50.85	0.06	0.00	0.15	46.07	2.81	0.07	0.03	0.10	0.01	0.00	0.03	0.00
T775	2	7834	till	0.20-0.50	black	Ilmenite	0.08	52.01	0.13	0.10	0.35	45.21	0.69	0.11	1.85	0.03	0.00	0.04	0.09	0.03
T775	15	7834	till	0.20-0.50	black	Ilmenite	0.12	53.79	0.08	0.00	0.45	42.72	0.65	0.06	2.69	0.01	0.02	0.01	0.00	0.01
T775	16	7834	till	0.20-0.50	black	Ilmenite	0.07	50.80	0.02	0.00	0.29	46.97	0.68	0.13	0.30	0.00	0.07	0.06	0.07	0.00
T775	17	7834	till	0.20-0.50	black	Ilmenite	0.06	51.94	0.05	0.00	0.18	45.29	2.62	0.12	0.04	0.17	0.00	0.00	0.09	0.00
T799	30	7834	till	0.5-1.0	black	Ilmenite	0.05	52.27	0.03	0.04	0.35	43.24	5.09	0.15	0.05	0.01	0.24	0.02	0.06	0.00
T799	31	7834	till	0.5-1.0	black	Ilmenite	0.01	51.74	0.05	0.00	0.31	43.56	4.84	0.08	0.06	0.04	0.21	0.01	0.15	0.09
T799	33	7834	till	0.5-1.0	black	Ilmenite	0.09	51.73	0.05	0.11	0.41	44.52	3.67	0.01	0.07	0.17	0.41	0.00	0.03	0.07
T766	11	7835	till	0.25-0.5	black	Mg-Ilmenite	0.04	52.44	0.68	0.66	0.36	34.60	0.29	0.07	11.06	0.07	0.16	0.16	0.08	100.68
T766	13	7835	till	0.25-0.5	black	Mg-Ilmenite	0.05	53.91	0.29	0.35	0.35	31.03	0.34	0.02	12.95	0.02	0.14	0.00	0.04	99.48
T766	15	7835	till	0.25-0.5	black	Mg-Ilmenite	0.07	50.74	0.54	0.00	0.46	38.29	0.31	0.04	9.70	0.04	0.06	0.06	0.07	100.37
T766	16	7835	till	0.25-0.5	black	Mg-Ilmenite	0.08	52.11	0.21	0.30	0.29	34.63	0.38	0.01	11.34	0.16	0.03	0.01	0.27	99.80
T766	12	7835	till	0.25-0.5	black	Ilmenite	0.09	52.00	0.07	0.08	0.16	44.14	3.53	0.10	0.19	0.04	0.01	0.05	0.00	0.00
T766	14	7835	till	0.25-0.5	black	Ilmenite	0.05	50.88	0.08	0.07	0.27	48.07	1.33	0.12	0.09	0.05	0.04	0.00	0.00	0.05
T775	47	7835	till	0.20-0.50	black	Ilmenite	0.05	52.68	0.09	0.05	0.30	44.30	0.63	0.01	2.43	0.03	0.00	0.12	0.00	0.00
T766	19	7836	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.40	0.68	0.33	0.29	30.24	0.32	0.08	13.69	0.09	0.11	0.00	0.12	100.43
T766	20	7836	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.41	0.29	0.37	0.35	31.95	0.28	0.07	12.17	0.12	0.08	0.01	0.20	100.41
T766	21	7836	till	0.25-0.5	black	Mg-Ilmenite	0.16	53.76	0.29	0.40	0.59	32.36	0.28	0.08	12.21	0.17	0.09	0.00	0.13	100.52
T766	22	7836	till	0.25-0.5	black	Mg-Ilmenite	0.11	53.89	0.61	0.24	0.43	32.57	0.24	0.12	12.00	0.07	0.04	0.02	0.06	100.40
T766	23	7836	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.25	0.44	1.43	0.52	30.68	0.31	0.08	13.08	0.00	0.11	0.03	0.14	101.17
T766	24	7836	till	0.25-0.5	black	Mg-Ilmenite	0.06	54.07	0.35	0.35	0.38	32.67	0.34	0.04	11.77	0.03	0.05	0.04	0.30	100.46
T766	25	7836	till	0.25-0.5	black	Mg-Ilmenite	0.12	52.31	0.20	0.31	0.54	36.34	0.30	0.07	10.16	0.15	0.11	0.04	0.16	100.80
T766	26	7836	till	0.25-0.5	black	Mg-Ilmenite	0.11	50.98	0.30	1.32	0.37	36.87	0.29	0.03	9.64	0.10	0.10	0.00	0.01	100.13
T766	27	7836	till	0.25-0.5	black	Mg-Ilmenite	0.15	52.60	0.22	0.48	0.52	34.07	0.28	0.11	11.19	0.10	0.02	0.11	0.31	100.15
T766	28	7836	till	0.25-0.5	black	Mg-Ilmenite	0.22	53.91	0.63	0.23	0.29	33.06	0.28	0.03	11.96	0.09	0.10	0.00	0.16	100.95
T766	29	7836	till	0.25-0.5	black	Mg-Ilmenite	0.06	53.56	0.35	0.40	0.57	30.87	0.51	0.05	13.44	0.20	0.04	0.00	0.14	100.18
T766	30	7836	till	0.25-0.5	black	Mg-Ilmenite	0.14	56.35	0.60	0.98	0.52	27.53	0.30	0.04	14.51	0.04	0.14	0.05	0.24	101.43
T766	31	7836	till	0.25-0.5	black	Mg-Ilmenite	0.12	48.99	0.18	0.83	0.46	40.52	0.32	0.06	7.62	0.06	0.02	0.02	0.04	99.25
T766	32	7836	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.34	0.30	0.37	0.27	31.54	0.37	0.00	12.47	0.07	0.07	0.00	0.09	99.96
T766	33	7836	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.52	0.42	0.38	0.35	32.34	0.28	0.01	12.48	0.06	0.04	0.00	0.12	101.06
T766	34	7836	till	0.25-0.5	black	Mg-Ilmenite	0.11	54.25	0.44	0.70	0.25	32.01	0.25	0.01	11.89	0.09	0.04	0.05	0.29	100.38
T766	35	7836	till	0.25-0.5	black	Mg-Ilmenite	0.10	54.19	0.33	0.52	0.40	33.13	0.30	0.07	11.43	0.09	0.09	0.06	0.04	100.75
T766	36	7836	till	0.25-0.5	black	Mg-Ilmenite	0.08	54.82	0.36	0.53	0.41	31.59	0.27	0.03	12.51	0.07	0.11	0.01	0.14	100.90
T766	37	7836	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.99	0.51	2.12	0.32	25.93	0.29	0.06	15.14	0.14	0.22	0.00	0.24	101.01
T766	38	7836	till	0.25-0.5	black	Mg-Ilmenite	0.20	54.47	0.64	3.56	0.42	26.74	0.28	0.07	14.66	0.15	0.17	0.01	0.08	101.44
T766	39	7836	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.63	0.44	0.43	0.39	30.10	0.28	0.04	13.71	0.11	0.07	0.02	0.22	100.54
T766	42	7836	till	0.25-0.5	black	Mg-Ilmenite	0.11	50.46	0.21	0.80	0.61	35.58	0.21	0.08	10.91	0.16	0.05	0.16	0.20	99.54
T766	43	7836	till	0.25-0.5	black	Mg-Ilmenite	0.05	55.05	0.29	0.30	0.52	31.62	0.23	0.05	12.38	0.14	0.05	0.07	0.22	100.97
T766	44	7836	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.39	0.44	0.45	0.49	30.39	0.37	0.03	13.87	0.00	0.10	0.00	0.18	101.77
T766	46	7836	till	0.25-0.5	black	Mg-Ilmenite	0.10	52.87	0.26	0.46	0.39	33.92	0.25	0.05	11.04	0.10	0.07	0.06	0.13	99.69
T766	47	7836	till	0.25-0.5	black	Mg-Ilmenite	0.21	49.32	0.21	0.82	0.49	37.01	0.23	0.07	9.89	0.14	0.07	0.00	0.12	98.58

Appendix C.3 Microprobe data for Ilmenite grains from the Peddie kimberlite and surrounding glacial sediments

Mount	No.	Sample	Material	Size (mm)	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	COO	ZnO	Nb2O5	TOTAL
T766	48	7836	till	0.25-0.5	black	Mg-Ilmenite	0.12	53.66	0.31	0.60	0.47	33.70	0.28	0.03	11.32	0.11	0.04	0.05	0.09	100.79
T766	49	7836	till	0.25-0.5	black	Mg-Ilmenite	0.04	54.56	0.28	0.52	0.32	31.06	0.31	0.10	12.88	0.10	0.09	0.08	0.19	100.52
T766	50	7836	till	0.25-0.5	black	Mg-Ilmenite	0.07	54.81	0.30	0.43	0.34	32.27	0.24	0.03	12.42	0.07	0.07	0.05	0.12	101.22
T766	51	7836	till	0.25-0.5	black	Mg-Ilmenite	0.09	55.03	0.37	0.55	0.39	29.42	0.28	0.06	14.07	0.09	0.12	0.00	0.20	100.67
T766	52	7836	till	0.25-0.5	black	Mg-Ilmenite	0.12	54.79	0.50	0.43	0.35	30.88	0.22	0.01	12.82	0.12	0.00	0.06	0.22	100.51
T766	53	7836	till	0.25-0.5	black	Mg-Ilmenite	0.03	53.63	0.22	0.72	0.47	33.19	0.33	0.00	11.50	0.04	0.12	0.03	0.23	100.50
T766	54	7836	till	0.25-0.5	black	Mg-Ilmenite	0.05	54.10	0.33	0.58	0.48	32.17	0.25	0.15	12.02	0.02	0.14	0.00	0.01	100.31
T766	55	7836	till	0.25-0.5	black	Mg-Ilmenite	0.08	53.73	0.57	0.12	0.47	31.65	0.35	0.12	12.96	0.16	0.11	0.03	0.09	100.45
T766	58	7836	till	0.25-0.5	black	Mg-Ilmenite	0.07	51.23	0.34	1.10	0.35	35.93	0.24	0.00	11.06	0.07	0.13	0.00	0.07	100.58
T766	59	7836	till	0.25-0.5	black	Mg-Ilmenite	0.03	55.83	0.52	1.18	0.26	28.36	0.22	0.05	14.60	0.05	0.07	0.09	0.06	101.30
T766	60	7836	till	0.25-0.5	black	Mg-Ilmenite	0.01	50.63	0.54	0.14	0.46	38.84	0.25	0.00	9.11	0.00	0.03	0.00	0.12	100.14
T766	61	7836	till	0.25-0.5	black	Mg-Ilmenite	0.06	55.62	0.55	0.75	0.59	28.93	0.24	0.11	14.46	0.07	0.06	0.09	0.21	101.73
T766	62	7836	till	0.25-0.5	black	Mg-Ilmenite	0.03	54.25	0.25	0.67	0.37	33.55	0.32	0.05	11.58	0.04	0.06	0.05	0.11	101.32
T799	39	7836	till	0.5-1.0	black	Mg-Ilmenite	0.05	55.58	0.46	1.38	0.57	28.44	0.31	0.21	14.25	0.07	0.00	0.11	0.22	101.86
T799	40	7836	till	0.5-1.0	black	Mg-Ilmenite	0.06	52.98	0.24	0.39	0.76	35.63	0.33	0.08	10.64	0.07	0.04	0.00	0.26	101.72
T799	48	7836	till	0.5-1.0	black	Mg-Ilmenite	0.08	53.86	0.24	0.41	0.60	33.42	0.22	0.09	11.94	0.03	0.04	0.00	0.05	101.22
T799	49	7836	till	0.5-1.0	black	Mg-Ilmenite	0.07	55.77	0.49	1.12	0.70	28.59	0.34	0.10	14.35	0.03	0.10	0.02	0.01	102.03
T799	50	7836	till	0.5-1.0	black	Mg-Ilmenite	0.04	56.55	0.57	1.48	0.61	26.85	0.24	0.07	14.94	0.10	0.00	0.06	0.14	102.01
T799	51	7836	till	0.5-1.0	black	Mg-Ilmenite	0.04	55.71	0.54	2.07	0.57	26.70	0.31	0.15	15.01	0.03	0.07	0.00	0.08	101.45
T799	52	7836	till	0.5-1.0	black	Mg-Ilmenite	0.01	54.37	0.52	1.40	0.49	29.77	0.22	0.15	13.10	0.05	0.02	0.00	0.14	100.52
T799	53	7836	till	0.5-1.0	black	Mg-Ilmenite	0.02	55.63	0.53	1.23	0.67	27.81	0.30	0.19	14.42	0.07	0.05	0.00	0.04	101.26
T799	55	7836	till	0.5-1.0	black	Mg-Ilmenite	0.00	50.63	0.18	0.59	0.73	36.92	0.33	0.06	10.61	0.04	0.05	0.10	0.38	100.95
T766	40	7836	till	0.25-0.5	black	Ilmenite	0.08	52.16	0.10	0.04	0.33	45.52	0.65	0.04	1.52	0.05	0.00	0.00	0.01	0.00
T766	41	7836	till	0.25-0.5	black	Ilmenite	0.08	52.97	0.10	0.01	0.29	44.55	0.64	0.03	1.83	0.10	0.10	0.00	0.06	0.05
T766	57	7836	till	0.25-0.5	black	Ilmenite	0.07	51.33	0.08	0.00	0.51	46.92	0.63	0.08	0.24	0.07	0.06	0.06	0.00	0.04
T799	41	7836	till	0.5-1.0	black	Ilmenite (alt.)	0.01	45.81	0.01	0.17	0.33	49.73	1.84	0.02	0.09	0.06	0.34	0.05	0.12	0.00
T799	54	7836	till	0.5-1.0	black	Ilmenite	0.03	51.71	0.04	0.06	0.33	44.82	3.83	0.00	0.04	0.07	0.24	0.02	0.00	0.00
T766	69	7837	till	0.25-0.5	black	Mg-Ilmenite	0.09	52.73	0.38	0.75	0.58	33.20	0.25	0.03	12.10	0.26	0.09	0.00	0.14	100.60
T786	35	7837	till	0.25-0.5	black	Mg-Ilmenite	0.03	52.61	0.25	0.30	0.67	36.37	0.27	0.05	10.26	0.01	0.02	0.00	0.22	101.01
T766	67	7837	till	0.25-0.5	black	Ilmenite	0.03	51.95	0.05	0.00	0.23	45.40	0.66	0.06	0.93	0.06	0.01	0.00	0.00	0.13
T766	68	7837	till	0.25-0.5	black	Ilmenite	0.03	51.76	0.05	0.00	0.32	47.98	0.80	0.08	0.20	0.04	0.03	0.04	0.00	0.00
T766	72	7838	till	0.25-0.5	black	Ilmenite	0.04	52.77	0.06	0.06	0.34	45.95	0.77	0.07	0.72	0.03	0.03	0.02	0.07	0.00



Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T780	1	7801	till	0.25-0.5	purple	Cr-pyrope	41.29	0.46	21.67	2.52	0.05	7.45	0.31	0.01	21.32	4.34	0.00	0.00	99.40
T780	2	7801	till	0.25-0.5	purple	Cr-pyrope	40.90	0.74	20.61	3.55	0.05	7.11	0.25	0.00	21.01	4.99	0.00	0.00	99.20
T780	3	7801	till	0.25-0.5	purple	Cr-pyrope	41.53	0.32	20.95	3.80	0.05	6.74	0.32	0.03	21.35	4.82	0.00	0.00	99.90
T780	4	7801	till	0.25-0.5	purple	Cr-pyrope	40.83	0.73	20.33	3.36	0.11	7.02	0.29	0.00	21.01	5.15	0.00	0.00	98.83
T780	5	7801	till	0.25-0.5	purple	Cr-pyrope	40.46	0.83	17.84	6.87	0.04	6.10	0.33	0.01	20.35	5.85	0.00	0.00	98.69
T780	6	7801	till	0.25-0.5	purple	Cr-pyrope	41.13	0.71	20.73	3.54	0.05	7.08	0.27	0.00	20.99	5.08	0.00	0.00	99.59
T780	7	7801	till	0.25-0.5	purple	Cr-pyrope	40.90	0.66	20.54	3.36	0.03	7.14	0.26	0.02	20.88	5.14	0.00	0.02	98.94
T780	8	7801	till	0.25-0.5	purple	Cr-pyrope	41.20	0.70	20.63	3.49	0.04	7.34	0.28	0.00	21.03	5.15	0.00	0.01	99.87
T787	1	7801	till	0.5-1.0	purple	Cr-Pyrope	40.88	0.36	20.31	4.47	0.03	6.49	0.31	0.00	21.30	5.29	0.00	0.00	99.45
T800	1	7801	till	1.0-2.0	purple	Cr-Pyrope	41.05	0.44	19.96	5.35	0.08	6.87	0.34	0.05	20.84	5.34	0.00	0.00	100.31
T800	12	7801	till	1.0-2.0	purple	Cr-Pyrope	40.57	0.30	21.96	2.77	0.06	6.70	0.22	0.06	21.96	4.40	0.00	0.01	99.02
T800	13	7801	till	1.0-2.0	purple	Cr-Pyrope	41.35	0.25	22.02	2.90	0.05	6.50	0.27	0.00	21.82	4.26	0.00	0.00	99.43
T754	63	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.53	0.21	19.31	5.90	0.03	6.12	0.30	0.03	21.45	5.35	0.01	0.01	100.27
T754	64	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.70	0.47	19.08	5.75	0.10	6.24	0.30	0.07	21.57	5.42	0.00	0.02	100.73
T754	65	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.50	0.30	20.43	4.25	0.03	7.61	0.37	0.02	20.67	4.92	0.03	0.01	100.15
T754	66	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.87	0.31	19.69	5.43	0.09	6.38	0.33	0.02	21.50	5.03	0.00	0.00	99.66
T754	67	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.77	0.27	19.31	6.04	0.00	6.16	0.27	0.01	21.49	5.42	0.00	0.01	100.76
T754	68	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.15	0.39	20.20	4.35	0.05	8.49	0.41	0.04	20.11	4.72	0.02	0.00	99.93
T754	69	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.89	0.30	20.23	4.17	0.07	8.73	0.46	0.00	20.02	4.92	0.03	0.01	99.83
T754	70	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.73	0.36	20.06	4.47	0.00	8.68	0.39	0.06	20.31	4.81	0.05	0.01	99.93
T754	72	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.23	0.51	20.96	3.35	0.00	6.60	0.31	0.03	21.81	4.92	0.01	0.00	99.74
T754	73	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.55	0.52	20.38	3.94	0.06	6.71	0.31	0.02	21.63	5.11	0.02	0.01	100.27
T754	74	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.20	0.42	19.23	5.77	0.07	6.70	0.26	0.00	20.97	5.64	0.00	0.03	100.29
T754	75	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.75	0.53	19.45	4.93	0.02	8.25	0.49	0.03	20.30	5.04	0.05	0.04	99.87
T754	76	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.42	0.23	19.33	5.82	0.04	6.20	0.21	0.00	21.62	5.59	0.00	0.01	100.47
T754	77	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.52	0.44	20.61	4.16	0.05	6.82	0.28	0.02	21.61	5.04	0.00	0.00	100.55
T754	78	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.84	0.43	18.20	6.72	0.07	7.96	0.36	0.02	19.89	5.46	0.02	0.02	100.00
T754	79	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.87	0.86	20.90	2.00	0.04	8.78	0.25	0.05	20.57	4.91	0.01	0.00	99.25
T754	80	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.56	0.87	20.83	2.26	0.06	8.65	0.35	0.01	20.49	4.90	0.02	0.00	100.01
T754	81	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.25	0.89	20.95	2.15	0.04	8.69	0.24	0.01	20.53	5.03	0.04	0.02	99.83
T754	82	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.75	0.93	21.16	2.05	0.08	8.75	0.26	0.05	20.50	4.91	0.06	0.00	99.50
T805	1	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.55	0.28	18.78	6.43	0.07	6.29	0.41	0.01	21.43	5.34	0.00	0.00	100.59
T805	2	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.71	0.46	21.03	3.16	0.09	7.13	0.28	0.00	22.00	4.66	0.00	0.00	100.51
T805	3	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.30	0.33	20.25	3.87	0.00	7.73	0.27	0.04	20.65	5.12	0.00	0.00	99.55
T805	4	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.51	0.53	20.04	4.13	0.09	6.94	0.27	0.01	21.24	5.31	0.00	0.02	100.06
T805	5	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.59	0.55	20.43	3.80	0.04	7.19	0.35	0.03	21.20	5.13	0.00	0.02	100.31
T805	6	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.76	0.00	21.57	2.90	0.03	8.19	0.58	0.03	19.96	5.23	0.00	0.02	100.25
T805	7	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.12	0.41	21.00	3.08	0.09	9.07	0.45	0.01	20.08	4.53	0.00	0.00	99.85
T805	8	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.99	0.64	18.33	6.30	0.01	8.32	0.49	0.00	19.58	5.56	0.00	0.00	100.23
T805	9	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.82	0.11	21.62	3.26	0.01	7.77	0.47	0.03	21.00	4.98	0.00	0.01	101.08
T805	10	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.95	0.51	19.33	4.89	0.11	6.94	0.35	0.04	20.65	5.51	0.02	0.00	99.28
T805	11	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.53	0.60	18.79	6.19	0.10	6.72	0.31	0.00	20.95	5.67	0.01	0.00	100.87
T805	12	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.50	0.18	21.29	3.07	0.07	8.21	0.47	0.00	20.80	4.30	0.02	0.00	99.88
T805	13	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.15	0.28	17.77	7.79	0.14	6.76	0.36	0.00	20.11	6.53	0.00	0.04	100.90
T805	14	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.00	0.67	18.55	6.06	0.00	6.51	0.20	0.05	21.10	5.67	0.00	0.01	99.81
T805	15	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.95	0.64	20.44	3.67	0.08	7.41	0.41	0.00	21.14	5.02	0.00	0.01	99.77

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T805	16	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.60	0.40	19.67	5.29	0.06	6.53	0.27	0.00	21.40	5.02	0.00	0.04	100.23
T805	18	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.21	0.23	18.60	6.49	0.00	6.21	0.18	0.00	21.16	5.35	0.00	0.00	99.43
T805	20	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.39	0.56	19.93	4.37	0.02	7.34	0.24	0.07	21.24	5.22	0.00	0.02	100.37
T805	21	7810	kimb	0.25-0.5	purple	Cr-pyrope	42.31	0.38	20.16	4.15	0.08	7.05	0.28	0.08	21.45	5.09	0.00	0.03	101.03
T805	22	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.72	0.47	18.04	6.83	0.02	8.01	0.42	0.01	19.56	5.51	0.03	0.03	99.58
T805	23	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.63	0.32	19.79	5.26	0.00	6.24	0.34	0.01	21.47	5.17	0.00	0.03	100.23
T805	24	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.14	0.59	20.24	3.65	0.04	7.14	0.28	0.02	21.48	4.93	0.06	0.00	99.51
T805	25	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.80	0.62	20.41	3.42	0.04	7.65	0.19	0.00	21.06	5.00	0.04	0.03	100.18
T805	26	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.68	0.50	20.46	4.07	0.03	8.14	0.35	0.06	20.84	4.47	0.02	0.04	100.60
T805	27	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.45	0.39	19.20	5.55	0.16	6.50	0.35	0.00	20.94	5.35	0.01	0.01	99.89
T805	28	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.54	0.32	19.58	5.62	0.03	6.41	0.33	0.06	21.44	5.27	0.00	0.01	100.58
T805	29	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.42	0.61	19.05	5.00	0.06	6.85	0.27	0.02	20.97	5.55	0.02	0.02	99.82
T805	30	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.30	0.36	20.07	3.98	0.01	8.36	0.42	0.03	20.61	4.72	0.03	0.01	99.86
T805	31	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.23	0.48	20.11	4.32	0.14	8.93	0.50	0.05	19.76	4.90	0.00	0.00	100.42
T805	32	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.43	0.27	21.16	3.03	0.05	8.36	0.48	0.00	20.67	4.47	0.00	0.04	99.91
T805	33	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.34	0.42	19.02	5.52	0.08	6.87	0.35	0.07	20.66	5.32	0.00	0.04	99.65
T805	34	7810	kimb	0.25-0.5	purple	Cr-pyrope	42.07	0.47	20.29	4.17	0.00	8.00	0.40	0.00	20.77	4.70	0.00	0.01	100.87
T805	35	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.67	0.32	19.39	5.36	0.11	6.61	0.29	0.00	21.43	5.04	0.00	0.00	100.21
T805	36	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.47	0.50	17.83	6.93	0.13	6.56	0.36	0.05	20.91	5.90	0.01	0.02	100.65
T805	37	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.65	0.33	18.70	6.15	0.01	6.08	0.37	0.00	21.23	5.43	0.00	0.00	99.94
T805	38	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.43	0.27	17.49	7.65	0.02	6.77	0.31	0.00	19.87	6.53	0.04	0.01	99.34
T805	39	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.50	0.39	20.27	4.28	0.06	7.84	0.43	0.00	20.82	4.79	0.01	0.00	100.38
T805	40	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.51	0.27	19.51	5.26	0.00	6.55	0.32	0.08	21.64	4.92	0.00	0.01	100.05
T805	41	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.37	0.30	17.67	7.13	0.05	6.95	0.34	0.04	20.54	5.79	0.01	0.00	100.18
T805	42	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.29	0.51	18.81	5.76	0.05	8.58	0.42	0.03	19.94	5.40	0.00	0.00	100.78
T805	43	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.54	0.37	20.73	3.89	0.04	7.81	0.46	0.02	20.61	5.09	0.00	0.01	100.55
T805	44	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.69	0.28	19.43	4.99	0.00	6.25	0.29	0.07	21.38	5.16	0.00	0.00	99.55
T805	45	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.95	0.36	20.49	4.11	0.00	7.50	0.42	0.00	20.30	4.95	0.00	0.00	99.07
T805	46	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.50	0.60	19.85	4.27	0.07	6.89	0.28	0.00	21.25	5.33	0.00	0.01	100.03
T805	47	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.23	0.24	18.75	6.09	0.08	6.18	0.29	0.00	21.22	5.36	0.00	0.00	99.43
T805	48	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.50	0.67	21.06	2.50	0.05	7.04	0.29	0.07	21.83	4.94	0.00	0.01	99.95
T805	49	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.67	0.76	20.45	3.03	0.10	7.88	0.32	0.06	20.79	4.98	0.05	0.03	100.03
T805	51	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.00	0.65	21.00	2.39	0.02	7.78	0.28	0.02	21.23	4.65	0.02	0.01	99.01
T805	52	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.79	0.36	20.71	3.35	0.02	9.29	0.34	0.00	20.24	4.58	0.00	0.00	99.67
T805	53	7810	kimb	0.25-0.5	purple	Cr-pyrope	42.20	0.65	21.31	2.64	0.06	6.98	0.26	0.02	21.81	5.10	0.00	0.00	101.03
T805	54	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.51	0.55	21.48	2.43	0.03	7.31	0.32	0.07	21.72	4.72	0.02	0.02	100.15
T805	56	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.95	0.58	20.03	4.12	0.03	6.91	0.36	0.06	21.28	5.43	0.00	0.03	100.74
T805	58	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.57	0.57	20.81	2.78	0.06	7.17	0.29	0.00	21.71	5.03	0.00	0.00	99.99
T805	59	7810	kimb	0.25-0.5	purple	Cr-pyrope	42.23	0.24	21.37	2.78	0.06	6.33	0.37	0.05	22.34	4.35	0.00	0.00	100.12
T805	61	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.65	0.66	21.08	2.69	0.06	7.02	0.27	0.00	22.07	4.86	0.00	0.00	100.36
T805	62	7810	kimb	0.25-0.5	purple	Cr-pyrope	40.66	0.84	16.78	7.24	0.08	6.68	0.25	0.00	20.17	6.22	0.00	0.01	98.91
T805	63	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.75	0.48	21.71	2.31	0.00	7.19	0.35	0.07	21.88	4.44	0.00	0.00	100.19
T805	64	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.51	0.25	20.54	4.30	0.01	8.05	0.47	0.00	20.73	4.70	0.00	0.02	100.55
T805	65	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.11	1.07	19.41	3.50	0.06	7.75	0.28	0.00	20.40	5.27	0.00	0.02	98.86
T805	67	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.02	0.46	19.93	4.11	0.01	7.77	0.34	0.00	20.70	4.61	0.00	0.00	98.95
T805	68	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.56	0.56	20.38	3.97	0.04	6.95	0.26	0.03	21.02	5.10	0.00	0.00	99.89

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T805	69	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.93	0.43	20.21	4.94	0.01	6.44	0.18	0.02	21.77	5.32	0.00	0.01	101.27
T805	70	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.73	0.24	19.42	5.32	0.03	6.36	0.37	0.08	21.62	5.10	0.00	0.00	100.27
T805	71	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.50	0.40	20.92	3.01	0.00	9.19	0.40	0.03	19.94	4.43	0.00	0.00	99.82
T805	72	7810	kimb	0.25-0.5	purple	Cr-pyrope	42.73	0.58	21.25	3.37	0.10	6.88	0.24	0.06	22.22	5.00	0.00	0.00	102.42
T805	75	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.88	0.95	20.81	2.07	0.06	9.05	0.29	0.04	20.32	4.97	0.01	0.00	100.45
T805	76	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.60	0.87	18.86	4.49	0.02	7.78	0.30	0.03	20.35	5.83	0.00	0.00	100.13
T805	77	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.65	0.84	21.03	2.45	0.05	8.50	0.30	0.08	20.54	5.13	0.00	0.01	100.56
T805	79	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.64	0.83	20.53	2.51	0.08	8.72	0.27	0.05	20.50	5.31	0.01	0.01	100.42
T805	90	7810	kimb	0.25-0.5	purple	Cr-pyrope	42.06	0.83	21.07	2.12	0.08	8.95	0.33	0.06	20.36	4.99	0.04	0.03	100.84
T805	92	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.70	0.94	20.83	2.02	0.15	8.84	0.36	0.02	20.56	5.15	0.00	0.00	100.57
T805	99	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.32	0.89	20.76	2.31	0.19	8.90	0.31	0.01	20.51	4.84	0.01	0.02	100.05
T805	100	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.39	0.90	20.55	2.46	0.03	8.72	0.35	0.00	20.62	4.88	0.00	0.01	99.90
T805	101	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.22	0.91	21.04	2.19	0.18	8.41	0.39	0.00	20.71	5.15	0.00	0.00	100.20
T805	102	7810	kimb	0.25-0.5	purple	Cr-pyrope	41.47	0.82	21.05	2.22	0.00	8.92	0.28	0.04	20.59	5.07	0.01	0.00	100.47
T805	105	7810	kimb	0.25-0.5	purple	Cr-pyrope	42.33	0.95	21.02	2.01	0.06	9.29	0.22	0.00	20.60	5.04	0.00	0.03	101.51
T812	1	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.54	0.46	20.65	4.21	0.05	7.58	0.38	0.05	20.57	4.52	0.00	0.01	99.01
T812	2	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.12	0.42	20.85	4.27	0.03	7.57	0.41	0.03	20.33	4.80	0.00	0.03	99.86
T812	3	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.06	0.86	21.32	2.16	0.07	8.55	0.31	0.00	20.48	4.70	0.00	0.00	99.51
T812	4	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.75	0.01	21.61	3.64	0.00	8.07	0.56	0.00	19.39	5.42	0.00	0.02	99.47
T812	5	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.69	0.86	21.32	2.34	0.05	8.50	0.26	0.02	20.62	4.79	0.00	0.01	99.47
T812	6	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.92	0.41	20.94	3.42	0.00	8.80	0.46	0.00	19.95	4.35	0.00	0.00	99.24
T812	7	7810	kimb	0.5-1.0	purple	Cr-Pyrope	42.00	0.31	22.06	3.15	0.04	6.24	0.31	0.07	22.51	4.12	0.00	0.01	100.81
T812	8	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.88	0.35	20.25	4.58	0.07	6.88	0.26	0.05	21.33	4.79	0.00	0.00	99.44
T812	9	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.73	0.29	21.00	4.17	0.09	7.51	0.40	0.00	20.85	4.73	0.00	0.01	99.78
T812	10	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.79	0.90	21.34	2.30	0.11	8.88	0.28	0.02	20.40	4.68	0.00	0.00	99.70
T812	12	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.82	0.34	20.49	4.47	0.03	8.21	0.42	0.00	20.23	4.73	0.00	0.00	99.75
T812	13	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.84	0.57	20.55	3.82	0.05	7.14	0.30	0.03	21.01	4.66	0.00	0.00	98.96
T812	14	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.66	0.23	19.19	6.38	0.04	6.27	0.31	0.02	20.88	5.24	0.00	0.00	99.20
T812	15	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.36	0.33	22.06	2.15	0.00	8.60	0.35	0.02	20.30	4.26	0.00	0.00	98.42
T812	16	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.55	0.42	20.95	3.21	0.09	8.87	0.42	0.01	20.02	4.33	0.00	0.00	98.88
T812	17	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.62	0.86	21.25	2.40	0.06	8.67	0.25	0.04	20.50	4.60	0.00	0.00	99.23
T812	18	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.49	0.37	20.85	4.09	0.07	7.66	0.33	0.02	20.62	4.70	0.00	0.00	99.21
T812	19	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.42	0.41	22.00	2.14	0.02	8.77	0.36	0.00	20.18	4.11	0.00	0.00	98.41
T812	20	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.78	0.95	21.23	2.16	0.00	8.62	0.23	0.01	20.28	4.79	0.00	0.01	99.05
T812	21	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.22	0.91	21.24	2.24	0.06	8.40	0.30	0.09	20.63	4.74	0.00	0.01	99.83
T812	22	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.73	0.36	18.61	6.86	0.07	8.00	0.38	0.00	19.65	5.30	0.00	0.00	99.96
T812	23	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.52	0.41	20.39	4.58	0.02	8.55	0.45	0.00	20.12	4.55	0.00	0.00	99.60
T812	24	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.89	0.16	21.93	2.95	0.05	8.05	0.52	0.00	20.93	4.08	0.00	0.02	99.58
T812	25	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.19	0.74	21.07	2.75	0.05	7.50	0.24	0.01	20.90	4.72	0.00	0.01	99.18
T812	26	7810	kimb	0.5-1.0	purple	Cr-Pyrope	37.03	0.89	20.61	2.30	0.07	8.80	0.26	0.04	20.47	4.70	0.00	0.00	95.19
T812	27	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.66	0.33	20.50	4.58	0.00	8.00	0.45	0.03	20.14	4.75	0.00	0.01	99.46
T812	28	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.77	0.54	20.19	4.05	0.13	6.62	0.33	0.04	20.89	5.03	0.00	0.00	98.61
T812	29	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.27	0.88	21.18	2.39	0.05	8.73	0.30	0.00	20.38	4.74	0.00	0.02	98.94
T812	30	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.22	0.25	19.38	5.82	0.07	6.29	0.28	0.01	21.25	5.15	0.00	0.00	99.71
T812	31	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.28	0.59	20.58	4.02	0.03	7.03	0.31	0.01	21.03	4.79	0.00	0.00	99.66
T812	32	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.87	0.41	20.63	4.24	0.08	7.58	0.38	0.00	20.40	4.74	0.00	0.00	99.33

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T812	33	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.29	0.17	22.00	3.16	0.01	7.95	0.47	0.01	20.75	4.15	0.00	0.00	99.95
T812	34	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.38	0.28	21.88	3.06	0.12	6.33	0.28	0.07	22.19	4.20	0.00	0.00	99.78
T812	35	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.06	0.68	20.71	3.65	0.06	7.17	0.32	0.05	20.96	4.68	0.00	0.01	99.36
T812	36	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.93	0.96	20.95	2.32	0.07	8.69	0.25	0.03	20.35	4.83	0.00	0.02	99.38
T812	38	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.11	0.80	21.21	2.22	0.06	8.14	0.28	0.00	20.46	4.94	0.00	0.02	99.21
T812	39	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.87	0.44	20.66	3.84	0.05	6.50	0.27	0.00	20.92	4.90	0.00	0.00	98.43
T812	40	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.22	0.36	18.31	6.90	0.03	7.70	0.44	0.00	19.34	5.19	0.00	0.00	98.51
T812	41	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.77	0.30	20.81	4.03	0.03	7.60	0.42	0.06	20.49	4.80	0.00	0.01	99.30
T812	42	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.77	0.38	20.48	4.01	0.03	7.59	0.41	0.06	20.43	4.49	0.00	0.00	98.65
T812	43	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.75	0.82	20.63	3.45	0.06	7.17	0.34	0.07	20.80	4.86	0.00	0.00	98.95
T812	44	7810	kimb	0.5-1.0	purple	Cr-Pyrope	41.35	0.30	20.90	4.02	0.02	7.40	0.32	0.01	20.31	4.72	0.00	0.00	99.34
T812	46	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.73	0.88	20.85	2.24	0.00	8.35	0.30	0.01	20.16	4.78	0.00	0.02	98.32
T812	52	7810	kimb	0.5-1.0	purple	Cr-Pyrope	40.79	0.89	21.21	2.17	0.12	8.49	0.37	0.05	20.29	4.69	0.00	0.02	99.09
T754	71	7810	kimb	0.25-0.5	purple	Pyrope	41.45	0.29	22.49	1.50	0.10	6.81	0.28	0.01	22.50	4.39	0.02	0.00	99.84
T805	50	7810	kimb	0.25-0.5	purple	Pyrope	41.66	0.39	22.27	1.49	0.08	6.63	0.34	0.00	21.97	4.39	0.00	0.00	99.22
T805	55	7810	kimb	0.25-0.5	purple	Pyrope	41.99	0.33	21.83	1.82	0.10	6.95	0.28	0.07	21.94	4.70	0.01	0.04	100.01
T805	57	7810	kimb	0.25-0.5	purple	Pyrope	42.17	0.36	22.19	1.34	0.01	6.71	0.23	0.00	22.26	4.36	0.00	0.02	99.62
T805	66	7810	kimb	0.25-0.5	purple	Pyrope	41.28	0.29	22.11	1.70	0.00	9.24	0.37	0.04	20.16	4.58	0.00	0.01	99.77
T805	73	7810	kimb	0.25-0.5	purple	Pyrope	42.09	0.38	22.50	1.49	0.03	6.87	0.19	0.01	22.16	4.38	0.01	0.00	100.09
T805	74	7810	kimb	0.25-0.5	purple	Pyrope	41.73	0.33	22.11	1.70	0.00	8.97	0.41	0.04	20.40	4.56	0.00	0.00	100.23
T805	78	7810	kimb	0.25-0.5	purple	Pyrope	41.57	0.25	21.78	1.89	0.09	8.80	0.47	0.03	20.45	4.59	0.04	0.00	99.93
T805	80	7810	kimb	0.25-0.5	purple	Pyrope	41.64	0.40	22.22	1.27	0.00	6.86	0.23	0.01	22.32	4.29	0.00	0.00	99.25
T805	81	7810	kimb	0.25-0.5	purple	Pyrope	40.97	0.42	21.50	1.99	0.06	9.47	0.40	0.04	19.97	4.31	0.00	0.00	99.12
T805	87	7810	kimb	0.25-0.5	purple	Pyrope	41.39	0.65	22.57	0.10	0.03	11.44	0.49	0.07	19.67	4.46	0.00	0.00	100.86
T805	88	7810	kimb	0.25-0.5	purple	Pyrope	41.60	0.62	22.61	0.16	0.01	11.04	0.50	0.04	19.22	4.40	0.00	0.04	100.20
T805	89	7810	kimb	0.25-0.5	purple	Pyrope	41.41	0.73	22.45	0.18	0.09	10.43	0.41	0.00	19.92	4.62	0.00	0.00	100.24
T805	91	7810	kimb	0.25-0.5	purple	Pyrope	41.74	0.65	22.67	0.15	0.04	10.33	0.42	0.04	20.14	4.34	0.04	0.00	100.51
T805	97	7810	kimb	0.25-0.5	purple	Pyrope	41.57	0.67	22.44	0.12	0.00	11.31	0.43	0.00	19.40	4.43	0.00	0.01	100.36
T805	98	7810	kimb	0.25-0.5	purple	Pyrope	41.77	0.58	22.46	0.20	0.11	10.01	0.32	0.04	20.13	4.41	0.07	0.01	100.03
T805	103	7810	kimb	0.25-0.5	purple	Pyrope	41.13	0.57	22.53	0.08	0.07	11.26	0.41	0.08	19.62	4.08	0.01	0.00	99.83
T805	104	7810	kimb	0.25-0.5	purple	Pyrope	41.57	0.70	22.14	0.28	0.16	11.00	0.48	0.07	19.72	4.23	0.00	0.00	100.34
T805	106	7810	kimb	0.25-0.5	purple	Pyrope	41.32	0.55	22.54	0.14	0.06	11.40	0.52	0.03	19.56	4.28	0.00	0.00	100.42
T805	107	7810	kimb	0.25-0.5	purple	Pyrope	41.07	0.89	22.40	0.13	0.00	10.78	0.42	0.08	19.65	4.38	0.00	0.00	99.80
T805	108	7810	kimb	0.25-0.5	purple	Pyrope	41.41	0.62	22.81	0.12	0.11	11.45	0.29	0.00	19.73	4.35	0.02	0.00	100.89
T805	109	7810	kimb	0.25-0.5	purple	Pyrope	41.29	0.67	22.33	0.19	0.08	11.26	0.36	0.00	19.04	4.48	0.01	0.00	99.71
T805	110	7810	kimb	0.25-0.5	purple	Pyrope	41.34	0.73	22.58	0.09	0.07	11.21	0.45	0.00	19.52	4.38	0.04	0.00	100.36
T805	111	7810	kimb	0.25-0.5	purple	Pyrope	41.37	0.66	22.58	0.18	0.00	11.13	0.46	0.00	19.41	4.32	0.01	0.02	100.11
T805	112	7810	kimb	0.25-0.5	purple	Pyrope	41.44	0.91	21.89	0.45	0.07	9.71	0.39	0.04	19.96	4.59	0.00	0.00	99.46
T805	115	7810	kimb	0.25-0.5	purple	Pyrope	41.46	0.63	22.65	0.08	0.12	10.43	0.44	0.03	19.65	4.33	0.02	0.00	99.81
T805	116	7810	kimb	0.25-0.5	purple	Pyrope	41.23	0.88	22.10	0.42	0.06	10.10	0.39	0.00	19.78	4.77	0.02	0.03	99.74
T805	117	7810	kimb	0.25-0.5	purple	Pyrope	40.54	0.70	22.44	0.09	0.11	11.33	0.44	0.00	19.45	4.29	0.02	0.02	99.39
T805	118	7810	kimb	0.25-0.5	purple	Pyrope	41.64	0.67	22.77	0.19	0.01	11.13	0.50	0.07	19.66	4.47	0.03	0.00	101.12
T812	37	7810	kimb	0.5-1.0	purple	Pyrope	41.29	0.28	22.80	1.45	0.00	8.68	0.40	0.01	20.57	3.84	0.00	0.00	99.31
T812	45	7810	kimb	0.5-1.0	purple	Pyrope	41.09	0.38	22.58	1.44	0.00	9.33	0.45	0.00	20.16	3.83	0.00	0.02	99.29
T812	47	7810	kimb	0.5-1.0	purple	Pyrope	41.58	0.61	23.12	0.12	0.03	10.82	0.32	0.00	19.65	4.09	0.00	0.01	100.36
T812	48	7810	kimb	0.5-1.0	purple	Pyrope	41.01	0.65	22.96	0.16	0.01	11.00	0.42	0.00	19.58	4.17	0.00	0.01	99.97

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T812	49	7810	kimb	0.5-1.0	purple	Pyrope	40.86	0.69	22.66	0.09	0.07	10.82	0.43	0.00	19.24	4.18	0.00	0.00	99.04
T812	50	7810	kimb	0.5-1.0	purple	Pyrope	40.90	0.63	22.86	0.13	0.11	10.85	0.39	0.02	19.39	4.05	0.00	0.00	99.33
T812	51	7810	kimb	0.5-1.0	purple	Pyrope	41.30	0.70	21.99	1.73	0.02	8.81	0.38	0.03	20.14	4.65	0.00	0.00	99.74
T776	6	7811	kimb	0.25-0.5	purple	Cr-Pyrope	40.89	0.51	21.58	3.12	0.02	6.58	0.28	0.03	21.96	4.41	0.00	0.00	99.38
T776	7	7811	kimb	0.25-0.5	purple	Cr-Pyrope	39.55	0.18	19.94	5.44	0.00	10.03	0.54	0.03	18.15	5.07	0.00	0.00	98.93
T776	8	7811	kimb	0.25-0.5	purple	Cr-Pyrope	39.91	0.08	20.02	4.89	0.07	9.44	0.46	0.00	17.93	6.06	0.00	0.00	98.87
T776	9	7811	kimb	0.25-0.5	purple	Cr-Pyrope	39.66	0.13	17.82	8.13	0.04	7.37	0.40	0.00	18.89	6.38	0.00	0.00	98.82
T780	25	7811	kimb	0.25-0.5	purple	Cr-pyrope	40.91	0.77	20.98	2.99	0.07	7.01	0.23	0.01	21.13	4.85	0.00	0.02	98.97
T780	26	7811	kimb	0.25-0.5	purple	Cr-pyrope	40.13	0.40	17.00	8.81	0.07	6.38	0.35	0.00	19.77	5.95	0.00	0.00	98.86
T787	40	7811	kimb	0.5-1.0	purple	Cr-Pyrope	40.55	0.13	21.08	4.30	0.02	9.92	0.64	0.02	18.35	5.18	0.00	0.01	100.21
T776	42	7813	kimb	0.25-0.5	purple	Cr-Pyrope	39.06	0.07	19.45	5.49	0.10	11.11	0.70	0.00	15.84	6.63	0.00	0.00	98.45
T780	87	7813	kimb	0.25-0.5	purple	Cr-pyrope	40.88	0.17	21.26	3.67	0.02	7.81	0.44	0.07	20.14	4.97	0.00	0.02	99.46
T780	88	7813	kimb	0.25-0.5	purple	Cr-pyrope	40.99	0.36	19.60	5.23	0.02	6.24	0.25	0.03	20.67	5.28	0.00	0.00	98.65
T780	89	7813	kimb	0.25-0.5	purple	<b>Cr-pyrope</b>	41.39	0.13	19.17	6.42	0.00	6.09	0.31	0.00	21.44	4.87	0.00	0.00	99.82
T767	52	7813	kimb	0.25-0.5	pink	Pyrope	41.84	0.71	22.47	0.17	0.06	10.62	0.47	0.03	19.73	4.81	0.03	0.01	100.95
T780	86	7813	kimb	0.25-0.5	purple	Pyrope	41.31	0.41	22.29	1.78	0.04	6.77	0.26	0.00	21.77	4.34	0.00	0.00	98.97
T768	1	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.83	0.32	15.95	9.79	0.04	6.29	0.27	0.05	19.98	6.46	0.00	0.02	99.98
T768	2	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.25	0.07	20.95	3.63	0.03	8.04	0.55	0.00	19.79	5.01	0.00	0.00	99.34
T768	3	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.77	0.11	18.93	6.43	0.11	7.94	0.48	0.01	18.67	6.62	0.00	0.00	100.07
T768	4	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.46	0.43	20.96	3.39	0.08	6.86	0.29	0.02	21.43	4.59	0.00	0.00	99.51
T768	5	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.43	0.65	20.70	3.76	0.07	7.14	0.36	0.02	21.18	4.95	0.00	0.01	100.26
T768	6	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.68	0.05	18.68	6.30	0.07	8.09	0.45	0.01	18.01	6.99	0.00	0.01	99.33
T768	7	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.08	0.25	15.89	9.66	0.00	5.90	0.28	0.01	19.88	6.87	0.00	0.00	99.80
T768	8	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.69	0.31	21.49	2.80	0.01	6.20	0.30	0.06	22.04	4.44	0.00	0.01	99.37
T768	9	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.14	0.65	16.27	9.01	0.03	6.23	0.38	0.06	19.74	6.51	0.00	0.02	100.03
T768	10	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.38	0.62	17.16	7.84	0.00	7.01	0.30	0.00	20.09	6.08	0.00	0.02	100.51
T768	11	7814	kimb	0.25-0.5	purple	<b>Cr-Pyrope</b>	40.67	0.61	18.43	6.54	0.06	6.81	0.28	0.07	21.02	4.99	0.00	0.00	99.48
T768	12	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.04	0.40	21.01	3.33	0.07	8.30	0.44	0.04	20.49	4.50	0.00	0.02	99.63
T768	13	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.95	0.39	21.68	2.54	0.02	8.40	0.41	0.02	20.74	4.26	0.00	0.00	99.43
T768	14	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.72	0.15	19.38	5.99	0.10	7.43	0.40	0.01	19.61	5.59	0.00	0.00	99.38
T768	15	7814	kimb	0.25-0.5	purple	<b>Cr-Pyrope</b>	40.71	0.33	16.74	9.30	0.04	5.88	0.33	0.00	21.16	4.89	0.00	0.00	99.38
T768	16	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.51	0.33	21.05	3.33	0.04	6.67	0.28	0.01	21.51	4.65	0.00	0.05	99.42
T768	17	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.30	0.62	17.24	7.78	0.05	6.65	0.30	0.06	20.03	5.85	0.00	0.01	98.88
T768	18	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.67	0.50	21.64	2.48	0.06	6.77	0.26	0.05	22.16	4.40	0.00	0.01	100.01
T768	19	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.44	0.28	22.25	2.19	0.07	7.10	0.32	0.00	21.46	4.03	0.00	0.01	99.14
T768	20	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.56	0.99	15.41	9.34	0.08	6.15	0.36	0.05	19.66	6.64	0.00	0.02	99.26
T768	21	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.35	0.77	20.11	4.09	0.05	6.63	0.25	0.01	21.06	5.18	0.00	0.01	98.52
T768	22	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.15	0.41	21.10	3.54	0.07	8.15	0.40	0.00	20.26	4.35	0.00	0.03	98.45
T768	23	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.56	0.56	20.82	3.57	0.06	6.74	0.34	0.00	21.11	4.68	0.00	0.01	98.45
T768	24	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.72	0.84	20.86	2.74	0.14	7.57	0.34	0.05	20.93	4.92	0.00	0.01	99.13
T768	26	7814	kimb	0.25-0.5	purple	Cr-Pyrope	40.38	0.84	21.07	2.20	0.08	8.81	0.25	0.00	20.60	4.39	0.00	0.00	98.62
T768	27	7814	kimb	0.25-0.5	purple	Cr-Pyrope	41.08	0.40	20.78	3.49	0.04	6.83	0.22	0.00	21.14	4.75	0.00	0.02	98.76
T788	37	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.35	0.30	20.56	3.52	0.08	7.15	0.31	0.00	20.86	4.68	0.04	0.01	98.85
T788	38	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.51	0.34	20.49	3.55	0.00	7.38	0.37	0.00	20.99	4.71	0.00	0.00	99.34
T788	39	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.25	0.05	21.00	3.39	0.00	7.11	0.32	0.01	20.51	4.94	0.00	0.00	98.57
T788	40	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.03	0.36	20.47	3.51	0.08	7.21	0.34	0.00	21.03	4.76	0.00	0.01	98.81

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T788	41	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.49	0.36	20.95	2.80	0.01	6.73	0.24	0.03	21.54	4.98	0.00	0.00	99.12
T788	42	7814	kimb	0.5-1.0	purple	Cr-pyrope	40.75	0.38	18.73	5.32	0.06	5.95	0.22	0.03	20.87	5.60	0.00	0.00	97.93
T788	43	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.02	0.49	20.77	3.05	0.00	8.19	0.38	0.00	19.98	4.71	0.03	0.02	98.65
T788	44	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.26	0.39	20.54	3.62	0.05	6.93	0.31	0.00	21.16	4.62	0.00	0.00	98.87
T788	45	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.50	0.40	21.27	2.30	0.03	6.38	0.23	0.02	21.92	4.66	0.00	0.00	98.72
T788	46	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.52	0.51	20.18	3.46	0.10	6.91	0.28	0.03	20.85	5.04	0.00	0.00	98.88
T788	47	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.47	0.00	21.22	3.48	0.03	7.21	0.33	0.03	20.73	4.99	0.00	0.00	99.52
T788	48	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.32	0.32	20.54	3.48	0.09	7.29	0.31	0.05	20.99	4.66	0.00	0.00	99.05
T788	49	7814	kimb	0.5-1.0	purple	Cr-pyrope	40.98	0.37	20.43	3.71	0.06	7.15	0.19	0.03	20.75	4.70	0.00	0.00	98.35
T788	50	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.13	0.31	20.43	3.48	0.00	7.05	0.28	0.01	21.01	4.67	0.00	0.00	98.36
T788	51	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.27	0.30	20.54	3.49	0.07	7.06	0.30	0.03	21.04	4.70	0.00	0.00	98.79
T788	52	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.45	0.36	20.42	3.49	0.10	7.00	0.37	0.03	21.13	4.80	0.00	0.00	99.15
T788	53	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.06	0.38	20.65	3.74	0.04	7.14	0.34	0.00	20.96	4.73	0.00	0.00	99.05
T788	54	7814	kimb	0.5-1.0	purple	Cr-pyrope	40.96	1.17	20.34	2.19	0.02	8.65	0.27	0.01	20.32	4.97	0.03	0.00	98.93
T788	56	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.30	0.42	20.09	3.67	0.09	6.89	0.31	0.02	21.22	5.11	0.00	0.01	99.12
T788	57	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.47	0.41	21.28	2.81	0.00	6.17	0.31	0.02	21.94	4.70	0.00	0.00	99.11
T788	58	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.79	0.35	21.09	3.10	0.07	6.72	0.33	0.04	21.67	4.65	0.00	0.00	99.81
T788	59	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.32	0.28	20.48	3.55	0.03	7.09	0.25	0.00	21.07	4.75	0.00	0.03	98.84
T788	60	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.39	0.36	20.28	3.30	0.05	6.77	0.30	0.05	20.95	4.75	0.00	0.00	98.22
T788	61	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.32	0.31	20.59	3.41	0.07	7.13	0.31	0.02	20.93	4.64	0.00	0.01	98.74
T788	62	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.19	0.30	20.32	3.38	0.00	7.25	0.34	0.05	20.96	4.70	0.02	0.02	98.51
T788	63	7814	kimb	0.5-1.0	purple	Cr-pyrope	40.88	0.02	18.46	6.02	0.03	8.13	0.46	0.00	17.99	7.08	0.00	0.01	99.08
T788	64	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.15	0.36	20.55	3.56	0.03	6.81	0.27	0.03	20.87	4.65	0.00	0.01	98.30
T788	65	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.51	0.28	21.37	2.90	0.01	5.99	0.22	0.00	22.05	4.45	0.00	0.00	98.79
T788	66	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.26	0.42	20.57	3.41	0.00	6.98	0.30	0.02	21.35	4.84	0.00	0.01	99.17
T788	68	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.09	0.32	20.53	3.44	0.05	7.27	0.31	0.00	21.19	4.74	0.00	0.00	98.94
T788	69	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.48	0.04	21.98	2.06	0.05	8.95	0.42	0.00	19.85	4.69	0.00	0.01	99.52
T788	70	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.42	0.00	21.96	2.08	0.00	8.86	0.44	0.01	19.80	4.60	0.00	0.00	99.19
T788	71	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.18	0.39	20.56	2.92	0.01	8.49	0.38	0.02	20.00	4.80	0.01	0.00	98.76
T788	72	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.85	0.17	21.71	2.30	0.00	6.26	0.29	0.03	21.99	4.54	0.00	0.00	99.15
T788	73	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.33	0.30	20.61	3.60	0.09	7.12	0.35	0.03	21.00	4.65	0.00	0.00	99.06
T788	74	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.34	0.01	21.04	3.22	0.08	7.35	0.30	0.02	20.64	5.10	0.00	0.00	99.10
T788	75	7814	kimb	0.5-1.0	purple	Cr-pyrope	41.34	0.00	21.07	3.43	0.05	7.20	0.32	0.00	20.57	4.97	0.00	0.00	98.96
T789	1	7814	kimb	0.5-1.0	purple	Cr-Pyrope	42.05	0.26	22.22	2.68	0.09	6.15	0.30	0.03	22.15	4.21	0.00	0.00	100.13
T789	2	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.54	0.36	21.45	4.00	0.00	7.48	0.36	0.00	21.19	4.41	0.00	0.00	100.79
T789	3	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.71	0.44	21.85	2.64	0.02	6.65	0.27	0.02	22.09	4.47	0.00	0.00	100.17
T789	4	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.74	0.26	22.25	2.79	0.00	6.16	0.29	0.00	22.34	4.31	0.00	0.00	100.14
T789	5	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.26	0.41	21.28	3.03	0.03	8.77	0.41	0.05	20.21	4.47	0.08	0.01	100.01
T789	6	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.20	0.33	21.14	3.77	0.04	7.48	0.42	0.00	20.90	4.41	0.00	0.00	99.69
T789	7	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.50	0.40	21.95	2.51	0.06	6.95	0.26	0.00	21.94	4.41	0.00	0.00	99.98
T789	8	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.40	0.33	21.19	3.86	0.06	7.28	0.31	0.03	21.45	4.57	0.00	0.02	100.49
T789	9	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.49	0.37	21.22	3.74	0.02	7.34	0.29	0.02	21.19	4.55	0.00	0.00	100.25
T789	10	7814	kimb	0.5-1.0	purple	Cr-Pyrope	40.47	0.01	19.30	6.40	0.00	8.27	0.44	0.02	18.27	6.61	0.00	0.01	99.80
T789	11	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.54	0.85	21.71	2.15	0.06	8.33	0.32	0.07	21.11	4.28	0.00	0.01	100.42
T789	12	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.45	0.30	21.37	3.92	0.02	7.26	0.35	0.02	21.09	4.46	0.00	0.00	100.25
T789	13	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.63	0.36	21.30	3.73	0.00	7.61	0.42	0.04	21.01	4.37	0.00	0.00	100.48

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T789	14	7814	kimb	0.5-1.0	purple	Cr-Pyrope	42.05	0.38	21.84	2.61	0.01	6.95	0.30	0.01	21.96	4.49	0.00	0.00	100.61
T789	15	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.46	0.35	21.06	4.07	0.04	7.09	0.31	0.05	21.35	4.85	0.00	0.01	100.63
T789	16	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.56	0.30	22.16	2.92	0.08	6.51	0.27	0.00	22.03	4.25	0.00	0.00	100.09
T789	17	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.98	0.42	22.04	2.55	0.04	6.83	0.34	0.02	22.04	4.48	0.00	0.01	100.74
T789	18	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.08	0.42	20.58	4.06	0.06	8.09	0.41	0.00	20.60	4.54	0.00	0.00	99.85
T789	19	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.24	0.28	21.25	3.89	0.05	7.25	0.35	0.00	21.06	4.41	0.00	0.02	99.80
T789	20	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.50	0.34	21.31	3.83	0.07	7.27	0.35	0.05	21.28	4.52	0.00	0.00	100.51
T789	21	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.72	0.34	21.17	3.73	0.02	7.42	0.37	0.00	21.13	4.49	0.00	0.00	100.40
T789	22	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.57	0.45	21.92	2.54	0.09	6.70	0.23	0.05	21.90	4.34	0.00	0.01	99.81
T789	23	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.37	0.47	22.21	2.10	0.02	7.23	0.32	0.01	22.05	4.36	0.00	0.00	100.15
T789	24	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.06	0.58	19.17	6.08	0.12	6.11	0.32	0.00	21.27	5.34	0.00	0.02	100.06
T789	25	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.14	0.67	21.69	2.33	0.08	7.77	0.35	0.05	20.99	4.70	0.00	0.02	99.78
T789	26	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.55	0.34	20.95	4.01	0.08	6.87	0.27	0.01	21.12	4.97	0.00	0.03	100.19
T789	27	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.57	0.31	21.90	2.89	0.05	6.64	0.31	0.01	21.97	4.39	0.00	0.01	100.04
T789	28	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.27	0.38	21.15	4.01	0.09	7.03	0.33	0.01	21.13	4.60	0.00	0.01	100.03
T789	29	7814	kimb	0.5-1.0	purple	Cr-Pyrope	42.08	0.44	21.99	2.62	0.06	6.91	0.22	0.03	22.11	4.61	0.00	0.00	101.08
T789	30	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.58	0.36	21.96	3.20	0.06	6.20	0.29	0.00	22.18	4.39	0.00	0.01	100.23
T789	31	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.81	0.27	22.05	3.15	0.02	6.44	0.30	0.06	22.34	4.31	0.00	0.01	100.76
T789	32	7814	kimb	0.5-1.0	purple	Cr-Pyrope	40.95	1.16	20.80	2.53	0.10	8.76	0.39	0.00	20.40	4.68	0.00	0.01	99.79
T789	33	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.32	0.35	19.48	6.03	0.09	6.67	0.31	0.00	21.01	5.11	0.09	0.01	100.46
T789	34	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.13	0.03	20.32	5.76	0.01	7.72	0.52	0.03	19.15	6.14	0.00	0.00	100.80
T789	35	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.39	0.33	21.13	3.90	0.05	7.47	0.38	0.00	21.22	4.52	0.00	0.02	100.42
T789	36	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.35	0.31	21.17	3.78	0.05	7.28	0.37	0.02	21.39	4.55	0.00	0.00	100.29
T789	37	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.74	0.35	22.15	3.04	0.03	6.35	0.28	0.00	22.23	4.25	0.00	0.00	100.44
T789	38	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.35	0.03	22.60	2.18	0.02	9.05	0.56	0.02	20.08	4.41	0.00	0.00	100.30
T789	39	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.08	0.46	19.26	6.49	0.09	6.77	0.37	0.01	20.83	5.16	0.00	0.01	100.52
T789	40	7814	kimb	0.5-1.0	purple	Cr-Pyrope	40.88	0.23	21.53	3.23	0.03	9.35	0.34	0.01	19.26	5.24	0.00	0.01	100.11
T789	41	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.03	0.69	21.63	2.50	0.02	7.79	0.37	0.00	20.92	4.58	0.00	0.01	99.55
T789	42	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.66	0.61	21.83	2.45	0.02	8.00	0.36	0.02	20.94	4.52	0.00	0.01	100.42
T789	43	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.27	0.64	22.01	2.25	0.09	7.75	0.39	0.01	20.91	4.70	0.00	0.00	100.02
T789	44	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.43	0.56	19.44	5.50	0.04	6.21	0.25	0.00	21.34	5.23	0.00	0.01	100.01
T789	45	7814	kimb	0.5-1.0	purple	Cr-Pyrope	40.92	0.52	21.85	2.47	0.03	8.93	0.38	0.00	20.27	4.28	0.00	0.00	99.65
T789	46	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.28	0.38	21.20	3.84	0.04	7.62	0.38	0.00	21.18	4.52	0.00	0.00	100.43
T789	47	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.12	0.24	21.93	3.08	0.08	9.67	0.34	0.00	19.42	5.19	0.00	0.00	101.06
T789	48	7814	kimb	0.5-1.0	purple	Cr-Pyrope	40.94	0.27	21.52	2.88	0.01	9.35	0.34	0.00	19.27	5.19	0.00	0.00	99.76
T789	50	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.26	0.17	21.53	4.01	0.08	7.51	0.46	0.02	20.68	4.90	0.00	0.00	100.60
T789	51	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.39	0.19	21.11	3.92	0.02	7.31	0.38	0.02	20.67	4.71	0.00	0.01	99.74
T789	53	7814	kimb	0.5-1.0	purple	Cr-Pyrope	41.12	1.08	20.96	2.21	0.04	8.84	0.31	0.00	20.53	4.54	0.00	0.01	99.64
T807	68	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.63	0.27	19.50	5.08	0.02	8.60	0.50	0.02	19.35	5.75	0.00	0.01	99.73
T807	69	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.85	0.01	19.69	5.32	0.04	7.88	0.49	0.00	19.04	6.45	0.00	0.00	99.77
T807	70	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.34	0.01	21.22	3.46	0.04	7.81	0.38	0.00	20.71	4.93	0.00	0.00	99.89
T807	71	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.56	0.03	21.11	3.62	0.05	7.55	0.36	0.06	20.63	5.05	0.02	0.00	100.02
T807	72	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.02	0.04	22.19	2.13	0.00	9.28	0.55	0.04	19.81	4.65	0.05	0.00	99.72
T807	73	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.27	0.06	21.41	3.35	0.09	8.09	0.60	0.00	20.32	4.50	0.00	0.00	99.69
T807	74	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.73	0.30	19.17	5.90	0.11	6.63	0.34	0.02	20.92	5.28	0.00	0.00	99.41
T807	75	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.80	0.12	18.68	6.47	0.04	8.40	0.41	0.01	18.77	6.75	0.00	0.02	100.45

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T807	76	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.72	0.04	19.60	5.63	0.08	7.84	0.48	0.04	18.94	6.53	0.00	0.00	99.91
T807	77	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.10	0.01	21.00	3.54	0.02	7.50	0.41	0.00	20.62	5.01	0.00	0.00	99.22
T807	78	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.22	0.04	19.69	5.30	0.02	7.92	0.42	0.00	19.28	6.43	0.00	0.00	100.32
T807	79	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.57	0.01	22.12	2.29	0.00	8.83	0.44	0.00	20.08	4.71	0.00	0.00	100.06
T807	80	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.29	0.05	22.14	2.05	0.00	9.13	0.49	0.01	19.88	4.65	0.00	0.00	99.70
T807	81	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.72	0.05	19.71	5.40	0.07	7.98	0.49	0.00	18.92	6.42	0.00	0.00	99.74
T807	82	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.31	0.04	20.42	4.26	0.03	7.12	0.39	0.00	20.64	5.27	0.07	0.01	99.48
T807	83	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.24	0.05	20.81	4.21	0.00	7.80	0.53	0.02	20.31	4.93	0.01	0.00	99.89
T807	84	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.92	0.26	19.08	5.74	0.04	6.66	0.36	0.06	20.80	5.24	0.01	0.02	99.16
T807	85	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.65	0.03	19.61	5.32	0.06	7.92	0.54	0.00	19.02	6.36	0.00	0.02	99.51
T807	86	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.63	0.05	19.90	4.82	0.00	8.08	0.44	0.06	19.74	5.74	0.00	0.02	99.45
T807	87	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.24	0.04	21.13	3.65	0.03	7.42	0.41	0.06	20.81	5.02	0.00	0.01	99.82
T807	88	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.98	0.00	20.76	3.66	0.00	7.80	0.51	0.01	19.98	5.34	0.00	0.00	99.05
T807	90	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.82	0.07	19.68	5.13	0.05	7.95	0.48	0.04	19.06	6.41	0.00	0.00	99.67
T807	91	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.55	0.02	19.40	5.63	0.03	7.98	0.53	0.01	18.83	6.35	0.00	0.01	99.33
T807	92	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.66	0.10	15.33	11.01	0.10	6.09	0.29	0.00	21.13	5.20	0.00	0.00	99.92
T807	93	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.16	0.36	20.31	3.70	0.00	7.42	0.36	0.01	21.03	4.67	0.01	0.00	99.01
T807	94	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.62	0.34	21.58	2.82	0.01	6.29	0.32	0.05	22.13	4.58	0.00	0.01	99.74
T807	95	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.67	0.37	21.34	3.19	0.03	6.47	0.35	0.04	22.04	4.59	0.00	0.00	100.09
T807	96	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.20	0.33	20.50	3.60	0.06	7.50	0.38	0.00	20.97	4.74	0.00	0.01	99.28
T807	97	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.35	0.34	20.60	3.78	0.06	7.63	0.37	0.00	21.17	4.85	0.00	0.01	100.16
T807	98	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.50	0.31	21.28	2.88	0.09	6.36	0.32	0.01	21.97	4.53	0.00	0.01	99.24
T807	99	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.54	0.45	21.29	2.55	0.11	6.83	0.25	0.07	21.67	4.68	0.00	0.00	99.43
T807	100	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.60	0.51	20.44	3.51	0.07	7.08	0.27	0.05	21.50	4.65	0.00	0.00	99.68
T807	101	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.65	0.32	21.43	2.98	0.05	6.43	0.32	0.03	22.02	4.45	0.00	0.00	99.68
T807	102	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.79	0.66	18.68	5.81	0.03	7.10	0.26	0.03	20.66	5.76	0.00	0.00	99.79
T807	104	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.78	0.47	20.54	3.63	0.00	7.90	0.36	0.02	20.76	4.71	0.00	0.01	99.18
T807	105	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.93	0.43	18.03	6.66	0.07	6.85	0.30	0.05	20.26	5.72	0.00	0.00	99.29
T807	106	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.41	0.43	20.45	3.86	0.00	6.89	0.32	0.01	21.18	4.83	0.00	0.00	99.39
T807	107	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.38	0.35	20.55	3.67	0.07	7.43	0.29	0.00	20.95	4.76	0.02	0.00	99.45
T807	108	7814	kimb	0.25-0.5	purple	Cr-pyrope	39.49	0.93	13.01	12.07	0.03	6.39	0.31	0.02	18.14	8.46	0.01	0.00	98.86
T807	109	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.49	0.24	21.03	3.12	0.06	6.29	0.27	0.03	21.89	4.48	0.00	0.00	98.89
T807	110	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.97	0.31	20.67	3.80	0.00	7.63	0.35	0.00	21.05	4.70	0.00	0.02	100.48
T807	111	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.39	0.41	19.40	4.89	0.07	6.70	0.25	0.03	21.06	5.34	0.00	0.00	99.55
T807	112	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.23	0.76	19.62	4.04	0.02	6.54	0.25	0.02	21.57	5.33	0.00	0.02	99.38
T807	113	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.65	0.37	18.30	6.58	0.03	6.74	0.32	0.06	20.70	5.73	0.00	0.00	99.49
T807	114	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.34	0.30	20.69	3.58	0.04	7.58	0.34	0.01	21.03	4.65	0.00	0.00	99.55
T807	115	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.58	0.24	21.64	2.71	0.05	6.62	0.33	0.02	22.24	4.39	0.00	0.01	99.81
T807	116	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.36	0.29	20.50	3.82	0.08	7.37	0.33	0.01	21.00	4.73	0.02	0.02	99.49
T807	117	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.42	0.34	20.83	3.75	0.00	7.25	0.36	0.03	21.23	4.82	0.00	0.00	100.04
T807	119	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.09	0.79	20.64	2.64	0.10	7.84	0.31	0.02	21.15	4.99	0.03	0.02	99.57
T807	120	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.12	0.47	21.63	2.12	0.07	8.00	0.33	0.02	21.33	4.31	0.00	0.00	99.41
T807	121	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.34	0.28	21.32	3.07	0.06	6.37	0.33	0.00	21.96	4.53	0.00	0.00	99.26
T807	122	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.88	0.53	19.48	4.86	0.03	7.73	0.30	0.04	20.58	5.06	0.00	0.00	99.49
T807	124	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.26	0.53	20.94	2.63	0.04	7.07	0.29	0.05	21.47	4.81	0.00	0.02	99.09
T807	125	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.48	0.48	20.32	3.96	0.07	6.60	0.27	0.06	21.29	5.40	0.00	0.00	99.93



Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T807	126	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.63	0.25	21.42	2.99	0.05	6.40	0.26	0.00	21.86	4.61	0.00	0.01	99.46
T807	127	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.76	0.50	21.34	2.41	0.05	7.54	0.33	0.00	21.38	4.42	0.00	0.01	99.73
T807	128	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.98	0.38	20.47	3.67	0.02	7.63	0.31	0.00	20.94	4.76	0.00	0.00	99.16
T807	129	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.48	0.30	21.50	2.92	0.04	6.39	0.29	0.03	22.09	4.49	0.00	0.02	99.53
T807	130	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.68	0.41	21.25	3.09	0.05	6.57	0.24	0.01	22.02	4.70	0.00	0.00	100.02
T807	131	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.25	0.48	20.94	3.23	0.11	6.47	0.30	0.00	21.82	4.77	0.00	0.00	99.36
T807	132	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.24	0.34	20.17	3.86	0.05	7.25	0.29	0.03	21.20	5.07	0.00	0.01	99.51
T807	133	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.19	0.38	20.52	3.63	0.03	7.54	0.30	0.02	21.02	4.78	0.00	0.00	99.41
T807	134	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.13	0.36	20.48	3.74	0.05	7.40	0.33	0.00	21.11	4.82	0.01	0.00	99.41
T807	135	7814	kimb	0.25-0.5	purple	Cr-pyrope	40.83	0.22	21.08	2.86	0.05	9.66	0.29	0.00	19.25	5.56	0.00	0.00	99.79
T807	136	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.65	0.26	21.45	2.85	0.00	6.57	0.35	0.04	22.01	4.54	0.00	0.00	99.70
T807	137	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.40	0.29	21.30	2.94	0.04	6.50	0.28	0.05	21.93	4.59	0.00	0.02	99.33
T807	138	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.21	0.34	20.58	3.75	0.03	7.43	0.35	0.02	21.19	4.74	0.01	0.00	99.65
T807	139	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.35	0.26	21.37	2.72	0.03	6.39	0.29	0.06	22.05	4.53	0.00	0.01	99.06
T807	140	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.51	0.40	20.84	3.60	0.08	7.18	0.32	0.03	21.43	4.85	0.00	0.00	100.24
T807	141	7814	kimb	0.25-0.5	purple	Cr-pyrope	41.56	0.33	20.49	3.56	0.01	7.55	0.32	0.01	21.04	4.62	0.00	0.00	99.49
T808	19	7814	kimb	0.25-0.5	purple	Cr-Pyrope	42.00	1.11	20.89	2.42	0.11	8.82	0.35	0.00	20.63	4.95	0.01	0.00	101.29
T810	1	7814	kimb	1.0-2.0	purple	Cr-Pyrope	42.28	0.33	20.91	3.59	0.03	7.10	0.34	0.00	21.23	4.72	0.00	0.01	100.54
T810	2	7814	kimb	1.0-2.0	purple	Cr-Pyrope	42.05	0.31	20.96	3.83	0.05	7.35	0.39	0.03	21.32	4.74	0.00	0.00	101.04
T810	3	7814	kimb	1.0-2.0	purple	Cr-Pyrope	42.16	0.27	21.76	2.62	0.11	6.20	0.35	0.00	21.90	4.32	0.00	0.00	99.68
T810	4	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.78	0.33	21.01	3.76	0.00	7.15	0.38	0.01	21.11	4.54	0.00	0.00	100.08
T810	5	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.30	0.22	21.76	2.80	0.05	6.25	0.30	0.00	21.72	4.40	0.00	0.00	98.80
T810	6	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.17	0.31	20.84	3.67	0.00	7.34	0.34	0.00	20.88	4.46	0.00	0.00	98.99
T810	7	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.43	0.61	20.54	3.40	0.17	7.65	0.29	0.00	20.41	5.28	0.00	0.00	99.79
T810	8	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.53	0.09	19.44	6.39	0.10	8.06	0.45	0.00	18.90	6.82	0.00	0.01	101.79
T814	1	7814	kimb	1.0-2.0	purple	Cr-Pyrope	40.94	0.89	21.34	2.20	0.06	8.73	0.30	0.02	20.50	4.67	0.00	0.02	99.69
T814	2	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.50	0.93	21.32	2.23	0.09	8.55	0.25	0.00	20.55	4.70	0.00	0.00	100.13
T814	3	7814	kimb	1.0-2.0	purple	Cr-Pyrope	40.89	0.91	21.08	2.07	0.00	8.74	0.28	0.01	20.29	4.63	0.00	0.02	98.93
T814	4	7814	kimb	1.0-2.0	purple	Cr-Pyrope	40.98	0.89	21.22	2.28	0.08	8.59	0.30	0.04	20.55	4.62	0.00	0.01	99.55
T814	5	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.59	0.91	21.28	2.17	0.08	8.52	0.33	0.00	20.54	4.67	0.00	0.00	100.08
T814	7	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.05	0.92	21.46	2.31	0.15	8.97	0.33	0.02	20.68	4.71	0.00	0.01	100.60
T814	8	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.16	0.86	21.31	2.25	0.08	8.67	0.34	0.00	20.43	4.68	0.00	0.00	99.78
T814	9	7814	kimb	1.0-2.0	purple	Cr-Pyrope	40.84	0.91	21.08	2.19	0.07	8.35	0.31	0.00	20.44	4.68	0.00	0.01	98.88
T814	10	7814	kimb	1.0-2.0	purple	Cr-Pyrope	40.67	0.94	21.27	2.23	0.05	8.59	0.30	0.02	20.34	4.66	0.00	0.00	99.07
T814	11	7814	kimb	1.0-2.0	purple	Cr-Pyrope	40.93	0.91	21.28	2.40	0.06	8.55	0.38	0.01	20.53	4.79	0.00	0.00	99.85
T814	13	7814	kimb	1.0-2.0	purple	Cr-Pyrope	41.03	0.85	21.20	2.22	0.09	8.60	0.31	0.02	20.50	4.60	0.00	0.00	99.41
T814	14	7814	kimb	1.0-2.0	purple	Cr-Pyrope	40.87	0.87	21.22	2.26	0.04	8.49	0.36	0.01	20.42	4.62	0.00	0.00	99.15
T814	15	7814	kimb	1.0-2.0	purple	Cr-Pyrope	40.36	0.93	21.38	2.37	0.03	8.39	0.37	0.04	20.73	4.66	0.00	0.00	99.26
T814	16	7814	kimb	1.0-2.0	purple	Cr-Pyrope	40.85	0.87	21.21	2.08	0.04	8.42	0.35	0.02	20.34	4.60	0.00	0.02	98.80
T768	28	7814	kimb	0.25-0.5	orange	Pyrope	41.05	0.88	22.68	0.58	0.06	8.10	0.42	0.01	20.77	4.71	0.00	0.00	99.27
T788	55	7814	kimb	0.5-1.0	purple	Pyrope	41.53	0.51	21.90	1.65	0.06	7.57	0.29	0.00	21.36	4.36	0.00	0.01	99.24
T788	67	7814	kimb	0.5-1.0	purple	Pyrope	42.94	0.00	23.09	1.86	0.01	8.89	0.54	0.02	20.45	4.65	0.01	0.00	102.45
T789	49	7814	kimb	0.5-1.0	orange	Pyrope	41.43	0.92	22.12	1.27	0.05	8.71	0.34	0.00	20.70	4.40	0.00	0.01	99.94
T789	54	7814	kimb	0.5-1.0	orange	Pyrope	41.59	0.47	23.46	0.13	0.08	9.39	0.37	0.03	20.84	4.11	0.00	0.01	100.47
T789	55	7814	kimb	0.5-1.0	orange	Pyrope	41.11	0.60	23.20	0.41	0.00	10.14	0.38	0.00	20.76	3.28	0.00	0.00	99.88
T789	56	7814	kimb	0.5-1.0	orange	Pyrope	41.37	0.55	23.33	0.22	0.10	10.55	0.44	0.00	19.80	3.94	0.00	0.00	100.30

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T789	57	7814	kimb	0.5-1.0	orange	Pyrope	41.29	0.46	23.12	0.45	0.08	9.92	0.36	0.00	20.47	3.42	0.00	0.00	99.56
T789	58	7814	kimb	0.5-1.0	orange	Pyrope	41.02	0.66	22.99	0.16	0.08	10.76	0.44	0.02	19.70	4.15	0.00	0.02	100.00
T808	1	7814	kimb	0.25-0.5	purple	Pyrope	42.02	0.71	22.79	0.19	0.05	10.70	0.41	0.02	19.96	4.32	0.01	0.01	101.18
T808	2	7814	kimb	0.25-0.5	purple	Pyrope	41.98	0.68	22.81	0.16	0.09	10.95	0.43	0.02	20.19	4.33	0.02	0.01	101.65
T808	3	7814	kimb	0.25-0.5	purple	Pyrope	42.06	0.50	23.06	0.24	0.02	11.00	0.44	0.01	19.54	4.29	0.01	0.02	101.17
T808	4	7814	kimb	0.25-0.5	purple	Pyrope	42.14	0.83	22.32	0.67	0.04	8.81	0.30	0.00	21.10	4.83	0.00	0.02	101.04
T808	5	7814	kimb	0.25-0.5	purple	Pyrope	42.43	0.83	22.13	0.89	0.07	9.95	0.35	0.03	19.99	4.64	0.00	0.00	101.32
T808	6	7814	kimb	0.25-0.5	purple	Pyrope	42.16	0.58	23.00	0.24	0.07	10.36	0.40	0.02	20.38	4.16	0.00	0.03	101.38
T808	7	7814	kimb	0.25-0.5	purple	Pyrope	41.92	0.54	23.36	0.16	0.06	9.44	0.37	0.00	20.92	4.31	0.00	0.00	101.08
T808	8	7814	kimb	0.25-0.5	purple	Pyrope	42.46	0.57	22.97	0.37	0.03	9.38	0.35	0.00	20.95	4.44	0.00	0.02	101.53
T808	9	7814	kimb	0.25-0.5	purple	Pyrope	41.83	0.81	21.96	1.06	0.10	9.90	0.35	0.00	20.18	4.64	0.01	0.01	100.84
T808	11	7814	kimb	0.25-0.5	purple	Pyrope	42.37	0.56	22.96	0.19	0.00	9.55	0.36	0.03	20.88	4.36	0.01	0.01	101.26
T808	12	7814	kimb	0.25-0.5	purple	Pyrope	42.40	0.66	22.60	0.20	0.03	10.91	0.39	0.00	20.11	4.43	0.01	0.00	101.73
T808	13	7814	kimb	0.25-0.5	purple	Pyrope	42.18	0.43	22.86	0.17	0.08	11.57	0.43	0.03	19.43	4.14	0.00	0.02	101.33
T808	14	7814	kimb	0.25-0.5	purple	Pyrope	42.24	0.63	22.96	0.42	0.06	10.25	0.30	0.00	21.17	3.30	0.01	0.01	101.34
T808	15	7814	kimb	0.25-0.5	purple	Pyrope	42.37	0.92	21.74	1.21	0.05	8.79	0.36	0.00	20.91	4.61	0.00	0.02	100.96
T808	16	7814	kimb	0.25-0.5	purple	Pyrope	42.12	0.82	22.30	0.97	0.06	10.05	0.39	0.00	20.13	4.56	0.00	0.02	101.41
T808	17	7814	kimb	0.25-0.5	purple	Pyrope	41.87	0.70	21.70	1.38	0.09	9.54	0.37	0.04	20.96	4.52	0.02	0.02	101.18
T808	18	7814	kimb	0.25-0.5	purple	Pyrope	42.11	0.88	22.02	0.92	0.07	10.09	0.39	0.01	20.27	4.71	0.03	0.00	101.47
T814	12	7814	kimb	1.0-2.0	purple	Pyrope	40.72	0.69	21.85	1.77	0.07	8.84	0.36	0.01	20.13	4.66	0.00	0.02	99.12
T776	61	7815	till	0.25-0.5	redpurple	Cr-Pyrope	40.87	0.60	19.63	5.00	0.03	6.56	0.32	0.00	20.95	5.35	0.00	0.00	99.31
T776	62	7815	till	0.25-0.5	purple	Cr-Pyrope	40.09	0.18	19.53	5.99	0.07	6.95	0.40	0.00	19.97	5.24	0.00	0.00	98.43
T781	51	7815	till	0.25-0.5	purple	Cr-pyrope	40.78	0.87	20.65	2.82	0.04	8.31	0.35	0.07	20.68	4.49	0.00	0.00	99.07
T781	73	7816	till	0.25-0.5	purple	Cr-pyrope	41.87	0.73	21.37	2.27	0.02	7.59	0.26	0.00	21.02	4.80	0.00	0.00	99.94
T781	78	7817	till	0.25-0.5	purple	Cr-pyrope	40.61	0.30	17.88	7.89	0.00	7.06	0.33	0.00	19.73	5.71	0.00	0.00	99.52
T782	1	7819	till	0.25-0.5	purple	Cr-pyrope	40.38	0.52	18.87	5.29	0.06	6.14	0.29	0.00	20.75	5.53	0.00	0.02	97.85
T777	7	7819	till	0.25-0.5	pink	Pyrope	40.57	0.58	23.34	0.23	0.13	8.79	0.34	0.00	20.48	4.13	0.00	0.01	98.60
T782	19	7820	till	0.25-0.5	purple	Cr-pyrope	41.32	0.10	20.96	4.36	0.00	7.86	0.35	0.04	19.53	5.40	0.00	0.01	99.92
T782	20	7820	till	0.25-0.5	purple	Cr-pyrope	40.56	0.20	21.21	3.35	0.06	8.32	0.45	0.00	19.65	4.88	0.00	0.02	98.69
T782	21	7820	till	0.25-0.5	purple	Cr-pyrope	40.07	0.62	19.50	4.63	0.01	6.52	0.42	0.01	20.14	5.49	0.00	0.00	97.39
T782	22	7820	till	0.25-0.5	purple	Cr-pyrope	40.96	0.02	20.06	5.54	0.05	7.32	0.43	0.00	19.40	6.04	0.00	0.00	99.82
T782	23	7820	till	0.25-0.5	purple	Cr-pyrope	37.49	0.04	19.64	5.49	0.06	7.47	0.49	0.06	19.89	5.70	0.02	0.00	96.33
T782	24	7820	till	0.25-0.5	purple	Cr-pyrope	41.47	0.47	19.53	5.42	0.08	6.20	0.27	0.04	20.95	5.18	0.00	0.02	99.61
T782	25	7820	till	0.25-0.5	purple	Cr-pyrope	40.32	0.47	19.42	5.43	0.00	6.35	0.29	0.01	20.98	5.14	0.00	0.00	98.41
T759	7	7821	till	0.25-0.5	black	CaFe-Pyrope	40.41	0.53	22.84	0.02	0.12	14.79	0.37	0.03	13.07	8.93	n.a.	n.a.	101.09
T771	73	7821	till	0.25-0.5	purple	Cr-Pyrope	39.84	0.38	17.70	7.70	0.04	5.67	0.22	0.00	21.02	5.40	0.00	0.01	97.98
T782	59	7821	till	0.25-0.5	purple	Cr-pyrope	40.86	0.08	18.45	6.85	0.11	6.44	0.27	0.05	20.24	6.10	0.00	0.00	99.46
T782	60	7821	till	0.25-0.5	purple	Cr-pyrope	41.16	0.40	20.61	4.17	0.02	6.78	0.26	0.01	20.91	4.81	0.00	0.01	99.15
T782	61	7821	till	0.25-0.5	purple	Cr-pyrope	40.61	0.35	17.91	7.45	0.07	5.43	0.24	0.05	20.61	5.99	0.00	0.00	98.70
T795	1	7821	till	0.5-1.0	purple	Cr-Pyrope	41.55	0.10	19.12	6.46	0.07	6.53	0.41	0.02	20.55	5.61	0.00	0.00	100.42
T795	2	7821	till	0.5-1.0	purple	Cr-Pyrope	40.99	0.40	21.64	2.17	0.04	7.38	0.29	0.05	21.28	4.19	0.00	0.00	98.43
T777	40	7822	till	0.25-0.5	purple	Cr-Pyrope	39.87	0.10	20.27	4.81	0.04	7.68	0.50	0.03	19.02	5.82	0.00	0.01	98.15
T777	41	7822	till	0.25-0.5	black	Cr-Pyrope	41.44	0.10	20.15	5.03	0.03	7.69	0.51	0.00	19.22	6.15	0.00	0.00	100.33
T783	1	7822	till	0.25-0.5	purple	Cr-pyrope	40.58	0.86	18.88	5.39	0.03	7.25	0.31	0.03	19.84	5.91	0.00	0.01	99.09
T783	2	7822	till	0.25-0.5	purple	Cr-pyrope	40.35	0.10	20.47	4.67	0.00	8.12	0.41	0.02	19.07	5.94	0.00	0.02	99.17
T783	3	7822	till	0.25-0.5	purple	Cr-pyrope	40.26	0.04	20.00	5.37	0.08	7.13	0.49	0.00	19.53	5.76	0.00	0.00	98.67

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T795	32	7822	till	0.5-1.0	purple	Cr-Pyrope	40.93	0.42	21.06	3.68	0.06	7.09	0.27	0.00	21.20	4.75	0.00	0.01	99.49
T795	33	7822	till	0.5-1.0	orange	Pyrope	40.28	0.90	21.98	0.83	0.13	10.59	0.39	0.06	19.66	4.42	0.00	0.00	99.23
T783	15	7823	till	0.25-0.5	purple	Cr-pyrope	40.67	0.14	20.25	4.64	0.01	7.67	0.46	0.00	19.35	5.57	0.00	0.01	98.75
T783	16	7823	till	0.25-0.5	purple	Cr-pyrope	40.30	0.74	19.00	5.57	0.04	6.50	0.26	0.07	20.41	5.59	0.00	0.03	98.51
T783	17	7823	till	0.25-0.5	purple	Cr-pyrope	40.82	0.41	20.48	3.84	0.02	6.60	0.28	0.02	20.72	5.24	0.00	0.01	98.45
T783	18	7823	till	0.25-0.5	purple	Cr-pyrope	40.85	0.08	22.31	2.13	0.05	7.89	0.36	0.00	20.37	4.53	0.02	0.00	98.60
T783	19	7823	till	0.25-0.5	purple	Cr-pyrope	40.39	0.39	17.56	7.43	0.02	6.38	0.28	0.03	19.89	6.25	0.00	0.00	98.60
T783	20	7823	till	0.25-0.5	purple	Cr-pyrope	41.04	0.37	22.12	2.04	0.04	6.98	0.22	0.05	21.37	4.41	0.00	0.00	98.62
T783	22	7823	till	0.25-0.5	purple	Cr-pyrope	41.13	0.62	19.61	5.25	0.08	6.36	0.26	0.02	21.09	5.16	0.00	0.01	99.59
T783	23	7823	till	0.25-0.5	purple	Pyrope	40.96	0.83	21.53	1.54	0.01	7.82	0.32	0.05	20.79	4.66	0.07	0.00	98.58
T783	24	7823	till	0.25-0.5	purple	Pyrope	40.71	0.82	21.48	1.28	0.00	9.10	0.36	0.04	20.03	4.60	0.00	0.00	98.42
T777	77	7824	till	0.25-0.5	purple	Fe-Pyrope	38.84	0.40	22.47	0.10	0.02	15.23	0.39	0.02	14.99	4.77	0.00	0.00	97.22
T783	52	7824	till	0.25-0.5	purple	Pyrope	40.47	0.63	22.55	0.37	0.04	9.95	0.40	0.01	20.00	3.90	0.05	0.00	98.38
T778	1	7825	till	0.25-0.5	purple	Cr-pyrope	40.88	0.08	19.48	5.18	0.00	10.56	0.57	0.02	16.98	6.35	0.00	0.00	100.11
T778	2	7825	till	0.25-0.5	purple	Cr-pyrope	41.66	0.04	20.46	4.78	0.04	7.37	0.48	0.06	19.78	5.56	0.00	0.00	100.24
T778	3	7825	till	0.25-0.5	purple	Cr-pyrope	41.18	0.28	19.40	5.59	0.00	6.45	0.30	0.02	20.99	5.21	0.00	0.00	99.43
T783	77	7825	till	0.25-0.5	purple	Cr-pyrope	39.79	0.07	20.85	3.66	0.00	10.81	0.55	0.02	17.00	6.08	0.00	0.01	98.85
T783	78	7825	till	0.25-0.5	purple	Cr-pyrope	40.82	0.35	20.84	3.38	0.06	6.17	0.36	0.01	21.48	5.02	0.00	0.01	98.50
T783	79	7825	till	0.25-0.5	purple	Cr-pyrope	40.69	0.43	20.79	3.54	0.01	6.47	0.37	0.04	21.13	5.18	0.00	0.01	98.66
T783	80	7825	till	0.25-0.5	purple	Cr-pyrope	40.61	0.77	20.40	3.25	0.00	7.27	0.33	0.00	20.51	5.20	0.10	0.00	98.44
T796	32	7825	till	0.5-1.0	purple	Cr-Pyrope	40.44	0.64	18.64	6.14	0.09	6.40	0.33	0.00	20.67	5.58	0.00	0.02	98.94
T772	63	7825	till	0.25-0.5	orange	Fe-Pyrope	40.81	0.52	22.22	0.08	0.00	18.07	0.42	0.02	13.46	4.76	0.00	0.00	100.35
T778	5	7825	till	0.25-0.5	purple	Pyrope	40.18	0.87	21.85	0.88	0.06	10.12	0.38	0.00	19.71	4.53	0.00	0.00	98.57
T778	12	7826	till	0.25-0.5	purple	Cr-pyrope	39.87	0.09	22.05	2.05	0.06	9.71	0.37	0.00	18.97	5.15	0.00	0.00	98.32
T784	1	7826	till	0.25-0.5	purple	Cr-Pyrope	42.53	0.61	18.75	5.62	0.07	6.37	0.25	0.01	20.83	5.54	0.00	0.00	100.59
T784	2	7826	till	0.25-0.5	purple	Cr-Pyrope	42.34	0.12	20.28	4.67	0.09	6.91	0.44	0.00	20.38	5.18	0.00	0.00	100.41
T784	3	7826	till	0.25-0.5	purple	Cr-Pyrope	42.52	0.03	21.27	3.60	0.02	7.30	0.48	0.03	20.78	4.72	0.00	0.00	100.75
T784	4	7826	till	0.25-0.5	purple	Cr-Pyrope	42.38	0.66	19.74	4.40	0.05	6.45	0.30	0.02	20.95	5.20	0.00	0.02	100.17
T784	5	7826	till	0.25-0.5	purple	Cr-Pyrope	42.19	0.00	21.15	3.67	0.00	7.00	0.38	0.02	19.77	5.99	0.00	0.00	100.17
T784	6	7826	till	0.25-0.5	purple	Cr-Pyrope	41.94	0.03	21.54	2.75	0.06	8.04	0.60	0.00	19.46	5.67	0.00	0.00	100.08
T796	42	7826	till	0.5-1.0	purple	Cr-Pyrope	40.39	0.83	20.91	2.68	0.10	7.90	0.33	0.03	20.56	4.84	0.00	0.00	98.60
T796	44	7826	till	0.5-1.0	purple	Cr-Pyrope	41.33	0.62	20.13	4.82	0.06	6.70	0.28	0.03	21.10	5.31	0.00	0.01	100.39
T778	21	7827	till	0.25-0.5	purple	Cr-pyrope	40.03	0.27	19.58	5.32	0.02	7.72	0.50	0.00	19.33	5.30	0.00	0.00	98.07
T778	22	7827	till	0.25-0.5	purple	Cr-pyrope	40.20	0.08	20.40	4.54	0.03	7.67	0.50	0.01	19.50	5.20	0.00	0.00	98.13
T784	35	7827	till	0.25-0.5	purple	Cr-Pyrope	41.70	0.61	20.41	3.16	0.02	7.19	0.31	0.02	20.68	5.16	0.00	0.01	99.26
T784	36	7827	till	0.25-0.5	purple	Cr-Pyrope	41.95	0.39	19.83	4.55	0.05	6.40	0.24	0.00	21.13	5.07	0.00	0.01	99.63
T784	37	7827	till	0.25-0.5	purple	Cr-Pyrope	41.98	0.02	21.93	2.63	0.05	8.30	0.40	0.00	20.16	4.62	0.00	0.02	100.11
T778	23	7827	till	0.25-0.5	purple	Pyrope	39.85	0.58	22.40	0.05	0.05	11.99	0.45	0.04	18.48	4.38	0.00	0.01	98.27
T773	2	7828	till	0.25-0.5	purple	Cr-Pyrope	39.61	0.41	21.31	2.69	0.07	9.41	0.42	0.09	19.86	4.23	0.00	0.01	98.11
T778	67	7828	till	0.25-0.5	purple	Cr-pyrope	40.85	0.02	20.80	4.65	0.01	7.52	0.45	0.07	20.05	5.06	0.00	0.01	99.49
T778	68	7828	till	0.25-0.5	purple	Cr-pyrope	40.62	0.36	19.88	5.00	0.02	6.71	0.35	0.00	20.52	5.28	0.00	0.00	98.74
T778	70	7828	till	0.25-0.5	purple	Cr-pyrope	40.42	0.67	19.54	4.74	0.12	6.15	0.25	0.05	21.06	4.99	0.00	0.02	98.01
T778	71	7828	till	0.25-0.5	purple	Cr-pyrope	40.75	0.66	20.37	3.60	0.04	7.23	0.33	0.00	20.52	5.12	0.00	0.00	98.62
T784	72	7828	till	0.25-0.5	purple	Cr-Pyrope	41.96	0.53	21.15	3.25	0.01	6.41	0.33	0.06	21.90	4.74	0.00	0.00	100.34
T784	73	7828	till	0.25-0.5	purple	Cr-Pyrope	41.45	0.29	19.52	5.17	0.02	6.38	0.24	0.01	20.85	5.11	0.00	0.00	99.05
T784	74	7828	till	0.25-0.5	purple	Cr-Pyrope	41.52	0.80	18.93	5.17	0.08	6.39	0.24	0.01	21.01	5.36	0.00	0.00	99.52

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T784	75	7828	till	0.25-0.5	purple	Cr-Pyrope	41.81	0.33	21.07	3.27	0.10	6.83	0.26	0.03	21.47	4.85	0.00	0.03	100.05
T784	76	7828	till	0.25-0.5	purple	Cr-Pyrope	41.25	0.76	19.92	3.92	0.12	6.55	0.32	0.05	21.07	5.21	0.00	0.01	99.18
T784	77	7828	till	0.25-0.5	purple	Cr-Pyrope	41.63	0.30	21.04	3.17	0.00	6.56	0.30	0.00	21.41	4.64	0.00	0.00	99.06
T784	78	7828	till	0.25-0.5	purple	Cr-Pyrope	41.05	0.57	20.05	4.49	0.01	6.78	0.31	0.00	21.14	5.27	0.00	0.01	99.68
T784	79	7828	till	0.25-0.5	purple	Cr-Pyrope	41.03	0.56	20.30	3.93	0.01	6.65	0.31	0.03	21.00	5.07	0.00	0.00	98.89
T784	80	7828	till	0.25-0.5	purple	Cr-Pyrope	40.05	0.07	21.22	2.84	0.03	12.86	0.46	0.01	16.33	5.53	0.00	0.00	99.42
T784	81	7828	till	0.25-0.5	purple	Cr-Pyrope	40.95	0.37	20.35	4.06	0.02	6.50	0.33	0.01	21.15	5.00	0.00	0.00	98.74
T784	82	7828	till	0.25-0.5	purple	Cr-Pyrope	41.54	0.42	21.71	2.96	0.06	6.70	0.29	0.01	21.76	4.41	0.00	0.00	99.85
T784	83	7828	till	0.25-0.5	purple	Cr-Pyrope	40.46	0.44	18.10	6.79	0.11	6.03	0.27	0.02	20.52	6.23	0.00	0.01	98.97
T784	84	7828	till	0.25-0.5	purple	Cr-Pyrope	40.56	0.86	19.16	5.25	0.10	6.33	0.28	0.01	21.02	5.18	0.00	0.00	98.74
T784	85	7828	till	0.25-0.5	purple	Cr-Pyrope	40.78	0.29	18.51	6.70	0.07	6.50	0.36	0.06	20.83	5.38	0.00	0.00	99.49
T784	88	7828	till	0.25-0.5	purple	Cr-Pyrope	41.31	1.00	20.92	2.31	0.05	7.93	0.32	0.00	20.36	5.18	0.00	0.00	99.37
T797	1	7828	till	0.5-1.0	purple	Cr-Pyrope	39.95	0.82	18.88	5.20	0.05	6.46	0.29	0.00	20.67	5.24	0.00	0.00	97.55
T797	2	7828	till	0.5-1.0	purple	Cr-Pyrope	40.48	0.32	19.53	5.52	0.05	6.68	0.29	0.06	21.02	4.99	0.00	0.00	98.93
T797	3	7828	till	0.5-1.0	purple	Cr-Pyrope	40.60	0.17	22.68	2.24	0.04	8.32	0.38	0.04	20.54	4.53	0.00	0.02	99.57
T784	86	7828	till	0.25-0.5	purple	Pyrope	41.16	0.64	22.59	0.34	0.11	10.23	0.41	0.00	19.87	4.25	0.00	0.01	99.61
T784	87	7828	till	0.25-0.5	purple	Pyrope	41.13	0.65	22.79	0.53	0.07	9.04	0.35	0.00	20.66	4.16	0.00	0.00	99.39
T784	89	7828	till	0.25-0.5	purple	Pyrope	41.19	0.79	21.56	1.61	0.03	8.63	0.38	0.01	20.30	4.79	0.00	0.02	99.31
T797	4	7828	till	0.5-1.0	orange	Pyrope	39.90	0.72	22.48	0.22	0.05	10.48	0.45	0.00	19.50	4.07	0.00	0.01	97.87
T779	1	7829	till	0.25-0.5	purple	Cr-pyrope	40.72	0.34	18.35	6.75	0.01	6.18	0.30	0.02	20.79	5.52	0.00	0.00	98.98
T785	1	7829	till	0.25-0.5	purple	Cr-Pyrope	41.08	0.33	20.77	3.52	0.04	6.52	0.28	0.04	21.62	4.81	0.00	0.00	99.01
T785	2	7829	till	0.25-0.5	purple	Cr-Pyrope	40.62	0.53	20.69	3.30	0.04	7.89	0.29	0.00	20.80	4.54	0.00	0.00	98.70
T785	3	7829	till	0.25-0.5	purple	Cr-Pyrope	40.67	1.02	20.12	3.64	0.09	7.55	0.30	0.03	20.62	5.28	0.00	0.00	99.31
T785	4	7829	till	0.25-0.5	purple	Cr-Pyrope	40.78	0.50	20.03	4.79	0.09	7.09	0.32	0.03	20.81	4.95	0.00	0.02	99.43
T785	5	7829	till	0.25-0.5	purple	Cr-Pyrope	40.41	0.74	20.92	2.95	0.00	7.65	0.29	0.04	20.67	4.80	0.00	0.00	98.47
T785	6	7829	till	0.25-0.5	purple	Cr-Pyrope	40.86	0.31	20.70	4.41	0.02	6.78	0.35	0.02	21.09	5.00	0.00	0.00	99.55
T785	7	7829	till	0.25-0.5	purple	Cr-Pyrope	41.07	0.64	21.32	2.87	0.03	6.32	0.30	0.00	22.09	4.51	0.00	0.01	99.17
T785	8	7829	till	0.25-0.5	purple	Cr-Pyrope	40.73	0.72	21.15	3.16	0.08	7.78	0.24	0.05	20.70	4.62	0.00	0.02	99.24
T804	1	7829	till	1.0-2.0	purple	Cr-pyrope	40.16	0.36	18.11	6.29	0.08	5.86	0.24	0.00	20.64	5.81	0.00	0.00	97.55
T779	32	7830	till	0.25-0.5	purple	Cr-pyrope	40.78	0.04	21.44	3.64	0.03	7.74	0.55	0.00	20.20	4.53	0.00	0.03	98.99
T785	44	7830	till	0.25-0.5	purple	Cr-Pyrope	40.68	0.53	19.83	4.93	0.11	6.76	0.24	0.00	20.95	5.24	0.00	0.01	99.27
T785	45	7830	till	0.25-0.5	purple	Cr-Pyrope	40.92	0.23	21.61	3.09	0.07	6.29	0.29	0.03	21.97	4.23	0.00	0.00	98.73
T785	46	7830	till	0.25-0.5	purple	Cr-Pyrope	40.48	0.76	20.05	3.78	0.08	7.95	0.22	0.03	20.99	4.60	0.00	0.00	98.95
T785	47	7830	till	0.25-0.5	purple	Cr-Pyrope	40.47	0.86	19.07	5.03	0.05	6.70	0.26	0.04	20.64	5.47	0.00	0.02	98.60
T785	48	7830	till	0.25-0.5	orange	Pyrope	40.41	0.75	22.58	0.17	0.11	10.84	0.42	0.03	19.28	4.18	0.00	0.00	98.77
T785	61	7831	till	0.25-0.5	purple	Cr-Pyrope	40.18	0.20	20.83	3.91	0.06	8.51	0.50	0.00	18.97	5.24	0.00	0.00	98.41
T785	67	7832	till	0.25-0.5	purple	Cr-Pyrope	40.96	0.42	19.85	5.05	0.07	6.63	0.33	0.04	20.80	5.13	0.00	0.02	99.30
T785	68	7832	till	0.25-0.5	purple	Cr-Pyrope	40.60	0.37	19.84	4.70	0.04	6.60	0.23	0.06	20.81	5.25	0.00	0.00	98.51
T785	69	7832	till	0.25-0.5	purple	Cr-Pyrope	40.62	0.40	19.90	4.89	0.06	6.50	0.34	0.02	20.94	5.17	0.00	0.00	98.83
T785	70	7832	till	0.25-0.5	purple	Cr-Pyrope	40.67	0.36	20.09	4.58	0.03	6.88	0.27	0.00	20.90	5.21	0.00	0.00	98.99
T785	71	7832	till	0.25-0.5	purple	Cr-Pyrope	40.83	0.40	19.96	4.64	0.07	6.62	0.31	0.00	20.87	5.20	0.00	0.00	98.92
T785	73	7832	till	0.25-0.5	purple	Cr-Pyrope	40.56	0.41	19.85	5.03	0.06	6.72	0.33	0.02	21.06	5.19	0.00	0.00	99.22
T785	74	7832	till	0.25-0.5	purple	Cr-Pyrope	40.99	0.39	19.92	4.77	0.12	6.53	0.28	0.01	21.01	5.17	0.00	0.03	99.22
T785	75	7832	till	0.25-0.5	purple	Cr-Pyrope	40.66	0.37	19.93	4.70	0.10	6.83	0.29	0.00	20.96	5.24	0.00	0.02	99.10
T799	22	7832	till	0.5-1.0	purple	Cr-Pyrope	40.80	0.38	20.05	4.78	0.06	6.41	0.27	0.03	21.17	5.03	0.00	0.00	98.98
T785	76	7832	till	0.25-0.5	pink	Pyrope	40.25	1.08	21.19	1.11	0.06	10.78	0.37	0.03	19.29	4.69	0.08	0.00	98.92

Appendix C.4 Microprobe data for pyrope garnet from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T785	82	7834	till	0.25-0.5	purple	Cr-Pyrope	40.59	0.09	20.66	4.84	0.06	7.22	0.37	0.00	20.17	4.99	0.00	0.00	98.98
T785	83	7834	till	0.25-0.5	purple	Cr-Pyrope	40.35	0.25	20.88	3.85	0.04	6.82	0.28	0.03	20.90	5.05	0.00	0.00	98.46
T786	1	7835	till	0.25-0.5	purple	<b>Cr-Pyrope</b>	41.29	0.01	22.47	2.54	0.11	6.97	0.39	0.02	23.93	0.91	0.00	0.00	98.64
T786	2	7835	till	0.25-0.5	purple	Cr-Pyrope	40.89	0.04	22.21	3.20	0.09	7.21	0.42	0.02	21.28	4.10	0.00	0.00	99.47
T779	98	7836	till	0.25-0.5	purple	Cr-pyrope	40.20	0.07	20.15	4.78	0.04	7.45	0.56	0.02	19.37	5.38	0.00	0.02	98.04
T779	99	7836	till	0.25-0.5	purple	Cr-pyrope	40.44	0.03	20.11	5.93	0.03	6.89	0.46	0.00	21.14	4.19	0.00	0.01	99.25
T779	100	7836	till	0.25-0.5	purple	Cr-pyrope	40.66	0.39	20.54	3.68	0.00	6.63	0.26	0.05	21.03	4.72	0.00	0.01	97.96
T786	12	7836	till	0.25-0.5	purple	Cr-Pyrope	40.58	0.63	19.59	5.34	0.03	7.33	0.30	0.03	20.77	4.95	0.00	0.00	99.56
T786	13	7836	till	0.25-0.5	purple	Cr-Pyrope	40.39	0.09	20.35	5.04	0.00	7.09	0.52	0.02	19.93	5.50	0.00	0.00	98.94
T786	14	7836	till	0.25-0.5	purple	Cr-Pyrope	40.65	0.65	20.66	3.15	0.11	7.17	0.32	0.03	21.06	4.82	0.00	0.02	98.63
T786	16	7836	till	0.25-0.5	purple	Cr-Pyrope	40.18	0.08	20.24	4.85	0.04	6.65	0.24	0.03	20.92	5.11	0.00	0.00	98.34
T786	17	7836	till	0.25-0.5	purple	Cr-Pyrope	39.93	0.46	17.21	8.17	0.00	5.97	0.25	0.01	20.14	5.94	0.00	0.00	98.09
T786	18	7836	till	0.25-0.5	purple	Cr-Pyrope	40.44	0.00	20.52	5.01	0.01	6.97	0.52	0.00	20.61	4.69	0.00	0.01	98.77
T786	19	7836	till	0.25-0.5	purple	Cr-Pyrope	40.61	0.13	21.62	3.35	0.02	8.24	0.40	0.02	20.05	4.64	0.00	0.00	99.08
T799	42	7836	till	0.5-1.0	purple	Cr-Pyrope	40.22	0.44	20.73	4.13	0.04	6.70	0.34	0.00	21.39	4.65	0.00	0.01	98.66
T799	43	7836	till	0.5-1.0	purple	Cr-Pyrope	41.02	0.36	22.21	2.49	0.09	8.42	0.34	0.00	20.96	3.93	0.00	0.00	99.83
T799	44	7836	till	0.5-1.0	purple	<b>Cr-Pyrope</b>	41.11	0.02	22.09	3.21	0.00	6.99	0.49	0.03	21.31	3.98	0.00	0.00	99.24
T799	45	7836	till	0.5-1.0	purple	Cr-Pyrope	41.54	0.42	22.59	2.13	0.00	7.26	0.25	0.02	21.75	4.16	0.00	0.01	100.14
T786	20	7836	till	0.25-0.5	orange	Pyrope	40.44	0.73	21.63	1.45	0.02	9.22	0.35	0.00	20.10	4.31	0.00	0.00	98.26
T799	46	7836	till	0.5-1.0	orange	Pyrope	40.99	0.49	23.29	0.13	0.02	10.24	0.35	0.04	20.27	3.95	0.00	0.00	99.76
T799	47	7836	till	0.5-1.0	orange	Pyrope	41.12	0.53	23.62	0.11	0.01	9.92	0.42	0.00	20.56	4.03	0.00	0.00	100.31
T779	107	7837	till	0.25-0.5	purple	Cr-pyrope	39.36	0.05	19.77	5.33	0.00	9.93	0.61	0.00	16.14	6.77	0.00	0.00	97.96
T786	33	7837	till	0.25-0.5	purple	Cr-Pyrope	40.53	0.10	20.71	4.93	0.06	7.18	0.56	0.01	20.18	5.04	0.00	0.00	99.30
T786	34	7837	till	0.25-0.5	purple	Cr-Pyrope	40.23	0.31	19.86	5.50	0.03	7.08	0.37	0.05	20.17	5.03	0.00	0.01	98.63
T799	58	7837	till	0.5-1.0	purple	Cr-Pyrope	41.36	0.09	23.16	2.21	0.04	8.20	0.53	0.00	20.49	4.56	0.00	0.01	100.66
T786	38	7838	till	0.25-0.5	purple	Cr-Pyrope	41.41	0.06	20.75	4.29	0.07	6.34	0.27	0.00	21.70	4.52	0.00	0.02	99.44
T786	39	7838	till	0.25-0.5	orange	Pyrope	40.44	0.71	22.67	0.14	0.07	11.04	0.36	0.00	18.90	4.54	0.03	0.01	98.92

Appendix C.5 Microprobe data for diopside from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T780	10	7801	0.25-0.5	green	Cr-Diopside	54.43	0.36	2.74	1.00	0.13	3.40	0.13	0.00	16.59	17.80	5.01	0.01	101.58
T780	11	7801	0.25-0.5	green	Diopside	53.94	0.06	0.60	0.18	0.08	4.33	0.14	0.01	15.67	22.91	0.84	0.00	98.75
T780	12	7801	0.25-0.5	green	Cr-Diopside	52.95	0.36	1.10	1.00	0.00	5.49	0.19	0.06	17.81	18.76	0.93	0.02	98.66
T780	13	7801	0.25-0.5	green	Cr-Diopside	53.19	0.38	0.81	0.53	0.02	5.74	0.18	0.07	17.74	18.53	0.96	0.02	98.18
T780	14	7801	0.25-0.5	green	Cr-Diopside	53.06	0.35	0.92	1.03	0.05	5.42	0.12	0.12	18.38	18.08	0.97	0.00	98.51
T780	15	7801	0.25-0.5	green	Diopside	54.58	0.22	0.93	0.45	0.03	3.38	0.10	0.02	17.44	20.54	2.34	0.02	100.06
T780	16	7801	0.25-0.5	green	Cr-Diopside	46.64	0.06	1.24	0.77	0.00	2.75	0.12	0.06	16.28	22.04	2.08	0.00	92.04
T780	17	7801	0.25-0.5	green	Diopside	54.02	0.05	1.00	0.36	0.01	4.06	0.15	0.00	16.37	22.19	0.91	0.02	99.14
T813	89	7801	0.5-1.0	green	Diopside	54.57	0.27	1.09	0.34	0.02	3.59	0.07	0.03	17.26	20.13	0.85	0.03	98.23
T755	75	7810	0.25-0.5	green	Diopside	54.94	0.32	1.96	0.44	0.06	4.87	0.13	0.01	16.65	18.88	1.95	0.03	100.25
T755	76	7810	0.25-0.5	green	Cr-Diopside	54.21	0.09	1.73	0.99	0.06	1.29	0.07	0.08	17.03	23.46	0.92	0.00	99.94
T807	1	7810	0.25-0.5	green	HiCr-diopside	54.47	0.08	0.37	2.79	0.10	2.28	0.06	0.01	16.12	21.59	1.20	0.00	97.86
T807	2	7810	0.25-0.5	green	HiCr-diopside	53.99	0.10	2.05	2.16	0.03	1.59	0.07	0.04	16.12	21.06	1.37	0.01	97.19
T807	3	7810	0.25-0.5	green	HiCr-diopside	54.39	0.11	0.28	2.42	0.13	2.17	0.03	0.04	16.43	21.97	1.09	0.02	97.98
T807	4	7810	0.25-0.5	green	HiCr-diopside	54.36	0.13	0.48	2.45	0.03	2.32	0.06	0.05	16.17	21.98	1.19	0.01	98.04
T807	5	7810	0.25-0.5	green	HiCr-diopside	54.46	0.13	1.59	2.69	0.09	2.23	0.07	0.01	15.59	20.52	1.55	0.00	97.38
T807	6	7810	0.25-0.5	green	Cr-diopside	53.88	0.39	2.08	0.65	0.12	3.61	0.13	0.01	18.75	18.34	0.87	0.04	97.94
T807	7	7810	0.25-0.5	green	HiCr-diopside	54.45	0.15	1.04	1.55	0.05	2.21	0.04	0.06	16.20	21.53	1.14	0.00	97.27
T807	8	7810	0.25-0.5	green	Cr-diopside	54.33	0.53	2.38	0.59	0.09	3.59	0.13	0.03	18.13	18.39	1.00	0.06	98.19
T807	9	7810	0.25-0.5	green	Cr-diopside	53.99	0.36	2.07	0.63	0.07	3.58	0.15	0.09	18.68	18.44	0.77	0.05	98.06
T807	10	7810	0.25-0.5	green	HiCr-diopside	53.80	0.13	1.66	2.54	0.06	2.05	0.06	0.02	15.83	21.02	1.38	0.00	97.17
T807	11	7810	0.25-0.5	green	Cr-diopside	54.16	0.38	2.03	0.58	0.04	3.58	0.09	0.05	18.75	18.39	0.83	0.06	98.05
T807	12	7810	0.25-0.5	green	Cr-diopside	53.92	0.38	2.07	0.64	0.07	3.67	0.08	0.05	18.69	18.59	0.79	0.04	98.15
T807	13	7810	0.25-0.5	green	Cr-diopside	53.98	0.42	2.05	0.76	0.06	3.46	0.10	0.05	18.49	17.97	0.87	0.06	97.35
T807	14	7810	0.25-0.5	green	Cr-diopside	54.30	0.47	2.11	0.81	0.01	3.34	0.14	0.06	18.51	18.33	0.87	0.04	98.08
T807	15	7810	0.25-0.5	green	Cr-diopside	54.52	0.39	2.04	0.68	0.00	3.50	0.12	0.06	18.64	18.42	0.85	0.04	98.36
T807	16	7810	0.25-0.5	green	Cr-diopside	54.34	0.16	0.65	0.54	0.03	3.45	0.11	0.09	17.43	22.83	0.55	0.02	99.64
T807	17	7810	0.25-0.5	green	Cr-diopside	53.87	0.47	2.11	0.88	0.00	3.48	0.13	0.05	18.55	18.42	0.88	0.04	97.95
T807	18	7810	0.25-0.5	green	Diopside	54.30	0.39	2.03	0.34	0.03	4.86	0.20	0.05	16.44	18.84	1.35	0.01	97.47
T807	19	7810	0.25-0.5	green	Cr-diopside	54.19	0.50	2.05	0.91	0.07	3.56	0.13	0.04	18.59	18.37	0.90	0.05	98.42
T807	20	7810	0.25-0.5	green	Cr-diopside	54.01	0.44	1.95	0.65	0.00	3.43	0.12	0.00	18.84	18.51	0.80	0.05	97.95
T807	21	7810	0.25-0.5	green	Cr-diopside	53.77	0.41	2.07	0.63	0.05	3.60	0.07	0.07	18.72	18.76	0.80	0.03	98.14
T807	22	7810	0.25-0.5	green	Cr-diopside	54.46	0.40	1.98	0.75	0.07	3.51	0.12	0.09	18.71	18.43	0.81	0.04	98.52
T807	23	7810	0.25-0.5	green	Cr-diopside	54.36	0.39	2.02	0.71	0.04	3.56	0.11	0.11	18.64	18.48	0.85	0.01	98.42
T807	24	7810	0.25-0.5	green	Cr-diopside	53.89	0.50	2.02	0.84	0.03	3.40	0.16	0.05	18.81	18.32	0.84	0.05	98.01
T807	25	7810	0.25-0.5	green	Diopside	54.10	0.24	1.27	0.28	0.11	3.82	0.10	0.00	17.76	20.68	0.75	0.01	98.36
T807	26	7810	0.25-0.5	green	Diopside	54.04	0.37	1.99	0.34	0.08	4.78	0.06	0.00	16.68	18.78	1.31	0.01	97.13
T807	27	7810	0.25-0.5	green	Cr-diopside	54.22	0.48	2.06	0.74	0.06	3.42	0.07	0.08	18.69	18.52	0.88	0.06	98.35
T807	28	7810	0.25-0.5	green	Diopside	54.33	0.22	1.26	0.28	0.13	3.87	0.12	0.00	17.60	20.56	0.70	0.01	98.38
T807	29	7810	0.25-0.5	green	Diopside	53.90	0.33	1.92	0.33	0.10	4.81	0.10	0.03	16.62	18.96	1.27	0.00	97.11
T807	30	7810	0.25-0.5	green	Diopside	54.45	0.27	1.71	0.35	0.06	4.85	0.14	0.02	16.57	19.46	1.17	0.00	97.89
T807	31	7810	0.25-0.5	green	Diopside	54.34	0.29	1.88	0.36	0.12	4.89	0.12	0.00	16.45	19.52	1.23	0.03	97.97
T807	32	7810	0.25-0.5	green	Diopside	54.63	0.25	1.11	0.28	0.15	4.62	0.11	0.02	16.54	20.89	0.93	0.00	98.60
T807	33	7810	0.25-0.5	green	Diopside	54.29	0.32	2.02	0.30	0.06	4.74	0.12	0.01	16.49	18.96	1.28	0.01	97.31
T807	34	7810	0.25-0.5	green	Cr-diopside	54.32	0.37	2.06	0.76	0.01	3.56	0.17	0.01	18.82	18.41	0.84	0.04	98.50
T807	35	7810	0.25-0.5	green	Cr-diopside	54.42	0.40	2.03	0.74	0.00	3.63	0.07	0.09	18.65	18.51	0.81	0.05	98.54

Appendix C.5 Microprobe data for diopside from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T807	36	7810	0.25-0.5	green	Diopside	54.58	0.23	1.30	0.34	0.12	3.67	0.15	0.00	17.68	20.92	0.78	0.01	99.00
T807	37	7810	0.25-0.5	green	Diopside	54.57	0.18	0.76	0.14	0.06	4.04	0.13	0.04	17.32	22.08	0.59	0.01	99.32
T807	38	7810	0.25-0.5	green	Cr-diopside	54.60	0.39	2.06	0.72	0.00	3.48	0.18	0.05	18.71	18.64	0.82	0.06	98.85
T807	39	7810	0.25-0.5	green	Cr-diopside	53.98	0.40	2.03	0.65	0.04	3.65	0.14	0.09	18.56	18.35	0.84	0.06	97.89
T807	40	7810	0.25-0.5	green	Cr-diopside	54.16	0.39	2.08	0.75	0.10	3.67	0.09	0.07	19.00	18.52	0.85	0.06	98.83
T807	41	7810	0.25-0.5	green	Diopside	54.04	0.31	2.00	0.35	0.09	4.90	0.13	0.00	16.43	19.02	1.29	0.02	97.27
T807	42	7810	0.25-0.5	green	Diopside	54.13	0.36	1.95	0.36	0.08	4.87	0.14	0.00	16.63	18.90	1.30	0.00	97.42
T807	43	7810	0.25-0.5	green	Diopside	54.75	0.24	0.88	0.14	0.08	3.51	0.09	0.05	17.20	22.21	0.58	0.00	99.15
T813	52	7810	0.5-1.0	green	Cr-Diopside	54.01	0.35	2.16	0.67	0.07	3.45	0.11	0.08	18.69	17.31	1.05	0.02	97.98
T813	53	7810	0.5-1.0	green	Cr-Diopside	54.17	0.36	2.05	0.78	0.04	3.40	0.14	0.04	18.55	17.33	1.02	0.04	97.94
T813	54	7810	0.5-1.0	green	Cr-Diopside	53.86	0.46	2.21	0.82	0.08	3.56	0.14	0.05	18.77	17.43	1.18	0.04	98.61
T813	55	7810	0.5-1.0	green	Cr-Diopside	53.93	0.52	2.14	0.83	0.09	3.49	0.12	0.12	18.60	17.25	1.17	0.05	98.31
T813	56	7810	0.5-1.0	green	Cr-Diopside	54.11	0.48	2.15	0.79	0.12	3.44	0.07	0.07	18.50	17.24	1.12	0.04	98.14
T813	58	7810	0.5-1.0	green	Cr-Diopside	53.94	0.39	2.13	0.79	0.07	3.53	0.10	0.04	18.85	17.38	1.29	0.03	98.54
T813	59	7810	0.5-1.0	green	Cr-Diopside	54.17	0.44	2.08	0.78	0.10	3.41	0.12	0.07	18.80	17.38	1.13	0.03	98.51
T813	60	7810	0.5-1.0	green	Cr-Diopside	53.59	0.39	2.28	0.88	0.04	3.32	0.10	0.04	18.67	17.09	1.10	0.04	97.55
T813	61	7810	0.5-1.0	green	Cr-Diopside	54.29	0.47	2.19	0.80	0.04	3.39	0.05	0.04	18.59	17.27	1.20	0.05	98.38
T813	62	7810	0.5-1.0	green	Cr-Diopside	53.95	0.39	2.11	0.62	0.03	3.35	0.15	0.04	18.83	17.23	1.28	0.04	98.01
T813	63	7810	0.5-1.0	green	Cr-Diopside	54.03	0.19	0.55	1.03	0.04	3.24	0.07	0.04	16.88	21.15	0.92	0.01	98.15
T815	23	7810	1.0-2.0	green	Cr-Diopside	53.91	0.40	2.06	0.77	0.00	3.51	0.12	0.07	18.70	17.46	0.99	0.04	98.03
T815	24	7810	1.0-2.0	green	Cr-Diopside	54.53	0.47	2.07	0.92	0.01	3.51	0.12	0.08	18.81	17.37	1.07	0.05	99.00
T780	28	7811	0.25-0.5	green	Cr-Diopside	52.53	0.38	1.15	1.15	0.07	5.54	0.18	0.07	18.25	17.74	0.94	0.00	98.01
T780	29	7811	0.25-0.5	green	Cr-Diopside	53.14	0.18	0.92	0.69	0.00	5.00	0.15	0.03	18.29	19.79	0.30	0.01	98.50
T780	30	7811	0.25-0.5	green	HiCr-Diopside	54.53	0.33	4.17	2.31	0.07	1.55	0.06	0.05	15.00	17.59	7.19	0.00	102.86
T780	31	7811	0.25-0.5	green	HiCr-Diopside	52.80	0.27	1.11	2.04	0.11	3.88	0.19	0.02	15.04	21.79	1.51	0.00	98.76
T780	32	7811	0.25-0.5	green	Cr-Diopside	53.17	0.42	1.08	1.00	0.00	5.69	0.12	0.09	17.60	18.66	1.14	0.00	98.97
T780	33	7811	0.25-0.5	green	Cr-Diopside	53.21	0.36	1.04	1.11	0.10	5.58	0.18	0.09	18.63	17.85	1.05	0.00	99.19
T780	34	7811	0.25-0.5	green	Cr-Diopside	53.60	0.31	1.27	1.09	0.00	5.18	0.11	0.09	17.96	18.76	1.29	0.00	99.67
T780	75	7811	0.25-0.5	green	Diopside	56.44	0.02	0.79	0.27	0.02	6.40	0.10	0.10	34.66	0.33	0.00	0.00	99.12
T787	41	7811	0.5-1.0	green	Cr-Diopside	52.64	0.41	0.88	0.54	0.00	5.90	0.14	0.06	17.45	18.84	0.23	0.02	97.11
T755	77	7812	0.25-0.5	green	HiCr-Diopside	55.15	0.12	1.59	1.83	0.04	1.80	0.07	0.08	16.60	21.66	1.59	0.00	100.53
T780	82	7812	0.25-0.5	green	Cr-Diopside	53.68	0.30	0.78	1.06	0.04	5.29	0.15	0.06	18.96	18.00	0.86	0.01	99.18
T780	83	7812	0.25-0.5	green	Cr-Diopside	52.70	0.41	1.02	1.28	0.02	5.10	0.10	0.08	17.87	18.76	1.10	0.00	98.44
T780	84	7812	0.25-0.5	green	Cr-Diopside	52.52	0.16	2.81	0.92	0.05	2.65	0.04	0.07	17.65	21.37	0.24	0.01	98.47
T776	53	7813	0.25-0.5	green	Cr-Diopside	52.71	0.31	0.82	1.09	0.00	5.50	0.19	0.10	19.37	16.73	0.25	0.02	97.09
T776	54	7813	0.25-0.5	green	Cr-Diopside	52.07	0.36	0.96	1.04	0.01	5.54	0.17	0.03	17.97	18.24	0.18	0.00	96.55
T776	55	7813	0.25-0.5	green	Cr-Diopside	53.26	0.26	0.56	0.88	0.02	5.80	0.24	0.11	20.52	15.45	0.34	0.01	97.45
T781	1	7813	0.25-0.5	green	Cr-Diopside	53.25	0.30	0.97	1.09	0.04	5.49	0.16	0.10	18.68	17.84	0.89	0.01	98.81
T781	2	7813	0.25-0.5	green	Cr-Diopside	54.39	0.53	2.22	0.69	0.03	3.24	0.07	0.04	18.58	17.68	3.17	0.05	100.70
T781	3	7813	0.25-0.5	green	Cr-Diopside	53.54	0.29	0.86	1.09	0.01	4.71	0.13	0.09	18.78	18.22	0.85	0.00	98.58
T781	4	7813	0.25-0.5	green	Cr-Diopside	53.28	0.37	0.76	0.77	0.03	6.08	0.15	0.06	18.51	18.17	0.93	0.00	99.10
T781	5	7813	0.25-0.5	green	Cr-Diopside	53.70	0.42	1.00	1.09	0.00	5.14	0.15	0.05	17.94	18.89	0.88	0.01	99.27
T781	7	7813	0.25-0.5	green	Cr-Diopside	53.22	0.26	1.07	0.70	0.03	4.82	0.19	0.06	18.02	19.80	0.36	0.00	98.54
T781	8	7813	0.25-0.5	green	Cr-Diopside	53.09	0.46	0.94	1.04	0.00	5.85	0.21	0.07	18.71	17.84	0.98	0.00	99.19
T781	9	7813	0.25-0.5	green	Cr-Diopside	53.27	0.38	1.36	1.02	0.07	5.30	0.14	0.05	17.26	19.36	0.71	0.00	98.91
T781	10	7813	0.25-0.5	green	Cr-Diopside	53.37	0.32	1.14	1.09	0.05	4.76	0.14	0.08	17.51	19.91	1.27	0.00	99.64

Appendix C.5 Microprobe data for diopside from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T781	11	7813	0.25-0.5	green	Cr-Diopside	53.62	0.38	1.02	1.14	0.02	5.50	0.20	0.09	18.16	18.57	0.91	0.00	99.61
T781	12	7813	0.25-0.5	green	Cr-Diopside	52.91	0.43	1.11	0.99	0.12	5.46	0.18	0.04	17.96	18.50	0.93	0.00	98.64
T781	13	7813	0.25-0.5	green	Cr-Diopside	53.55	0.36	0.91	1.17	0.01	5.02	0.12	0.11	18.20	18.53	1.15	0.00	99.14
T781	14	7813	0.25-0.5	green	Cr-Diopside	53.85	0.23	1.35	0.72	0.06	2.84	0.05	0.06	17.53	21.96	0.46	0.00	99.12
T781	15	7813	0.25-0.5	green	Cr-Diopside	52.17	0.26	3.03	1.40	0.05	3.04	0.13	0.09	18.46	19.64	0.17	0.00	98.44
T781	16	7813	0.25-0.5	green	Cr-Diopside	52.98	0.42	1.20	1.24	0.08	5.28	0.13	0.02	18.16	18.23	0.89	0.00	98.62
T781	17	7813	0.25-0.5	green	Cr-Diopside	54.79	0.37	0.77	0.57	0.04	6.14	0.15	0.07	18.76	18.14	0.57	0.00	100.37
T781	18	7813	0.25-0.5	green	Cr-Diopside	53.45	0.33	1.06	1.20	0.05	5.66	0.18	0.06	18.51	17.96	0.94	0.00	99.40
T781	19	7813	0.25-0.5	green	Cr-Diopside	53.74	0.31	0.93	1.03	0.03	5.68	0.17	0.12	19.12	17.46	0.77	0.00	99.36
T781	20	7813	0.25-0.5	green	Cr-Diopside	53.49	0.24	1.20	0.54	0.01	3.44	0.09	0.10	17.41	21.92	0.52	0.00	98.95
T781	21	7813	0.25-0.5	green	Cr-Diopside	53.74	0.30	0.82	1.03	0.01	5.17	0.16	0.10	18.75	18.20	0.66	0.00	98.94
T781	22	7813	0.25-0.5	green	Cr-Diopside	53.34	0.17	0.88	0.77	0.00	4.25	0.15	0.06	18.29	19.91	0.33	0.00	98.15
T781	23	7813	0.25-0.5	green	Cr-Diopside	53.18	0.32	0.90	0.95	0.02	5.39	0.12	0.07	18.02	19.06	0.91	0.01	98.94
T781	24	7813	0.25-0.5	green	Cr-Diopside	53.72	0.30	0.83	1.03	0.03	5.18	0.19	0.12	18.72	17.97	0.80	0.01	98.91
T781	25	7813	0.25-0.5	green	Cr-Diopside	53.31	0.35	0.84	0.97	0.00	5.61	0.17	0.11	18.32	18.25	0.85	0.00	98.77
T769	94	7814	0.25-0.5	green	HiCr-Diopside	54.96	0.39	2.70	1.82	0.04	2.88	0.11	0.02	16.58	18.45	2.29	0.03	100.28
T769	95	7814	0.25-0.5	green	Diopside	55.70	0.24	1.01	0.43	0.01	3.38	0.07	0.04	16.98	21.80	1.00	0.01	100.66
T793	56	7814	0.5-1.0	green	Diopside	54.38	0.31	1.34	0.19	0.07	3.70	0.10	0.03	17.92	19.27	1.04	0.02	98.36
T793	57	7814	0.5-1.0	green	Cr-Diopside	54.11	0.08	2.07	1.16	0.00	1.58	0.00	0.03	16.60	22.09	1.04	0.00	98.75
T793	58	7814	0.5-1.0	green	Cr-Diopside	55.59	0.01	3.37	1.03	0.00	4.30	0.16	0.09	35.47	0.71	0.00	0.02	100.76
T809	45	7814	0.25-0.5	green	HiCr-diopside	53.22	0.15	0.98	1.59	0.04	1.66	0.04	0.05	15.56	20.42	0.96	0.00	93.70
T809	46	7814	0.25-0.5	green	HiCr-diopside	53.66	0.18	2.20	4.66	0.09	2.66	0.10	0.07	14.16	16.83	2.67	0.00	94.60
T809	47	7814	0.25-0.5	green	HiCr-diopside	51.32	0.14	0.83	2.57	0.00	2.39	0.03	0.05	17.08	17.23	1.57	0.03	91.64
T809	48	7814	0.25-0.5	green	HiCr-diopside	54.28	0.14	0.39	2.54	0.06	2.11	0.07	0.03	16.10	21.55	1.19	0.02	97.27
T809	49	7814	0.25-0.5	green	HiCr-diopside	53.70	0.15	2.17	4.90	0.01	2.58	0.09	0.06	13.83	16.90	2.62	0.01	94.40
T809	50	7814	0.25-0.5	green	HiCr-diopside	54.88	0.17	2.55	4.73	0.03	2.64	0.11	0.04	14.56	16.40	2.95	0.00	96.11
T809	51	7814	0.25-0.5	green	HiCr-diopside	54.13	0.15	0.79	1.90	0.04	2.37	0.05	0.04	16.35	21.66	1.25	0.00	97.47
T809	52	7814	0.25-0.5	green	HiCr-diopside	55.01	0.39	0.47	1.76	0.07	2.12	0.05	0.08	18.57	21.74	0.52	0.00	100.26
T809	53	7814	0.25-0.5	green	HiCr-diopside	49.52	0.15	1.10	1.57	0.00	2.15	0.07	0.07	14.63	19.41	1.41	0.00	88.68
T809	55	7814	0.25-0.5	green	HiCr-diopside	49.50	0.31	2.50	1.55	0.11	2.45	0.07	0.05	14.98	16.36	1.24	0.02	87.88
T809	56	7814	0.25-0.5	green	Cr-diopside	56.25	0.11	2.72	1.30	0.14	1.47	0.08	0.05	17.22	21.35	1.31	0.00	100.69
T809	57	7814	0.25-0.5	green	HiCr-diopside	54.33	0.12	1.96	2.49	0.06	1.66	0.04	0.03	15.80	21.01	1.40	0.02	97.51
T809	58	7814	0.25-0.5	green	HiCr-diopside	54.12	0.32	1.95	2.79	0.07	2.84	0.10	0.08	15.99	18.47	1.76	0.01	96.72
T809	59	7814	0.25-0.5	green	HiCr-diopside	54.43	0.20	2.45	1.70	0.04	2.68	0.16	0.03	17.46	18.47	1.34	0.04	97.62
T809	60	7814	0.25-0.5	green	HiCr-diopside	54.68	0.14	1.19	1.90	0.01	2.28	0.00	0.06	16.00	21.25	1.29	0.00	97.50
T809	61	7814	0.25-0.5	green	Cr-diopside	54.01	0.44	2.29	1.07	0.05	3.18	0.11	0.09	18.29	18.17	0.98	0.02	97.70
T809	62	7814	0.25-0.5	green	Cr-diopside	54.27	0.50	2.67	1.30	0.10	2.90	0.10	0.08	17.97	17.86	1.32	0.03	97.76
T809	63	7814	0.25-0.5	green	HiCr-diopside	54.12	0.14	0.51	3.43	0.09	2.02	0.04	0.01	16.06	20.97	1.21	0.01	97.40
T809	64	7814	0.25-0.5	green	Cr-diopside	54.21	0.11	1.57	1.23	0.00	2.06	0.03	0.00	16.38	21.65	1.08	0.00	97.25
T809	65	7814	0.25-0.5	green	Diopside	54.61	0.23	0.91	0.25	0.02	3.47	0.09	0.05	17.49	22.22	0.63	0.00	99.34
T809	66	7814	0.25-0.5	green	Cr-diopside	54.12	0.40	1.96	0.95	0.11	3.44	0.10	0.09	18.73	18.46	0.84	0.02	98.34
T809	67	7814	0.25-0.5	green	Cr-diopside	53.75	0.34	2.71	0.95	0.08	4.34	0.09	0.03	16.23	17.95	1.52	0.00	96.47
T809	68	7814	0.25-0.5	green	Diopside	54.01	0.18	0.87	0.39	0.03	3.93	0.07	0.00	16.89	22.20	0.71	0.01	98.57
T809	69	7814	0.25-0.5	green	Cr-diopside	54.35	0.31	2.11	0.84	0.06	3.15	0.13	0.06	18.45	18.49	0.88	0.05	97.95
T809	70	7814	0.25-0.5	green	Cr-diopside	53.76	0.49	2.31	1.15	0.04	3.65	0.10	0.05	18.79	17.19	1.09	0.01	97.53
T809	71	7814	0.25-0.5	green	Cr-diopside	54.12	0.40	3.42	0.62	0.04	3.95	0.14	0.10	17.22	16.94	1.60	0.01	96.93



Appendix C.5 Microprobe data for diopside from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T809	72	7814	0.25-0.5	green	Diopside	53.88	0.29	1.44	0.16	0.01	4.85	0.17	0.00	16.61	19.91	1.05	0.01	97.30
T809	73	7814	0.25-0.5	green	Diopside	54.57	0.16	0.60	0.15	0.07	3.36	0.07	0.02	17.28	22.66	0.51	0.00	98.96
T809	74	7814	0.25-0.5	green	Diopside	54.52	0.24	0.94	0.49	0.04	3.44	0.10	0.00	17.34	21.57	0.75	0.02	98.67
T809	75	7814	0.25-0.5	green	Cr-diopside	54.21	0.35	2.88	0.77	0.10	4.65	0.10	0.02	16.04	17.84	1.56	0.01	96.94
T809	76	7814	0.25-0.5	green	Diopside	53.98	0.56	3.32	0.40	0.13	4.54	0.13	0.04	17.35	16.87	1.55	0.02	97.33
T809	77	7814	0.25-0.5	green	Cr-diopside	53.88	0.41	2.77	0.71	0.05	4.46	0.08	0.01	16.11	18.00	1.61	0.03	96.48
T809	78	7814	0.25-0.5	green	HiCr-diopside	53.67	0.41	1.06	2.07	0.04	3.13	0.11	0.03	17.48	20.07	0.99	0.01	98.09
T809	79	7814	0.25-0.5	green	Cr-diopside	53.85	0.51	4.31	0.87	0.01	4.12	0.11	0.07	16.33	15.88	2.00	0.04	96.05
T776	69	7815	0.25-0.5	green	Cr-Diopside	51.29	0.40	1.01	1.05	0.10	5.46	0.16	0.06	17.56	18.53	0.35	0.00	95.98
T776	70	7815	0.25-0.5	green	Cr-Diopside	51.65	0.36	1.33	1.46	0.07	4.98	0.10	0.06	17.23	19.22	0.25	0.00	96.71
T776	71	7815	0.25-0.5	green	Cr-Diopside	52.39	0.36	1.08	1.16	0.00	5.64	0.22	0.11	18.11	17.87	0.25	0.00	97.19
T781	57	7815	0.25-0.5	green	HiCr-Diopside	53.00	0.18	2.96	1.91	0.04	2.80	0.10	0.05	17.05	20.35	1.76	0.01	100.22
T781	58	7815	0.25-0.5	green	Diopside	54.19	0.01	0.59	0.24	0.02	4.53	0.24	0.00	15.48	22.69	1.08	0.00	99.06
T781	59	7815	0.25-0.5	green	Cr-Diopside	52.96	0.31	1.20	1.29	0.05	4.89	0.09	0.04	17.66	19.44	1.05	0.00	98.98
T781	60	7815	0.25-0.5	green	Cr-Diopside	53.62	0.31	0.91	0.82	0.01	5.50	0.13	0.10	18.29	18.51	0.84	0.01	99.04
T781	61	7815	0.25-0.5	green	Cr-diopside ?	42.17	0.19	0.94	0.98	0.00	4.31	0.13	0.05	17.59	19.20	0.34	0.00	85.89
T781	62	7815	0.25-0.5	green	Cr-Diopside	52.66	0.41	1.18	0.99	0.00	5.07	0.10	0.14	17.60	19.41	0.70	0.00	98.27
T781	63	7815	0.25-0.5	green	Cr-Diopside	54.02	0.15	1.00	0.72	0.00	3.14	0.09	0.01	17.45	22.29	0.27	0.01	99.16
T781	64	7815	0.25-0.5	green	Diopside	53.51	0.28	1.08	0.49	0.00	4.81	0.20	0.04	18.25	19.75	0.14	0.01	98.57
T781	65	7815	0.25-0.5	green	Cr-Diopside	53.65	0.28	0.69	0.75	0.05	5.37	0.12	0.07	18.53	18.26	0.84	0.00	98.61
T781	66	7815	0.25-0.5	green	Cr-Diopside	53.65	0.37	1.08	1.02	0.06	4.87	0.15	0.09	17.47	19.42	0.84	0.00	99.03
T781	67	7815	0.25-0.5	green	Cr-Diopside	53.90	0.34	0.74	0.80	0.05	5.12	0.19	0.10	18.70	18.37	0.68	0.00	99.00
T781	68	7815	0.25-0.5	green	Cr-Diopside	53.69	0.21	0.93	0.75	0.00	4.49	0.13	0.06	18.15	20.04	0.20	0.00	98.65
T781	69	7815	0.25-0.5	green	Cr-Diopside	53.80	0.10	1.44	0.51	0.00	3.29	0.16	0.05	16.66	21.81	1.35	0.01	99.18
T781	84	7817	0.25-0.5	green	HiCr-Diopside	54.91	0.23	1.66	2.16	0.03	1.59	0.12	0.03	16.71	20.01	3.98	0.00	101.43
T781	85	7817	0.25-0.5	green	Cr-Diopside	53.17	0.27	1.56	0.98	0.03	2.68	0.03	0.00	16.99	22.31	0.87	0.01	98.90
T781	86	7817	0.25-0.5	green	Cr-Diopside	53.98	0.29	0.65	0.88	0.11	5.13	0.12	0.06	18.94	18.12	0.89	0.00	99.16
T781	87	7817	0.25-0.5	green	Cr-Diopside	53.15	0.43	1.46	1.17	0.01	5.57	0.15	0.11	17.37	18.69	1.03	0.01	99.15
T781	88	7817	0.25-0.5	green	Cr-Diopside	54.09	0.03	0.66	0.58	0.00	4.13	0.13	0.02	15.54	22.46	1.74	0.02	99.41
T777	9	7819	0.25-0.5	green	Cr-Diopside	52.17	0.39	0.94	0.98	0.00	5.31	0.16	0.07	17.59	19.42	0.26	0.01	97.28
T777	10	7819	0.25-0.5	green	Cr-Diopside	52.32	0.41	0.92	0.96	0.08	6.04	0.16	0.10	18.49	17.64	0.27	0.00	97.38
T777	11	7819	0.25-0.5	green	Cr-Diopside	52.71	0.37	1.05	1.10	0.04	5.32	0.10	0.02	17.93	18.16	0.22	0.00	97.03
T782	3	7819	0.25-0.5	green	Cr-Diopside	53.25	0.37	0.92	0.79	0.00	5.64	0.16	0.10	18.03	18.07	1.17	0.00	98.50
T782	4	7819	0.25-0.5	green	Cr-Diopside	53.54	0.37	0.93	1.10	0.01	4.93	0.15	0.13	18.64	18.44	0.91	0.00	99.13
T782	5	7819	0.25-0.5	green	Cr-Diopside	53.71	0.33	0.87	0.91	0.01	4.92	0.14	0.04	18.26	18.60	0.85	0.01	98.65
T782	6	7819	0.25-0.5	green	Cr-Diopside	46.16	0.40	1.18	1.07	0.00	5.23	0.14	0.08	16.82	19.40	1.28	0.01	91.77
T782	7	7819	0.25-0.5	green	Cr-Diopside	52.93	0.33	1.00	0.88	0.08	5.56	0.14	0.07	17.72	18.53	1.20	0.00	98.45
T782	8	7819	0.25-0.5	green	Cr-Diopside	53.40	0.32	0.83	1.01	0.00	5.15	0.21	0.14	18.17	18.62	0.85	0.01	98.72
T782	10	7819	0.25-0.5	green	Cr-Diopside	53.41	0.33	0.94	1.31	0.05	5.23	0.16	0.09	18.43	17.58	0.82	0.02	98.36
T782	11	7819	0.25-0.5	green	Cr-Diopside	46.80	0.27	2.08	0.68	0.13	5.86	0.14	0.01	17.86	18.28	0.30	0.00	92.42
T782	12	7819	0.25-0.5	green	Cr-Diopside	47.96	0.38	0.87	1.02	0.00	5.29	0.13	0.09	17.45	19.04	1.16	0.00	93.39
T782	13	7819	0.25-0.5	green	Diopside	52.98	0.34	2.01	0.45	0.02	3.23	0.05	0.05	16.34	21.65	1.81	0.00	98.94
T782	14	7819	0.25-0.5	green	Cr-Diopside	52.44	0.27	1.09	1.08	0.02	5.58	0.24	0.06	16.95	18.67	0.90	0.02	97.30
T782	15	7819	0.25-0.5	green	Cr-Diopside	53.80	0.32	0.64	1.02	0.03	5.02	0.14	0.08	18.75	18.01	0.88	0.02	98.71
T782	29	7820	0.25-0.5	green	Diopside	53.62	0.03	0.41	0.37	0.05	4.30	0.13	0.10	15.85	23.07	1.12	0.00	99.04
T782	30	7820	0.25-0.5	green	Cr-Diopside	53.33	0.35	0.74	1.02	0.02	5.06	0.20	0.07	18.04	19.01	0.77	0.01	98.61

Appendix C.5 Microprobe data for diopside from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T782	31	7820	0.25-0.5	green	Cr-Diopside	53.25	0.37	1.04	1.03	0.15	5.59	0.10	0.08	17.83	18.12	1.04	0.01	98.61
T782	32	7820	0.25-0.5	green	Cr-Diopside	53.66	0.33	0.85	0.83	0.05	4.87	0.15	0.08	17.77	19.05	0.76	0.00	98.41
T782	33	7820	0.25-0.5	green	Cr-Diopside	51.99	0.27	3.05	1.05	0.10	5.38	0.20	0.00	17.75	18.71	0.52	0.00	99.02
T771	124	7821	0.25-0.5	green	Cr-Diopside	51.98	0.32	0.86	1.04	0.05	5.41	0.19	0.08	18.24	18.02	0.15	0.00	96.34
T782	62	7821	0.25-0.5	green	HiCr-Diopside	54.60	0.11	1.85	1.73	0.01	2.28	0.13	0.05	16.03	20.11	4.64	0.01	101.55
T782	63	7821	0.25-0.5	green	Diopside	54.70	0.26	2.42	0.41	0.04	4.10	0.09	0.01	18.96	16.38	3.62	0.03	101.03
T782	64	7821	0.25-0.5	green	Cr-Diopside	53.73	0.34	0.74	0.92	0.04	5.28	0.15	0.09	18.57	18.45	0.74	0.00	99.05
T795	5	7821	0.5-1.0	green	Diopside	54.27	0.16	0.74	0.15	0.02	3.34	0.06	0.06	17.26	20.29	0.50	0.03	96.87
T795	6	7821	0.5-1.0	green	Diopside	53.62	0.20	0.73	0.14	0.13	3.32	0.14	0.02	17.07	21.37	0.56	0.00	97.30
T772	15	7822	0.25-0.5	green	HiCr-Diopside	55.16	0.27	0.41	1.86	0.00	2.98	0.09	0.02	16.56	21.30	1.51	0.00	100.18
T777	45	7822	0.25-0.5	green	Cr-Diopside	52.45	0.24	0.90	0.78	0.06	5.59	0.14	0.15	19.65	16.86	0.13	0.03	96.98
T777	46	7822	0.25-0.5	green	Cr-Diopside	52.25	0.37	0.91	1.05	0.01	5.22	0.13	0.07	17.56	19.10	0.37	0.03	97.05
T783	4	7822	0.25-0.5	green	Cr-Diopside	53.00	0.35	1.09	1.20	0.05	5.30	0.14	0.08	17.94	18.25	0.98	0.00	98.38
T783	5	7822	0.25-0.5	green	Cr-Diopside	52.59	0.33	0.84	0.87	0.03	5.03	0.18	0.08	17.90	18.91	0.93	0.01	97.69
T783	6	7822	0.25-0.5	green	Cr-Diopside	54.06	0.47	2.81	0.80	0.08	3.86	0.12	0.04	18.03	16.50	4.42	0.02	101.19
T783	7	7822	0.25-0.5	green	Cr-Diopside	54.23	0.51	2.80	0.72	0.08	3.84	0.15	0.00	18.05	16.47	4.47	0.01	101.33
T783	8	7822	0.25-0.5	green	Cr-Diopside	54.27	0.49	2.80	0.72	0.09	3.83	0.14	0.05	17.86	16.32	4.31	0.03	100.91
T783	9	7822	0.25-0.5	green	Cr-Diopside	52.18	0.36	1.18	1.37	0.04	4.70	0.13	0.08	17.27	19.74	1.03	0.00	98.09
T783	10	7822	0.25-0.5	green	Cr-Diopside	52.49	0.30	0.99	0.94	0.04	5.18	0.15	0.05	17.81	18.97	0.98	0.00	97.91
T783	11	7822	0.25-0.5	green	Cr-Diopside	53.22	0.35	0.90	0.91	0.00	5.44	0.19	0.06	18.35	18.34	0.86	0.01	98.63
T783	12	7822	0.25-0.5	green	Cr-Diopside	52.74	0.32	1.29	1.31	0.04	4.96	0.11	0.05	17.40	19.19	1.12	0.00	98.52
T795	37	7822	0.5-1.0	green	Cr-Diopside	53.87	0.48	2.76	0.77	0.07	3.84	0.15	0.06	17.99	16.51	1.73	0.04	98.27
T795	38	7822	0.5-1.0	green	Cr-Diopside	52.39	0.36	0.89	1.17	0.02	5.10	0.10	0.07	17.94	19.13	0.25	0.01	97.41
T795	39	7822	0.5-1.0	green	Cr-Diopside	53.23	0.31	0.80	0.92	0.05	5.32	0.14	0.06	18.26	18.46	0.25	0.02	97.82
T795	40	7822	0.5-1.0	green	Cr-Diopside	53.36	0.31	0.88	1.13	0.08	5.59	0.17	0.07	19.39	17.53	0.26	0.00	98.77
T795	41	7822	0.5-1.0	green	Cr-Diopside	52.78	0.29	0.89	1.06	0.01	5.42	0.11	0.10	18.36	18.41	0.31	0.01	97.76
T783	27	7823	0.25-0.5	green	HiCr-Diopside	54.56	0.35	2.56	1.65	0.11	4.15	0.11	0.00	16.22	16.81	5.79	0.02	102.33
T783	28	7823	0.25-0.5	green	Diopside	53.19	0.07	1.52	0.42	0.03	5.96	0.12	0.07	16.88	19.46	1.00	0.00	98.72
T783	29	7823	0.25-0.5	green	Cr-Diopside	52.99	0.34	0.91	1.11	0.04	5.36	0.12	0.10	18.27	17.75	0.88	0.00	97.87
T783	30	7823	0.25-0.5	green	Cr-Diopside	53.00	0.37	0.84	0.84	0.02	5.58	0.10	0.04	18.41	18.04	0.64	0.01	97.90
T783	58	7824	0.25-0.5	green	Cr-Diopside	52.82	0.35	0.73	0.88	0.05	5.29	0.15	0.07	18.31	18.33	0.71	0.02	97.72
T783	59	7824	0.25-0.5	green	Cr-Diopside	53.02	0.31	0.87	0.98	0.00	5.36	0.10	0.06	18.08	18.64	0.93	0.00	98.35
T783	60	7824	0.25-0.5	green	Diopside	53.21	0.01	0.56	0.32	0.00	4.55	0.20	0.00	15.08	23.17	1.09	0.00	98.19
T783	61	7824	0.25-0.5	green	Diopside	54.40	0.23	0.87	0.49	0.06	3.38	0.06	0.00	16.96	20.89	2.30	0.02	99.67
T783	62	7824	0.25-0.5	green	Cr-Diopside	53.30	0.08	0.84	0.50	0.02	4.26	0.17	0.06	15.57	23.19	0.69	0.00	98.68
T783	63	7824	0.25-0.5	green	Cr-Diopside	53.73	0.25	1.91	0.97	0.04	2.85	0.16	0.10	18.80	17.80	2.63	0.03	99.27
T783	64	7824	0.25-0.5	green	HiCr-Diopside	54.05	0.15	2.93	2.07	0.10	1.42	0.08	0.01	15.86	19.46	5.31	0.01	101.44
T783	65	7824	0.25-0.5	green	Cr-Diopside	53.26	0.30	0.68	0.89	0.07	5.16	0.14	0.10	18.57	18.11	0.79	0.02	98.08
T796	7	7824	0.5-1.0	green	Cr-Diopside	52.13	0.13	1.49	0.66	0.01	5.46	0.16	0.08	15.28	21.34	0.34	0.00	97.07
T783	82	7825	0.25-0.5	green	HiCr-Diopside	54.40	0.18	0.33	2.05	0.03	3.48	0.11	0.02	16.94	19.90	3.39	0.00	100.83
T783	86	7825	0.25-0.5	green	Diopside	54.42	0.05	0.20	0.04	0.00	1.93	0.20	0.04	17.97	23.58	0.00	0.00	98.43
T796	36	7825	0.5-1.0	green	Cr-Diopside	52.89	0.40	1.06	0.98	0.02	5.59	0.19	0.06	17.66	18.56	0.50	0.00	97.92
T784	7	7826	0.25-0.5	green	HiCr-Diopside	55.78	0.10	3.64	2.74	0.04	1.42	0.05	0.00	14.95	19.16	2.86	0.01	100.76
T784	8	7826	0.25-0.5	green	Cr-Diopside	55.88	0.10	1.80	0.70	0.09	1.67	0.04	0.11	17.40	22.02	0.81	0.00	100.63
T784	9	7826	0.25-0.5	green	Cr-Diopside	54.49	0.34	0.77	1.03	0.02	5.08	0.16	0.10	18.29	19.40	0.23	0.00	99.92
T778	40	7827	0.25-0.5	green	Cr-Diopside	52.63	0.32	0.78	1.10	0.00	4.96	0.10	0.03	17.83	19.07	0.56	0.00	97.39

Appendix C.5 Microprobe data for diopside from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T784	61	7827	0.25-0.5	green	Cr-Diopside	54.03	0.36	0.87	1.08	0.00	5.27	0.15	0.11	18.52	18.29	0.29	0.02	98.98
T784	62	7827	0.25-0.5	green	Cr-Diopside	54.05	0.41	3.16	0.96	0.04	3.95	0.10	0.03	17.70	15.76	2.07	0.04	98.27
T784	63	7827	0.25-0.5	green	Cr-Diopside	54.24	0.33	2.11	0.86	0.00	3.04	0.11	0.02	18.37	18.04	0.96	0.03	98.10
T784	64	7827	0.25-0.5	green	Diopside	54.22	0.03	0.38	0.17	0.04	4.51	0.17	0.05	15.48	23.43	0.22	0.02	98.72
T784	65	7827	0.25-0.5	green	Cr-Diopside	52.95	0.29	1.16	1.18	0.08	4.96	0.13	0.04	17.88	19.34	0.44	0.00	98.45
T784	66	7827	0.25-0.5	green	Cr-Diopside	53.54	0.33	0.86	1.15	0.01	5.26	0.11	0.07	18.63	18.41	0.16	0.01	98.53
T784	67	7827	0.25-0.5	green	Cr-Diopside	52.96	0.38	1.29	1.08	0.00	5.12	0.13	0.09	17.37	20.00	0.27	0.00	98.68
T784	68	7827	0.25-0.5	green	Diopside	54.48	0.27	1.12	0.29	0.11	3.51	0.08	0.02	17.66	20.62	0.76	0.02	98.94
T784	69	7827	0.25-0.5	green	Cr-Diopside	53.16	0.35	0.94	1.26	0.05	5.26	0.16	0.09	18.53	18.37	0.53	0.01	98.72
T784	90	7828	0.25-0.5	green	Cr-Diopside	53.90	0.37	2.99	1.16	0.02	3.51	0.09	0.07	16.25	17.67	2.06	0.02	98.09
T784	91	7828	0.25-0.5	green	Cr-Diopside	54.93	0.24	1.20	0.52	0.03	3.38	0.12	0.05	17.03	20.34	1.37	0.00	99.19
T784	92	7828	0.25-0.5	green	Cr-Diopside	54.18	0.50	3.51	0.89	0.05	4.08	0.14	0.04	17.45	15.12	2.24	0.03	98.24
T784	93	7828	0.25-0.5	green	Cr-Diopside	54.31	0.45	2.09	0.82	0.05	3.21	0.11	0.06	18.58	17.68	1.11	0.02	98.49
T784	94	7828	0.25-0.5	green	Cr-Diopside	54.27	0.37	2.76	1.40	0.06	3.69	0.15	0.02	15.87	17.25	2.30	0.03	98.18
T784	95	7828	0.25-0.5	green	Cr-Diopside	53.98	0.50	4.12	0.74	0.06	4.28	0.16	0.06	16.31	15.34	2.71	0.00	98.24
T784	96	7828	0.25-0.5	green	Diopside	54.38	0.24	0.93	0.37	0.11	3.14	0.01	0.04	17.41	20.86	0.98	0.01	98.49
T784	97	7828	0.25-0.5	green	Cr-Diopside	53.98	0.42	2.80	1.15	0.08	2.94	0.10	0.00	16.63	17.72	1.93	0.01	97.76
T784	98	7828	0.25-0.5	green	Cr-Diopside	53.68	0.45	1.95	1.15	0.06	3.20	0.12	0.10	18.70	17.16	0.94	0.05	97.55
T784	99	7828	0.25-0.5	green	Cr-Diopside	53.40	0.54	3.72	0.65	0.07	4.45	0.16	0.04	17.15	14.54	2.49	0.00	97.21
T797	52	7828	0.5-1.0	green	HiCr-Diopside	53.53	0.36	2.64	1.57	0.07	3.75	0.13	0.07	16.26	17.36	2.22	0.01	97.98
T797	53	7828	0.5-1.0	green	Diopside	53.31	0.35	1.62	0.31	0.07	4.04	0.16	0.02	17.89	18.05	1.53	0.00	97.35
T797	54	7828	0.5-1.0	green	HiCr-Diopside	52.24	0.39	3.03	2.66	0.04	2.78	0.10	0.06	15.43	16.58	2.78	0.03	96.12
T785	12	7829	0.25-0.5	green	Cr-Diopside	52.73	0.19	0.87	0.65	0.00	4.69	0.17	0.05	18.12	20.38	0.00	0.01	97.86
T785	13	7829	0.25-0.5	green	Cr-Diopside	52.87	0.31	0.70	0.89	0.03	5.40	0.18	0.07	18.15	18.73	0.25	0.00	97.59
T785	14	7829	0.25-0.5	green	Cr-Diopside	52.98	0.39	0.92	0.76	0.06	6.13	0.16	0.08	18.01	18.67	0.22	0.00	98.38
T785	15	7829	0.25-0.5	green	Cr-Diopside	53.19	0.34	0.72	1.04	0.01	5.43	0.12	0.04	18.55	18.07	0.21	0.01	97.72
T785	16	7829	0.25-0.5	green	Cr-Diopside	53.74	0.09	2.12	1.29	0.13	1.99	0.07	0.07	16.24	20.58	1.15	0.01	97.49
T785	17	7829	0.25-0.5	green	HiCr-Diopside	54.34	0.07	0.76	1.96	0.05	1.80	0.08	0.04	16.37	20.71	1.52	0.00	97.72
T785	18	7829	0.25-0.5	green	Cr-Diopside	52.85	0.29	1.19	1.29	0.06	4.92	0.13	0.10	17.51	19.16	0.33	0.00	97.84
T785	51	7830	0.25-0.5	green	Cr-Diopside	52.32	0.35	0.86	1.11	0.00	5.37	0.18	0.07	18.04	18.67	0.13	0.00	97.10
T785	65	7831	0.25-0.5	green	HiCr-Diopside	54.18	0.13	1.37	2.43	0.06	1.67	0.11	0.04	16.27	20.34	1.64	0.00	98.23
T785	66	7831	0.25-0.5	green	Cr-Diopside	52.76	0.33	0.96	1.08	0.06	5.51	0.14	0.06	17.81	18.71	0.38	0.00	97.81
T785	79	7832	0.25-0.5	green	HiCr-Diopside	53.90	0.20	3.35	2.68	0.12	1.43	0.06	0.05	15.21	18.91	2.36	0.01	98.27
T785	80	7832	0.25-0.5	green	Cr-Diopside	53.47	0.11	1.67	0.73	0.01	2.88	0.10	0.01	16.61	20.65	1.15	0.02	97.40
T775	46	7834	0.25-0.5	green	Cr-Diopside	52.43	0.31	0.77	1.07	0.10	4.93	0.20	0.07	18.62	18.27	0.10	0.01	96.88
T785	87	7834	0.25-0.5	green	Cr-Diopside	54.05	0.30	1.07	0.90	0.08	4.87	0.15	0.00	18.03	20.80	0.00	0.00	100.25
T785	88	7834	0.25-0.5	green	Cr-Diopside	53.91	0.34	0.91	1.08	0.01	5.29	0.21	0.08	18.46	17.83	0.28	0.01	98.40
T785	89	7834	0.25-0.5	green	Cr-Diopside	53.00	0.32	0.79	0.96	0.07	5.01	0.17	0.09	18.27	18.51	0.30	0.00	97.49
T785	90	7834	0.25-0.5	green	Cr-Diopside	52.76	0.20	1.07	0.80	0.02	4.48	0.17	0.05	17.69	20.28	0.00	0.00	97.51
T785	91	7834	0.25-0.5	green	Cr-Diopside	53.15	0.30	0.72	1.12	0.01	5.14	0.18	0.09	18.64	18.05	0.30	0.02	97.73
T799	36	7834	0.5-1.0	green	Cr-Diopside	52.92	0.35	0.87	1.15	0.00	5.12	0.19	0.10	18.81	18.59	0.27	0.00	98.35
T786	7	7835	0.25-0.5	green	Cr-Diopside	53.04	0.29	1.26	1.06	0.00	5.05	0.13	0.10	18.38	18.38	0.09	0.00	97.78
T786	23	7836	0.25-0.5	green	HiCr-Diopside	53.72	0.12	3.52	2.86	0.12	1.44	0.14	0.00	15.05	18.68	2.67	0.00	98.31
T786	24	7836	0.25-0.5	green	Cr-Diopside	52.60	0.32	0.87	0.99	0.03	5.35	0.20	0.11	17.65	18.98	0.48	0.00	97.58
T786	25	7836	0.25-0.5	green	Cr-Diopside	53.39	0.28	0.63	0.78	0.00	5.45	0.21	0.05	19.76	16.93	0.19	0.00	97.67
T786	26	7836	0.25-0.5	green	Cr-Diopside	52.56	0.33	1.23	1.05	0.00	5.41	0.19	0.06	17.49	18.75	0.36	0.00	97.42

Appendix C.5 Microprobe data for diopside from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeO	MnO	NiO	MgO	CaO	Na2O	K2O	TOTAL
T786	27	7836	0.25-0.5	green	Cr-Diopside	52.82	0.36	1.03	1.13	0.03	5.51	0.13	0.07	17.87	18.58	0.35	0.00	97.89
T799	60	7837	0.5-1.0	green	Cr-Diopside	53.08	0.37	0.92	1.02	0.01	5.27	0.15	0.10	18.34	18.92	0.39	0.00	98.57
T786	40	7838	0.25-0.5	green	HiCr-Diopside	53.86	0.05	1.81	1.59	0.06	3.78	0.11	0.03	15.19	18.68	2.05	0.01	97.21

### Appendix C.1

Table C.1.

Operating conditions and standard values for the microprobe routine  
"DIAMOND"

Elem.	Std	wt. fract.	line	crystalkV	nA	time (sec)
Na	NaCl	0.3930 K_	PCO	20	20	10
K	KBr	0.3290 K_	PET	20	20	10
Fe	Fe	1.0000 K_	LIF	20	20	10
Mg	MgO	0.6032 K_	TAP	20	20	10
Al	Al <sub>2</sub> O <sub>3</sub>	0.5290 K_	TAP	20	20	10
Si	SiO <sub>2</sub>	0.4674 K_	TAP	20	20	10
Ca	CaSiO <sub>3</sub>	0.3432K_	PET	20	20	10
Ti	TiO <sub>2</sub>	0.5895 K_	PET	20	20	10
Cr	Cr	1.0000 K_	LIF	20	20	10
Mn	Mn	1.0000 K_	LIF	20	20	10
Ni	Ni	1.0000 K_	LIF	20	20	10
V	V	1.0000 K_	LIF	20	20	10

Operating conditions and standard values for the microprobe routine  
"OXIDE"

Elem.	Std.	wt. fract.	line	crystalkV	nA	time (sec)
Mg	MgO	0.6032 K_	TAP	20	10	10
Al	Al <sub>2</sub> O <sub>3</sub>	0.5290 K_	TAP	20	10	10
Si	SiO <sub>2</sub>	0.4674 K_	TAP	20	10	10
As	InAS	0.3949 L_	TAP	20	10	10
Ca	CaSiO <sub>3</sub>	0.3432K_	PET	20	10	10
Ti	TiO <sub>2</sub>	0.5895 K_	PET	20	10	10
Nb	Nb	1.0000 L_	PET	20	10	10
S	FeS <sub>2</sub>	0.5345 K_	PET	20	10	10
Fe	Fe	1.0000 K_	LIF	20	10	10
Cr	Cr	1.0000 K_	LIF	20	10	10
Mn	Mn	1.0000 K_	LIF	20	10	10
Ni	Ni	1.0000 K_	LIF	20	10	10
V	V	1.0000 K_	LIF	20	10	10
Co	Co	1.0000 K_	LIF	20	10	10
Zn	Zn	1.0000 K_	LIF	20	10	10

### Appendix C.1

Table C.1.

Operating conditions and standard values for the microprobe routine  
"DIAMOND"

Elem.	Std	wt. fract.	line	crystal	kV	nA	time (sec)
Na	NaCl	0.3930	K_	PCO	20	20	10
K	KBr	0.3290	K_	PET	20	20	10
Fe	Fe	1.0000	K_	LIF	20	20	10
Mg	MgO	0.6032	K_	TAP	20	20	10
Al	Al <sub>2</sub> O <sub>3</sub>	0.5290	K_	TAP	20	20	10
Si	SiO <sub>2</sub>	0.4674	K_	TAP	20	20	10
Ca	CaSiO <sub>3</sub>	0.3432	K_	PET	20	20	10
Ti	TiO <sub>2</sub>	0.5895	K_	PET	20	20	10
Cr	Cr	1.0000	K_	LIF	20	20	10
Mn	Mn	1.0000	K_	LIF	20	20	10
Ni	Ni	1.0000	K_	LIF	20	20	10
V	V	1.0000	K_	LIF	20	20	10

Operating conditions and standard values for the microprobe routine  
"OXIDE"

Elem.	Std.	wt. fract.	line	crystal	kV	nA	time (sec)
Mg	MgO	0.6032	K_	TAP	20	10	10
Al	Al <sub>2</sub> O <sub>3</sub>	0.5290	K_	TAP	20	10	10
Si	SiO <sub>2</sub>	0.4674	K_	TAP	20	10	10
As	InAS	0.3949	L_	TAP	20	10	10
Ca	CaSiO <sub>3</sub>	0.3432	K_	PET	20	10	10
Ti	TiO <sub>2</sub>	0.5895	K_	PET	20	10	10
Nb	Nb	1.0000	L_	PET	20	10	10
S	FeS <sub>2</sub>	0.5345	K_	PET	20	10	10
Fe	Fe	1.0000	K_	LIF	20	10	10
Cr	Cr	1.0000	K_	LIF	20	10	10
Mn	Mn	1.0000	K_	LIF	20	10	10
Ni	Ni	1.0000	K_	LIF	20	10	10
V	V	1.0000	K_	LIF	20	10	10
Co	Co	1.0000	K_	LIF	20	10	10
Zn	Zn	1.0000	K_	LIF	20	10	10

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T754	91	7810	kimb	0.25-0.5	black	Chromite	0.06	0.55	12.28	55.26	0.36	18.75	0.33	0.07	11.97	0.00	0.06	0.19	0.19	100.08
T754	92	7810	kimb	0.25-0.5	black	Chromite	0.06	0.30	15.06	49.15	0.14	22.10	0.30	0.10	11.83	0.04	0.08	0.17	0.00	99.32
T754	100	7810	kimb	0.25-0.5	black	Chromite	0.07	0.08	10.02	58.27	0.19	20.39	0.28	0.04	11.35	0.00	0.01	0.19	0.00	100.89
T754	103	7810	kimb	0.25-0.5	black	Chromite	0.06	1.84	0.96	58.31	0.22	27.33	0.57	0.13	8.76	0.02	0.04	0.12	0.00	98.36
T754	111	7810	kimb	0.25-0.5	black	Chromite	0.06	0.28	12.68	53.99	0.17	19.71	0.30	0.09	12.39	0.00	0.07	0.11	0.00	99.84
T755	6	7810	kimb	0.25-0.5	black	Chromite	0.10	0.35	13.20	54.42	0.21	18.57	0.35	0.17	12.45	0.05	0.10	0.09	0.00	100.06
T755	16	7810	kimb	0.25-0.5	black	Chromite	0.08	0.75	11.57	54.14	0.27	22.66	0.27	0.04	9.63	0.02	0.00	0.23	0.00	99.65
T755	18	7810	kimb	0.25-0.5	black	Chromite	0.11	0.46	11.62	51.10	0.25	23.62	0.47	0.09	11.47	0.03	0.03	0.16	0.03	99.44
T755	42	7810	kimb	0.25-0.5	black	Chromite	0.06	0.08	14.58	52.49	0.22	19.08	0.32	0.09	12.16	0.01	0.17	0.32	0.03	99.60
T755	43	7810	kimb	0.25-0.5	black	Chromite	0.04	0.05	11.84	54.94	0.23	18.95	0.34	0.12	12.80	0.01	0.01	0.25	0.11	99.69
T755	45	7810	kimb	0.25-0.5	black	Chromite	0.07	0.13	10.00	54.09	0.07	23.12	0.41	0.07	10.91	0.00	0.05	0.17	0.00	99.09
T755	46	7810	kimb	0.25-0.5	black	Chromite	0.08	1.66	1.16	56.32	0.32	28.37	0.49	0.20	8.66	0.04	0.12	0.22	0.00	97.64
T755	47	7810	kimb	0.25-0.5	black	Chromite	0.12	0.73	10.41	50.77	0.23	26.90	0.36	0.08	8.53	0.02	0.01	0.11	0.11	98.39
T755	48	7810	kimb	0.25-0.5	black	Chromite	0.06	0.74	11.95	50.71	0.39	23.34	0.37	0.12	11.13	0.03	0.10	0.09	0.17	99.20
T755	49	7810	kimb	0.25-0.5	black	Chromite	0.04	0.51	10.12	49.98	0.18	25.29	0.30	0.18	10.54	0.02	0.08	0.15	0.00	97.38
T755	50	7810	kimb	0.25-0.5	black	Chromite	0.07	0.49	9.43	50.07	0.29	27.30	0.40	0.21	10.00	0.00	0.00	0.24	0.00	98.50
T755	52	7810	kimb	0.25-0.5	black	Chromite	0.04	0.72	9.04	50.40	0.13	26.27	0.48	0.09	10.18	0.02	0.16	0.29	0.05	97.88
T755	53	7810	kimb	0.25-0.5	black	Chromite	0.11	0.35	12.39	49.05	0.23	24.36	0.31	0.15	10.60	0.00	0.08	0.20	0.03	97.86
T755	54	7810	kimb	0.25-0.5	black	Chromite	0.01	0.41	11.92	51.28	0.10	22.80	0.40	0.23	10.70	0.02	0.13	0.20	0.00	98.19
T755	55	7810	kimb	0.25-0.5	black	Chromite	0.09	0.33	14.30	50.94	0.19	19.62	0.27	0.09	12.69	0.05	0.09	0.11	0.01	98.79
T755	56	7810	kimb	0.25-0.5	black	Chromite	0.07	0.15	11.97	53.68	0.15	19.75	0.19	0.13	12.34	0.01	0.22	0.03	0.15	98.84
T755	57	7810	kimb	0.25-0.5	black	Chromite	0.09	0.59	8.72	55.78	0.15	21.50	0.34	0.10	10.34	0.00	0.07	0.22	0.00	97.89
T755	58	7810	kimb	0.25-0.5	black	Chromite	0.07	0.71	9.96	50.77	0.32	25.13	0.39	0.17	10.30	0.00	0.07	0.29	0.00	98.18
T755	59	7810	kimb	0.25-0.5	black	Chromite	0.04	0.73	9.20	57.12	0.23	19.80	0.40	0.09	11.65	0.00	0.00	0.17	0.04	99.47
T755	60	7810	kimb	0.25-0.5	black	Chromite	0.08	0.30	11.36	53.78	0.25	20.96	0.37	0.09	11.92	0.00	0.08	0.29	0.00	99.47
T755	61	7810	kimb	0.25-0.5	black	Chromite	0.08	0.08	11.31	53.72	0.42	20.37	0.41	0.12	11.61	0.00	0.08	0.25	0.12	98.56
T755	62	7810	kimb	0.25-0.5	black	Chromite	0.05	0.12	11.49	54.85	0.15	18.50	0.23	0.11	12.87	0.01	0.03	0.23	0.10	98.74
T755	63	7810	kimb	0.25-0.5	black	Chromite	0.06	0.35	10.13	50.31	0.04	26.40	0.38	0.16	10.15	0.00	0.10	0.15	0.12	98.35
T755	64	7810	kimb	0.25-0.5	black	Chromite	0.08	0.11	10.10	55.65	0.15	21.27	0.35	0.04	11.42	0.03	0.10	0.24	0.00	99.54
T755	65	7810	kimb	0.25-0.5	black	Chromite	0.09	0.71	7.95	53.03	0.08	26.02	0.54	0.16	10.02	0.02	0.07	0.22	0.00	98.90
T755	66	7810	kimb	0.25-0.5	black	Chromite	0.08	1.02	8.10	51.51	0.41	27.10	0.44	0.12	10.00	0.03	0.10	0.25	0.00	99.16
T755	67	7810	kimb	0.25-0.5	black	Chromite	0.07	0.70	8.94	50.61	0.19	27.16	0.42	0.18	9.97	0.03	0.09	0.13	0.05	98.56
T755	68	7810	kimb	0.25-0.5	black	Chromite	0.05	0.42	11.27	51.40	0.23	23.46	0.43	0.17	10.64	0.00	0.02	0.15	0.00	98.24
T755	69	7810	kimb	0.25-0.5	black	Chromite	0.08	1.05	12.74	46.32	0.17	26.27	0.35	0.15	10.87	0.00	0.09	0.07	0.03	98.19
T755	70	7810	kimb	0.25-0.5	black	Chromite	0.09	1.21	6.69	51.73	0.29	28.03	0.39	0.13	9.35	0.00	0.14	0.31	0.03	98.40
T755	71	7810	kimb	0.25-0.5	black	Chromite	0.04	0.41	11.42	51.34	0.40	23.57	0.34	0.09	11.13	0.01	0.10	0.15	0.08	99.08
T755	72	7810	kimb	0.25-0.5	black	Chromite	0.10	0.78	15.43	44.59	0.24	25.59	0.27	0.23	11.46	0.04	0.03	0.21	0.18	99.15
T755	73	7810	kimb	0.25-0.5	black	Chromite	0.06	0.67	12.22	51.75	0.25	21.51	0.28	0.10	11.60	0.03	0.14	0.20	0.00	98.81
T755	74	7810	kimb	0.25-0.5	black	Chromite	0.06	0.81	8.41	56.79	0.21	22.66	0.32	0.07	9.05	0.05	0.05	0.22	0.00	98.70
T806	11	7810	kimb	0.25-0.5	black	Chromite	0.04	2.29	1.20	57.58	0.32	29.39	0.51	0.23	8.73	0.01	0.09	0.09	0.10	100.56
T806	30	7810	kimb	0.25-0.5	black	Chromite	0.00	0.10	10.12	54.99	0.16	23.54	0.43	0.12	10.59	0.02	0.05	0.24	0.20	100.55
T806	34	7810	kimb	0.25-0.5	black	Chromite	0.07	0.25	17.54	48.71	0.20	19.88	0.35	0.22	12.45	0.00	0.12	0.20	0.00	100.00
T806	50	7810	kimb	0.25-0.5	black	Chromite	0.02	0.22	5.91	63.22	0.17	20.93	0.47	0.04	10.39	0.01	0.12	0.22	0.11	101.83
T806	56	7810	kimb	0.25-0.5	black	Chromite	0.05	0.52	16.56	48.27	0.19	21.58	0.25	0.04	12.12	0.00	0.05	0.06	0.00	99.72
T806	58	7810	kimb	0.25-0.5	black	Chromite	0.06	0.14	11.07	55.94	0.15	20.69	0.29	0.08	11.66	0.04	0.10	0.11	0.00	100.34
T806	59	7810	kimb	0.25-0.5	black	Chromite	0.03	1.15	7.64	52.10	0.44	28.95	0.39	0.15	9.31	0.00	0.11	0.22	0.06	100.55

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T806	60	7810	kimb	0.25-0.5	black	Chromite	0.07	0.49	8.40	54.43	0.14	26.00	0.43	0.04	9.62	0.05	0.11	0.19	0.00	99.97
T806	61	7810	kimb	0.25-0.5	black	Chromite	0.00	0.04	14.93	54.65	0.14	18.47	0.30	0.09	12.59	0.02	0.00	0.10	0.00	101.34
T806	62	7810	kimb	0.25-0.5	black	Chromite	0.02	0.08	15.52	53.90	0.29	18.18	0.16	0.13	12.78	0.01	0.00	0.20	0.16	101.42
T806	67	7810	kimb	0.25-0.5	black	Chromite	0.08	0.08	15.48	54.12	0.20	18.39	0.27	0.13	13.02	0.01	0.07	0.08	0.03	101.94
T806	68	7810	kimb	0.25-0.5	black	Chromite	0.02	0.27	11.69	54.94	0.22	20.88	0.34	0.15	11.77	0.02	0.07	0.16	0.00	100.54
T806	69	7810	kimb	0.25-0.5	black	Chromite	0.06	0.34	8.35	58.04	0.29	19.55	0.45	0.04	14.14	0.00	0.05	0.10	0.00	101.42
T806	70	7810	kimb	0.25-0.5	black	Chromite	0.05	0.03	9.86	59.74	0.13	16.63	0.27	0.10	13.39	0.00	0.04	0.15	0.17	100.54
T806	74	7810	kimb	0.25-0.5	black	Chromite	0.02	0.11	15.19	55.60	0.37	16.32	0.25	0.13	12.93	0.00	0.04	0.21	0.18	101.36
T806	75	7810	kimb	0.25-0.5	black	Chromite	0.04	0.91	8.31	54.71	0.27	24.89	0.36	0.14	10.72	0.01	0.14	0.19	0.00	100.68
T806	76	7810	kimb	0.25-0.5	black	Chromite	0.07	0.19	17.96	51.68	0.15	17.59	0.26	0.10	12.75	0.01	0.10	0.25	0.00	101.10
T806	77	7810	kimb	0.25-0.5	black	Chromite	0.04	0.44	9.93	52.27	0.16	26.62	0.40	0.14	10.05	0.00	0.10	0.29	0.04	100.48
T806	78	7810	kimb	0.25-0.5	black	Chromite	0.05	0.13	11.66	54.24	0.28	22.55	0.37	0.07	11.33	0.02	0.11	0.17	0.11	101.08
T806	79	7810	kimb	0.25-0.5	black	Chromite	0.03	0.04	13.53	54.69	0.29	19.10	0.26	0.12	12.18	0.01	0.15	0.19	0.03	100.62
T806	80	7810	kimb	0.25-0.5	black	Chromite	0.01	0.45	10.98	56.02	0.19	21.25	0.33	0.17	11.74	0.02	0.14	0.10	0.00	101.40
T806	81	7810	kimb	0.25-0.5	black	Chromite	0.05	0.55	11.31	51.82	0.16	25.97	0.34	0.05	10.46	0.04	0.07	0.08	0.00	100.89
T806	82	7810	kimb	0.25-0.5	black	Chromite	0.00	0.27	10.91	52.54	0.24	25.47	0.47	0.18	10.49	0.00	0.11	0.18	0.00	100.85
T806	83	7810	kimb	0.25-0.5	black	Chromite	0.04	0.07	14.92	56.19	0.31	15.64	0.31	0.11	12.89	0.00	0.04	0.28	0.13	100.93
T806	84	7810	kimb	0.25-0.5	black	Chromite	0.07	0.71	9.80	53.25	0.13	26.07	0.36	0.12	10.70	0.00	0.00	0.16	0.00	101.36
T806	85	7810	kimb	0.25-0.5	black	Chromite	0.05	0.08	15.45	53.60	0.34	18.77	0.30	0.10	12.76	0.02	0.10	0.21	0.08	101.86
T806	86	7810	kimb	0.25-0.5	black	Chromite	0.05	1.24	8.35	51.74	0.15	28.55	0.42	0.13	9.83	0.01	0.12	0.13	0.00	100.74
T806	87	7810	kimb	0.25-0.5	black	Chromite	0.10	0.65	9.75	53.06	0.24	25.99	0.49	0.14	10.67	0.00	0.05	0.21	0.00	101.36
T806	88	7810	kimb	0.25-0.5	black	Chromite	0.03	1.34	14.92	45.00	0.26	26.31	0.36	0.28	11.42	0.02	0.10	0.18	0.24	100.47
T806	89	7810	kimb	0.25-0.5	black	Chromite	0.03	0.08	12.30	54.13	0.31	21.65	0.32	0.06	11.48	0.01	0.00	0.07	0.25	100.72
T806	90	7810	kimb	0.25-0.5	black	Chromite	0.01	0.95	12.38	46.48	0.12	29.29	0.38	0.20	10.61	0.00	0.08	0.24	0.03	100.77
T806	91	7810	kimb	0.25-0.5	black	Chromite	0.02	0.08	16.04	54.13	0.13	17.31	0.31	0.08	13.27	0.01	0.05	0.17	0.03	101.63
T806	92	7810	kimb	0.25-0.5	black	Chromite	0.03	0.48	14.09	48.10	0.18	25.84	0.31	0.19	10.81	0.04	0.07	0.16	0.00	100.30
T806	93	7810	kimb	0.25-0.5	black	Chromite	0.00	0.33	9.77	55.62	0.38	22.18	0.27	0.12	11.27	0.01	0.12	0.25	0.00	100.32
T806	94	7810	kimb	0.25-0.5	black	Chromite	0.02	0.07	11.67	56.15	0.19	18.89	0.29	0.11	12.48	0.03	0.14	0.30	0.04	100.38
T806	95	7810	kimb	0.25-0.5	black	Chromite	0.05	0.58	10.72	49.59	0.01	25.61	0.34	0.06	9.98	0.02	0.02	0.30	0.00	97.27
T806	96	7810	kimb	0.25-0.5	black	Chromite	0.00	0.50	11.79	52.56	0.31	23.41	0.42	0.12	11.50	0.00	0.07	0.14	0.00	100.81
T806	97	7810	kimb	0.25-0.5	black	Chromite	0.05	0.22	12.64	52.22	0.26	22.87	0.36	0.07	11.22	0.01	0.06	0.21	0.00	100.18
T806	98	7810	kimb	0.25-0.5	black	Chromite	0.11	0.40	9.56	48.91	0.21	20.64	0.31	0.11	8.86	0.00	0.00	0.20	0.00	89.32
T806	99	7810	kimb	0.25-0.5	black	Chromite	0.07	0.69	8.60	52.24	0.10	27.36	0.43	0.06	9.75	0.01	0.03	0.14	0.00	99.48
T806	100	7810	kimb	0.25-0.5	black	Chromite	0.08	0.05	13.74	54.46	0.17	19.87	0.30	0.07	11.69	0.03	0.03	0.19	0.06	100.74
T806	101	7810	kimb	0.25-0.5	black	Chromite	0.00	0.41	10.39	52.84	0.21	25.69	0.38	0.20	10.28	0.03	0.06	0.29	0.04	100.83
T806	102	7810	kimb	0.25-0.5	black	Chromite	0.05	0.78	10.16	49.99	0.26	27.73	0.46	0.19	9.93	0.00	0.11	0.23	0.00	99.90
T812	61	7810	kimb	0.50-1.00	black	Chromite	0.09	2.10	1.96	57.41	0.30	27.61	0.40	0.10	8.82	0.04	0.09	0.07	0.00	98.98
T812	62	7810	kimb	0.50-1.00	black	Chromite	0.07	0.41	16.26	47.51	0.22	22.68	0.37	0.21	11.55	0.00	0.07	0.13	0.00	99.47
T812	73	7810	kimb	0.50-1.00	black	Chromite	0.00	1.47	5.42	52.27	0.15	29.43	0.36	0.14	9.29	0.00	0.05	0.16	0.08	98.75
T812	77	7810	kimb	0.50-1.00	black	Chromite	0.01	0.33	12.65	49.66	0.19	26.00	0.29	0.18	10.80	0.00	0.10	0.08	0.00	100.30
T812	89	7810	kimb	0.50-1.00	black	Chromite	0.01	0.01	18.13	53.41	0.19	14.40	0.35	0.06	13.94	0.02	0.10	0.37	0.00	100.99
T813	5	7810	kimb	0.50-1.00	black	Chromite	0.04	0.30	13.29	56.50	0.12	20.03	0.43	0.02	12.12	0.00	0.04	0.26	0.11	103.15
T813	8	7810	kimb	0.50-1.00	black	Chromite	0.00	1.40	4.09	55.94	0.20	28.68	0.32	0.23	9.09	0.00	0.06	0.12	0.01	100.14
T813	19	7810	kimb	0.50-1.00	black	Chromite	0.03	1.20	10.56	52.96	0.30	24.61	0.31	0.10	9.14	0.02	0.09	0.18	0.00	99.49
T813	35	7810	kimb	0.50-1.00	black	Cr-Spinel	0.01	0.27	23.32	42.36	0.18	20.19	0.28	0.13	13.55	0.02	0.00	0.19	0.00	100.50
T813	36	7810	kimb	0.50-1.00	black	Chromite	0.02	0.71	9.00	52.95	0.20	25.75	0.31	0.11	10.27	0.04	0.00	0.13	0.00	99.50



Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T813	37	7810	kimb	0.50-1.00	black	Chromite	0.04	0.45	10.30	55.63	0.23	23.04	0.37	0.08	10.70	0.00	0.05	0.14	0.06	101.04
T813	38	7810	kimb	0.50-1.00	black	Chromite	0.02	0.27	12.03	54.02	0.16	22.95	0.37	0.11	11.46	0.05	0.04	0.04	0.00	101.52
T813	39	7810	kimb	0.50-1.00	black	Chromite	0.04	1.30	3.48	60.27	0.23	25.14	0.46	0.14	10.32	0.00	0.12	0.10	0.00	101.59
T813	40	7810	kimb	0.50-1.00	black	Chromite	0.01	0.18	18.86	49.45	0.12	16.79	0.29	0.04	14.03	0.03	0.06	0.16	0.00	100.02
T813	41	7810	kimb	0.50-1.00	black	Chromite	0.02	0.48	12.35	54.97	0.28	21.41	0.41	0.07	11.04	0.00	0.03	0.10	0.15	101.16
T813	42	7810	kimb	0.50-1.00	black	Chromite	0.06	0.69	11.89	50.24	0.24	25.36	0.31	0.09	10.56	0.04	0.12	0.24	0.00	99.83
T813	44	7810	kimb	0.50-1.00	black	Chromite	0.06	0.33	14.75	49.45	0.24	23.61	0.29	0.13	11.24	0.00	0.04	0.23	0.11	100.37
T813	45	7810	kimb	0.50-1.00	black	Chromite	0.11	1.64	8.55	49.93	0.34	31.89	0.32	0.18	7.27	0.01	0.05	0.13	0.01	100.41
T813	46	7810	kimb	0.50-1.00	black	Chromite	0.03	1.50	1.20	61.06	0.29	27.22	0.38	0.12	8.76	0.00	0.09	0.15	0.01	100.82
T813	47	7810	kimb	0.50-1.00	black	Chromite	0.03	0.15	13.41	54.38	0.08	21.28	0.45	0.03	11.61	0.06	0.03	0.08	0.00	101.60
T813	48	7810	kimb	0.50-1.00	black	Chromite	0.03	0.67	10.72	55.02	0.30	22.99	0.38	0.08	10.83	0.03	0.06	0.16	0.03	101.27
T813	49	7810	kimb	0.50-1.00	black	Chromite	0.02	0.05	16.23	56.32	0.18	15.18	0.28	0.11	13.34	0.00	0.09	0.19	0.00	101.99
T813	50	7810	kimb	0.50-1.00	black	Chromite	0.02	0.68	10.78	51.93	0.35	26.99	0.34	0.10	8.99	0.00	0.04	0.08	0.00	100.31
T813	51	7810	kimb	0.50-1.00	black	Chromite	0.02	0.30	12.49	52.76	0.17	22.82	0.33	0.14	11.52	0.01	0.08	0.23	0.00	100.87
T817	12	7810	kimb	0.50-1.00	black	Chromite	0.05	0.04	16.24	51.02	0.20	18.67	0.26	0.15	12.87	0.00	0.09	0.14	0.10	99.83
T815	22	7810	kimb	1.0-2.0	black	Chromite	0.07	1.05	7.57	51.77	0.38	29.90	0.38	0.13	8.78	0.00	0.12	0.05	0.00	100.21
T768	30	7814	kimb	0.25-0.5	black	Chromite	0.16	3.00	1.32	52.94	0.34	31.06	0.43	0.02	8.86	0.04	0.17	0.00	0.00	98.34
T768	31	7814	kimb	0.25-0.5	black	Chromite	0.09	0.24	14.20	48.40	0.23	24.06	0.34	0.12	11.21	0.01	0.21	0.17	0.00	99.26
T768	32	7814	kimb	0.25-0.5	black	Chromite	0.14	1.79	2.74	58.12	0.22	25.30	0.52	0.07	9.86	0.02	0.08	0.20	0.05	99.11
T768	33	7814	kimb	0.25-0.5	black	Chromite	0.13	2.26	2.95	52.57	0.24	30.82	0.46	0.07	8.91	0.03	0.27	0.12	0.00	98.83
T768	34	7814	kimb	0.25-0.5	black	Chromite	0.12	1.85	1.06	57.44	0.27	27.87	0.35	0.08	8.55	0.02	0.23	0.25	0.00	98.12
T768	35	7814	kimb	0.25-0.5	black	Chromite	0.12	1.97	0.93	57.26	0.50	28.48	0.41	0.13	8.43	0.03	0.21	0.14	0.11	98.72
T768	36	7814	kimb	0.25-0.5	black	Chromite	0.08	0.37	7.87	62.10	0.17	17.19	0.30	0.03	11.56	0.00	0.08	0.10	0.03	99.89
T768	37	7814	kimb	0.25-0.5	black	Chromite	0.08	0.11	14.15	53.58	0.12	18.96	0.31	0.13	12.33	0.01	0.08	0.09	0.08	100.04
T768	42	7814	kimb	0.25-0.5	black	Chromite	0.03	0.25	12.93	52.57	0.10	21.59	0.29	0.06	11.60	0.01	0.11	0.19	0.21	99.93
T768	44	7814	kimb	0.25-0.5	black	Chromite	0.06	0.83	10.26	51.14	0.21	25.06	0.34	0.14	10.47	0.00	0.12	0.27	0.00	98.90
T768	45	7814	kimb	0.25-0.5	black	Chromite	0.14	1.15	8.14	53.77	0.17	26.07	0.32	0.03	9.44	0.03	0.16	0.20	0.15	99.76
T768	49	7814	kimb	0.25-0.5	black	Chromite	0.11	0.06	11.21	55.63	0.23	18.51	0.26	0.00	12.78	0.00	0.12	0.15	0.00	99.07
T768	50	7814	kimb	0.25-0.5	black	Chromite	0.09	0.92	10.33	46.07	0.28	30.08	0.36	0.10	10.18	0.01	0.21	0.11	0.00	98.74
T768	53	7814	kimb	0.25-0.5	black	Chromite	0.10	0.19	14.41	54.85	0.22	17.25	0.37	0.08	11.97	0.02	0.11	0.26	0.00	99.81
T768	55	7814	kimb	0.25-0.5	black	Chromite	0.07	1.69	2.21	56.50	0.24	28.18	0.41	0.04	8.73	0.00	0.12	0.16	0.00	98.35
T768	56	7814	kimb	0.25-0.5	black	Chromite	0.06	1.62	1.07	59.60	0.23	26.36	0.47	0.10	9.18	0.01	0.16	0.02	0.19	99.06
T768	60	7814	kimb	0.25-0.5	black	Chromite	0.08	2.10	0.89	57.92	0.25	28.20	0.52	0.05	8.53	0.01	0.12	0.17	0.00	98.83
T768	63	7814	kimb	0.25-0.5	black	Chromite	0.15	2.16	8.57	50.22	0.39	26.71	0.30	0.04	10.38	0.00	0.18	0.07	0.14	99.33
T768	67	7814	kimb	0.25-0.5	black	Chromite	0.11	3.40	1.12	51.49	0.46	32.48	0.57	0.09	8.55	0.00	0.17	0.15	0.18	98.77
T768	68	7814	kimb	0.25-0.5	black	Chromite	0.12	2.03	2.63	55.60	0.24	28.53	0.39	0.08	8.67	0.03	0.12	0.17	0.08	98.69
T768	70	7814	kimb	0.25-0.5	black	Chromite	0.19	2.35	1.21	56.48	0.30	27.74	0.35	0.16	9.85	0.02	0.12	0.09	0.18	99.04
T768	71	7814	kimb	0.25-0.5	black	Chromite	0.13	2.34	1.18	56.70	0.28	28.18	0.27	0.11	8.89	0.00	0.14	0.07	0.08	98.38
T768	73	7814	kimb	0.25-0.5	black	Chromite	0.10	2.96	3.13	51.43	0.45	30.76	0.46	0.10	9.64	0.02	0.16	0.13	0.04	99.39
T768	74	7814	kimb	0.25-0.5	black	Chromite	0.05	0.38	11.24	52.28	0.25	23.61	0.42	0.00	10.98	0.02	0.06	0.23	0.03	99.53
T768	75	7814	kimb	0.25-0.5	black	Chromite	0.06	0.75	8.84	51.00	0.17	27.97	0.29	0.12	9.38	0.00	0.13	0.08	0.00	98.77
T768	78	7814	kimb	0.25-0.5	black	Chromite	0.10	1.71	5.62	51.29	0.24	30.33	0.30	0.10	9.38	0.04	0.28	0.15	0.00	99.54
T768	79	7814	kimb	0.25-0.5	black	Chromite	0.17	0.34	10.87	52.90	0.20	23.57	0.42	0.10	10.75	0.04	0.06	0.31	0.00	99.73
T768	80	7814	kimb	0.25-0.5	black	Chromite	0.08	0.31	15.52	47.25	0.23	24.31	0.43	0.09	11.01	0.00	0.22	0.08	0.00	99.53
T768	85	7814	kimb	0.25-0.5	black	Chromite	0.04	1.69	1.05	58.47	0.32	26.72	0.62	0.05	9.14	0.02	0.16	0.19	0.08	98.56
T768	90	7814	kimb	0.25-0.5	black	Chromite	0.09	1.40	11.72	46.20	0.36	26.90	0.35	0.01	10.91	0.03	0.08	0.07	0.00	98.13

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T768	92	7814	kimb	0.25-0.5	black	Chromite	0.08	0.16	13.79	53.17	0.22	18.82	0.15	0.07	12.42	0.01	0.13	0.13	0.00	99.15
T768	93	7814	kimb	0.25-0.5	black	Chromite	0.09	0.05	12.80	54.02	0.10	20.00	0.31	0.01	11.93	0.01	0.00	0.25	0.07	99.63
T768	94	7814	kimb	0.25-0.5	black	Chromite	0.07	2.80	1.09	53.00	0.35	31.07	0.48	0.05	8.78	0.00	0.16	0.16	0.09	98.10
T768	95	7814	kimb	0.25-0.5	black	Chromite	0.11	0.39	17.26	45.79	0.25	23.96	0.29	0.14	11.84	0.00	0.16	0.13	0.00	100.34
T768	96	7814	kimb	0.25-0.5	black	Chromite	0.06	2.20	1.06	56.21	0.29	29.64	0.44	0.06	8.60	0.00	0.17	0.21	0.00	98.95
T768	97	7814	kimb	0.25-0.5	black	Chromite	0.15	2.74	2.38	52.46	0.37	30.76	0.47	0.12	9.05	0.05	0.25	0.11	0.00	98.90
T768	98	7814	kimb	0.25-0.5	black	Chromite	0.12	2.14	1.19	54.45	0.22	29.58	0.40	0.07	8.31	0.00	0.18	0.04	0.00	96.69
T768	99	7814	kimb	0.25-0.5	black	Chromite	0.12	2.17	4.07	48.80	0.34	32.95	0.40	0.12	9.09	0.04	0.24	0.11	0.00	98.44
T769	1	7814	kimb	0.25-0.5	black	Chromite	0.09	1.66	8.15	51.15	0.27	27.90	0.38	0.17	10.25	0.03	0.10	0.23	0.10	100.47
T769	5	7814	kimb	0.25-0.5	black	Chromite	0.05	0.21	7.21	59.26	0.21	21.06	0.47	0.09	11.54	0.02	0.04	0.11	0.00	100.27
T769	10	7814	kimb	0.25-0.5	black	Chromite	0.11	2.80	1.79	53.53	0.25	31.38	0.44	0.23	8.73	0.01	0.08	0.15	0.08	99.59
T769	12	7814	kimb	0.25-0.5	black	Chromite	0.05	1.97	1.03	58.00	0.33	28.87	0.43	0.13	8.73	0.00	0.02	0.21	0.00	99.78
T769	16	7814	kimb	0.25-0.5	black	Chromite	0.06	2.94	1.09	54.80	0.31	30.12	0.42	0.21	8.56	0.02	0.06	0.22	0.13	98.95
T769	17	7814	kimb	0.25-0.5	black	Chromite	0.14	0.24	17.42	47.42	0.23	21.99	0.23	0.15	12.16	0.00	0.15	0.26	0.00	100.38
T769	18	7814	kimb	0.25-0.5	black	Chromite	0.07	1.73	5.44	52.15	0.22	28.48	0.43	0.11	9.97	0.01	0.08	0.25	0.11	99.06
T769	19	7814	kimb	0.25-0.5	black	Chromite	0.09	1.17	5.04	57.05	0.17	26.62	0.26	0.10	9.24	0.05	0.07	0.15	0.00	100.01
T769	21	7814	kimb	0.25-0.5	black	Chromite	0.09	0.51	11.04	50.34	0.17	25.97	0.35	0.14	10.41	0.01	0.14	0.20	0.03	99.39
T769	22	7814	kimb	0.25-0.5	black	Chromite	0.08	0.59	9.35	48.06	0.20	30.11	0.43	0.14	10.17	0.02	0.11	0.08	0.00	99.35
T769	24	7814	kimb	0.25-0.5	black	Chromite	0.12	2.54	1.15	55.84	0.39	29.72	0.51	0.08	8.55	0.00	0.04	0.11	0.12	99.17
T769	25	7814	kimb	0.25-0.5	black	Chromite	0.06	0.06	15.13	55.76	0.31	16.40	0.24	0.18	12.72	0.01	0.13	0.24	0.00	101.23
T769	26	7814	kimb	0.25-0.5	black	Chromite	0.08	2.75	1.87	56.46	0.31	27.43	0.43	0.17	10.47	0.02	0.10	0.20	0.00	100.29
T769	28	7814	kimb	0.25-0.5	black	Chromite	0.12	2.06	1.12	58.91	0.43	26.69	0.49	0.19	9.56	0.00	0.06	0.13	0.00	99.76
T769	29	7814	kimb	0.25-0.5	black	Chromite	0.11	1.56	2.93	45.42	0.25	38.81	0.34	0.24	8.19	0.02	0.08	0.20	0.00	98.15
T769	32	7814	kimb	0.25-0.5	black	Chromite	0.08	2.44	1.27	57.47	0.28	28.44	0.51	0.15	9.03	0.05	0.07	0.13	0.00	99.91
T769	34	7814	kimb	0.25-0.5	black	Chromite	0.04	0.12	14.11	49.57	0.14	23.07	0.42	0.11	11.24	0.01	0.06	0.09	0.00	98.98
T769	35	7814	kimb	0.25-0.5	black	Chromite	0.13	1.93	4.91	51.92	0.32	30.29	0.54	0.15	9.42	0.03	0.01	0.28	0.22	100.14
T769	36	7814	kimb	0.25-0.5	black	Chromite	0.08	0.43	9.87	52.95	0.23	24.99	0.42	0.11	10.38	0.00	0.17	0.18	0.00	99.81
T769	37	7814	kimb	0.25-0.5	black	Chromite	0.10	0.23	10.86	53.26	0.25	24.02	0.48	0.13	10.68	0.04	0.04	0.23	0.00	100.30
T769	38	7814	kimb	0.25-0.5	black	Chromite	0.14	0.18	13.98	48.17	0.16	24.90	0.30	0.17	11.13	0.04	0.08	0.25	0.00	99.50
T769	39	7814	kimb	0.25-0.5	black	Chromite	0.16	0.78	8.37	52.77	0.23	26.06	0.39	0.09	9.82	0.01	0.04	0.15	0.08	98.93
T769	40	7814	kimb	0.25-0.5	black	Chromite	0.09	1.35	7.73	56.79	0.00	23.49	0.39	0.07	10.94	0.01	0.09	0.17	0.00	101.12
T769	41	7814	kimb	0.25-0.5	black	Chromite	0.05	1.87	1.08	59.94	0.28	26.11	0.45	0.05	9.31	0.02	0.05	0.24	0.01	99.47
T769	42	7814	kimb	0.25-0.5	black	Chromite	0.10	1.44	7.22	53.48	0.32	25.76	0.45	0.22	10.32	0.01	0.14	0.19	0.20	99.86
T769	43	7814	kimb	0.25-0.5	black	Chromite	0.14	0.85	3.27	57.46	0.24	26.30	0.37	0.12	10.29	0.06	0.03	0.10	0.27	99.51
T769	44	7814	kimb	0.25-0.5	black	Chromite	0.04	0.62	10.48	53.42	0.24	22.78	0.35	0.12	10.51	0.00	0.06	0.21	0.00	98.82
T769	45	7814	kimb	0.25-0.5	black	Chromite	0.12	0.00	14.50	53.70	0.30	19.48	0.33	0.14	12.41	0.00	0.05	0.17	0.03	101.23
T769	46	7814	kimb	0.25-0.5	black	Chromite	0.04	0.38	11.73	55.11	0.19	21.26	0.22	0.11	10.79	0.01	0.08	0.10	0.00	100.02
T769	47	7814	kimb	0.25-0.5	black	Chromite	0.15	0.07	14.62	54.72	0.24	17.06	0.31	0.11	12.64	0.01	0.04	0.17	0.15	100.28
T769	49	7814	kimb	0.25-0.5	black	Chromite	0.04	0.52	12.08	50.01	0.12	25.02	0.37	0.17	10.43	0.02	0.09	0.17	0.00	99.06
T769	50	7814	kimb	0.25-0.5	black	Chromite	0.07	2.42	0.94	55.25	0.45	30.20	0.42	0.10	8.26	0.04	0.04	0.06	0.00	98.26
T769	51	7814	kimb	0.25-0.5	black	Chromite	0.09	1.78	1.65	57.64	0.39	27.78	0.48	0.18	9.44	0.03	0.10	0.09	0.18	99.83
T769	52	7814	kimb	0.25-0.5	black	Chromite	0.11	1.15	7.22	51.28	0.28	28.37	0.47	0.20	9.45	0.01	0.08	0.23	0.18	99.04
T769	53	7814	kimb	0.25-0.5	black	Chromite	0.14	0.18	11.15	55.97	0.19	18.72	0.30	0.09	12.65	0.02	0.04	0.09	0.07	99.62
T769	54	7814	kimb	0.25-0.5	black	Chromite	0.09	0.43	13.32	55.08	0.36	18.85	0.23	0.12	11.69	0.04	0.13	0.25	0.00	100.59
T769	55	7814	kimb	0.25-0.5	black	Chromite	0.10	0.87	11.12	53.49	0.20	24.09	0.30	0.16	9.88	0.00	0.07	0.12	0.00	100.41
T769	56	7814	kimb	0.25-0.5	black	Chromite	0.07	0.15	13.34	53.14	0.14	20.18	0.37	0.13	11.60	0.00	0.02	0.22	0.07	99.43

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T769	57	7814	kimb	0.25-0.5	black	Chromite	0.12	0.11	13.16	53.94	0.15	18.53	0.31	0.00	12.44	0.00	0.03	0.23	0.10	99.12
T769	58	7814	kimb	0.25-0.5	black	Chromite	0.07	0.47	14.44	50.55	0.12	22.95	0.40	0.18	10.98	0.00	0.07	0.04	0.00	100.28
T769	59	7814	kimb	0.25-0.5	black	Chromite	0.08	0.39	13.51	50.59	0.08	23.27	0.38	0.02	10.61	0.02	0.01	0.22	0.00	99.19
T769	60	7814	kimb	0.25-0.5	black	Chromite	0.04	0.53	9.19	55.42	0.17	23.01	0.31	0.07	10.57	0.00	0.12	0.06	0.14	99.62
T769	61	7814	kimb	0.25-0.5	black	Chromite	0.12	0.91	10.02	55.66	0.18	20.33	0.25	0.16	12.12	0.00	0.05	0.17	0.25	100.21
T769	62	7814	kimb	0.25-0.5	black	Chromite	0.10	0.23	11.35	53.22	0.33	22.88	0.44	0.09	10.95	0.00	0.08	0.28	0.03	99.99
T769	63	7814	kimb	0.25-0.5	black	Chromite	0.10	0.63	1.88	60.46	0.23	25.92	0.38	0.04	9.38	0.06	0.06	0.11	0.00	99.24
T769	64	7814	kimb	0.25-0.5	black	Chromite	0.13	0.69	10.78	50.78	0.31	27.50	0.36	0.16	9.94	0.07	0.03	0.22	0.18	101.14
T769	65	7814	kimb	0.25-0.5	black	Chromite	0.12	0.39	9.50	56.03	0.24	21.65	0.39	0.08	11.80	0.00	0.07	0.18	0.00	100.44
T769	66	7814	kimb	0.25-0.5	black	Chromite	0.11	0.28	10.44	53.00	0.20	24.28	0.34	0.16	10.49	0.02	0.12	0.30	0.00	99.73
T769	67	7814	kimb	0.25-0.5	black	Chromite	0.05	0.48	11.04	51.48	0.12	24.86	0.32	0.08	10.58	0.00	0.04	0.20	0.00	99.26
T769	68	7814	kimb	0.25-0.5	black	Chromite	0.06	1.38	6.61	52.12	0.30	28.39	0.38	0.13	9.46	0.00	0.07	0.17	0.07	99.14
T769	69	7814	kimb	0.25-0.5	black	Chromite	0.08	2.47	1.02	54.32	0.29	31.03	0.55	0.18	8.25	0.00	0.05	0.08	0.00	98.30
T769	70	7814	kimb	0.25-0.5	black	Chromite	0.06	0.56	10.05	45.41	0.17	31.13	0.40	0.21	9.90	0.05	0.11	0.09	0.08	98.23
T769	71	7814	kimb	0.25-0.5	black	Chromite	0.11	0.06	9.06	58.54	0.08	19.79	0.22	0.05	12.02	0.05	0.10	0.08	0.00	100.15
T769	72	7814	kimb	0.25-0.5	black	Chromite	0.07	0.15	13.72	49.93	0.25	23.09	0.38	0.00	11.38	0.00	0.04	0.10	0.00	99.12
T769	73	7814	kimb	0.25-0.5	black	Chromite	0.04	1.41	1.04	62.25	0.37	24.27	0.50	0.11	9.63	0.04	0.05	0.11	0.00	99.83
T769	74	7814	kimb	0.25-0.5	black	Chromite	0.08	0.52	9.53	52.82	0.21	24.97	0.38	0.03	10.55	0.02	0.13	0.10	0.15	99.50
T769	76	7814	kimb	0.25-0.5	black	Chromite	0.11	2.91	1.61	51.79	0.28	32.05	0.42	0.28	8.92	0.02	0.09	0.10	0.00	98.59
T769	77	7814	kimb	0.25-0.5	black	Chromite	0.09	0.89	7.49	51.90	0.23	27.02	0.46	0.11	9.56	0.01	0.17	0.22	0.07	98.22
T769	78	7814	kimb	0.25-0.5	black	Chromite	0.11	0.13	11.96	56.71	0.28	18.59	0.29	0.12	12.65	0.01	0.19	0.11	0.03	101.18
T769	79	7814	kimb	0.25-0.5	black	Chromite	0.09	0.63	8.62	56.50	0.29	21.22	0.21	0.20	11.37	0.04	0.12	0.09	0.00	99.38
T769	80	7814	kimb	0.25-0.5	black	Chromite	0.07	1.33	10.03	51.42	0.21	26.04	0.37	0.08	10.28	0.01	0.08	0.15	0.03	100.09
T769	81	7814	kimb	0.25-0.5	black	Chromite	0.06	0.60	12.62	51.44	0.27	21.82	0.30	0.19	11.86	0.01	0.02	0.24	0.11	99.55
T769	82	7814	kimb	0.25-0.5	black	Chromite	0.08	0.43	15.01	46.16	0.25	25.44	0.30	0.20	11.03	0.05	0.09	0.21	0.00	99.24
T769	83	7814	kimb	0.25-0.5	black	Chromite	0.16	0.77	9.74	43.27	0.23	34.12	0.42	0.22	10.25	0.04	0.19	0.17	0.21	99.76
T769	84	7814	kimb	0.25-0.5	black	Chromite	0.12	0.10	9.01	55.35	0.14	22.03	0.33	0.14	11.82	0.01	0.07	0.06	0.27	99.46
T769	85	7814	kimb	0.25-0.5	black	Chromite	0.13	0.34	17.64	44.48	0.11	24.44	0.36	0.15	12.08	0.01	0.08	0.14	0.07	100.03
T769	86	7814	kimb	0.25-0.5	black	Chromite	0.16	0.48	13.61	50.34	0.20	22.80	0.28	0.12	12.05	0.00	0.22	0.11	0.00	100.38
T769	87	7814	kimb	0.25-0.5	black	Chromite	0.10	2.19	1.07	56.58	0.32	29.32	0.48	0.18	8.56	0.04	0.03	0.26	0.00	99.14
T769	88	7814	kimb	0.25-0.5	black	Chromite	0.02	0.64	10.18	51.72	0.16	24.34	0.45	0.19	10.96	0.03	0.14	0.16	0.11	99.10
T769	90	7814	kimb	0.25-0.5	black	Chromite	0.03	0.09	13.08	54.40	0.11	18.21	0.33	0.06	12.36	0.01	0.12	0.28	0.00	99.08
T769	91	7814	kimb	0.25-0.5	black	Chromite	0.08	0.39	17.90	43.87	0.16	23.71	0.35	0.19	11.83	0.03	0.04	0.20	0.10	98.86
T769	92	7814	kimb	0.25-0.5	black	Chromite	0.05	0.42	9.73	55.47	0.21	21.13	0.38	0.04	11.39	0.00	0.05	0.08	0.00	98.94
T769	93	7814	kimb	0.25-0.5	black	Chromite	0.07	0.63	13.58	53.88	0.20	18.23	0.24	0.06	12.71	0.00	0.05	0.20	0.01	99.87
T808	22	7814	kimb	0.25-0.5	black	Cr-spinel	0.09	0.01	31.45	41.13	0.14	12.91	0.17	0.08	16.83	0.00	0.18	0.14	0.00	103.12
T808	23	7814	kimb	0.25-0.5	black	Chromite	0.04	2.20	1.11	57.68	0.41	28.57	0.49	0.19	8.85	0.01	0.00	0.20	0.05	99.78
T808	25	7814	kimb	0.25-0.5	black	Chromite	0.13	0.07	18.25	52.66	0.17	16.63	0.34	0.05	13.36	0.02	0.07	0.03	0.00	101.76
T808	27	7814	kimb	0.25-0.5	black	Chromite	0.05	2.78	2.07	57.53	0.52	25.95	0.28	0.19	10.73	0.00	0.04	0.19	0.05	100.39
T808	28	7814	kimb	0.25-0.5	black	Chromite	0.07	0.87	8.16	51.89	0.35	27.67	0.28	0.18	10.61	0.00	0.08	0.22	0.15	100.53
T808	30	7814	kimb	0.25-0.5	black	Chromite	0.02	0.21	14.81	52.72	0.52	19.71	0.26	0.12	12.26	0.01	0.08	0.19	0.00	100.92
T808	32	7814	kimb	0.25-0.5	black	Chromite	0.05	2.17	2.68	52.40	0.35	30.27	0.41	0.24	10.05	0.03	0.09	0.12	0.01	98.87
T808	33	7814	kimb	0.25-0.5	black	Chromite	0.04	0.02	16.59	35.70	0.17	10.27	0.26	0.23	10.92	0.01	0.07	0.16	0.08	74.50
T808	34	7814	kimb	0.25-0.5	black	Chromite	0.13	0.03	16.20	49.79	0.19	22.71	0.33	0.15	12.17	0.01	0.05	0.25	0.00	102.01
T808	36	7814	kimb	0.25-0.5	black	Chromite	0.06	0.20	8.83	54.59	0.38	20.73	0.22	0.11	11.65	0.04	0.04	0.05	0.00	96.91
T808	37	7814	kimb	0.25-0.5	black	Chromite	0.01	2.86	1.34	55.15	0.27	29.54	0.52	0.19	9.48	0.01	0.12	0.03	0.00	99.52

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T808	38	7814	kimb	0.25-0.5	black	Chromite	0.04	1.44	5.77	44.84	0.23	36.67	0.45	0.24	9.03	0.00	0.00	0.13	0.00	98.84
T808	42	7814	kimb	0.25-0.5	black	Chromite	0.01	0.30	9.13	57.85	0.22	21.46	0.42	0.13	11.76	0.00	0.00	0.10	0.00	101.36
T808	43	7814	kimb	0.25-0.5	black	Chromite	0.05	2.31	1.92	56.76	0.34	27.99	0.52	0.17	9.63	0.05	0.07	0.10	0.00	99.90
T808	44	7814	kimb	0.25-0.5	black	Chromite	0.04	1.05	5.70	55.91	0.25	27.47	0.43	0.05	9.97	0.01	0.13	0.03	0.12	101.16
T808	47	7814	kimb	0.25-0.5	black	Chromite	0.11	0.54	12.44	51.47	0.24	25.90	0.37	0.19	10.86	0.02	0.09	0.11	0.00	102.35
T808	48	7814	kimb	0.25-0.5	black	Chromite	0.04	0.48	15.94	44.73	0.26	27.16	0.41	0.23	11.12	0.02	0.16	0.11	0.00	100.67
T808	49	7814	kimb	0.25-0.5	black	Chromite	0.04	0.02	15.39	52.69	0.10	19.61	0.37	0.04	12.58	0.00	0.10	0.17	0.03	101.14
T808	53	7814	kimb	0.25-0.5	black	Chromite	0.03	1.51	6.50	53.04	0.35	28.78	0.35	0.14	9.74	0.04	0.01	0.08	0.31	100.88
T808	54	7814	kimb	0.25-0.5	black	Chromite	0.00	0.16	14.28	55.03	0.30	19.63	0.27	0.00	12.73	0.03	0.16	0.08	0.00	102.67
T808	55	7814	kimb	0.25-0.5	black	Chromite	0.08	3.12	2.18	54.54	0.46	28.53	0.38	0.13	9.71	0.02	0.09	0.09	0.00	99.33
T808	56	7814	kimb	0.25-0.5	black	Cr-spinel	0.04	0.02	32.25	40.48	0.14	12.63	0.17	0.28	15.87	0.00	0.17	0.12	0.04	102.21
T808	57	7814	kimb	0.25-0.5	black	Chromite	0.03	0.11	14.16	56.75	0.28	15.98	0.28	0.01	12.89	0.00	0.05	0.23	0.00	100.78
T808	59	7814	kimb	0.25-0.5	black	Chromite	0.01	0.18	14.16	57.15	0.18	16.64	0.29	0.09	12.34	0.04	0.05	0.12	0.00	101.25
T808	60	7814	kimb	0.25-0.5	black	Chromite	0.00	0.20	10.85	56.67	0.16	21.32	0.36	0.08	11.79	0.04	0.04	0.20	0.17	101.88
T808	61	7814	kimb	0.25-0.5	black	Chromite	0.05	0.36	10.97	52.99	0.09	25.23	0.35	0.14	11.01	0.00	0.09	0.28	0.07	101.62
T808	62	7814	kimb	0.25-0.5	black	Chromite	0.01	0.23	9.73	56.58	0.18	22.21	0.34	0.12	11.66	0.03	0.12	0.17	0.00	101.39
T808	63	7814	kimb	0.25-0.5	black	Chromite	0.03	0.40	10.49	55.02	0.20	22.11	0.26	0.14	11.83	0.02	0.08	0.07	0.10	100.74
T808	64	7814	kimb	0.25-0.5	black	Chromite	0.06	0.53	10.93	52.43	0.17	25.17	0.23	0.15	11.05	0.04	0.17	0.26	0.00	101.20
T808	65	7814	kimb	0.25-0.5	black	Chromite	0.05	0.12	13.07	54.65	0.24	20.16	0.31	0.12	12.46	0.02	0.02	0.29	0.01	101.54
T808	66	7814	kimb	0.25-0.5	black	Chromite	0.07	0.40	11.83	51.88	0.29	25.22	0.32	0.23	10.68	0.01	0.05	0.20	0.21	101.39
T808	67	7814	kimb	0.25-0.5	black	Chromite	0.04	0.12	9.74	56.03	0.14	23.74	0.24	0.04	10.90	0.04	0.09	0.22	0.00	101.35
T808	68	7814	kimb	0.25-0.5	black	Chromite	0.07	0.19	11.86	52.99	0.06	24.08	0.39	0.08	11.13	0.03	0.07	0.16	0.00	101.11
T808	69	7814	kimb	0.25-0.5	black	Chromite	0.02	0.08	12.31	53.79	0.26	21.92	0.30	0.02	11.52	0.01	0.04	0.17	0.00	100.44
T808	70	7814	kimb	0.25-0.5	black	Chromite	0.08	0.12	14.64	53.60	0.20	20.40	0.31	0.15	12.57	0.00	0.15	0.17	0.06	102.45
T808	71	7814	kimb	0.25-0.5	black	Chromite	0.06	0.11	14.35	56.16	0.17	18.00	0.22	0.06	12.67	0.00	0.06	0.15	0.04	102.06
T808	72	7814	kimb	0.25-0.5	black	Chromite	0.10	0.76	10.15	51.52	0.30	26.96	0.48	0.12	10.62	0.03	0.13	0.20	0.07	101.44
T808	73	7814	kimb	0.25-0.5	black	Chromite	0.08	0.17	14.49	55.68	0.26	18.09	0.24	0.03	12.26	0.00	0.12	0.08	0.14	101.64
T808	74	7814	kimb	0.25-0.5	black	Chromite	0.09	0.08	13.78	56.50	0.22	18.67	0.30	0.12	12.73	0.00	0.09	0.17	0.21	102.95
T808	75	7814	kimb	0.25-0.5	black	Chromite	0.11	0.27	11.04	52.45	0.23	26.22	0.31	0.20	10.26	0.04	0.07	0.21	0.00	101.41
T808	76	7814	kimb	0.25-0.5	black	Chromite	0.03	0.40	11.45	52.05	0.22	25.09	0.41	0.02	10.97	0.00	0.06	0.20	0.06	100.96
T808	77	7814	kimb	0.25-0.5	black	Chromite	0.05	0.52	12.01	51.76	0.27	23.55	0.38	0.16	11.44	0.00	0.08	0.26	0.00	100.46
T808	78	7814	kimb	0.25-0.5	black	Chromite	0.04	0.69	4.48	58.76	0.37	24.89	0.34	0.07	10.60	0.00	0.08	0.13	0.00	100.45
T808	79	7814	kimb	0.25-0.5	black	Chromite	0.07	0.38	11.24	53.96	0.13	22.54	0.31	0.03	11.25	0.03	0.03	0.24	0.00	100.21
T808	80	7814	kimb	0.25-0.5	black	Chromite	0.05	0.06	14.75	51.93	0.18	21.17	0.42	0.15	12.26	0.02	0.08	0.14	0.00	101.20
T808	81	7814	kimb	0.25-0.5	black	Chromite	0.01	0.33	9.94	55.34	0.16	23.91	0.27	0.03	11.19	0.00	0.11	0.15	0.00	101.44
T808	82	7814	kimb	0.25-0.5	black	Chromite	0.04	0.12	10.39	57.66	0.28	20.68	0.35	0.09	12.09	0.03	0.05	0.16	0.00	101.95
T808	83	7814	kimb	0.25-0.5	black	Chromite	0.02	0.49	3.29	44.42	0.30	20.53	0.37	0.08	5.55	0.01	0.03	0.14	0.18	75.39
T808	84	7814	kimb	0.25-0.5	black	Chromite	0.06	0.62	11.71	50.03	0.13	26.36	0.40	0.11	10.85	0.01	0.06	0.14	0.00	100.46
T808	85	7814	kimb	0.25-0.5	black	Chromite	0.03	0.60	7.91	54.44	0.26	26.95	0.31	0.06	9.77	0.00	0.07	0.23	0.06	100.67
T808	86	7814	kimb	0.25-0.5	black	Chromite	0.06	0.10	10.92	56.50	0.28	20.56	0.37	0.10	12.34	0.00	0.07	0.16	0.07	101.54
T808	87	7814	kimb	0.25-0.5	black	Chromite	0.08	1.06	9.93	50.62	0.15	27.20	0.38	0.19	10.55	0.01	0.13	0.09	0.07	100.45
T808	88	7814	kimb	0.25-0.5	black	Chromite	0.04	0.47	6.79	58.16	0.26	24.58	0.48	0.08	10.44	0.03	0.13	0.25	0.00	101.71
T808	89	7814	kimb	0.25-0.5	black	Chromite	0.04	0.21	10.69	56.30	0.17	20.53	0.24	0.13	12.21	0.01	0.06	0.11	0.25	100.94
T808	90	7814	kimb	0.25-0.5	black	Chromite	0.04	0.48	10.31	52.83	0.16	25.53	0.41	0.14	10.30	0.00	0.06	0.26	0.00	100.53
T808	91	7814	kimb	0.25-0.5	black	Chromite	0.02	1.06	9.23	50.56	0.21	27.75	0.40	0.13	10.35	0.01	0.13	0.19	0.00	100.05
T808	92	7814	kimb	0.25-0.5	black	Chromite	0.00	0.32	12.40	56.48	0.24	18.69	0.28	0.01	12.57	0.02	0.05	0.21	0.00	101.27

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T808	93	7814	kimb	0.25-0.5	black	Chromite	0.02	0.07	16.23	55.51	0.31	15.33	0.30	0.07	13.45	0.01	0.19	0.17	0.00	101.66
T808	94	7814	kimb	0.25-0.5	black	Chromite	0.02	0.09	15.59	53.28	0.25	18.67	0.30	0.03	12.93	0.01	0.00	0.18	0.00	101.35
T808	95	7814	kimb	0.25-0.5	black	Chromite	0.10	0.32	19.25	43.81	0.17	24.81	0.22	0.18	12.11	0.00	0.00	0.11	0.06	101.14
T808	97	7814	kimb	0.25-0.5	black	Chromite	0.04	0.13	12.59	53.33	0.19	22.01	0.33	0.05	11.27	0.02	0.06	0.23	0.00	100.24
T808	98	7814	kimb	0.25-0.5	black	Chromite	0.01	0.37	7.20	58.68	0.12	22.77	0.51	0.08	10.92	0.00	0.00	0.22	0.00	100.89
T808	99	7814	kimb	0.25-0.5	black	Chromite	0.07	1.03	8.76	52.49	0.25	27.18	0.42	0.15	9.93	0.00	0.08	0.10	0.00	100.47
T808	100	7814	kimb	0.25-0.5	black	Chromite	0.00	0.00	6.95	44.38	0.27	14.53	0.24	0.06	7.85	0.00	0.10	0.09	0.00	74.46
T808	101	7814	kimb	0.25-0.5	black	Chromite	0.07	0.60	7.88	54.49	0.17	26.49	0.41	0.04	9.77	0.00	0.06	0.29	0.00	100.27
T808	102	7814	kimb	0.25-0.5	black	Chromite	0.03	2.44	1.01	57.10	0.27	29.91	0.42	0.15	8.61	0.03	0.07	0.19	0.23	100.47
T808	103	7814	kimb	0.25-0.5	black	Chromite	0.06	0.49	13.47	52.73	0.22	21.28	0.23	0.09	12.33	0.00	0.12	0.09	0.17	101.30
T808	104	7814	kimb	0.25-0.5	black	Chromite	0.06	0.35	11.91	51.66	0.24	24.29	0.38	0.10	11.25	0.00	0.04	0.30	0.01	100.58
T808	105	7814	kimb	0.25-0.5	black	Chromite	0.10	0.43	9.49	55.57	0.21	24.42	0.43	0.13	10.33	0.00	0.09	0.22	0.14	101.55
T808	106	7814	kimb	0.25-0.5	black	Chromite	0.02	0.46	14.84	54.87	0.20	16.56	0.25	0.06	13.01	0.01	0.04	0.24	0.17	100.73
T808	107	7814	kimb	0.25-0.5	black	Chromite	0.00	0.47	17.81	48.75	0.19	21.30	0.31	0.08	11.81	0.03	0.12	0.17	0.00	101.03
T808	108	7814	kimb	0.25-0.5	black	Chromite	0.06	0.82	10.07	53.90	0.41	24.36	0.39	0.17	11.21	0.03	0.12	0.12	0.00	101.65
T808	108t	7814	kimb	0.25-0.5	black	Chromite	0.03	0.76	9.88	53.77	0.22	24.58	0.46	0.04	11.09	0.01	0.07	0.16	0.00	101.07
T809	1	7814	kimb	0.25-0.5	black	Chromite	0.05	0.62	10.79	51.21	0.16	26.68	0.45	0.13	10.17	0.02	0.10	0.26	0.00	100.63
T809	2	7814	kimb	0.25-0.5	black	Chromite	0.05	0.25	11.96	53.88	0.10	22.24	0.33	0.19	11.80	0.03	0.00	0.17	0.03	101.04
T809	3	7814	kimb	0.25-0.5	black	Chromite	0.06	2.39	1.00	57.23	0.27	30.07	0.39	0.24	8.51	0.03	0.00	0.11	0.00	100.29
T809	4	7814	kimb	0.25-0.5	black	Chromite	0.04	0.32	11.48	56.86	0.11	20.26	0.37	0.10	11.08	0.00	0.06	0.09	0.00	100.77
T809	5	7814	kimb	0.25-0.5	black	Chromite	0.05	0.04	15.67	55.73	0.17	15.98	0.26	0.00	12.97	0.00	0.06	0.07	0.18	101.18
T809	6	7814	kimb	0.25-0.5	black	Chromite	0.09	0.11	12.13	53.54	0.32	21.94	0.28	0.04	10.86	0.02	0.09	0.14	0.01	99.57
T809	7	7814	kimb	0.25-0.5	black	Chromite	0.05	0.17	10.41	53.89	0.26	24.20	0.34	0.12	10.79	0.01	0.06	0.24	0.00	100.55
T809	8	7814	kimb	0.25-0.5	black	Chromite	0.02	0.29	13.59	52.11	0.15	22.52	0.37	0.07	10.77	0.02	0.09	0.14	0.11	100.24
T809	9	7814	kimb	0.25-0.5	black	Chromite	0.08	0.63	8.11	55.02	0.39	25.71	0.50	0.19	10.20	0.02	0.04	0.20	0.13	101.21
T809	10	7814	kimb	0.25-0.5	black	Chromite	0.01	0.11	15.03	53.06	0.25	19.18	0.18	0.16	13.21	0.03	0.11	0.30	0.00	101.65
T809	11	7814	kimb	0.25-0.5	black	Chromite	0.04	0.16	10.60	56.23	0.33	19.73	0.24	0.07	12.03	0.00	0.11	0.11	0.06	99.69
T809	12	7814	kimb	0.25-0.5	black	Chromite	0.03	0.51	13.57	50.01	0.26	24.70	0.41	0.14	10.89	0.00	0.11	0.03	0.00	100.66
T809	13	7814	kimb	0.25-0.5	black	Chromite	0.05	0.07	12.66	50.98	0.14	23.44	0.38	0.10	11.16	0.00	0.07	0.12	0.11	99.27
T809	14	7814	kimb	0.25-0.5	black	Chromite	0.03	0.20	11.86	53.31	0.10	23.06	0.34	0.09	10.84	0.04	0.06	0.24	0.15	100.32
T809	15	7814	kimb	0.25-0.5	black	Chromite	0.00	0.56	13.58	50.85	0.13	22.11	0.40	0.07	11.95	0.05	0.00	0.17	0.03	99.89
T809	16	7814	kimb	0.25-0.5	black	Chromite	0.05	0.35	7.26	58.99	0.19	22.41	0.38	0.09	10.52	0.03	0.05	0.18	0.00	100.49
T809	17	7814	kimb	0.25-0.5	black	Chromite	0.00	0.52	9.14	51.97	0.26	26.74	0.25	0.16	9.88	0.02	0.05	0.18	0.00	99.18
T809	18	7814	kimb	0.25-0.5	black	Chromite	0.03	0.73	10.79	49.81	0.34	27.44	0.43	0.17	10.32	0.02	0.09	0.24	0.03	100.45
T809	19	7814	kimb	0.25-0.5	black	Chromite	0.07	0.16	11.20	53.93	0.24	23.93	0.42	0.10	10.67	0.00	0.04	0.10	0.00	100.84
T809	20	7814	kimb	0.25-0.5	black	Chromite	0.02	0.29	13.86	57.34	0.29	15.73	0.31	0.16	13.25	0.02	0.05	0.14	0.21	101.67
T809	21	7814	kimb	0.25-0.5	black	Chromite	0.04	0.16	15.85	54.88	0.26	16.63	0.19	0.06	12.52	0.00	0.07	0.18	0.00	100.83
T809	23	7814	kimb	0.25-0.5	black	Chromite	0.10	0.38	11.16	50.86	0.14	25.10	0.36	0.13	10.68	0.00	0.06	0.17	0.18	99.34
T809	24	7814	kimb	0.25-0.5	black	Chromite	0.04	0.43	12.13	47.02	0.20	29.26	0.46	0.23	10.26	0.00	0.08	0.24	0.10	100.44
T809	25	7814	kimb	0.25-0.5	black	Chromite	0.06	0.96	8.95	48.25	0.30	31.59	0.29	0.10	8.92	0.02	0.12	0.18	0.08	99.82
T809	26	7814	kimb	0.25-0.5	black	Chromite	0.07	0.10	12.47	56.55	0.25	18.52	0.21	0.09	12.91	0.02	0.04	0.10	0.04	101.36
T809	27	7814	kimb	0.25-0.5	black	Chromite	0.02	0.14	15.34	52.20	0.18	19.19	0.33	0.09	12.76	0.00	0.14	0.25	0.00	100.64
T809	28	7814	kimb	0.25-0.5	black	Chromite	0.06	0.28	11.37	52.25	0.18	26.20	0.43	0.19	9.92	0.00	0.06	0.10	0.00	101.05
T809	30	7814	kimb	0.25-0.5	black	Chromite	0.09	0.05	14.12	55.22	0.30	17.81	0.27	0.04	12.51	0.00	0.02	0.20	0.10	100.72
T809	31	7814	kimb	0.25-0.5	black	Chromite	0.10	2.03	4.08	52.65	0.32	30.01	0.45	0.17	9.22	0.01	0.10	0.23	0.00	99.36
T809	32	7814	kimb	0.25-0.5	black	Chromite	0.00	0.25	11.07	54.18	0.13	22.76	0.30	0.09	11.46	0.01	0.00	0.19	0.03	100.47

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T809	33	7814	kimb	0.25-0.5	black	Chromite	0.00	0.42	9.40	55.51	0.18	21.98	0.33	0.09	10.85	0.01	0.05	0.19	0.28	99.32
T809	34	7814	kimb	0.25-0.5	black	Chromite	0.02	0.46	10.49	52.69	0.19	24.13	0.42	0.09	10.19	0.01	0.13	0.24	0.01	99.09
T809	35	7814	kimb	0.25-0.5	black	Chromite	0.08	1.00	6.12	55.61	0.16	26.82	0.38	0.14	9.79	0.01	0.11	0.15	0.22	100.59
T809	36	7814	kimb	0.25-0.5	black	Chromite	0.06	0.18	14.27	55.14	0.32	17.89	0.29	0.10	12.91	0.02	0.08	0.12	0.00	101.38
T809	37	7814	kimb	0.25-0.5	black	Chromite	0.08	0.27	14.30	52.20	0.30	20.03	0.18	0.11	12.27	0.01	0.09	0.10	0.00	99.95
T809	38	7814	kimb	0.25-0.5	black	Chromite	0.04	0.06	12.65	55.59	0.00	17.83	0.26	0.05	12.98	0.01	0.09	0.18	0.17	99.91
T809	39	7814	kimb	0.25-0.5	black	Chromite	0.03	0.51	12.76	51.44	0.13	23.75	0.35	0.10	11.01	0.00	0.06	0.16	0.07	100.38
T809	40	7814	kimb	0.25-0.5	black	Chromite	0.03	0.57	12.79	50.32	0.24	24.16	0.36	0.11	11.44	0.03	0.04	0.21	0.00	100.30
T809	41	7814	kimb	0.25-0.5	black	Chromite	0.05	0.18	13.91	53.20	0.33	17.78	0.32	0.13	14.12	0.02	0.10	0.27	0.00	100.41
T809	43	7814	kimb	0.25-0.5	black	Chromite	0.14	0.26	10.09	52.06	0.17	22.23	0.34	0.10	10.72	0.10	0.11	0.27	0.07	96.65
T809	44	7814	kimb	0.25-0.5	black	Chromite	0.07	0.12	12.54	52.05	0.30	22.48	0.37	0.05	11.06	0.01	0.03	0.22	0.00	99.29
T789	60	7814	kimb	0.5-1.0	black	Chromite	0.08	0.05	15.38	56.38	0.16	15.45	0.30	0.01	13.17	0.00	0.03	0.14	0.08	101.15
T789	62	7814	kimb	0.5-1.0	black	Chromite	0.07	2.30	1.28	57.65	0.35	29.16	0.46	0.16	9.11	0.00	0.13	0.19	0.05	100.84
T789	63	7814	kimb	0.5-1.0	black	Chromite	0.04	2.82	1.72	52.67	0.36	31.28	0.52	0.19	8.97	0.03	0.02	0.09	0.00	98.68
T789	70	7814	kimb	0.5-1.0	black	Chromite	0.05	0.12	13.96	54.51	0.24	19.16	0.32	0.15	12.46	0.04	0.09	0.34	0.19	101.60
T789	72	7814	kimb	0.5-1.0	black	Ti-Chromite	0.04	3.31	3.40	48.69	0.36	33.25	0.55	0.17	9.10	0.00	0.08	0.01	0.18	99.10
T789	74	7814	kimb	0.5-1.0	black	Chromite	0.03	0.24	15.66	54.67	0.35	16.88	0.31	0.07	12.63	0.01	0.05	0.23	0.06	101.18
T789	79	7814	kimb	0.5-1.0	black	Chromite	0.02	0.09	16.54	53.35	0.27	16.97	0.30	0.13	13.10	0.01	0.00	0.16	0.00	100.92
T789	80	7814	kimb	0.5-1.0	black	Chromite	0.04	0.32	12.21	53.30	0.31	23.19	0.32	0.10	10.04	0.01	0.00	0.15	0.00	99.95
T789	82	7814	kimb	0.5-1.0	black	Chromite	0.06	0.26	15.20	47.59	0.08	25.03	0.48	0.09	11.01	0.05	0.04	0.18	0.00	99.99
T789	84	7814	kimb	0.5-1.0	black	Chromite	0.04	1.96	2.03	54.17	0.35	31.33	0.55	0.19	8.69	0.01	0.04	0.20	0.00	99.51
T789	85	7814	kimb	0.5-1.0	black	Ti-Chromite	0.05	3.51	1.51	52.52	0.34	31.21	0.39	0.16	9.30	0.00	0.00	0.24	0.22	99.41
T789	85	7814	kimb	0.5-1.0	black	Ti-Chromite	0.08	3.44	1.41	52.61	0.38	31.56	0.46	0.22	9.30	0.03	0.05	0.05	0.06	99.55
T793	1	7814	kimb	0.5-1.0	black	Chromite	0.06	0.09	15.24	54.11	0.25	17.33	0.33	0.08	13.06	0.00	0.06	0.21	0.14	100.91
T793	2	7814	kimb	0.5-1.0	black	Chromite	0.04	0.06	14.34	54.33	0.21	18.95	0.29	0.03	12.45	0.03	0.13	0.12	0.10	101.04
T793	3	7814	kimb	0.5-1.0	black	Chromite	0.06	0.13	10.37	58.89	0.10	18.92	0.27	0.08	12.16	0.00	0.07	0.10	0.00	101.10
T793	4	7814	kimb	0.5-1.0	black	Chromite	0.00	1.07	13.11	51.28	0.16	22.86	0.34	0.18	11.12	0.01	0.13	0.09	0.11	100.45
T793	5	7814	kimb	0.5-1.0	black	Chromite	0.00	2.20	2.04	54.98	0.22	30.68	0.45	0.14	8.93	0.00	0.14	0.08	0.00	99.85
T793	7	7814	kimb	0.5-1.0	black	Chromite	0.11	0.12	13.36	57.02	0.34	16.51	0.25	0.00	12.73	0.04	0.10	0.23	0.22	100.92
T793	8	7814	kimb	0.5-1.0	black	Chromite	0.03	0.27	17.23	48.92	0.08	21.34	0.36	0.15	11.95	0.03	0.02	0.22	0.00	100.56
T793	9	7814	kimb	0.5-1.0	black	Chromite	0.09	0.49	13.41	51.47	0.20	22.36	0.44	0.13	11.08	0.07	0.12	0.29	0.06	100.11
T793	10	7814	kimb	0.5-1.0	black	Chromite	0.03	1.55	10.00	54.43	0.30	22.76	0.31	0.10	10.45	0.02	0.05	0.05	0.07	100.08
T793	11	7814	kimb	0.5-1.0	black	Chromite	0.03	0.45	10.41	54.89	0.41	22.28	0.37	0.21	11.36	0.00	0.00	0.00	0.19	100.57
T793	12	7814	kimb	0.5-1.0	black	Chromite	0.09	0.09	15.32	51.88	0.27	19.97	0.26	0.12	12.84	0.02	0.07	0.08	0.00	100.92
T793	13	7814	kimb	0.5-1.0	black	Chromite	0.06	2.42	0.91	53.92	0.31	32.16	0.47	0.13	8.23	0.02	0.11	0.08	0.07	98.82
T793	14	7814	kimb	0.5-1.0	black	Chromite	0.03	0.94	6.40	57.46	0.19	24.41	0.24	0.02	9.87	0.01	0.05	0.05	0.00	99.64
T793	15	7814	kimb	0.5-1.0	black	Chromite	0.02	0.08	13.70	54.40	0.29	19.33	0.31	0.05	11.95	0.00	0.09	0.17	0.03	100.39
T793	16	7814	kimb	0.5-1.0	black	Chromite	0.05	0.36	19.26	45.02	0.09	22.35	0.30	0.16	12.40	0.00	0.07	0.20	0.00	100.21
T793	17	7814	kimb	0.5-1.0	black	Chromite	0.04	0.81	10.30	51.16	0.28	25.43	0.36	0.21	10.69	0.00	0.03	0.12	0.07	99.45
T793	18	7814	kimb	0.5-1.0	black	Chromite	0.06	1.17	11.79	52.41	0.10	23.25	0.43	0.09	10.51	0.02	0.07	0.21	0.00	100.05
T793	19	7814	kimb	0.5-1.0	black	Chromite	0.03	0.29	15.21	53.80	0.30	18.97	0.26	0.09	11.65	0.00	0.07	0.12	0.03	100.77
T793	24	7814	kimb	0.5-1.0	black	Chromite	0.07	0.62	8.92	57.70	0.10	21.89	0.46	0.10	10.26	0.01	0.07	0.08	0.07	100.26
T793	25	7814	kimb	0.5-1.0	black	Chromite	0.03	0.65	13.59	50.93	0.07	23.12	0.37	0.14	10.60	0.00	0.07	0.26	0.00	99.80
T793	26	7814	kimb	0.5-1.0	black	Chromite	0.01	1.49	2.52	48.75	0.37	36.62	0.40	0.22	7.58	0.03	0.05	0.22	0.00	98.25
T793	27	7814	kimb	0.5-1.0	black	Chromite	0.08	0.17	8.35	56.55	0.19	22.37	0.35	0.08	10.72	0.00	0.03	0.28	0.12	99.22
T793	28	7814	kimb	0.5-1.0	black	Ti-Chromite	0.01	3.74	1.30	49.99	0.32	34.37	0.47	0.24	8.08	0.00	0.04	0.07	0.29	98.91

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T793	29	7814	kimb	0.5-1.0	black	Chromite	0.05	1.04	12.19	50.64	0.24	24.52	0.30	0.13	10.02	0.00	0.10	0.09	0.00	99.25
T793	30	7814	kimb	0.5-1.0	black	Chromite	0.07	0.80	13.65	54.27	0.37	19.22	0.32	0.10	12.29	0.00	0.00	0.25	0.00	101.28
T793	31	7814	kimb	0.5-1.0	black	Chromite	0.08	0.41	5.60	56.41	0.07	24.76	0.46	0.21	10.45	0.00	0.05	0.12	0.00	98.54
T793	32	7814	kimb	0.5-1.0	black	Chromite	0.00	2.04	1.99	55.47	0.37	29.72	0.43	0.27	9.39	0.00	0.09	0.25	0.03	100.04
T793	33	7814	kimb	0.5-1.0	black	Chromite	0.03	0.48	10.50	53.70	0.16	23.29	0.28	0.11	10.98	0.00	0.15	0.17	0.00	99.83
T793	34	7814	kimb	0.5-1.0	black	Chromite	0.03	0.13	11.12	55.11	0.25	21.52	0.42	0.14	11.32	0.00	0.02	0.26	0.19	100.48
T793	35	7814	kimb	0.5-1.0	black	Chromite	0.07	0.20	13.66	51.37	0.16	21.93	0.35	0.17	11.56	0.01	0.11	0.17	0.00	99.69
T793	36	7814	kimb	0.5-1.0	black	Chromite	0.07	0.52	17.00	51.84	0.23	17.39	0.27	0.10	13.08	0.03	0.12	0.05	0.00	100.62
T793	37	7814	kimb	0.5-1.0	black	Chromite	0.07	0.14	13.23	53.80	0.20	19.78	0.28	0.15	12.29	0.00	0.09	0.15	0.00	100.12
T793	39	7814	kimb	0.5-1.0	black	Chromite	0.08	0.00	15.94	55.21	0.14	15.29	0.35	0.07	13.95	0.00	0.04	0.19	0.00	101.19
T793	40	7814	kimb	0.5-1.0	black	Chromite	0.10	1.11	8.72	53.33	0.27	23.05	0.40	0.06	11.38	0.03	0.12	0.18	0.07	98.70
T793	41	7814	kimb	0.5-1.0	black	Chromite	0.04	2.59	1.37	55.86	0.34	29.49	0.50	0.14	9.13	0.05	0.11	0.15	0.00	99.72
T793	42	7814	kimb	0.5-1.0	black	Chromite	0.04	0.06	17.54	51.66	0.37	18.32	0.23	0.14	13.29	0.01	0.11	0.21	0.00	101.95
T793	43	7814	kimb	0.5-1.0	black	Chromite	0.01	0.27	12.63	57.71	0.00	16.91	0.28	0.10	11.97	0.00	0.14	0.06	0.04	100.12
T793	44	7814	kimb	0.5-1.0	black	Chromite	0.09	1.49	1.09	60.85	0.28	26.36	0.46	0.16	8.99	0.02	0.10	0.22	0.00	100.03
T793	45	7814	kimb	0.5-1.0	black	Chromite	0.03	1.32	8.58	48.83	0.07	29.74	0.30	0.24	9.36	0.00	0.05	0.19	0.00	98.69
T793	46	7814	kimb	0.5-1.0	black	Chromite	0.03	2.90	1.97	53.37	0.33	31.23	0.50	0.20	8.93	0.00	0.08	0.12	0.00	99.65
T793	48	7814	kimb	0.5-1.0	black	Chromite	0.06	0.17	17.07	51.50	0.13	18.57	0.32	0.10	12.96	0.01	0.08	0.08	0.00	100.98
T793	51	7814	kimb	0.5-1.0	black	Chromite	0.00	2.62	4.99	47.86	0.33	32.51	0.52	0.16	9.29	0.03	0.09	0.21	0.16	98.77
T793	53	7814	kimb	0.5-1.0	black	Chromite	0.02	0.36	15.65	42.86	0.16	27.91	0.32	0.20	11.42	0.00	0.01	0.15	0.04	99.07
T790	3	7814	kimb	0.50-1.00	black	Chromite	0.04	0.15	12.22	54.37	0.19	20.04	0.31	0.06	11.46	0.01	0.14	0.05	0.10	99.14
T790	4	7814	kimb	0.50-1.00	black	Chromite	0.02	1.69	7.51	49.71	0.16	28.94	0.50	0.12	9.70	0.03	0.06	0.10	0.03	98.60
T790	5	7814	kimb	0.50-1.00	black	Chromite	0.02	0.35	11.62	53.16	0.21	22.65	0.33	0.07	10.26	0.03	0.02	0.21	0.05	98.98
T790	7	7814	kimb	0.50-1.00	black	Chromite	0.04	0.10	17.07	50.25	0.30	17.64	0.19	0.07	13.28	0.02	0.11	0.29	0.00	99.36
T790	10	7814	kimb	0.50-1.00	black	Chromite	0.08	0.27	16.17	53.81	0.25	15.70	0.29	0.07	13.08	0.00	0.04	0.10	0.00	99.85
T790	13	7814	kimb	0.50-1.00	black	Chromite	0.01	0.77	11.50	45.37	0.19	29.38	0.40	0.20	10.58	0.01	0.08	0.26	0.30	99.07
T790	17	7814	kimb	0.50-1.00	black	Chromite	0.01	0.34	11.69	51.89	0.21	24.03	0.25	0.17	10.37	0.01	0.05	0.24	0.00	99.25
T790	18	7814	kimb	0.50-1.00	black	Chromite	0.09	2.35	2.13	53.32	0.34	30.60	0.52	0.30	9.25	0.00	0.02	0.20	0.08	99.19
T790	22	7814	kimb	0.50-1.00	black	Chromite	0.04	3.00	1.13	53.63	0.31	31.20	0.42	0.29	8.41	0.00	0.13	0.03	0.00	98.60
T790	24	7814	kimb	0.50-1.00	black	Chromite	0.05	0.85	4.41	54.71	0.11	28.52	0.27	0.12	9.20	0.04	0.05	0.16	0.00	98.50
T790	28	7814	kimb	0.50-1.00	black	Chromite	0.07	0.21	14.54	50.42	0.10	21.20	0.27	0.21	11.92	0.00	0.10	0.19	0.10	99.33
T790	29	7814	kimb	0.50-1.00	black	Chromite	0.05	2.72	0.98	54.92	0.17	29.89	0.40	0.21	8.72	0.01	0.02	0.18	0.09	98.35
T790	31	7814	kimb	0.50-1.00	black	Chromite	0.02	0.05	13.27	52.45	0.25	19.36	0.31	0.12	11.82	0.01	0.09	0.11	0.00	97.84
T790	33	7814	kimb	0.50-1.00	black	Chromite	0.03	0.27	14.92	53.67	0.26	16.31	0.32	0.10	13.06	0.03	0.00	0.12	0.03	99.10
T790	34	7814	kimb	0.50-1.00	black	Chromite	0.00	1.88	1.26	59.96	0.24	25.26	0.45	0.20	9.72	0.00	0.06	0.02	0.00	99.06
T790	35	7814	kimb	0.50-1.00	black	Chromite	0.05	1.53	9.56	54.08	0.24	22.54	0.39	0.03	10.69	0.00	0.07	0.20	0.05	99.42
T790	36	7814	kimb	0.50-1.00	black	Chromite	0.03	2.03	1.96	54.58	0.28	29.85	0.48	0.14	8.47	0.05	0.09	0.17	0.08	98.22
T790	38	7814	kimb	0.50-1.00	black	Chromite	0.02	1.94	1.21	59.39	0.30	25.07	0.47	0.09	10.00	0.01	0.01	0.31	0.20	99.03
T790	42	7814	kimb	0.50-1.00	black	Cr-Spinel	0.00	0.08	27.81	41.46	0.13	15.50	0.19	0.08	13.76	0.01	0.08	0.15	0.00	99.25
T790	44	7814	kimb	0.50-1.00	black	Chromite	0.32	0.91	4.56	53.70	0.16	28.51	0.45	0.16	9.28	0.05	0.11	0.08	0.00	98.29
T790	50	7814	kimb	0.50-1.00	black	Chromite	0.13	0.39	8.91	52.07	0.22	28.23	0.42	0.11	8.91	0.00	0.05	0.13	0.00	99.55
T790	52	7814	kimb	0.50-1.00	black	Chromite	0.02	0.23	17.56	45.50	0.27	22.78	0.30	0.13	12.21	0.01	0.03	0.11	0.01	99.18
T790	55	7814	kimb	0.50-1.00	black	Chromite	0.00	0.12	14.82	49.46	0.03	22.89	0.38	0.09	11.65	0.05	0.11	0.23	0.15	99.98
T790	56	7814	kimb	0.50-1.00	black	Chromite	0.00	0.05	17.86	52.25	0.24	15.60	0.30	0.07	13.33	0.04	0.05	0.25	0.01	100.05
T790	57	7814	kimb	0.50-1.00	black	Chromite	0.06	0.13	14.25	50.63	0.25	21.19	0.40	0.13	11.81	0.00	0.02	0.17	0.00	99.04
T790	60	7814	kimb	0.50-1.00	black	Chromite	0.03	0.11	13.29	52.77	0.07	18.98	0.34	0.03	12.12	0.00	0.05	0.19	0.08	98.06

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T790	62	7814	kimb	0.50-1.00	black	Chromite	0.00	0.02	14.05	53.20	0.21	18.34	0.26	0.10	12.93	0.03	0.04	0.13	0.00	99.29
T790	63	7814	kimb	0.50-1.00	black	Chromite	0.04	0.08	13.95	51.10	0.28	20.07	0.29	0.09	12.27	0.04	0.06	0.29	0.07	98.64
T790	66	7814	kimb	0.50-1.00	black	Chromite	0.03	1.46	8.03	47.31	0.25	29.72	0.34	0.22	9.66	0.00	0.11	0.20	0.00	97.33
T790	68	7814	kimb	0.50-1.00	black	Chromite	0.01	0.02	12.42	55.14	0.20	18.32	0.31	0.16	12.93	0.02	0.05	0.14	0.00	99.73
T790	69	7814	kimb	0.50-1.00	black	Chromite	0.07	0.39	17.60	46.84	0.16	22.69	0.24	0.15	12.18	0.01	0.04	0.04	0.00	100.40
T790	69	7814	kimb	0.50-1.00	black	Chromite	0.04	0.43	17.29	45.24	0.16	22.88	0.35	0.15	12.17	0.00	0.05	0.27	0.00	99.05
T791	1	7814	kimb	0.50-1.00	black	Chromite	0.03	2.82	1.53	55.23	0.32	27.58	0.43	0.17	9.98	0.00	0.00	0.02	0.00	98.11
T791	2	7814	kimb	0.50-1.00	black	Chromite	0.02	2.04	1.02	57.36	0.45	28.11	0.48	0.08	8.89	0.01	0.04	0.20	0.01	98.72
T791	3	7814	kimb	0.50-1.00	black	Chromite	0.01	0.35	11.13	56.72	0.17	19.50	0.39	0.21	11.70	0.00	0.06	0.09	0.14	100.48
T791	7	7814	kimb	0.50-1.00	black	Chromite	0.04	0.64	12.81	53.22	0.36	19.88	0.29	0.12	12.58	0.02	0.05	0.20	0.19	100.41
T791	10	7814	kimb	0.50-1.00	black	Chromite	0.01	2.09	6.98	54.63	0.30	25.02	0.37	0.09	10.15	0.03	0.01	0.12	0.00	99.80
T791	11	7814	kimb	0.50-1.00	black	Chromite	0.00	0.29	21.11	45.80	0.16	18.08	0.36	0.22	13.58	0.03	0.00	0.13	0.04	99.82
T791	12	7814	kimb	0.50-1.00	black	Chromite	0.07	1.30	3.01	55.64	0.20	27.15	0.47	0.20	10.01	0.01	0.11	0.02	0.16	98.34
T791	24	7814	kimb	0.50-1.00	black	Chromite	0.09	1.46	2.85	54.61	0.23	28.36	0.49	0.18	8.86	0.00	0.08	0.17	0.00	97.37
T791	29	7814	kimb	0.50-1.00	black	Chromite	0.08	0.53	9.36	57.31	0.24	20.10	0.30	0.12	10.99	0.05	0.06	0.06	0.00	99.21
T791	30	7814	kimb	0.50-1.00	black	Chromite	0.06	2.33	1.20	54.96	0.31	29.56	0.48	0.18	8.62	0.00	0.01	0.11	0.04	97.86
T791	31	7814	kimb	0.50-1.00	black	Chromite	0.04	0.39	12.72	51.90	0.28	20.18	0.44	0.14	12.08	0.00	0.02	0.17	0.06	98.41
T791	32	7814	kimb	0.50-1.00	black	Chromite	0.04	1.11	4.50	56.29	0.22	26.19	0.47	0.10	9.39	0.01	0.05	0.15	0.15	98.68
T791	34	7814	kimb	0.50-1.00	black	Chromite	0.01	0.62	12.27	51.31	0.34	23.75	0.36	0.15	10.41	0.01	0.06	0.11	0.07	99.46
T791	35	7814	kimb	0.50-1.00	black	Chromite	0.07	2.78	1.70	53.92	0.22	29.99	0.45	0.20	8.93	0.02	0.13	0.05	0.00	98.46
T791	37	7814	kimb	0.50-1.00	black	Chromite	0.06	0.16	13.55	52.80	0.25	18.87	0.32	0.10	12.54	0.03	0.11	0.13	0.25	99.17
T791	39	7814	kimb	0.50-1.00	black	Chromite	0.03	0.44	14.03	50.60	0.29	16.48	0.34	0.10	13.46	0.01	0.03	0.08	0.00	95.91
T791	40	7814	kimb	0.50-1.00	black	Chromite	0.00	1.82	7.97	54.96	0.28	23.44	0.39	0.07	10.26	0.02	0.12	0.06	0.04	99.44
T791	43	7814	kimb	0.50-1.00	black	Chromite	0.01	0.61	7.00	56.03	0.24	23.12	0.26	0.25	10.23	0.04	0.07	0.01	0.04	97.93
T791	45	7814	kimb	0.50-1.00	black	Chromite	0.06	0.10	16.98	51.03	0.24	17.53	0.25	0.03	13.57	0.01	0.01	0.19	0.06	100.04
T791	46	7814	kimb	0.50-1.00	black	Chromite	0.07	1.58	8.25	48.11	0.24	30.13	0.48	0.26	9.45	0.01	0.14	0.11	0.00	98.83
T791	47	7814	kimb	0.50-1.00	black	Chromite	0.04	0.33	14.12	48.30	0.22	23.80	0.40	0.25	11.42	0.04	0.07	0.19	0.00	99.19
T791	48	7814	kimb	0.50-1.00	black	Chromite	0.05	0.19	11.04	55.07	0.23	19.33	0.41	0.16	12.19	0.02	0.09	0.24	0.00	99.00
T791	49	7814	kimb	0.50-1.00	black	Chromite	0.07	0.38	16.71	44.80	0.16	24.97	0.37	0.20	11.94	0.03	0.07	0.13	0.00	99.84
T791	50	7814	kimb	0.50-1.00	black	Chromite	0.08	1.10	10.26	52.08	0.25	24.78	0.41	0.18	9.95	0.00	0.11	0.12	0.07	99.39
T791	51	7814	kimb	0.50-1.00	black	Chromite	0.04	1.36	10.69	52.91	0.40	24.12	0.32	0.16	9.91	0.03	0.06	0.15	0.00	100.16
T791	52	7814	kimb	0.50-1.00	black	Chromite	0.04	0.34	15.56	46.64	0.04	22.36	0.34	0.08	11.17	0.00	0.06	0.15	0.00	96.79
T791	53	7814	kimb	0.50-1.00	black	Cr-Spinel	0.04	0.07	36.54	32.82	0.18	12.51	0.27	0.05	16.37	0.00	0.09	0.21	0.10	99.26
T791	54	7814	kimb	0.50-1.00	black	Chromite	0.05	0.36	12.87	50.69	0.25	20.37	0.33	0.13	11.92	0.00	0.00	0.28	0.00	97.25
T791	55	7814	kimb	0.50-1.00	black	Chromite	0.09	2.83	1.34	52.18	0.32	32.44	0.41	0.22	8.22	0.00	0.05	0.23	0.00	98.34
T791	56	7814	kimb	0.50-1.00	black	Chromite	0.01	0.29	12.55	55.71	0.08	18.42	0.33	0.13	11.92	0.00	0.12	0.20	0.10	99.85
T791	58	7814	kimb	0.50-1.00	black	Chromite	0.02	2.66	1.19	54.28	0.27	28.86	0.43	0.21	8.86	0.00	0.00	0.01	0.08	96.88
T791	59	7814	kimb	0.50-1.00	black	Chromite	0.05	0.28	14.58	51.74	0.27	18.65	0.23	0.14	12.89	0.00	0.08	0.18	0.00	99.08
T791	60	7814	kimb	0.50-1.00	black	Chromite	0.08	0.11	17.00	50.62	0.30	17.50	0.21	0.16	13.38	0.00	0.12	0.12	0.03	99.62
T791	61	7814	kimb	0.50-1.00	black	Chromite	0.04	0.49	10.63	50.34	0.22	26.37	0.45	0.22	10.29	0.00	0.07	0.20	0.00	99.32
T791	62	7814	kimb	0.50-1.00	black	Chromite	0.02	1.86	0.93	58.77	0.43	27.13	0.43	0.16	8.86	0.00	0.00	0.20	0.09	98.89
T791	63	7814	kimb	0.50-1.00	black	Chromite	0.03	0.35	12.94	53.21	0.30	19.84	0.30	0.11	11.79	0.00	0.10	0.29	0.00	99.26
T791	65	7814	kimb	0.50-1.00	black	Chromite	0.00	0.10	15.02	49.24	0.30	23.06	0.36	0.10	11.65	0.00	0.07	0.12	0.00	100.03
T791	66	7814	kimb	0.50-1.00	black	Chromite	0.08	2.05	1.54	54.50	0.29	28.90	0.41	0.11	8.75	0.00	0.13	0.17	0.03	96.95
T791	66	7814	kimb	0.50-1.00	black	Chromite	0.05	1.97	1.63	54.78	0.23	28.42	0.51	0.20	8.86	0.00	0.07	0.14	0.00	96.85
T792	1	7814	kimb	0.50-1.00	black	Chromite	0.08	0.35	17.64	47.66	0.16	22.02	0.31	0.09	11.97	0.00	0.08	0.10	0.00	100.46



Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T792	3	7814	kimb	0.50-1.00	black	Chromite	0.04	0.44	9.33	51.47	0.21	25.13	0.30	0.08	11.36	0.00	0.07	0.25	0.03	98.70
T792	4	7814	kimb	0.50-1.00	black	Chromite	0.05	0.39	18.96	44.33	0.18	22.59	0.40	0.23	12.50	0.04	0.07	0.17	0.00	99.91
T792	5	7814	kimb	0.50-1.00	black	Chromite	0.05	2.20	1.53	55.62	0.19	29.07	0.41	0.23	8.96	0.00	0.08	0.16	0.00	98.52
T792	6	7814	kimb	0.50-1.00	black	Chromite	0.09	0.47	13.02	48.24	0.29	25.78	0.41	0.09	10.77	0.04	0.11	0.09	0.00	99.41
T792	7	7814	kimb	0.50-1.00	black	Chromite	0.02	0.24	8.98	58.16	0.03	19.53	0.37	0.08	11.36	0.03	0.09	0.09	0.08	99.05
T792	8	7814	kimb	0.50-1.00	black	Chromite	0.00	0.09	15.62	51.03	0.27	18.75	0.31	0.03	12.71	0.00	0.13	0.21	0.03	99.17
T792	9	7814	kimb	0.50-1.00	black	Chromite	0.07	0.46	10.99	53.64	0.39	22.40	0.29	0.03	11.62	0.00	0.12	0.18	0.14	100.33
T792	12	7814	kimb	0.50-1.00	black	Chromite	0.00	0.33	10.96	54.99	0.21	21.81	0.35	0.13	10.97	0.00	0.11	0.20	0.00	100.08
T792	13	7814	kimb	0.50-1.00	black	Chromite	0.05	1.66	10.24	51.51	0.57	26.12	0.28	0.18	8.46	0.00	0.10	0.11	0.00	99.27
T792	14	7814	kimb	0.50-1.00	black	Chromite	0.03	0.03	14.86	54.38	0.13	16.56	0.26	0.10	13.28	0.05	0.07	0.04	0.00	99.79
T792	15	7814	kimb	0.50-1.00	black	Chromite	0.11	0.42	14.03	51.64	0.14	22.15	0.31	0.10	10.72	0.01	0.15	0.15	0.14	100.06
T792	16	7814	kimb	0.50-1.00	black	Chromite	0.04	0.06	13.15	53.94	0.23	19.27	0.23	0.07	11.89	0.03	0.08	0.22	0.06	99.26
T792	18	7814	kimb	0.50-1.00	black	Chromite	0.01	2.04	2.68	55.48	0.39	27.91	0.36	0.26	10.18	0.02	0.00	0.12	0.01	99.47
T792	20	7814	kimb	0.50-1.00	black	Chromite	0.05	1.34	3.49	55.90	0.29	28.15	0.41	0.16	9.35	0.04	0.02	0.17	0.05	99.44
T792	21	7814	kimb	0.50-1.00	black	Chromite	0.05	1.43	2.73	55.84	0.30	29.36	0.40	0.21	8.73	0.01	0.05	0.09	0.00	99.18
T792	22	7814	kimb	0.50-1.00	black	Chromite	0.02	0.47	8.03	61.51	0.18	17.71	0.33	0.10	11.73	0.02	0.08	0.11	0.23	100.53
T792	23	7814	kimb	0.50-1.00	black	Chromite	0.07	0.06	12.04	56.21	0.15	18.28	0.31	0.10	13.01	0.00	0.08	0.09	0.00	100.40
T792	24	7814	kimb	0.50-1.00	black	Chromite	0.05	0.20	13.38	52.56	0.25	21.37	0.36	0.04	11.52	0.02	0.11	0.29	0.00	100.13
T792	25	7814	kimb	0.50-1.00	black	Chromite	0.03	0.35	19.24	47.32	0.20	19.62	0.20	0.19	13.15	0.03	0.07	0.22	0.04	100.66
T792	26	7814	kimb	0.50-1.00	black	Chromite	0.06	2.48	1.06	55.71	0.26	29.06	0.40	0.11	8.83	0.00	0.10	0.01	0.00	98.08
T792	27	7814	kimb	0.50-1.00	black	Chromite	0.07	0.38	18.05	45.55	0.15	23.56	0.38	0.12	12.20	0.00	0.07	0.07	0.01	100.63
T792	28	7814	kimb	0.50-1.00	black	Chromite	0.00	0.48	13.20	52.37	0.32	18.80	0.33	0.05	12.87	0.03	0.03	0.17	0.00	98.65
T792	29	7814	kimb	0.50-1.00	black	Chromite	0.06	0.35	12.11	52.32	0.12	22.31	0.31	0.07	11.37	0.00	0.00	0.12	0.19	99.33
T792	30	7814	kimb	0.50-1.00	black	Chromite	0.01	0.28	5.20	60.11	0.15	22.72	0.42	0.10	9.82	0.00	0.12	0.17	0.00	99.11
T792	31	7814	kimb	0.50-1.00	black	Chromite	0.00	2.13	1.05	57.01	0.30	27.97	0.44	0.06	8.87	0.00	0.03	0.17	0.00	98.03
T792	33	7814	kimb	0.50-1.00	black	Chromite	0.06	2.64	0.97	55.57	0.22	30.21	0.37	0.11	8.18	0.01	0.10	0.14	0.00	98.58
T792	35	7814	kimb	0.50-1.00	black	Chromite	0.08	1.87	1.22	58.33	0.22	27.17	0.50	0.24	9.23	0.05	0.09	0.23	0.11	99.34
T792	37	7814	kimb	0.50-1.00	black	Chromite	0.06	0.74	7.58	57.21	0.22	23.08	0.48	0.10	10.02	0.00	0.09	0.22	0.20	100.00
T792	38	7814	kimb	0.50-1.00	black	Chromite	0.06	0.20	12.76	51.42	0.15	21.96	0.31	0.13	12.29	0.00	0.04	0.15	0.06	99.54
T792	39	7814	kimb	0.50-1.00	black	Chromite	0.05	2.18	0.96	55.93	0.21	28.78	0.46	0.14	8.94	0.01	0.11	0.13	0.08	97.98
T792	40	7814	kimb	0.50-1.00	black	Chromite	0.05	0.04	12.86	51.74	0.12	21.47	0.40	0.03	11.50	0.01	0.05	0.14	0.00	98.41
T792	41	7814	kimb	0.50-1.00	black	Chromite	0.05	0.25	14.27	48.01	0.29	24.36	0.31	0.03	11.53	0.03	0.03	0.17	0.06	99.39
T792	42	7814	kimb	0.50-1.00	black	Chromite	0.02	0.50	11.10	55.30	0.14	20.22	0.29	0.17	12.19	0.00	0.05	0.15	0.06	100.19
T792	43	7814	kimb	0.50-1.00	black	Chromite	0.06	0.68	6.95	53.68	0.36	26.62	0.39	0.20	9.83	0.03	0.12	0.16	0.20	99.29
T792	44	7814	kimb	0.50-1.00	black	Chromite	0.05	2.57	1.00	53.63	0.18	31.08	0.45	0.19	8.22	0.06	0.03	0.18	0.03	97.67
T792	45	7814	kimb	0.50-1.00	black	Chromite	0.08	0.46	12.13	50.41	0.04	25.20	0.39	0.07	10.69	0.02	0.11	0.21	0.15	99.98
T792	46	7814	kimb	0.50-1.00	black	Chromite	0.02	0.71	4.88	57.70	0.24	23.84	0.48	0.10	10.19	0.00	0.10	0.10	0.07	98.42
T792	47	7814	kimb	0.50-1.00	black	Chromite	0.08	0.05	13.15	54.46	0.21	19.20	0.30	0.08	12.23	0.05	0.00	0.00	0.00	99.80
T792	48	7814	kimb	0.50-1.00	black	Chromite	0.04	0.14	13.13	55.80	0.39	17.98	0.38	0.06	12.13	0.00	0.09	0.18	0.04	100.36
T792	49	7814	kimb	0.50-1.00	black	Chromite	0.05	0.39	12.88	50.49	0.25	23.59	0.35	0.13	11.21	0.01	0.10	0.20	0.10	99.74
T792	50	7814	kimb	0.50-1.00	black	Chromite	0.01	0.01	10.65	56.02	0.30	19.60	0.31	0.08	11.96	0.00	0.13	0.17	0.03	99.26
T792	51	7814	kimb	0.50-1.00	black	Chromite	0.06	0.77	10.02	49.81	0.27	26.46	0.33	0.17	10.30	0.00	0.08	0.25	0.11	98.64
T792	52	7814	kimb	0.50-1.00	black	Chromite	0.02	0.63	10.22	52.84	0.21	24.17	0.46	0.07	10.70	0.00	0.10	0.19	0.00	99.62
T792	53	7814	kimb	0.50-1.00	black	Chromite	0.06	2.59	1.00	54.16	0.25	30.17	0.46	0.19	8.45	0.05	0.07	0.12	0.00	97.57
T792	53	7814	kimb	0.50-1.00	black	Chromite	0.06	2.57	1.02	54.66	0.18	30.44	0.36	0.28	8.53	0.04	0.06	0.21	0.09	98.49
T776	3	7801	till	0.25-0.5	black	Chromite	0.03	0.73	11.15	44.64	0.23	30.35	0.33	0.11	10.04	0.00	0.24	0.06	0.00	97.92

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T776	4	7801	till	0.25-0.5	black	Chromite	0.14	1.10	12.25	50.79	0.30	24.16	0.31	0.00	10.48	0.04	0.09	0.11	0.03	99.80
T754	9	7801	till	0.25-0.5	black	Chromite	0.11	0.62	12.44	48.23	0.19	29.64	0.43	0.11	5.82	0.00	0.02	0.54	0.19	98.34
T754	58	7801	till	0.25-0.5	black	Chromite	0.09	0.31	14.52	45.11	0.13	26.32	0.41	0.11	11.15	0.01	0.08	0.18	0.00	98.41
T754	60	7801	till	0.25-0.5	black	Chromite	0.08	0.24	14.64	53.62	0.24	17.35	0.32	0.08	12.36	0.03	0.13	0.14	0.24	99.46
T767	24	7801	till	0.25-0.5	black	Chromite	0.07	2.41	12.19	45.78	0.38	27.72	0.40	0.05	9.71	0.00	0.19	0.24	0.00	99.14
T767	27	7801	till	0.25-0.5	black	Chromite	0.13	0.66	15.68	46.19	0.17	25.59	0.47	0.12	9.24	0.02	0.10	0.10	0.07	98.54
T767	28	7801	till	0.25-0.5	black	Chromite	0.06	0.96	11.20	47.11	0.18	35.34	1.04	0.11	2.09	0.02	0.06	0.23	0.12	98.53
T767	31	7801	till	0.25-0.5	black	Chromite	0.05	0.28	12.66	52.69	0.08	20.96	0.35	0.03	11.62	0.01	0.14	0.24	0.21	99.32
T767	32	7801	till	0.25-0.5	black	Chromite	0.12	0.35	9.97	51.83	0.20	25.38	0.42	0.08	10.31	0.01	0.16	0.14	0.16	99.13
T767	33	7801	till	0.25-0.5	black	Chromite	0.10	0.26	11.69	51.21	0.11	23.95	0.43	0.08	10.89	0.00	0.11	0.14	0.04	99.02
T780	9	7801	till	0.25-0.5	black	Chromite	0.04	0.36	16.41	46.56	0.14	25.10	0.33	0.17	11.10	0.05	0.10	0.23	0.00	100.60
T787	3	7801	till	0.25-0.5	black	Chromite	0.00	0.99	6.59	55.96	0.32	25.88	0.44	0.11	9.60	0.00	0.01	0.14	0.08	100.12
T787	7	7801	till	0.25-0.5	black	Chromite	0.03	1.00	7.28	55.09	0.28	25.81	0.42	0.08	8.90	0.00	0.00	0.13	0.15	99.14
T787	14	7801	till	0.25-0.5	black	Chromite	0.01	0.51	15.03	47.92	0.16	24.18	0.31	0.12	10.93	0.02	0.10	0.22	0.14	99.64
T787	17	7801	till	0.25-0.5	black	Chromite	0.05	0.12	13.34	52.72	0.24	21.02	0.21	0.16	11.75	0.02	0.03	0.16	0.00	99.77
T787	18	7801	till	0.25-0.5	black	Chromite	0.06	0.19	14.62	54.33	0.25	18.21	0.36	0.05	12.90	0.02	0.01	0.10	0.00	101.04
T776	11	7811	till	0.25-0.5	black	Chromite	0.16	0.34	8.88	58.57	0.06	15.95	0.11	0.01	14.38	0.00	0.02	0.04	0.00	98.52
T756	11	7811	till	0.25-0.5	black	Chromite	0.10	2.06	1.01	56.80	0.25	29.17	0.41	0.16	8.38	0.03	0.00	0.09	0.00	98.45
T756	13	7811	till	0.25-0.5	black	Chromite	0.11	0.08	14.19	55.72	0.37	17.11	0.23	0.16	13.03	0.04	0.12	0.06	0.10	101.32
T767	41	7811	till	0.25-0.5	black	Chromite	0.05	1.68	9.38	50.33	0.24	26.91	0.36	0.11	9.17	0.00	0.15	0.18	0.00	98.57
T767	42	7811	till	0.25-0.5	black	Chromite	0.08	1.08	7.54	50.68	0.39	28.22	0.45	0.12	9.79	0.04	0.07	0.28	0.14	98.88
T767	43	7811	till	0.25-0.5	black	Chromite	0.09	0.08	14.62	54.88	0.36	16.32	0.33	0.04	12.78	0.00	0.02	0.17	0.00	99.70
T767	45	7811	till	0.25-0.5	black	Mg-Chromite	0.16	0.31	8.38	59.92	0.13	15.46	0.28	0.00	14.72	0.03	0.08	0.00	0.00	99.46
T767	46	7811	till	0.25-0.5	black	Chromite	0.03	2.22	11.58	43.10	0.41	36.24	0.67	0.13	3.99	0.03	0.07	0.56	0.19	99.21
T756	20	7812	till	0.25-0.5	black	Chromite	0.10	0.76	13.51	50.54	0.22	24.17	0.43	0.16	9.50	0.00	0.06	0.12	0.00	99.56
T771	1	7813	till	0.25-0.5	black	Chromite	0.06	0.67	15.40	48.99	0.22	25.35	0.44	0.16	8.86	0.02	0.17	0.09	0.00	100.44
T771	2	7813	till	0.25-0.5	black	Chromite	0.13	0.92	15.24	48.14	0.18	26.12	0.41	0.12	8.16	0.00	0.18	0.06	0.00	99.66
T776	47	7813	till	0.25-0.5	black	Chromite	0.05	1.20	0.96	61.93	0.30	26.53	0.46	0.09	8.69	0.00	0.02	0.31	0.13	100.69
T776	50	7813	till	0.25-0.5	black	Cr-Spinel	0.21	0.58	42.35	22.66	0.16	14.83	0.16	0.01	18.37	0.00	0.29	0.11	0.13	99.87
T757	101	7813	till	0.25-0.5	black	Ti-Chromite	0.16	5.19	9.87	38.74	0.33	36.27	0.42	0.31	7.30	0.04	0.04	0.12	0.00	98.79
T757	126	7813	till	0.25-0.5	black	Chromite	0.41	0.31	12.94	52.28	0.10	22.85	0.27	0.14	10.31	0.05	0.04	0.15	0.01	99.86
T767	61	7813	till	0.25-0.5	black	Chromite	0.17	0.38	16.82	49.47	0.18	17.39	0.21	0.02	14.15	0.00	0.22	0.07	0.10	99.18
T767	69	7813	till	0.25-0.5	black	Chromite	0.20	0.41	11.09	56.02	0.10	17.36	0.28	0.00	13.05	0.02	0.19	0.16	0.16	99.04
T788	23	7813	till	0.50-1.0	black	Chromite	0.02	0.04	15.71	51.24	0.36	16.31	0.35	0.11	12.94	0.00	0.13	0.14	0.00	97.34
T771	23	7815	till	0.25-0.5	black	Chromite	0.12	0.07	17.82	51.92	0.29	15.99	0.16	0.04	13.00	0.05	0.09	0.21	0.10	99.85
T771	24	7815	till	0.25-0.5	black	Chromite	0.17	0.40	16.42	48.00	0.19	21.57	0.20	0.09	12.23	0.03	0.17	0.11	0.03	99.60
T771	31	7815	till	0.25-0.5	black	Chromite	0.10	0.45	15.28	49.35	0.25	23.96	0.68	0.12	9.60	0.00	0.11	0.23	0.03	100.17
T771	32	7815	till	0.25-0.5	black	Chromite	0.04	1.70	13.54	46.01	0.30	27.14	0.33	0.16	9.98	0.01	0.13	0.10	0.00	99.45
T771	34	7815	till	0.25-0.5	black	Chromite	0.09	0.34	14.64	51.94	0.26	21.07	0.31	0.03	11.25	0.00	0.22	0.05	0.00	100.21
T776	68	7815	till	0.25-0.5	black	Chromite	0.09	0.44	15.21	50.52	0.19	20.47	0.24	0.08	12.25	0.01	0.22	0.13	0.00	99.84
T758	41	7815	till	0.25-0.5	black	Chromite	0.12	0.51	7.84	57.52	0.15	20.83	0.33	0.09	11.42	0.00	0.08	0.13	0.04	99.07
T781	56	7815	till	0.25-0.5	black	Chromite	0.06	1.85	14.68	47.30	0.35	24.07	0.24	0.16	10.36	0.05	0.08	0.22	0.00	99.41
T771	35	7816	till	0.25-0.5	black	Chromite	0.15	0.45	10.57	54.37	0.00	19.91	0.28	0.10	13.51	0.00	0.17	0.01	0.00	99.51
T776	77	7816	till	0.25-0.5	black	Chromite	0.11	1.74	25.30	35.88	0.06	20.56	0.07	0.04	14.88	0.00	0.16	0.09	0.00	98.90
T776	79	7816	till	0.25-0.5	black	Cr-Spinel	0.19	1.42	30.68	31.89	0.04	17.93	0.18	0.00	16.77	0.03	0.22	0.00	0.09	99.44
T758	61	7816	till	0.25-0.5	black	Chromite	0.00	1.06	15.24	47.87	0.11	21.84	0.37	0.12	11.23	0.00	0.09	0.18	0.00	98.11

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T758	78	7816	till	0.25-0.5	black	Chromite	0.14	1.10	13.18	47.70	0.36	28.37	0.22	0.10	8.85	0.00	0.13	0.14	0.01	100.31
T781	76	7816	till	0.25-0.5	black	Cr-spinel	0.12	0.93	27.62	37.63	0.09	16.47	0.16	0.33	16.76	0.05	0.06	0.20	0.00	100.41
T771	44	7817	till	0.25-0.5	black	Cr-Spinel	0.16	0.71	37.40	24.85	0.02	18.11	0.18	0.09	17.15	0.00	0.33	0.04	0.00	99.03
T777	2	7817	till	0.25-0.5	black	Chromite	0.03	0.30	6.73	59.90	0.26	20.17	0.45	0.07	10.95	0.02	0.20	0.00	0.00	99.07
T777	4	7817	till	0.25-0.5	black	Chromite	0.13	1.24	25.34	38.80	0.11	17.72	0.11	0.09	15.70	0.00	0.22	0.09	0.00	99.56
T777	6	7817	till	0.25-0.5	black	Chromite	0.15	0.33	11.73	51.88	0.30	26.27	0.35	0.03	8.30	0.00	0.13	0.19	0.05	99.70
T771	60	7819	till	0.25-0.5	black	Chromite	0.04	0.19	16.20	51.04	0.36	18.47	0.31	0.05	12.29	0.00	0.06	0.15	0.00	99.16
T777	8	7819	till	0.25-0.5	black	Chromite	0.00	0.83	12.63	49.67	0.34	24.61	0.42	0.07	9.96	0.01	0.13	0.00	0.10	98.77
T758	93	7819	till	0.25-0.5	black	Chromite	0.07	0.90	12.04	51.45	0.30	24.15	0.39	0.14	10.07	0.02	0.09	0.03	0.01	99.68
T758	94	7819	till	0.25-0.5	black	Chromite	0.07	0.65	11.45	49.86	0.31	28.65	0.40	0.10	7.24	0.00	0.06	0.07	0.11	98.97
T758	95	7819	till	0.25-0.5	black	Chromite	0.07	0.36	11.75	52.63	0.12	22.26	0.41	0.17	11.35	0.04	0.00	0.00	0.00	99.14
T771	68	7820	till	0.25-0.5	black	Chromite	0.09	1.04	14.20	46.53	0.23	29.79	0.50	0.06	6.72	0.04	0.21	0.27	0.00	99.66
T771	71	7820	till	0.25-0.5	black	Chromite	0.16	0.25	26.48	40.68	0.02	14.04	0.16	0.04	16.91	0.02	0.26	0.00	0.10	99.12
T771	72	7820	till	0.25-0.5	black	Chromite	0.16	0.35	13.95	52.83	0.16	18.17	0.27	0.12	12.76	0.04	0.23	0.00	0.12	99.17
T777	17	7820	till	0.25-0.5	black	Chromite	0.13	0.62	14.01	51.06	0.19	25.77	0.41	0.18	7.27	0.03	0.07	0.28	0.00	100.02
T758	102	7820	till	0.25-0.5	black	Chromite	0.11	0.42	10.98	53.00	0.19	22.11	0.27	0.11	11.78	0.00	0.02	0.00	0.01	99.01
T758	107	7820	till	0.25-0.5	black	Chromite	0.09	1.76	12.63	46.85	0.22	29.76	0.45	0.13	6.09	0.00	0.19	0.42	0.00	98.59
T771	92	7821	till	0.25-0.5	black	Chromite	0.03	0.44	15.32	53.50	0.21	17.36	0.16	0.10	13.22	0.00	0.12	0.07	0.00	100.54
T771	96	7821	till	0.25-0.5	black	Chromite	0.09	0.52	12.68	51.96	0.21	21.74	0.30	0.04	11.26	0.00	0.12	0.04	0.00	98.96
T771	98	7821	till	0.25-0.5	black	Chromite	0.09	0.05	11.96	59.18	0.27	15.18	0.38	0.08	13.18	0.00	0.00	0.14	0.04	100.53
T771	101	7821	till	0.25-0.5	black	Chromite	0.18	0.32	7.51	58.54	0.09	20.66	0.30	0.01	11.59	0.01	0.09	0.17	0.00	99.48
T771	114	7821	till	0.25-0.5	black	Chromite	0.12	0.29	14.03	53.20	0.19	20.44	0.23	0.02	11.73	0.00	0.15	0.17	0.00	100.57
T771	115	7821	till	0.25-0.5	black	Chromite	0.06	0.71	11.27	49.30	0.14	35.69	0.54	0.18	1.18	0.00	0.16	0.23	0.00	99.46
T777	19	7821	till	0.25-0.5	black	Chromite	0.12	0.25	12.38	56.54	0.24	17.10	0.31	0.10	13.07	0.02	0.16	0.04	0.14	100.46
T759	12	7821	till	0.25-0.5	black	Chromite	0.16	0.97	11.53	50.20	0.16	25.56	0.37	0.11	10.18	0.01	0.10	0.17	0.04	99.56
T759	37	7821	till	0.25-0.5	black	Chromite	0.15	0.45	13.30	53.40	0.10	20.63	0.19	0.23	11.68	0.01	0.08	0.29	0.00	100.51
T759	48	7821	till	0.25-0.5	black	Chromite	0.06	2.08	1.01	57.13	0.28	28.76	0.50	0.11	8.61	0.00	0.01	0.22	0.00	98.79
T759	49	7821	till	0.25-0.5	black	Chromite	0.15	0.49	12.98	53.43	0.03	20.77	0.39	0.07	11.70	0.00	0.00	0.16	0.00	100.17
T759	74	7821	till	0.25-0.5	black	Chromite	0.18	0.53	13.21	51.18	0.17	24.62	0.26	0.12	10.43	0.01	0.14	0.06	0.13	101.06
T759	89	7821	till	0.25-0.5	black	Chromite	0.19	1.09	12.25	53.21	0.14	21.80	0.24	0.12	10.84	0.00	0.07	0.07	0.14	100.17
T759	94	7821	till	0.25-0.5	black	Chromite	0.24	0.30	14.14	51.93	0.19	23.09	0.32	0.11	10.19	0.00	0.11	0.12	0.08	100.82
T759	96	7821	till	0.25-0.5	black	Chromite	0.11	0.50	9.25	55.42	0.15	20.38	0.27	0.17	12.76	0.02	0.10	0.02	0.03	99.17
T777	42	7822	till	0.25-0.5	black	Chromite	0.11	0.10	20.04	50.54	0.21	14.57	0.31	0.06	13.93	0.05	0.11	0.08	0.00	100.13
T759	97	7822	till	0.25-0.5	black	Chromite	0.06	1.16	11.81	50.95	0.39	24.78	0.36	0.21	10.29	0.00	0.06	0.06	0.01	100.16
T760	4	7822	till	0.25-0.5	black	Chromite	0.10	0.61	9.59	54.36	0.25	23.33	0.39	0.21	10.81	0.00	0.00	0.05	0.18	99.90
T772	7	7822	till	0.25-0.5	black	Mg-Chromite	0.80	0.00	7.10	64.60	0.19	13.00	0.35	0.07	14.49	0.01	0.01	0.12	0.08	100.83
T772	10	7822	till	0.25-0.5	black	Chromite	0.01	0.53	25.24	37.76	0.23	21.65	0.23	0.18	14.20	0.00	0.15	0.00	0.00	100.17
T772	12	7822	till	0.25-0.5	black	Chromite	0.12	0.33	5.08	61.70	0.00	19.77	0.24	0.20	11.81	0.00	0.05	0.13	0.01	99.45
T772	13	7822	till	0.25-0.5	black	Chromite	0.05	0.95	13.67	48.74	0.26	26.07	0.47	0.13	7.61	0.03	0.08	0.23	0.04	98.33
T772	14	7822	till	0.25-0.5	black	Chromite	0.13	0.29	9.64	50.63	0.12	35.43	0.20	0.06	1.71	0.00	0.22	0.47	0.14	99.05
T795	36	7822	till	0.50-1.00	black	Chromite	0.01	0.44	16.77	44.95	0.14	25.34	0.40	0.20	11.39	0.03	0.08	0.13	0.01	100.11
T777	55	7823	till	0.25-0.5	black	Chromite	0.01	0.43	12.67	51.07	0.09	23.48	0.26	0.09	10.75	0.00	0.21	0.15	0.12	99.32
T777	56	7823	till	0.25-0.5	black	Chromite	0.04	0.45	14.52	55.23	0.24	15.20	0.23	0.08	13.50	0.00	0.06	0.12	0.17	99.84
T760	43	7823	till	0.25-0.5	black	Chromite	0.20	1.92	5.75	52.91	0.31	27.71	0.44	0.25	10.28	0.01	0.05	0.24	0.03	100.09
T760	48	7823	till	0.25-0.5	black	Chromite	0.15	0.04	14.22	57.05	0.16	15.24	0.27	0.14	13.21	0.00	0.05	0.14	0.00	100.67
T760	57	7823	till	0.25-0.5	black	Chromite	0.32	0.30	14.18	48.58	0.00	29.90	1.23	0.06	3.53	0.01	0.15	1.22	0.11	99.59

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T760	70	7823	till	0.25-0.5	black	Chromite	0.13	0.06	12.83	53.29	0.21	19.27	0.31	0.10	12.29	0.03	0.07	0.15	0.10	98.84
T760	72	7823	till	0.25-0.5	black	Chromite	0.12	0.79	15.69	47.47	0.21	26.93	0.38	0.12	7.78	0.02	0.09	0.22	0.00	99.83
T760	74	7823	till	0.25-0.5	black	Chromite	0.17	0.33	15.77	50.95	0.15	24.23	0.49	0.00	7.63	0.00	0.09	0.44	0.08	100.34
T772	26	7823	till	0.25-0.5	black	Chromite	0.04	0.61	11.63	51.19	0.19	22.42	0.35	0.09	11.53	0.00	0.05	0.13	0.10	98.31
T772	29	7823	till	0.25-0.5	black	Chromite	0.18	0.44	12.88	51.60	0.21	24.23	0.37	0.07	9.74	0.00	0.08	0.00	0.07	99.86
T772	30	7823	till	0.25-0.5	black	Chromite	0.15	0.41	12.92	50.77	0.35	23.71	0.37	0.15	10.46	0.00	0.11	0.15	0.07	99.61
T772	33	7823	till	0.25-0.5	black	Chromite	0.08	2.46	12.78	45.60	0.30	26.01	0.24	0.30	10.86	0.03	0.11	0.17	0.26	99.20
T772	42	7823	till	0.25-0.5	black	Cr-Spinel	0.19	1.71	33.76	27.73	0.08	18.07	0.20	0.24	17.14	0.00	0.02	0.00	0.07	99.21
T772	43	7823	till	0.25-0.5	black	Chromite	0.07	0.62	14.87	49.34	0.20	25.18	0.47	0.13	7.99	0.00	0.05	0.15	0.00	99.07
T772	60	7823	till	0.25-0.5	black	Chromite	0.06	0.66	12.82	50.22	0.33	26.08	0.42	0.10	9.66	0.04	0.02	0.16	0.00	100.56
T772	61	7823	till	0.25-0.5	black	Chromite	1.48	1.56	11.52	47.50	0.28	26.56	0.21	0.13	10.13	0.00	0.05	0.13	0.07	99.62
T772	62	7823	till	0.25-0.5	black	Chromite	0.05	0.58	14.42	47.16	0.20	28.36	0.44	0.10	7.41	0.04	0.00	0.08	0.00	98.85
T777	79	7824	till	0.25-0.5	black	Chromite	0.06	0.05	21.16	46.47	0.10	17.55	0.24	0.11	12.66	0.02	0.06	0.36	0.08	98.92
T777	80	7824	till	0.25-0.5	black	Cr-Spinel	0.08	1.84	32.50	27.79	0.06	21.66	0.24	0.03	15.18	0.00	0.22	0.14	0.15	99.88
T777	84	7824	till	0.25-0.5	black	Chromite	0.09	0.30	16.12	50.06	0.04	20.62	0.30	0.11	11.60	0.01	0.19	0.08	0.00	99.52
T777	85	7824	till	0.25-0.5	black	Chromite	0.20	0.25	13.55	54.37	0.08	16.33	0.28	0.04	13.64	0.00	0.23	0.02	0.04	99.03
T777	86	7824	till	0.25-0.5	black	Chromite	0.05	0.98	11.66	52.13	0.23	22.37	0.35	0.00	11.10	0.04	0.20	0.07	0.00	99.18
T777	87	7824	till	0.25-0.5	black	Chromite	0.13	0.45	6.71	60.73	0.02	16.86	0.19	0.05	14.41	0.01	0.16	0.02	0.00	99.76
T761	1	7824	till	0.25-0.5	black	Chromite	0.08	3.09	11.80	41.18	0.33	33.48	0.43	0.15	8.15	0.02	0.11	0.15	0.07	99.02
T761	5	7824	till	0.25-0.5	black	Chromite	0.11	0.17	13.38	54.04	0.14	18.28	0.25	0.19	12.84	0.01	0.08	0.18	0.03	99.69
T761	22	7825	till	0.25-0.5	black	Chromite	0.12	0.34	12.53	50.42	0.12	30.69	0.52	0.05	3.62	0.00	0.23	0.37	0.00	99.01
T772	64	7825	till	0.25-0.5	black	Cr-Spinel	0.18	1.00	31.60	32.93	0.02	15.84	0.22	0.22	17.67	0.01	0.03	0.13	0.00	99.85
T778	6	7825	till	0.25-0.5	black	Cr-spinel	0.14	0.87	35.27	29.49	0.16	16.03	0.11	0.30	17.43	0.01	0.06	0.03	0.00	99.90
T761	39	7826	till	0.25-0.5	black	Chromite	0.22	0.34	11.70	51.35	0.14	28.72	0.86	0.09	5.53	0.00	0.13	0.29	0.21	99.58
T778	13	7826	till	0.25-0.5	black	Cr-spinel	0.14	1.05	27.78	36.06	0.23	16.30	0.17	0.32	16.59	0.02	0.00	0.09	0.04	98.79
T761	67	7827	till	0.25-0.5	black	Chromite	0.02	0.05	15.47	50.63	0.30	18.75	0.30	0.07	13.00	0.00	0.01	0.04	0.15	98.78
T761	87	7827	till	0.25-0.5	black	Chromite	0.07	0.17	13.70	53.14	0.26	18.91	0.28	0.12	12.45	0.03	0.00	0.18	0.11	99.41
T762	27	7827	till	0.25-0.5	black	Chromite	0.05	2.35	1.23	59.33	0.29	25.94	0.32	0.06	9.73	0.02	0.11	0.14	0.00	99.59
T762	55	7827	till	0.25-0.5	black	Chromite	0.11	0.22	6.28	59.37	0.30	20.44	0.32	0.12	11.44	0.01	0.13	0.15	0.15	99.03
T762	78	7827	till	0.25-0.5	black	Chromite	0.14	0.76	15.50	45.83	0.17	28.77	0.37	0.14	5.87	0.32	0.10	0.22	0.07	98.25
T762	84	7827	till	0.25-0.5	black	Chromite	0.22	0.37	6.90	57.78	0.03	23.04	0.30	0.00	9.08	0.21	0.02	0.14	0.00	98.11
T762	85	7827	till	0.25-0.5	black	Chromite	0.19	0.40	12.53	45.62	0.16	28.28	0.37	0.03	10.78	0.04	0.16	0.11	0.03	98.67
T762	86	7827	till	0.25-0.5	black	Chromite	0.09	0.76	14.40	42.57	0.17	34.86	1.88	0.10	0.91	0.18	0.01	1.22	0.14	97.31
T762	88	7827	till	0.25-0.5	black	Chromite	0.02	1.07	10.64	51.94	0.43	24.25	0.31	0.05	9.89	0.02	0.10	0.20	0.10	99.02
T762	89	7827	till	0.25-0.5	black	Chromite	0.15	0.37	15.32	50.16	0.21	21.92	0.28	0.06	11.07	0.00	0.24	0.08	0.01	99.87
T762	90	7827	till	0.25-0.5	black	Chromite	0.06	0.11	12.95	56.05	0.24	16.70	0.34	0.00	12.63	0.10	0.04	0.19	0.00	99.40
T772	80	7827	till	0.25-0.5	black	Cr-Spinel	0.11	1.94	29.39	30.71	0.20	21.90	0.20	0.20	15.75	0.00	0.05	0.12	0.09	100.64
T772	81	7827	till	0.25-0.5	black	Chromite	0.12	1.60	22.53	38.47	0.15	22.76	0.24	0.17	14.37	0.01	0.01	0.02	0.01	100.46
T772	105	7827	till	0.25-0.5	black	Chromite	0.12	1.43	12.52	48.96	0.27	24.01	0.28	0.15	10.67	0.00	0.12	0.14	0.03	98.71
T772	105	7827	till	0.25-0.5	black	Chromite	0.13	1.36	12.49	49.93	0.27	23.99	0.29	0.13	10.76	0.02	0.05	0.10	0.03	99.55
T778	28	7827	till	0.25-0.5	black	Chromite	0.10	0.31	15.05	54.09	0.08	16.47	0.34	0.26	14.46	0.01	0.00	0.10	0.00	101.26
T778	35	7827	till	0.25-0.5	black	Chromite	0.02	0.41	12.83	52.37	0.27	23.28	0.34	0.19	11.20	0.02	0.02	0.03	0.24	101.21
T778	36	7827	till	0.25-0.5	black	Chromite	0.03	0.06	10.94	56.92	0.19	19.36	0.30	0.08	12.28	0.03	0.05	0.26	0.00	100.49
T778	37	7827	till	0.25-0.5	black	Chromite	0.00	0.55	12.36	53.27	0.15	21.37	0.34	0.17	11.27	0.02	0.07	0.09	0.21	99.88
T778	39	7827	till	0.25-0.5	black	Chromite	0.00	0.50	11.99	53.84	0.12	23.02	0.36	0.23	10.71	0.00	0.08	0.21	0.08	101.15
T773	5	7828	till	0.25-0.5	black	Chromite	0.12	0.29	17.33	49.89	0.22	18.96	0.38	0.05	12.26	0.03	0.14	0.02	0.13	99.82

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T773	8	7828	till	0.25-0.5	black	Cr-Spinel	0.07	0.09	38.55	26.07	0.16	18.81	0.24	0.07	14.96	0.00	0.27	0.17	0.00	99.46
T773	18	7828	till	0.25-0.5	black	Chromite	0.13	0.28	16.61	50.63	0.22	18.95	0.29	0.02	12.11	0.05	0.10	0.14	0.00	99.53
T773	19	7828	till	0.25-0.5	black	Chromite	0.09	0.36	10.95	50.67	0.15	25.41	0.39	0.01	10.02	0.00	0.12	0.09	0.15	98.40
T773	28	7828	till	0.25-0.5	black	Chromite	0.08	0.05	23.51	47.89	0.25	14.55	0.28	0.01	13.24	0.00	0.05	0.06	0.08	100.06
T773	31	7828	till	0.25-0.5	black	Chromite	0.08	0.06	14.46	52.31	0.27	19.64	0.27	0.06	12.00	0.00	0.05	0.18	0.00	99.38
T773	55	7828	till	0.25-0.5	black	Chromite	0.09	0.73	8.09	58.16	0.10	21.87	0.44	0.16	9.98	0.02	0.04	0.14	0.00	99.81
T773	56	7828	till	0.25-0.5	black	Chromite	0.12	0.39	12.48	49.46	0.21	33.64	0.84	0.14	2.28	0.03	0.02	0.61	0.29	100.50
T773	57	7828	till	0.25-0.5	black	Cr-Spinel	0.17	1.05	28.01	35.79	0.09	16.44	0.10	0.04	16.81	0.00	0.26	0.05	0.00	98.82
T773	58	7828	till	0.25-0.5	black	Chromite	0.24	0.28	14.18	53.21	0.21	20.77	0.33	0.07	10.79	0.00	0.10	0.06	0.04	100.29
T773	60	7828	till	0.25-0.5	black	Chromite	0.08	0.74	9.55	49.08	0.18	27.94	0.43	0.05	9.93	0.00	0.25	0.12	0.00	98.34
T773	63	7828	till	0.25-0.5	black	Chromite	0.20	0.47	11.87	48.28	0.18	26.48	0.39	0.06	10.32	0.00	0.19	0.14	0.08	98.67
T762	104	7828	till	0.25-0.5	black	Chromite	0.10	2.60	1.12	55.56	0.28	30.02	0.51	0.03	8.98	0.00	0.20	0.19	0.00	99.60
T763	6	7828	till	0.25-0.5	black	Chromite	0.06	0.11	12.84	54.22	0.31	18.89	0.33	0.04	12.16	0.02	0.06	0.12	0.00	99.15
T763	47	7828	till	0.25-0.5	black	Chromite	0.04	0.29	16.24	49.86	0.22	18.91	0.37	0.08	12.42	0.08	0.14	0.19	0.13	98.98
T763	49	7828	till	0.25-0.5	black	Chromite	0.09	2.22	1.19	55.59	0.31	28.08	0.54	0.06	8.85	0.00	0.14	0.00	0.00	97.09
T763	52	7828	till	0.25-0.5	black	Chromite	0.05	1.33	4.23	54.73	0.22	28.10	0.53	0.09	9.50	0.04	0.12	0.22	0.00	99.16
T763	85	7828	till	0.25-0.5	black	Chromite	0.11	1.51	8.73	49.10	0.27	29.22	0.41	0.00	9.95	0.00	0.15	0.13	0.00	99.57
T763	86	7828	till	0.25-0.5	black	Chromite	0.07	0.59	14.01	44.27	0.24	27.03	0.40	0.19	10.87	0.13	0.19	0.16	0.14	98.29
T763	88	7828	till	0.25-0.5	black	Chromite	0.08	0.20	8.99	56.20	0.13	22.37	0.45	0.07	10.48	0.25	0.15	0.14	0.00	99.52
T778	74	7828	till	0.25-0.5	black	Chromite	0.05	0.65	12.81	52.04	0.19	23.51	0.33	0.15	10.75	0.00	0.01	0.12	0.19	100.81
T778	75	7828	till	0.25-0.5	black	Chromite	0.01	0.58	12.28	48.31	0.20	26.54	0.39	0.16	10.48	0.03	0.08	0.16	0.01	99.24
T778	76	7828	till	0.25-0.5	black	Chromite	0.18	0.23	14.49	52.42	0.19	19.86	0.29	0.17	11.95	0.02	0.15	0.00	0.00	99.96
T778	77	7828	till	0.25-0.5	black	Chromite	0.03	0.97	11.93	46.96	0.25	28.45	0.49	0.17	10.10	0.02	0.07	0.13	0.00	99.57
T797	27	7828	till	0.50-1.00	black	Chromite	0.04	0.72	8.59	52.47	0.12	29.84	0.79	0.13	7.37	0.03	0.00	0.07	0.07	100.49
T797	37	7828	till	0.50-1.00	black	Chromite	0.05	0.26	13.32	55.19	0.37	19.35	0.26	0.02	12.07	0.02	0.04	0.13	0.10	101.51
T797	42	7828	till	0.50-1.00	black	Chromite	0.07	0.70	10.88	50.19	0.16	26.74	0.44	0.28	10.58	0.00	0.01	0.23	0.00	100.53
T797	51	7828	till	0.50-1.00	black	Chromite	0.05	0.91	8.46	57.79	0.18	21.51	0.23	0.16	10.28	0.05	0.12	0.23	0.00	100.15
T773	94	7829	till	0.25-0.5	black	Chromite	0.07	0.26	8.77	57.48	0.20	20.90	0.44	0.04	11.18	0.03	0.03	0.00	0	99.39
T773	95	7829	till	0.25-0.5	black	Chromite	0.04	0.23	5.07	58.82	0.15	23.88	0.40	0.08	9.49	0.00	0.16	0.20	0.03	98.53
T764	5	7829	till	0.25-0.5	black	Chromite	0.13	0.90	2.62	60.56	0.29	24.64	0.39	0.12	8.74	0.08	0.06	0.15	0.00	98.68
T764	13	7829	till	0.25-0.5	black	Chromite	0.07	0.11	13.16	53.60	0.31	17.95	0.33	0.04	12.22	0.11	0.07	0.27	0.01	98.25
T764	26	7829	till	0.25-0.5	black	Chromite	0.05	1.54	3.55	52.81	0.21	28.98	0.34	0.09	8.89	0.00	0.11	0.24	0.08	96.88
T764	30	7829	till	0.25-0.5	black	Chromite	0.15	0.19	12.85	51.61	0.19	19.74	0.19	0.03	11.85	0.21	0.09	0.15	0.07	97.33
T764	32	7829	till	0.25-0.5	black	Chromite	0.11	0.32	12.98	54.43	0.35	18.04	0.28	0.11	12.40	0.02	0.09	0.18	0.00	99.30
T764	40	7829	till	0.25-0.5	black	Chromite	0.12	0.05	16.88	52.45	0.17	16.63	0.23	0.05	12.34	0.12	0.12	0.27	0.00	99.42
T764	48	7829	till	0.25-0.5	black	Chromite	0.16	2.16	1.27	54.05	0.42	29.51	0.47	0.08	8.39	0.15	0.16	0.10	0.03	96.97
T764	51	7829	till	0.25-0.5	black	Chromite	0.14	0.11	12.67	52.29	0.26	19.37	0.29	0.03	11.78	0.29	0.00	0.13	0.10	97.46
T764	61	7829	till	0.25-0.5	black	Chromite	0.12	0.13	12.27	52.21	0.27	21.19	0.31	0.10	11.90	0.14	0.07	0.07	0.08	98.88
T764	66	7829	till	0.25-0.5	black	Chromite	0.07	0.04	16.73	52.49	0.18	16.77	0.36	0.11	12.36	0.00	0.00	0.15	0.08	99.34
T764	71	7829	till	0.25-0.5	black	Chromite	0.09	0.04	16.39	52.61	0.11	17.59	0.29	0.03	11.98	0.02	0.10	0.24	0.14	99.65
T764	76	7829	till	0.25-0.5	black	Chromite	0.09	1.96	0.99	57.85	0.26	27.61	0.42	0.09	8.73	0.06	0.11	0.20	0.00	98.37
T764	80	7829	till	0.25-0.5	black	Chromite	0.04	1.97	0.99	56.93	0.25	28.55	0.51	0.10	8.50	0.06	0.08	0.15	0.11	98.25
T764	88	7829	till	0.25-0.5	black	Chromite	0.14	0.12	10.30	52.76	0.15	22.81	0.34	0.00	11.53	0.09	0.12	0.22	0.00	98.57
T764	89	7829	till	0.25-0.5	black	Chromite	0.07	0.30	10.83	52.70	0.20	23.08	0.30	0.02	10.26	0.05	0.11	0.24	0.18	98.33
T764	90	7829	till	0.25-0.5	black	Chromite	0.05	0.36	11.32	49.90	0.21	25.18	0.40	0.00	10.66	0.02	0.09	0.20	0.00	98.40
T764	91	7829	till	0.25-0.5	black	Chromite	0.13	0.28	11.70	51.55	0.11	22.58	0.41	0.08	10.96	0.08	0.03	0.21	0.03	98.14

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T779	2	7829	till	0.25-0.5	black	Chromite	0.12	0.27	11.97	54.14	0.22	23.56	0.42	0.14	8.58	0.04	0.05	0.17	0.00	99.68
T779	4	7829	till	0.25-0.5	black	Chromite	0.03	0.57	7.50	55.94	0.30	24.60	0.38	0.15	10.25	0.06	0.10	0.07	0.10	100.05
T779	5	7829	till	0.25-0.5	black	Chromite	0.04	0.10	14.05	52.76	0.23	19.02	0.30	0.05	12.87	0.04	0.11	0.24	0.00	99.82
T785	11	7829	till	0.25-0.5	black	Chromite	0.13	0.37	13.84	52.13	0.21	22.21	0.25	0.11	10.85	0.00	0.10	0.02	0.10	100.18
T798	8	7829	till	0.50-1.00	black	Chromite	0.05	1.61	4.76	52.80	0.32	29.89	0.37	0.16	9.10	0.00	0.06	0.18	0.00	99.61
T798	35	7829	till	0.50-1.00	black	Chromite	0.07	0.55	8.20	52.42	0.25	28.93	0.47	0.12	9.30	0.03	0.11	0.19	0.08	100.90
T798	39	7829	till	0.50-1.00	black	Chromite	0.04	2.45	1.16	57.00	0.37	29.62	0.51	0.18	9.01	0.03	0.02	0.07	0.00	100.68
T798	42	7829	till	0.50-1.00	black	Chromite	0.04	0.65	15.44	48.45	0.23	23.26	0.43	0.16	11.53	0.04	0.04	0.20	0.01	100.68
T798	45	7829	till	0.50-1.00	black	Chromite	0.02	0.38	11.69	54.68	0.15	21.17	0.31	0.09	10.86	0.03	0.09	0.18	0.07	99.98
T798	47	7829	till	0.50-1.00	black	Chromite	0.11	1.00	8.30	53.45	0.22	26.85	0.45	0.21	9.59	0.00	0.12	0.15	0.00	100.69
T798	48	7829	till	0.50-1.00	black	Chromite	0.00	1.06	12.37	52.41	0.21	21.63	0.30	0.05	11.66	0.03	0.05	0.21	0.13	100.48
T774	4	7830	till	0.25-0.5	black	gnesiochror	0.18	0.21	6.09	62.48	0.06	16.87	0.26	0.16	14.35	0.00	0.11	0.10	0.00	100.88
T774	34	7830	till	0.25-0.5	black	Chromite	0.05	0.55	14.46	52.43	0.16	18.44	0.29	0.11	13.04	0.04	0.06	0.12	0.00	99.77
T774	37	7830	till	0.25-0.5	black	Chromite	0.09	0.64	8.40	54.76	0.10	22.42	0.24	0.10	11.64	0.00	0.14	0.03	0.00	98.55
T774	39	7830	till	0.25-0.5	black	Chromite	0.08	1.29	15.72	45.11	0.37	25.78	0.38	0.06	10.96	0.00	0.04	0.17	0.00	99.96
T774	40	7830	till	0.25-0.5	black	Chromite	0.14	0.49	12.96	50.92	0.33	23.65	0.20	0.11	10.38	0.02	0.09	0.06	0.00	99.36
T774	41	7830	till	0.25-0.5	black	Chromite	0.17	0.28	11.47	51.36	0.20	32.57	1.13	0.00	1.59	0.00	0.06	0.98	0.15	99.97
T774	42	7830	till	0.25-0.5	black	Chromite	0.09	0.31	12.10	53.48	0.15	23.19	0.39	0.04	9.51	0.00	0.11	0.00	0.13	99.49
T765	8	7830	till	0.25-0.5	black	Mg-Chromite	0.10	0.33	6.03	61.56	0.04	15.17	0.26	0.06	14.19	0.02	0.13	0.07	0.00	97.96
T765	12	7830	till	0.25-0.5	black	Chromite	0.13	0.07	11.03	57.90	0.26	13.65	0.20	0.01	14.73	0.06	0.11	0.09	0.01	98.27
T765	26	7830	till	0.25-0.5	black	Chromite	0.04	0.75	13.71	46.03	0.35	29.98	0.57	0.07	6.02	0.02	0.12	0.41	0.00	98.07
T765	35	7830	till	0.25-0.5	black	Chromite	0.08	1.31	13.64	47.24	0.20	28.86	0.49	0.09	7.45	0.03	0.20	0.24	0.03	99.85
T765	36	7830	till	0.25-0.5	black	Chromite	0.17	0.32	13.92	51.61	0.08	19.30	0.22	0.15	12.22	0.00	0.17	0.04	0.00	98.21
T765	37	7830	till	0.25-0.5	black	Chromite	0.14	0.43	12.65	49.59	0.15	25.84	0.31	0.00	9.01	0.00	0.16	0.29	0.19	98.75
T779	34	7830	till	0.25-0.5	black	Chromite	0.05	0.69	9.26	51.36	0.21	25.54	0.38	0.06	10.49	0.06	0.05	0.15	0.00	98.30
T779	38	7830	till	0.25-0.5	black	Chromite	0.08	0.32	16.55	52.67	0.20	16.20	0.18	0.13	13.93	0.01	0.07	0.10	0.00	100.44
T779	40	7830	till	0.25-0.5	black	Chromite	0.07	0.49	13.38	51.75	0.25	24.05	0.27	0.14	9.26	0.05	0.06	0.10	0.14	100.01
T779	41	7830	till	0.25-0.5	black	Chromite	0.07	0.29	11.78	54.20	0.19	21.90	0.32	0.08	10.69	0.06	0.05	0.26	0.01	99.93
T779	44	7830	till	0.25-0.5	black	Cr-spinel	0.16	2.62	24.89	36.61	0.17	18.43	0.12	0.33	16.02	0.01	0.05	0.00	0.14	99.54
T779	45	7830	till	0.25-0.5	black	Chromite	0.08	0.30	11.95	54.24	0.16	21.56	0.29	0.19	10.48	0.01	0.10	0.17	0.00	99.51
T779	47	7830	till	0.25-0.5	black	Chromite	0.05	0.35	12.18	54.09	0.20	21.67	0.36	0.11	10.66	0.00	0.02	0.32	0.00	100.01
T779	49	7830	till	0.25-0.5	black	Chromite	0.11	0.26	13.85	55.00	0.11	16.18	0.26	0.11	13.94	0.11	0.09	0.11	0.04	100.15
T779	50	7830	till	0.25-0.5	black	Chromite	0.04	1.07	13.24	48.00	0.26	25.76	1.20	0.17	9.06	0.00	0.06	0.21	0.00	99.06
T779	51	7830	till	0.25-0.5	black	Chromite	0.03	0.87	13.58	47.58	0.23	29.05	0.39	0.18	6.66	0.00	0.13	0.21	0.01	98.92
T779	52	7830	till	0.25-0.5	black	Cr-spinel	0.01	1.62	27.72	34.49	0.07	20.23	0.18	0.26	14.77	0.01	0.04	0.11	0.00	99.50
T779	57	7830	till	0.25-0.5	black	Chromite	0.06	2.29	12.89	42.01	0.46	32.57	0.26	0.10	8.16	0.00	0.14	0.19	0.00	99.15
T799	14	7830	till	0.50-1.00	black	Chromite	0.08	0.68	8.57	54.21	0.31	26.12	0.28	0.14	9.63	0.00	0.02	0.16	0.00	100.31
T774	44	7831	till	0.25-0.5	black	Chromite	0.15	0.29	14.04	53.20	0.18	19.41	0.30	0.18	12.73	0.01	0.07	0.08	0.08	100.71
T774	48	7831	till	0.25-0.5	black	Chromite	0.11	0.39	13.65	53.67	0.25	19.14	0.25	0.16	12.84	0.00	0.06	0.12	0.00	100.65
T774	53	7831	till	0.25-0.5	black	Chromite	0.19	1.33	13.15	48.79	0.12	27.37	0.42	0.08	6.86	0.02	0.09	0.38	0.00	98.80
T774	56	7831	till	0.25-0.5	black	Chromite	0.16	0.32	12.76	52.59	0.06	22.66	0.28	0.10	10.76	0.00	0.09	0.11	0.17	100.06
T774	60	7831	till	0.25-0.5	black	Chromite	0.10	0.53	13.87	46.75	0.23	30.92	0.44	0.05	5.51	0.04	0.07	0.33	0.00	98.84
T774	64	7831	till	0.25-0.5	black	Chromite	0.08	0.54	13.40	49.88	0.13	23.53	0.39	0.15	11.08	0.00	0.03	0.00	0.00	99.21
T774	68	7831	till	0.25-0.5	black	Chromite	0.20	0.33	13.13	54.33	0.18	19.27	0.26	0.11	12.41	0.01	0.12	0.00	0.00	100.34
T774	69	7831	till	0.25-0.5	black	Chromite	0.08	1.43	12.97	50.21	0.27	23.37	0.21	0.10	11.53	0.00	0.15	0.19	0.07	100.59
T774	70	7831	till	0.25-0.5	black	Chromite	0.07	0.26	13.34	53.12	0.03	20.47	0.32	0.09	11.26	0.00	0.11	0.09	0.00	99.17

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T774	74	7831	till	0.25-0.5	black	Chromite	0.07	1.32	13.68	45.77	0.34	27.76	0.20	0.10	9.63	0.03	0.05	0.17	0.00	99.12
T774	76	7831	till	0.25-0.5	black	Chromite	0.26	0.36	13.28	53.24	0.23	20.72	0.34	0.21	11.19	0.05	0.06	0.33	0.13	100.40
T774	77	7831	till	0.25-0.5	black	Chromite	0.06	0.79	14.27	48.67	0.29	26.04	0.42	0.20	9.17	0.00	0.08	0.16	0.04	100.21
T774	78	7831	till	0.25-0.5	black	Chromite	0.13	0.71	12.66	49.28	0.27	25.94	0.35	0.14	9.85	0.00	0.06	0.21	0.11	99.70
T774	79	7831	till	0.25-0.5	black	Chromite	0.16	0.40	15.24	45.63	0.15	33.44	1.66	0.04	0.55	0.01	0.04	2.28	0.07	99.68
T774	80	7831	till	0.25-0.5	black	Chromite	0.07	0.71	14.30	50.77	0.27	19.17	0.30	0.09	13.08	0.00	0.06	0.22	0.01	99.03
T774	81	7831	till	0.25-0.5	black	Chromite	0.15	0.38	8.14	58.84	0.08	19.25	0.34	0.16	12.14	0.00	0.00	0.08	0.28	99.84
T774	82	7831	till	0.25-0.5	black	Chromite	0.07	1.01	11.82	48.86	0.21	26.55	0.37	0.16	9.67	0.00	0.02	0.00	0.01	98.76
T774	84	7831	till	0.25-0.5	black	Chromite	0.02	0.81	14.32	47.57	0.16	25.01	0.25	0.21	10.67	0.01	0.05	0.26	0.17	99.49
T774	85	7831	till	0.25-0.5	black	Chromite	0.17	0.37	13.35	52.56	0.17	20.54	0.30	0.06	11.69	0.05	0.15	0.14	0.21	99.76
T774	88	7831	till	0.25-0.5	black	Chromite	0.17	0.39	14.64	49.50	0.22	23.38	0.29	0.12	9.98	0.00	0.05	0.09	0.00	98.82
T774	89	7831	till	0.25-0.5	black	Chromite	0.10	0.27	15.55	48.80	0.25	21.13	0.28	0.18	11.92	0.00	0.10	0.12	0.03	98.72
T774	90	7831	till	0.25-0.5	black	Ti-Chromite	0.05	2.49	13.05	45.50	0.34	26.70	0.33	0.21	10.67	0.03	0.00	0.07	0.11	99.55
T774	91	7831	till	0.25-0.5	black	Chromite	0.10	0.39	13.37	49.93	0.32	26.40	0.26	0.10	8.50	0.00	0.00	0.27	0.24	99.87
T774	92	7831	till	0.25-0.5	black	Chromite	0.06	1.02	13.96	45.93	0.37	31.03	0.55	0.06	5.99	0.00	0.17	0.32	0.00	99.45
T774	96	7831	till	0.25-0.5	black	Ti-Chromite	1.08	2.94	10.29	44.87	0.29	33.39	0.67	0.11	3.79	0.00	0.07	0.21	0.03	97.75
T774	102	7831	till	0.25-0.5	black	Chromite	0.15	0.91	11.50	51.02	0.36	28.30	0.49	0.07	4.95	0.00	0.19	0.26	0.00	98.21
T765	40	7831	till	0.25-0.5	black	Chromite	0.09	0.37	15.80	48.01	0.18	22.06	0.33	0.07	11.86	0.06	0.14	0.12	0.00	99.09
T765	52	7831	till	0.25-0.5	black	Chromite	0.05	0.85	13.54	46.48	0.24	28.97	0.51	0.06	7.39	0.00	0.07	0.10	0.25	98.51
T765	55	7831	till	0.25-0.5	black	Chromite	0.16	0.43	12.11	51.39	0.11	24.38	0.33	0.12	10.42	0.04	0.16	0.16	0.10	99.91
T765	56	7831	till	0.25-0.5	black	Ti-Chromite	0.09	3.74	10.15	39.55	0.47	38.86	0.74	0.11	2.59	0.06	0.15	0.42	0.15	97.11
T765	57	7831	till	0.25-0.5	black	Chromite	0.03	2.24	9.70	46.37	0.29	31.11	0.32	0.08	7.70	0.00	0.08	0.17	0.00	98.09
T765	58	7831	till	0.25-0.5	black	Chromite	0.18	0.34	12.82	51.50	0.18	23.55	0.29	0.05	9.53	0.07	0.10	0.24	0.17	99.02
T779	63	7831	till	0.25-0.5	black	Chromite	0.09	0.56	12.89	53.33	0.25	20.47	0.33	0.10	11.78	0.01	0.06	0.03	0.12	100.02
T779	66	7831	till	0.25-0.5	black	Chromite	0.02	0.53	11.84	51.66	0.27	25.07	0.27	0.15	10.25	0.00	0.09	0.19	0.00	100.36
T785	63	7831	till	0.25-0.5	black	Chromite	0.08	0.49	14.33	52.36	0.12	19.01	0.40	0.16	11.92	0.01	0.01	0.10	0.18	99.08
T785	64	7831	till	0.25-0.5	black	Chromite	0.05	0.58	14.39	52.80	0.18	19.44	0.30	0.17	12.41	0.00	0.03	0.00	0.15	100.43
T774	112	7832	till	0.25-0.5	black	Chromite	0.15	0.41	9.29	56.71	0.15	19.99	0.33	0.25	12.91	0.02	0.05	0.08	0.00	100.34
T774	115	7832	till	0.25-0.5	black	Chromite	0.13	0.29	13.69	55.10	0.14	15.45	0.10	0.28	14.83	0.00	0.02	0.00	0.08	100.12
T774	116	7832	till	0.25-0.5	black	Chromite	0.08	1.47	10.92	46.55	0.29	33.67	0.78	0.10	4.21	0.00	0.00	0.37	0.00	98.46
T765	63	7832	till	0.25-0.5	black	Chromite	0.10	0.35	6.04	54.03	0.00	33.46	1.05	0.11	1.76	0.01	0.02	0.83	0.00	97.76
T765	77	7832	till	0.25-0.5	black	Chromite	0.10	0.50	8.78	55.33	0.09	21.96	0.36	0.02	11.62	0.02	0.18	0.08	0.04	99.09
T765	78	7832	till	0.25-0.5	black	Chromite	0.12	0.16	13.27	54.27	0.22	16.79	0.10	0.03	14.50	0.00	0.15	0.16	0.00	99.79
T779	69	7832	till	0.25-0.5	black	Cr-spinel	0.09	0.73	39.12	22.60	0.17	18.57	0.21	0.23	16.57	0.17	0.10	0.00	0.00	98.56
T779	72	7832	till	0.25-0.5	black	Chromite	0.04	0.85	12.50	49.79	0.34	27.73	0.49	0.03	7.83	0.03	0.09	0.11	0.03	99.87
T779	73	7832	till	0.25-0.5	black	Chromite	1.14	1.61	11.99	45.75	0.33	29.94	0.56	0.12	6.42	0.09	0.08	0.20	0.07	98.30
T779	76	7832	till	0.25-0.5	black	Chromite	0.00	0.04	15.27	55.44	0.24	15.29	0.23	0.06	13.15	0.03	0.05	0.01	0.32	100.13
T775	9	7834	till	0.25-0.5	black	Chromite	0.05	0.18	14.43	53.50	0.14	18.23	0.38	0.01	12.69	0.00	0.10	0.11	0.10	99.91
T775	18	7834	till	0.25-0.5	black	Chromite	0.15	0.33	15.17	50.09	0.21	24.66	0.41	0.06	8.36	0.00	0.19	0.38	0.11	100.13
T775	19	7834	till	0.25-0.5	black	Chromite	0.14	0.39	13.83	53.04	0.24	19.11	0.30	0.07	12.84	0.03	0.11	0.05	0.00	100.12
T775	21	7834	till	0.25-0.5	black	Chromite	0.08	1.54	12.13	52.06	0.32	23.19	0.23	0.19	7.33	0.01	0.23	0.11	0.00	97.42
T775	26	7834	till	0.25-0.5	black	Chromite	0.14	0.35	13.95	54.72	0.14	14.57	0.10	0.04	15.61	0.03	0.19	0.07	0.06	99.96
T775	27	7834	till	0.25-0.5	black	Chromite	0.08	0.40	11.66	52.41	0.09	23.84	0.44	0.05	10.16	0.04	0.07	0.18	0.00	99.42
T775	33	7834	till	0.25-0.5	black	Chromite	0.12	0.85	15.40	49.62	0.13	24.60	0.50	0.12	8.83	0.01	0.10	0.19	0.11	100.57
T775	38	7834	till	0.25-0.5	black	Chromite	0.20	0.37	12.98	51.97	0.14	22.55	0.27	0.04	8.91	0.00	0.14	0.00	0.00	97.56
T775	39	7834	till	0.25-0.5	black	Chromite	0.09	5.42	9.18	36.19	0.57	38.69	0.43	0.06	8.05	0.00	0.13	0.24	0.08	99.14

Appendix C.6 Microprobe data for chromite from the Peddie kimberlite and associated glacial sediments

Mount	No.	Sample	Material	Size	Color	Mineral	SiO2	TiO2	Al2O3	Cr2O3	V2O3	FeOtot	MnO	NiO	MgO	CaO	CoO	ZnO	Nb2O5	TOTAL
T775	40	7834	till	0.25-0.5	black	Chromite	0.11	0.28	11.91	50.42	0.11	30.78	0.56	0.08	4.66	0.02	0.11	0.46	0.05	99.54
T775	41	7834	till	0.25-0.5	black	Chromite	0.06	2.13	11.49	48.02	0.33	26.96	0.31	0.06	10.28	0.03	0.16	0.17	0.08	100.08
T775	42	7834	till	0.25-0.5	black	Chromite	0.05	0.62	13.95	47.76	0.24	27.29	0.31	0.02	9.73	0.02	0.04	0.04	0.18	100.25
T775	43	7834	till	0.25-0.5	black	Chromite	0.37	0.63	13.09	51.77	0.23	23.29	0.40	0.04	10.66	0.00	0.17	0.21	0.11	100.98
T775	44	7834	till	0.25-0.5	black	Chromite	0.09	1.01	11.70	52.37	0.26	23.98	0.33	0.09	8.35	0.00	0.15	0.02	0.00	98.36
T775	45	7834	till	0.25-0.5	black	Chromite	0.09	0.57	14.67	47.08	0.25	26.64	0.33	0.09	9.13	0.00	0.10	0.12	0.01	99.08
T765	96	7834	till	0.25-0.5	black	Chromite	0.43	0.41	7.54	56.26	0.10	20.35	0.26	0.07	12.41	0.04	0.15	0.03	0.00	98.05
T765	108	7834	till	0.25-0.5	black	Chromite	0.17	0.28	12.74	50.30	0.11	27.02	0.59	0.16	6.60	0.00	0.17	0.40	0.08	98.62
T766	4	7834	till	0.25-0.5	black	Chromite	0.09	2.12	10.73	44.32	0.45	30.01	0.35	0.15	9.15	0.00	0.17	0.12	0.05	97.70
T766	5	7834	till	0.25-0.5	black	Chromite	0.09	1.19	11.35	46.25	0.21	33.82	0.57	0.04	4.62	0.03	0.01	0.23	0.00	98.41
T766	6	7834	till	0.25-0.5	black	Chromite	0.10	0.99	13.20	46.93	0.39	30.85	0.56	0.05	5.52	0.07	0.10	0.19	0.19	99.14
T779	82	7834	till	0.25-0.5	black	Chromite	0.10	0.41	8.17	58.51	0.13	18.90	0.23	0.23	13.53	0.00	0.00	0.10	0.21	100.51
T779	85	7834	till	0.25-0.5	black	Chromite	0.03	0.88	13.23	51.43	0.28	20.81	0.33	0.18	12.03	0.00	0.03	0.05	0.14	99.43
T779	87	7834	till	0.25-0.5	black	Chromite	0.06	0.42	12.80	52.44	0.15	24.24	0.32	0.17	10.08	0.06	0.08	0.15	0.10	101.06
T779	89	7834	till	0.25-0.5	black	Cr-spinel	0.14	1.17	30.47	32.79	0.04	17.46	0.16	0.20	16.44	0.15	0.00	0.00	0.00	99.03
T779	90	7834	till	0.25-0.5	black	Chromite	0.07	2.62	12.37	46.33	0.35	26.51	0.29	0.15	10.55	0.01	0.01	0.09	0.12	99.48
T779	92	7834	till	0.25-0.5	black	Chromite	0.04	1.72	21.22	40.49	0.27	21.47	0.27	0.01	14.34	0.00	0.05	0.11	0.00	100.00
T779	93	7834	till	0.25-0.5	black	Chromite	0.11	0.32	13.32	55.58	0.06	13.47	0.22	0.21	15.86	0.13	0.03	0.00	0.08	99.39
T779	94	7834	till	0.25-0.5	black	Chromite	0.15	0.35	13.58	51.56	0.05	25.12	0.39	0.08	8.11	0.00	0.05	0.19	0.00	99.64
T775	49	7835	till	0.25-0.5	black	Cr-Spinel	0.21	0.17	35.08	33.07	0.10	14.05	0.16	0.07	17.98	0.01	0.28	0.03	0.16	101.36
T766	45	7836	till	0.25-0.5	black	Chromite	0.11	0.50	14.00	50.69	0.24	22.03	0.26	0.09	10.84	0.04	0.10	0.21	0.00	99.12
T766	56	7836	till	0.25-0.5	black	Chromite	0.12	0.83	15.46	47.07	0.28	24.06	0.24	0.05	11.20	0.04	0.25	0.13	0.03	99.75
T766	70	7837	till	0.25-0.5	black	Chromite	0.07	0.54	13.77	49.14	0.24	26.08	0.30	0.09	8.96	0.02	0.05	0.00	0.08	99.34
T766	74	7838	till	0.25-0.5	black	Chromite	0.08	0.45	10.20	53.22	0.14	23.12	0.18	0.10	11.23	0.01	0.14	0.00	0.08	98.94



**Appendix D. Geochemical data for four size fractions of till  
( $<0.063$  mm, 0.63 to 0.25 mm, 0.25 to 0.5 mm and 0.5 to 2.0 mm)**

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Appendix D.1 INAA data for 4 size fractions of till

Sample	Size	Au	As	Ba	Br	Ca	Co	Cr	Cs	Fe	Hf	Na	Rb	Sb	Sc	Se	Ta	Th	U	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu
Method	Fraction	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
Analysis Unit	(in mm)	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit A,B,C		5	2	100	1	1.0	5	10	3	0.1	1	500	30	0.2	1.0	5	1	0.5	0.5	1	3	10	0.5	0.2	0.5	0.5	0.05
Detection Limit D		2	0.5	50	0.5	1.0	1	5	111	0.01	1	100	15	0.1	0.1	3	0.5	0.2	0.5	0.5	3	5	0.1	0.2	0.5	0.2	0.05
97MPB7801A	0.5-2.0	<5	2	280	7	11.8	7	85	<3	2.1	2	8300	<30	0.3	6.0	<5	1	4.4	1.4	20	39	<10	2.8	0.7	1.2	0.6	0.09
97MPB7801B	0.25-0.5	9	<2	298	6	9.4	6	56	3	1.6	1	9890	<30	<0.2	5.0	<5	1	3.6	<0.5	14	26	13	2.4	0.7	<0.5	0.9	0.09
97MPB7801C	0.063-0.25	<5	<2	280	5	12.0	6	49	<3	1.5	2	9870	<30	<0.2	5.0	8	<1	2.6	0.9	14	30	23	2.5	0.7	0.7	0.9	0.12
97MPB7801D	<0.063	<2	3.0	390	3.7	14.0	9	72	1	2.0	5	9700	52	0.3	6.7	<3	<0.5	4.1	1.1	23	41	15	2.9	0.9	<0.5	1.6	0.23
97MPB7811A	0.5-2.0	<5	<2	318	<1	2.2	14	102	3	2.8	4	21632	102	<0.2	11.0	8	3	4.1	1.6	16	40	38	3.6	0.8	0.7	1.2	0.16
97MPB7811B	0.25-0.5	<5	<2	423	2	2.0	14	82	<3	2.3	2	21459	61	<0.2	9.0	7	1	4.7	<0.5	15	29	<10	3.0	0.7	<0.5	1.2	0.12
97MPB7811C	0.063-0.25	<5	<2	237	2	2.1	14	84	<3	2.2	3	22101	90	<0.2	9.0	<5	1	4.0	0.8	15	36	<10	3.2	0.4	<0.5	0.8	0.16
97MPB7811D	<0.063	6	4.0	500	3.5	2.0	16	140	3	3.5	6	21000	45	0.2	14.0	<3	<0.5	5.4	0.6	28	52	18	4.2	1.1	<0.5	2.2	0.32
97MPB7812A	0.5-2.0	<5	3	396	3	1.2	10	96	<3	3.3	3	21316	67	0.5	12.0	7	1	6.5	1.7	21	45	23	3.8	1.0	<0.5	1.3	0.25
97MPB7812B	0.25-0.5	<5	2	210	2	1.4	12	66	<3	2.2	2	20651	100	<0.2	8.0	<5	1	5.0	2.0	17	32	16	3.0	0.8	0.5	1.2	0.14
97MPB7812C	0.063-0.25	<5	<2	416	3	1.6	11	78	<3	2.1	3	21292	109	<0.2	8.0	9	2	3.3	1.0	18	30	<10	3.4	0.8	0.7	1.4	0.19
97MPB7812D	<0.063	5	5.9	450	5.0	<1	15	120	2	3.4	6	18000	86	0.3	13.0	<3	1.4	6.2	1.4	35	58	22	4.7	1.3	0.6	2.4	0.39
97MPB7813A	0.5-2.0	<5	<2	226	<1	1.7	14	93	3	3.1	4	21570	142	0.3	11.0	<5	1	5.8	0.9	20	36	14	3.9	1.7	<0.5	1.7	0.17
97MPB7813B	0.25-0.5	<5	2	295	2	1.3	11	72	<3	2.5	2	21784	141	0.5	9.0	<5	<1	4.3	0.8	18	44	16	3.3	1.3	0.8	0.8	0.19
97MPB7813C	0.063-0.25	<5	<2	255	2	1.4	11	76	<3	2.2	2	22042	75	0.3	8.0	7	1	4.6	2.2	16	34	<10	3.3	0.9	<0.5	0.9	0.18
97MPB7813D	<0.063	7	4.2	480	3.7	2.0	15	120	2	3.3	6	19000	58	0.3	13.0	<3	<0.5	5.6	0.9	34	57	19	4.6	1.3	<0.5	2.4	0.34
97MPB7815A	0.5-2.0	<5	<2	295	7	12.8	10	73	<3	2.4	<1	10032	69	0.3	7.0	6	2	3.4	1.7	17	29	13	2.6	0.6	1.6	0.7	0.08
97MPB7815B	0.25-0.5	<5	<2	114	6	11.2	9	62	<3	1.9	2	11214	82	<0.2	6.0	<5	<1	3.1	1.5	14	23	13	2.3	<0.2	<0.5	0.7	0.06
97MPB7815C	0.063-0.25	<5	<2	186	5	10.6	7	55	<3	1.7	1	12178	46	0.4	5.0	<5	2	2.7	<0.5	14	28	12	2.4	0.3	<0.5	0.5	0.13
97MPB7815D	<0.063	4	5.2	430	3.9	11.0	9	79	<1	2.2	5	10200	36	0.4	6.9	<3	<0.5	4.2	<0.5	21	38	14	2.9	0.8	<0.5	1.5	0.24
97MPB7816A	0.5-2.0	<5	4	246	6	9.8	13	76	<3	2.9	3	15400	87	0.4	10.0	<5	2	4.4	1.5	17	36	20	3.2	0.6	1.7	1.4	0.14
97MPB7816B	0.25-0.5	<5	2	163	6	6.0	9	75	<3	2.1	2	16388	120	<0.2	7.0	<5	<1	3.3	0.8	13	24	14	2.3	1.0	0.9	0.9	0.18
97MPB7816C	0.063-0.25	<5	<2	330	2	7.6	8	58	<3	1.7	3	16916	109	<0.2	6.0	6	<1	3.8	<0.5	13	28	17	2.5	1.4	<0.5	0.9	0.13
97MPB7816D	<0.063	18	3.1	450	3.1	11.0	12	95	1	2.5	6	12000	55	0.2	8.1	<3	<0.5	5.0	1.5	25	44	20	3.4	0.9	<0.5	1.5	0.28
97MPB7817A	0.5-2.0	<5	2	440	3	7.0	14	99	<3	2.8	4	18998	44	0.6	10.0	<5	<1	5.3	1.5	17	31	14	3.3	1.0	0.6	1.1	0.25
97MPB7817B	0.25-0.5	9	<2	348	2	6.2	9	74	<3	2.1	4	19315	40	<0.2	8.0	7	2	3.2	0.5	13	25	<10	2.6	0.6	0.5	1.1	0.13
97MPB7817C	0.063-0.25	<5	<2	433	3	6.8	9	71	<3	1.8	2	19280	<30	0.3	7.0	<5	<1	3.6	<0.5	13	28	<10	2.6	1.0	0.9	0.8	0.19
97MPB7817D	<0.063	8	2.0	430	2.7	7.0	12	89	1	2.3	6	14900	50	0.2	8.6	<3	<0.5	4.3	1.1	21	39	14	3.0	0.8	<0.5	1.7	0.28
97MPB7819A	0.5-2.0	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
97MPB7819B	0.25-0.5	56	2	333	4	6.6	8	84	<3	2.2	3	15821	47	0.3	8.0	<5	<1	4.7	2.0	15	36	<10	3.0	0.6	<0.5	1.1	0.19
97MPB7819C	0.063-0.25	6	4	412	3	8.2	11	71	<3	2.1	3	15727	57	0.3	7.0	<5	<1	4.4	1.2	16	29	<10	3.0	0.4	0.9	1.2	0.21
97MPB7819D	<0.063	<2	4.0	400	3.1	10.0	12	81	1	2.3	5	12900	58	0.2	8.5	<3	<0.5	4.6	1.2	23	43	16	3.1	0.8	<0.5	1.6	0.26
97MPB7820A	0.5-2.0	<5	3	217	5	11.8	10	84	<3	2.8	2	11851	48	0.5	8.0	<5	2	5.7	1.1	18	31	21	2.9	1.0	0.5	1.1	0.09
97MPB7820B	0.25-0.5	<5	2	238	6	10.6	9	70	<3	2.0	1	12765	<30	0.2	6.0	<5	2	3.6	1.7	14	28	28	2.4	0.7	0.6	0.8	0.15
97MPB7820C	0.063-0.25	<5	2	298	3	10.6	8	55	<3	1.9	3	13300	63	0.4	5.0	<5	2	3.2	<0.5	14	30	25	2.3	1.0	<0.5	0.9	0.14

## Appendix D.1 INAA data for 4 size fractions of till

Sample	Size	Au	As	Ba	Br	Ca	Co	Cr	Cs	Fe	Hf	Na	Rb	Sb	Sc	Se	Ta	Th	U	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu
Method	Fraction	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
Analysis Unit	(in mm)	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit A,B,C		5	2	100	1	1.0	5	10	3	0.1	1	500	30	0.2	1.0	5	1	0.5	0.5	1	3	10	0.5	0.2	0.5	0.5	0.05
97MPB7820D	<0.063	9	4.7	350	3.4	12.0	11	79	1	2.4	4	11500	39	0.3	7.8	<3	1	4.2	1.0	22	39	14	2.9	0.8	<0.5	1.5	0.22
97MPB7821A	0.5-2.0	<5	3	274	4	11.2	12	81	<3	2.4	3	11793	31	0.5	8.0	10	<1	4.3	1.7	17	35	29	2.6	0.4	1.3	1.1	0.26
97MPB7821B	0.25-0.5	<5	3	283	5	10.0	7	72	<3	2.2	<1	12725	54	0.2	6.0	<5	2	3.5	1.6	15	34	21	2.4	0.9	<0.5	1.0	0.14
97MPB7821C	0.063-0.25	<5	<2	331	4	9.2	8	72	<3	1.8	3	13342	39	<0.2	6.0	<5	2	3.2	0.8	15	31	31	2.6	0.5	0.7	0.9	0.15
97MPB7821D	<0.063	3	2.2	340	3.3	12.0	9	85	1	2.2	4	11500	45	0.4	7.6	<3	<0.5	4.0	<0.5	22	37	13	2.9	0.7	<0.5	1.5	0.23
97MPB7822A	0.5-2.0	<5	<2	312	3	8.2	10	81	<3	2.5	4	18741	82	0.4	9.0	6	2	5.1	0.7	20	42	14	3.6	1.3	<0.5	1.0	0.15
97MPB7822B	0.25-0.5	<5	<2	479	2	7.4	11	78	4	2.3	2	18749	76	<0.2	8.0	<5	<1	4.2	2.1	18	39	33	3.0	1.0	0.8	0.8	0.15
97MPB7822C	0.063-0.25	<5	<2	271	2	7.2	8	71	<3	2.1	3	18557	71	0.3	7.0	<5	<1	3.8	1.6	18	38	12	3.2	0.3	0.7	1.0	0.18
97MPB7822D	<0.063	<2	2.3	350	2.2	6.0	9	75	<1	2.0	4	19700	60	0.2	8.5	<3	<0.5	4.2	1.4	21	38	14	2.9	0.8	<0.5	1.4	0.22
97MPB7823A	0.5-2.0	<5	4	206	9	15.2	10	75	<3	2.5	2	8820	<30	0.6	7.0	<5	<1	3.3	1.0	17	31	18	2.6	0.7	0.5	0.7	0.08
97MPB7823B	0.25-0.5	<5	<2	153	9	10.4	7	61	<3	1.7	<1	9400	47	<0.2	5.0	<5	<1	2.5	2.1	13	18	<10	1.8	0.8	0.7	0.8	0.07
97MPB7823C	0.063-0.25	<5	<2	239	9	14.0	<5	55	<3	1.5	2	9530	59	0.4	4.0	5	<1	2.1	1.4	14	28	15	2.2	0.7	<0.5	0.7	0.15
97MPB7823D	<0.063	3	1.6	280	4.3	14.0	6	58	1	1.7	5	7400	46	0.2	5.6	<3	<0.5	3.8	1.0	20	35	12	2.5	0.7	<0.5	1.4	0.21
97MPB7824A	0.5-2.0	<5	3	306	7	12.8	11	100	<3	3.1	2	12655	110	0.4	9.0	8	<1	4.5	1.3	18	30	17	2.9	0.7	<0.5	1.2	0.14
97MPB7824B	0.25-0.5	9	2	161	7	8.2	7	57	<3	2.0	2	13572	33	<0.2	6.0	<5	<1	2.8	0.7	14	22	17	2.5	0.8	0.7	0.8	0.22
97MPB7824C	0.063-0.25	<5	<2	311	6	8.8	7	66	<3	1.7	3	13502	45	0.6	5.0	7	<1	2.4	0.7	14	30	<10	2.6	0.4	0.6	0.8	0.09
97MPB7824D	<0.063	4	5.4	300	4.2	11.0	9	70	1	2.1	6	9200	35	0.2	6.7	<3	<0.5	5.0	1.0	22	43	17	3.0	0.9	<0.5	1.8	0.27
97MPB7825A	0.5-2.0	7	<2	304	4	3.6	17	126	<3	4.0	3	20954	49	0.5	15.0	<5	1	6.2	2.9	19	32	<10	3.5	0.9	<0.5	1.0	0.19
97MPB7825B	0.25-0.5	<5	<2	294	4	3.0	11	75	<3	2.1	2	17366	47	0.4	7.0	<5	1	2.2	1.8	13	32	<10	2.1	0.5	<0.5	0.8	0.21
97MPB7825C	0.063-0.25	<5	2	243	6	7.0	8	77	<3	2.1	3	15815	32	0.3	7.0	<5	2	3.8	<0.5	16	29	<10	2.8	0.9	0.5	0.6	0.13
97MPB7825D	<0.063	<2	4.6	340	11.0	9.0	15	110	2	3.4	5	11100	76	0.3	10.0	<3	<0.5	6.7	0.9	38	63	24	4.3	1.1	<0.5	1.8	0.27
97MPB7826A	0.5-2.0	<5	<2	172	6	8.0	14	96	<3	3.0	2	16903	37	0.3	11.0	<5	<1	4.5	1.3	19	28	<10	3.0	0.9	<0.5	1.0	0.09
97MPB7826B	0.25-0.5	<5	3	204	6	5.9	10	74	<3	2.1	1	15579	44	<0.2	7.0	<5	<1	3.2	1.7	15	30	15	2.4	0.5	<0.5	0.6	0.09
97MPB7826C	0.063-0.25	<5	<2	286	7	7.8	8	69	<3	2.0	3	13363	38	<0.2	6.0	<5	<1	3.4	0.8	20	29	17	2.9	0.8	<0.5	1.0	0.21
97MPB7826D	<0.063	<2	4.8	350	4.9	5.0	12	89	2	2.8	4	14700	71	0.3	9.0	<3	1.2	5.6	0.8	30	54	20	3.8	1.0	<0.5	1.8	0.27
97MPB7827A	0.5-2.0	<5	3	286	3	9.4	12	95	<3	2.8	3	13501	44	0.6	9.0	<5	<1	5.0	1.0	17	34	22	2.8	1.0	<0.5	1.2	0.20
97MPB7827B	0.25-0.5	<5	<2	326	4	6.5	9	61	<3	2.0	2	14148	<30	<0.2	6.0	<5	<1	3.3	0.9	15	30	<10	2.4	0.6	<0.5	0.9	0.17
97MPB7827C	0.063-0.25	6	4	350	4	8.1	7	55	<3	1.6	3	14304	61	<0.2	5.0	<5	<1	2.3	0.7	13	23	18	2.1	0.5	0.6	1.0	0.14
97MPB7827D	<0.063	7	2.3	350	3.7	10.0	7	74	1	1.9	5	10700	45	0.3	6.8	<3	<0.5	4.0	<0.5	20	35	14	2.8	0.8	<0.5	1.5	0.24
97MPB7828A	0.5-2.0	<5	<2	235	5	8.8	12	86	<3	2.9	2	14014	42	0.3	10.0	<5	1	5.4	1.5	20	40	<10	3.3	1.1	0.7	1.3	0.15
97MPB7828B	0.25-0.5	<5	<2	439	4	7.6	9	74	<3	2.2	1	14873	82	0.3	7.0	<5	2	3.8	0.8	17	33	<10	2.5	0.4	1.0	1.2	0.15
97MPB7828C	0.063-0.25	7	3	339	4	6.5	7	66	<3	1.8	3	15287	43	0.4	6.0	<5	1	3.1	0.9	16	29	29	2.4	0.6	<0.5	0.9	0.10
97MPB7828D	<0.063	7	3.4	340	3.3	10.0	10	90	1	2.2	5	11000	52	0.3	7.7	<3	<0.5	4.5	0.8	24	42	13	3.0	0.8	<0.5	1.6	0.23
97MPB7829A	0.5-2.0	<5	3	487	6	11.0	17	190	<3	2.7	2	9020	61	0.3	8.0	<5	2	6.6	2.2	44	68	23	4.5	1.1	<0.5	0.7	0.11
97MPB7829B	0.25-0.5	<5	<2	408	7	8.7	11	107	<3	1.9	2	10889	39	0.3	6.0	<5	<1	4.5	0.8	22	35	21	2.9	0.5	0.6	0.7	0.13
97MPB7829C	0.063-0.25	10	3	361	7	10.6	10	70	<3	1.8	3	12498	<30	0.3	5.0	<5	<1	3.6	1.5	21	36	<10	2.7	0.8	0.6	0.9	0.14

Appendix D.1 INAA data for 4 size fractions of till

Sample	Size	Au	As	Ba	Br	Ca	Co	Cr	Cs	Fe	Hf	Na	Rb	Sb	Sc	Se	Ta	Th	U	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu
Method	Fraction	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
Analysis Unit	(in mm)	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit A,B,C		5	2	100	1	1.0	5	10	3	0.1	1	500	30	0.2	1.0	5	1	0.5	0.5	1	3	10	0.5	0.2	0.5	0.5	0.05
97MPB7829D	<0.063	7	3.7	340	4.3	13.0	11	93	1	2.2	5	8900	40	0.3	7.2	<3	<0.5	4.9	0.9	26	46	20	3.2	0.9	<0.5	1.5	0.25
97MPB7830A	0.5-2.0	<5	6	140	11	15.2	10	60	<3	2.5	2	9280	56	<0.2	7.0	<5	<1	4.0	<0.5	19	29	11	2.8	0.6	0.7	1.1	0.13
97MPB7830B	0.25-0.5	<5	<2	248	9	11.3	7	55	<3	1.9	2	10512	41	0.5	5.0	<5	1	2.7	<0.5	15	20	13	2.3	0.5	0.6	0.8	0.10
97MPB7830C	0.063-0.25	13	2	319	8	11.4	7	60	<3	1.7	2	10518	64	<0.2	4.0	<5	1	2.6	1.6	14	26	<10	2.2	0.4	<0.5	0.9	0.11
97MPB7830D	<0.063	7	4.5	350	4.2	12.0	12	71	2	2.2	5	760	49	0.4	6.4	<3	<0.5	4.9	1.0	22	43	16	3.0	0.8	<0.5	1.6	0.26
97MPB7831A	0.5-2.0	<5	<2	163	8	12.1	8	59	<3	2.1	2	8640	42	0.2	6.0	<5	1	4.3	0.9	18	34	47	2.8	0.9	<0.5	1.1	0.18
97MPB7831B	0.25-0.5	11	<2	471	8	10.2	8	47	<3	1.8	1	9890	34	0.2	5.0	<5	<1	3.5	1.6	15	27	19	1.9	0.6	<0.5	0.8	0.12
97MPB7831C	0.063-0.25	<5	<2	314	6	11.7	7	47	<3	1.5	3	9920	<30	0.2	4.0	<5	<1	2.8	1.6	14	24	23	2.0	0.2	0.5	0.7	0.16
97MPB7831D	<0.063	<2	3.7	280	3.4	12.0	8	66	2	1.9	4	6800	66	0.2	6.1	<3	<0.5	4.3	0.9	21	37	11	2.7	0.7	<0.5	1.4	0.22
97MPB7832A	0.5-2.0	11	5	363	5	12.2	11	67	<3	2.6	2	11341	39	0.3	8.0	<5	<1	3.7	<0.5	19	31	14	2.9	0.3	<0.5	0.8	0.24
97MPB7832B	0.25-0.5	8	<2	380	5	8.6	7	61	<3	1.9	1	13125	<30	0.2	6.0	<5	<1	2.6	1.3	13	26	<10	2.3	0.5	<0.5	0.7	0.12
97MPB7832C	0.063-0.25	<5	2	338	5	9.3	7	67	<3	1.7	2	11935	37	0.3	5.0	<5	<1	2.5	<0.5	14	26	<10	2.3	1.0	0.9	0.7	0.10
97MPB7832D	<0.063	<2	4.3	330	5.1	11.0	10	96	2	2.3	5	7700	63	0.4	7.2	<3	<0.5	4.3	0.8	24	43	19	3.2	0.9	<0.5	1.6	0.24
97MPB7834A	0.5-2.0	<5	4	366	4	14.2	8	42	<3	1.8	1	11191	<30	<0.2	6.0	<5	<1	2.9	<0.5	13	20	10	2.2	0.5	0.5	0.8	0.18
97MPB7834B	0.25-0.5	<5	3	311	4	7.0	6	45	<3	1.5	2	15017	38	<0.2	5.0	<5	<1	2.8	1.8	11	20	14	1.6	0.8	0.8	0.9	0.07
97MPB7834C	0.063-0.25	<5	4	411	4	8.7	6	61	<3	1.4	4	15829	60	0.2	5.0	<5	1	2.5	1.7	11	24	11	2.0	0.8	<0.5	1.0	0.17
97MPB7834D	<0.063	<2	3.3	360	8.9	10.0	8	80	1	2.0	6	12800	43	0.2	7.3	<3	1.1	3.8	0.9	18	34	13	2.7	0.7	<0.5	1.6	0.27
97MPB7835A	0.5-2.0	14	4	153	3	8.2	12	83	<3	2.6	2	17838	36	0.4	10.0	<5	<1	4.6	2.3	15	29	<10	2.7	0.8	0.9	1.2	0.20
97MPB7835B	0.25-0.5	<5	3	365	2	6.2	11	55	<3	1.8	2	19925	34	<0.2	6.0	<5	1	3.1	0.6	13	27	12	2.3	0.5	<0.5	1.0	0.09
97MPB7835C	0.063-0.25	<5	<2	281	3	4.3	9	61	3	1.5	3	19948	31	0.2	6.0	<5	<1	2.4	0.8	13	22	19	2.3	0.8	0.9	1.1	0.16
97MPB7835D	<0.063	<2	3.8	360	2.7	8.0	10	88	2	2.0	6	13600	31	0.2	8.2	<3	<0.5	4.2	<0.5	19	37	11	3.0	0.9	<0.5	1.7	0.25
97MPB7836A	0.5-2.0	13	<2	238	7	5.1	14	94	<3	3.2	4	18173	51	0.5	12.0	<5	<1	6.4	1.8	27	43	23	4.3	1.1	1.1	2.0	0.31
97MPB7836B	0.25-0.5	<5	9	381	5	2.8	9	70	<3	2.5	4	19170	40	0.3	8.0	<5	1	4.3	2.0	21	30	<10	3.1	0.9	<0.5	1.4	0.18
97MPB7836C	0.063-0.25	8	3	405	4	5.6	10	82	<3	2.2	4	20474	60	<0.2	7.0	<5	1	3.5	1.4	17	34	<10	3.6	0.7	<0.5	1.1	0.16
97MPB7836D	<0.063	<2	3.4	320	5.5	4.0	10	80	2	2.4	6	13400	38	0.2	8.8	<3	<0.5	4.7	1.0	26	43	17	3.6	1.0	<0.5	2.1	0.30
97MPB7837A	0.5-2.0	6	<2	557	1	5.4	10	88	<3	2.1	3	22642	77	<0.2	8.0	<5	<1	3.6	<0.5	15	28	18	3.1	0.6	0.7	1.4	0.21
97MPB7837B	0.25-0.5	<5	2	384	2	4.6	9	75	<3	1.8	2	22880	76	0.2	7.0	9	<1	3.4	0.8	13	29	18	2.8	0.5	<0.5	1.2	0.10
97MPB7837C	0.063-0.25	9	<2	440	2	4.0	10	87	<3	1.9	3	23861	79	<0.2	7.0	<5	<1	3.3	1.2	14	28	16	2.9	0.7	<0.5	0.9	0.16
97MPB7837D	<0.063	<2	1.6	350	2.0	7.0	9	96	2	2.4	4	17600	59	0.2	9.6	<3	<0.5	4.1	0.7	21	38	16	3.1	0.9	<0.5	1.7	0.24

Appendix D.1 INAA data for 4 size fractions of till

Sample	Size	Au	As	Ba	Br	Ca	Co	Cr	Cs	Fe	Hf	Na	Rb	Sb	Sc	Se	Ta	Th	U	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu
Method	Fraction	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA
Analysis Unit	(in mm)	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit A,B,C		5	2	100	1	1.0	5	10	3	0.1	1	500	30	0.2	1.0	5	1	0.5	0.5	1	3	10	0.5	0.2	0.5	0.5	0.05

INAA Quality Control data

KIMBERLITE STANDARDS

UKIA98-M 7800		<5	<2	3670	2	5.6	85	1650	<3	5.7	<1	600	90	0.4	14	<5	17	35.4	5.4	226	351	115	10.6	3.6	0.6	<0.5	0.05
UKIA98-M 7849		<5	4	4850	<1	4.4	89	2230	<3	6.0	2	1000	<30	0.4	17	<5	23	48.3	9.9	277	416	127	14.2	4.4	0.7	<0.5	0.11
UKIA98-M 7809		<5	<2	<100	3	8.4	55	659	<3	6.7	<1	9990	<30	<0.2	39	6	<1	<0.5	<0.5	4	8	<10	1.4	0.6	<0.5	1.1	0.23
UKIA98-M 7833		<5	<2	<100	7	33.4	<5	<10	<3	0.5	<1	550	<30	<0.2	<1	<5	<1	0.8	0.7	3	5	<10	<0.5	0.3	<0.5	<0.5	<0.05
UKIA98 RP96-21 @132M		12	3	109	1	<1	<5	72	<3	0.5	12	850	<30	0.9	8	12	2	16.6	3.6	24	39	12	1.8	0.7	0.8	1.8	0.31

DUPLICATES

97MPB7800	original	<5	<2	3670	2	5.6	85	1650	<3	5.7	<1	600	90	0.4	14.0	<5	17	35.4	5.4	226	351	115	10.6	3.6	0.6	<0.5	0.05
M 7800	duplicate	18	<2	4010	2	4.6	91	1990	<3	6.2	<1	810	<30	0.6	15.0	<5	22	39.3	11.4	248	382	106	10.8	2.5	1.0	<0.5	<0.05
97MPB7813C	original	<5	<2	255	2	1.4	11	76	<3	2.2	2	22042	75	0.3	8.0	7	1	4.6	2.2	16	34	<10	3.3	0.9	<0.5	0.9	0.18
M 7813C	duplicate	<5	<2	335	3	1.4	12	81	<3	2.3	3	23649	49	0.4	9.0	<5	2	4.1	1.0	18	38	16	3.2	1.2	<0.5	1.5	0.17
97MPB7819C	original	6	4	412	3	8.2	11	71	<3	2.1	3	15727	57	0.3	7.0	<5	<1	4.4	1.2	16	29	<10	3.0	0.4	0.9	1.2	0.21
M 7819C	duplicate	<5	<2	424	3	8.4	9	81	<3	2.0	3	16000	84	0.5	7.0	<5	<1	4.1	0.9	16	31	11	3.0	0.7	<0.5	0.7	0.11
97MPB7823C	original	<5	<2	239	9	14.0	<5	55	<3	1.5	2	9530	59	0.4	4.0	5	<1	2.1	1.4	14	28	15	2.2	0.7	<0.5	0.7	0.15
M 7823C	duplicate	<5	<2	268	8	12.9	6	53	<3	1.5	2	9290	40	0.3	4.0	<5	<1	2.2	<0.5	13	22	22	2.3	0.7	0.5	0.8	0.07
97MPB7827B	original	<5	<2	326	4	6.5	9	61	<3	2.0	2	14148	<30	<0.2	6.0	<5	<1	3.3	0.9	15	30	<10	2.4	0.6	<0.5	0.9	0.17
M 7827B	duplicate	<5	<2	288	5	6.7	9	72	<3	2.1	2	15102	35	0.3	7.0	<5	1	3.4	1.9	14	25	<10	2.5	0.6	<0.5	0.9	0.12
97MPB7831B	original	11	<2	471	8	10.2	8	47	<3	1.8	1	9890	34	0.2	5.0	<5	<1	3.5	1.6	15	27	19	1.9	0.6	<0.5	0.8	0.12
M 7831B	duplicate	18	2	506	7	9.9	7	60	<3	2.2	2	12813	46	0.3	6.0	<5	<1	3.6	<0.5	17	26	15	2.7	0.5	<0.5	0.8	0.14
97MPB7836B	original	<5	9	381	5	2.8	9	70	<3	2.5	4	19170	40	0.3	8.0	<5	1	4.3	2.0	21	30	<10	3.1	0.9	<0.5	1.4	0.18
M 7836B	duplicate	13	5	381	5	2.5	10	97	<3	2.9	4	23394	83	0.5	10.0	5	<1	5.6	1.8	23	43	<10	4.4	1.1	<0.5	1.3	0.19

## Appendix D.2 XRF data for four size fractions of till

Sample Method Analysis Unit Detection Limit	Size Fraction (in mm)	SiO2 XRF %	Al2O3 XRF %	CaO XRF %	MgO XRF %	Na2O XRF %	K2O XRF %	Fe2O3 XRF %	MnO XRF %	TiO2 XRF %	P2O5 XRF %	Cr2O3 XRF %	LOI XRF %	Sum XRF %	Rb XRF ppm 2	Sr XRF ppm 2	Y XRF ppm 2	Zr XRF ppm 2	Nb XRF ppm 2	Ba XRF ppm 20	Ni XRF ppm 2
97MPB7801A	0.5-2.0	33.60	5.89	19.10	9.94	1.12	1.00	3.73	0.10	0.323	0.10	0.02	25.40	100.30	31	132	4	61	8	243	71
97MPB7801B	0.25-0.5	45.80	6.14	15.80	7.53	1.33	1.35	2.76	0.08	0.234	0.07	0.02	19.10	100.30	37	174	7	75	5	268	51
97MPB7801C	0.63-0.25	44.50	6.24	16.10	7.63	1.31	1.59	2.78	0.08	0.251	0.07	0.01	19.70	100.30	36	182	3	99	6	277	48
97MPB7801D	<0.063	40.70	7.11	17.90	6.80	1.24	2.34	2.98	0.09	0.364	0.10	0.01	20.40	100.10	53	214	16	172	8	418	ISS
97MPB7811A	0.5-2.0	68.90	13.30	4.08	2.91	2.82	1.70	4.61	0.08	0.462	0.12	0.03	1.35	100.40	58	269	12	132	6	444	85
97MPB7811B	0.25-0.5	70.60	11.90	3.06	2.13	2.87	2.01	3.59	0.06	0.354	0.11	0.02	2.35	99.20	57	281	10	114	4	406	70
97MPB7811C	0.63-0.25	69.90	12.10	3.17	2.10	2.96	1.91	3.61	0.06	0.385	0.12	0.02	2.35	98.90	56	319	7	137	6	418	72
97MPB7811D	<0.063	63.00	13.50	3.83	2.88	2.68	2.31	5.21	0.09	0.570	0.20	0.03	3.75	98.20	63	306	18	231	14	469	71
97MPB7812A	0.5-2.0	69.20	13.60	2.45	2.18	2.87	2.24	5.02	0.08	0.482	0.12	0.02	1.95	100.30	72	241	15	144	7	433	75
97MPB7812B	0.25-0.5	73.60	11.80	2.10	1.54	2.72	1.96	3.59	0.06	0.357	0.09	0.01	1.70	99.70	64	243	8	116	6	430	66
97MPB7812C	0.63-0.25	73.50	12.20	2.36	1.46	2.89	2.19	3.50	0.07	0.370	0.10	0.02	1.45	100.30	62	286	10	134	7	424	61
97MPB7812D	<0.063	65.90	13.60	2.54	2.14	2.44	2.87	5.49	0.11	0.566	0.16	0.02	2.95	98.90	72	250	21	253	10	508	62
97MPB7813A	0.5-2.0	70.00	13.50	2.42	2.19	2.78	1.95	4.78	0.08	0.485	0.13	0.02	1.80	100.30	73	245	15	145	6	450	79
97MPB7813B	0.25-0.5	74.10	12.10	2.16	1.63	2.74	1.86	3.59	0.06	0.363	0.10	0.02	1.50	100.30	65	256	11	123	6	407	65
97MPB7813C	0.63-0.25	74.20	12.00	2.24	1.39	2.83	2.04	3.24	0.06	0.354	0.09	0.02	1.30	99.80	63	283	9	134	6	420	61
97MPB7813D	<0.063	65.50	13.50	2.30	2.13	2.44	2.85	5.14	0.12	0.558	0.15	0.02	3.38	98.20	87	261	18	244	9	411	ISS
97MPB7815A	0.5-2.0	34.10	6.36	17.50	9.80	1.30	1.49	3.89	0.11	0.271	0.08	0.02	23.60	98.60	39	133	6	66	3	251	46
97MPB7815B	0.25-0.5	46.20	6.61	14.80	7.87	1.42	1.24	3.18	0.09	0.240	0.07	0.01	18.60	100.40	38	152	8	65	3	254	38
97MPB7815C	0.63-0.25	44.80	6.20	14.90	7.82	1.48	1.45	2.69	0.09	0.237	0.06	0.01	19.10	98.80	35	169	6	87	3	269	35
97MPB7815D	<0.063	41.70	7.49	16.80	7.28	1.39	2.06	3.42	0.10	0.355	0.11	0.01	19.70	100.50	50	203	12	159	7	429	26
97MPB7816A	0.5-2.0	44.30	9.20	14.20	6.68	1.89	1.76	4.54	0.09	0.374	0.10	0.02	16.30	99.40	51	173	10	83	5	320	67
97MPB7816B	0.25-0.5	57.50	8.45	10.40	4.65	2.05	1.73	3.16	0.06	0.275	0.07	0.02	11.30	99.70	48	193	6	69	4	303	59
97MPB7816C	0.63-0.25	58.30	8.37	10.50	4.76	2.08	1.59	2.65	0.07	0.272	0.07	0.02	11.70	100.40	44	225	6	99	6	323	57
97MPB7816D	<0.063	46.00	8.95	14.90	5.69	1.72	2.17	3.78	0.08	0.421	0.12	0.02	16.20	100.20	63	237	17	175	7	481	ISS
97MPB7817A	0.5-2.0	54.00	10.70	10.60	4.53	2.35	1.74	4.47	0.07	0.404	0.10	0.02	10.90	99.90	58	213	9	105	5	354	74
97MPB7817B	0.25-0.5	63.60	9.57	7.88	3.22	2.36	1.69	3.08	0.05	0.299	0.07	0.01	7.75	99.70	53	230	6	86	4	362	63
97MPB7817C	0.63-0.25	61.50	9.15	8.73	3.69	2.37	1.81	2.72	0.06	0.292	0.07	0.01	8.95	99.40	48	253	5	106	5	360	66
97MPB7817D	<0.063	49.60	9.50	12.80	5.03	1.99	2.22	3.67	0.08	0.430	0.12	0.01	13.70	99.30	60	254	12	207	8	484	60
97MPB7819A	0.5-2.0	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<200	<2000	<200	<200	<200	<2000	<3000
97MPB7819B	0.25-0.5	55.80	9.20	11.10	4.51	1.90	1.51	3.52	0.07	0.335	0.09	0.01	12.10	100.20	52	214	9	92	6	350	45
97MPB7819C	0.63-0.25	55.20	8.67	11.50	4.89	1.94	1.81	3.09	0.07	0.311	0.09	0.02	12.50	100.20	51	225	7	107	5	335	51
97MPB7819D	<0.063	47.50	9.12	14.50	5.42	1.64	2.21	3.71	0.09	0.420	0.12	0.01	15.70	100.50	57	232	18	163	8	448	35
97MPB7820A	0.5-2.0	37.40	7.77	17.00	8.85	1.50	1.54	4.41	0.11	0.335	0.09	0.02	21.50	100.50	44	146	10	73	4	248	53
97MPB7820B	0.25-0.5	48.70	7.40	13.70	7.09	1.60	1.23	3.38	0.08	0.264	0.07	0.03	17.00	100.50	42	165	7	62	5	259	40
97MPB7820C	0.63-0.25	46.70	6.94	14.10	7.04	1.65	1.52	2.84	0.08	0.255	0.07	0.02	17.60	98.80	40	190	6	83	5	240	38
97MPB7820D	<0.063	40.60	8.26	16.80	7.09	1.50	2.05	3.72	0.10	0.382	0.12	0.01	19.60	100.40	61	214	14	141	7	364	ISS

Appendix D.2 XRF data for four size fractions of till

Sample Method Analysis Unit Detection Limit	Size Fraction (in mm)	SiO2 XRF %	Al2O3 XRF %	CaO XRF %	MgO XRF %	Na2O XRF %	K2O XRF %	Fe2O3 XRF %	MnO XRF %	TiO2 XRF %	P2O5 XRF %	Cr2O3 XRF %	LOI XRF %	Sum XRF %	Rb XRF ppm	Sr XRF ppm	Y XRF ppm	Zr XRF ppm	Nb XRF ppm	Ba XRF ppm	Ni XRF ppm
		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	2	2	2	2	2	20	2
97MPB7821A	0.5-2.0	39.00	7.51	16.30	8.35	1.49	1.55	3.99	0.10	0.326	0.09	0.01	20.40	99.20	44	161	6	78	6	266	58
97MPB7821B	0.25-0.5	48.70	7.49	13.90	7.09	1.54	1.26	3.33	0.08	0.274	0.08	0.01	16.80	100.60	42	172	7	69	6	253	48
97MPB7821C	0.63-0.25	47.80	7.14	14.40	7.04	1.63	1.51	2.87	0.08	0.270	0.08	0.02	17.20	100.00	40	192	5	94	5	249	45
97MPB7821D	<0.063	40.60	7.72	16.90	7.13	1.48	2.00	3.35	0.09	0.373	0.11	0.02	19.30	99.00	54	213	12	140	10	385	31
97MPB7822A	0.5-2.0	53.50	10.00	11.30	5.11	2.23	1.62	4.02	0.08	0.407	0.10	0.01	12.10	100.50	50	247	10	123	6	334	58
97MPB7822B	0.25-0.5	57.70	9.66	9.81	4.49	2.30	1.76	3.39	0.07	0.355	0.09	0.01	10.30	100.00	50	249	8	114	6	368	52
97MPB7822C	0.63-0.25	54.60	9.07	10.60	4.93	2.21	1.84	3.13	0.07	0.338	0.09	0.01	11.70	98.60	48	249	8	116	5	336	48
97MPB7822D	<0.063	56.60	10.50	9.52	4.02	2.55	2.22	3.31	0.07	0.433	0.11	0.01	9.55	99.10	58	293	13	170	10	442	32
97MPB7823A	0.5-2.0	31.60	5.89	19.60	10.40	1.06	1.26	3.88	0.10	0.264	0.08	0.01	25.20	99.40	32	125	5	52	4	172	50
97MPB7823B	0.25-0.5	43.80	5.24	16.30	8.83	1.06	0.89	2.75	0.08	0.187	0.06	0.02	21.00	100.30	30	136	5	44	4	161	33
97MPB7823C	0.63-0.25	40.30	5.02	17.50	9.37	1.08	1.18	2.34	0.08	0.193	0.06	0.02	22.60	99.70	28	152	6	74	3	194	24
97MPB7823D	<0.063	36.80	6.15	19.10	8.46	0.98	2.20	2.74	0.09	0.309	0.09	0.01	22.80	99.70	48	173	15	156	5	307	ISS
97MPB7824A	0.5-2.0	37.50	7.78	16.20	8.25	1.51	1.61	4.60	0.10	0.336	0.09	0.03	20.50	98.40	43	142	8	61	4	228	53
97MPB7824B	0.25-0.5	52.70	7.14	12.60	6.31	1.61	1.21	3.09	0.08	0.238	0.07	0.02	15.20	100.40	38	171	6	63	4	230	44
97MPB7824C	0.63-0.25	50.10	6.56	13.10	6.54	1.58	1.51	2.56	0.08	0.240	0.06	0.02	16.40	98.80	36	191	4	98	5	216	33
97MPB7824D	<0.063	45.30	7.43	15.60	6.43	1.23	2.43	3.46	0.10	0.402	0.11	0.01	17.80	100.40	47	199	19	212	6	377	26
97MPB7825A	0.5-2.0	60.00	13.00	5.48	4.89	2.54	1.50	6.24	0.10	0.518	0.11	0.02	5.90	100.40	64	178	13	93	6	377	87
97MPB7825B	0.25-0.5	63.40	8.90	6.97	4.77	2.16	1.33	3.28	0.08	0.256	0.06	0.01	8.50	99.80	44	191	6	58	4	279	47
97MPB7825C	0.63-0.25	53.80	8.02	10.00	6.46	2.02	1.47	3.24	0.10	0.299	0.07	0.01	12.90	98.40	39	198	6	111	4	263	45
97MPB7825D	<0.063	39.60	10.10	12.50	8.81	1.43	2.49	5.50	0.18	0.490	0.14	0.02	18.70	100.00	73	166	25	208	10	383	ISS
97MPB7826A	0.5-2.0	47.50	10.20	11.20	7.76	2.05	1.37	5.03	0.11	0.400	0.10	0.02	14.40	100.20	49	175	9	80	5	299	66
97MPB7826B	0.25-0.5	55.80	8.33	10.30	5.95	1.96	1.41	3.25	0.09	0.276	0.07	0.01	12.70	100.20	42	192	7	66	5	275	47
97MPB7826C	0.63-0.25	47.10	7.36	13.50	7.61	1.70	1.48	3.20	0.11	0.295	0.08	0.01	17.40	99.90	37	204	5	97	5	255	41
97MPB7826D	<0.063																				
97MPB7827A	0.5-2.0	44.70	8.98	14.60	6.53	1.78	1.81	4.52	0.09	0.382	0.10	0.04	16.40	100.00	49	170	7	87	7	271	60
97MPB7827B	0.25-0.5	56.30	8.04	11.30	5.00	1.85	1.48	3.10	0.06	0.274	0.07	0.02	12.50	100.10	43	190	6	71	5	258	48
97MPB7827C	0.63-0.25	55.00	7.50	12.10	5.75	1.73	1.36	2.66	0.07	0.252	0.07	0.02	13.90	100.50	41	213	4	85	7	257	37
97MPB7827D	<0.063	45.50	7.77	15.80	6.45	1.49	2.11	3.13	0.08	0.391	0.11	0.01	17.50	100.40	44	226	16	183	8	389	ISS
97MPB7828A	0.5-2.0	45.80	9.38	14.10	6.85	1.70	1.33	4.68	0.09	0.398	0.12	0.03	15.80	100.40	51	176	9	85	8	308	79
97MPB7828B	0.25-0.5	55.60	8.33	11.00	5.12	1.83	1.43	3.43	0.07	0.303	0.08	0.02	12.20	99.40	49	196	6	73	7	288	71
97MPB7828C	0.63-0.25	54.40	7.99	11.80	5.44	1.86	1.55	3.03	0.07	0.291	0.08	<0.01	13.20	99.70	43	213	7	98	6	291	56
97MPB7828D	<0.063	44.20	8.23	15.30	6.19	1.55	2.19	3.52	0.09	0.431	0.12	0.02	17.40	99.30	52	221	12	174	10	400	ISS
97MPB7829A	0.5-2.0	36.40	6.23	17.20	11.50	1.05	1.03	4.67	0.11	0.527	0.19	0.04	21.30	100.40	36	190	8	81	34	476	195
97MPB7829B	0.25-0.5	48.10	6.40	14.40	7.79	1.37	1.27	3.18	0.08	0.304	0.10	0.02	17.50	100.60	35	181	7	73	12	293	91
97MPB7829C	0.63-0.25	47.10	6.29	14.90	7.72	1.39	1.21	2.78	0.09	0.276	0.08	0.03	18.50	100.40	35	186	6	103	8	278	70
97MPB7829D	<0.063	40.60	7.07	17.60	7.04	1.13	2.42	3.25	0.09	0.396	0.11	0.02	20.40	100.30	47	195	15	163	9	402	54

Appendix D.2 XRF data for four size fractions of till

Sample Method Analysis Unit Detection Limit	Size Fraction (in mm)	SiO2 XRF %	Al2O3 XRF %	CaO XRF %	MgO XRF %	Na2O XRF %	K2O XRF %	Fe2O3 XRF %	MnO XRF %	TiO2 XRF %	P2O5 XRF %	Cr2O3 XRF %	LOI XRF %	Sum XRF %	Rb XRF ppm	Sr XRF ppm	Y XRF ppm	Zr XRF ppm	Nb XRF ppm	Ba XRF ppm	Ni XRF ppm
		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	2	2	2	2	2	20	2
97MPB7830A	0.5-2.0	30.40	5.79	20.70	10.60	1.00	1.04	3.96	0.11	0.263	0.07	0.01	26.50	100.40	33	125	7	49	4	161	40
97MPB7830B	0.25-0.5	43.40	5.46	15.80	8.04	1.23	1.20	2.87	0.08	0.209	0.06	0.01	20.20	98.70	32	146	4	48	3	181	32
97MPB7830C	0.63-0.25	43.50	5.71	16.00	8.47	1.22	1.17	2.96	0.10	0.239	0.06	0.11	20.60	100.20	32	165	4	83	3	205	33
97MPB7830D	<0.063	41.00	6.98	17.00	6.99	1.00	2.71	3.41	0.11	0.369	0.10	0.01	20.40	100.10	54	174	15	177	6	334	ISS
97MPB7831A	0.5-2.0	36.00	6.51	19.50	8.66	1.08	1.44	3.68	0.09	0.291	0.07	0.02	23.20	100.60	38	144	6	71	3	206	43
97MPB7831B	0.25-0.5	46.10	6.04	15.50	7.04	1.27	1.47	2.78	0.07	0.221	0.06	0.01	18.80	99.50	35	154	5	60	4	196	35
97MPB7831C	0.63-0.25	45.50	5.82	15.90	7.75	1.20	1.23	2.47	0.09	0.223	0.06	0.02	19.80	100.10	35	169	5	80	4	209	34
97MPB7831D	<0.063	39.10	7.24	18.40	6.85	0.93	2.70	3.25	0.09	0.360	0.09	0.01	21.30	100.40	61	178	14	148	7	352	ISS
97MPB7832A	0.5-2.0	35.70	7.28	18.80	8.76	1.39	1.29	4.23	0.11	0.310	0.08	0.01	22.50	100.50	39	148	6	62	5	198	49
97MPB7832B	0.25-0.5	50.10	6.71	13.50	6.30	1.66	1.38	2.85	0.07	0.222	0.06	0.01	15.90	98.80	37	181	4	54	4	229	41
97MPB7832C	0.63-0.25	49.00	6.40	14.10	7.15	1.51	1.36	2.66	0.09	0.229	0.06	0.03	17.10	99.70	36	199	5	75	5	242	34
97MPB7832D	<0.063	44.00	7.08	15.60	6.74	1.06	2.71	3.44	0.11	0.384	0.10	0.02	18.50	99.80	61	186	15	208	8	347	ISS
97MPB7834A	0.5-2.0	39.60	6.77	22.90	3.98	1.38	1.41	3.10	0.06	0.276	0.07	0.01	20.60	100.20	33	214	4	65	4	182	33
97MPB7834B	0.25-0.5	61.30	7.37	11.60	2.18	1.89	1.58	2.23	0.04	0.217	0.06	<0.01	10.10	98.60	38	232	4	71	4	271	36
97MPB7834C	0.63-0.25	62.20	8.06	10.60	3.05	1.92	1.46	2.34	0.05	0.286	0.07	0.04	10.20	100.30	40	241	5	128	4	283	34
97MPB7834D	<0.063	47.40	8.86	15.60	3.67	1.60	2.54	3.30	0.07	0.407	0.14	0.01	16.00	99.80	57	255	10	191	7	348	ISS
97MPB7835A	0.5-2.0	50.90	9.72	13.60	4.47	2.23	1.61	4.25	0.07	0.384	0.10	0.02	12.90	100.30	44	225	8	89	5	297	60
97MPB7835B	0.25-0.5	66.20	9.21	8.07	2.51	2.45	1.71	2.57	0.05	0.245	0.07	<0.01	7.05	100.20	45	248	4	81	3	321	48
97MPB7835C	0.63-0.25	67.20	9.32	7.60	2.67	2.45	1.66	2.34	0.06	0.269	0.08	0.03	6.50	100.30	47	278	5	99	5	361	44
97MPB7835D	<0.063	54.90	9.33	11.00	3.63	1.88	2.67	2.50	0.07	0.427	0.12	0.01	12.00	98.60	65	263	14	232	9	344	ISS
97MPB7836A	0.5-2.0	58.90	11.20	7.29	4.10	2.23	2.07	4.97	0.10	0.448	0.11	0.03	8.25	99.70	60	191	15	148	6	342	61
97MPB7836B	0.25-0.5	67.30	10.20	5.27	2.91	2.34	1.88	3.53	0.08	0.345	0.09	0.01	5.80	99.90	55	223	12	121	5	362	50
97MPB7836C	0.63-0.25	67.20	9.94	5.60	2.93	2.42	1.90	2.98	0.08	0.318	0.09	0.02	6.00	99.60	52	248	9	124	6	340	42
97MPB7836D	<0.063	61.60	10.60	6.20	3.51	1.98	2.65	4.06	0.10	0.491	0.12	0.02	7.75	99.20	59	244	17	268	14	454	ISS
97MPB7837A	0.5-2.0	62.10	11.10	8.38	2.96	2.76	1.86	3.14	0.05	0.341	0.10	0.02	7.40	100.30	56	314	8	117	7	397	53
97MPB7837B	0.25-0.5	65.50	10.50	6.54	2.21	2.84	1.96	2.60	0.04	0.291	0.08	0.01	5.65	98.40	56	308	8	102	6	423	47
97MPB7837C	0.63-0.25	66.20	11.20	7.07	2.49	2.82	1.54	2.89	0.05	0.329	0.09	0.03	5.55	100.40	53	332	7	119	5	419	51
97MPB7837D	<0.063	54.30	11.60	10.50	3.72	2.43	2.23	3.98	0.07	0.466	0.15	0.03	9.95	99.50	70	315	14	167	21	486	41



Appendix D.2 XRF data for four size fractions of till

**XRF Quality Control data**

Sample	Size	SiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	TiO2	P2O5	Cr2O3	LOI	Sum	Rb	Sr	Y	Zr	Nb	Ba	Ni
Method	Fraction	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF
Analysis Unit	(in mm)	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	2	2	2	2	2	20	2
<b>Duplicates</b>																					
97MPB7813C	0.63-0.25	74.20	12.00	2.24	1.39	2.83	2.04	3.24	0.06	0.354	0.09	0.02	1.30	99.80	63	283	9	134	6	420	61
DUP-KIA98-M 7813C		74.40	12.00	2.26	1.40	2.82	2.01	3.23	0.06	0.35	0.09	0.02	1.25	100.00	63	282	9	135	6	421	63
97MPB7819C	0.63-0.25	55.20	8.67	11.50	4.89	1.94	1.81	3.09	0.07	0.31	0.09	0.02	12.50	100.20	51	225	7	107	5	335	51
DUP-KIA98-M 7819C		55.10	8.66	11.50	4.87	1.94	1.82	3.08	0.07	0.31	0.09	0.02	12.80	100.40	51	227	8	109	5	334	49
97MPB7823C	0.63-0.25	40.30	5.02	17.50	9.37	1.08	1.18	2.34	0.08	0.19	0.06	0.02	22.60	99.70	28	152	6	74	3	194	24
DUP-KIA98-M 7823C		40.60	5.06	17.50	9.36	1.08	1.16	2.36	0.08	0.19	0.06	0.02	22.70	100.20	29	153	5	75	3	195	26
97MPB7827B	0.25-0.5	56.30	8.04	11.30	5.00	1.85	1.48	3.10	0.06	0.27	0.07	0.02	12.50	100.10	43	190	6	71	5	258	48
DUP-KIA98-M 7827B		56.60	8.05	11.40	5.01	1.85	1.47	3.12	0.07	0.27	0.07	0.02	12.40	100.30	44	189	5	72	6	257	46
97MPB7831B	0.25-0.5	46.10	6.04	15.50	7.04	1.27	1.47	2.78	0.07	0.22	0.06	0.01	18.80	99.50	35	154	5	60	4	196	35
DUP-KIA98-M 7831B		46.10	6.02	15.60	7.07	1.26	1.47	2.80	0.07	0.22	0.06	0.01	18.80	99.50	36	156	6	59	4	197	35
97MPB7836B	0.25-0.5	67.30	10.20	5.27	2.91	2.34	1.88	3.53	0.08	0.35	0.09	0.01	5.80	99.90	55	223	12	121	5	362	50
DUP-KIA98-M 7836B		67.60	10.30	5.26	2.90	2.35	1.88	3.53	0.08	0.35	0.09	0.01	5.90	100.40	55	224	11	122	4	363	50
<b>Kimberlite standard</b>																					
KIA98-M 7849 Paul Lake std		31.40	2.71	7.82	33.80	0.10	0.11	8.61	0.19	0.48	0.83	0.34	8.75	96.30	16	2300	9	142	331	8130	1660
KIA98-M 7800 Paul Lake		32.90	2.46	6.04	36.10	0.11	0.12	8.74	0.17	0.40	0.75	0.29	7.25	96.30	24	1740	7	110	287	6310	1850
DUP-KIA98-M 7800		32.90	2.47	6.05	36.10	0.11	0.12	8.76	0.17	0.41	0.75	0.29	7.35	96.50	23	1750	8	112	290	6300	1840

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APPENDIX D.3. Aqua regia/ICP-ES data for the <0.063 mm fraction of till

SAMPLE	Material	Size (in mm)	Ag ppm	Al %	As ppm	Ba ppm	Ca %	Co ppm	Cr ppm	Cu ppm	Fe %	K %	La ppm	Mg %	Mn ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	V ppm	Zn ppm
Detection limit			0.2	0.01	2	10	0.01	1	1	1	0.01	0.01	10	0.01	5	0.01	1	10	2	2	1	1	0.01	1	2
97MPB7801	till	<0.063	<0.2	0.56	4	80	10.30	6	40	19	1.42	0.08	10	3.90	480	<0.01	29	350	14	2	2	84	0.03	15	8
97MPB7810	fresh kimb	<0.063	<0.2	0.93	10	2510	8.65	50	516	272	5.12	0.28	30	12.25	790	0.03	505	3630	26	2	13	1060	0.16	116	50
97MPB7811	till	<0.063	<0.2	2.08	4	80	1.12	12	94	44	2.77	0.22	10	1.31	495	0.02	55	730	12	<2	6	25	0.10	44	44
97MPB7812	till	<0.063	<0.2	2.10	10	70	0.53	15	85	69	3.32	0.20	30	0.96	825	0.01	50	640	12	2	6	25	0.09	44	40
97MPB7813	till	<0.063	<0.2	2.13	6	80	0.54	15	85	60	3.13	0.22	30	0.98	765	0.01	50	600	12	<2	6	28	0.10	44	36
97MPB7814	weath'd kimb	<0.063	<0.2	2.03	10	6170	3.67	60	966	194	6.43	0.24	140	12.85	1370	0.04	492	4360	42	6	21	714	0.04	248	90
97MPB7815	till	<0.063	<0.2	0.80	8	100	9.72	7	48	33	1.74	0.09	10	4.11	610	0.01	24	380	12	<2	3	74	0.04	22	8
97MPB7816	till	<0.063	<0.2	1.08	6	130	8.76	9	55	39	1.93	0.13	10	3.26	495	0.01	50	440	10	<2	3	84	0.05	26	18
97MPB7817	till	<0.063	<0.2	1.06	2	150	7.37	10	52	32	1.84	0.13	10	2.87	430	0.01	51	450	8	<2	3	76	0.06	26	18
97MPB7819	till	<0.063	<0.2	1.03	10	100	8.11	10	50	34	1.81	0.13	10	2.98	495	0.01	29	440	14	<2	3	79	0.05	24	18
97MPB7820	till	<0.063	<0.2	1.03	6	80	9.72	9	51	31	1.90	0.14	10	4.00	575	0.01	28	410	16	<2	3	84	0.05	23	16
97MPB7821	till	<0.063	<0.2	0.87	2	90	9.74	6	49	26	1.65	0.11	10	4.03	510	0.01	28	390	14	<2	2	84	0.04	22	10
97MPB7822	gritty silt	<0.063	<0.2	1.05	6	30	5.27	6	46	20	1.62	0.10	10	2.29	360	0.02	23	450	6	<2	3	50	0.08	28	18
97MPB7823	till	<0.063	<0.2	0.52	<2	10	11.10	4	34	16	1.33	0.07	10	4.80	525	<0.01	16	310	12	<2	2	73	0.02	14	<2
97MPB7824	till	<0.063	<0.2	0.75	8	10	9.47	8	43	44	1.90	0.08	10	3.90	670	0.01	23	410	14	<2	3	70	0.04	20	14
97MPB7825	sand	<0.063	<0.2	1.81	12	70	6.85	10	67	58	2.85	0.16	30	4.66	1055	0.03	36	450	16	<2	5	38	0.08	39	30
97MPB7827	till	<0.063	<0.2	0.60	2	30	9.19	5	38	20	1.44	0.07	10	3.65	460	0.01	21	370	8	<2	2	73	0.03	17	4
97MPB7828	till	<0.063	<0.2	0.86	2	70	8.84	9	53	31	1.75	0.10	10	3.52	475	0.01	43	440	14	<2	3	81	0.04	23	14
97MPB7829	till	<0.063	<0.2	0.69	8	70	10.35	9	54	28	1.68	0.08	10	4.08	540	0.01	53	420	12	<2	3	83	0.04	20	8
97MPB7830	till	<0.063	<0.2	0.76	14	10	10.55	10	46	33	1.92	0.11	10	4.24	745	0.01	27	360	16	<2	3	73	0.03	19	10
97MPB7831	till	<0.063	<0.2	0.87	8	10	11.40	6	45	25	1.78	0.16	10	4.20	580	0.01	23	330	16	4	3	95	0.03	19	8
97MPB7832	till	<0.063	<0.2	0.77	8	10	9.11	6	58	53	1.78	0.12	10	3.85	645	0.01	26	350	12	<2	3	68	0.04	20	10
97MPB7834	till	<0.063	3.6	0.75	6	10	8.10	5	34	24	1.43	0.06	<10	1.85	345	<0.01	19	440	10	<2	2	68	0.03	18	8
97MPB7835	till	<0.063	<0.2	0.69	8	20	6.40	6	43	35	1.38	0.07	10	1.97	300	0.01	23	430	8	<2	3	58	0.04	19	20
97MPB7836	till	<0.063	<0.2	0.98	8	20	2.86	9	44	36	1.89	0.06	10	1.77	580	0.01	26	430	6	<2	3	22	0.04	22	12
97MPB7837	till	<0.063	<0.2	1.69	8	90	5.52	7	72	27	2.03	0.28	10	1.98	345	0.02	36	530	6	2	4	60	0.08	35	30
97MPB7838	till	<0.063	<0.2	2.37	2	90	1.68	15	134	47	3.08	0.36	10	1.93	455	0.02	66	640	8	<2	7	30	0.12	56	52

APPENDIX D.3. Aqua regia/ICP-ES data for the <0.063 mm fraction of till

SAMPLE	Material	Size (in mm)	Ag ppm	Al %	As ppm	Ba ppm	Ca %	Co ppm	Cr ppm	Cu ppm	Fe %	K %	La ppm	Mg %	Mn ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	V ppm	Zn ppm		
Detection limit			0.2	0.01	2	10	0.01	1	1	1	0.01	0.01	10	0.01	5	0.01	1	10	2	2	1	1	0.01	1	2		
QUALITY CONTROL FOR AQUA REGIA/ICP-ES DATA																											
DUPLICATES																											
97MPB7813	original		<0.2	2.13	6	80	0.54	15	85	60	3.13	0.22	30	0.98	765	0.01	50	600	12	<2	6	28	0.10	44	36		
98PL 0223	duplicate		<0.2	2.08	8	70	0.51	14	82	59	3.10	0.21	30	0.98	750	0.01	51	590	12	<2	6	25	0.09	42	36		
97MPB7835	original		<0.2	0.69	8	20	6.40	6	43	35	1.38	0.07	10	1.97	300	0.01	23	430	8	<2	3	58	0.04	19	20		
98PL 0225	duplicate		<0.2	0.80	6	30	6.47	6	47	36	1.46	0.10	10	2.00	310	0.01	24	440	10	<2	3	64	0.05	22	20		
STANDARDS																											
98PL 0224	TCA8010		<0.2	0.88	10	30	0.39	6	25	31	1.60	0.04	10	0.40	230	<0.01	16	470	<2	2	5	19	0.07	24	16		
98PL 0226	TCA8010		<0.2	0.92	14	30	0.40	7	26	32	1.66	0.04	10	0.42	230	<0.01	16	490	2	<2	5	20	0.07	25	20		

## **Appendix E. Kimberlite geochemical data**

## Appendix E. Geochemical data for bedrock samples of the Peddie kimberlite, Paleozoic limestone and diabase sill

Sample I	Code	Unit	Det. Limit	97MPB-14A Pit # 2 in situ weathered	97MPB-14B Pit # 2 in situ weathered	97MPB-18A Pit # 3 in situ, rooted weathered	97MPB-18B Pit # 3 in situ	KIA97-PP4 Pit # 4 in situ	KIA97-PP7 Pit # 7 boulder in	KIA97-PP8 Pit # 8 boulder in till	KIA98 -M 7809 diabase sill	KIA98 -M 7833 limestone
type notes												
SiO2	XRF102	%	0.01	34.00	34.30	47.90	26.50	27.00	27.40	28.00	51.9	2.71
TiO2	XRF102	%	0.00	2.75	2.56	0.62	1.92	2.01	2.03	4.18	12.6	0.56
Al2O3	XRF102	%	0.01	3.40	2.17	9.75	1.46	1.56	1.55	3.83	10.6	45.7
Fe2O3	XRF102	%	0.01	11.60	11.10	10.70	9.41	8.81	9.08	11.80	12.5	6.59
CaO	XRF102	%	0.01	2.23	2.07	6.55	11.50	11.10	11.10	12.20	1.13	0.05
MgO	XRF102	%	0.01	34.40	38.30	15.80	29.70	32.00	31.80	22.10	0.34	0.22
MnO	XRF102	%	0.01	0.18	0.19	0.19	0.15	0.16	0.20	0.24	9.33	0.79
Na2O	XRF102	%	0.01	0.13	0.13	1.61	0.12	0.10	0.11	0.28	0.18	0.06
K2O	XRF102	%	0.01	0.19	0.14	1.16	0.33	0.27	0.24	1.06	0.385	0.033
P2O5	XRF102	%	0.01	1.16	1.24	0.45	0.90	1.03	1.03	0.61	0.03	0.02
Cr2O3	XRF102	%	0.01	0.24	0.23	0.25	0.18	0.19	0.19	0.18	0.1	-0.01
LOI	XRF102	%	0.01	7.35	5.00	3.80	14.10	12.90	12.50	13.60	0.5	42.9
Sum	XRF102	%	0.01	98.10	98.00	98.80	96.80	97.60	97.80	98.30	99.6	99.6
Rb	XRF102	ppm	2	21	11	71	31	22	23	95	14	6
Sr	XRF102	ppm	2	245	237	149	920	871	812	763	100	164
Ba	XRF102	ppm	20	3510	2760	456	3240	4070	3500	1460	93	bd
Zr	XRF102	ppm	2	307	299	82	207	227	234	188	34	17
Nb	XRF102	ppm	2	337	322	14	246	253	257	231	3	2
Hf	NA-BAS	ppm	1	6	6	2	5	5	4	5	<1	bd
Ta	NA-BAS	ppm	1	16	16	1	12	13	13	18	bd	bd
Th	NA-BAS	ppm	0.5	42	42	2.2	33	33	34	20	bd	0.8
U	NA-BAS	ppm	0.5	13	11	0.25	7.9	6.7	8.4	5.6	bd	0.7
Ni	NA-BAS	ppm	100	780	1100	550	870	990	800	610	bd	bd
Cr	NA-BAS	ppm	10	1740	1630	1580	1190	1270	1280	1180	659	bd
Zn	NA-BAS	ppm	50	bd	bd	140	bd	bd	bd	bd	215	bd
Sc	NA-BAS	ppm	1	21	17	27	14	15	15	19	39	bd
Co	NA-BAS	ppm	5	115	112	67	85	89	87	90	55	bd
La	NA-BAS	ppm	1	296	288	16	234	234	247	155	4	3
Ce	NA-BAS	ppm	3	526	497	30	407	412	428	280	8	5
Nd	NA-BAS	ppm	10	140	130	22	110	120	120	91	bd	bd
Sm	NA-BAS	ppm	0.5	20	19	3.3	16	16	17	11	1.4	bd
Eu	NA-BAS	ppm	0.2	5.4	5	0.9	4	3.8	4.3	3	0.6	0.3
Tb	NA-BAS	ppm	0.5	bd	1.2	0.25	1.4	1	1.6	bd	bd	bd
Yb	NA-BAS	ppm	0.5	1.4	1.2	1.3	1.2	1	1.1	0.9	1.1	bd
Lu	NA-BAS	ppm	0.05	0.12	0.08	0.15	0.12	0.07	0.09	0.06	0.23	bd
Y	XRF102	ppm	2	4	3	17	bd	bd	2	2	6	bd
As	NA-BAS	ppm	2	5	5	3	4	4	3	bd	bd	5
Se	NA-BAS	ppm	5	bd	bd	bd	bd	bd	bd	bd	6	bd
Br	NA-BAS	ppm	1	5	6	bd	3	6	6	bd	3	7
Mo	NA-BAS	ppm	5	bd	bd	bd	bd	bd	bd	bd	bd	bd
Ag	NA-BAS	ppm	5	bd	bd	bd	bd	bd	bd	bd	bd	bd
Sb	NA-BAS	ppm	0.2	0.6	0.4	0.7	0.9	0.5	0.5	0.4	bd	bd
Cs	NA-BAS	ppm	3	bd	bd	5	bd	bd	bd	bd	bd	bd
Hg	NA-BAS	ppm	1	bd	bd	bd	bd	bd	bd	bd	bd	bd
W	NA-BAS	ppm	4	bd	bd	bd	bd	bd	bd	bd	bd	bd
Ir	NA-BAS	ppb	20	bd	bd	bd	bd	bd	bd	bd	bd	bd
Au	NA-BAS	ppb	5	bd	bd	bd	bd	bd	bd	bd	bd	bd

bd= below detection limit

**Appendix F. Gold grain data**

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F.1 Normalized gold grain counts, morphological classification and calculated assays	...182
F.2 Gold grain abundance, size and shape	...183

Appendix F.1. Number and shape of gold grains recovered from till samples and normalized (10 kg) gold grain counts

Sample	Material	Total Number gold grains	Number of Reshaped gold grains	Number of Modified gold grains	Number of Pristine gold grains	Calculated Au ppb	Weight <2.0 mm material (Table Feed)	Number of gold grains normalized to 10 kg <2.0 mm
97MPB7801	till	2	2	0	0	55	4.95	4
97MPB7811	till	5	4	0	1	9	8.20	6
97MPB7812	till	3	3	0	0	3207	7.60	4
97MPB7813	till	6	6	0	0	27	7.75	8
97MPB7815	till	13	13	0	0	85	7.30	18
97MPB7816	till	5	4	1	0	37	7.00	7
97MPB7817	till	10	9	1	0	43	7.80	13
97MPB7819	till	4	4	0	0	15	8.80	5
97MPB7820	till	2	2	0	0	3	11.40	2
97MPB7821	till	6	6	0	0	44	8.20	7
97MPB7822	till	3	3	0	0	19	8.45	4
97MPB7823	till	2	2	0	0	18	8.05	2
97MPB7824	till	4	3	1	0	12	7.25	6
97MPB7827	till	8	7	0	1	67	7.65	10
97MPB7828	till	5	5	0	0	3	7.85	6
97MPB7829	till	2	2	0	0	2	4.85	4
97MPB7830	till	4	4	0	0	27	6.85	6
97MPB7832	till	9	9	0	0	34	10.35	9
97MPB7834	till	18	16	2	0	130	6.15	29
97MPB7835	till	10	8	2	0	87	7.25	14
97MPB7836	till	12	12	0	0	14	6.80	18
97MPB7837	till	12	12	0	0	26	9.15	13
97MPB7838	till	11	10	1	0	25	9.25	12

Appendix F.2 Gold grain abundance, shape, size, and calculated assay

SAMPLE	Material	DIAMETER (µm)	THICKNESS	GOLD GRAIN SHAPE			TOTAL # GRAINS	CALCULATED Au ppb	COMMENTS
				Reshaped	Modified	Pristine			
97MPB7801	till	50 X 125	18 C	2			2		~200 grains of pyrite.
							2	55	
97MPB7811	till	15 X 25	4 C	1			1		No sulphides.
		25 X 25	5 C	2			2		
		25 X 50	8 C	1			1		
		25 X 75	10 C			1	1		
							5	9	
97MPB7812	till	50 X 75	13 C	1			1		No sulphides.
		150 X 225	50 M	1			1		
		375 X 500	75 M	1			1		
							3	3207	
97MPB7813	till	15 X 75	9 C	1			1		No sulphides.
		25 X 50	8 C	1			1		
		50 X 50	10 C	4			4		
							6	27	
97MPB7815	till	15 X 15	3 C	1			1		No sulphides.
		15 X 25	4 C	3			3		
		15 X 50	7 C	1			1		
		25 X 25	5 C	3			3		
		25 X 50	8 C	2			2		
		50 X 50	10 C	1			1		
		50 X 75	13 C	1			1		
		100 X 150	25 C	1			1		
							13	85	
97MPB7816	till	25 X 25	5 C	1			1		No sulphides.



Appendix F.2 Gold grain abundance, shape, size, and calculated assay

SAMPLE	Material	DIAMETER (µm)	THICKNESS	GOLD GRAIN SHAPE			TOTAL # GRAINS	CALCULATED Au ppb	COMMENTS
				Reshaped	Modified	Pristine			
97MPB7817	till	25 X 50	8 C	2			2		
		50 X 75	13 C		1		1		
		50 X 125	18 C	1			1		
							5	37	
		15 X 15	3 C	1			1		No sulphides.
		25 X 25	5 C	1	1		2		
		25 X 50	8 C	2			2		
		50 X 50	10 C	2			2		
		50 X 75	13 C	2			2		
		50 X 100	15 C	1			1		
97MPB7819	till						10	43	
		25 X 25	5 C	2			2		No sulphides.
		25 X 50	8 C	1			1		
		75 X 75	15 C	1			1		
							4	15	
		25 X 25	5 C	1			1		No sulphides.
		50 X 50	10 C	1			1		
							2	3	
		25 X 25	5 C	1			1		0.5% pyrite. 1% marcasite.
		25 X 50	8 C	3			3		
97MPB7821	till	50 X 75	13 C	1			1		
		75 X 125	20 C	1			1		
							6	44	
		25 X 75	10 C	1			1		No sulphides.
		50 X 50	10 C	1			1		
		50 X 75	13 C	1			1		
97MPB7822	till								

Appendix F.2 Gold grain abundance, shape, size, and calculated assay

SAMPLE	Material	DIAMETER (µm)	THICKNESS	GOLD GRAIN SHAPE			TOTAL # GRAINS	CALCULATED Au ppb	COMMENTS
				Reshaped	Modified	Pristine			
97MPB7823	till	50 X 50	10 C	1			3	19	
		50 X 100	15 C	1			1		5% pyrite.
							1		35% marcasite.
97MPB7824	till	25 X 25	5 C	2			2	18	
		25 X 75	10 C		1		1		No sulphides.
		50 X 75	13 C	1			1		
97MPB7825	till	15 X 25	4 C	1			4	12	
		25 X 50	8 C	2	2		1		No sulphides.
		50 X 50	10 C	2			4		
		50 X 75	13 C	4			2		
		75 X 75	15 C	1			4		
		75 X 125	20 C	1			1		
		75 X 150	22 C	1			1		
97MPB7826	till	15 X 25	4 C			1	14	169	
		25 X 25	5 C			1	1		No sulphides.
		50 X 50	10 C	1			1		
		50 X 75	13 C			1	1		
		50 X 100	15 C			1	1		
		100 X 150	25 C	1			1		
97MPB7827	till	15 X 25	4 C	1			6	79	
		25 X 50	8 C	1		1	1		20% pyrite.
		25 X 75	10 C	1			2		

Appendix F.2 Gold grain abundance, shape, size, and calculated assay

SAMPLE	Material	DIAMETER (µm)	THICKNESS	GOLD GRAIN SHAPE			TOTAL # GRAINS	CALCULATED Au ppb	COMMENTS
				Reshaped	Modified	Pristine			
		50 X 50	10 C	1			1		
		50 X 75	13 C	1			1		
		50 X 150	20 C	1			1		
		75 X 75	15 C	1			1		
							8	67	
97MPB7828	till	15 X 25	4 C	2			2		~500 grains of pyrite.
		25 X 25	5 C	2			2		
		25 X 50	8 C	1			1		
							5	3	
97MPB7829	till	15 X 25	4 C	1			1		No sulphides.
		15 X 50	7 C	1			1		
							2	2	
97MPB7830	till	15 X 15	3 C	2			2		No sulphides.
		25 X 25	5 C	1			1		
		50 X 150	20 C	1			1		
							4	27	
97MPB7831	till	10 X 10	2 C			1	1		No sulphides.
		25 X 25	5 C	1			1		
		25 X 75	10 C				1		
							3	4	
97MPB7832	till	15 X 25	4 C	1			1		No sulphides.
		15 X 50	7 C	1			1		
		25 X 50	8 C	1			1		
		25 X 100	13 C	1			1		
		50 X 50	10 C	3			3		
		50 X 100	15 C	1			1		

Appendix F.2 Gold grain abundance, shape, size, and calculated assay

SAMPLE	Material	DIAMETER (µm)	THICKNESS	GOLD GRAIN SHAPE			TOTAL # GRAINS	CALCULATED Au ppb	COMMENTS
				Reshaped	Modified	Pristine			
97MPB7834	till	75 X 75	15 C	1			1		
							9	34	
		15 X 25	4 C	2	1		3		No sulphides.
		15 X 50	7 C		1		1		
		25 X 25	5 C	4			4		
		25 X 50	8 C	2			2		
		25 X 75	10 C	1			1		
		25 X 150	18 C	1			1		
		50 X 50	10 C	2			2		
		50 X 75	13 C	2			2		
		50 X 150	20 C	1			1		
		75 X 125	20 C	1			1		
97MPB7835	till						18	130	
		15 X 50	7 C		1		1		No sulphides.
		25 X 25	5 C	1	1		2		
		25 X 50	8 C	1			1		
		25 X 75	10 C	1			1		
		50 X 50	10 C	3			3		
		50 X 125	18 C	1			1		
		75 X 125	20 C	1			1		
97MPB7836	till						10	87	
		15 X 15	3 C	3			3		No sulphides.
		15 X 25	4 C	5			5		
		25 X 50	8 C	2			2		
		25 X 75	10 C	1			1		
		50 X 50	10 C	1			1		
97MPB7837	till						12	14	
		15 X 15	3 C	1			1		No sulphides.

Appendix F.2 Gold grain abundance, shape, size, and calculated assay

SAMPLE	Material	DIAMETER (µm)	THICKNESS	GOLD GRAIN SHAPE			TOTAL # GRAINS	CALCULATED Au ppb	COMMENTS
				Reshaped	Modified	Pristine			
97MPB7838	till	15 X	25	4 C	1		1		
		15 X	50	7 C	1		1		
		25 X	25	5 C	3		3		
		25 X	50	8 C	4		4		
		50 X	50	10 C	1		1		
		50 X	75	13 C	1		1		
							12	26	
		15 X	15	3 C		1	1		No sulphides.
		15 X	25	4 C	2		2		
		25 X	25	5 C	3		3		
		25 X	50	8 C	3		3		
		25 X	100	13 C	1		1		
		50 X	75	13 C	1		1		
							11	25	

## **Appendix G. Pebble lithology data**

Appendix G. Pebble lithology data, number % in > 5 mm fraction

Sample No.	Lithology	% Felsic intru.	% Mafic intru.	% Diabase	% Meta volcanics	% Meta seds.	% Ultra mafic	% Limestone	% Vein quartz	% Kimb.	% Other	Total	Number of clasts counted
97MPB7801	till	4.5	0.3	4.2	9.5	11.8	0.0	68.2	0.0	1.6	0.0	100.0	578
97MPB7811	till	17.5	1.5	2.2	24.4	41.7	0.2	12.5	0.0	0.0	0.0	100.0	463
97MPB7812	till	11.2	0.0	10.9	36.8	39.8	0.0	1.0	0.3	0.0	0.0	100.0	304
97MPB7813	till	12.8	1.4	5.3	31.7	48.0	0.0	0.8	0.0	0.0	0.0	100.0	492
97MPB7815	till	3.8	1.6	4.3	11.8	16.4	0.0	62.2	0.0	0.0	0.0	100.0	373
97MPB7816	till	7.2	1.9	1.9	22.0	20.1	0.0	46.6	0.4	0.0	0.0	100.0	264
97MPB7817	till	6.1	0.2	1.1	28.5	32.4	0.0	31.6	0.0	0.0	0.0	100.0	522
97MPB7819	till	7.4	1.3	0.7	14.4	29.2	0.0	47.0	0.0	0.0	0.0	100.0	298
97MPB7820	till	4.5	0.5	0.8	18.1	14.1	0.0	62.0	0.0	0.0	0.0	100.0	376
97MPB7821	till	3.0	0.7	0.0	13.3	19.3	0.0	60.6	0.0	3.0	0.0	100.0	429
97MPB7822	gritty silt												
97MPB7823	till	3.8	1.3	0.9	17.0	13.2	0.0	63.7	0.0	0.0	0.0	100.0	529
97MPB7824	till	3.7	0.5	4.4	17.4	24.9	0.0	48.9	0.0	0.0	0.1	100.0	993
97MPB7825	sand												
97MPB7826	pebbly sand												
97MPB7827	till	12.4	2.5	1.3	15.6	30.4	0.0	37.3	0.0	0.4	0.0	100.0	474
97MPB7828	till	6.3	2.8	0.8	19.9	29.7	0.0	40.2	0.0	0.0	0.2	100.0	602
97MPB7829	till	2.8	0.0	0.9	18.0	17.1	0.0	61.2	0.0	0.0	0.0	100.0	322
97MPB7830	till	1.6	0.0	4.5	8.6	10.9	0.0	74.5	0.0	0.0	0.0	100.0	642
97MPB7831	till	3.2	0.0	2.3	8.8	17.1	0.2	68.3	0.0	0.0	0.0	100.0	432
97MPB7832	till	2.3	1.0	3.6	9.0	17.2	0.0	66.8	0.0	0.0	0.0	100.0	389
97MPB7834	till	3.9	0.6	2.4	6.6	9.6	0.0	76.7	0.0	0.0	0.3	100.0	335
97MPB7835	till	6.3	0.4	0.6	26.1	31.1	0.6	34.8	0.2	0.0	0.0	100.0	528
97MPB7836	till	7.4	1.3	3.4	21.2	32.8	0.0	33.6	0.3	0.0	0.0	100.0	378
97MPB7837	till	18.5	1.0	1.0	17.9	17.9	0.0	43.6	0.0	0.0	0.0	100.0	195
97MPB7838	till	16.7	1.1	0.4	31.5	20.2	0.2	30.0	0.0	0.0	0.0	100.0	550