



North Arrow

MINERALS INC.

**Qilalugaq Diamond Project
Nunavut, Canada**

**NI 43-101 Technical Report
Mineral Resource
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1.0 SUMMARY

1.1 Executive Summary

This technical report has been prepared by Ms. Barbara Kupsch, M.Sc., P. Geol. (AB) and by David Farrow, Pr.Sci.Nat, P.Geo for North Arrow Minerals Inc. (“North Arrow”) as an independent review of, and restatement of the current Mineral Resource Estimate for the Qilalugaq diamond property in Nunavut, Canada. The Qilalugaq property (the “Property”) is 100% owned by Stornoway Diamond Corporation (“Stornoway”). North Arrow retains an option to earn an 80% interest in the Property subject to a back in right retained by Stornoway. This report was prepared in accordance with the revised regulations for National Instrument 43-101 (“NI 43-101”) to restate and confirm Stornoway’s current Mineral Resource Estimate for the Qilalugaq diamond property (Kupsch and Farrow, 2012) as a current resource for the purposes of North Arrow’s public disclosure record, and for any other required regulatory filings.

The Mineral Resource Estimate is specific to Q1-4 (a 12.5 ha, multi-phased, complex-shaped, kimberlite pipe) and has been completed in accordance with the Canadian Institute of Mining (CIM) Mineral Resource and Mineral Reserve definitions referred to in National Instrument (NI) 43-101, Standards of Disclosure for Mineral Projects. Exploration results and the other kimberlite pipes and dykes on the Qilalugaq Property are also documented as per NI 43-101 requirements. The reporting of diamond exploration results follows the CIM ‘Guidelines for the Reporting of Diamond Exploration Results’.

David Farrow, an independent Qualified Person (QP), prepared the Mineral Resource Estimate as documented in Section 14, along with co-authoring sections 1, 3, 12, 25 and 26. Barbara Kupsch, an independent QP, co-authored sections 1, 3, 12, 25 and 26 and prepared the remainder of the report, excluding section 14.

The Mineral Resource Estimate comprises the integration of kimberlite volumes, density, petrology and diamond content-data obtained from 5,133 m of diamond drilling, 2,714 m of reverse circulation (RC) drilling, 2.9 t of samples submitted for microdiamond analysis, 257.7 t of samples submitted for macrodiamond sampling with 2.36 cts of diamonds (69 stones) recovered from HQ diameter diamond drilling, 59.2 cts of diamonds (2,054 stones) recovered from RC drilling, and 7.5 cts of diamonds (205 stones) recovered from surface trenching. Microdiamond data in the context of this report refers to all diamonds (> 0.106 mm) recovered during caustic fusion processing and macrodiamond refers to all diamonds recovered through DMS processing that are retained on the +1 DTC screen. These data summarize the results of the exploration programs conducted on the Qilalugaq Property by BHP Billiton Diamonds Inc. (BHPB) from 2000 to 2005 and by Stornoway from 2006 to 2012.

For the purposes of this report, work programs completed by BHPB and Stornoway are considered historic exploration. There has been no current exploration conducted by North Arrow on the Property.

Barbara Kupsch, most recently visited the Property during July 2010 and no field work has been conducted since that date. Property visits were not conducted by David Farrow as the majority of the drilling and kimberlite sample collection relevant to the Mineral Resource Estimate was completed between 2003 and 2005 while under BHPB’s direction.



1.1.1 Conclusions

The interpretations and conclusions that have been identified from the May 2013 Mineral Resource Estimate are:

- Exploration was conducted on the Qilalugaq Property by BHPB from 2000 to 2005 and by Stornoway from 2006 to 2012. Heavy mineral sampling, airborne and ground geophysics, prospecting, drilling (core and RC) and kimberlite sample collection has been completed by one or both of the companies.
- One kimberlite body (Q1-4) comprising five different phases (A28a, A48a, A48b, A61a and A88a) have been the focus of most work. Seven additional lesser known kimberlite pipes (A34, A42, A59, A76, A94, A97 and A152), and eight kimberlite dykes (Naujaat 1 to 8) have been identified on the Qilalugaq Property. All kimberlites are situated within a 26 x 3 km structurally favourable corridor.
- The pipes comprise root zone to lower diatreme facies rocks characterized by a complex internal geology, which includes MVK classified as TKB, lesser-coherent HK, and varying proportions of country-rock xenoliths. The dykes are composed of coherent HK.
- A total of 86 drill holes (13,464 m) have been drilled on the Property since 2003, comprising 18 RC holes (2,714 m) and 68 cored holes (10,750 m). More than half of all drilling (39 drill holes and 7,847 m) concentrated on the Q1-4 which is the most significant kimberlite body on the Property due to its large size (12.5 ha) and positive micro/macrodiamond results.
- Microdiamond sampling consisted of 6,352.8 kg of kimberlite from Q1-4 (A28a, A48a, A48b, A61a and A88a), six additional pipes (A34, A42, A59, A76, A94 and A152) and seven dykes (Naujaat 1 to 4 and 6 to 8). A total of 997.6 kg of material were collected from the seven Naujaat dykes through trenching/surface collection. No unweathered kimberlite could be obtained from Naujaat 5. A total of 2,411.2 kg of material were collected from the six additional pipes through diamond drill core sampling. The remaining 2,944.0 kg were collected from Q1-4 through trenching (317.9 kg) and diamond drill core (2,626.1 kg) sampling.
- Macrodiamond sampling consisted of 262.9 t of kimberlite from Q1-4 (A28a, A48a, A48b, A61a and A88a) and four dykes (Naujaat 1, Naujaat 2, Naujaat 3 and Naujaat 6). Approximately 5.2 t of material were collected from the four Naujaat dykes through trenching/surface collection. The remaining 257.7 t were collected from Q1-4 through trenching (24.5 t), diamond drill core (9.1 t) and RC (224.1 t) drill hole sampling.
- The Mineral Resource Estimate for the Q1-4 kimberlite pipe comprises the integration of kimberlite volumes, density, petrology and diamond content-data obtained from 5,133 m of diamond drilling, 2,714 m of RC drilling, 2.9 t of samples submitted for microdiamond analysis, 257.7 t of samples submitted for macrodiamond sampling with 2.36 cts of diamonds (69 stones) recovered from HQ diameter diamond drilling, 59.2 cts of diamonds (2,054 stones) recovered from RC drilling, and 7.5 cts of diamonds (205 stones) recovered from surface trenching.



- The Inferred Mineral Resource for the Q1-4 kimberlite pipe are estimated to be 48.8 million t at a grade of 53.6 cpht, containing 26.1 million cts.
- There is additional potential for the Qilalugaq Property, as the geological model for Q1-4 is based on a conservative shape for the kimberlite at depth, and the evaluation model does not incorporate areas of limited drilling at depth. A Target for Further Exploration (TFFE) was identified as representing between 14.1 and 16.6 million t, containing between 7.9 and 9.3 million cts of diamonds, at an average grade of 56.1 cpht. This was defined on a basis of geological modelling and limited delineation drilling. The potential quantity and grade of any TFFE is conceptual in nature, there is insufficient exploration to define a mineral resource and it is uncertain whether additional exploration will result in the target being delineated as a Mineral Resource.
- There are no Indicated Mineral Resources or Mineral Reserves estimated for the Q1-4 kimberlite pipe. More drilling is needed to better define the pipe shape, which could affect the tonnage and allow upgrading of the resource. A larger sample of kimberlite is needed to better represent the diamond parcel within the body.

Considering the risks inherent in all kimberlite deposits, such as sampling for geological continuity, diamond grade and diamond revenue determination, the Inferred classification of the Mineral Resource is considered suitable.

1.1.2 Recommendations

The following section presents recommendations from the QPs to advance the Qilalugaq project. Cost estimates for the recommended work are included in each section.

A 1,500 t surface sampling program is recommended for A28a to collect an approximately 500 carat parcel of diamonds to better determine diamond grade, size distribution, diamond parcel value, and to establish whether or not the yellow diamonds persist into the larger diamond sizes. This program would cost in the order of \$3.4 million to collect, ship and process (see budget below). The necessary regulatory approvals for the proposed program have been obtained.

<u>Budget Item</u>	<u>Estimated Cost</u>
• Field Collection of Sample Material (collection costs includes salaries, flights, helicopter, camp costs, equipment, logistics etc.)	\$1,300,000
• Shipping Costs	\$930,000
• Sample Processing and Diamond Extraction Costs	\$770,000
• Diamond Valuation and Miscellaneous Handling	\$105,000
• Contingency (~10%)	<u>\$310,000</u>
Total Project Cost	\$3,415,000



1.2 Technical Summary

1.2.1 Location, Access, and Infrastructure

The Qilalugaq Property comprises 7,143 ha of land between Repulse Bay and Committee Bay, Nunavut. The Property is located in the south of the Rae Isthmus, which connects the Melville Peninsula to mainland Nunavut. The Property lies approximately 6 km northeast of the hamlet of Repulse Bay on the Arctic Circle.

The Property is fully accessible by helicopter from the hamlet of Repulse Bay. During summer months, float-equipped, fixed-wing aircraft and, during the winter months, ski-equipped aircraft can be chartered from Rankin Inlet. The airport in Repulse Bay accommodates daily passenger flights and bi-weekly air freight flights. Bulk commodities, including fuel, building supplies, non-perishable foodstuffs, and vehicles, are delivered to Repulse Bay on a series of barges which arrive each fall. There is no road access to Repulse Bay, not even as an ice road during the winter.

The Property consists of seven contiguous individual mineral claims which had anniversary dates of July 5, 2012 and can be identified by the following claim numbers: F72481 to F72483 (inclusive), F72492 to F72494 (inclusive), and F72573. The requisite legal surveys on the claims were completed by July 30, 2012, and applications to convert all seven mineral claims to mining leases were submitted to the Mining Recorders Office on June 5, 2012. These applications are currently being processed. The dispositions are registered in the name of Stornoway Diamond Corporation as a 100% interest at the Nunavut Mining Recorder's Office.

As of the effective date of this report all of the dispositions that comprise the Qilalugaq Property are currently in good standing.

1.2.2 Geological Setting and Mineralization

The Qilalugaq Property sits on the Rae Isthmus, part of the Precambrian Rae subprovince, which accreted with the Hearne and Burwell subprovinces between 1.97 and 1.82 Ga to form the Churchill Structural Province of the Canadian Shield. The Property area is underlain by granitoid gneiss, paragneiss, schist, and granitic rocks of the Rae Province/Craton flanked by Paleozoic sedimentary rocks.

The Qilalugaq kimberlite pipes and dykes were emplaced into granitic and gneissic host rocks, and contain diamonds of potential economic interest. Kimberlite emplacement occurred at ca. 546 Ma.

The Qilalugaq kimberlite field occurs within a west-northwest trending corridor measuring 26 km long and approximately 3 km wide, parallel to significant regional lineaments. Eight kimberlite pipes have been identified in the Qilalugaq Cluster (A28, A48, A61 and A88 forming one body, referred to as Q1-4, and A34, A42, A59, A76, A94, A97, and A152). Eight laterally extensive kimberlite dyke systems, known as the Naujaat 1 through 8 dykes, have been identified within and to the northwest of the pipe cluster.

Geophysical data and drill information from delineation and bulk sampling programs indicate that, in general, most of the Qilalugaq kimberlites are irregular and elliptical in plan view. Surface areas of the kimberlite pipes range from 0.6 ha to 12.5 ha. Individual dykes have been



traced along strike lengths from 0.1 km up to 3.3 km (lengths are interpreted minimum surface expressions) and appear to be preferentially emplaced along the west-northwest trending structures.

The Qilalugaq kimberlite pipes comprise root zone to diatreme facies rocks characterized by complex internal geology. In most pipes, with the exception A152, the dominant phase is a MVK that is classified as TKB which commonly transitions toward HK with depth. In general, these TKBs are extensively altered and have a massive texture. They consist of varying amounts of olivine, magmaclasts, and country rock xenoliths that are poorly sorted, typically loosely packed and less commonly clast-supported, all set within a highly altered interclast matrix. In most cases they transition with depth to a more coherent or transitional kimberlite characterized by lower country rock xenolith content and higher olivine content set within a dominantly crystalline groundmass. In select pipes, including Q1-4, multiple pipe-filling phases are present. In the majority of the bodies, HK is present as both dykes and irregularly shaped intrusions that are found within each pipe infilling phase. These HK domains are typically considered later-stage intrusions and can vary in thickness from a few centimetres to several metres and, in the case of the Naujaat 1 to 8 dyke system, for example, are laterally extensive. Petrographic analyses of the Qilalugaq kimberlites support Group I kimberlite classification.

Q1-4 is the largest kimberlite pipe within the Qilalugaq Cluster and is the subject of the Mineral Resource Estimate in Section 14 of this report. It is interpreted as a complex, steep-sided, diatreme to root-zone kimberlite, with a lobate external shape. The geology of this kimberlite was determined using detailed logging of drill core and results of petrographic studies. Q1-4 consists of five main pipe infills in order from west to east: A48a, A48b, A88a, A61a and A28a. Excluding Q1-4, limited drilling into the majority of the other kimberlites constrains the ability to model their pipe shapes and define internal units.

1.2.3 History

The Qilalugaq Property on the Rae Isthmus and southern portion of the Melville Peninsula was the focus of extensive diamond exploration work by BHPB from 2000 to 2005. BHPB discovered eight kimberlite intrusions through a variety of exploration techniques including heavy mineral sampling and geophysics. BHPB completed the following work on the Qilalugaq Property from 2000 to 2005: collected 5,367 reconnaissance and follow-up glacial sediment samples; flew 57,129 line-km of fixed wing magnetic and helicopter magnetic/electromagnetic (mag/EM) surveys and 19,374 line-km of fixed wing gravity surveys; completion of 210 line-km over 25 detailed ground magnetic surveys; drilled 68 diamond drill holes (DDH; 10,750 m) and 18 RC holes (2,714 m); determined the density for 283 samples of kimberlite from four drill holes in Q1-4; collected approximately 4.2 t of kimberlite from seven kimberlites from drill core and surface samples (excluding A97) for microdiamond analysis; collected approximately 233 t of kimberlite from RC chips and drill core from Q1-4 for macrodiamonds analysis. This work led to the discovery and analysis of eight kimberlite pipes (Q1-4, A34, A42, A59, A76, A94, A97, A152).

Over half of all drilling on the Property (7,847 m and 39 drill holes) concentrated on Q1-4. After the initial discovery in 2003 from four exploration DDH (1,024 m), a mini-bulk sample from A28 was collected from six HQ diameter diamond drill holes (1,492 m) in the fall of 2003 and yielded encouraging macrodiamond results of 26 cpht. A follow-up 11 delineation DDH (2,617 m) and 18 RC (2,714 m) drill program was completed in 2004 to help better define the geometry of the coalescing body and to collect a mini-bulk sample from the remaining three anomalies for



macrodiamond processing. Kimberlite collected and processed for macrodiamonds yielded sample grades of 14 cpht for A48, 39 cpht for A61, and 28 cpht for A88.

Between approximately 80 and 1,040 kg of core from each of the seven kimberlites (excluding A97 due to the small kimberlite intersection) were analysed for microdiamonds; 4,164.7 kg total was collected from 14 drill holes and one surface sample from Q1-4. All tested kimberlites proved to be diamondiferous, and a total of 2,819 stones between +0.1 mm to +2.360 mm was recovered. This includes 1,753.5 kg collected from Q1-4 from four drill holes and one surface sample recovering a sum total of 2,393 stones between +0.1 mm to +2.36 mm.

Mini-bulk sampling through DDH and RC drilling for macrodiamond determination was completed on Q1-4. A28 had a large diameter six HQ DDH campaign collecting 9.1 t of kimberlite yielding 2.36 cts (+1 DTC). A48, A61 and A88 had an 18 RC drill campaign collecting 224.1 t of kimberlite yielding 59.17 cts (+1 DTC).

No report of any mineral resource and/or mineral reserve estimates by BHPB can be found in the public domain.

Exploration was conducted on the Qilalugaq Property by Stornoway between 2006 and 2012 which consisted of a collection of: an additional 1,530 heavy mineral samples; completion of 211.9 line-km over 42 magnetic and EM ground geophysical surveys; and prospecting 707 line-km in the central core area. This resulted in the discovery of eight kimberlite dykes (Naujaat 1 through 8). Additional work completed by Stornoway was: re-logging available drill core from seven partial holes (773 m) into Q1-4, collection and review of 168 petrographic samples from core (117 from Q1-4), and collection of 47 core samples from six drill holes for density determination. Stornoway collected approximately 1.2 t from surface sampling of eight kimberlites and approximately 1 t from existing core holes from Q1-4 for microdiamond analysis. Stornoway collected approximately 29.7 t from surface sampling of five kimberlites (including ~24.5 t from A28a) for macrodiamonds analysis. Surface pit sampling along with re-evaluation and sampling of the drill core completed on Q1-4 was completed to collect additional diamonds for further diamond modelling and estimation purposes.

The internal geology of Q1-4 was determined based on the petrological logging of seven existing drill holes and detailed petrographic analysis of 124 thin sections comprising 62 samples collected by Stornoway from five re-logged drill holes and review of 110 thin sections comprising 55 samples collected by BHPB from seven drill holes, and the application of that information to a review and re-interpretation of historical BHPB drill hole photographs and drill hole logs.

A three-dimensional (3D) Q1-4 model was created by Stornoway using the new geological information acquired since 2011. Definition of the pipe shape was delineated from drill hole data, country rock outcrop exposures (which limits the extent of kimberlite at surface), and the magnetic geophysical survey which helped define the shape at surface and internal contacts around two of the kimberlite units.

From 2006 to 2010, 11.6 kg to 243.3 kg of kimberlite float/boulders and/or subcrop from one or more locations along all dykes, except Naujaat 5 (not enough fresh material could be collected), were collected and analysed for microdiamonds. A total of 191.6 kg of A28a was collected from subcrop in 2006. In total, 1,189.2 kg collected from Naujaat 1 to 4 and Naujaat 6 to 8, and A28a



surface pits proved to be diamondiferous and a total of 433 stones between +0.106 mm to +1.70 mm was recovered (including 91 stones from A28a). Between 164.2 kg to 350.7 kg of core from each of the kimberlite units A28a, A48b, A61a and A88a (there was no core available for re-logging or sample collection for unit A48a) from Q1-4 were analysed for microdiamonds from five re-logged drill holes. A total of 998.9 kg was collected and 808 stones between +0.106 mm to +1.70 mm were recovered.

From 2006 to 2007, between 0.59 t to 1.70 t kimberlite float and/or subcrop from each of the Naujaat 1, 2, 3, and 6 dykes from one to multiple locations were collected and analysed for macrodiamonds. In total, 5.2 t of kimberlite was collected. Diamonds totalling 0.036 cts (+0.850 mm) were recovered in Naujaat 1, but were absent in Naujaat 2, 3 and 6. Two mini-bulk sampling programs were conducted in 2006 and 2007 from surface pits in A28a and collected 4.19 t and 20.28 t, respectively, to confirm the macrodiamond data collected by BHPB. A total of 7.459 (+0.850 mm) carats were recovered from the A28a 2006 and 2007 samples.

Stornoway disclosed a Mineral Resource Estimate in June 2012 (Kupsch and Farrow, 2012).

No production has been carried out on the Property.

1.2.4 Exploration

To date, North Arrow has not conducted any exploration on the Qilalugaq Property.

1.2.5 Drilling

No new drilling was conducted by North Arrow on the Qilalugaq Property.

1.2.6 Sample Preparation, Analyses and Security

Two Dense Media Separation (DMS) process facilities have been used as primary macrodiamond extraction laboratories during the Qilalugaq exploration programs to date: SGS Lakefield (SGS) a commercial facility located at Lakefield, Ontario used by BHPB; and, an external independent mineral process facility at Thunder Bay, Ontario (Microlithics) operating a 1.5 tph DMS plant. The diamond recovery circuit for the RC chips processed at SGS includes a sizing circuit, an X-ray Flow-Sort machine and grease table equipment. At both SGS and Microlithics, DMS concentrates for the BHPB HQ diameter drill core and Stornoway surface samples, respectively, were submitted for caustic fusion and the residues hand sorted to extract diamonds. Residues from some of the samples from Microlithics were shipped to I&M Morrison Geological Services Ltd. (I&M Morrison) in Delta, BC for observation and visual extraction of diamonds. Stornoway also used their internal laboratory in North Vancouver to provided support for the extraction, sorting, and sizing of diamonds.

For the Qilalugaq Property, both DMS plants targeted stones of +1 DTC screen size (essentially equivalent to a +0.850 mm square-mesh screen size) or above, although smaller stones have been recovered.

During the Qilalugaq exploration programs, microdiamonds were recovered by the same two external unrelated commercial facilities: SGS used by BHPB; and Microlithics used by Stornoway.



All sample collection and processing was undertaken by qualified operators who conducted their work in secure field or laboratory areas with restricted access and followed strict sample handling protocols.

1.2.7 Data Verification

Stornoway acquired BHPB's data set, and implemented a Quality Assurance and Quality Control (QA/QC) program to verify the data. As part of the independent expert review, GeoStrat conducted verification checks on the Qilalugaq Property data and methodologies.

1.2.8 Mineral Resource Estimates

The Mineral Resource Estimate comprises the integration of kimberlite volumes, density, petrology and diamond content-data obtained from 5,133 m of diamond drilling, 2,714 m of RC drilling, 2.9 t of samples submitted for microdiamond analysis, 257.7 t of samples submitted for macrodiamond sampling with 2.36 cts of diamonds (69 stones) recovered from HQ diameter diamond drilling, 59.2 cts of diamonds (2,054 stones) recovered from RC drilling, and 7.5 cts of diamonds (205 stones) recovered from surface trenching.

The Inferred Mineral Resource for the Q1-4 kimberlite pipe is estimated to be 48.8 million t at a grade of 53.6 cpht, containing 26.1 million cts.

Table 1.1: May 2013 Inferred Mineral Resource for Q1-4

Deposit	Total Tonnes	Total Carats*	Average cpht
Q1-4	48,790,000	26,144,000	53.6

*100% Recovery +1 DTC

There is additional potential for the Qilalugaq Property, as the geological model for Q1-4 is based on a conservative shape for the kimberlite at depth, and the evaluation model does not incorporate areas of limited drilling at depth. The TFFE is presented in Section 14.8. Total TFFE was identified as representing between 14.1 and 16.6 million t, containing between 7.9 and 9.3 million cts of diamonds, at an average grade of 56.1 cpht. These were defined on a basis of geological modelling, outcrop mapping, and limited delineation drilling. The potential quantity and grade of any TFFE is conceptual in nature, there is insufficient exploration to define a mineral resource and it is uncertain whether additional exploration will result in the target being delineated as a Mineral Resource.

Table 1.2: May 2013 Target For Further Exploration for Q1-4

Deposit	Low Range			High Range		
	Total Tonnes	Total Carats*	Average cpht	Total Tonnes	Total Carats*	Average cpht
Q1-4	14,096,000	7,907,000	56.1	16,591,000	9,306,000	56.1

*100% Recovery +1 DTC



2.0 INTRODUCTION

This technical report has been prepared by Ms. Barbara Kupsch, M.Sc., P. Geol. (AB) and by David Farrow, Pr.Sci.Nat, P.Geo for North Arrow Minerals Inc. (“North Arrow”) as an independent review of, and restatement of the current Mineral Resource Estimate for the Qilalugaq diamond property in Nunavut, Canada. The Qilalugaq property (the “Property”) is 100% owned by Stornoway Diamond Corporation (“Stornoway”). North Arrow retains an option to earn an 80% interest in the Property subject to a back in right retained by Stornoway. This report was prepared in accordance with the revised regulations for National Instrument 43-101 (“NI 43-101”) to restate and confirm Stornoway’s current Mineral Resource Estimate for the Qilalugaq diamond property (Kupsch and Farrow, 2012) as a current resource for the purposes of North Arrow’s public disclosure record, and for any other required regulatory filings.

The Mineral Resource Estimate is specific to Q1-4 (a 12.5 ha, multi-phased, complex-shaped, kimberlite pipe) and has been completed in accordance with the Canadian Institute of Mining (CIM) Mineral Resource and Mineral Reserve definitions referred to in National Instrument (NI) 43-101, Standards of Disclosure for Mineral Projects. Exploration results and the other kimberlite pipes and dykes on the Qilalugaq Property are also documented as per NI 43-101 requirements. The reporting of diamond exploration results follows the CIM ‘Guidelines for the Reporting of Diamond Exploration Results’.

David Farrow, an independent Qualified Person (QP), prepared the Mineral Resource Estimate as documented in Section 14, along with co-authoring sections 1, 3, 12, 25 and 26. Barbara Kupsch, an independent QP, co-authored sections 1, 3, 12, 25 and 26 and prepared the remainder of the report, excluding section 14.

The Mineral Resource Estimate comprises the integration of kimberlite volumes, density, petrology and diamond content-data obtained from 5,133 m of diamond drilling, 2,714 m of reverse circulation (RC) drilling, 2.9 t of samples submitted for microdiamond analysis, 257.7 t of samples submitted for macrodiamond sampling with 2.36 cts of diamonds (69 stones) recovered from HQ diameter diamond drilling, 59.2 cts of diamonds (2,054 stones) recovered from RC drilling, and 7.5 cts of diamonds (205 stones) recovered from surface trenching. Microdiamond data in the context of this report refers to all diamonds (> 0.106 mm) recovered during caustic fusion processing and macrodiamond refers to all diamonds recovered through DMS processing that are retained on the +1 DTC screen. These data summarize the results of the exploration programs conducted on the Qilalugaq Property by BHP Billiton Diamonds Inc. (BHPB) from 2000 to 2005 and by Stornoway from 2006 to 2012.

For the purposes of this report, work programs completed by BHPB and Stornoway are considered historic exploration. There has been no current exploration conducted by North Arrow on the Property.

Barbara Kupsch, most recently visited the Property during July 2010 and no field work has been conducted since that date. Property visits were not conducted by David Farrow as the majority of the drilling and kimberlite sample collection relevant to the Mineral Resource Estimate was completed between 2003 and 2005 while under BHPB’s direction.



A general list of abbreviations is found in Table 2.1.

Table 2.1: List of Abbreviations

Abbreviation	Description
\$	Canadian Dollars
°C	Degrees Celsius
ca	circa
CK	Coherent Kimberlite
cm	Centimetre
cpht	Carats per Hundred Tonnes
CRB	Country Rock Breccia
cts	Carats
DTC	Diamond Trading Company Diamond Sieve
e.g.	exempli gratia (meaning for example)
Ga	Giga Annun (Billion Years)
ha	Hectare
HK	Hypabyssal Kimberlite
kg	Kilogram
km	Kilometre
km ²	Square Kilometre
m	Metre
Ma	Mega Annun (Million Years)
masl	Metres Above Sea Level
mm	Millimetre
MVK	Massive Volcaniclastic Kimberlite
QA/QC	Quality Assurance and Quality Control
SPHTUI	Stones per Hundred Tonnes per Unit Interval
t	Metric Tonne
TKB	Tuffisitic Kimberlite Breccia
tph	Metric Tonne per Hour
wt	Weight



3.0 RELIANCE ON OTHER EXPERTS

The authors have relied upon other experts for information used in this technical report for the following items:

The authors have relied on BHPB's exploration work, sample collection data and results. The BHPB data was vetted by Stornoway by comparing the BHPB compiled data to what original data was provided, such as original laboratory certificates, reviewing available core, etc. BHPB is a natural resource company and a global organization that practices "standardised and controlled processes" and follows their "Code of Business Conduct". Their sampling collection and analysis methods are perceived to be reliable and were completed under the direction of a QP.

4.0 PROPERTY DESCRIPTION AND LOCATION

The Qilalugaq Property comprises 7,143 ha of land between Repulse Bay and Committee Bay, Nunavut (Figure 4.1). The Property is located in the south of the Rae Isthmus, which connects the Melville Peninsula to mainland Nunavut. The Property lies approximately 6 km northeast of the hamlet of Repulse Bay on the Arctic Circle.

The Property is encompassed within National Topographic Sheets (NTS) 046K12 and 046L09 (Figure 4.2). Property centroids are at approximately 66°34'N and 86°01'W.

The Property consists of seven contiguous individual mineral claims which had anniversary dates of July 5, 2012 and can be identified by the following claim numbers: F72481 to F72483 (inclusive), F72492 to F72494 (inclusive), and F72573. The requisite legal surveys on the claims were completed by July 30, 2012, and applications to convert all seven mineral claims to mining leases were submitted to the Mining Recorders Office on June 5, 2012. These applications are currently being processed.

Currently the claims are registered in, and the lease applications are made under, the name of Stornoway Diamond Corporation as a 100% interest at the Nunavut Mining Recorder's Office. Stornoway increased its ownership in the Qilalugaq Property to 100% effective July 2010 by providing BHPB with a 3% gross production royalty interest on diamonds and a 3% net smelter return royalty on other minerals. Stornoway has 100% of the diamond marketing rights for this Property.

On January 23, 2013, Stornoway and 0954506BC Ltd. ("BCCo") entered into a binding option letter agreement, subsequently superseded by a definitive Qilalugaq Option Agreement dated March 13, 2012, under which Stornoway granted BCCo the option to earn an 80% interest in the Qilalugaq property by completing an agreed upon work program. Upon completing the work program and vesting at an 80% interest, Stornoway has a one-time right to elect to increase its interest from 20% to 40% by paying BCCo an amount equal to three times the exploration costs incurred by BCCo to complete the work program and exercise its option. Both Stornoway and BCCo may transfer their respective interests in the Qilalugaq Option Agreement without the approval of the non-transferring party, however, notice of the transfer is required to be delivered to the non-transferring party along with an agreement to be bound signed by the transferee.



On March 12, 2013, BCCo and North Arrow entered into an agreement (the “Option Transfer Agreement”) under which BCCo agreed to assign and transfer to North Arrow BCCo’s interest in options to earn an interest in three separate diamond properties, including BCCo’s interest, rights and obligations in the Qilalugaq Option Agreement. On April 29, 2013 North Arrow announced that the Option Transfer Agreement had closed. Under the Option Transfer Agreement, North Arrow made a cash payment to BCCo of \$20,000 and issued to BCCo 500,000 transferable share purchase warrants. Each Warrant entitles BCCo to acquire one common share of North Arrow at a price of \$0.25 for a period of five years from the closing date of the assignment. The warrants will only become exercisable in the event North Arrow exercises an option and earns an interest in at least one of the diamond properties subject to the Option Transfer Agreement. Any shares issued as a result of the exercise of the warrants are subject to a hold period expiring on August 29, 2013. North Arrow has further delivered to Stornoway an agreement to be bound by the terms and conditions of each of the three option agreements, including the Qilalugaq Option Agreement.

Mineral claims in Nunavut are acquired by ground staking and grant the holder exclusive rights to minerals within the boundaries of a claim, but not the surface rights. A claim must be staked as per the criteria set out within the Northwest Territories and Nunavut Mining Regulations (Regulations) and the requisite documentation must be filed with the Mining Recorder within 60 days after the date the staking is completed. A claim may be held for a ten-year period if the work requirement of \$4.00 per acre for the first two-year term and \$2.00 per acre for each of the subsequent eight, one-year terms is met. In accordance with the Regulations, if work cannot be completed during a term the claim holder may apply to the Mining Recorder for an extension of time to perform the representation work by paying a fee and depositing an amount equal to the value of the required representation work. This amount may be refunded if the work requirement is met at a later date and filed as per the Regulations.

The holder of a claim may apply for a lease on a mineral claim if the claim has had at least \$10.00 per acre of work filed on it, a legal survey of the claim has been completed, and there is no dispute as to title of the claim. There are no yearly work requirements to hold a lease, however, an annual fee (or rent) is due each year before the anniversary date. The initial term for a lease is 21 years. If rental payments and royalties associated with a lease are in good standing then a lease is renewable for an additional 21 year term. A lease can be surrendered by the holder at any time.

Dispositions comprising the Qilalugaq Property fall on Commissioners Land within the municipal boundary of the hamlet of Repulse Bay. Physical work within the mineral dispositions, other than remote sensing (e.g. airborne surveys), requires notification and a number of permits and approvals from various regulatory agencies including (but not limited to) Aboriginal Affairs and Northern Development Canada, the Nunavut Water Board, the Nunavut Impact Review Board and the Department of Community and Government Services.

To the best of our knowledge, no known environmental liabilities were created on the Property when under Stornoway’s care.



Figure 4.1: Location Map

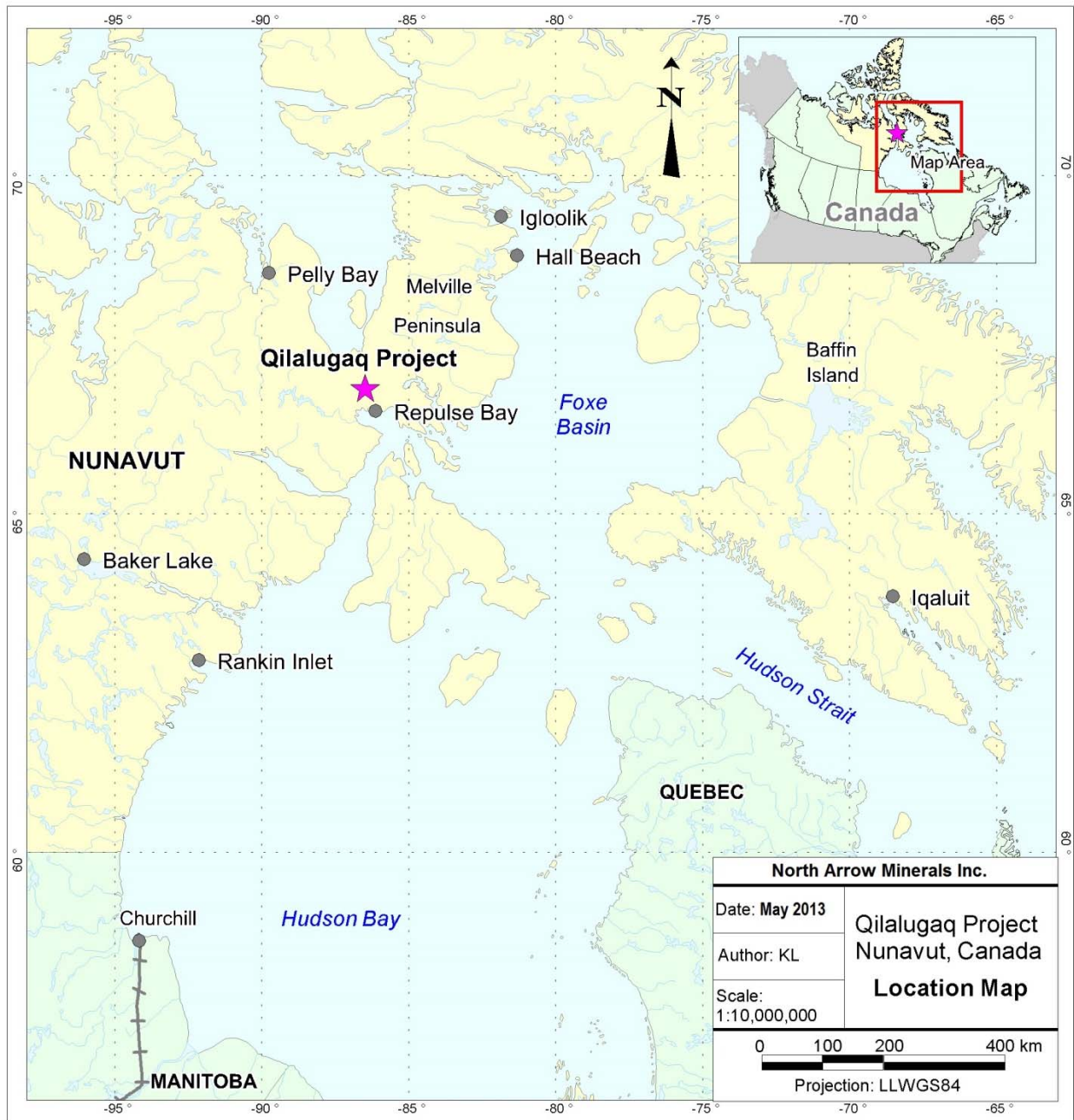
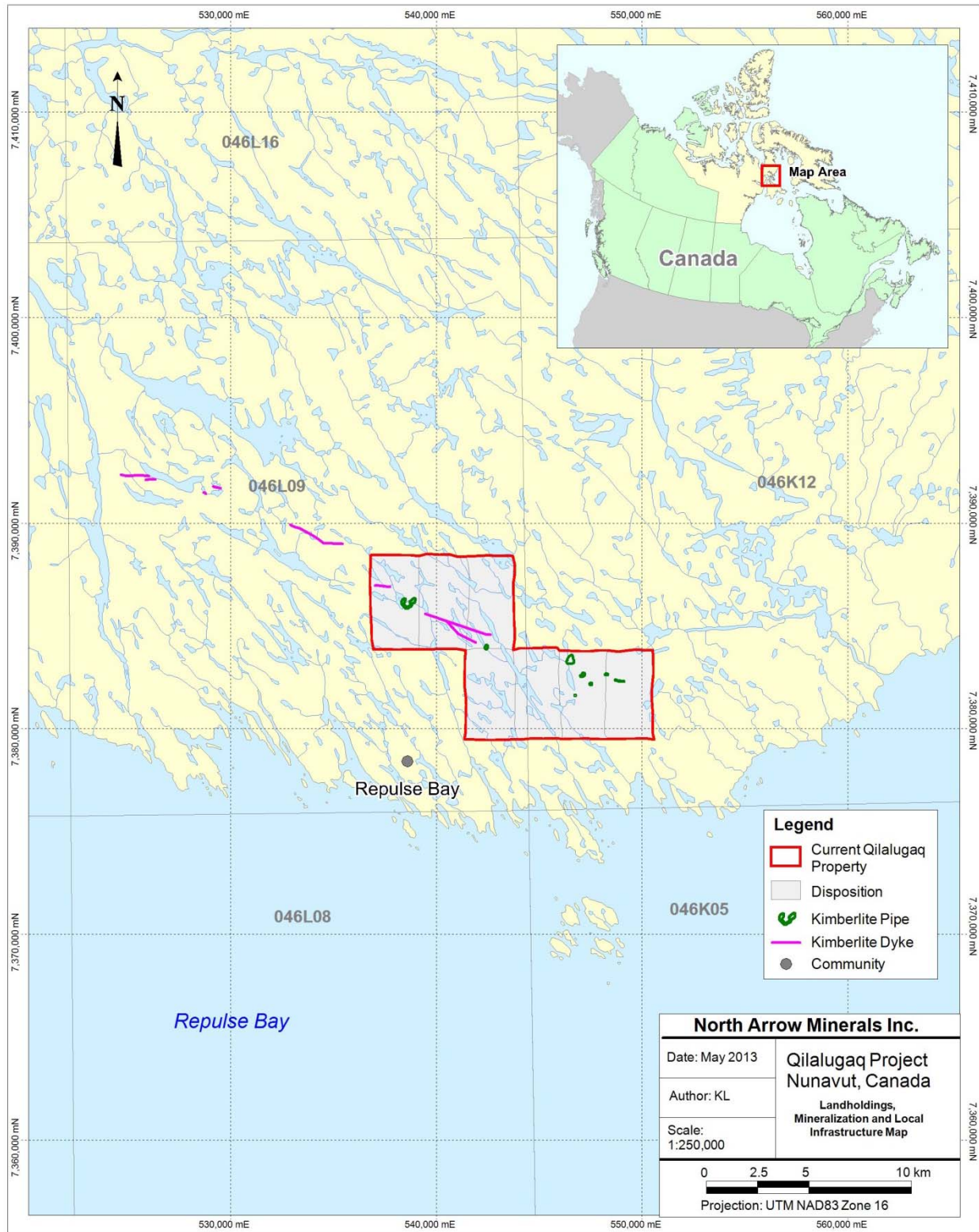




Figure 4.2: Landholdings, Mineralization and Local Infrastructure





Currently, work on the Property is conducted in accordance with the terms and conditions contained within the surface exploration permit and other permits that are required for fuel storage and exploration activities. Stornoway received the permits and approvals needed to operate and conduct the associated advanced exploration activities completed to date.

To the best of our knowledge, there are no significant factors or risks that may affect Stornoway or North Arrow's access, title or right or ability to perform work on the Property.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Property is fully accessible by helicopter. During summer months, float-equipped, fixed-wing aircraft and, during the winter months, ski-equipped aircraft can be chartered from Rankin Inlet. The hamlet of Repulse Bay is approximately 6 km southwest of the Property which is accessed by the Inuit using snowmobiles or all-terrain vehicles (ATV's).

The hamlet of Repulse Bay is a predominantly Inuit community on the north-west shore of Repulse Bay, with a population of approximately 950. There are two grocery stores, Arctic Co-Op and Northern Store, along with the Naujaat Inns North motel. Small quantities of gasoline, diesel and aviation gas are available for purchase in town. The airport accommodates daily passenger flights operated by Calm Air and First Air (excluding Sundays), and bi-weekly air freight flights by Calm Air Cargo. Bulk commodities, including fuel, building supplies, non-perishable foodstuffs and vehicles, are delivered to Repulse Bay on a series of ocean-going barges which arrive each fall. There is no road access to Repulse Bay, not even as an ice road during the winter.

The climate is cold and dry, with annual temperatures ranging from a maximum average of 10°C in July to a minimum average of -35°C in February, and average annual precipitation of 170 mm. The winter operating season is normally from April to mid-June, and the summer operating season is normally from mid-July to September, with spring break-up in between. Work is restricted from October to March due to limited daylight hours.

The Rae Isthmus lies north of the Arctic Circle, in the Northern Arctic ecozone. Although relief in the Rae Isthmus can be locally pronounced, the elevation of the isthmus ranges from zero to 300 masl, with the majority of the terrain below 200 masl. The terrain changes dramatically along the shore lines, changing from rugged outcrops to gently-graded raised beaches. Inland from the coast, the land is dominated by rolling till plains punctuated by fault-bound granite hills and numerous small lakes. Approximately 35 km north of the Repulse Bay coast, a large, regional-scale east-west trending fault demarcates a change from low-relief till plains to moderate to high relief granitic outcrops separated by deep NNW-SSE trending lake-filled valleys. Vegetation, confined by the frozen soil and the cold dry climate, includes lichens, mosses and dwarf shrubs.



6.0 HISTORY

Exploration of the Property commenced in 2000. Initial work was carried out by BHPB from 2000 through 2005 with subsequent exploration conducted by Stornoway from 2006 through 2012. A summary of the work completed by BHPB and Stornoway is provided below. No production has been carried out on the Property.

6.1 BHP Exploration History

The Rae Isthmus and southern portions of the Melville Peninsula were the focus of extensive diamond exploration work by BHPB from 2000 to 2005. BHPB staked 405 mineral claims (100% interest) across the Rae Isthmus in 2002, representing some 421,615 ha of the original Qilalugaq Property.

BHPB discovered eight kimberlite intrusions, as listed in Table 6.1, through a variety of exploration techniques including heavy mineral sampling and geophysics. Regional scale glacial sediment sampling resulted in the discovery of numerous kimberlite indicator mineral-rich samples ultimately leading to ground acquisition, airborne and ground geophysical surveys and kimberlite discovery. The eight kimberlite pipes have been investigated by diamond drilling. Seven of the eight known pipes have been tested for microdiamonds and shown to be diamondiferous. The largest body is a 12.5 ha complex comprising five phases of kimberlite, represented by four distinct geophysical anomalies and collectively known as Q1-4. BHPB had originally interpreted the four anomalies to represent four phases of kimberlite. A summary of the exploration history is given in Table 6.1 and discussed in more detail in the following sections.

Table 6.1: Summary of BHPB Exploration History

Work Done	BHPB (2000 to 2005)
Heavy Mineral Samples	5,367
Airborne Geophysical Surveys	-57,129 line-km of fixed wing magnetic and helicopter magnetic/electromagnetic surveys; -19,374 line-km of fixed wing gravity surveys
Ground Geophysical Surveys	25 (210 line-km, magnetic only)
Diamond Drill Holes	68 (10,750 m)
Reverse Circulation Drill Holes	18 (2,714 m)
Number of Kimberlites Discovered	8 pipes: A28+A48+A61+A88 = Q1-4, A34, A42, A59, A76, A94, A97, A152
Kimberlite Collected and Processed for Microdiamonds	~4.2 t (from 7 kimberlites, A97 excluded)
Kimberlite Collected and Processed for Macrodiamonds	~233 t (from Q1-4)



No report of any mineral resource and/or mineral reserve estimates by BHPB can be found in the public domain.

6.1.1 Heavy Mineral Sampling

BHPB began reconnaissance scale sampling of beach, streams and glaciofluvial material for kimberlite indicator minerals (KIMs) in 2000 within the regional drainage catchment of the Foxe Basin, and identified the Repulse Bay area as prospective for diamonds. Follow-up regional till sampling programs across the Rae Isthmus in 2001 and 2002 yielded mantle-derived garnet, ilmenite, chromite and rare clinopyroxene leading to ground acquisition starting in 2002. A regional 150 x 25 km area of anomalous indicator grains hosting numerous discrete indicator dispersions with variable indicator mineral abundances and mineral chemical signatures was defined by the 5,367 reconnaissance and follow-up glacial sediment samples collected from 2000 to 2004. Some 284 glacial sediment samples lie within the current Property boundary (Figure 6.1).

6.1.2 Geophysics

Positive results from the initial glacial sediment sampling prompted high-resolution aeromagnetic and electromagnetic (EM) surveys covering the southern third of the Rae Isthmus in summer 2002 and spring 2003, respectively. Fugro Airborne Surveys (Fugro) completed a fixed-wing magnetic survey in summer 2002 covering a total of 10,855 line-km flown at line spacings of 60 m and 120 m. Fugro also completed a DIGHEM RESOLVE helicopter EM survey covering a slightly smaller area in spring 2003 which consisted of 5,901 line-km flown at a line spacing of 100 m. Two more DIGHEM RESOLVE magnetic and EM surveys were flown over the remainder of the Property by Fugro covering 4,441 line-km in fall 2003, and 35,932 line-km in summer 2004. Two FALCON™ airborne gravity surveys (100 m line spacing) were flown over most of the Property: 9,533 line-km in summer 2003, and 9,841 line-km in spring 2004. With the detailed coverage of magnetic, EM and gravity surveys over the entire Rae Isthmus, 218 geophysical targets were selected and ranked based on geophysical characteristics and correlation with KIM-rich samples.

Detailed ground magnetic surveys were conducted over 25 targets by BHPB, which included two of the eight kimberlite pipes discovered. Survey grids were established with line spacing of 50 m and station readings at 5 m intervals along all lines and base lines. A total of 210 line-km was surveyed. Thirty-nine airborne geophysical targets, which include the 25 with ground geophysical surveys, were tested by drilling.

6.1.3 Drilling, Sample Collection and Results

A total of 51 exploration diamond drill holes (DDH), 11 delineation DDH, six large-diameter core mini-bulk DDH and 18 RC holes were drilled between 2003 and 2005 which confirmed eight kimberlite bodies (Figure 6.1). All exploration drilling tested geophysical targets with associated high KIM counts. A summary of the drilling history is given in Table 6.2.



Figure 6.1: BHPB Historical Exploration

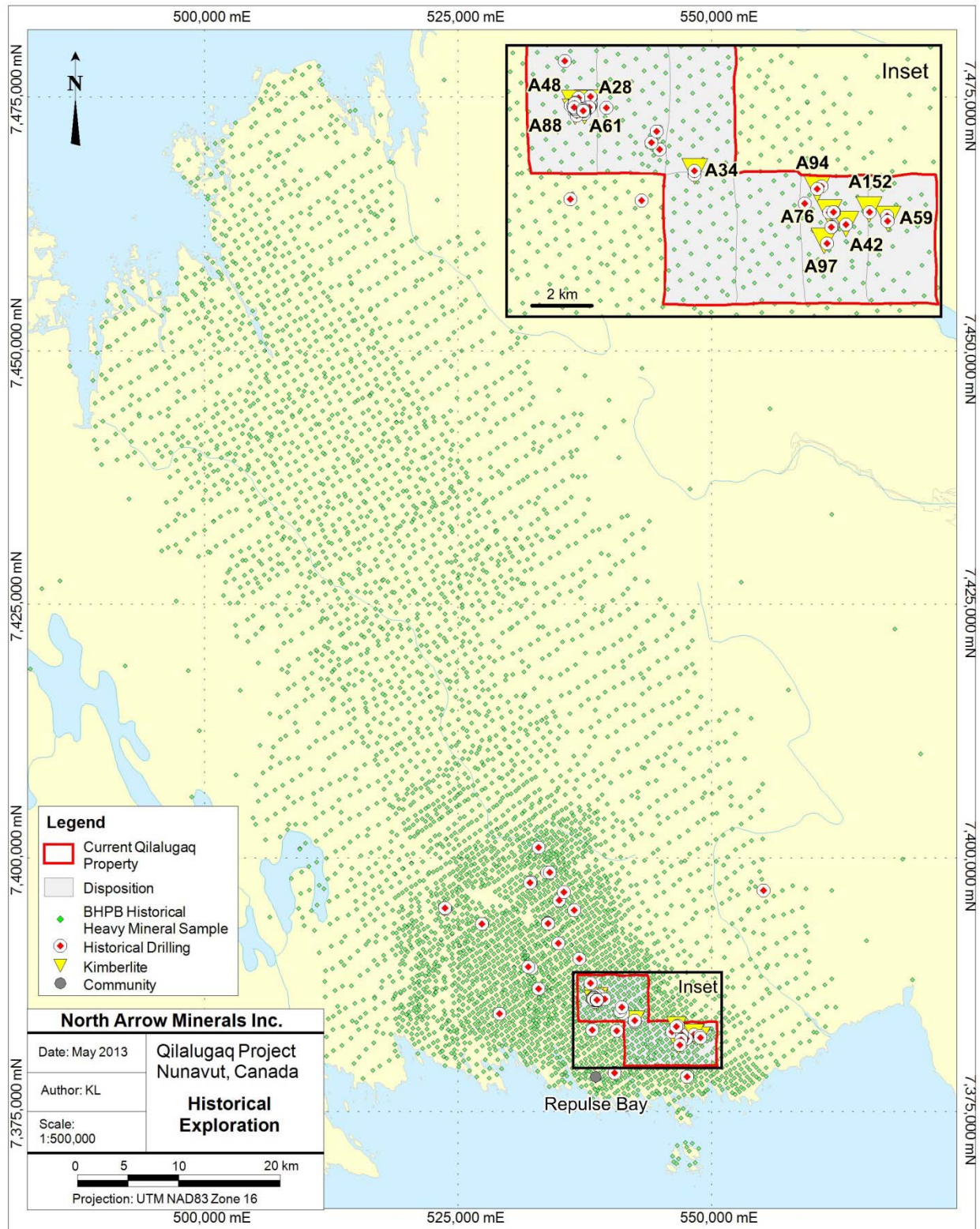




Table 6.2: BHPB Drilling Summary

Year	Drill Hole Type	Core Diameter	Holes drilled	Holes that intersected kimberlite	Meters drilled (m)
2003	Exploration DDH	NQ	25	14	3,933
	Mini-bulk DDH	HQ	6	6	1,492
2004	Exploration DDH	NQ	16	0	1,758
	RC holes	8 ¾"	18	15	2,714
	Delineation DDH	NQ	11	9	2,617
2005	Exploration DDH	NQ	10	1	950
Totals			86	45	13,464

Boart Longyear Inc. was contracted to carry out diamond drilling on the Qilalugaq Property with heli-portable drill rigs. Drilling was done with an L38 drill using NQ and HQ diameter core for the exploration and mini-bulk drill holes respectively. A second Boart Longyear LF70 drill rig was used for the NQ delineation drill holes. Specialized Drilling Services was contracted to carry out the RC drilling on the Property with a heli-portable rig. An 8 ¾" diameter drill bit and flooded reverse circulation methods were used. Drills were transported between sites using a contracted Hughes 500D or an A-star helicopter.

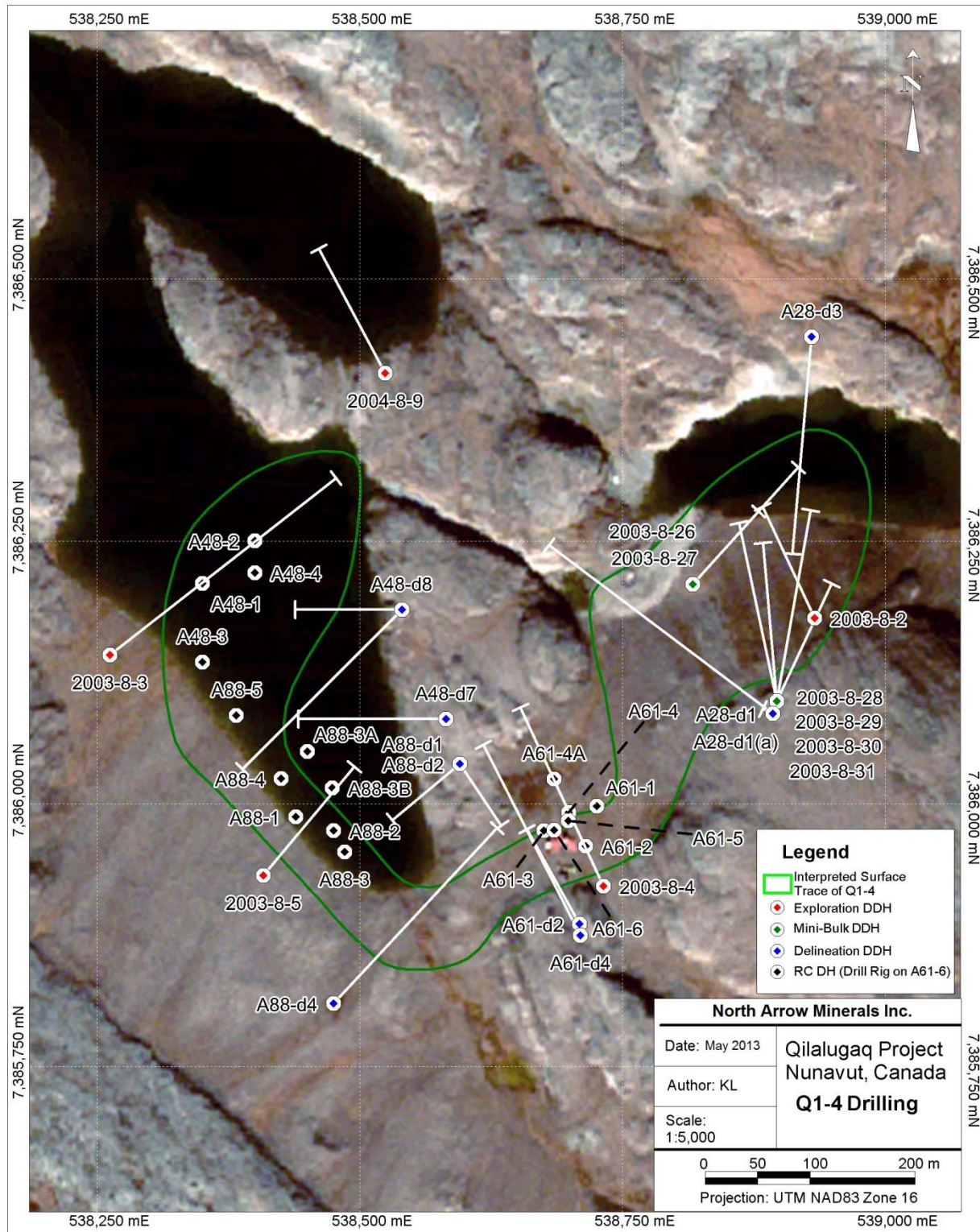
A total of 51 exploration DDH completed between 2003 and 2005 confirmed eight kimberlite pipes. In 2003, 16 geophysical targets were drill tested by 25 DDH (numbers 2003-8-01 to 2003-8-25) and seven kimberlites were discovered. The most significant intrusion is Q1-4 which comprises four geophysical anomalies (A28, A48, A61 and A88) and is interpreted as a multi-phase kimberlite pipe having a lobate surface area of approximately 12.5 ha. The other kimberlite pipes (A34, A42, A59, A76, A94, and A97) have surface expressions from 0.9 ha to 11 ha based on drilling and interpretation of geophysical data. The A97 drill hole intersected a small zone of kimberlite that is not as extensive as the other bodies. In 2004, 14 geophysical targets were drill-tested by 16 drill holes (2004-8-01 to 2004-8-16) but no kimberlites were encountered. In 2005, 10 geophysical targets were drill-tested by 10 drill holes (2005-8-01 to 2005-8-10) and one kimberlite, A152, was discovered, with a surface expression of 0.6 ha. A total of 15 exploration holes between 2003 and 2005 was drilled into the eight kimberlites. All of the holes were drilled at a variety of orientations with dips from -45° to -90°. Samples were collected and sent for microdiamond analysis, KIM analysis, mineral chemistry and petrographic work.

In 2003, after the initial drilling discovery, a surface sample of 126.3 kg was collected from A28, the east lobe of Q1-4. This sample was submitted for microdiamond analysis.

More than half of all drilling on the Property (7,847 m and 39 drill holes) concentrated on Q1-4 (Figure 6.2). After the initial discovery in 2003, a mini-bulk sample from A28 was collected from six HQ diameter diamond drill holes in the fall of 2003 and yielded encouraging macrodiamond results of 26 cpht. All of the holes were drilled at a variety of orientations with dips from -45° to -60°, and depths ranging from 187 m to 302 m. A follow-up delineation and RC drill program was completed in 2004 to help better define the coalescing body and to collect a mini-bulk sample from the remaining three anomalies for macrodiamond processing. Eleven delineation holes were drilled into A28, A48, A61 and A88 to help better define the pipe shape, and nine encountered kimberlite. All of the holes were drilled at a variety of orientations with dips from -45° to -70°, and depths ranging from 18 m (abandoned in country rock) to 377 m. Fifteen of the 18 vertical RC holes encountered kimberlite and were drilled to depths from 52 m to 287 m into



Figure 6.2: Q1-4 Drilling





A48, A61 and A88 collectively. Kimberlite collected and processed for macrodiamonds yielded sample grades of 14 cpht for A48, 39 cpht for A61, and 28 cpht for A88.

6.1.3.1 Bulk Density Determinations

BHPB determined the density for 283 samples of kimberlite from four 2003 exploration drill holes. Samples were collected approximately every 2 m down-hole. No laboratory certificates were made available to Stornoway from BHPB; it is assumed that bulk density determinations were determined and processed in-house by BHPB. Bulk density data for A28 consist of 84 samples collected from 2003-8-02 NQ drill core; for A48, 49 samples collected from 2003-8-03 NQ drill core; for A61, 85 samples collected from 2003-8-04 NQ drill core; and for A88, 62 samples collected from 2003-8-05 NQ drill core.

6.1.3.2 Microdiamond Sample Collection

Between approximately 80 and 1,040 kg of core from each of the seven kimberlites (excluding A97 due to the small kimberlite intersection) were analysed for microdiamonds; more than 4,000 kg total were collected from 14 drill holes and one surface sample from Q1-4. After BHPB's core logging identified distinct lithological units, the kimberlite core was divided into samples and split lengthwise, with half the core packaged into sealed buckets and drums and shipped to SGS Lakefield Research Ltd. (SGS) in Lakefield, Ontario. The core samples were submitted for caustic dissolution and microdiamond recovery. SGS uses a proprietary technique for caustic dissolution. All tested kimberlites proved to be diamondiferous. Microdiamond results are summarized in Table 6.3.

Table 6.3: Summary of BHPB Microdiamond Sampling Results on the Qilalugaq Kimberlites

Kimberlite Body	Year	Sample Type	Holes	Samples	Kimberlite Sampled (m)	Total Weight (kg)	Total Stones Recovered
A28*	2003	NQ DDH	1	3	173.1	282.4	170
	2003	Surface	0	1	-	126.3	57
A34	2003	NQ DDH	2	7	280.9	574.9	175
A42	2003	NQ DDH	1	2	81.7	80.3	3
A48*	2003	NQ DDH	1	5	289.4	652.6	1,404
A59	2003	NQ DDH	2	5	80.0	94.3	17
A61*	2003	NQ DDH	1	5	171.5	414.2	518
A76	2003	NQ DDH	2	6	266.6	496.2	59
A88*	2003	NQ DDH	1	4	129.9	278.0	244
A94	2003	NQ DDH	2	20	271.2	1,039.5	155
A152	2005	NQ DDH	1	2	50.5	126.0	17
Totals			14	60	1,794.8	4,164.7	2,819

* Q1-4 intrusions



6.1.3.3 Macrodiamond Sample Collection

Mini-bulk sampling through DDH and RC drilling for macrodiamond determination was completed on Q1-4 by BHPB because it is the most significant kimberlite body on the Property due to its large size (12.5 ha) and positive microdiamond results.

A28 had a large-diameter six HQ DDH campaign for macrodiamonds, the details of which are summarized in Table 6.4. All of these holes which are shown on Figure 6.2, were drilled using diamond drill hole methods. The lithology of the holes was defined through detailed core logging by BHPB, who subsequently identified two differing units in the drill holes. The two units are a darker brown-green kimberlite and a light green kimberlite, designated A and B respectively. Three drill holes (2003-8-26, 2003-8-27, and 2003-8-31) contained both the A and B units and the remaining drill holes (2003-8-28, 2003-8-29, and 2003-8-30) contained only the B unit. The A and B units were split and collected into two large composite samples. The core was packaged into megabags in sealed crates and shipped to SGS. The core samples were submitted for Dense Media Separation (DMS) processing followed by caustic dissolution for macrodiamond recovery.

Table 6.4: Summary of BHPB Macrodiamond Sampling Results on Q1-4

Q1-4 Kimberlite	Year	Type	Core Diameter	Holes*	Total Length (m)	Length of Kimberlite (m)	Kimberlite Weight (t)	Total Carats (+1 DTC)
A28	2003	DDH	HQ	6/6	1,492.0	1,227.6	9.1	2.36
A48	2004	RC	8 ¾"	4/4	798.0	660.7	72.0	9.83
A61	2004	RC	8 ¾"	6/7	706.2	447.7	48.2	19.05
A88	2004	RC	8 ¾"	5/7	1,223.5	1,022.2	103.9	30.29
Totals				21/24	4,219.7	3,358.2	233.2	61.53

*# holes intersecting kimberlite / # holes drilled

The A48, A61 and A88 units of the Q1-4 kimberlite had an RC drill campaign for macrodiamonds, the details of which are shown in Table 6.4. All holes, shown in Figure 6.2, were drilled using flooded reverse circulation methods. Samples from each 60 m of drilling were screened to plus 20 mesh and collected in 33 Imperial gallon capacity drums. The average tonnage per individual sample was 6.7 t for A48, 5.3 t for A61, and 6.1 t for A88. All samples, in 20-drum lots (60 m intervals), were flown to Churchill, railed to Thompson, trucked to SGS and composited for processing through DMS. The purpose for collecting the relatively small samples was to evaluate vertical as well as lateral variations in grade. Sample tonnage was calculated by BHPB using an idealized hole diameter of 0.2223 m equal to 8 ¾" with an applied 5% slough factor (typically observed at Ekati during the RC drilling of firm kimberlite).



6.2 Stornoway Exploration History

This section reviews exploration conducted by Stornoway between 2006 and 2012. This exploration work consisted of collection of an additional 1,530 heavy mineral samples, ground geophysical surveys and prospecting in numerous unsourced indicator dispersion trains throughout the central core area. Eight kimberlite dykes were discovered as a result of this work. Seven of the eight dykes have been tested for micro and macrodiamonds and are diamondiferous. Surface pit sampling along with re-evaluation and sampling of the available drill core was completed on Q1-4 to collect additional diamonds for further diamond modelling and estimation purposes. A summary of Stornoway exploration is given in Table 6.5.

Table 6.5: Summary of Stornoway Exploration

Work Done	Stornoway (2006 to 2012)
Heavy Mineral Samples	1,530
Ground Geophysical Surveys	42 (211.9 line-km, includes magnetic and/or EM)
Prospecting	707 line-km
Number of Kimberlites Discovered	8 dykes (Naujaat 1 through 8)
Re-logging Available Drill Core from Q1-4	7 partial drill holes (773 m)
Collected and Reviewed Petrographic Samples from Core	168 (117 from Q1-4)
Collected Core Samples for Density Determination	47
Kimberlite Collected and Processed for Microdiamonds	~1.2 t from surface sampling of 8 kimberlites; ~1.0 t from core holes (from Q1-4)
Kimberlite Collected and Processed for Macrodiamonds	~29.7 t from surface sampling of 5 kimberlites (including ~24.5 t from A28a)

6.2.1 Heavy Mineral Sampling

Stornoway collected 1,530 heavy mineral samples have been collected over a 756 km² central core area of the Qilalugaq Property, of which 459 lie within the current land holdings (Figure 6.3). The majority of the heavy mineral samples collected were 20 kg till samples, along with 14 raised beach samples. Samples were collected and processed at Microlithics Laboratories (Microlithics) in Thunder Bay, Ontario. Heavy mineral samples collected are summarized by year in Table 6.6.



Figure 6.3: Stornoway Historical Exploration

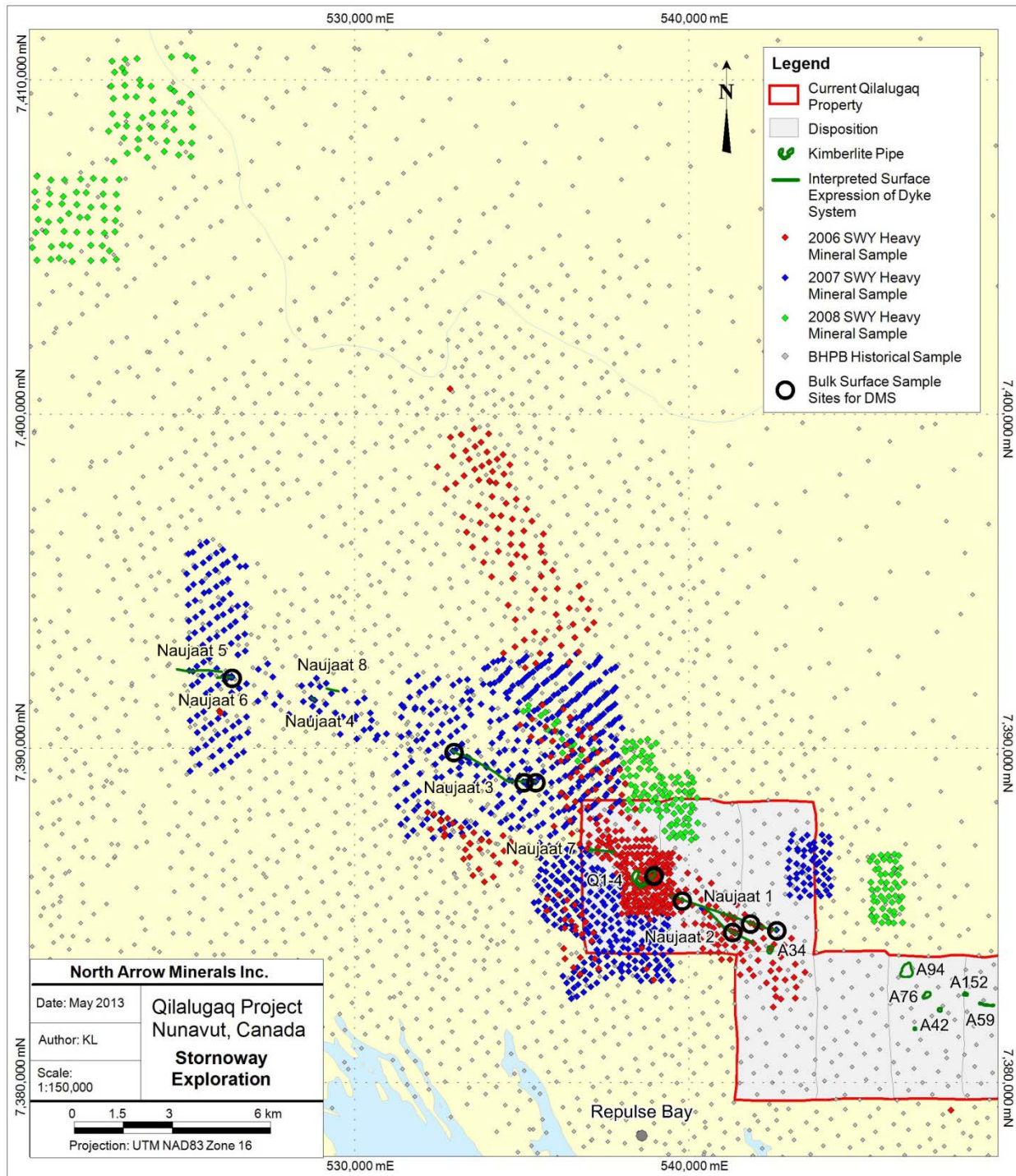




Table 6.6: Heavy Mineral Sampling by Stornoway

Year	Number of Samples	Comments
2006	460	Collected to define existing mineral trains and to increase the sample density within the Property
2007	784	Collected to define existing mineral trains, to increase the sample density within the Property, and to prioritize geophysical anomalies for drilling
2008	286	Collected to further define mineral trains and to prioritize geophysical anomalies for drilling
Total	1,530	

6.2.2 Geophysical Surveys

Stornoway carried out ground geophysical surveys over 24 targets of magnetic, EM, or both magnetic and EM surveys in 2006 and 2007 for a total of 42 surveys, which included known kimberlites not previously surveyed by BHPB as well as two kimberlite dykes and other airborne geophysical anomalies. Stornoway's ground magnetic and EM survey grids had a line spacing of 25 m and 50 m respectively, with station readings taken every 12.5 m. The ground surveys demonstrated the magnetic complexity of some kimberlites. For these kimberlites, EM data seemed more useful in estimating their boundary outlines. A total of 114.9 and 97.0 line-km were surveyed for magnetic and EM anomalies respectively. Geophysical surveys that were completed are summarized in Table 6.7.

Table 6.7: Geophysical Surveys by Stornoway

Year	Number of Ground Magnetic Surveys (total line-km)	Number of Ground EM Surveys (total line-km)
2006	5 (53.2)	5 (45.6)
2007	18 (61.7)	14 (51.4)
Totals	23 (114.9)	19 (97.0)

6.2.3 Prospecting and Kimberlite Discovery

Stornoway discovered the Naujaat 1 through Naujaat 8 kimberlite dykes between 2006 and 2010 by prospecting in the vicinity of unsourced anomalous KIM grains and dispersion trains (Figure 6.3). They are dyke-like in character comprising discontinuous exposures of HK float/boulders and subcrop extending over strike lengths of 0.1 km to 3.3 km. They appear to be preferentially emplaced along west-northwest structurally controlled corridors and are positioned on the south side of northwest-southeast and east-west trending structures. The average width of the Naujaat 1 to 8 structures, where bounded by outcrop, is estimated between 1.5 to 4.5 m. The true width, nature, and continuity of the Naujaat 1 to 8 kimberlites are unknown and lengths reported are interpreted minimum surface expressions and no drill testing has occurred. Samples were collected from all eight dykes and sent for KIM analysis, mineral chemistry and micro/macrodiamond analysis (excluding Naujaat 5). Naujaat kimberlite dykes are summarized in Table 6.8.



Table 6.8: Naujaat 1 to 8 Kimberlite Dykes

Kimberlite Dyke	Year Discovered	Minimum Length from Surface Exposure (km)	Textural Classification
Naujaat 1	2006	3.3	HK
Naujaat 2	2006	1.8	HK
Naujaat 3	2007	2.8	HK
Naujaat 4	2007	0.1	HK
Naujaat 5	2007	0.5	HK
Naujaat 6	2007	1.4	HK
Naujaat 7	2008	0.7	HK
Naujaat 8	2010	0.4	HK

6.2.4 Re-logging Drill Core

A total of 18 core holes were drilled into Q1-4 by BHPB. Petrological logging was carried out by Stornoway on seven of these holes (773 m), representing 39% of the holes in the body. The seven holes were the only ones remaining after BHPB sampled the rest for diamond testing. Six of the seven holes (A28-d1, A28-d3, A48-d8, A61-d2, A61-d4 and A88-d4) had the majority of the kimberlite core remaining. One partial hole (2003-8-5) had half of the kimberlite intersection missing (Figure 6.2).

In 2011, Stornoway re-logged the available core using an in-house method known as “petrological” logging. This method involves laying out one (or more) drill hole(s) in its (or their) entirety to allow the geologist to compare geology between sections within an individual drill hole or across several drill holes more efficiently and effectively. During this period, all core logging was completed at a secure core facility in North Vancouver. Petrological logging places more emphasis on petrographic and thin section analysis to identify and correlate geological units and was considered to produce a higher-confidence result than holes logged in the field. The percentage of country rock xenoliths within the kimberlite units was measured directly using a line-scan method. Line-scans were completed by measuring all country rock xenoliths greater than 0.5 cm along a line drawn down the core axis. The country rock xenolith percentage was calculated by dividing the total of the country rock xenolith measurements by the length of the section measured, which is typically 1 m. Each box of core was photographed with a digital camera at the secured core facility.

The internal geology of Q1-4 was determined by Stornoway based on the petrological logging, and the application of that information to a review and re-interpretation of historical BHPB drill hole photographs and drill hole logs.

The three-dimensional (3D) Q1-4 model was created by Stornoway using the new geological information acquired since 2011 (although no further drilling in the Q1-4 kimberlite was undertaken). Definition of the pipe shape was determined from drill hole data, country rock outcrop exposures (which limit the extent of kimberlite at surface) and the magnetic geophysical survey which helped define the shape at surface and internal contacts around two of the kimberlite units.



6.2.5 Petrography

Petrographic studies were used to distinguish different lithological units within the kimberlite pipe, and were essential for the construction of the 3D geological model. Stornoway completed detailed petrographic analyses of 124 thin sections comprising 62 samples collected from five re-logged drill holes (A48-d8, A61-d2, A61-d4, A88-d4, 2003-8-5) confirmed the units defined through logging. Previously, 110 thin sections comprising 55 samples collected by BHPB from seven drill holes (2003-8-2, 2003-8-3, 2003-8-4, 2003-8-5, 2003-8-26, 2003-8-30, and 2003-8-31) which have no corresponding core left (destroyed for micro/macro diamond work) were reviewed by Mineral Services Canada Inc. (Mineral Services) in July 2005. Detailed petrographic analysis of these 110 thin sections was completed by Stornoway and compared to the Stornoway thin sections to redefine the Mineral Services' lithological units.

6.2.6 Sampling for Diamonds

Two diamond sampling procedures are summarized below (caustic fusion sampling for microdiamonds and mini-bulk sampling for macrodiamonds), followed by descriptions of the related surface, trenching and core sample programs conducted by Stornoway.

6.2.6.1 Caustic Fusion Sampling

The caustic fusion process is used to evaluate, characterize and correlate the diamond potential of individual kimberlite lithologies, and to provide data to facilitate the grade estimation process. The objective of this type of test is to extract all diamonds greater than 0.1 mm in size through chemical dissolution of the host rock sample. Individual samples may vary in size from a few kilograms to hundreds of kilograms, depending on the available material and the specific purpose of the testing. Kimberlite may be collected from drill core, float boulders, subcrop, outcrop, and subsamples of material in a process facility or combinations thereof. Individual sample results from comparable kimberlite units may be mathematically merged together to provide larger, statistically more representative, samples.

Kimberlite was collected by Stornoway, described and recorded by the project geologists following protocols in place at the time. Samples were individually numbered, weighed, sealed in tamper-resistant containers appropriate for the volume of material, and transported to the test facility by a combination of barge or charter aircraft and commercial couriers.

6.2.6.2 Mini-Bulk Sampling

Although there is no formal industry-accepted definition of a 'mini-bulk' sample, many companies would agree that the term is generally used to refer to the processing of kimberlite material up to several tens of tonnes. This material may be derived from drill core, RC chips, boulders, subcrop, outcrop, trenches or underground workings. Mini-bulk samples are usually processed through DMS equipment that, depending on specifications and diamond recovery objectives of a particular program, may be configured to recover diamonds larger than 0.5 mm, 0.85 mm or 1.18 mm on square-mesh screens. In some cases caustic dissolution or other extraction techniques may be utilized to recover the diamonds. All of Stornoway's mini-bulk samples were processed through DMS equipment, and the reported diamond content is based upon stones retained on 0.85 mm square-mesh screens.



Stornoway's mini-bulk sampling programs have used boulders and surface trenches to source kimberlite material. Surface material was collected, described and recorded by the project geologists following protocols in place at the time. Bags were sealed, weighed and secured in crates for shipping, then forwarded to the external laboratory, Microlithics, for DMS processing. The mini-bulk sample data was used as part of the mineral resource estimating process.

6.2.6.3 Surface and Trench Sampling

Approximately one tonne of kimberlitic material was collected or excavated by Stornoway from surface float/boulders and/or trenches on the Naujaat 1 to 4 and Naujaat 6 to 8 dykes, as well as A28a on the eastern lobe of Q1-4, and processed for microdiamonds. A summary of the microdiamond sampling is given in Table 6.9.

Table 6.9: Summary of Stornoway Microdiamond Sampling Results

Kimberlite Body	Year	Sample Type	Samples	Total Weight (kg)	Total Stones Recovered
A28a	2006	Subcrop	10	191.6	91
Naujaat 1	2006	Boulders and Subcrop	10	182.4	97
	2007	Boulders and Subcrop	4	138.5	94
Naujaat 2	2006	Boulders	2	11.6	9
	2007	Boulders	1	60.2	10
Naujaat 3	2007	Boulders	4	243.3	16
Naujaat 4	2007	Boulders	2	94.8	43
Naujaat 6	2007	Boulders and Subcrop	3	158.4	35
Naujaat 7	2008	Boulders	2	39.5	17
Naujaat 8	2010	Boulders	3	68.9	21
Total for Surface			41	1,189.2	433
A28a	2012	Drill Core	10	350.7	178
A48b	2012	Drill Core	4	164.2	120
A61a	2012	Drill Core	4	253.5	314
A88a	2012	Drill Core	3	230.5	196
Total for Drill Core			21	998.9	808

From 2006 to 2010, 11.6 kg to 243.3 kg of kimberlite float/boulders and/or subcrop from one or more locations along all dykes, except Naujaat 5, were collected by Stornoway and analysed for microdiamonds. Naujaat 5 occurs only as disaggregated kimberlite in frost-heaved green tills and not enough fresh material could be collected for a meaningful sample. Q1-4 is exposed at surface on the eastern lobe (A28a) on the south side or under minimal till cover. A total of 191.6kg of A28a was collected from subcrop in 2006. In total, 1,189.2 kg collected from Naujaat 1 to 4, Naujaat 6 to 8, and A28a surface pits, were processed by caustic fusion for microdiamond recovery. The surface samples were packaged into labelled and sealed bags (~25 kg per bag) and deposited in crates and/or buckets and shipped to Microlithics. All tested kimberlite dykes proved to be diamondiferous.



Several tens of tonnes of kimberlitic material were collected and excavated from surface boulders and/or trenches on the Naujaat 1, 2, 3 and 6 dykes, as well as from A28a, and processed by DMS for macrodiamonds. Macrodiamond sample collection sites are shown in Figure 6.3 and a summary of the macrodiamond sampling is given in Table 6.10.

Table 6.10: Summary of Stornoway Macrodiamond Sampling Results

Kimberlite Body	Year	Sample Type	# of Samples	Total Weight (t)	Total Carats (+0.850mm)
Naujaat 1	2006	Boulders and Subcrop	1	1.02	0.005
	2007	Boulders and Subcrop	2	0.59	0.031
Naujaat 2	2007	Boulders and Subcrop	1	0.91	0.000
Naujaat 3	2007	Boulders	3	1.70	0.000
Naujaat 6	2007	Boulders and Subcrop	1	1.00	0.000
A28a	2006	Subcrop	2	4.19	1.377
	2007	Subcrop	1	20.28	6.082
Totals			11	29.69	7.495

From 2006 to 2007, kimberlite float and/or subcrop from each of the Naujaat 1, 2, 3 and 6 dykes were collected and analysed for macrodiamonds. Between 0.59 t and 1.70 t of kimberlite from one up to multiple locations along each dyke was collected, depending on their size and extent. In total, 5.2 t of kimberlite was collected and processed. The surface samples were packaged into labelled and sealed megabags (~500 kg per bag), deposited in crates and shipped to Microlithics. Surface samples were submitted for DMS processing and macrodiamond recovery. Diamonds greater than the +0.850 mm Tyler sieve were recovered in Naujaat 1, but were absent in Naujaat 2, 3 and 6.

Two mini-bulk sampling programs were conducted in 2006 and 2007 by Stornoway from surface pits in A28a to confirm the macrodiamond data collected by BHPB. The 2006 mini-bulk sampling program was conducted out of two pits on the surface of the A28a lobe. The till cover and weathered kimberlite were excavated and discarded, and 4.19 t of in-situ competent kimberlite was collected. The “north” and “south” pits were approximately 2 x 2 m on surface and 0.5 m in depth and were approximately 5 m from each other. The 2007 mini-bulk sampling program expanded the former 2006 “north” pit. Any remaining till cover and weathered kimberlite were excavated and discarded and 20.28 t of the in-situ competent kimberlite was collected. The “north” pit was approximately 4 x 4 m on surface and 1 m in depth after sample collection. For both programs megabags were filled with approximately 500 kg of material, labelled and sealed, deposited in crates and shipped to Microlithics. The surface samples were submitted for DMS processing and macrodiamond recovery.

6.2.6.4 Drill Core Sampling

Just less than a tonne of kimberlitic material was collected by Stornoway from re-logged drill core from Q1-4 and processed for microdiamonds. The microdiamond sampling is summarized in Table 6.9.



After Stornoway's core re-logging defined distinct lithological units, the kimberlite core was divided into samples which represented different units at different depths. Approximately 164.2 kg to 350.7 kg of core from each of the kimberlite units A28a, A48b, A61a and A88a (there was no core available for re-logging or sample collection for unit A48a) were analysed for microdiamonds; 998.9 kg were collected in total from five drill holes. The samples were packaged into sealed and labelled buckets and shipped to Microlithics. The core samples were submitted for caustic fusion analysis and microdiamond recovery. All of the kimberlite units tested proved to be diamondiferous.

6.2.7 Bulk Density Determinations

A total of 47 rock samples was collected by Stornoway from six re-logged drill holes (A28-d1, A28-d3, A48-d8, A61-d4, A88-d4 and 2003-8-5) with equal spacing down-hole and sent to Acme Analytical Laboratory (Vancouver) Ltd. (Acme) in 2012 for density determination.

The 2012 bulk density samples were measured by Acme, by the immersion/water displacement method, as follows:

1. Dry the sample in the oven at 49°C overnight.
2. Weigh each sample in air.
3. Weigh each sample suspended in water.
4. Calculate the displaced volume of the dry rock in water.
5. The difference between the dry rock weight and the water displaced gives the calculated bulk density.

Density variations did not show a correlation with country rock dilution. There is a moderate change of density with increasing depth in some of the kimberlites but this is interpreted as a geological change (same unit transitioning from a volcanoclastic to a more coherent kimberlite) rather than a weathering effect.

Table 14.4 in Section 14.4.4 shows the average bulk density values for the various geological units within Q1-4.

6.2.8 Mineral Resource Estimates

Stornoway disclosed a Mineral Resource Estimate for the Q1-4 kimberlite in June 2012 (Kupsch and Farrow, 2012) as referenced in section 14.2.



7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional, Local and Property Geology

The Qilalugaq Property sits on the Rae Isthmus, part of the Precambrian Rae subprovince, which accreted with the Hearne and Burwell subprovinces between 1.97 and 1.82 Ga to form the Churchill Structural Province of the Canadian Shield (Hoffman, 1990).

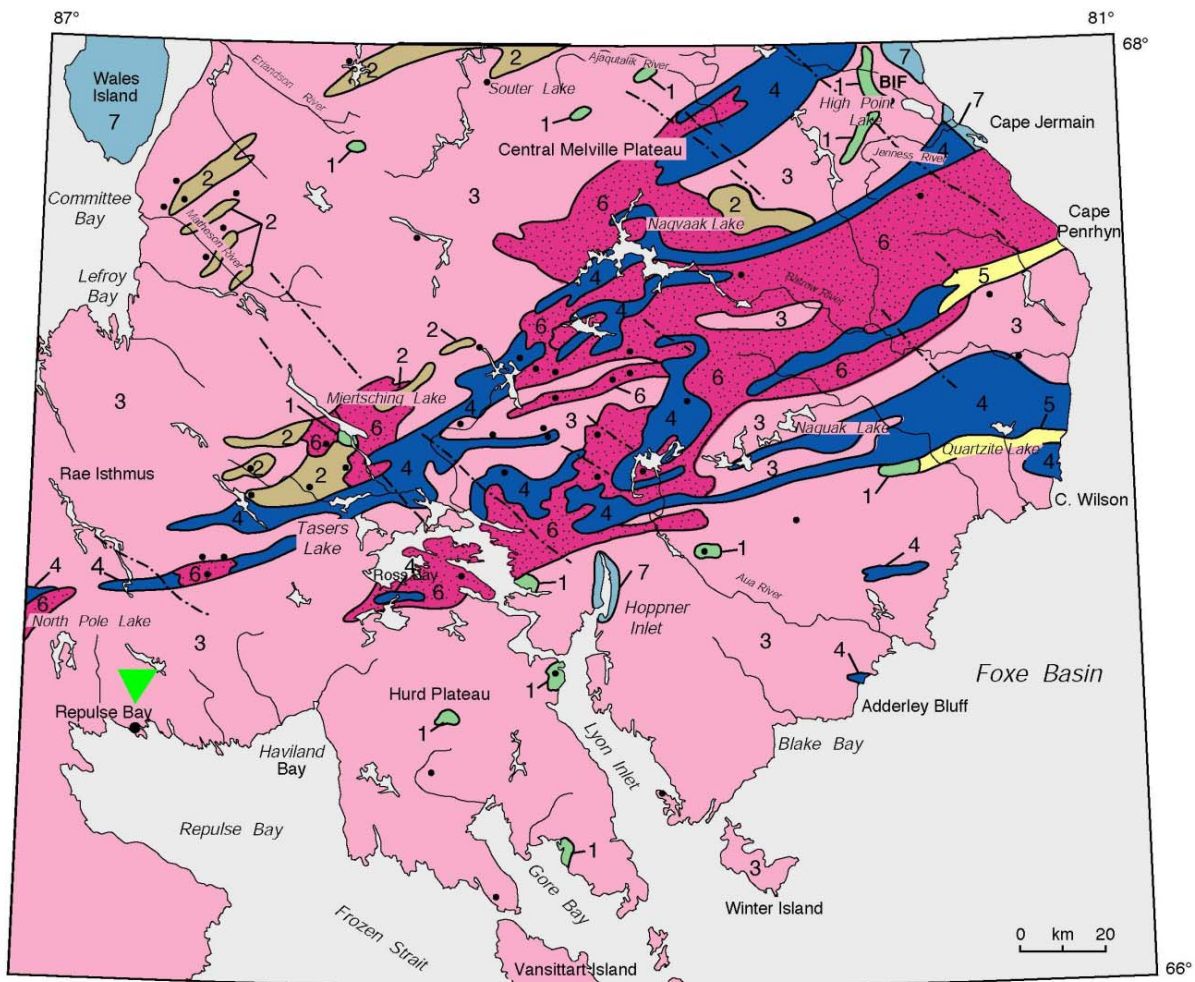
The Property is underlain by granitoid gneiss, paragneiss, schist, and granite rocks of the Rae Province/Craton flanked by Paleozoic sedimentary rocks (Schau, 1993; Figure 7.1). The most common rocks of the region are Archean granitoid gneiss and schist which intrude the Prince Albert Group. The Archean-aged Prince Albert Group, located in the central eastern side of the Rae Isthmus, are the oldest rocks and consist of predominantly metasedimentary rocks, chiefly paragneiss, and metavolcanic rocks, with some distinct banded iron formations, ultramafic lavas and amphibolites (Frisch, 1982). Within the central portion of the Rae Isthmus the basement rocks of undifferentiated granitoid gneiss and schist are unconformably overlain by the Aphebian-aged Penrhyn Group of metasedimentary rocks, chiefly paragneiss and marble, but also include some schist, amphibolite and quartzite (Henderson, 1988). Extensive northwest-trending diabase dykes in the central area cross cut older rocks (Fahrig et al., 1971). The down-dropped fault blocks which flank the Rae Isthmus and the Melville Peninsula consist of flat-lying Ordovician carbonate rocks (Bolton et al., 1977). Kimberlite-hosted lower crustal xenoliths of mafic and felsic granulite composition have zircons with cores returning minimum ages between 3.5 to 2.6 Ga and metamorphic zircon rims yielding ages of ca 1.80 to 1.65 Ga (Petts et al., 2011).

Country rock adjacent to the kimberlite bodies consists mainly of fine- to coarse-grained fresh pink to grey granitoid gneiss and biotite-rich granitoid gneiss. They range from more massive weakly-banded granitoid gneiss to strongly-banded biotite-rich granitoid gneiss with localized pegmatite veins. There are some zones of pink unfoliated fine-grained granite.

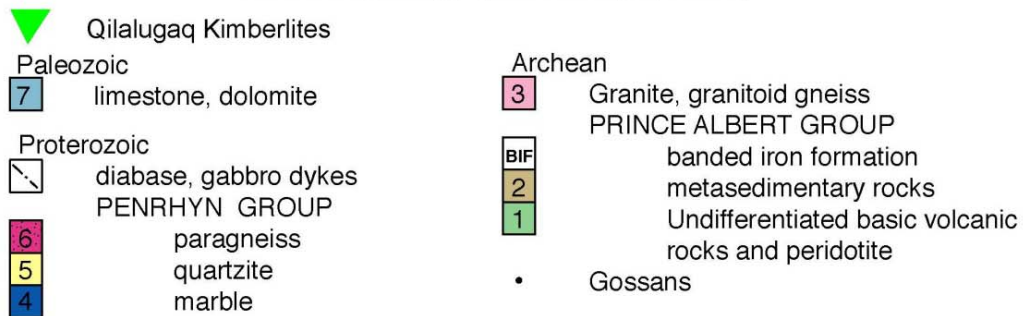
Within the Property are extensive lowlands below 200 m elevation, and the surficial geology is dominated by till blankets, till veneer, glaciomarine deposits and till reworked by marine action, with numerous raised beaches closer to coastal areas. Predominant striations on glacially-scoured outcrop trend northwest to north and streamlined rock forms, roches moutonnees and craig-and-tail forms are found in a northwest orientation across the Rae Isthmus (Dredge, 2002). Regionally the kimberlite dispersion plume has a northwesterly orientation. However, on a local scale, kimberlite indicator mineral dispersion trains within the southeastern portion of the Property have a south-southeast attitude, and south-directed indicator mineral dispersion trains are present within the south central portion of the Property area. Recent mapping of striations by the Geological Survey of Canada has identified south-directed ice flow, supporting the interpretation from indicator dispersions, and indicating late convergent flow into Repulse Bay resulting in flow reversal over the southern part of the Rae Isthmus (Campbell et al., 2011).



Figure 7.1: Bedrock Geology



Bedrock geology (from Dredge, 2004)





7.2 Kimberlite Emplacement at Qilalugaq

Kimberlite pipes and dykes at Qilalugaq were emplaced into granitic and gneissic host rocks, at ca. 546 Ma (Scully, 2004), and contain diamonds of potential economic interest.

The Qilalugaq kimberlite field occurs within a west-northwest trending corridor measuring 26 km long and approximately 3 km wide, parallel to significant regional lineaments. To date, eight kimberlite pipes have been identified in the Qilalugaq Cluster (A28, A48, A61 and A88 forming one body, referred to as Q1-4, and A34, A42, A59, A76, A94, A97 and A152). The kimberlite pipes are typically spaced between 50 m up to 4 km from each other (Figure 7.2). Geophysical data and drill information from delineation and bulk sampling programs indicate that, in general, most of the Qilalugaq kimberlites are irregular and elliptical in plan view. Surface areas of the kimberlite pipes range from 0.6 ha to 12.5 ha. Several kimberlite pipes occur at the intersection of west-northwest trending lineaments with north-trending features. Q1-4 is the subject of the Mineral Resource Estimate in Section 14 of this report. At the present time, the other kimberlite pipes are considered either too small, have low apparent diamond content, or are not sufficiently sampled or understood to support mineral resource estimation. No additional work on these other bodies is planned at this time. Eight laterally extensive kimberlite dyke systems, known as the Naujaat 1 through 8 dykes, have been identified within and to the northwest of the pipe cluster (Figure 7.2). Individual dykes have been traced along strike lengths from 0.1 km to 3.3 km and appear to be preferentially emplaced along west-northwest trending structures. These are not included in mineral resource estimation but may warrant additional work at a later date. No work plan or budget has been prepared for this work at this time.

The following sections focus on the internal geology of the pipes which is fundamental to the resource estimation process.

7.2.1 General Geology

Kimberlite nomenclature has evolved throughout the work carried out on the Qilalugaq kimberlites. The terminology used at this time to describe the rock types in these kimberlites is in accordance with that used in the most recent scientific literature (Field and Scott Smith, 1999; Sparks et al., 2006; Cas et al., 2009). Within this report the following terms and definitions are used:

- Massive Volcaniclastic Kimberlite (MVK): a general term that includes kimberlite classified texturally as tuffisitic kimberlite breccia.
- Coherent Kimberlite (CK): a general term that refers to kimberlite that has not been fragmented (i.e. the magma broken apart as a result of emplacement processes). In general, the term coherent kimberlite is used to refer to large, pipe-infilling events of this nature.
- Hypabyssal Kimberlite (HK): a more specific textural term for CK. Typically used here to describe the detailed texture of a CK rock and commonly used when referring to dykes or irregular intrusions.



- Tuffisitic Kimberlite Breccia (TKB): a more specific textural term for MVK. Characterized by microlitic clinopyroxene in the matrix of the rock.
- Transitional Kimberlite: this refers to kimberlite that shows textures of both volcanoclastic kimberlite and coherent kimberlite. A lower case “t” denotes a transitional textured HK or TK when describing rock-types (e.g., HKt or TKt).

The Qilalugaq kimberlite pipes comprise root zone to diatreme facies rocks characterized by complex internal geology. These pipes can be classified as “typical” South-African-style kimberlites (Hawthorne, 1975, Clement, 1982, Clement and Skinner, 1985, and Field and Scott Smith, 1999). In most pipes, with the exception A152, the dominant phase is a MVK that can be classified as TKB which commonly transitions toward HK with depth. In general, these TKBs are extensively altered and have a massive texture. They consist of varying amounts of olivine, magmaclasts and country rock xenoliths that are poorly sorted, typically loosely packed and less commonly clast-supported, all set within a highly altered interclast matrix. In most cases they transition with depth to a more coherent or transitional kimberlite characterized by lower country rock xenolith content and higher olivine content set within a dominantly crystalline groundmass. In a few of the pipes, including Q1-4, multiple pipe-filling phases are present. In the majority of the bodies, HK is present as both dykes and irregularly shaped intrusions that are found within each pipe infilling phase. These are typically considered later-stage intrusions. The HK intrusions can vary in thickness from a few centimetres to several metres and, in the case of the Naujaat 1 to 8 dyke system, for example, they are laterally extensive.

The Qilalugaq bodies can be associated with undisturbed altered country rock or have a marginal country rock breccia (CRB). Some of the country rocks adjacent to the kimberlites are altered, displaying chemical and physical reaction to the kimberlite. Common alteration occurs as red iron staining on feldspars and/or porous textured gneiss with dissolution of the plagioclase feldspars. This red staining of the country rock is also seen in the xenoliths within the TKBs. The altered country rocks are more commonly developed adjacent to the HKs and to a lesser extent adjacent to the TKBs. The marginal CRB is characterized by dominantly broken and pulverized country rock, with an overall dilution of 95% or greater. CRB contains from 0% - 5% kimberlite, present as olivine in the pulverized country rock matrix. These are more common around the TKB dominated bodies, except for Q1-4.

Excluding Q1-4, limited drilling into the majority of the kimberlites constrains the ability to model their pipe shapes and define internal units. Q1-4 contains a variety of phases that are distinguishable from one another by differing macroscopic and microscopic properties as well as diamond grades. A summary of the various kimberlite lithologies present in Q1-4, defined by Stornoway, is given in Table 7.1 (see also Sections 9.4, 9.5 and 9.6). Note: BHPB’s original A48 and A88 bodies have been subdivided by Stornoway into three distinct phases; A48a, A48b and A88a.



Figure 7.2: Kimberlite Location

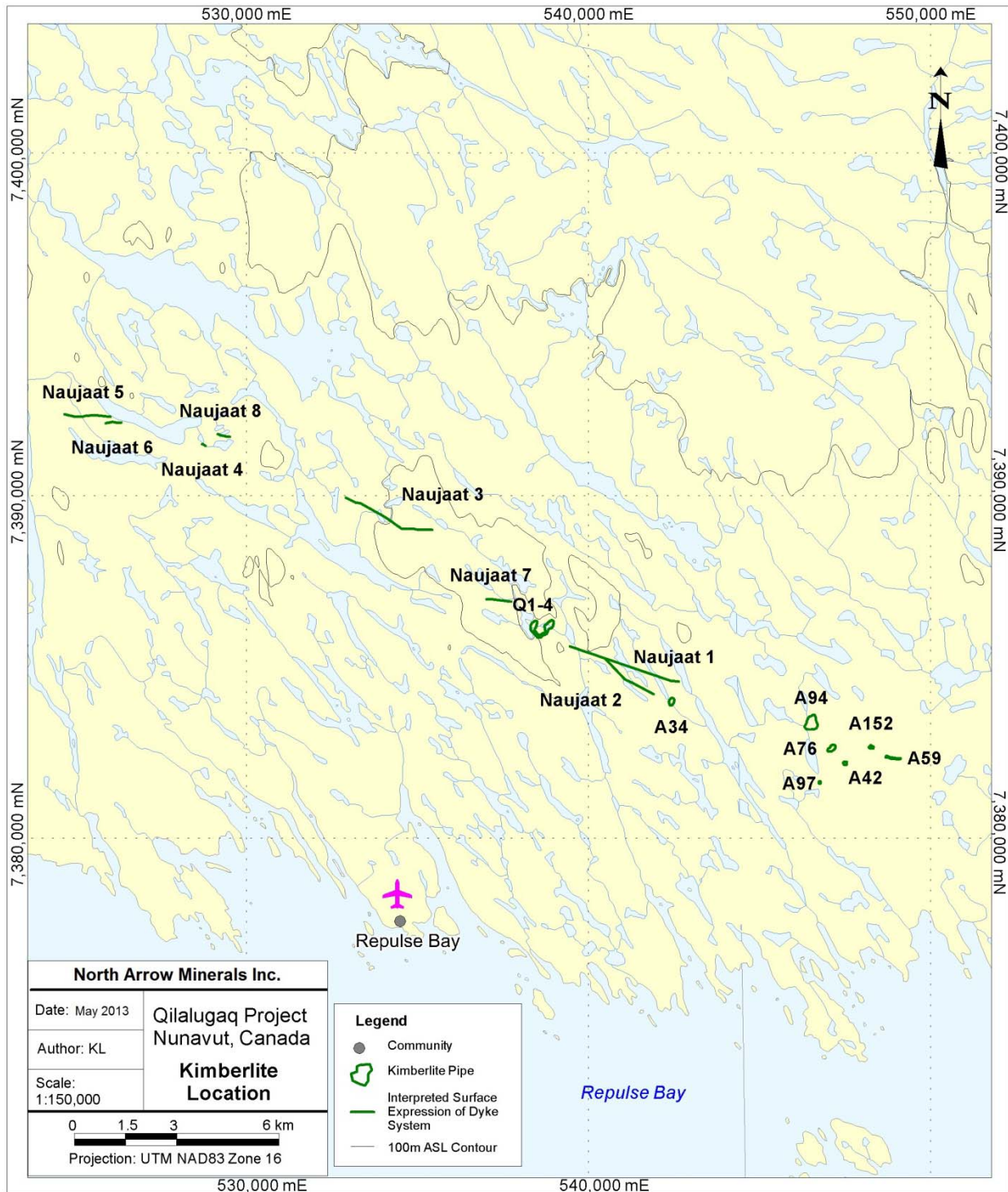




Table 7.1: Major Geological Units in Q1-4

Major Geological Unit	Dominant Colour	Textural Classification	Textural Classification Codes	Distinguishing Characteristics
A28a	light green to green-grey	volcaniclastic > coherent kimberlite	TK-TKt to HKt	red-stained country rock xenoliths (CRx), green clay matrix, presence of chrome diopside (CD)
A48a	dark grey	coherent kimberlite	HK	uniform to segregationary distribution of crystalline groundmass with carbonate, highly magnetic, bleached CRx with low dilution
A48b	light green-grey to dark brown-grey	volcaniclastic > coherent kimberlite	TKt-HKt to HK	red-stained to bleached CRx, light green-grey matrix to segregationary / globular segregationary distribution of crystalline groundmass
A61a	dark grey	coherent kimberlite	HK	uniform to segregationary distribution of crystalline groundmass with minor carbonate, common large rounded magmaclasts, moderately magnetic, bleached CRx with low dilution
A88a	green-brown to grey-brown	volcaniclastic > coherent kimberlite	TK-TKt to HK-HKt	2 types of magmaclasts, red-stained to bleached CRx, turbid green-brown matrix to segregationary / globular segregationary distribution of crystalline groundmass

Note: HK = hypabyssal kimberlite; HKt = transitional hypabyssal kimberlite; HK-HKt = hypabyssal to transitional hypabyssal kimberlite; TKt-HKt = transitional tuffisitic to transitional hypabyssal kimberlite; TK = tuffisitic kimberlite; TK-TKt = tuffisitic to transitional tuffisitic kimberlite.

Petrographic analyses of the Qilalugaq kimberlites by Stornoway support Group I kimberlite classification (after Skinner, 1989).

Rb/Sr dating by Geospec Consultants Ltd. at the University of Alberta on phlogopite from the A48a and A61a phases within Q1-4 suggests a model emplacement age of 546 ± 11 Ma (Scully, 2004).

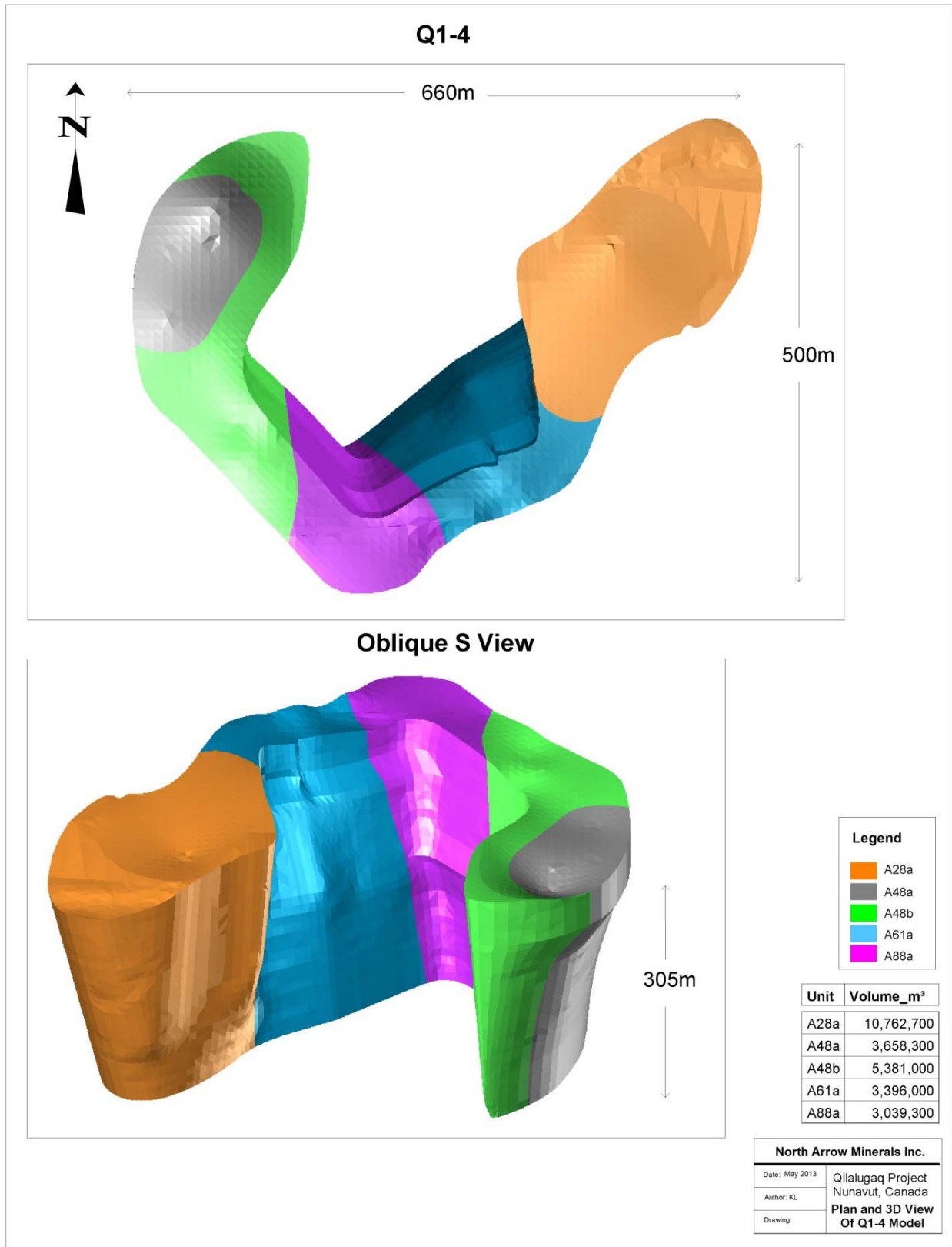
7.2.2 Q1-4 Geology

Q1-4 is the largest kimberlite pipe within the Qilalugaq Cluster. It has been modelled to approximately 305 m depth below the overburden/kimberlite contact. It is interpreted as a complex, steep-sided, diatreme to root-zone kimberlite, with a lobate external shape. The geology of this kimberlite has been determined using detailed logging of drill core and results of petrographic studies (Figure 7.3).

Q1-4 consists of five main pipe infills in order from west to east: A48a, A48b, A88a, A61a and A28a. Altered country rock is present on the east side of A48a, A48b and A88a, but there is no CRB surrounding any of the kimberlites. In addition to the five main kimberlite rock types infilling the pipe, a number of HK dykes and intrusions occur throughout the body.



Figure 7.3: Plan and 3D View of Q1-4 Model





Each kimberlite unit can be described as follows:

A28a is volumetrically the most significant kimberlite rock type infilling Q1-4, accounting for 41% of total kimberlite by volume. It is predominantly a pale green to green-grey volcanoclastic (TK/TKt) kimberlite breccia that transitions to a mottled green-brown partially coherent (HKt) kimberlite with depth, with fine- to medium-grained, and less commonly, coarse- to very coarse-grained, macrocrystic olivines. Olivine macrocrysts comprise 10-30% of the rock and are completely pseudomorphed by serpentine and clay with some carbonate and hematite replacement. Country rock xenoliths consist of locally-derived granitoid gneiss, lesser biotite-rich gneiss and mica-rich fine grained mafics that are fresh to moderately altered to serpentine and clays and occasionally carbonate (in HKt textural zones). The majority of the granitoid gneiss xenoliths are stained/hematized to a dark pink to red colouration. The country rock xenoliths are generally <1 cm to 75cm, but average 1-10 cm and are angular to rounded. Xenoliths may comprise 5-65% of the rock; however the most common range observed is 15-30%. Magmaclasts are common and occur as thin selvages (typically less than 1 mm in width) on olivines and country rock xenolith. Magmaclasts with thick selvages are more common with texturing textures, and are diffuse with the matrix at times and not always seen or present in these darker, more coherent zones. A second type of magmaclasts is large, rounded, thick selvaged to uncored, with coarser groundmass components, and are present through all textures. Most magmaclasts are altered and mineralogical preservation is low. When discernible, rims are typically composed of serpentine and opaque oxide minerals. Groundmass minerals present within thicker selvages include spinel and minor perovskite. The matrix is non-crystalline to patchy-crystalline and is often turbid and altered. It comprises serpentine, clinopyroxene microlites, clay minerals, very fine-grained country rock xenoliths and minor phlogopite and perovskite crystals. Rare magmatic autoliths are observed in the unit. Mantle-derived indicators include common ilmenite, lesser purple and orange garnets and rare chrome diopside. There are few to common mantle xenoliths of peridotite, some with chrome diopside. Mineralogically A28a is classified as a phlogopite-bearing kimberlite.

A48a is volumetrically the third most significant kimberlite rock type infilling Q1-4, accounting for 14% of total kimberlite by volume. A48a is a dark grey coherent (HK) kimberlite with medium- to coarse-grained and common very coarse-grained macrocrystic olivines. Olivine macrocrysts range from 15-35%, are serpentinized dark green to black and may have fresh cores. This unit contains 1-5% granitoid gneiss and lesser biotite-rich gneiss and mica-rich fine-grained mafic country rock xenoliths. Xenoliths are strongly altered and bleached white with dark green to black rims and are partially carbonatized. They are subrounded to round and, on average, 1-10 cm in size, but can be found up to 40 cm. Magmaclasts are not present and magmatic autoliths are rare. Mantle derived indicators include abundant ilmenite, common pyrope and orange megacryst garnets and rare chrome diopside. There are a few mantle xenoliths of peridotite and eclogite. The groundmass is uniform to segregationary, crystalline and dominated by phlogopite, carbonate, perovskite, and lesser spinel and apatite. Late-stage mineralogy comprises serpentine, clay, and clinopyroxene which concentrate around digested country rock xenoliths. Mineralogically this unit is classified as a serpentine-carbonate-phlogopite kimberlite and has a high magnetic susceptibility.

A48b is volumetrically the second most significant kimberlite rock type infilling Q1-4, accounting for 20% of total kimberlite by volume. A48b transitions from light green-grey to dark brown-green/grey to dark grey, with medium- to coarse-grained and common very coarse-grained macrocrystic olivines and is texturally more variable than A28a. It ranges from a volcanoclastic



(TKt) kimberlite breccia / partially coherent (HKt) kimberlite breccia to a coherent (HK) kimberlite with depth. The coherent portion of this unit is non-magnetic. Olivine macrocrysts comprise 15-35% of the rock and are completely pseudomorphed by serpentine and clay with some carbonate replacement. Country rock xenoliths consist of locally-derived granitoid gneiss and lesser biotite-rich gneiss and mica-rich fine grained mafics that are moderately altered green to serpentine and clays and become strongly altered black to bleached and carbonatized with depth and as the unit transitions to more coherent textures. The majority of the granitoid gneiss xenoliths are stained/hematized to a dark pink to red colouration. Country rock xenoliths are generally <1cm up to 35 cm in size, but average 1-6 cm and are subrounded to rounded. Dilution is estimated at between 15-40% for the transitional zones decreasing to approximately 2-10% for the coherent zones. Magmaclasts with thin to thick selvages are more common with transitioning textures, and are diffuse with the matrix at times and are not always seen or present in these darker, more coherent zones. The magmaclasts consist of serpentine, phlogopite, and spinel and are set within an inhomogeneous, variably-crystallized groundmass and/or interclast matrix consisting of serpentine, clinopyroxene microlites, clay minerals, very fine-grained country rock xenoliths and minor phlogopite and spinel. The groundmass in the coherent zones is segregatory to globular segregatory, crystalline and dominated by phlogopite and lesser spinel, with carbonate and apatite present sometimes. Magmatic autoliths are not observed in the unit. Mantle-derived indicators include common to abundant ilmenite, and moderate pyrope and megacrystic and eclogitic garnets. There are common mantle xenoliths of peridotite. Mineralogically A48b is classified as a \pm carbonate-serpentine-phlogopite kimberlite.

A61a is volumetrically the fourth most significant kimberlite rock type infilling Q1-4, accounting for 13% of total kimberlite by volume. A61a is a light to dark grey coherent (HK) kimberlite with medium- to coarse-grained and some very coarse-grained macrocrystic olivines. The unit has moderate magnetic susceptibility. Olivine macrocrysts range from 10-30% and are serpentinized dark green and some are partially carbonatized or have fresh cores. This unit contains 1-10% granitoid gneiss and lesser biotite-rich gneiss and mica-rich fine grained mafic country rock xenoliths. They are strongly altered to dark green to black rims with common bleached white cores and are partially carbonatized. They are subrounded to round and, on average, 1-5 cm in size, but can be found up to 10 cm and have common melt-in-melt magmaclasts that are large, rounded, thick-selvaged to uncored, with coarser groundmass components. Magmatic autoliths are not present. Mantle-derived indicators include common ilmenite, and lesser pyrope and megacrystic and eclogitic garnets and minor chrome diopside. There are a few peridotitic mantle xenoliths. The matrix is uniform to segregatory with some globular segregation zones, crystalline and dominated by primary groundmass minerals consisting of phlogopite, carbonate, perovskite, and lesser spinel and apatite. Late-stage mineralogy comprises serpentine, clay, and clinopyroxene which concentrate around digested country rock xenoliths. Mineralogically this unit is classified as a carbonate-serpentine-phlogopite kimberlite.

A88a is volumetrically the least significant kimberlite rock type infilling Q1-4, accounting for 12% of total kimberlite by volume. A88a is dominantly a green-brown to grey-brown volcanoclastic (TK/TKt) kimberlite breccia that transitions to a grey-brown partially coherent to coherent (HKt/HK) kimberlite with depth, with medium-grained and commonly coarse- to very coarse-grained macrocrystic olivines. Olivine macrocrysts comprise 15-25% of the rock and are completely pseudomorphed by serpentine and clay with some carbonate and iron replacement. This unit contains ~10-25% locally-derived granitoid gneiss and lesser biotite-rich gneiss and mica-rich fine-grained mafics. The country rock xenoliths are weakly-moderately altered green



to serpentine and clays and become moderately-strongly altered dark green-black to partially bleached and carbonatized with depth/change to coherent textures. The majority of the granitoid gneiss xenoliths are stained/hematized to a dark pink to red colouration. The country rock xenoliths are generally <1 cm to 30 cm, but average 1-10 cm and are sub-angular to rounded. Magmaclasts are common and occur as thin selvages (typically less than 1 mm in width) on olivines and country rock xenoliths. Magmaclasts with thick selvages are more common with transitioning textures, and are diffuse with the matrix at times and are not always seen or present in these darker, more coherent zones. There is a second type of magmaclast (melt in melt) that are large, rounded thick-selvaged to uncored, with coarser groundmass components, are present through all textures, and may be stained red. Most thin magmaclasts are altered and mineralogical preservation is low. When discernible, the rims are typically composed of serpentine, phlogopite and opaque oxide minerals. Groundmass minerals present within thicker selvages include spinel. The matrix is non-crystalline to patchy crystalline and is often turbid and altered. It comprises serpentine, clinopyroxene microlites, clay minerals, very fine-grained country rock xenoliths and minor phlogopite and spinel. The groundmass in the coherent zones is segregationary to globular segregationary, crystalline and dominated by phlogopite and lesser spinel, with carbonate and apatite present sometimes. A few magmatic autoliths are observed in the unit. Mantle-derived indicators include common ilmenite, lesser pyrope and megacrystic and eclogitic garnets. There are some peridotitic mantle xenoliths. Mineralogically A88a is classified as a serpentine-phlogopite-bearing kimberlite to a serpentine-phlogopite kimberlite.

Coherent kimberlite also occurs in Q1-4 in the form of late-stage HK dykes and irregular intrusions. They range in thickness from a few centimetres up to 5 m. The dykes are a light green-grey to dark grey HK with medium- to coarse-grained, and commonly, very coarse-grained macrocrystic olivine. This unit does not commonly contain country rock xenoliths, but where present, they comprise <5% of the unit.

The emplacement history of Q1-4 is not fully understood at this time. However, textural features of the rocks, contact relationships and distribution of the rock types in the pipe suggest that A28a, A48b and A88a were emplaced early during pipe development, and A48a and A61a were emplaced later.

8.0 DEPOSIT TYPES

There are two types of diamond deposits: primary and secondary. Primary deposits are those in which the diamonds remain inside the original host rock (usually kimberlite) that conveyed them to the surface. Secondary deposits are formed when the diamonds are eroded from the host rock and concentrated by the action of water into alluvial deposits (in rivers or beaches). The Qilalugaq kimberlites are primary deposits.

8.1 Overview of Primary Diamond Deposits

Primary diamond deposits such as kimberlites and lamproites have produced over 50% of the world's diamonds. The remainder was derived from recent to ancient placer deposits that originated from the erosion of kimberlite and/or lamproite. Although diamondiferous kimberlite and lamproite comprise most of the economic diamond deposits, other diamond-bearing rocks



have also been discovered and are the subject of numerous academic papers. Such diamond-bearing rocks include ultramafic lamprophyres (aillikites) in Canada and volcanoclastic komatiites in French Guiana (Capdevila et al., 1999). It has been established by the scientific community that diamonds are not genetically related to kimberlite or lamproite but that kimberlite and lamproite intrusives serve as transport mechanisms for bringing diamonds to surface (Kirkley et al., 1991) from the mantle.

Clifford (1966) and Janse (1991) stated that a majority of economic diamondiferous kimberlites occur in stable Archean-age cratonic material that has not undergone any thermal or deformational event since 2.5 Ga. Such Archean age cratons include the Kaapvaal, Congo and West African cratons (Africa), Superior, Rae and Slave Provinces (Canada), East European Craton (Russia, Finland), and the West, North and South Australian cratons. The only exceptions to date are the Argyle and Ellendale mines of Australia, which are derived from lamproites emplaced into Proterozoic-age, remobilized, cratonic material.

To date, more than 6,000 known kimberlite and lamproite occurrences have been discovered, of which over 1,000 are diamondiferous. Some of the well-known diamondiferous kimberlites/lamproites currently being mined include Argyle (lamproite) in Australia; Orapa and Jwaneng (kimberlites) in Botswana; Jubilee, Udachnaya and Mir (kimberlites) in Russia; Venetia (kimberlite) in South Africa, and the Ekati and Diavik clusters (kimberlites) in Canada.

Economic diamond kimberlite and/or lamproite pipes generally range from less than 0.4 ha to 146 ha in surface area, with the maximum size being more than 160 ha (for example, Camafuca, Angola). Economic diamond grades can range from 3.5 cph to 600 cph.

8.2 Kimberlite-Hosted Deposits

Much of the following discussion of kimberlite types and deposits is taken directly from a publication by Mitchell (1991).

Kimberlites remain the principal source of primary diamonds despite the discovery of high-grade deposits in lamproites. Mineralogical and Rb–Sr isotopic studies have shown that two main varieties of kimberlite exist:

- Group 1, or olivine-rich monticellite serpentine calcite kimberlites; and
- Group 2, or micaceous kimberlites (predominantly occur in southern Africa).

“Group 1” kimberlites are complex, hybrid rocks consisting of minerals that may be derived from:

- Fragmentation of upper mantle xenoliths (including diamond);
- Megacryst or discrete nodule suite; or
- Primary phenocrysts and groundmass minerals.

The contribution to the overall mineralogy from each source varies widely and significantly influences the petrographic character of the rocks. Consequently, Group 1 kimberlites comprise a petrological clan of rocks that exhibit wide differences in appearance and mineralogy as a consequence of the above variation, coupled with differentiation and diverse styles of emplacement of the magma.



Figure 8.1 illustrates an idealized South African kimberlite pipe, showing the relationships between effusive rocks, diatremes, and hypabyssal rocks. Currently, different textural-genetic groups of kimberlite are recognized, each being associated with a particular style of magmatic activity in such a system.

These are:

- Crater facies;
- Diatreme facies; and
- Root Zone facies.

Rocks belonging to each facies differ in their petrology and primary mineralogy, but may contain similar xenocrystal and megacrystal assemblages.

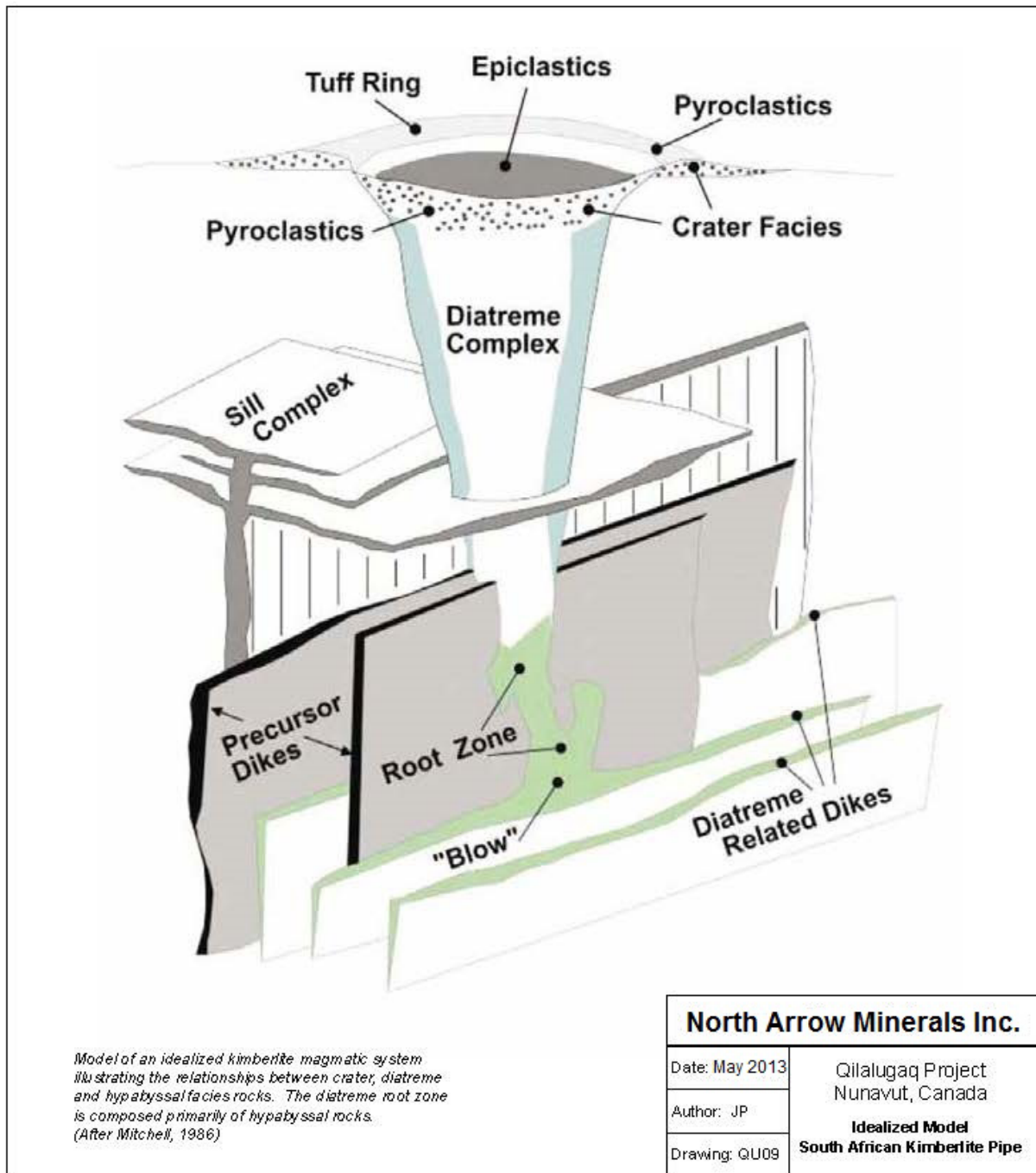
With a few exceptions, such as the Finsch Kimberlite Mine in the Republic of South Africa and the Dokolwayo Kimberlite Mine in Swaziland, most of the well-known diamondiferous kimberlites in South Africa and elsewhere are Group 1 kimberlites. The Qilalugaq kimberlites are considered to be Group 1 kimberlites.

The Qilalugaq kimberlites are interpreted to be steep-sided, South-African-type pipe-like structures with irregular to elongate shapes in plan view. Surface expressions of the kimberlite pipes vary between 0.6 ha and 12.5 ha. The Qilalugaq Cluster is mainly composed of diatreme-like kimberlitic breccia lithologies and hypabyssal kimberlitic material. No crater material is noted in the Qilalugaq kimberlites.

The Naujaat 1 to 8 hypabyssal dykes are interpreted to be intrusions of kimberlitic material that did not vent to the earth's surface at the time of emplacement.



Figure 8.1: Idealized Kimberlite Pipe





9.0 EXPLORATION

To date, North Arrow has not conducted any exploration on the Qilalugaq Property.

10.0 DRILLING

No new drilling was conducted by North Arrow on the Qilalugaq Property.

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Laboratories

Two DMS process facilities have been used as primary macrodiamond extraction laboratories during the Qilalugaq exploration programs to date: an unrelated external commercial facility at Lakefield, Ontario (SGS) used by BHPB; and, an external independent mineral process facility at Thunder Bay, Ontario (Microlithics) operating a 1.5 tph DMS plant. SGS is accredited by the Standards Council of Canada to the ISO/IEC 17025 standard “General Requirements for the Accreditation of Calibration and Testing Laboratories (CAN-P-4D)” as a testing laboratory for specific tests. Microlithics is not accredited, and is subjected to ongoing QA/QC testing by Stornoway. At both SGS and Microlithics, DMS concentrates for the BHPB HQ diameter drill core and RC chips and Stornoway surface samples, respectively, were submitted for caustic fusion and the residues hand sorted to extract diamonds. Residues from some of the samples from Microlithics were shipped to I&M Morrison Geological Services Ltd. (I&M Morrison) in Delta, BC for the extraction of diamonds. Stornoway also used their internal laboratory in North Vancouver to provided support for the extraction, sorting, and sizing of diamonds.

During the Qilalugaq exploration programs, microdiamonds were recovered by the same two external unrelated commercial facilities: SGS used by BHPB; and Microlithics used by Stornoway.

11.2 Dense Media Separation (DMS) Facilities

DMS is a standard industry process for the liberation and extraction of macrodiamonds from large volumes of sample material (commonly tens to thousands of tonnes). Rock samples are progressively crushed and the disaggregated material passed over a series of size sorting screens before being mixed with a slurry of ferrosilicon and water. A cyclone is used to separate the heavy minerals, including diamonds, from the lighter waste rock. The heavy mineral concentrate is removed from the DMS plant and stored under secure conditions until the diamonds can be extracted. DMS tailings are recycled through the plant and re-crushed to liberate finer and finer diamonds. The minimum and maximum diamond size that can be recovered by the process is determined by the plant configuration. For the Qilalugaq Property, both DMS plants targeted stones of +1 DTC screen size (essentially equivalent to a +0.850 mm square-mesh screen size) or above, although smaller stones have been recovered.



SGS owns and operates several different DMS facilities. One of these DMS plants was used during 2003 to 2004 to process HQ drill core and RC chip samples collected from the Qilalugaq Property by BHPB.

Microlithics operates a 1.5 tph Dowding, Reynard and Associates (DRA) MicroPlus DMS facility, purchased in 2005 and commissioned in 2006. This facility was used during 2006 to 2007 to process surface/trench samples collected from the Qilalugaq Property by Stornoway.

11.2.1 DMS Processing – SGS Mineral Processing Laboratory

SGS was used on two occasions in 2003 and 2004 to process the HQ drill core from A28 and the RC chips from A48, A61, A88 collected by BHPB.

The HQ drill core samples were sent to the facility in bulk bags in sealed crates, each with an individual sample number. The RC chip samples were sent to the facility in 823 sealed barrels, each with an individual sample number. Sample numbers and the condition of the crates and barrels were verified upon arrival at the laboratory, inventoried and isolated in a secure storage area with controlled access.

The HQ drill core material was crushed, using a primary jaw and secondary cone crusher to reduce the +6mm oversized material to -6 mm. The RC chip material was screened on a 6 mm screen where the +6 mm oversized material was sent to a cone crusher and reduced to -6 mm. For both HQ drill core and RC chip material, all -6 mm sieved and crushed product was fed into a primary scrubber. The scrubber discharge was screened at 0.8 mm to remove any -0.8 mm material which was feed to the tailings pond. The -6 mm to +0.8 mm material was fed into the DMS facility. DMS tails (floats) were drummed. For the RC chip material, the first sample from each hole was used to 'audit' the performance of the DMS. The DMS tailing (float material) was screened at 4 mm and the +4 mm material was crushed in a cone crusher to -4 mm. Then all the -4 mm material was combined and fed through the scrubber and then on to the DMS in the same fashion as the 6 mm material. A pump-fed cyclone DMS plant was used by SGS.

DMS concentrates were stored in a sealed, secured container in an access-controlled area, and were submitted for caustic fusion with residues hand-sorted to extract diamonds.

11.2.2 DMS Processing – Microlithics Mineral Processing Laboratory

Microlithics was used on two occasions in 2006 and 2007 to process surface samples from A28a, Naujaat 1 to 3 and Naujaat 6, collected by Stornoway. A QP from Stornoway visited Microlithics during DMS processing in Thunder Bay to verify the quality and continuity of work being performed.

Surface samples were sent to the facility in bulk bags in sealed crates, each with an individual sample number. Sample numbers and the condition of the crates were verified upon arrival at the laboratory, recorded in a Chain of Custody document and isolated in a secure storage area with controlled access.

Material larger than 200 mm in size was fed through a rock press, and the -200 to +75 mm material through a primary jaw crusher. All -75 mm sieved and crushed product fed directly into the DMS facility where a scrubber trommel unit removes the +12.7 mm oversize. The +12.7 mm



oversize material was reduced to -12.7 mm using a secondary jaw crusher. Kimberlite was processed through the facility, then the tailings were screened at 6.0 mm, 4.0 mm and 2.0 mm. Tailings larger than 6.0 mm, 4.0 mm and 2.0 mm were re-crushed in a 10-inch cone crusher set at 6.0 mm, 4.0 mm and 2.0 mm, respectively, and re-passed through the plant. Finer tailings were discarded. A 0.3 mm by 12.0 mm slotted product screen was used within the Thunder Bay DMS facility.

DMS concentrates were stored in a sealed, secured container in an access-controlled area, and were submitted for caustic fusion with residues hand-sorted to extract diamonds.

11.3 Caustic Fusion Sampling

The caustic fusion technique, also known as caustic dissolution, utilizes chemical attack to provide total liberation of all diamonds within a given sample in order that an accurate diamond size frequency distribution can be determined. Caustic dissolution processes are usually applied to recover microdiamonds from relatively small volume samples (tens to hundreds of kilograms). Rock samples are loaded into large steel pots and caustic soda is added and heated to dissolve the mineral matrix hosting the diamonds. Dissolution takes place over an extended period of time in temperature-controlled kilns. Once the reaction is complete, the residue is cooled and poured through stainless steel wire-mesh screens at the required size to avoid loss of small diamonds. Depending on the size of the residue, further dissolution may be required. In cases where abundant oxides remain in the residue, a variety of other chemicals may be used to reduce the size of the concentrate, without harming the diamonds. Residues are then observed under microscopes by trained personnel, and the diamonds recovered, counted, sized and weighed.

To assure the integrity of the process, a Chain of Custody is established between the customer and the laboratory. Customer samples are processed in a controlled environment to ensure that confidentiality is maintained at all times. All samples are handled with due diligence during processing stages, according to previously defined protocols. Quality control grains are added to each aliquot undergoing the caustic dissolution process to monitor recovery. Similar caustic dissolution processes are used by both SGS and Microlithics commercial facilities.

11.4 Sample Security

All sample processing was undertaken by qualified operators in secure laboratory areas with restricted access and followed strict sample handling protocols. Diamonds recovered from the caustic dissolution process are generally very small (<0.85 mm), have limited commercial value and the focus is to extract and retain all available stones. Security, while present, does not form as large a component of process as it does for the DMS work which can recover hundreds of carats of diamonds, many of which may be potentially attractive for theft.

DMS operations, post-processing treatment of DMS concentrates, observing, and post-observation handling of concentrates and diamonds, from 2003 to 2012, were conducted under approved security protocols and procedures, which include but are not limited to:

- Chain of Custody documentation;



- Dual-locking containers;
- Uniquely-numbered, single-use, tamper-resistant seals;
- Monitoring and control of sample weights;
- Limited access or dual access to certain laboratory premises;
- Closed-circuit TV surveillance; and
- Use of diamond tracers (marked and unmarked)

Comparative analysis of diamond size distribution is checked against historical and external laboratory results.

11.5 Drill Core

Large diameter diamond drill core sampling operations were under BHPB security measures, as was shipping from the drill site to BHPB in Kelowna, British Columbia. All kimberlite core was sampled by BHPB geologists. All samples were trucked to SGS and composited for processing.

Drill core collected for microdiamond analyses (i.e. caustic dissolution) during the 2011 Stornoway re-logging program, was extracted from the core boxes and packed into 20-litre, white plastic pails lined with heavy polyethylene sample bags. Bar-coded sample tags with unique identification numbers were inserted into each sample bag and the bags sealed. Pails were clearly labelled inside and out with the same sample number, and then sealed with tamper-resistant single-use lids. Individual pail weights were recorded in Stornoway's office in North Vancouver. The pails were then consigned to a commercial courier service for delivery to Microlithics, who were notified of the incoming delivery. Upon receipt of the samples the caustic fusion facility took possession of the samples, documented the number and weight of the pails and notified the North Vancouver office. Although the first author did not have control over the samples at all times, the first author has no reason to believe any of the kimberlite samples were compromised.

11.6 Reverse Circulation (RC) Chips

RC sample drilling operations took place under BHPB security measures as did sample shipping from the drill site to SGS.

BHPB geologists supervised the sample collection. All samples, in 33 Imperial gallon capacity drums in 20-drum lots, were flown to Churchill, Manitoba, railed to Thompson, Manitoba, and trucked to SGS and composited for processing.

11.7 Surface Samples

For the surface samples collected by Stornoway in 2006 and 2007, access to the trenches/surface collection sites were limited to personnel specifically involved in the sampling to ensure the security and integrity of the sample process. These sites were remote and use of a helicopter was required to access them. A log of personnel accessing the sites was recorded daily. Detailed records of the sample collection were kept, including times of various activities



and any incidents such as spillages. In addition, records were kept of all sample transfers from the trenching/surface collection site to the airport in the hamlet of Repulse Bay where the labelled megabags of material were slung by helicopter, dropped into crates, labelled and sealed for shipping by sea-lift to Montreal. The airport in Repulse Bay was in a secured area with limited access. Those samples that were sent by sea-lift were placed within wooden crates built in Repulse Bay for security and sample integrity. Once in Montreal, the sample bags were shipped by truck to Microlithics. Once the shipment was in Thunder Bay, the truck was off-loaded by a technician who verified the contents against the shipping papers and checked sample weights. Prior to processing, samples were stored in the secured area of a bonded, controlled-access customs warehouse and checked by a Stornoway QP.

Small surface samples collected for microdiamond recovery between 2006 and 2010 were handled in a similar way to the large tonnage samples. Access to the surface collection sites was limited to Stornoway personnel and required a helicopter. Samples were packed into 20-litre rice bags lined with heavy polyethylene sample bags. Bar-coded sample tags with unique identification numbers were inserted into the internal polyethylene sample bag and sealed. Rice bags were clearly labelled with the same sample number, and then sealed with a second barcoded tag attached to the seal. Individual bag weights were recorded. The bags were placed into crates secured at the airport in 2006 to 2008 and into pails sealed with tamper-resistant single-use lids in 2010. The 2006 to 2008 samples had the same shipping and security procedures as the large tonnage samples mentioned above. The 2010 sample pails were flown to Ottawa, Ontario and trucked to Thunder Bay. Once the shipment was at Microlithics, the truck was off-loaded by a technician who verified the contents against the shipping papers and checked sample weights.

11.8 Final Diamond Treatment and Recovery

Diamond-bearing concentrates generated by DMS processing of large diameter diamond drill core, RC chip samples and large-tonnage surface samples were subjected to final processing at various combinations of SGS, Microlithics, I&M Morrison and/or Stornoway's internal laboratory facilities. DMS concentrates from the large diameter drill core, RC chips and surface samples were submitted for caustic fusion and the residues hand sorted to extract diamonds.

All processing of concentrates was undertaken in secured, controlled-access areas of the SGS and Microlithics facilities. The caustic fusion and DMS diamond recovery facilities are governed by a series of detailed procedures that are appropriate to ensure the security and integrity of samples and the final results. All samples received in the laboratory were accompanied by a Chain of Custody document and with security seals that must be verified prior to processing any sample. Upon receipt, the samples were stored in a secure facility with restricted access. The diamond recovery circuits were in restricted areas and all samples, concentrates, diamonds and data are locked in safes, cabinets, drying ovens, or secure rooms when not being handled.

All processing of macrodiamonds undertaken in Stornoway's North Vancouver facilities and at I&M Morrison used secured, controlled-access, CCTV-monitored areas.

In the authors' opinion, all of the sample preparation, security and analytical procedures completed by Stornoway and Microlithics met or exceeded industry standards for similar work. BHPB's sample preparation and security measures for the samples they collected cannot be



commented on because the procedures were not observed by the authors but are assumed to meet industry standards. The sample preparation, security and analytical procedures for SGS are acceptable as SGS are accredited by the Standards Council of Canada to the ISO/IEC 17025 standard.

12.0 DATA VERIFICATION

12.1 Stornoway Quality Assurance and Quality Control Programs

Stornoway acquired BHPB's data set, and implemented a QA/QC program to verify the data

- A review of BHPB logs and photographs for all core drilling was completed. Where possible, they were also compared to available drill core (not been destroyed for diamond work) for confirmation of geological units and contacts.
- A review of all available laboratory certificates and comparison to the compiled BHPB summary tables was conducted.
- A review of all thin sections collected by BHPB, that were originally reviewed by Mineral Services, was conducted. This was done for confirmation of geological units.
- Differential GPS readings were taken on each of the kimberlite drill hole sites (where identifiable) to confirm collar locations.
- Differential GPS readings were taken around Q1-4 by Stornoway on specific sites that can be visually identified on high-resolution satellite imagery. Elevations were compared to those recorded during airborne surveys. It was determined that the laser altimeter data used to topographically correct the FALCON™ airborne gravity surveys matched more closely than the Fugro readings (see Section 6.2). The FALCON™ data was used to create a digital elevation model (DEM). This DEM was then used to determine elevations of the missing drill collars. BHPB did not provide their drill collar elevations, which is needed to create the 3D geological model.
- Duplicate till samples were collected by Stornoway from old BHPB sample pits to confirm anomalous KIM grains.
- Ground geophysical surveys were completed to verify position and size of anomalies reported by BHPB.
- New thin sections were collected and compared to the existing results from BHPB thin sections.
- Samples were collected from kimberlite core from re-logged holes to confirm BHPB's microdiamond data set.
- Mini-bulk samples were collected from A28a surface pits to confirm BHPB's macrodiamond data set.
- A comparison of the density values from BHPB and Acme was completed. Details are discussed in Section 14.4.5.
- Available macrodiamonds from BHPB's mini-bulk sampling programs were re-screened, re-weighed and studied in Stornoway's North Vancouver laboratory.

12.2 GeoStrat Verification

As part of the independent expert review, GeosStrat conducted the following verification checks on the Qilalugaq Property:



- Review of the geological and mineralization interpretations (Section 7);
- Review of the historic and current exploration programs (Sections 6 and 9);
- Review of the deposit model (Section 8);
- Review of data that are supporting mineral resource models (Sections 9, 10, and 11). The review covered drill core inspection, review of core logging, sampling and assay protocols and methods, and review of sample security measures and sample storage;
- Review of QA/QC data protocols and methods, data integrity and validation of RC, drill core and surface data (Sections 11 and 12), and
- Review of diamond valuation methodologies.

GeoStrat visited Stornoway's North Vancouver offices in order to audit procedures at Stornoway. Independent samples were not collected and treated by GeoStrat since this is not practical for diamond sampling.

The audit process requires matching of raw data from field copies for the various data collection areas to final copies of data to be used in public reporting and resource estimation.

GeoStrat has further reviewed documentation of procedures and verified that activities conform to Stornoway's published internal procedures for those activities.

GeoStrat is of the opinion that Stornoway's published and practiced procedures for collection of data in the field and transposition of these data into data 'products' to support resource evaluation work and initial costing exercises meet industry best practice guidelines.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The authors have no knowledge of any Metallurgical Testing having been completed with respect to the Property. Numerous samples have undergone DMS mineral processing to recover macrodiamonds (>0.85 mm), described in Section 11 'Sample Preparation, Analyses and Security' herein.

14.0 MINERAL RESOURCE ESTIMATES

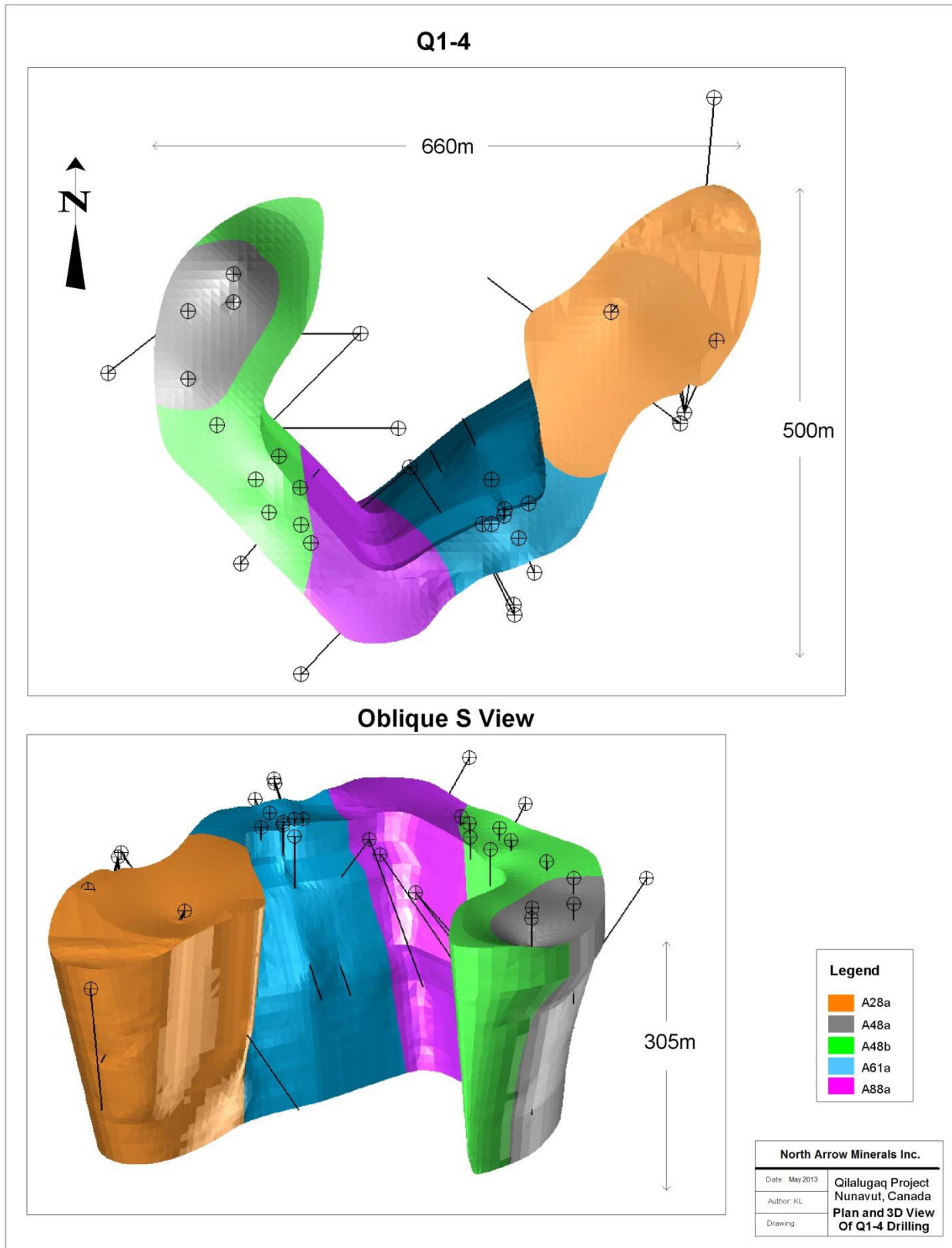
14.1 Introduction

This section documents the process by which the Mineral Resource Estimate for Q1-4 (Figure 14.1) was established.

The 2013 Qilalugaq Mineral Resource Estimate was prepared by an independent Qualified Person, David Farrow, P.Geol., of GeoStrat. The Mineral Resource Estimate comprises the integration of kimberlite volumes, bulk density, petrology and diamond content data obtained from 5,133 m of diamond drilling, 2,714 m of RC drilling (Figure 14.1), 2.9 t of samples submitted for microdiamond analysis, 257.7 t of samples submitted for macrodiamond sampling with 2.36 cts of diamonds (69 stones) recovered from HQ diameter diamond drilling, 59.2 cts of



Figure 14.1: Plan and 3-D View of Q1 – 4 Drilling





diamonds (2,054 stones) recovered from RC drilling, and 7.5 cts of diamonds (205 stones) recovered from surface trenching.

The diamond sampling database is summarized in Tables 6.3, 6.4, 9.5 and 9.6, and comprises data derived from RC chip samples, core samples, and trench samples. Large tonnage (RC, core and trench) samples were used to establish diamond grade frequency curves and average stone size for each unit within Q1-4. RC, core, and trench samples were used to estimate the in situ grades of the body.

14.2 Previous Work

A previous Mineral Resource Estimate for Q1-4 was produced by Stornoway which extends from surface to a depth of 205 m. Additional resource upside for Q1-4 in the form of a Target for Further Exploration was also identified by Stornoway extending from 205 m depth to 305 m depth. The results were detailed in a June 2012 Technical Report (Kupsch and Farrow, 2012) and are summarized in Table 14.1 and 14.2.

Table 14.1: Mineral Resource for Q1-4 as of June 08, 2012

Deposit	Total Tonnes	Total Carats*	Average cpht
Q1-4	48,790,000	26,144,000	53.6

*100% Recovery +1 DTC

Table 14.2: Target For Further Exploration for Q1-4 as of June 08, 2012

Deposit	Low Range			High Range		
	Total Tonnes	Total Carats*	Average cpht	Total Tonnes	Total Carats*	Average cpht
Q1-4	14,096,000	7,907,000	56.1	16,591,000	9,306,000	56.1

*100% Recovery +1 DTC

14.3 Geological Model

A 3D geological model was created by Stornoway for Q1-4 using Gemcom's Surpac 6.2 and GemsTM 6.3 software. Topographic surfaces were modelled from FALCONTM airborne survey elevation data. The overburden surface was created from drill hole and outcrop data. Outcrop boundaries were interpreted from a 2.4 m resolution QuickBird Satellite image. Lake bottom surfaces were created from drill hole and bathymetry data. The modelled A28a, A48a, A48b, A61a and A88a kimberlite domains were limited to the topographic, overburden and lake bottom surfaces. The three dimensional model was reviewed by GeoStrat and accepted as suitable for mineral resource estimation purposes. The geological model is discussed in Section 7.



14.4 Sampling Analysis

Diamond sampling of Q1-4 within the Qilalugaq Property area included core sampling, RC chip sampling and small-tonnage trench sampling. These data were collected, compiled and analyzed by a combination of methodologies in order to cater to the spatial distribution of sampling and the amount of information available for each kimberlite domain in each body.

The evaluation process comprised the following steps:

- Analysis of macrodiamond populations;
- Establish relationship between macro and microdiamond populations;
- Establish consistency of microdiamond data between laboratories and with depth within specific kimberlite phases;
- Diamond breakage assessment;
- Establish grade models for each kimberlite phase based on macro- and microdiamond data;
- Bulk density analysis and establish bulk density per kimberlite phase;
- Demonstrate bulk density is consistent with depth; and
- Integration of calculated grade with density values.

14.4.1 Macrodiamond Sample Analysis

Table 14.3 summarizes diamond recoveries from Q1-4 used for size frequency analysis.

Table 14.3: Macrodiamond Data

Sample	TKB Units			HK Units	
	A28a	A48b/A88a	TKB Total	A48a	A61a
Sample weight (kg)	33,200	103,900	137,100	68,500	47,990
Total Stones +1 DTC	202	819	1,021	376	570
Total Carats +1 DTC	8.02	28.88	36.9	9.28	18.46

There is only one macrodiamond sample for A88a which occurs as a combined sample with one of the A48b samples. Given the geological similarities between TKB phases A28a, A48b and A88a, these three units were aggregated to generate a single macro model for the TKB phase. Collectively the current macrodiamond data for the TKB and HK samples are considered representative of Q1-4.

Aspects of the Q1-4 diamond population (as recovered to date) that may have a positive impact on value include the presence of fully saturated fancy yellow diamonds and evidence for diamond breakage. The overall percentage of yellow stones for the recovered parcels averages 3%. Although the small parcels may not be truly representative of the overall diamond population, the abundance of yellow stones increases with size with yellow stones constituting 14% of the +9 and +11 DTC sizes (by stone count). Examination of the diamond parcels indicates that diamond breakage during RC drilling, and crushing of drill core damaged stones in all size classes. Diamond breakage has a detrimental effect on the recovered size distribution, causing the distribution to appear finer than the actual natural population, recovered



grade is also negatively impacted as some broken diamond material and the smaller stones may no longer be retained on the bottom screens.

14.4.2 Microdiamond Sample Analysis

The relationship between microdiamonds and macrodiamonds can be used to establish diamond content for a kimberlite (Chapman and Boxer, 2004). Once established, that relationship can be applied to micro- and macrodiamond sampling for grade determination for specific phases of kimberlite. Micro- and macrodiamond distributions from samples of identified and mapped kimberlite phases for intrusions A28a, A48a, A48b, A61a and A88a, within the Qilalugaq Q1-4 pipe were modelled to generate as recovered (diluted) +1 DTC diamond content models (Table 14.4). Given the geological similarities between TKB phases A28a, A48b and A88a, these three units were aggregated.

Table 14.4: Macrodiamond and Microdiamond Samples Used to Determine the Micro/Macro Relationship in Q1-4

	TKB UNITS				HK UNITS	
	A28a	A48b	A88a	TKB Total	A48a	A61a
Microdiamond Sample wt (kg)	822.9	574.49	272.45	1,669.84	181.22	560.97
Microdiamond Total Stones	475	498	225	1,198	271	575
Stones per 10 kg	5.77	8.67	8.26	7.17	14.95	10.25
Stones >0.600 mm per 10 kg	0.29	0.47	0.4	0.37	0.61	0.61
Macrodiamond Data						
Macrodiamond Sample wt (kg)	137,100				68,500	47,990
Macrodiamond Total Carats	36.9				9.28	18.46
Macrodiamond Total Stones	1021				376	570
Sample Grade (cpht)	26.91				13.55	38.47
Model Grade 100% Recovery +1 DTC (cpht)	52				44	77

Representative material for each of the identified and mapped kimberlite phases from drill core and, where available, surface material, were submitted for microdiamond recovery through caustic fusion. To demonstrate stability of the microdiamond dataset the caustic fusion data from each phase was aggregated by laboratory and by sample elevation to assess any intra-laboratory and elevation variability. Three elevation segments were evaluated: 65 to -35 masl, -35 to -135 masl, and < -135 masl. No variation was noted between laboratories or by elevation within each phase and the aggregated data by phase was used to construct grade models. As an example Figure 14.2 demonstrates similarity in microdiamond size distribution for the various levels within the A61a kimberlite phase. The resulting microdiamond data was modelled with macrodiamond data from DMS processing of drill cuttings, surface material, and drill core. Grade models were constructed for each kimberlite phase and a diluted (as recovered) +1 DTC diamond content value was calculated. Resulting size frequency and weight percent by size class for each grade model is presented in Table 14.5.



Figure 14.2: A61a Microdiamond Distribution by Elevation

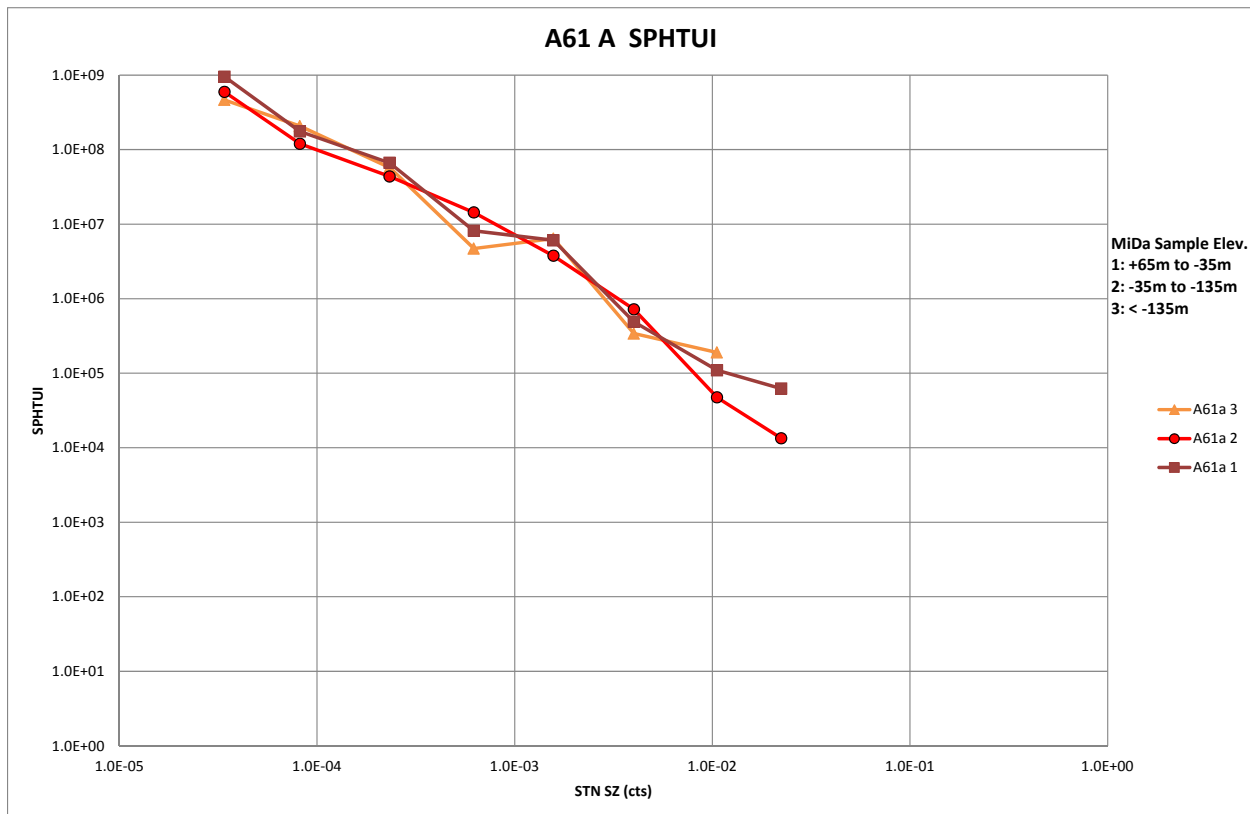


Table 14.5: +1 DTC Grade Model Weight Percent Distribution by Size Class

DTC Sieve	TKB wt% Dist	A28a wt% Dist	A48b wt% Dist	A88a wt% Dist	A48a wt% Dist	A61a wt% Dist
+23	0.16	0.15	0.08	0.20	0.02	0.07
+21	0.89	0.82	0.50	1.03	0.18	0.48
+19	1.31	1.24	0.82	1.45	0.35	0.82
+17	0.64	0.61	0.42	0.70	0.19	0.42
+15	0.41	0.39	0.28	0.44	0.13	0.28
+13	2.27	2.21	1.67	2.37	0.87	1.70
+11	6.79	6.71	5.54	6.86	3.41	5.71
+9	5.95	5.93	5.19	5.90	3.57	5.36
+7	5.02	5.03	4.58	4.94	3.42	4.73
+5	18.30	18.44	18.05	17.86	15.76	18.48
+3	13.72	13.84	14.16	13.43	13.80	14.33
-3+1	44.55	44.62	48.71	44.82	58.29	47.62
SUM	100	100	100	100	100	100



14.4.3 Diamond Breakage Assessment

Evidence for diamond breakage within Q1-4 diamond population (as recovered to date) may have a positive impact on grade, value and size distribution. Diamonds in the +3 DTC size classes were assessed for breakage. Approximately 10 to 30% of +3 DTC stones exhibit greater than 50% breakage in the RC derived diamond parcels (A48, A88 and A61). Drill core that was crushed and processed through the DMS (A28) displays the greatest degree of breakage with almost 50% of the +3 DTC stones having greater than 50% breakage. Surface material from A28 displays the least degree of breakage. Overall diamond distribution and recovered grade have not been adjusted nor factored to accommodate grade loss or size frequency modification resulting from diamond breakage. This represents potential upside in the diamond population that cannot be quantified at this time.

14.4.4 Dry Bulk Density

The dry bulk density database for Q1-4 comprises 327 spatially discrete density samples, consisting of 47 measurements from re-logged drill core from five drill holes collected by Stornoway and 280 measurements from drill core collected from four drill holes by BHPB.

A series of comparisons and calculations was undertaken between the BHPB and Acme data sets. Acme's average density values calculated from Stornoway-collected core tend to be very slightly higher than BHPB's values by up to 4%. But when samples are plotted by elevation, the two data sets are compatible at the overlapping elevations and show the same general trends in the dataset. For this reason, both datasets were used, with the Acme data serving as an independent control.

The average bulk density of the kimberlite units change slightly with increasing depth; this could be due to a variety of factors including alteration, magmatic variation, interaction between two phases, etc. Due to the variability, densities were calculated on 60 m elevation levels and used in the resource estimation to better represent the changing densities with depth within each phase.

In the lower half of A28a a smaller number of samples were collected, but they parallel the trend of increasing density, and an average of these samples was assigned for the lower half of the pipe. In certain levels of A48a and A61a where drilling limited the availability of samples, the average density calculated for the 60 m level below or above, respectively, of the non-sampled zone was assigned. For a 60 m level in the middle of A48b where there are no samples, an average of the two densities calculated for the 60 m level above and below was assigned. A global average density was calculated for A88a due to the limited amount of samples collected.

Three samples were excluded from the dataset, which were either outliers with values larger than three standard deviations from the mean or samples that are not representative of the dataset.

Table 14.6 summarizes the bulk density results.



Table 14.6: Summarized Density Data

Major Geological Unit	Elevation Level (metres above sea level)	Number of Samples	Average Bulk Density (g/cm³)
A28a	67 (kimberlite surface) to 5	37	2.31
	5 to -55	37	2.34
	-55 to -115	17	2.35
	-115 to -175	0	2.48
	-175 to -255	4	2.48
A48a	71 (kimberlite surface) to 5	0	2.57
	5 to -55	11	2.57
	-55 to -115	14	2.80
	-115 to -175	9	2.73
	-175 to -255	0	2.73
A48b	58 (kimberlite surface) to 5	20	2.44
	5 to -55	37	2.54
	-55 to -115	0	2.54
	-115 to -175	13	2.54
	-175 to -255	11	2.64
A61a	71 (kimberlite surface) to 5	21	2.51
	5 to -55	46	2.71
	-55 to -115	29	2.64
	-115 to -175	2	2.64
	-175 to -255	0	2.64
A88a	68 (kimberlite surface) to -255	19	2.42

14.4.5 Estimation Process

The estimation process uses the following steps:

1. From the density data, zones or elevation levels of equivalent density per rock type are defined as detailed in section 14.4.4;
2. The average density for each zone is determined;
3. From the geological model, volumes per zone are determined;
4. Tonnage for each zone is determined using the volume and density per zone;
5. Global grade per rock type is determined by macro- and microdiamond analysis and is detailed in section 14.4.1 and 14.4.2;
6. Contained carats are determined using the tonnage per zone and the global grade of the relevant geological unit; and
7. Individual zones are summed to create a total resource for the pipe as presented in section 14.7 and 14.8.



14.5 Diamond Price Estimation

Diamond value and ultimately rock value are a function of several factors including (i) diamond content; (ii) the size frequency distribution of the diamond population; and (iii) a valuation of diamonds based upon the unique characteristics of size, colour, clarity, and crystal form. Global and resource diamond content and valuation estimations are based on extrapolations from sample datasets that represent a very small percentage of the total diamond content present within a kimberlite. Coopersmith (2005) quotes an internal Rio Tinto Diamonds report that outlines the pitfalls of small diamond parcels for valuation purposes, in part the quote states, "...Small parcels suffer from truncated and irregular size, colour and quality distributions; in fact these effects are only eliminated in production-sized parcels..." (Rio Tinto Diamonds, 2005 as quoted in Coopersmith, 2005).

Coloured diamonds of sufficient weight and crystal form have a positive impact on the overall average value of large diamond parcels. Recovered Q1-4 diamond parcels are not of sufficient weight to properly assess the diamond population into the DTC grainer and carater sizes, and thus the persistence of coloured stones into the larger sizes and any possible positive impact of diamond value are unknown at the present time.

The existing diamond parcels for the A48, A61 and A88 series of samples and diamonds recovered from surface pits on A28 are not of sufficient size to properly or accurately establish a diamond value or predictive Run Of Mine (ROM) value. A carat parcel of the order of 500 cts is required to properly establish an estimation of diamond value.

The Qilalugaq diamond parcels do contain saturated yellow diamonds. The presence of these stones is not reflected in the model prices. Within the recovered Qilalugaq parcels the yellow stones do not display good crystal form, however should the yellow stones persist into the larger sizes (>0.5 ct) there can be a tremendous positive impact on the average diamond price.

The value impact related to yellow stones is difficult to assess from publicly available data relating to yellow diamond production as pricing data is reported by producers on an average basis. The Ellendale Mine in Australia is a significant producer of yellow diamonds, which are subject of an off-take agreement between Goodrich Resources and Laureton Diamonds (Tiffany), and as a result the average price per carat of the yellow diamond off take is published. The yellow rough off take is reported as \$4350/ct and is a prime driver in the reported Ellendale average price per carat of \$780.

In 2011 the World average price of diamond production was \$116/ct (Kimberley Process statistics https://kimberleyprocessstatistics.org/public_statistics), and average Canadian production was \$236/ct, with a range of \$90 to \$570/ct (Natural Resources Canada and company data). The model Qilalugaq average diamond price is hampered by the lack of larger stones within the valuation parcel but nonetheless has a model average price (excluding the potential influence of the yellow stones) that fits with other Canadian and World productions. When the potential influence of the yellow stone population is taken into account there is a positive impact on the model average price of the Qilalugaq diamonds and the resulting price is toward the upper end of current Canadian and World productions.



14.6 Mineral Resource Classification

The Mineral Resources for the Qilalugaq Property kimberlites were constrained by GeoStrat using drill density and sample distribution. Classification of the diamond resources is an inclusive process, looking at aspects of geology, grade, revenue, density, diamond size frequency distribution and continuity.

For the Q1-4 kimberlite pipe, the Inferred Resource classification incorporates areas where substantial sampling has been undertaken. This includes the RC, surface mini-bulk samples and microdiamond sampling to 205 m below surface. These depths are supported by the more extensive core drilling which is sufficient to delineate the resource at an Inferred level from the geological/lithological/volumetric/density aspect.

14.6.1 Reasonable Prospects of Economic Extraction

Currently, there is no conceptual mining plan for Q1-4. However, the size and depth extent of the kimberlite is amenable to an open pit mining scenario, and the elongate shape of the body is such that the waste to ore ratio would be lower than that associated with mining a conventional, more circular, kimberlite body.

Q1-4 is situated approximately 8 km from tidewater, and less than 9 km from an existing airport facility that services the hamlet of Repulse Bay. The coastline consists of a series of deeply incised narrow sheltered valleys that could offer favourable anchorage sites. The entire elongate drainage basin directly affected by the Property is approximately 21 km², entering the ocean at a single point and not affecting the water source for the hamlet of Repulse Bay. There are significant opportunities to reduce many of the infrastructure costs associated with traditional northern mining operations, including, but not limited to, some combination of the following which may also allow flexibility in addressing community concerns:

- Use the existing airport facilities and construct a 9 km access road to the site.
- Upgrade the existing port facilities, if deemed preferable by the community to building a separate more remote site.
- Build a fully contained kimberlite processing plant on a barge in a southern location, tow it to site and moor along shore adjacent to the Property. Decommissioning the plant is then a relatively straightforward matter of towing the barge away at the end of the Property life.
- Accommodation and recreation facilities could be constructed on a similar floating structure or, alternately, constructed in the hamlet of Repulse Bay. In the latter scenario accommodation and facilities would be available for use by the local community after the Property was decommissioned. Infrastructure such as water supply and sewage treatment could be upgraded in consultation with the local community.
- Use barge-based fuel transport/storage, or upgrade the existing fuel storage facilities in the hamlet.
- Upgrade community power plant and/or use barge diesel power with an 8 km power line to mine site.
- Community members hired from Repulse Bay would commute daily from their homes to the mine site, via ATV, snowmobile or road access, thereby reducing the need for on-



site accommodation and alleviating concerns about the impact of a rotational work schedule on traditional lifestyles.

- Build truck maintenance facilities either on barge or in town, depending on community input.
- Consider potential for closed conveyor transport systems constructed down south and assembled in the north.

Given these potential cost savings, providing a direct cost comparison to existing isolated mining projects to demonstrate reasonable prospects of economic extraction is difficult. Nevertheless, at the proposed Advanced Explorations Incorporated Roche Bay Iron Ore Project, situated on the Melville Peninsula some 250 km to the northeast, open pit mining costs for 420,000 t per month operation have been estimated at \$ 5.54 per t (Dorval et al., 2010).

For a much smaller open pit operation at a maximum of 180,000 t per month at Stornoway's Renard Diamond Project in Northern Quebec mining costs are estimated at \$19.99 per t. No process flow sheet has been developed for the Qilalugaq Property but processing costs for the Renard Project are estimated at \$ 14.83 per t (Bedell et al., 2011).

None of these numbers are directly comparable, and without a large representative parcel of diamonds to provide an accurate value estimate, no true in situ value can be estimated. Using the range of Canadian production export values as given above may suggest an in situ value of between \$ 65 and \$ 241 per t.

Infrastructure, capital and mining costs, as well as the related sensitivities, have a huge impact on extractive costs. Establishing these parameters for the Qilalugaq Property is beyond the scope of this Mineral Resource Estimate but, with the caveats given above, the Inferred Mineral Resource of 48.8 million t with 26.1 million cts of diamonds at an average estimated diamond content of 53.6 cpht, as outlined elsewhere in this report, meets the criteria for 'reasonable prospects of economic extraction'.

14.7 Mineral Resource Statement

The Mineral Resource Estimate for the Qilalugaq Property is summarized in Table 14.7.

The Mineral Resource Estimate takes into account geological, mining, processing and economic constraints and is classified in accordance with the 2005 CIM Definition Standards for Mineral Resources and Mineral Reserves.

The Mineral Resource Estimate is based on the continuity of geology between kimberlite at depth and kimberlite nearer surface and the generally low variation in sample results for the different kimberlite phases with depth. GeoStrat notes that there is potential for additional volume at depth for the Qilalugaq Property, as the geological model has been constructed conservatively in areas of limited drilling.

The Inferred tonnage reported in Table 14.7 lies within the solid model shell from top of the kimberlite surface (approximately 50 masl) to 205 m below surface (-155 masl).



Table 14.7: May 2013 Inferred Mineral Resource for Q1-4

Deposit	Total Tonnes	Total Carats*	Average cpht
Q1-4	48,790,000	26,144,000	53.6

*100% Recovery +1 DTC

14.8 Target for Further Exploration

Targets for Further Exploration (TFFE) were identified on the Q1-4 kimberlite pipe at depths between 205 m (-155 masl) and 305 m (-255 masl) below surface. TFFE are derived from geological volumes based on projection at a standard 85° of the pipe margin within the pipe. These are presented in Table 14.8 as low and high ranges, both of which are considered to be geologically realistic. Total TFFE were identified as being between 14.0 and 16.6 million t, containing between 7.9 and 9.3 million cts of diamonds, at an average grade of 56.1 cpht. These were defined on a basis of outcrops, limited delineation drilling and surface sampling. The potential quantity and grade of any target for further exploration is conceptual in nature, there is insufficient exploration to define a mineral resource and it is uncertain if further exploration will result in the target being delineated as a mineral resource.

Table 14.8: May 2013 Target For Further Exploration for Q1-4

Deposit	Low Range			High Range		
	Total Tonnes	Total Carats*	Average cpht	Total Tonnes	Total Carats*	Average cpht
Q1-4	14,096,000	7,907,000	56.1	16,591,000	9,306,000	56.1

*100% Recovery +1 DTC

15.0 MINERAL RESERVE ESTIMATES

The authors have no knowledge of any Mineral Reserve Estimates having been completed with respect to the Property.

16.0 MINING METHODS

Not Applicable.

17.0 RECOVERY METHODS

Not Applicable.

18.0 PROJECT INFRASTRUCTURE

Not applicable.



19.0 MARKET STUDIES AND CONTRACTS

Not Applicable.

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

Not Applicable.

21.0 CAPITAL AND OPERATING COSTS

Not Applicable.

22.0 ECONOMIC ANALYSIS

Not applicable.

23.0 ADJACENT PROPERTIES

There are no mineral claims, leases or prospecting permits immediately adjacent to the current Qilalugaq Property. Approximately 115 km to the north-northwest, on Wales Island, North Arrow holds 23 active mineral claims which host known kimberlites. North Arrow has a 33-1/3% interest in these bodies as part of a joint venture with Stornoway and BHPB. The nearest other active mineral claims, leases or prospecting permits are located approximately 140 km to the northwest, and 155 km to the north, for gold and iron exploration, respectively. All property data has been sourced from the Aboriginal Affairs and Northern Development Canada NT GeoViewer website as of May 3, 2013.

24.0 OTHER RELEVANT DATA AND INFORMATION

The authors are not aware of any other relevant data and information that would pertain to this report.

25.0 INTERPRETATION AND CONCLUSIONS

The interpretations and conclusions that have been identified from the May 2013 Mineral Resource Estimate are:

- Exploration was conducted on the Qilalugaq Property by BHPB from 2000 to 2005 and by Stornoway from 2006 to 2012. Heavy mineral sampling, airborne and ground geophysics, prospecting, drilling (core and RC) and kimberlite sample collection has been completed by one or both of the companies.



- One kimberlite body (Q1-4) comprising five different phases (A28a, A48a, A48b, A61a and A88a) have been the focus of most work. Seven additional lesser known kimberlite pipes (A34, A42, A59, A76, A94, A97 and A152), and eight kimberlite dykes (Naujaat 1 to 8) have been identified on the Qilalugaq Property. All kimberlites are situated within a 26 x 3 km structurally favourable corridor.
- The pipes comprise root zone to lower diatreme facies rocks characterized by a complex internal geology, which includes MVK classified as TKB, lesser-coherent HK, and varying proportions of country-rock xenoliths. The dykes are composed of coherent HK.
- A total of 86 drill holes (13,464 m) have been drilled on the Property since 2003, comprising 18 RC holes (2,714 m) and 68 cored holes (10,750 m). More than half of all drilling (39 drill holes and 7,847 m) concentrated on the Q1-4 which is the most significant kimberlite body on the Property due to its large size (12.5 ha) and positive micro/macrodiamond results.
- Microdiamond sampling consisted of 6,352.8 kg of kimberlite from Q1-4 (A28a, A48a, A48b, A61a and A88a), six additional pipes (A34, A42, A59, A76, A94 and A152) and seven dykes (Naujaat 1 to 4 and 6 to 8). A total of 997.6 kg of material were collected from the seven Naujaat dykes through trenching/surface collection. No unweathered kimberlite could be obtained from Naujaat 5. A total of 2,411.2 kg of material were collected from the six additional pipes through diamond drill core sampling. The remaining 2,944.0 kg were collected from Q1-4 through trenching (317.9 kg) and diamond drill core (2,626.1 kg) sampling.
- Macrodiamond sampling consisted of 262.9 t of kimberlite from Q1-4 (A28a, A48a, A48b, A61a and A88a) and four dykes (Naujaat 1, Naujaat 2, Naujaat 3 and Naujaat 6). Approximately 5.2 t of material were collected from the four Naujaat dykes through trenching/surface collection. The remaining 257.7 t were collected from Q1-4 through trenching (24.5 t), diamond drill core (9.1 t) and RC (224.1 t) drill hole sampling.
- The Mineral Resource Estimate for the Q1-4 kimberlite pipe comprises the integration of kimberlite volumes, density, petrology and diamond content-data obtained from 5,133 m of diamond drilling, 2,714 m of RC drilling, 2.9 t of samples submitted for microdiamond analysis, 257.7 t of samples submitted for macrodiamond sampling with 2.36 cts of diamonds (69 stones) recovered from HQ diameter diamond drilling, 59.2 cts of diamonds (2,054 stones) recovered from RC drilling, and 7.5 cts of diamonds (205 stones) recovered from surface trenching.
- The Inferred Mineral Resource for the Q1-4 kimberlite pipe are estimated to be 48.8 million t at a grade of 53.6 cpht, containing 26.1 million cts.
- There is additional potential for the Qilalugaq Property, as the geological model for Q1-4 is based on a conservative shape for the kimberlite at depth, and the evaluation model does not incorporate areas of limited drilling at depth. Total TFFE was identified as representing between 14.1 and 16.6 million t, containing between 7.9 and 9.3 million cts of diamonds, at an average grade of 56.1 cpht. This was defined on a basis of geological modelling and limited delineation drilling. The potential quantity and grade of any TFFE is conceptual in nature, there is insufficient exploration to define a mineral resource and



it is uncertain whether additional exploration will result in the target being delineated as a Mineral Resource.

- There are no Indicated Mineral Resources or Mineral Reserves estimated for the Q1-4 kimberlite pipe. More drilling is needed to better define the pipe shape, which could affect the tonnage and allow upgrading of the resource. A larger sample of kimberlite is needed to better represent the diamond parcel within the body.

Considering the risks inherent in all kimberlite deposits, such as sampling for geological continuity, diamond grade and diamond revenue determination, the Inferred classification of the Mineral Resource is considered suitable.

26.0 RECOMMENDATIONS

The following section presents recommendations from the QPs to advance the Qilalugaq project. Cost estimates for the recommended work are included in each section.

A 1,500 t surface sampling program is recommended for A28a to collect an approximately 500 carat parcel of diamonds to better determine diamond grade, size distribution, diamond parcel value, and to establish whether or not the yellow diamonds persist into the larger diamond sizes. This program would cost in the order of \$3.4 million to collect, ship and process (see budget below). The necessary regulatory approvals for the proposed program have been obtained.

<u>Budget Item</u>	<u>Estimated Cost</u>
• Field Collection of Sample Material (collection costs includes salaries, flights, helicopter, camp costs, equipment, logistics etc.)	\$1,300,000
• Shipping Costs	\$930,000
• Sample Processing and Diamond Extraction Costs	\$770,000
• Diamond Valuation and Miscellaneous Handling	\$105,000
• Contingency (~10%)	<u>\$310,000</u>
Total Project Cost	\$3,415,000



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