TECHNICAL REPORT ON THE JACKSON INLET PROPERTY, BRODEUR PENINSULA, NUNAVUT, CANADA

FOR

TWIN MINING CORPORATION

March 13, 2006
Toronto, Ontario, Canada

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1.0 SUMMARY

The Jackson Inlet Property is located 3,350 km north northwest of Toronto Canada on the Brodeur Peninsula of Baffin Island, Qikiqtani Region, Nunavut, Canada. The Property lies approximately 120 km west of the community of Arctic Bay, and 1,300 km northwest of Iqaluit, the capital of Nunavut.

The Freightrain and Cargo 1 Kimberlite Prospects have been the principal targets of exploration by Twin Mining on the Property and occur at elevations of approximately 300 masl.

Land Tenure:

The Property consists of 312 mineral claims covering an area of 731,834.95 acres (296,163.07 hectares). One contiguous block of 272 claims forms an irregular rectangular area extending approximately 65 to75 km north-south and 30 to 70 km east-west. A series of six small claim blocks consisting of either single claims or groups up to 18 claims lie peripheral to the large block on the west and south.

The mineral claims that form the Property are grouped into those acquired prior to January 1, 2003, and subject to the Claims Purchase Agreement and Amended Agreement Between Twin Mining and Helix Resources Inc discussed in subsection 4.2.2, (Helix Agreement Claims), and those staked on or after January 1, 2003, (Non-Helix Agreement Claims) [38]. A further division of each group has been made into three categories based on the work credits and estimated amounts of cash deposits to meet shortfalls in work credits that are anticipated to be required to keep the mineral claims in good standing upon receiving approval of renewals for 2005 from the Nunavut government. Estimates of deposits were made D. Davis, geological consultant for Twin Mining, assuming credits are approved as requested by the company.

Complicating matters is that the assessment work credits submitted to meet anniversary dates in 2005 have not yet been approved by the government as of March 13, 2006, the effective date of this report, and thus Twin Mining has estimated the anticipated shortfalls and deposits that are shown in Tables 4.1 to 4.3A. Further, the anniversary dates for renewal in 2006 begin in late March 2006 and as a result, Twin Mining has also estimated the anticipated shortfalls and deposits that will be required for renewals requested in 2006. As a result, combined estimates for 2005 and 2006 and the number of mineral claims involved are shown in Tables 4.1 to 4.3 and total some $1,528,000. Deposits are returned upon approval of work credits.

Geology and Mineralization:

The geological history in the Northern Baffin Island Region is complex, and excluding the kimberlites which are undated, is characterized by four main assemblages as summarized below, which are present on the Property although bedrock is dominated by the Brodeur Group carbonates:

Eclipse Trough (Cretaceous-Eocene)

Eclipse Group (1200 to 1600 m): sediments, hydrocarbons.

Kimberlite Intrusions (Cretaceous?)

Freightrain (Zulu-1), Cargo-1, Tuwawi, Nanuk, Kuuriaq, 5 Borden Peninsula Occurrences, Somerset Island Kimberlites (19 bodies) 105-88 Ma

Prince Regent Basin (Early Cambrian to Early Silurian)

Brodeur Group (0-896 m) – carbonates

Ship Point Formation (45-274 m) – carbonates, sandstones, shales

Admiralty Group (0-650 m) – sandstone, dolomites, clastic sediments, oolitic iron (Polaris Zn-Pb-Ag Mine 400 km NW)

Franklin Dykes - (Late-Proterozoic ~732 Ma)

Borden Rift Basin (Mid-Proterozoic 1.19-1.27 Ga),

Bylot Supergroup (6,000 m) - volcanics – sediments :

(Nanisivik Pb-Zn-Pb-Ag Mine 125 km E)

Archean Rae Tectonic Domain (formerly the Committee Fold Belt)

Felsic Intrusives - monzogranite, quartz monzonite.

Mafic and Ultramafic Intrusives - gabbros, pyroxenites, serpentinites.

Mary River Group - greenstone-(basalt-komatiite- IF) belts (2759 - 2718 Ma):

Mafic dyke swarms

Granite gneiss, granodiorite basement terrane.

The Archean Rae Tectonic Domain (also commonly known as the Committee Fold Belt in this region) extends for more than 3000 km northeastward from south of the Athabasca Basin in Saskatchewan through northern Baffin Island and along the eastern half of Ellesmere Island. It is likely that Archean granite gneiss-greenstone rocks of the Rae Tectonic Domain are the basement rocks on the Property.

For ease of reference, the overall Property can be divided into the following elements at varying stages of exploration:

Freightrain Kimberlite Prospect: The Freightrain Kimberlite Prospect is located on mining claim Freightrain (refer to Figure 4-2), and together with the area immediately to the northeast and southwest has seen the majority of the sampling and drilling on the Property by Twin Mining. Despite being tested with 17 core holes, 3 RC holes and 8 mini bulk samples, the geometry and geology of the prospect is poorly understood. A total of 955 macrodiamonds weighing 49.852 carats have been recovered from 246.60 tonnes of kimberlite extracted in the two mini-bulk sampling programs. The largest stone recovered by Twin Mining weighs 1.557 carats. The majority of this report focuses on the Freightrain Kimberlite Prospect with some discussion of the other prospect areas and exploration targets.

Cargo-1 Kimberlite Prospect: The Cargo-1 Kimberlite Prospect is located on Claim BP7 (F71435) and approximately 4.5 km northeast of the Freightrain Prospect, and has been explored with limited drilling and core sampling. A total of 464 diamonds including 47 macrodiamonds have been recovered from 1942.72 kg of kimberlite submitted for caustic dissolution microdiamond analysis. The total weight of the diamonds recovered is less than 0.25 carats and the largest two stones recovered are 0.0869 carats and 0.0269 carats. The geometry and geology of the prospect is poorly understood, but it does appear to be simpler than at Freightrain based on all data collected to date.

Kimberlite Fragment Corridor Area: this refers to a 1700 m long NE –SW trending area with scattered kimberlite fragments (on frost boil surfaces) that passes through the Cargo-1 Kimberlite Prospect for 700 m to the NE and 1000 m to the SW. Twin Mining geologists have suggested that the scattered fragments may reflect a dyke-like body possibly with a few enlargements or blows. A total of 13 microdiamonds were recovered from 50.51 kg of kimberlite fragments. An RC hole drilled 330m NE of the Cargo-1 Pipe intersected 1.6m of kimberlite dyke material in a 60^{o} inclined hole, further providing evidence of the body.

Jackson Inlet West Block: refers to the NW portion of the Property including the Freightrain and Cargo-1 Kimberlite Prospects and reflects the block of claims surveyed as Block 1 by an airborne magnetometer survey under an agreement with Kennecott Canada Exploration in 2004, since terminated. Portions of the block exclusive of the two prospects areas have been subjected to limited drilling, follow-up ground geophysics and soil sampling and hosts untested or unexplained geophysical and geochemical targets.

Jackson Inlet East Block: refers mainly to the north-central portion of the Property and reflects the block of claims surveyed as Block 2 by an airborne magnetometer survey under an agreement with Kennecott Canada Exploration in 2004, since terminated. Portions have been subjected to limited drill testing, follow-up ground geophysics and soil sampling, and hosts untested or unexplained geophysical and geochemical targets.

Vista Block: refers to areas exclusive of the aforementioned Jackson Inlet East and West Blocks, mainly in the north eastern portion and the southern half of the Property that has been explored mainly with airborne geophysics, reconnaissance soil and stream sediment sampling, and limited RC drilling.

Conclusions:

Work-to-date at Jackson Inlet has been extensive, and has served to demonstrate that potentially significant diamond deposits exist at Freightrain and Cargo-1, and that there is potential to discover more within Twin Mining's overall Brodeur Peninsula land position.

The large body of regional exploration is deemed by MPH sufficient to justify an aggressive discovery-oriented program within the Property but with extensive pre-field processing, and further analysis of the data needed to help prioritize geophysical and geochemical (KIM) anomalies. Similarly, the work on the known kimberlites is also deemed sufficient to plan and implement advanced evaluations of the known kimberlite bodies. MPH is confident that for the most part, industry best-practises have been followed on all programs and data integrity are intact.

The one rather important exception is the lack of sample spiking, duplicates samples, umpire laboratories and auditing of the microdiamond sampling programmes, and subsequent discarding of virtually all residues. As well, all tails and concentrates from the bulk sample programmes have similarly been discarded by Twin Mining. In essence this means that results as reported herein must be regarded as final, and no revisions upward of the mineralization results to date is possible, by reprocessing and optimizing previous work.

MPH believes that there is sufficient tonnage potential with the known bodies at Jackson Inlet to develop a similar sized operation to Jericho of Tahera Diamond Corporation, Canada's smallest diamond mine with ~5.5Mt of reserves and resources grading 0.85cpt and diamonds valued at C$145, which is designed to produce at 75tph. Simplistically, one might expect that for Brodeur, with access to tidewater only 12km from Freightrain for supplies such as fuel (and a longer shipping season than the NWT winter road), and with generally superior geological conditions for mining, overall revenue per tonne requirements may be considerably less than Jericho's ~C$120/t. Also, and for the same reasons, overall capital may be considerably less in that a modular process plant, and other major infrastructural buildings can be barge mounted in warmer climes, and simply floated to Jackson Inlet and commissioned. These cost parameters need to be established.

The Freightrain Kimberlite Prospect has been shown to occur sporadically over a surface area of approximately 125m x 400m, on the basis of limited local pitting (~240t from six sites) and magnetic surveying, with a very limited program of core drilling unable to demonstrate physical continuity between showings, nor correlation with the ground geophysical data which needs to be investigated. Thus far the deepest intersection of kimberlite is at ~220m vertical, which demonstrates some measure of depth extent and continuity. MPH considers Freightrain best described as a system of genetically related blows and dykes until such time as detailed exploration demonstrates otherwise.

A large body of microdiamond sampling from surface and core, macrodiamond sampling from small local pits, mineral chemistry interpretations, petrographic observations and statistical modelling of potential grades, by Twin's independent consultants and also by De Beers internal experts, have all been positive. Overall grade estimate forecasts for the Freightrain system range between 28cpht (De Beers) to 40cpht (AMEC), but most importantly in MPH's opinion, are demonstrating a coarse size frequency distribution, which bodes well for large stones and high values in most deposits. Initial indicative comments received by Twin Mining on the quality of the ~46 carats recovered thus far are highly encouraging in terms of quality, but must be substantiated with independent expert valuations and value modelling.

MPH notes though that all macrodiamond work has been derived from spot surface localities for which representivity are not understood at present. Much work needs to be done in order to concisely understand the prospect's overall size, shape, geology and emplacement model, all of which have a bearing on the grade results to date, and on the overall economic potential of this deposit and the project as a whole.

The Cargo-1 Kimberlite Prospect appears on the basis of geophysics and limited core drilling (and associated petrographic/kimberlitic indicator mineral analysis) carried out thus far, to be a single discrete pipe-like intrusion approximately 150m x 50m in longest dimensions. An associated dyke-like body of unknown dimensions is indicated to be present to both the Northeast and Southwest of Cargo-1 (The Kimberlite Fragment Corridor), which has blow-like enlargements along it as demonstrated by the small satellite geophysical feature drilled by hole CG-05, immediately to the NE of the main Cargo-1 magnetic feature. This may or may not be contiguous with the main body.

Cargo-1 has begun to demonstrate geological continuity from the five core holes drilled to-date, and on the basis of microdiamond sampling, mineral chemistry interpretations and petrographic observations, Cargo-1 appears to rank slightly below Freightrain in terms of grade expectations. MPH would add however that vertical hole JI-CG1-04, which appears closest to the centre of the pipe, does seem to be demonstrating similar grade potential to the better Freightrain microdiamond and macrodiamond results.

Again MPH would add that this is a poorly understood deposit at present in terms of the representivity of these samples, and in its overall size, shape, morphology and emplacement model.

The Kimberlite Fragment Corridor Area, extends ~700 m NE from the Cargo-1 Kimberlite Prospect and for 1000 m to the SW towards the Freightrain Kimberlite Prospect. Twin Mining geologists interpreted the fragments to originate from kimberlite bodies beneath and brought to surface by frost boil action. They were mapped to occur across widths up to 50 m and three samples totalling 50.51 kg were collected from separate portions along the 1700 m length were found to contain low numbers of microdiamonds that, combined with petrographic interpretations and proximity, suggest similarity to Cargo-1. One inclined RC hole has confirmed the existence of a thin dyke-like body 330m NE of Cargo-1, beneath kimberlite fragments on surface. This corridor needs systematic trenching and core drilling, initially along 100m centres to better understand these occurrences.

Recommendations:

A two-pronged approach is advocated as follows:

Freightrain - Cargo-1 Advanced Exploration

In MPH's opinion, it is imperative that this system be concisely delineated and evaluated during 2006 to establish resources to at least high confidence Inferred Status under NI 43-101 policy to enable a Scoping Study to be completed, which if positive, would trigger a Pre-feasibility Study in 2007. In order to meet the timelines, this will require a detailed exploration program in 2006 to construct a sound geological and grade model for each deposit, such work to include a combination of geophysics, core drilling, systematic mechanical surface trenching, and mini-bulk sampling of all thus-far un-sampled deposits, to allow for first-order estimates of volume, tonnes, grade and revenue for a conceptual mining project at Jackson's Inlet. The onus will be on establishing high-confidence micro-macrodiamond databases for each deposit at surface, allowing for extrapolation to depth from the core-derived microdiamond information for grade estimates.

The combined mechanical trenching, mini-bulk sampling and core drilling program will be designed to provide the following information for the Scoping Study, and subsequent Pre-feasibility Study:

i. Concise geological and structural models
ii. Systematic macro- and microdiamond sample database for grade models
iii. Mini-bulk sample material for process testwork and macrodiamond recovery data as well as parcel valuation and value modelling
iv. Rock quality data
v. Resource estimates
vi. Preliminary pit design modeling

A positive Scoping Study completed in late 2006 would allow for the planning and implementation of a Pre-feasibility Study in the first half of 2007. The field component of the Pre-feasibility would be dominated by environmental and large diameter drilling programs as well as further delineation drilling, general site layout, surveying and engineering studies. The camp and airstrip would need to be upgraded, and as well as wharf and storage buildings would need to be constructed at Jackson Inlet.

Regional Exploration

Prior to next season's field program, MPH strongly recommends a thorough re-assessment, re-processing and re-interpretation of the geophysical data along with compilation of the multidisciplinary aspects of the database in a GIS digital format.

A conceptual estimate of the program costs, based on Twin Mining's past expenditures and present industry rates from quotations, is as follows covering all office, administrative and field aspects of implementing the recommended program:

I)	Data compilations, upgrading and project planning	$ 100,000
	Mobilization/Demobilization inc. samples, equipment etc. ~estimate	$ 500,000
		$ 600,000
II)	Trenching of Freightrain, Cargo-1 and Corridor Kimberlites ~5,000m	$1,000,000
	Mini-bulk Sampling of ~850-1000 tonnes, including explosives ~400m3 @ $1000/m3	$ 400,000
	Macrodiamond Sample Processing and Diamond Recovery ~1,000t @ $1000/t.	$1,000,000
		$2,400,000
III)	Delineation HQ coring of Freightrain, Cargo-1 and Corridor	

	~8,000m @ $200/m	$1,600,000
	Regional NQ coring of ~20 targets ~2,000m @ $200/m	$ 400,000
	Microdiamond Samples of Freightrain, Cargo-1 and Corridor (surface and core, also of any discoveries)~5,000kg @ $100/kg.	$ 500,000
		$2,500,000
IV)	Geological, Geophysical, Consulting and Contracting Staff	$ 400,000
	Expediting, Camp Upgrades and Support Costs	$ 500,000
	Aircraft Support	$ 500,000
		$1,400,000
V)	Project and Scoping Study Reporting	**$ 100,000**
	Grand Total	**$7,000,000**

This program would constitute the definitive evaluation of the Freightrain and Cargo-1 prospects and with success should lead to pre-feasibility evaluations. The Regional Exploration component should also be definitive in discovering more kimberlites on Twin Mining's property should they exist, which if proven diamondiferous with the discovery hole, would trigger similar delineation-type programs later in 2006 or very early in 2007.

2.0 INTRODUCTION AND TERMS OF REFERENCE

2.1. Introduction

Twin Mining Corporation ("Twin Mining") commissioned MPH Consulting Limited ("MPH") on March 1, 2006 to provide an independent Qualified Person's Review and Technical Report for the Jackson Inlet Diamond Property (the Property) located on the Brodeur Peninsula of Baffin Island in Nunavut, Canada (Fig. 2-1). The Property is at an intermediate stage of exploration as approximately 50 carats of gem quality diamonds were recovered in small scale bulk sampling of two kimberlite prospects in 2000 and 2001. The remainder of the Property has been explored with limited drilling as the exploration focus from 2002 to 2005 was to develop new follow-up targets through several programs of geophysical surveying and geochemical sampling.

Miron Berezowsky, P.Eng., Senior Geological Consultant (MPH Associate), Paul Sobie, P.Geo., MPH Vice-President and Principal Diamond Consultant, Howard Coates, P. Geo., MPH Vice-President and J. Brett, P.Geo., (MPH Associate) served as the Qualified Persons responsible for the preparation of the Technical Report as defined in National Instrument 43-101, Standards of Disclosure for Mineral Projects, and in compliance with Form 43-101F1 (the "report"). Mr. Berezowsky completed all or portions of Sections 2 to 7, 9 to13, and 15 to 18, Mr. Brett, geophysicist, completed Section 10.7, Mr. Sobie completed Sections 1, 9, 14, 19 and 20, and portions of Sections 2 and 7. Mr. Coates completed portions of Sections 2 and 12 to 14.

MPH understands that the technical report will be used by Twin Mining for the purpose of raising funds for future exploration on the Property and for regulatory requirements.

2.2. Terms of Reference

MPH is not an associate or affiliate Twin Mining, or of any associated company. MPH's fee for this technical report is not dependent in whole or in part on any prior or future engagement or understanding resulting from the conclusions of this report. This fee is in accordance with standard industry fees for work of this nature and is based solely on the approximate time needed to assess the various data and reach the appropriate conclusions.

In preparing this report, MPH relied on geological reports, maps and miscellaneous technical papers listed in the References section at the conclusion of this report.

A Qualified Persons technical report prepared for Twin Mining under National Instrument 43-101 completed in 2003 is on file on www.sedar.com. The report is titled:

> *R. Roy, P. Geol. and J. Lindsay, P.Eng. 2003. Report on the Jackson Inlet Property, Brodeur Peninsula, Nunavut, Canada, a report for Twin Mining Corp., February 2003, 38 p, (posted March 5, 2003)*

Two additional technical reports submitted by Twin Mining and filed on www.sedar.com are as follows:

> *B.C .Jago, P. Geol. 2001. Diamond Indicator Mineral Extraction, Selection, Analysis and Interpretation: Jackson Inlet Bulk Samples #1 and #2 – Spring*

Processing Campaign, Lakefield Research, for Twin Mining Corp., Nov. 15, 2001, 31 p. (posted Feb. 20,2001)

C. St.Hilaire. 2001. Combined Magnetic and Electromagnetic Helicopter Survey, Arctic Bay, Baffin Island, Fugro SIAL Airborne Surveys Inc. a report for Twin Mining Corp.,,July 2001, 58 p, (posted February 20, 2002)

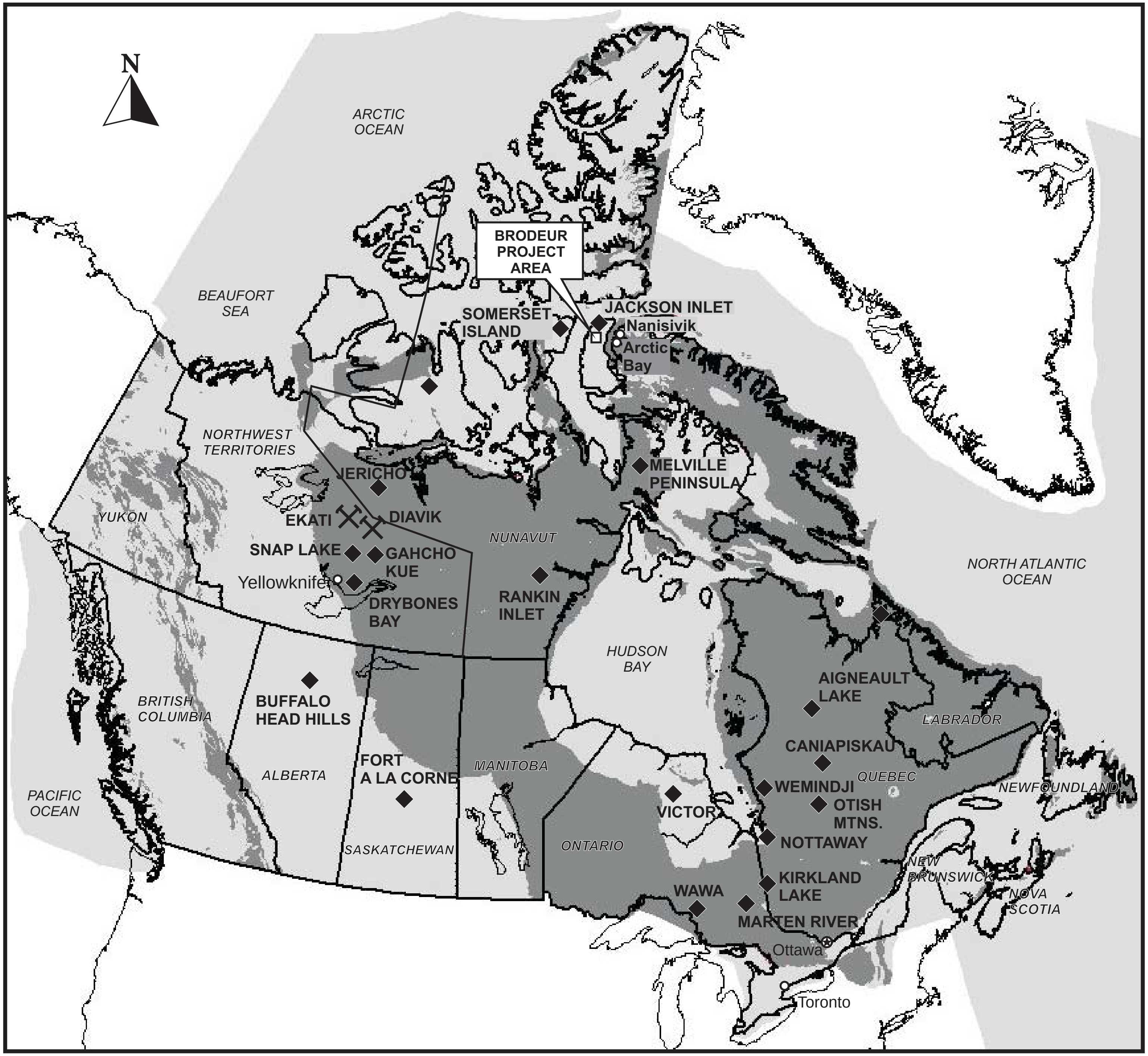
Much of the information and technical data for MPH's review and report were obtained from data provided by Mr. Dallas Davis, P. Eng., Senior Geological Consultant for Twin Mining and Mr. Hermann Derbuch, P. Eng., Chairman, President and Chief Executive Officer of Twin Mining. Mr. Berezowsky visited the Twin Mining office in Toronto on March 9 and March 10 to review additional background data with Mr. Davis, and Mr. Davis visited the MPH office on March 29, 30 and 31, 2006 and provided additional technical data.

MPH consultants Mr. Sobie and Mr. Coates made a total of three field visits to the Property during 2001 for the purposes of geological consulting in the case of Mr. Sobie during the Fall 2001 mini-bulk sampling and core drilling program, and for QA/QC purposes by Mr. Coates during the both of the 2001 mini-bulk sampling programs.

Mr. W.J. Anderson, P. Geol., MPH President completed the peer review of this report.

This report is based on information known to MPH as of March 13, 2006.

All measurement units used in this report are metric, and currency is expressed in Canadian Dollars. The exchange rate on March 13, 2006 was US $1.00 equal to 1.16 Canadian Dollars.



TWIN MINING CORPORATION

JACKSON INLET PROPERTY

LOCATION MAP

MAP REF. NO.: 2018 2-1	MODIFIED BY: S.N.
SCALE: AS SHOWN	DRAWN: MPH TORONTO
FIGURE: 2-1	DATE: MAR 2006

MPH CONSULTING LIMITED *International Exploration & Mining Consultants*

3.0 RELIANCE ON OTHER EXPERTS

MPH has not reviewed the land tenure, nor independently verified the legal status or ownership of the Property or underlying option agreement. The results and opinions expressed in this report are based on MPH's field observations and review of the geological and technical data listed in the References. While MPH has carefully reviewed all of the information provided by Twin Mining, and believes the information to be reliable, MPH has not conducted an in-depth independent investigation to verify its accuracy and completeness.

The results and opinions expressed in this report are conditional upon the aforementioned geological and legal information being current, accurate, and complete as of the date of this report, and the understanding that no information has been withheld that would affect the conclusions made herein.

Several persons have been Qualified Persons for the Property and MPH has relied on technical data provided by the following:

Mr. Dallas Davis, P. Eng., Senior Consultant to Twin Mining and Qualified Person for the purpose of the field aspects of the project during 2000 through to 2006.

Mr. Richard Roy, P. Geol., NordQuest Inc., was the Qualified Person and Project Manager of exploration on the Jackson Inlet Property in 2001, 2002 and 2003.

Mr. Bruce Craig Jago, P. Geol. SGS Lakefield Research Laboratory ("SGS Lakefield"), was the independent Qualified Person who established and monitored data verification quality control and quality assurance policies and procedures with respect to the caustic dissolution and diamond recovery conducted by SGS Lakefield for the Jackson Inlet Project during the period of 2000-2006.

Mr. John Lindsay, P. Eng., AMEC Mining and Metals Consulting, was the independent Qualified Person who established and monitored data verification quality control and quality assurance policies and procedures with respect to the caustic dissolution and diamond recovery conducted by SGS Lakefield for the mini- bulk kimberlite samples collected on the Property in 2001, and other samples in 2001 and 2002.

During the period 2000-2002, Mr. Howard Coates, P. Eng., of MPH Consulting Ltd. was engaged as an independent consultant to audit and offer advice on the quality control procedures governing the physical acquisition and transportation of samples from Twin Mining's field sites to the processing laboratory. While Mr. Coates visited the site during each of the field programs, Mr. Coates was not on site for the duration or even a significant portion of the programs. Mr. Coates was present at the loading of the trucks at the port of Valleyfield, Quebec and the unloading at SGS Lakefield.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1. Location

The Jackson Inlet Property is located 3,350 km north northwest of Toronto, Canada on the Brodeur Peninsula of Baffin Island, Qikiqtani Region, Nunavut, Canada. The Property lies approximately 120 km west of the community of Arctic Bay, and 1,300 km northwest of Iqaluit, the capital of Nunavut. (Figures 2-1 and 4-1).

The Property is centered at approximately latitude 73° 00’ N and longitude 87° 30’W or UTM coordinates 8 100 000 m N and 485 000 m E. with datum set to North American Datum 1927 (Nad27) and UTM Zone 16, and within the Canadian National Topographic System (NTS) areas Fitzgerald Bay (58A), Cape Clarence (58D), Moffit Inlet (48B) and Arctic Bay (48C). Elevations on the Property range from sea level to approximately 390 masl[6].

The Freightrain and Cargo 1 Kimberlite Prospects have been the principal targets of exploration by Twin Mining on the Property and occur at elevations of approximately 300 masl.

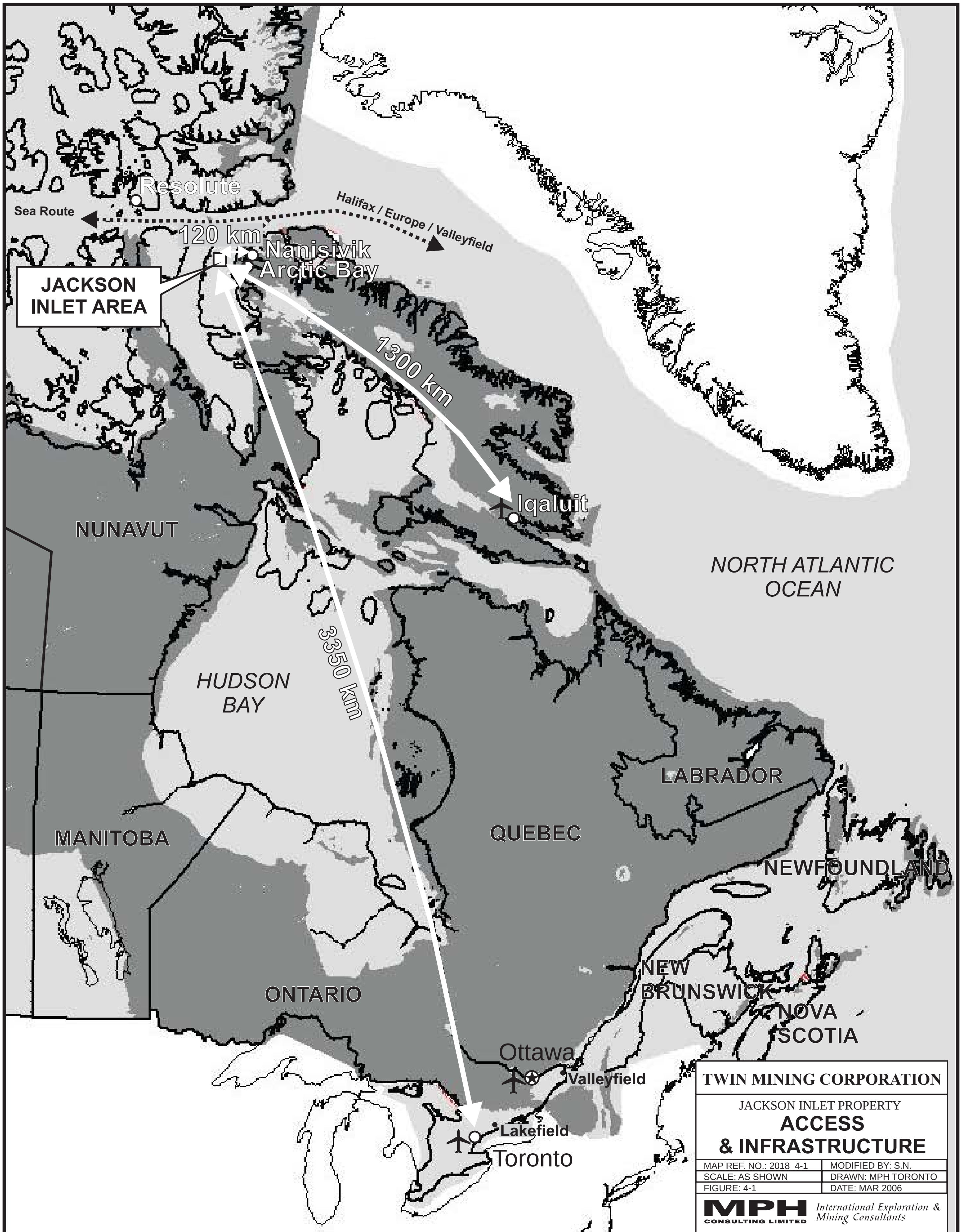
4.2. Land Tenure

4.2.1 General

As shown on Figure 4-2 and summarized in Tables 4.1 to 4.3, the Property consists of 312 mineral claims covering an area of 731,834.95 acres (296,163.07 hectares). The bulk of the Property consists of one contiguous block of 272 claims forming an irregular rectangular area extending approximately 65 to75 km north-south and 30 to 70 km east-west. A series of six small claim blocks consisting of either single claims or groups up to 18 claims lie peripheral to the large block on the west and south[38].

As shown on Table 4.1, the mineral claims that form the Property are grouped into those acquired prior to January 1, 2003, and subject to the Claims Purchase Agreement and Amended Agreement Between Twin Mining and Helix Resources Inc. discussed in subsection 4.2.2, (Helix Agreement Claims), and into those staked on or after January 1, 2003, (Non-Helix Agreement Claims) [38].

A further division of each group has been made into three categories based on the work credits and estimated amounts of cash deposits to meet shortfalls in work credits that are anticipated to be required to keep the mineral claims in good standing upon receiving approval of renewals for 2005 from the Nunavut government. Estimates of deposits were made D. Davis, geological consultant for Twin Mining, assuming credits are approved as requested by the company.



Resolute
Sea Route
Halifax / Europe / Valleyfield
120 km
Nanisivik
Arctic Bay
JACKSON INLET AREA
1300 km
Iqaluit
NUNAVUT
NORTH ATLANTIC OCEAN
HUDSON BAY
3350 km
LABRADOR
MANITOBA
QUEBEC
NEWFOUNDLAND
NEW BRUNSWICK
NOVA SCOTIA
ONTARIO
Ottawa
Valleyfield
Lakefield
Toronto
TWIN MINING CORPORATION
JACKSON INLET PROPERTY
ACCESS & INFRASTRUCTURE
MAP REF. NO.: 2018 4-1
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FIGURE: 4-1
DATE: MAR 2006
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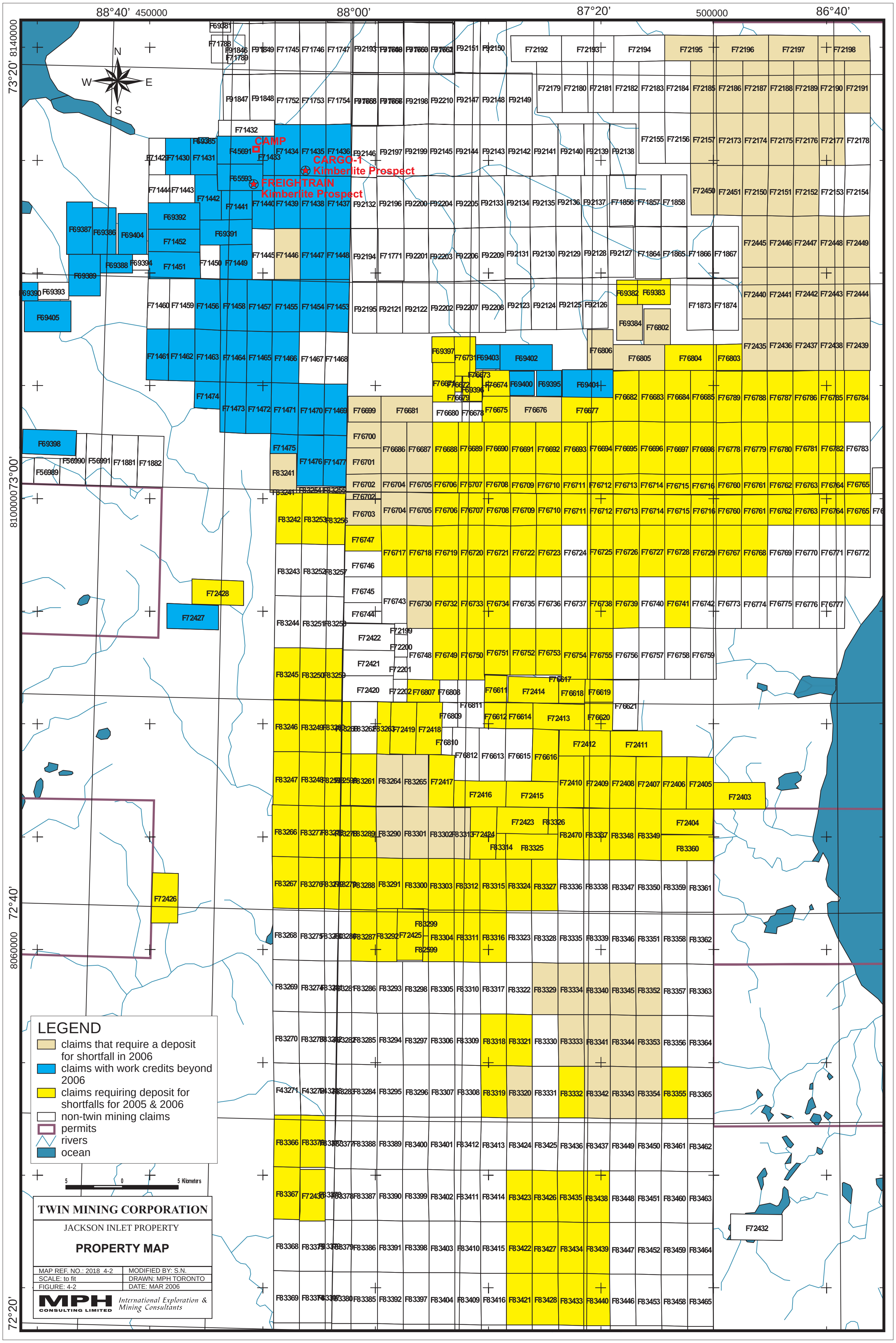

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8100000 73°00'
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N
S
W
E
CAMP
CARGO-1
Kimberlite Prospect
FREIGHTRAIN
Kimberlite Prospect
LEGEND
claims that require a deposit for shortfall in 2006
claims with work credits beyond 2006
claims requiring deposit for shortfalls for 2005 & 2006
non-twin mining claims
permits
rivers
ocean
5 0 5 Kilometers
TWIN MINING CORPORATION
JACKSON INLET PROPERTY
PROPERTY MAP
MAP REF. NO.: 2018 4-2
MODIFIED BY: S.N.
SCALE: to fit
DRAWN: MPH TORONTO
FIGURE: 4-2
DATE: MAR 2006
MPH CONSULTING LIMITED
International Exploration & Mining Consultants

Complicating matters is that the assessment work credits submitted to meet anniversary dates in 2005 have not yet been approved by the government as of March 13, 2006, the effective date of this report, and thus Twin Mining has estimated the anticipated shortfalls and deposits that are shown in Tables 4.1 to 4.3B. Colour coding on the claims tables is yellow for those with both 2004 and 2005 shortfalls, beige for those with 2004 shortfalls and blue for those in good standing.

A further complication is that the anniversary dates for renewal in 2006 begin in late March 2006 and as a result, Twin Mining has also estimated the anticipated shortfalls and deposits that will be required for renewals requested in 2006. As a result, combined estimates for 2005 and 2006 and the number of mineral claims involved are shown in Tables 4.1 to 4.3. It should be noted that the estimated deposit amounts shown in Table 4.1 are total amounts that have been estimated if deposits are made for all of the claims, and it is unknown at this time which claims Twin Mining will elect to keep in good standing with payment of deposit. Deposits maybe returned upon approval of work credits.

Table 4.1 – Jackson Inlet Property – Mineral Claim Summary[38]

	Claims Under Helix Agreement	Claims Not Under Helix Agreement	Totals for Property
Total Active Claims	86	226	312
Areas of Active Claims (acres)	195,449.85	536,385.10	731,834.95
Claims allowed to Lapse in 2005	20	200	220
Claims with Work Credits Beyond 2006	57	0	57
Claims Requiring Deposit for Shortfalls for 2005	27	152	179
Estimated Deposit Required for Shortfalls for 2005	$ 96,423	$ 470, 510	$566,933
Additional Claims Requiring Deposit for 2006	2	74	76
Total Claims Requiring Deposit for 2006	29	226	255
Estimated Deposit Required for Shortfalls for 2006	$ 130,831	$ 830,808	$ 961,639
Estimated Deposit Required for Shortfalls for 2005 and 2006	$ 227,254	$ 1,301,318	$ 1,528,572

MPH relies on the terms and the land tenure documentation supplied by Twin Mining[38,31,]. The application dates for each of the mineral claims are shown in Tables 4-2, 4-2a, 4-3 and 4-3a. MPH has not reviewed the mineral titles or agreements to assess the validity of the stated ownership as an independent verification was not part of the scope of this assignment.

The boundaries of the mineral claims have not been surveyed as this is not a requirement at this stage of exploration in Nunavut. According to Twin Mining geologists, the corners of the mining claims are marked in the field by wooden posts 4 feet in length and 2” by 2” in width and thickness.

The locations of the known prospects on the Property are shown on Figure 4.2. For ease of reference, the overall Property can be divided into the following elements at varying stages of exploration (see Figure 4.2):

Freightrain Kimberlite Prospect: The Freightrain Kimberlite Prospect is located on mining claim Freightrain (F65593) (refer to Figure 4-2), and together with the area immediately to the northeast and southwest has seen the majority of the sampling and drilling on the Property by Twin Mining. Despite being tested with 17 core holes, 3 RC holes and 8 mini bulk samples, the geometry and geology of the prospect is poorly understood. A total of 955 macrodiamonds weighing 49.852 carats have been recovered from 246.60 tonnes of kimberlite extracted in the two mini-bulk sampling programs. The largest stone recovered by Twin Mining weighs 1.557 carats. The majority of this report focuses on the Freightrain Kimberlite Prospect with some discussion of the other prospect areas and exploration targets.

Cargo-1 Kimberlite Prospect: The Cargo-1 Kimberlite Prospect is located on Claim BP7 (F71435) and approximately 4.5 km northeast of the Freightrain Prospect, and has been explored with limited drilling and core sampling[35]. A total of 464 diamonds including 47 macrodiamonds have been recovered from 1942.72 kg of kimberlite submitted for caustic dissolution microdiamond analysis. The total weight of the diamonds recovered is less than 0.25 carats and the largest two stones recovered are 0.0869 carats and 0.0269 carats[35]. The geometry and geology of the prospect is poorly understood.

Kimberlite Fragment Corridor Area: this refers to a 1700 m long NE –SW trending area with scattered kimberlite fragments (on frost boil surfaces) that passes through the Cargo-1 Kimberlite Prospect for 700 m to the NE and 1000 m to the SW. Twin Mining geologists have suggested that the scattered fragments may reflect a dyke-like body possibly with a few enlargements or blows[35]. A total of 13 microdiamonds were recovered from 50.51 kg of kimberlite fragments.

Tables 4-2 Land Tenure Details for All Mineral Claims Under Helix Agreement

Table 4.2- Summary of Claims held Under Helix Agreement (includes claims allowed to lapse)

Claim Name	Claim No.	Area Acres	Recording Date	Renewal Date	Status after 2004 Renewal	Amount Required for 2005 Renewal	Assumed Status After 2005 Renewal	Amount Required for 2006 Renewal	Assumed Shortfall in 2006 incl 2005	Deposit Expected for 2005
SLOT	F45691	2,324.25	01-Sep-98	01-Sep-08	148605.36	4648.50	143956.86	4648.50	0.00	
FREIGHTR	F65593	2,324.25	01-Sep-98	01-Sep-08	203832.04	4648.50	199183.54	4648.50	0.00	
JOEL	F69382	1,033.00	05-Jun-00	05-Jun-05	-2587.04	2066.00	-2853.34	2066.00	-4919.34	2853.34
FIONA	F69383	1,807.75	05-Jun-00	05-Jun-05	-4527.33	3615.50	-4993.35	3615.50	-8608.85	4993.35
DALLAS	F69384	1,807.75	05-Jun-00	05-Jun-05	-4527.33	3615.50	2318.55	3615.50	-1296.95	
HERMANN	F69404	2,169.30	28-Jun-01	28-Jun-05	2208.32	4338.60	6644.01	4338.60	0.00	
BRITTA	F69394	464.85	25-May-01	25-May-05	883.20	929.70	-46.50	929.70	Al. to Lapse	
TRUDY	F69386	2,324.25	05-Jun-00	05-Jun-05	767.44	4648.50	5519.96	4648.50	0.00	
JASON	F69389	2,479.20	05-Jun-00	05-Jun-05	-3612.63	4958.40	1456.73	4958.40	0.00	
ROBYN	F69393	1,239.60	25-May-01	25-May-05	4.64	2479.20	-2474.56	2479.20	Al. to Lapse	
KRISTA	F69390	619.80	05-Jun-00	05-Jun-05	1.58	1239.60	1268.92	1239.60	0.00	
ANDREA	F69391	2,582.50	05-Jun-00	05-Jun-05	3353.95	5165.00	8634.53	5165.00	0.00	
BP-13	F71441	1,993.70	27-Mar-01	27-Mar-05	22199.11	3987.40	26275.74	3987.40	0.00	
JAMIE	F69387	2,582.50	05-Jun-00	05-Jun-05	-258.40	5165.00	5869.05	5165.00	0.00	
SARA	F69388	1,239.60	05-Jun-00	05-Jun-05	875.97	2479.20	3410.65	2479.20	0.00	
EMILY	F69392	2,582.50	05-Jun-00	05-Jun-05	10064.94	5165.00	15345.52	5165.00	0.00	
JADE	F69395	1,291.25	25-May-01	25-May-05	18374.26	2582.50	15791.76	2582.50	0.00	
SAM	F69385	103.30	05-Jun-00	05-Jun-05	489.67	206.60	283.07	206.60	0.00	
ARNULF	F69396	1,033.00	25-May-01	25-May-05	28.99	2066.00	-237.31	2066.00	-2303.31	237.31
WILLIAM	F69397	1,291.25	25-May-01	25-May-05	11.66	2582.50	-321.21	2582.50	-2903.71	321.21
JADE WES	F69400	1,291.25	28-Jun-01	28-Jun-05	247765.15	2582.50	246876.39	2582.50	0.00	
ROSWITHA	F69401	2,582.50	28-Jun-01	28-Jun-05	15774.84	5165.00	21902.29	5165.00	0.00	
FREDERIQ	F69402	2,582.50	28-Jun-01	28-Jun-05	9344.57	5165.00	8678.82	5165.00	0.00	
RICHARD	F69403	1,291.25	28-Jun-01	28-Jun-05	7885.98	2582.50	7553.11	2582.50	0.00	
KRISTA SO	F69405	2,324.20	28-Jun-01	28-Jun-05	16536.46	4648.40	11888.06	4648.40	0.00	

BP-1	F71429	1,084.70	25-Mar-01	25-Mar-05	2060.87	2169.40	-108.53	2169.40	Al. to Lapse	
BP-2	F71430	1,807.90	27-Mar-01	27-Mar-05	9455.05	3615.80	5839.25	3615.80	0.00	
BP-3	F71431	1,796.60	27-Mar-01	27-Mar-05	6525.78	3593.20	10199.39	3593.20	0.00	
BP-4	F71432	1,704.50	27-Mar-01	25-Mar-05	3238.45	3409.00	-170.55	3409.00	Al. to Lapse	
BP-5	F71433	878.70	27-Mar-01	27-Mar-05	11608.49	1757.40	9851.09	1757.40	0.00	
BP-6	F71434	2,582.50	27-Mar-01	27-Mar-05	46751.53	5165.00	41586.53	5165.00	0.00	
BP-7	F71435	2,582.50	27-Mar-01	27-Mar-05	373717.13	5165.00	368552.13	5165.00	0.00	
BP-8	F71436	2,582.50	27-Mar-01	27-Mar-05	21234.39	5165.00	16069.39	5165.00	0.00	
BP-9	F71437	2,582.50	27-Mar-01	27-Mar-05	20560.09	5165.00	25840.67	5165.00	0.00	
BP-10	F71438	2,582.50	27-Mar-01	27-Mar-05	19912.60	5165.00	25193.18	5165.00	0.00	
BP-11	F71439	2,582.50	27-Mar-01	27-Mar-05	19288.44	5165.00	24569.02	5165.00	0.00	
BP-12	F71440	1,846.60	27-Mar-01	27-Mar-05	7092.47	3693.20	10868.31	3693.20	0.00	
BP-14	F71442	2,012.70	27-Mar-01	27-Mar-05	36229.37	4025.40	40344.85	4025.40	0.00	
BP-15	F71443	1,515.10	27-Mar-01	27-Mar-05	5265.03	3030.20	2234.83	3030.20	Al. to Lapse	
BP-16	F71444	1,198.30	27-Mar-01	27-Mar-05	2276.69	2396.60	-119.91	2396.60	Al. to Lapse	
BP-21	F71445	2,066.00	27-Mar-01	27-Mar-05	3925.19	4132.00	-206.81	4132.00	Al. to Lapse	
BP-22	F71446	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	4755.47	5165.00	-409.53	
BP-23	F71447	2,582.50	27-Mar-01	27-Mar-05	6110.71	5165.00	11391.29	5165.00	0.00	
BP-24	F71448	2,582.50	27-Mar-01	27-Mar-05	9723.05	5165.00	12914.51	5165.00	0.00	
BP-20	F71449	1,859.40	27-Mar-01	27-Mar-05	6627.61	3718.80	13354.39	3718.80	0.00	
BP-19	F71450	1,239.60	27-Mar-01	27-Mar-05	2355.17	2479.20	-124.03	2479.20	Al. to Lapse	
BP-18	F71451	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	
BP-17	F71452	2,066.00	27-Mar-01	27-Mar-05	11100.36	4132.00	15324.82	4132.00	0.00	
BP-25	F71453	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	
BP-26	F71454	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	
BP-27	F71455	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	11034.04	5165.00	0.00	
BP-30	F71456	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	
BP-28	F71457	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	
BP-29	F71458	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-31	F71459	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	-258.41	5165.00	Al. to Lapse	
BP-32	F71460	2,066.00	27-Mar-01	27-Mar-05	3925.27	4132.00	-206.73	4132.00	Al. to Lapse	
BP-33	F71461	2,066.00	27-Mar-01	27-Mar-05	3925.27	4132.00	8149.73	4132.00	0.00	

BP-34	F71462	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-35	F71463	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-36	F71464	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-37	F71465	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-38	F71466	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-39	F71467	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	-258.41	5165.00	Al. to Lapse	
BP-40	F71468	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	-258.41	5165.00	Al. to Lapse	
BP-41	F71469	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-42	F71470	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-43	F71471	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-44	F71472	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-45	F71473	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-46	F71474	1,291.30	27-Mar-01	27-Mar-05	2453.39	2582.60	5093.76	2582.60	0.00	
JI10-2	F72404	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-3	F72405	2,582.50	18-Apr-02	18-Apr-05	-8325.33	5165.00	-2004.40	5165.00	-7169.40	2004.40
DOMENIC	F69398	2,582.50	25-May-01	25-May-05	340692.59	5165.00	335527.59	5165.00	0.00	
BP-47	F71475	1,291.30	27-Mar-01	27-Mar-05	2453.39	2582.60	5056.38	2582.60	0.00	
BP-48	F71476	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10112.38	5165.00	0.00	
BP-49	F71477	2,582.50	27-Mar-01	27-Mar-04	4906.59	5165.00	10112.38	5165.00	0.00	
JI10-1	F72403	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-4	F72406	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-5	F72407	2,582.50	18-Apr-02	18-Apr-05	-9170.97	5165.00	-2850.04	5165.00	-8015.04	2850.04
JI10-6	F72408	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-7	F72409	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-8	F72410	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-9	F72411	2,582.50	18-Apr-02	18-Apr-05	-9170.97	5165.00	-2850.04	5165.00	-8015.04	2850.04
JI10-10	F72412	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-11	F72413	2,582.50	18-Apr-02	18-Apr-05	-9170.97	5165.00	-2850.04	5165.00	-8015.04	2850.04
JI10-12	F72414	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-13	F72415	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-7818.02	5165.00	-12983.02	7818.02
JI10-14	F72416	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3211.82	5165.00	-8376.82	3211.82
JI10-15	F72417	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3211.82	5165.00	-8376.82	3211.82

JI10-16	F72418	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3211.82	5165.00	-8376.82	3211.82
JI10-17	F72419	2,582.50	18-Apr-02	18-Apr-05	-9170.98	5165.00	-2366.18	5165.00	-7531.18	2366.18
JI10-18	F72420	2,582.50	18-Apr-02	18-Apr-05	-9170.98	5165.00	-14335.98	5165.00	Al. to Lapse	
JI10-19	F72421	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-15181.62	5165.00	Al. to Lapse	
JI10-20	F72422	2,582.50	18-Apr-02	18-Apr-05	-9170.98	5165.00	-14335.98	5165.00	Al. to Lapse	
JI10-21	F72423	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3211.82	5165.00	-8376.82	3211.82
JI10-22	F72424	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-7818.02	5165.00	-12983.02	7818.02
JI9-1	F72425	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-7818.02	5165.00	-12983.02	7818.02
JI2-1	F72426	2,582.50	18-Apr-02	18-Apr-05	-9484.36	5165.00	-6180.66	5165.00	-11345.66	6180.65
JI1-1	F72427	2,582.50	18-Apr-02	18-Apr-05	0.00	5165.00	7802.96	5165.00	0.00	
JI1-2	F72428	2,582.50	18-Apr-02	18-Apr-05	-9484.36	5165.00	-1681.40	5165.00	-6846.40	1681.40
JI3-1	F72429	2,582.50	18-Apr-02	18-Apr-05	-9484.36	5165.00	-14649.36	5165.00	Al. to Lapse	
JI4-1	F72430	2,582.50	18-Apr-02	18-Apr-05	-9170.98	5165.00	-1368.02	5165.00	-6533.02	1368.02
JI7-1	F72431	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-15181.62	5165.00	Al. to Lapse	
JI8-1	F72432	2,582.50	18-Apr-02	18-Apr-05	-9170.98	5165.00	-14335.98	5165.00	Al. to Lapse	
JI6-1	F72433	2,582.50	18-Apr-02	18-Apr-05	-9484.36	5165.00	-14649.36	5165.00	Al. to Lapse	
JI5-1	F72434	2,582.50	18-Apr-02	18-Apr-05	0.00	5165.00	-5165.00	5165.00	Al. to Lapse	
									-227254.32	96422.83

Tables 4-2A Land Tenure Details for Present Mineral Claims Under Helix Agreement

Table 4.2A- Summary of Claims Held Under Helix Agreement (Claims allowed to lapse are not included)

						Amount	Assumed	Amount	Assumed	Deposit
Claim	Claim	Area	Recording	Renewal	Status after	Required	Status After	Required	Shortfall	Expected
Name	No.	Acres	Date	Date	2004	for 2005	2005	for 2006	in 2006	for
					Renewal	Renewal	Renewal	Renewal	incl 2005	2005
SLOT	F45691	2,324.25	01-Sep-98	01-Sep-08	148605.36	4648.50	143956.86	4648.50	0.00	
FREIGHTR	F65593	2,324.25	01-Sep-98	01-Sep-08	203832.04	4648.50	199183.54	4648.50	0.00	
HERMANN	F69404	2,169.30	28-Jun-01	28-Jun-05	2208.32	4338.60	6644.01	4338.60	0.00	
TRUDY	F69386	2,324.25	05-Jun-00	05-Jun-05	767.44	4648.50	5519.96	4648.50	0.00	
JASON	F69389	2,479.20	05-Jun-00	05-Jun-05	-3612.63	4958.40	1456.73	4958.40	0.00	
KRISTA	F69390	619.80	05-Jun-00	05-Jun-05	1.58	1239.60	1268.92	1239.60	0.00	

ANDREA	F69391	2,582.50	05-Jun-00	05-Jun-05	3353.95	5165.00	8634.53	5165.00	0.00	
BP-13	F71441	1,993.70	27-Mar-01	27-Mar-05	22199.11	3987.40	26275.74	3987.40	0.00	
JAMIE	F69387	2,582.50	05-Jun-00	05-Jun-05	-258.40	5165.00	5869.05	5165.00	0.00	
SARA	F69388	1,239.60	05-Jun-00	05-Jun-05	875.97	2479.20	3410.65	2479.20	0.00	
EMILY	F69392	2,582.50	05-Jun-00	05-Jun-05	10064.94	5165.00	15345.52	5165.00	0.00	
JADE	F69395	1,291.25	25-May-01	25-May-05	18374.26	2582.50	15791.76	2582.50	0.00	
SAM	F69385	103.30	05-Jun-00	05-Jun-05	489.67	206.60	283.07	206.60	0.00	
JADE WES	F69400	1,291.25	28-Jun-01	28-Jun-05	247765.15	2582.50	246876.39	2582.50	0.00	
ROSWITHA	F69401	2,582.50	28-Jun-01	28-Jun-05	15774.84	5165.00	21902.29	5165.00	0.00	
FREDERIQ	F69402	2,582.50	28-Jun-01	28-Jun-05	9344.57	5165.00	8678.82	5165.00	0.00	
RICHARD	F69403	1,291.25	28-Jun-01	28-Jun-05	7885.98	2582.50	7553.11	2582.50	0.00	
KRISTA SO	F69405	2,324.20	28-Jun-01	28-Jun-05	16536.46	4648.40	11888.06	4648.40	0.00	
BP-2	F71430	1,807.90	27-Mar-01	27-Mar-05	9455.05	3615.80	5839.25	3615.80	0.00	
BP-3	F71431	1,796.60	27-Mar-01	27-Mar-05	6525.78	3593.20	10199.39	3593.20	0.00	
BP-5	F71433	878.70	27-Mar-01	27-Mar-05	11608.49	1757.40	9851.09	1757.40	0.00	
BP-6	F71434	2,582.50	27-Mar-01	27-Mar-05	46751.53	5165.00	41586.53	5165.00	0.00	
BP-7	F71435	2,582.50	27-Mar-01	27-Mar-05	373717.13	5165.00	368552.13	5165.00	0.00	
BP-8	F71436	2,582.50	27-Mar-01	27-Mar-05	21234.39	5165.00	16069.39	5165.00	0.00	
BP-9	F71437	2,582.50	27-Mar-01	27-Mar-05	20560.09	5165.00	25840.67	5165.00	0.00	
BP-10	F71438	2,582.50	27-Mar-01	27-Mar-05	19912.60	5165.00	25193.18	5165.00	0.00	
BP-11	F71439	2,582.50	27-Mar-01	27-Mar-05	19288.44	5165.00	24569.02	5165.00	0.00	
BP-12	F71440	1,846.60	27-Mar-01	27-Mar-05	7092.47	3693.20	10868.31	3693.20	0.00	
BP-14	F71442	2,012.70	27-Mar-01	27-Mar-05	36229.37	4025.40	40344.85	4025.40	0.00	
BP-23	F71447	2,582.50	27-Mar-01	27-Mar-05	6110.71	5165.00	11391.29	5165.00	0.00	
BP-24	F71448	2,582.50	27-Mar-01	27-Mar-05	9723.05	5165.00	12914.51	5165.00	0.00	
BP-20	F71449	1,859.40	27-Mar-01	27-Mar-05	6627.61	3718.80	13354.39	3718.80	0.00	
BP-18	F71451	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	
BP-17	F71452	2,066.00	27-Mar-01	27-Mar-05	11100.36	4132.00	15324.82	4132.00	0.00	
BP-25	F71453	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	
BP-26	F71454	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	
BP-27	F71455	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	11034.04	5165.00	0.00	
BP-30	F71456	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	

BP-28	F71457	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10187.17	5165.00	0.00	
BP-29	F71458	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-33	F71461	2,066.00	27-Mar-01	27-Mar-05	3925.27	4132.00	8149.73	4132.00	0.00	
BP-34	F71462	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-35	F71463	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-36	F71464	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-37	F71465	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-38	F71466	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-41	F71469	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-42	F71470	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-43	F71471	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-44	F71472	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-45	F71473	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10186.17	5165.00	0.00	
BP-46	F71474	1,291.30	27-Mar-01	27-Mar-05	2453.39	2582.60	5093.76	2582.60	0.00	
DOMENIC	F69398	2,582.50	25-May-01	25-May-05	340692.59	5165.00	335527.59	5165.00	0.00	
BP-47	F71475	1,291.30	27-Mar-01	27-Mar-05	2453.39	2582.60	5056.38	2582.60	0.00	
BP-48	F71476	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	10112.38	5165.00	0.00	
BP-49	F71477	2,582.50	27-Mar-01	27-Mar-04	4906.59	5165.00	10112.38	5165.00	0.00	
JI1-1	F72427	2,582.50	18-Apr-02	18-Apr-05	0.00	5165.00	7802.96	5165.00	0.00	
DALLAS	F69384	1,807.75	05-Jun-00	05-Jun-05	-4527.33	3615.50	2318.55	3615.50	-1296.95	
BP-22	F71446	2,582.50	27-Mar-01	27-Mar-05	4906.59	5165.00	4755.47	5165.00	-409.53	
JOEL	F69382	1,033.00	05-Jun-00	05-Jun-05	-2587.04	2066.00	-2853.34	2066.00	-4919.34	2853.34
FIONA	F69383	1,807.75	05-Jun-00	05-Jun-05	-4527.33	3615.50	-4993.35	3615.50	-8608.85	4993.35
ARNULF	F69396	1,033.00	25-May-01	25-May-05	28.99	2066.00	-237.31	2066.00	-2303.31	237.31
WILLIAM	F69397	1,291.25	25-May-01	25-May-05	11.66	2582.50	-321.21	2582.50	-2903.71	321.21
JI10-2	F72404	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-3	F72405	2,582.50	18-Apr-02	18-Apr-05	-8325.33	5165.00	-2004.40	5165.00	-7169.40	2004.40
JI10-1	F72403	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-4	F72406	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-5	F72407	2,582.50	18-Apr-02	18-Apr-05	-9170.97	5165.00	-2850.04	5165.00	-8015.04	2850.04
JI10-6	F72408	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-7	F72409	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69

JI10-8	F72410	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-9	F72411	2,582.50	18-Apr-02	18-Apr-05	-9170.97	5165.00	-2850.04	5165.00	-8015.04	2850.04
JI10-10	F72412	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-11	F72413	2,582.50	18-Apr-02	18-Apr-05	-9170.97	5165.00	-2850.04	5165.00	-8015.04	2850.04
JI10-12	F72414	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3695.69	5165.00	-8860.69	3695.69
JI10-13	F72415	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-7818.02	5165.00	-12983.02	7818.02
JI10-14	F72416	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3211.82	5165.00	-8376.82	3211.82
JI10-15	F72417	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3211.82	5165.00	-8376.82	3211.82
JI10-16	F72418	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3211.82	5165.00	-8376.82	3211.82
JI10-17	F72419	2,582.50	18-Apr-02	18-Apr-05	-9170.98	5165.00	-2366.18	5165.00	-7531.18	2366.18
JI10-21	F72423	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-3211.82	5165.00	-8376.82	3211.82
JI10-22	F72424	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-7818.02	5165.00	-12983.02	7818.02
JI9-1	F72425	2,582.50	18-Apr-02	18-Apr-05	-10016.62	5165.00	-7818.02	5165.00	-12983.02	7818.02
JI2-1	F72426	2,582.50	18-Apr-02	18-Apr-05	-9484.36	5165.00	-6180.66	5165.00	-11345.66	6180.65
JI1-2	F72428	2,582.50	18-Apr-02	18-Apr-05	-9484.36	5165.00	-1681.40	5165.00	-6846.40	1681.40
JI4-1	F72430	2,582.50	18-Apr-02	18-Apr-05	-9170.98	5165.00	-1368.02	5165.00	-6533.02	1368.02
		195,449.85							-227254.32	96422.83

Tablee 4-3 Land Tenure Details for All Non-Helix Agreement Mineral Claims

Table 4.3 - Summary of Claims Not Under Helix Agreement (includes those allowed to lapse)

Claim Name	Claim Claim No.	Area Acres	Recording Date	Renewal Date	Status After 2004 Renewal	Amount Required for 2005 Renewal	Assumed Status After 2005 Approval	Amount Required for 2006 Renewal	Assumed Shortfall in 2006 (incl. 2005)	Assumed Deposit required for 2005
RT-2	F76671	1,669.10	12-May-03	12-May-05	-5297.46	3338.20	-1884.56	3338.20	-5222.76	-1884.56
RT-3	F76672	232.10	12-May-03	12-May-05	-646.26	464.20	-706.09	464.20	-1170.29	-706.09
RT-4	F76673	74.10	12-May-03	12-May-05	-206.33	148.20	-54.81	148.20	-203.01	-54.81
RT-5	F76674	1,371.50	12-May-03	12-May-05	-3818.82	2743.00	-1014.44	2743.00	-3757.44	-1014.44
RT-5S	F76675	1,371.50	12-May-03	12-May-05	-3818.82	2743.00	-1014.44	2743.00	-3757.44	-1014.44

RT-6	F76676	2,582.50	12-May-03	12-May-05	-1558.04	5165.00	3722.54	5165.00	-1442.46	
RT-7	F76677	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-8	F76678	807.10	12-May-03	12-May-05	-2247.30	1614.20	-3861.50	1614.20	no nw wk	Al. to Lapse
RT-9	F76679	146.90	12-May-03	12-May-05	-409.03	293.80	-708.83	293.80	no nw wk	Al. to Lapse
RT-10	F76680	1,147.80	12-May-03	12-May-05	-3195.95	2295.60	-5491.55	2295.60	no nw wk	Al. to Lapse
RT-12	F76682	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1063.30	5165.00	-6228.30	-1063.30
RT-13	F76683	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-14	F76684	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-5842.32	5165.00	-11007.32	-5842.32
RT-18	F76688	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-19	F76689	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-20	F76690	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-216.43	5165.00	-5381.43	-216.43
RT-21	F76691	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1063.30	5165.00	-6228.30	-1063.30
RT-22	F76692	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-23	F76693	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-24	F76694	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-25	F76695	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-26	F76696	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-4510.92	5165.00	-9675.92	-4510.92
RT-27	F76697	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-7856.50	5165.00	-13021.50	-7856.50
RT-36	F76706	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1063.30	5165.00	-6228.30	-1063.30
RT-37	F76707	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-38	F76708	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-39	F76709	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1063.30	5165.00	-6228.30	-1063.30
RT-40	F76710	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-41	F76711	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-42	F76712	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-5210.92	5165.00	-10375.92	-5210.92
RT-43	F76713	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-7856.50	5165.00	-13021.50	-7856.50
RT-44	F76714	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-7856.50	5165.00	-13021.50	-7856.50
RT-45	F76715	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-7856.50	5165.00	-13021.50	-7856.50
RT-49	F76719	2,582.50	12-May-03	12-May-05	-10330.00	5165.00	-5049.42	5165.00	-10214.42	-5049.42
RT-50	F76720	2,582.50	12-May-03	12-May-05	-10330.00	5165.00	-5049.42	5165.00	-10214.42	-5049.42
RT-51	F76721	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-52	F76722	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-53	F76723	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-54	F76724	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-12355.75	5165.00	no nw wk	Al. to Lapse
RT-55	F76725	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-5660.92	5165.00	-10825.92	-5660.92

RT-56	F76726	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12
RT-57	F76727	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12
RT-58	F76728	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12
RT-1	F76731	1,643.20	12-May-03	12-May-05	-5125.35	3286.40	-5102.61	3286.40	-8389.01	-5102.61
RT-61	F76732	2,582.50	12-May-03	12-May-05	-10016.62	5165.00	-3889.17	5165.00	-9054.17	-3889.17
RT-62	F76733	2,582.50	12-May-03	12-May-05	-10016.62	5165.00	-3889.17	5165.00	-9054.17	-3889.17
RT-63	F76734	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-1596.79	5165.00	-6761.79	-1596.79
RT-64	F76735	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-12042.37	5165.00	no nw wk	Al. to Lapse
RT-65	F76736	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-12042.37	5165.00	no nw wk	Al. to Lapse
RT-66	F76737	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-12042.37	5165.00	no nw wk	Al. to Lapse
RT-67	F76738	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-5447.54	5165.00	-10612.54	-5447.54
RT-68	F76739	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12
RT-69	F76740	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-12042.37	5165.00	no nw wk	Al. to Lapse
RT-70	F76741	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12
ICE-18	F72150	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-19	F72151	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-20	F72152	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-21	F72153	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-22	F72154	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-23	F72155	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-24	F72156	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-25	F72157	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-26	F72173	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-27	F72174	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-28	F72175	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-29	F72176	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-49	F72196	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-30	F72177	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-31	F72178	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-32	F72179	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-33	F72180	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-34	F72181	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-35	F72182	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-36	F72183	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse

ICE-37	F72184	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-38	F72185	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-39	F72186	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-40	F72187	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-41	F72188	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-42	F72189	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-43	F72190	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-44	F72191	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-45	F72192	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-46	F72193	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-47	F72194	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
ICE-48	F72195	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-50	F72197	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-51	F72198	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
MID-1	F72199	241.90	08-Aug-03	08-Aug-05	0.00	967.60	-967.60	483.80	no nw wk	Al. to Lapse
MID-2	F72200	505.10	08-Aug-03	08-Aug-05	0.00	2020.40	-2020.40	1010.20	no nw wk	Al. to Lapse
MID-3	F72201	517.40	08-Aug-03	08-Aug-05	0.00	2069.60	-2069.60	1034.80	no nw wk	Al. to Lapse
MID-4	F72202	527.10	08-Aug-03	08-Aug-05	0.00	2108.40	-2108.40	1054.20	no nw wk	Al. to Lapse
ICE-1	F72435	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-2	F72436	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-3	F72437	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-4	F72438	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-5	F72439	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-6	F72440	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-7	F72441	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-8	F72442	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-9	F72443	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-10	F72444	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-11	F72445	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-12	F72446	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-13	F72447	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-14	F72448	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-15	F72449	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-16	F72450	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-17	F72451	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	

MID-5	F76807	1,369.60	08-Aug-03	08-Aug-05	0.00	5478.40	-1573.20	2739.20	-4312.40	-1573.20
MID-6	F76808	819.70	08-Aug-03	08-Aug-05	0.00	3278.80	-3278.80	1639.40	no nw wk	Al. to Lapse
MID-7	F76809	882.00	08-Aug-03	08-Aug-05	0.00	3528.00	-3528.00	1764.00	no nw wk	Al. to Lapse
MID-8	F76810	639.70	08-Aug-03	08-Aug-05	0.00	2558.80	-2558.80	1279.40	no nw wk	Al. to Lapse
MID-9	F76811	2,405.80	08-Aug-03	08-Aug-05	0.00	9623.20	-9623.20	4811.60	no nw wk	Al. to Lapse
MID-10	F76812	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
MID-11	F76611	1,108.80	08-Aug-03	08-Aug-05	0.00	4435.20	-2503.44	2217.60	-4721.04	-2503.44
MID-12	F76612	1,139.10	08-Aug-03	08-Aug-05	0.00	4556.40	-2571.85	2278.20	-4850.05	-2571.85
MID-13	F76613	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
MID-14	F76614	1,408.40	08-Aug-03	08-Aug-05	0.00	5633.60	-3179.87	2816.80	-5996.67	-3179.87
MID-15	F76615	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-10330.00	5165.00	no nw wk	Al. to Lapse
MID-16	F76616	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-5830.75	5165.00	-10995.75	-5830.75
MID-17	F76617	28.30	08-Aug-03	08-Aug-05	0.00	113.20	-113.20	56.60	no nw wk	Al. to Lapse
MID-18	F76618	1,090.00	08-Aug-03	08-Aug-05	0.00	4360.00	-2460.99	2180.00	-4640.99	-2460.99
MID-19	F76619	1,218.90	08-Aug-03	08-Aug-05	0.00	4875.60	-2752.02	2437.80	-5189.82	-2752.02
MID-20	F76620	1,572.20	08-Aug-03	08-Aug-05	0.00	6288.80	-3549.70	3144.40	-6694.10	-3549.70
MID-21	F76621	2,467.30	08-Aug-03	08-Aug-05	0.00	9869.20	-9869.20	4934.60	no nw wk	Al. to Lapse
RT-11	F76681	2,582.50	12-May-03	12-May-05	0.00	10330.00	2686.37	5165.00	-2478.63	
RT-15	F76685	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-16	F76686	2,582.50	12-May-03	12-May-05	0.00	10330.00	40.79	5165.00	-5124.21	
RT-17	F76687	2,582.50	12-May-03	12-May-05	0.00	10330.00	2686.37	5165.00	-2478.63	
RT-28	F76698	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-29	F76699	1,712.60	12-May-03	12-May-05	0.00	6850.40	1354.10	3425.20	-2071.10	
RT-30	F76700	1,731.30	12-May-03	12-May-05	0.00	6925.20	27.34	3462.60	-3435.26	
RT-31	F76701	1,749.90	12-May-03	12-May-05	0.00	6999.60	27.64	3499.80	-3472.16	
RT-32	F76702	1,769.10	12-May-03	12-May-05	0.00	7076.40	27.94	3538.20	-3510.26	
RT-33	F76703	1,787.80	12-May-03	12-May-05	0.00	7151.20	28.24	3575.60	-3547.36	
RT-34	F76704	2,582.50	12-May-03	12-May-05	0.00	10330.00	40.79	5165.00	-5124.21	
RT-35	F76705	2,582.50	12-May-03	12-May-05	0.00	10330.00	2236.37	5165.00	-2928.63	
RT-46	F76716	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-47	F76717	2,582.50	12-May-03	12-May-05	0.00	10330.00	-2966.40	5165.00	-8131.40	-2966.40
RT-48	F76718	2,582.50	12-May-03	12-May-05	0.00	10330.00	-770.82	5165.00	-5935.82	-770.82
RT-59	F76729	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-60	F76730	2,582.50	12-May-03	12-May-05	-10016.62	10330.00	3293.31	5165.00	-1871.69	
RT-71	F76742	2,582.50	12-May-03	12-May-05	-6877.37	10330.00	-6877.37	5165.00	no nw wk	Al. to Lapse

RT-72	F76743	2,345.30	12-May-03	12-May-05	-9096.60	9381.20	-9096.60	4690.60	no nw wk	Al. to Lapse
RT-73	F76744	1,488.00	12-May-03	12-May-05	-5771.43	5952.00	-5771.43	2976.00	no nw wk	Al. to Lapse
RT-74	F76745	1,844.20	12-May-03	12-May-05	-7153.01	7376.80	-7153.01	3688.40	no nw wk	Al. to Lapse
RT-75	F76746	1,825.60	12-May-03	12-May-05	-7080.87	7302.40	-7080.87	3651.20	no nw wk	Al. to Lapse
RT-76	F76747	1,806.90	12-May-03	12-May-05	-7008.34	7227.60	-1856.25	3613.80	-5470.05	-1856.25
RT-77	F76748	2,582.50	12-May-03	12-May-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
RT-78	F76749	2,582.50	12-May-03	12-May-05	-10016.62	10330.00	-1207.44	5165.00	-6372.44	-1207.44
RT-79	F76750	2,582.50	12-May-03	12-May-05	-10016.62	10330.00	-4071.79	5165.00	-9236.79	-4071.79
RT-80	F76751	2,324.40	12-May-03	12-May-05	-6190.03	9297.60	-738.81	4648.80	-5387.61	-738.81
RT-81	F76752	2,338.50	12-May-03	12-May-05	-6227.58	9354.00	-694.77	4677.00	-5371.77	-694.77
RT-82	F76753	2,352.60	12-May-03	12-May-05	-6265.13	9410.40	-549.44	4705.20	-5254.64	-549.44
RT-83	F76754	2,582.50	12-May-03	12-May-05	-6877.37	10330.00	-1231.79	5165.00	-6396.79	-1231.79
RT-84	F76755	2,582.50	12-May-03	12-May-05	-6877.37	10330.00	-1231.79	5165.00	-6396.79	-1231.79
RT-85	F76756	2,582.50	12-May-03	12-May-05	-6877.37	10330.00	-6877.37	5165.00	no nw wk	Al. to Lapse
RT-86	F76757	2,582.50	12-May-03	12-May-05	-6877.37	10330.00	-6877.37	5165.00	no nw wk	Al. to Lapse
RT-87	F76758	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-88	F76759	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-89	F76760	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-90	F76761	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-91	F76762	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-92	F76763	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-93	F76764	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-94	F76765	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-95	F76766	1,590.60	12-May-03	12-May-05	-4428.89	6362.40	-4428.89	3181.20	no nw wk	Al. to Lapse
RT-96	F76767	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-97	F76768	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-98	F76769	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-99	F76770	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-100	F76771	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-101	F76772	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-102	F76773	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk f	Al. to Lapse
RT-103	F76774	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-104	F76775	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-105	F76776	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-106	F76777	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse

RT-107	F76778	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-108	F76779	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-109	F76780	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-110	F76781	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-111	F76782	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-112	F76783	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-7190.75	5165.00	no nw wk	Al. to Lapse
RT-113	F76784	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-114	F76785	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-115	F76786	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-116	F76787	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-117	F76788	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-118	F76789	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-135	F76802	1,807.80	08-Aug-03	08-Aug-05	-5033.66	7231.20	1378.01	3615.60	-2237.59	
RT-134	F76803	1,291.30	08-Aug-03	08-Aug-05	-3595.51	5165.20	-338.67	2582.60	-2921.27	-338.67
RT-133	F76804	2,582.50	08-Aug-03	08-Aug-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-132	F76805	2,582.50	08-Aug-03	08-Aug-05	-7190.75	10330.00	2304.08	5165.00	-2860.92	
RT-131	F76806	2,066.00	08-Aug-03	08-Aug-05	-5752.60	8264.00	2603.86	4132.00	-1528.14	
AI-96A	F82470	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-4670.50	5165.00	-9835.50	-4670.50
AI-20A	F82598	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-58A	F82599	284.17	03-Sep-03	03-Sep-05	-1102.20	1136.68	-291.93	568.34	-860.27	-291.93
AI-1	F83241	1,733.40	03-Sep-03	03-Sep-05	-6723.26	6933.60	237.72	3466.80	-3229.08	
AI-2	F83242	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-3	F83243	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-4	F83244	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-5	F83245	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-6	F83246	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-7	F83247	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-8	F83248	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-9	F83249	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-10	F83250	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-11	F83251	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-12	F83252	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-13	F83253	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-14	F83254	369.40	03-Sep-03	03-Sep-05	-1432.73	1477.60	50.70	738.80	-688.10	
AI-15	F83255	321.24	03-Sep-03	03-Sep-05	-1245.97	1284.96	44.06	642.48	-598.42	

AI-16	F83256	677.56	03-Sep-03	03-Sep-05	-2628.01	2710.24	-696.05	1355.12	-2051.17	-696.05
AI-17	F83257	677.56	03-Sep-03	03-Sep-05	-2628.01	2710.24	-2628.01	1355.12	no nw wk	Al. to Lapse
AI-18	F83258	677.56	03-Sep-03	03-Sep-05	-2628.01	2710.24	-2628.01	1355.12	no nw wk	Al. to Lapse
AI-19	F83259	677.56	03-Sep-03	03-Sep-05	-2628.01	2710.24	-696.05	1355.12	-2051.17	-696.05
AI-20	F83260	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-21	F83261	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-22	F83262	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-23	F83263	1,355.13	03-Sep-03	03-Sep-05	-5256.05	5420.52	-1392.11	2710.26	-4102.37	-1392.11
AI-24	F83264	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	
AI-25	F83265	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	
AI-26	F83266	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-27	F83267	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-28	F83268	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-29	F83269	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-30	F83270	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-31	F83271	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-32	F83272	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-33	F83273	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-34	F83274	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-35	F83275	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-36	F83276	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-37	F83277	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-38	F83278	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-39	F83279	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-40	F83280	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-41	F83281	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-42	F83282	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-43	F83283	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-44	F83284	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-45	F83285	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-46	F83286	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-47	F83287	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-48	F83288	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-49	F83289	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-50	F83290	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	

AI-51	F83291	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-52	F83292	1,948.00	03-Sep-03	03-Sep-05	-7555.61	7792.00	-2001.19	3896.00	-5897.19	-2001.19
AI-53	F83293	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-54	F83294	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-55	F83295	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-56	F83296	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-57	F83297	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-58	F83298	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-59	F83299	293.44	03-Sep-03	03-Sep-05	-1138.15	1173.76	-301.45	586.88	-888.33	-301.45
AI-60	F83300	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-61	F83301	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	
AI-62	F83302	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	
AI-63	F83303	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-64	F83304	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-65	F83305	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-66	F83306	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-67	F83307	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-68	F83308	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-69	F83309	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-70	F83310	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-71	F83311	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-72	F83312	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-73	F83313	1,694.00	03-Sep-03	03-Sep-05	-6570.42	6776.00	1281.21	3388.00	-2106.79	
AI-74	F83314	480.00	03-Sep-03	03-Sep-05	-1861.71	1920.00	-493.06	960.00	-1453.06	-493.06
AI-75	F83315	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-76	F83316	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-77	F83317	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-78	F83318	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-79	F83319	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-80	F83320	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-81	F83321	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2056.04	5165.00	-7221.04	-2056.04
AI-82	F83322	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-83	F83323	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-84	F83324	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-85	F83325	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02

AI-86	F83326	452.00	03-Sep-03	03-Sep-05	-1753.09	1808.00	-464.28	904.00	-1368.28	-464.28
AI-87	F83327	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-88	F83328	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-89	F83329	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-90	F83330	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-91	F83331	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-92	F83332	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2056.04	5165.00	-7221.04	-2056.04
AI-93	F83333	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-94	F83334	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-95	F83335	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-96	F83336	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-97	F83337	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-3823.63	5165.00	-8988.63	-3823.63
AI-98	F83338	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-99	F83339	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-100	F83340	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-101	F83341	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-102	F83342	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-103	F83343	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-104	F83344	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-105	F83345	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-106	F83346	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-107	F83347	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-108	F83348	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-4670.50	5165.00	-9835.50	-4670.50
AI-109	F83349	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-4670.50	5165.00	-9835.50	-4670.50
AI-110	F83350	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-111	F83351	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-112	F83352	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-113	F83353	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-114	F83354	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-115	F83355	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-116	F83356	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-117	F83357	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-118	F83358	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-119	F83359	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-120	F83360	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-3823.63	5165.00	-8988.63	-3823.63

AI-121	F83361	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-122	F83362	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-123	F83363	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-124	F83364	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-125	F83365	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-126	F83366	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-127	F83367	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-128	F83368	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-129	F83369	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-130	F83370	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-131	F83371	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-132	F83372	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-133	F83373	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-134	F83374	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-135	F83375	2,462.65	03-Sep-03	03-Sep-05	-9551.76	9850.60	-9551.76	4925.30	no nw wk	Al. to Lapse
AI-136	F83376	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-137	F83377	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-138	F83378	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-139	F83379	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-140	F83380	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-141	F83381	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-142	F83382	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-143	F83383	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-144	F83384	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-145	F83385	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-146	F83386	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-147	F83387	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-148	F83388	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-149	F83389	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-150	F83390	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-151	F83391	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-152	F83392	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-153	F83393	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-154	F83394	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-155	F83395	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse

Al-156	F83396	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-157	F83397	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-158	F83398	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-159	F83399	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-160	F83400	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-161	F83401	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-162	F83402	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-163	F83403	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-164	F83404	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-165	F83405	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-166	F83406	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-167	F83407	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-168	F83408	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-169	F83409	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-170	F83410	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-171	F83411	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-172	F83412	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-173	F83413	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-174	F83414	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-175	F83415	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-176	F83416	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-177	F83417	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-178	F83418	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-179	F83419	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-180	F83420	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-181	F83421	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
Al-182	F83422	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
Al-183	F83423	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
Al-184	F83424	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-185	F83425	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-186	F83426	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
Al-187	F83427	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
Al-188	F83428	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
Al-189	F83429	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
Al-190	F83430	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse

AI-191	F83431	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-192	F83432	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-193	F83433	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-194	F83434	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-195	F83435	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-196	F83436	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-197	F83437	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-198	F83438	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-199	F83439	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-200	F83440	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-201	F83441	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-202	F83442	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-203	F83443	1,455.20	03-Sep-03	03-Sep-05	-5644.18	5820.80	-5644.18	2910.40	no nw wk	Al. to Lapse
AI-204	F83444	1,281.70	03-Sep-03	03-Sep-05	-4971.20	5126.80	-4971.20	2563.40	no nw wk	Al. to Lapse
AI-205	F83445	2,258.54	03-Sep-03	03-Sep-05	-8760.09	9034.16	-8760.09	4517.08	no nw wk	Al. to Lapse
AI-206	F83446	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-207	F83447	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-208	F83448	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-209	F83449	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-210	F83450	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-211	F83451	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-212	F83452	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-213	F83453	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-214	F83454	1,355.00	03-Sep-03	03-Sep-05	-5255.51	5420.00	-5255.51	2710.00	no nw wk	Al. to Lapse
AI-215	F83455	1,455.20	03-Sep-03	03-Sep-05	-5644.21	5820.80	-5644.21	2910.40	no nw wk	Al. to Lapse
AI-216	F83456	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-217	F83457	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-218	F83458	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-219	F83459	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-220	F83460	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-221	F83461	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-222	F83462	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-223	F83463	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-224	F83464	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-226	F83466	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse

AI-225	F83465	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
AI-227	F83467	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-10016.62	5165.00	no nw wk	Al. to Lapse
									-1301318.13	-470510.33

Tablee 4-3A Land Tenure Details for Present Non-Helix Agreement Mineral Claims

Table 4.3A - Claims not Under Helix Agreement (does not include claims allowed to lapse)

Claim Name	Claim Claim No.	Area Acres	Recording Date	Renewal Date	Status After 2004 Renewal	Amount Required for 2005 Renewal	Assumed Status After 2005 Approval	Amount Required for 2006 Renewal	Assumed Shortfall in 2006 (incl. 2005)	Assumed Deposit required for 2005
RT-6	F76676	2,582.50	12-May-03	12-May-05	-1558.04	5165.00	3722.54	5165.00	-1442.46	
ICE-18	F72150	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-19	F72151	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-20	F72152	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-25	F72157	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-26	F72173	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-27	F72174	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-28	F72175	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-29	F72176	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-49	F72196	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-30	F72177	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-38	F72185	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-39	F72186	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-40	F72187	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-41	F72188	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	

ICE-42	F72189	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-43	F72190	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-44	F72191	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-48	F72195	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-50	F72197	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-51	F72198	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-1	F72435	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-2	F72436	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-3	F72437	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-4	F72438	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-5	F72439	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-6	F72440	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-7	F72441	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-8	F72442	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-9	F72443	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-10	F72444	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-11	F72445	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-12	F72446	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-13	F72447	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-14	F72448	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-15	F72449	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-16	F72450	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
ICE-17	F72451	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	4766.58	5165.00	-398.42	
RT-11	F76681	2,582.50	12-May-03	12-May-05	0.00	10330.00	2686.37	5165.00	-2478.63	
RT-16	F76686	2,582.50	12-May-03	12-May-05	0.00	10330.00	40.79	5165.00	-5124.21	
RT-17	F76687	2,582.50	12-May-03	12-May-05	0.00	10330.00	2686.37	5165.00	-2478.63	
RT-29	F76699	1,712.60	12-May-03	12-May-05	0.00	6850.40	1354.10	3425.20	-2071.10	
RT-30	F76700	1,731.30	12-May-03	12-May-05	0.00	6925.20	27.34	3462.60	-3435.26	
RT-31	F76701	1,749.90	12-May-03	12-May-05	0.00	6999.60	27.64	3499.80	-3472.16	
RT-32	F76702	1,769.10	12-May-03	12-May-05	0.00	7076.40	27.94	3538.20	-3510.26	
RT-33	F76703	1,787.80	12-May-03	12-May-05	0.00	7151.20	28.24	3575.60	-3547.36	
RT-34	F76704	2,582.50	12-May-03	12-May-05	0.00	10330.00	40.79	5165.00	-5124.21	

RT-35	F76705	2,582.50	12-May-03	12-May-05	0.00	10330.00	2236.37	5165.00	-2928.63	
RT-60	F76730	2,582.50	12-May-03	12-May-05	-10016.62	10330.00	3293.31	5165.00	-1871.69	
RT-135	F76802	1,807.80	08-Aug-03	08-Aug-05	-5033.66	7231.20	1378.01	3615.60	-2237.59	
RT-132	F76805	2,582.50	08-Aug-03	08-Aug-05	-7190.75	10330.00	2304.08	5165.00	-2860.92	
RT-131	F76806	2,066.00	08-Aug-03	08-Aug-05	-5752.60	8264.00	2603.86	4132.00	-1528.14	
AI-1	F83241	1,733.40	03-Sep-03	03-Sep-05	-6723.26	6933.60	237.72	3466.80	-3229.08	
AI-14	F83254	369.40	03-Sep-03	03-Sep-05	-1432.73	1477.60	50.70	738.80	-688.10	
AI-15	F83255	321.24	03-Sep-03	03-Sep-05	-1245.97	1284.96	44.06	642.48	-598.42	
AI-24	F83264	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	
AI-25	F83265	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	
AI-50	F83290	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	
AI-61	F83301	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	
AI-62	F83302	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	1953.18	5165.00	-3211.82	
AI-73	F83313	1,694.00	03-Sep-03	03-Sep-05	-6570.42	6776.00	1281.21	3388.00	-2106.79	
AI-80	F83320	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-89	F83329	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-93	F83333	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-94	F83334	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-100	F83340	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-101	F83341	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-102	F83342	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-103	F83343	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-104	F83344	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-105	F83345	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-112	F83352	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-113	F83353	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
AI-114	F83354	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	2443.21	5165.00	-2721.79	
RT-2	F76671	1,669.10	12-May-03	12-May-05	-5297.46	3338.20	-1884.56	3338.20	-5222.76	-1884.56
RT-3	F76672	232.10	12-May-03	12-May-05	-646.26	464.20	-706.09	464.20	-1170.29	-706.09
RT-4	F76673	74.10	12-May-03	12-May-05	-206.33	148.20	-54.81	148.20	-203.01	-54.81
RT-5	F76674	1,371.50	12-May-03	12-May-05	-3818.82	2743.00	-1014.44	2743.00	-3757.44	-1014.44

RT-5S	F76675	1,371.50	12-May-03	12-May-05	-3818.82	2743.00	-1014.44	2743.00	-3757.44	-1014.44
RT-7	F76677	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-12	F76682	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1063.30	5165.00	-6228.30	-1063.30
RT-13	F76683	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-14	F76684	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-5842.32	5165.00	-11007.32	-5842.32
RT-18	F76688	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-19	F76689	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-20	F76690	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-216.43	5165.00	-5381.43	-216.43
RT-21	F76691	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1063.30	5165.00	-6228.30	-1063.30
RT-22	F76692	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-23	F76693	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-24	F76694	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-25	F76695	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-26	F76696	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-4510.92	5165.00	-9675.92	-4510.92
RT-27	F76697	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-7856.50	5165.00	-13021.50	-7856.50
RT-36	F76706	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1063.30	5165.00	-6228.30	-1063.30
RT-37	F76707	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-38	F76708	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-39	F76709	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1063.30	5165.00	-6228.30	-1063.30
RT-40	F76710	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-41	F76711	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-42	F76712	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-5210.92	5165.00	-10375.92	-5210.92
RT-43	F76713	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-7856.50	5165.00	-13021.50	-7856.50
RT-44	F76714	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-7856.50	5165.00	-13021.50	-7856.50
RT-45	F76715	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-7856.50	5165.00	-13021.50	-7856.50
RT-49	F76719	2,582.50	12-May-03	12-May-05	-10330.00	5165.00	-5049.42	5165.00	-10214.42	-5049.42
RT-50	F76720	2,582.50	12-May-03	12-May-05	-10330.00	5165.00	-5049.42	5165.00	-10214.42	-5049.42
RT-51	F76721	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-52	F76722	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-53	F76723	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-1910.17	5165.00	-7075.17	-1910.17
RT-55	F76725	2,582.50	12-May-03	12-May-05	-7190.75	5165.00	-5660.92	5165.00	-10825.92	-5660.92
RT-56	F76726	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12

RT-57	F76727	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12
RT-58	F76728	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12
RT-1	F76731	1,643.20	12-May-03	12-May-05	-5125.35	3286.40	-5102.61	3286.40	-8389.01	-5102.61
RT-61	F76732	2,582.50	12-May-03	12-May-05	-10016.62	5165.00	-3889.17	5165.00	-9054.17	-3889.17
RT-62	F76733	2,582.50	12-May-03	12-May-05	-10016.62	5165.00	-3889.17	5165.00	-9054.17	-3889.17
RT-63	F76734	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-1596.79	5165.00	-6761.79	-1596.79
RT-67	F76738	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-5447.54	5165.00	-10612.54	-5447.54
RT-68	F76739	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12
RT-70	F76741	2,582.50	12-May-03	12-May-05	-6877.37	5165.00	-7543.12	5165.00	-12708.12	-7543.12
MID-5	F76807	1,369.60	08-Aug-03	08-Aug-05	0.00	5478.40	-1573.20	2739.20	-4312.40	-1573.20
MID-11	F76611	1,108.80	08-Aug-03	08-Aug-05	0.00	4435.20	-2503.44	2217.60	-4721.04	-2503.44
MID-12	F76612	1,139.10	08-Aug-03	08-Aug-05	0.00	4556.40	-2571.85	2278.20	-4850.05	-2571.85
MID-14	F76614	1,408.40	08-Aug-03	08-Aug-05	0.00	5633.60	-3179.87	2816.80	-5996.67	-3179.87
MID-16	F76616	2,582.50	08-Aug-03	08-Aug-05	0.00	10330.00	-5830.75	5165.00	-10995.75	-5830.75
MID-18	F76618	1,090.00	08-Aug-03	08-Aug-05	0.00	4360.00	-2460.99	2180.00	-4640.99	-2460.99
MID-19	F76619	1,218.90	08-Aug-03	08-Aug-05	0.00	4875.60	-2752.02	2437.80	-5189.82	-2752.02
MID-20	F76620	1,572.20	08-Aug-03	08-Aug-05	0.00	6288.80	-3549.70	3144.40	-6694.10	-3549.70
RT-15	F76685	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-28	F76698	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-46	F76716	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-47	F76717	2,582.50	12-May-03	12-May-05	0.00	10330.00	-2966.40	5165.00	-8131.40	-2966.40
RT-48	F76718	2,582.50	12-May-03	12-May-05	0.00	10330.00	-770.82	5165.00	-5935.82	-770.82
RT-59	F76729	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-76	F76747	1,806.90	12-May-03	12-May-05	-7008.34	7227.60	-1856.25	3613.80	-5470.05	-1856.25
RT-78	F76749	2,582.50	12-May-03	12-May-05	-10016.62	10330.00	-1207.44	5165.00	-6372.44	-1207.44
RT-79	F76750	2,582.50	12-May-03	12-May-05	-10016.62	10330.00	-4071.79	5165.00	-9236.79	-4071.79
RT-80	F76751	2,324.40	12-May-03	12-May-05	-6190.03	9297.60	-738.81	4648.80	-5387.61	-738.81
RT-81	F76752	2,338.50	12-May-03	12-May-05	-6227.58	9354.00	-694.77	4677.00	-5371.77	-694.77
RT-82	F76753	2,352.60	12-May-03	12-May-05	-6265.13	9410.40	-549.44	4705.20	-5254.64	-549.44
RT-83	F76754	2,582.50	12-May-03	12-May-05	-6877.37	10330.00	-1231.79	5165.00	-6396.79	-1231.79
RT-84	F76755	2,582.50	12-May-03	12-May-05	-6877.37	10330.00	-1231.79	5165.00	-6396.79	-1231.79
RT-89	F76760	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50

RT-90	F76761	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-91	F76762	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-92	F76763	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-93	F76764	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-94	F76765	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-96	F76767	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-97	F76768	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-2691.50	5165.00	-7856.50	-2691.50
RT-107	F76778	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-108	F76779	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-109	F76780	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-110	F76781	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-111	F76782	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-5176.57	5165.00	-10341.57	-5176.57
RT-113	F76784	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-114	F76785	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-115	F76786	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-116	F76787	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-117	F76788	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-118	F76789	2,582.50	12-May-03	12-May-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
RT-134	F76803	1,291.30	08-Aug-03	08-Aug-05	-3595.51	5165.20	-338.67	2582.60	-2921.27	-338.67
RT-133	F76804	2,582.50	08-Aug-03	08-Aug-05	-7190.75	10330.00	-677.32	5165.00	-5842.32	-677.32
AI-96A	F82470	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-4670.50	5165.00	-9835.50	-4670.50
AI-20A	F82598	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-58A	F82599	284.17	03-Sep-03	03-Sep-05	-1102.20	1136.68	-291.93	568.34	-860.27	-291.93
AI-2	F83242	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-5	F83245	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-6	F83246	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-7	F83247	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-8	F83248	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-9	F83249	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-10	F83250	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-13	F83253	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-16	F83256	677.56	03-Sep-03	03-Sep-05	-2628.01	2710.24	-696.05	1355.12	-2051.17	-696.05

AI-19	F83259	677.56	03-Sep-03	03-Sep-05	-2628.01	2710.24	-696.05	1355.12	-2051.17	-696.05
AI-20	F83260	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-21	F83261	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-23	F83263	1,355.13	03-Sep-03	03-Sep-05	-5256.05	5420.52	-1392.11	2710.26	-4102.37	-1392.11
AI-26	F83266	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-27	F83267	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-36	F83276	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-37	F83277	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-38	F83278	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-39	F83279	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-47	F83287	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-48	F83288	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-49	F83289	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-51	F83291	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-52	F83292	1,948.00	03-Sep-03	03-Sep-05	-7555.61	7792.00	-2001.19	3896.00	-5897.19	-2001.19
AI-59	F83299	293.44	03-Sep-03	03-Sep-05	-1138.15	1173.76	-301.45	586.88	-888.33	-301.45
AI-60	F83300	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-63	F83303	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-64	F83304	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-71	F83311	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-72	F83312	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-74	F83314	480.00	03-Sep-03	03-Sep-05	-1861.71	1920.00	-493.06	960.00	-1453.06	-493.06
AI-75	F83315	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-76	F83316	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-78	F83318	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-79	F83319	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-81	F83321	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2056.04	5165.00	-7221.04	-2056.04
AI-84	F83324	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-85	F83325	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-86	F83326	452.00	03-Sep-03	03-Sep-05	-1753.09	1808.00	-464.28	904.00	-1368.28	-464.28
AI-87	F83327	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2653.02	5165.00	-7818.02	-2653.02
AI-92	F83332	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-2056.04	5165.00	-7221.04	-2056.04

AI-97	F83337	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-3823.63	5165.00	-8988.63	-3823.63
AI-108	F83348	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-4670.50	5165.00	-9835.50	-4670.50
AI-109	F83349	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-4670.50	5165.00	-9835.50	-4670.50
AI-115	F83355	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-120	F83360	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-3823.63	5165.00	-8988.63	-3823.63
AI-126	F83366	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-127	F83367	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-136	F83376	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-181	F83421	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-182	F83422	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-183	F83423	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-186	F83426	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-187	F83427	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-188	F83428	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-193	F83433	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-194	F83434	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-195	F83435	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-198	F83438	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-199	F83439	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
AI-200	F83440	2,582.50	03-Sep-03	03-Sep-05	-10016.62	10330.00	-5517.37	5165.00	-10682.37	-5517.37
		536,385.10					-470510.33		-1301318.13	-470510.33

Jackson Inlet West Block: refers to the NW portion of the Property including the Freightrain and Cargo-1 Kimberlite Prospects and reflects the block of claims surveyed as Block 1 by an airborne magnetometer survey under an agreement with Kennecott Canada Exploration in 2004, since terminated. (refer to subsection 4.2.3) Portions of the block exclusive of the two prospects areas have been subjected to limited drilling, follow-up ground geophysics and soil sampling and hosts untested or unexplained geophysical and geochemical targets.

Jackson Inlet East Block: refers mainly to the north-central portion of the Property and reflects the block of claims surveyed as Block 2 by an airborne magnetometer survey under an agreement with Kennecott Canada Exploration in 2004, since terminated. (refer to subsection 4.2.3). Portions have been subjected to limited drill testing, follow-up ground geophysics and soil sampling, and hosts untested or unexplained geophysical and geochemical targets.

Vista Block: refers to areas exclusive of the aforementioned Jackson Inlet East and West Block mainly to the north eastern and in the southern half of the Property that have been explored mainly with airborne geophysics, reconnaissance soil and stream sediment sampling, and limited RC drilling.

4.2.2 Twin Mining - Helix Resources Inc. Agreement and Amended Agreement

Twin Mining Corporation is a public corporation engaged in the acquisition, exploration and development of gold and diamond projects in United States and Canada[7]. In 2004, a full bankable feasibility study was completed on the company's most advanced gold project located in Idaho, USA. Production from Atlanta Gold Project is planned to commence in 2007[7].

Twin Mining Corporation was incorporated as a gold exploration company under the laws of the province of British Columbia, Canada under the name Atlanta Gold Corporation by memorandum of incorporation dated March 6, 1985. On April 3, 1997, Atlanta Gold Corporation acquired Voisey Bay Resources Inc. pursuant to an amalgamation by way of an arrangement effected under the Companies Act (British Columbia) and changed the name of Atlanta Gold Corporation to Twin Gold Corporation. On March 15, 2000, Twin Gold Corporation was continued under the Business Corporations Act (Ontario) and the name was changed to Twin Mining Corporation reflecting the company's entry into diamond exploration.

Twin Mining is listed on the Toronto Stock Exchange (TSX) and trading under the symbol TSX-TWG, and on the Berlin/Frankfurt OTC (87834), EDV Kurzel ATG[7]. Antwerp-based Diamond Trading N.V. is a minority shareholder and therefore not an independent diamond appraiser[28].

Mr. Hermann Derbuch, P.Eng. is Chairman, President and Chief Executive Officer, Mr. Domenico Bertucci CA is the Chief Financial Officer, and Mr. Dallas Davis, P.Eng. is the Senior Consultant – Diamond/Gold Exploration[7]. The registered and executive office of Twin Mining is located at Suite 1250, 155 University Avenue, Toronto, Ontario, Canada, M5H 3B7 and information regarding exploration and mine development activities can be found on Twin Mining's website at www.twinmining.com.

Helix Resources Inc. (Helix") is a privately held corporation incorporated under the laws of Ontario with offices located at 5444 Victoria Avenue, Niagara Falls, Ontario, Canada, L2G 3L2. Helix was formed by Mr. Fred Tatarnic, and his associates for the purpose of engaging in diamond exploration on Baffin Island. Mr. Tatarnic is the President of Helix.

As indicated on Tables 4-2 and 4-2a, a total of 86 mineral claims covering an area of 195,449.85 acres (79,095.73 hectares) are controlled by Twin Mining under the terms of a Claims Purchase Agreement dated December 15, 2000, and an Amended Agreement dated May 5, 2005 with Helix Resources Inc. ("Helix").

A letter of agreement was signed on April 27, 2000 with a Claims Purchase Agreement signed on December 15, 2000[29,30]. Under the terms of the Claims Purchase Agreement, Twin Mining exercised its option to acquire 100 % of three mineral claims (Freightrain, Slot and 38S) totalling 7,128.5 acres (29 sq.km.) (Helix Claims") from Helix. Mineral claim 38S covering 2,480 acres was allowed to lapse because of apparent low potential[10]. The mineral claims were acquired by Twin Mining by paying C$ 50,000 and issuing 30,000 common shares to Helix.

All mineral claims acquired by Twin Mining in the area up to and including December 31, 2002, and herein referred to as the ("Newly Staked Property") are also subject to the terms of the Claims Purchase Agreement. In May 2000, Twin Mining staked 16 mineral claims covering 26,290 acres. In March 2001, Twin Mining staked 61 mineral claims covering 130,908 acres. In April 2002, Twin Mining staked 32 mineral claims covering 82,640 acres. Thus on December 31, 2002, the Newly Staked Property totalled 109 mineral claims covering 239,838 acres. The original Helix Claims consisted of 2 mineral claims covering 4,648.5 acres, for an overall total of 111 mineral claims covering 244,486.5 acres.

To maintain the Claims Purchase Agreement in good standing, Helix was paid the amounts and issued shares as shown on the schedule of payments on Table 4.3 totalling $700,000 and 225,000 shares by December 31, 2004 .

Table 4-4 Schedule of Payments (2000-2004) for the Twin Mining-Helix Claims Purchase Agreement[29,30].

Payment No.	Payment Date	Cash	Common Shares
1.	October, 31, 2000	$50,000	30,000
2.	December 31, 2001	$100,000	45,000
3.	December 31, 2002	$150,000	75,000
4.	December 31, 2003	$200,000	105,000
5.	December 31, 2004	$250,000	120,000

Other terms of the Claims Purchase Agreement were as follows:

i. Complete a Pre-feasibility study by December 31, 2005. (obligation eliminated with amended agreement on May 5, 2005)

ii. In the event that Twin Mining fails to meet its obligations, Twin Mining shall transfer all of the Newly Staked Property and Helix's claims to Helix with sufficient work credits to hold same in good standing for an additional two years.

iii. Make a further payment of $100,000 on December 31,2006. (obligation eliminated with amended agreement on May 5, 2005)

iv. If there is an effective change of control of the Property that results in a significant delay in the development of the Property, annual payments of $100,000 will resume upon the first anniversary of the change or December 31, 2007.

v. An additional payment of $500,000 is due upon receipt of development permits

vi. A payment of $1,000,000 plus 500,000 shares upon production of 500,000 carats[11].

vii. Helix is to receive a 5% net profits interest and a 1% gross royalty after crediting all previous payments[11].

On May 5, 2005, the agreement was amended ("amended agreement") to eliminate items (i) and (iii) above. One of several new obligations in the amended agreement includes the following:

i. Twin Mining agrees to pay Helix $150,000 ("New Payment") per annum to be due and payable on January 3rd of each calendar year commencing on January 3, 2006. (Note: MPH is uncertain whether payment was made in 2006). Twin Mining will be obliged to continue New Payments until the earlier of the following two conditions:

1. completion of production of a total of 500,000 carats of diamonds from the Helix Claims (or any portions of the Helix Claims) from and after the First Production Data; or

2. termination of the Claims Purchase Agreement;

whereupon its obligations to make any further New Payments shall be at an end.

One half of any New Payments will be credited against Twin Mining's future obligations under the existing production royalty agreements on the Property.

The 226 mineral claims acquired by Twin Mining after December 31, 2002 and indicated in Tables 4-3 and 4-3a, are not subject to any third party agreements.

4.2.3 Comments on Termination of the Kennecott Canada Agreement [31]

On April 15, 2004, Kennecott Canada Exploration, Inc. ("Kennecott") an affiliate of Kennecott Exploration Company of Salt Lake City, Utah, a wholly owned subsidiary of Rio Tinto plc of London, UK, signed a binding letter of intent involving the Property, however, the same was terminated on August 6, 2004 as a result of Twin Mining's obligations towards a third party having an interest in the Property. Discussions with that third party did not produce the necessary results in the anticipated time frame and Kennecott's intended drill program for 2004 did not proceed. As a result, Kennecott holds no interest in the Property[7].

4.2.4 Comments on Termination of the Stornoway Diamond Corporation Agreement[32,33].

On August 20 2004, a letter of agreement ("Option Agreement") involving the Vista Block was signed by Stornoway Diamond Corporation ("Stornoway") and Twin Mining, but no formal agreement was reached. According to Twin Mining personnel[31], during discussions in February 2006, each party agreed to release the other from all obligations conditional upon Twin Mining reimbursing Stornoway for the cost of a limited aeromagnetic survey on the Vista Block upon receipt of the survey data. Twin Mining has agreed to this condition, and the Option Agreement was to be terminated in March 2006 and as a result, Stornoway would hold no interest in the Property. However, as of the effective date of this technical report, March 13, 2006, there had not been a public announcement of the termination of the agreement with Stornoway.

4.2.5 Surface Rights

None of the mineral claims include surface rights.

4.2.6 Land Use Permit and Water Licence

Exploration on the Property in 2005, including drilling, was carried out under Land Use Permit #N2001C0028 that was issued and extended from

July 23, 2005 until July 23, 2006 by the Land Administration Office of Indian and Northern Affairs Canada based in Iqaluit. The government has stated that additional extensions will not be granted, and a new land use permit will be required for permit exploration activities to be carried out on the Property after the date of expiry[24].

Water License NWB2JAC0406 – Type B issued by the Nunavut Water Board on July 15, 2004 will expire on June 30, 2006, and a new licence will be required for exploration activities to be carried out on the Property after the date of expiry[25]

MPH is not aware of any other permits that are in place, or may have been applied for to advance the project or whether there are any outstanding issues with permits that may be held by Twin Mining, Helix or other parties that may affect future activities on the Property.

4.3. Environmental and Socio-Economic Issues

Owing to its remote location in the high Arctic, there are neither permanent settlements nor any infrastructure on Brodeur Peninsula. The Property is located in an Arctic desert with annual precipitation in the 8 cm to 12 cm range and five months of temperatures ranging from -30°C to -50°C[32].

According to geologists consultant to Twin Mining, there is little vegetation or wildlife due to lack of rainfall and lack of essential nutrients in the limited soil overlying the nearly ubiquitous limestone bedrock. Most streams do not appear to host fish, probably because of the paucity of insects and intermittent flowage from summer melting of limited snow cover. Birds and lemmings have been reported on rare occasions near the Freightrain Kimberlite Prospect[32].

No archeological sites are reported in the literature and no evidence of any human habitation or encampments has been found by Twin Mining personnel[32].

Only two general rock types have been identified on the Property; the flat lying limestone which extends throughout the northern two thirds of the Brodeur Peninsula and the localized and rare kimberlite. Both the limestone and kimberlite are considered environmentally benign and are not known to contain minerals on the Property other than calcite ($CaCO_3$) or dolomite, $Ca,Mg(CO_3)_2$, that would be soluble in the natural environment or have the potential of releasing toxins into the environment[32].

As Twin Mining has not carried out a formal environmental audit and baseline study, MPH recommends that Twin Mining should consult with government regulatory bodies and make provisions to conduct such studies if and when required for the next phase of exploration[32].

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1. Accessibility

The Property is accessible by air year round and by ocean vessel from July through September. The company's exploration camp is situated on a terrace adjacent to the Jackson River in the northwest part of the Property and 3 km north of the Freightrain Kimberlite Prospect. The temporary camp is located 120 km west of the community of Arctic Bay (Ikpiarjuk), or 135 km from the Arctic Bay-Nanisivik commercial gravel airport. A second commercial gravel airport is located in the community of Resolute approximately 240 km to the northwest on Cornwallis Island. Both communities are serviced by two First Air Boeing 727 flights per week from Ottawa, Ontario via Iqualuit, Nunavut, and by marine shipping companies with scheduled service from July to September[5].

Access from Arctic Bay-Nanisivik or Resolute is year round by helicopter or fixed wing aircraft to several landing areas suitable for Twin Otters and Hercules aircraft. The main landing strip is located approximately 5 km west of the camp and within the Jackson River estuary. Helicopters provide access to work areas throughout the Property[10].

The Freightrain Kimberlite Prospect is also located approximately 12 km east of tidewater on the west coast of the Brodeur Peninsula and 3.3 km south of the mouth of the Jackson River at Jackson Inlet. Navigable waters of Admiralty Inlet, Lancaster Sound and Prince Regent Inlet bound the Brodeur Penisula. Equipment and materials are generally routed through Arctic-Bay-Nanisivik either by air or scheduled marine services and delivered to site as required. Kimberlite bulk samples collected in 2001 were shipped from Jackson Inlet via the M/V Umiavut[10].

5.2. Climate

Monthly averages for the period 1971-2000 for the nearest weather station located at Arctic Bay-Nanisivik are presented in Table 5.1.

Table 5.1 Average Monthly Temperatures and Precipitation Recorded at the Arctic Bay-Nanisivik Weather Station, Nunavut (1971-2000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature:												
Daily Average (°C)	-29.2	-30.3	-27.8	-20	-10.7	-0.4	4.9	1.5	-5.6	-14.9	-22.7	-26.6
Precipitation:												
Rainfall (mm)	0	0	0	0	0	0	27.5	22.5	4.4	0	0	0
Snowfall (cm)	4.4	3.8	6.4	9.8	16.9	15.7	7.6	17.3	36.9	31.2	15.8	7.3
Precipitation (mm)	7.6	3.9	6.6	9.8	17.2	23.5	35.3	40.9	43.5	30.9	16.0	7.3

Due to the permafrost, nearly all of the precipitation remains on surface, and as a result, excessive rainfall results in surges in the local water levels. For example, the 26 mm of rainfall on July 26, 2002 resulted in nearly a one meter rise and strong currents in the Jackson River[35].

Break-up is normally in late June and freeze-up in October[31,19]. Total darkness is during the period of November 15th to February 15th. Winds can be extreme, frequently gusting to over 100 kph. Due to the harsh conditions and limited daylight at high latitudes, exploration is most effectively carried out during July and August. However, with a complete infrastructure climate, advanced exploration and development could be carried out over a longer period[31,19].

5.3. Local Resources and Infrastructure

Owing to its remote location in the high Arctic, there are neither permanent settlements nor any infrastructure for exploration or mining activities on the Brodeur Peninsula. The nearest community with a commercial airfield and seaport is located approximately 125 km east of the Property at Arctic Bay-Nanisivik. The latter is a site of a former Nanisivik Zn-Pb-Ag Mine that operated for more than 20 years until closure in 2002. The current population of approximately 600 persons supports two provision stores with consumer goods. The community can provide some basic services, medical care, accommodations, and perhaps some labour requirements for early stage exploration and development projects. It is anticipated that any development and mining operations would be a fly-in, fly-out operation based in Edmonton or Ottawa[32].

The gravel delta at the head of Jackson Inlet is suitable for landing Twin Otter aircraft and has been extensively used without modifications as an airstrip and materials storage area since 2001. Upgrading will be required for the next phase of exploration to handle larger aircraft such as a DC-3 or a Hercules[32].

Jackson Inlet is accessible to within close proximity to shore by ocean going vessels and the anchorage at the head of the Inlet is located 12 km from the Freightrain Kimberlite Prospect. Sea routes are only open from late June to September and a docking berth would need to be constructed for unloading bulk supplies and fuel for any mine development in the future[32].

Power requirements would be met through diesel generation. There is no cellular phone service on the Property and communications are via satellite. Surface water appears to be scarce as the region is generally devoid of lakes, and the streams flow only in the short summer[32]. Details of water in the subsurface as a possible source are unknown.

5.4. Physiography, Flora and Fauna

The north-trending and rectangular Brodeur Peninsula forms the extreme northwest segment of Baffin Island and is approximately 350 km long and 125 km wide. It is bounded on the east by Admiralty Bay, to the north by Lancaster Sound and to the west by Prince Regent Inlet. The region is essentially a polar desert with annual precipitation between approximately 8 cm and 12 cm and temperatures for five months in the range of -30^0 C to -50^0 C[32].

The Property is centered in the northern half of the Brodeur Peninsula, an area characterized by a gently undulating, flat plateau ranging from 250 masl to 500 masl, and averaging 300 m asl, that is deeply incised by steep and linear river gorges created by a combination of seasonal runoff and valley glaciers. These gorges become shallow watercourses in the center of the plateau and deepen towards the coasts[34]. Drainage is outward along the three aforementioned directions from the centre of the plateau to the Arctic Ocean. The main drainages on the Property are the west-flowing Jackson River system in the northwest, the west-flowing Brodeur River system in the southwest, the east-flowing Vista River system in the southeast and east, the east-flowing St. Patrick River system in the east, and the north-flowing Tukingajug River system in the northeast and north. The dense pattern of fast flowing streams and minimal glacial debris is conducive for stream sediment sampling.

Most of the plateau is covered by a monotonous thick blanket of glacial drift of Pleistocene age and younger[6,19,38]. The angular felsenmeer veneer consists mainly of carbonate blocks in a matrix of pulverized carbonate and locally with cobbles of gneissic erratics. Twin Mining geologists indicate that this material is largely sedentary with little glacial dispersion. Movement has been through creep and fluvial processes. Except for a few scattered kettle lakes, the plateau is nearly devoid of distinct glacial landforms such as roche moutonee, drumlins, kames, moraine ridges or eskers that typify glaciated areas further south[6,19]. The glacial drift is mainly locally derived sub-angular to sub-rounded clasts up to boulder size of limestone and siltstone. Lower Paleozoic red sandstone clasts similar to units exposed near Arctic Bay and Nanisivik, and well rounded Precambrian clasts including biotite gneiss, granitoids (including a megacrystic granite), and garnetiferous gneiss are also contained in the till[38].

The main Baffin Island lobe of the Labrador ice sheet is believed to have retreated from the Brodeur Peninsula about 8,000 years ago, although permanent ice still remains locally until the present day. The ice usually lasts from year to year as small patches or hanging glaciers in erosional valleys, for example, like that of the Jackson River. The Jackson River valley/fiord in the vicinity of Twin Mining's base camp shows evidence of a relatively recent valley glacier with two or more lateral moraines along the valley wall. Lichen growth on rock debris, which is significantly less in the upper moraine than in the tallus slope above, demonstrates the relative ages of the two deposits[38].

Although the plateau has been glacier-free for the last 8,000 years, it has been substantially modified by solifluction, stream erosion, and possibly event sheet wash. Solifluction, a process of soil movement controlled mainly by freezing and thawing in permafrost areas, is a great slope reducer that is manifested in soil creep, frost heave, frost boils and mud flows. Slopes as little as 2 or 3 degrees can accommodate solifluction and possibly explain the general lack of recognizable glacial landforms[19]. Stream erosion, at work during the brief summers, produces landscape features that resemble those of the desert terrain of the US southwest[38].

MPH concluded during a Property visit that the combined glacial, fluvial and solidification impacts on the surficial deposits overlying the Property should facilitate good secondary dispersion of kimberlite indicator minerals from any type of kimberlite bedrock source, and an appropriate sampling medium[38].

The best exposures of the flat-lying Ordovician and Silurian carbonate bedrock are along the steep coastline and in the river gorges[6].

Owing to the generally mono-minerallic bedrock, the grey or light brown soil contains few nutrients and as a result, vegetation is virtually non-existent. Moss and lichen can occur locally in low swampy areas, and sparsely scattered dwarf yellow poppies in areas underlain by kimberlite and/or shale was noted by Twin Mining geologists[12].

The rivers appear to be void of fish, and lemmings and a few birds were the only wildlife noted by geologists on rare occasions during the past few field seasons[31]. There are fish and mammals in the salt waters.

6.0 HISTORY

6.1. Summary

The exploration history on the Property, and particularly on the Freightrain and Cargo-1 Kimberlite Prospects can be divided into the following five periods:

- 1960's-1970's: general area was subjected to regional reconnaissance exploration for Mississippi Valley Type (MVT) Zn-Pb-Ag mineralization in the Paleozoic carbonate rocks but not extensively explored for other minerals[5].
- 1975-1979: Cominco Limited discovered several kimberlites on Brodeur Peninsula including the kimberlite that would later be known as the Freightrain Kimberlite Prospect, during the same period as the Somerset Island Kimberlite discoveries[28,5,6,12]
- 1993: Lumina Investments Corporation re-evaluated the Freightrain Kimberlite Prospect then known as Zulu-1, and assessed the Brodeur Peninsula for kimberlite potential with regional stream sediment sampling[5,6,12].
- 1998-1999: Helix Resources prospector and helicopter pilot Fred Tatarnic staked and sampled the Zulu-1 kimberlite, renaming it Freightrain, and reported that he had recovered a 0.768 carat white and transparent, gem quality diamond from manually panning approximately 60 kg of weathered kimberlitic material, also referred to as residual kimberlite soil[5]. An additional 15 diamonds including two macro-diamonds between 0.85 mm and 1.18 mm in longest dimension were recovered after caustic fusion of 26.45 kg of kimberlite[11,12,28].
- 2000-2006: Twin Mining carried out airborne and ground magnetic surveys, airborne electromagnetic surveys, ground gravity surveys, soil, till and stream sediment geochemical sampling, petrographic studies, RC and core drilling, trenching and mini bulk (bedrock) sampling[5-12,35]

6.2. Cominco Limited (c. 1975-1979) [28,5,6,12]

The discovery of kimberlite on the Brodeur Peninsula is generally credited to Cominco Limited. William Wolfe, former general manager of Canadian exploration for Cominco indicated that the company discovered several kimberlites on Brodeur Peninsula in the same period as the Somerset Island discoveries. Small samples were tested for indicator minerals and microdiamonds[28].

While microdiamonds may have been recovered from surface occurrences of kimberlite including the one known as Freightrain, the desired macrodiamonds were not found. Pyrope garnets and chrome diopsides were the company's main indicator minerals at that time, with little microprobe work and not much significance placed on microdiamonds[28]. Dr. Wolfe concluded that the company did not adequately test the Brodeur Peninsula targets and by 1979, or 1980, the company had lost interest in the project[28].

6.3. Lumina Investments Corporation ("Lumina") (1992-1993)

In 1992, Minequest Exploration Associates carried out lineament analysis on LANDSAT images of the Brodeur Peninsula in conjunction with Geological Survey of Canada

("GSC") aeromagnetic data at 800 m line spacing[6,3,5]. The focus was on circular lakes and magnetic features similar to those characteristic of kimberlite pipes found elsewhere in northern Canada. During a regional program, Lumina geologists identified one, or possibly two kimberlites from the air in the area that would be later be known as the Freightrain Kimberlite Prospect. It was staked as Zulu-1 and presumed to be one of the same kimberlites discovered by Cominco in 1975[28].

The dense pattern of fast flowing streams and minimal glacial debris on Brodeur Peninsula was determined to be favourable for regional stream sediment sampling, and in 1993 approximately 300 stream sediment samples including duplicates and check samples were collected and processed for kimberlitic indicator minerals. By January 1994, a total of 28 samples (10%) were examined with a binocular microscope and a selection of garnets, green pyroxenes and opagues were picked and submitted to University of British Columbia for microprobe analyses[6].

Results from the first 13 samples indicated that only one kimberlitic garnet out of the 230 garnet grains probed. Two picro-ilmenite grains, one chromite and one chrome spinel were found in the 60 opagues that were probed[6]. It is unknown whether any additional analytical work was carried out.

Lumina also completed a small ground magnetic survey covering an area 250 m by 200 m over the Zulu-1 kimberlite and collected approximately 80 kg of weathered kimberlite from the two surface "occurrences of kimberlite" that are located approximately 100 m apart. The "kimberlite occurrences" are not actual outcrops, but distinctive areas of dark coloured material elevated 2 m above the surrounding level, and composed of coarse to fine shattered gravel identified as kimberlite in the field by the presence of purple garnets with well developed kelyphitic rims, rarer chrome diopsides and almost gem quality olivines[6]. The company reported both peridotitic and eclogitic pyropes from the kimberlite samples, however it is uncertain whether any samples were processed for microdiamonds[28].

The results of the magnetic survey are not discussed in this report as this area was re-surveyed by Twin Mining and these results reported in subsection 10. In 1996, Lumina, now known as Latitude Minerals, withdrew from the project[3].

6.4. Helix Resources Inc. ("Helix") (1998-1999)[12,35]

1998:

- prospecting and sampling of approximately 90 kg of weathered kimberlite material, and/or residual kimberlite soil by Mr. Fred Tatarnic.

1999:

- a 0.768 carat (5.4 mm x 4.5 mm) white transparent diamond recovered by Mr. Fred Tatarnic from manual panning and sorting of approximately 60 kg of weathered kimberlite/residual kimberlite soil[35].

- 15 diamonds including two macrodiamonds between 0.85 mm and 1.18 mm in longest dimension were recovered by SGS Lakefield after caustic fusion of a 26.45 kg portion of the weathered kimberlite[12,28].

6.5. Twin Mining Corporation (2000-2006)

The statistical details regarding exploration activities that were carried out by Twin Mining on the Jackson Inlet Property are summarized in Table 6.1. This table should be referred to in conjunction during the discussions that follow as the statistical data such as the number of samples are often not repeated in the text. Additional details are also included in the relevant subsections of Sections 9, 10 and 11.

Table 6.1 Summary of Twin Mining Exploration Activities (2000-2006)

	2000	2001	2002	2003	2004	2005	Totals
Geology	Yes						
GEOCHEMISTRY							
Soil/till simples	-	120	488	355	1213	25	2,201
Stream sediments	-	-	71	-	-	-	71
Near-crop samples*	124 kg	-	-	50.5 kg	-	-	174.5 kg
Bedrock samples*	94.52 kg	-	-	-	-	-	94.52 kg
Trench samples*	1,424 kg	-	-	-	-		1,424 kg
Mini-Bulk samples**	-	246.59 t	-	-	-	-	246.59 t
Core/RC samples*	-	2,030 kg	1,018 kg			13 smpls	3,048 kg
Core (NQ) number meters	-	20: 1,558 m	10: 1,173 m	-	-	-	30: 2,731m
RC (93 mm) number meters	-	-	-	-	-	32: 863.37m	32: 863.37m
GEOPHYSICS							
Air magnetics (ln km)	-	6,641	-	-	15,568	15,239	37,448
Air electromagnetic	-	6,641	-	-	-	-	6,641
Beep Mat	Yes	-	-	-	-	-	N/A
Ground magnetics (km)	-	~26.4	~262.5	~52	-	-	~340.9
Gravity (ha)	-	-	~79	-	-	-	~79

Note:
* samples were subjected to caustic fusion treatment for recovery of microdiamonds.
** mini-bulk samples were subjected to Dense Media Separation ("DMS") processing.

Expenditures since December 2000 total nearly $12 million.

2000 [10,15-18]:

- **Freightrain Due Diligence Sample:** 42 diamonds were recovered by SGS Lakefield after caustic fusion of 94.52 kg of weathered kimberlite (composite of 17 samples)[12].
- geological mapping, prospecting, trenching (4 for 65.5 m), kimberlite trench sampling (1,424 kg), weathered kimberlite and frost-boil kimberlite fragment sampling (~150 kg), Beep Mat survey to locate areas of magnetic soil and rock fragments[12,19].
- **Freightrain Trench Samples:** 623 diamonds including 12 over 1.00 mm in longest dimension, and a maximum 5.40 mm, were recovered by SGS Lakefield after caustic fusion of 1,548 kg of kimberlite[12].

- microprobe analysis of diamond indicator minerals and petrology[12].
- review of microdiamond size distribution and preliminary grade estimation by Terraconsult bvba (Luc Rombouts)[14].

<u>2001</u>[10,15-18]:

- airborne magnetic and electromagnetic surveys, two campaigns of mini-bulk sampling of Freightrain, ground magnetic surveys, 20 NQ core drill holes, soil sampling[10].
- Helicopter-borne magnetic and electromagnetic survey by Fugro-SIAL (6641 km) identified 12 targets including 500 m diameter anomaly coinciding with the Freightrain Kimberlite Prospect[9]
- nine of the anomalies, including those at Freightrain and Cargo 1 (ANO-3) Kimberlite Prospects, occur along a 30 km long linear trend and are spaced 2 km to 11 km apart, while the remaining three lie 20 km south of this trend[9]
- ground magnetic surveys by Twin Mining personnel over three Fugro-SIAL magnetic targets ANO-3 and ANO-4B and the Freightrain Kimberlite Prospect for drill target definition.
- **Freightrain Spring 2001 Mini-Bulk Samples:** 86 diamonds (+1 mm) totalling 3.644 carats were recovered by SGS Lakefield after DMS processing of 18.41 dry tonnes of kimberlite in two samples.
- **Freightrain Fall 2001 Mini-Bulk Samples:** 869 diamonds (+0.85 mm) totalling 46.208 carats were recovered by SGS Lakefield after DMS processing of 228.19 dry tonnes in six samples of kimberlite; the largest two stones were 1.557 carats and 0.936 carats; the bulk sampling was audited by MPH[10,15-18]. MRDI/AMEC reported upon the processing and recovery results of both programs[15,20].
- diamonds from both Mini-Bulk Sample campaigns examined by Diamond Trading N.V. of Antwerp, Belgium[10].
- Freightrain Kimberlite Prospect: tested with 17 core drill holes totalling 1108 m that included 314 m (1105 kg) of kimberlite in 15 holes[10,19]
- Cargo 1 Kimberlite Prospect was discovered 4.5 km northeast of the Freightrain Kimberlite Prospect by drilling anomaly ANO-3 and tested with two core drill holes totalling 331 m that intersected 231 m (925 kg) of kimberlite[10,19].
- Anomaly ANO-4B tested with one core hole, but kimberlite was not intersected[19].
- **Cargo 1 Kimberlite Core Sample 2001**: 11 diamonds including 4 white, transparent and gem quality macrodiamonds with a maximum dimension of 2.05 mm, were recovered by SGS Lakefield after caustic fusion 18.65 kg from 5 core meters from the Cargo 1 Kimberlite Prospect[10].
- 60 soil samples processed for diamond indicator minerals by SGS Lakefield[10].
- 60 rock fragment samples analysed for whole rock[10].

<u>2002</u>[10,15-18,34,7]

- 10 NQ core drill holes (1,173 m), ground magnetic surveys, gravity surveys, soil sampling[35].
- Cargo 1 Kimberlite was tested with 3 core holes, and 7 core holes tested three Fugro-SIAL magnetic targets, ANO-8, 9, 10.
- **Cargo 1 Kimberlite Core Sample 2002:** 241 diamonds (+0.100 mm) were recovered by SGS Lakefield after caustic fusion of 1,018 kg of kimberlite; the largest two stones were 0.0869 carats and 0.0.0269 carats, mostly white and transparent[35,8].
- ground magnetic surveys by Twin Mining personnel over 10 Fugro-SIAL magnetic targets for drill target definition: ANO-8 (Cargo 2), ANO-1, ANO-2, ANO-4C, ANO-4D, ANO-5, ANO-6, ANO-7, ANO-9, ANO10.
- gravity surveys by Twin Mining personnel over several Fugro-SIAL magnetic targets for drill target definition including the Freightrain and Cargo-1 Kimberlite Prospects.
- 488 soil samples collected and processed for diamond indicator minerals by SGS Lakefield[10].
- an independent study of the GSC regional aeromagnetic survey data flown in the mid-1980's by Geoterrex Ltd at flight line spacing of one km identified several prominent aeromagnetic anomalies and structural trends[7].

<u>2003[35]</u>

- soil sampling, kimberlite fragment sampling, ground magnetics by JVX ("JVX") Limited, [35].
- soil sampling lead to the discovery of the **Kimberlite Fragment Corridor Area**; a 1700 m long NE –SW trending area with scattered kimberlite fragments (frost boils?) that continues through Cargo-1 Kimberlite Prospect for 700 m to the NE and for 1000 m to SW towards the Freightrain Kimberlite Prospect.
- **Kimberlite Fragment Corridor Sample 2003:** 13 microdiamonds were recovered from three samples by SGSLakefield after caustic fusion of 50.5 kg of kimberlite[35].
- 355 soil samples and 71 stream sediment samples collected and processed for candidate kimberlite indicator minerals by SGS Lakefield identified 9 CKIM clusters in soils as well as 3 CKIM clusters in stream sediments on the Vista Block[35].
- review of aeromagnetic, Freightrain and Cargo-1 kimberlite indicator mineral chemistry, till sampling indicator mineral chemistry, and the diamond recoveries at Freightrain by De Beers[78, 79, 82,89, 90].

<u>2004:</u>

- aeromagnetic survey, 1213 soil (till) sampling.

<u>West and East Jackson Inlet Blocks:</u>

- 2004 Fugro Airborne Survey Ltd. MIDAS II high resolution airborne horizontal gradiometer magnetometer survey of 15,567.9 line km in 2 blocks
- discovery of kimberlite fragments on frost boil surfaces at the A-2 ground magnetic anomaly that was identified during a survey by JVX in 2003, is located 450 m NE of the Freightrain Kimberlite Prospect; a total of 83 pyropes, 2 clinopyroxenes and 5 chromite grains were recovered from a 25 kg sample of frost boil till by SGS Lakefield by microscopic examination.[7]
- review of magnetic data by geophysical staff of Kennecott identified 87 targets of potential interest
- 13 soil (till) samples collected by Kennecott personnel.

Vista Block:

- CKIM geochemistry on 1200 soil samples collected by Twin Mining personnel at 500 m intervals along north-south lines spaced 2 km apart identified 15 CKIM clusters.
- areas covered included untested NE portion of the Vista Block, the CKIM clusters identified by the 2003 stream sediment survey, and several magnetic anomalies selected from a 2002 study of the GSC regional aeromagnetic survey data.
- initial soil sampling: based on heavy mineral anomalies/clusters, 11 high priority targets were selected for magnetometer surveys for 2005.
- 8 priority targets were defined by both chrome diopsides and magnesium ilmenites.

2005:

- airborne magnetometer survey, 32 RC holes (863.37 m), 13 RC samples, 25 soils(tills), petrographic study

Jackson Inlet West and East Groups:

- 32 hole RC drill program was designed to explore for new kimberlites; tested 11 of the 87 targets selected from the 2004 airborne magnetometer survey, and 3 targets from the 2005 airborne magnetometer survey, while the remainder of the holes tested areas peripheral to the two kimberlite prospects;
- a 1.83 core m intersection of kimberlite dyke was drilled in one out of the four RC holes testing beneath kimberlite rock chips found on surface along the Kimberlite Bedrock Chip Corridor located ~330m NE of the Cargo-1 Kimberlite Prospect.
- magnetite-bearing sedimentary units were encountered in bedrock and/or overburden in RC holes testing nine airborne magnetic anomalies: B1-06, B1-23, B1-29, B1-35, B1-46 (Cargo-2), B1-48, B1-49 , A2-30 nT, and A3-20 nT, anomalies[40]
- RC drilling results did not adequately explain sources for five magnetic anomalies: B1-04, B-10, B-20, B1-52 and F2005-2[40].
- 13 samples of RC chips were analysed for CKIMs.

Vista Group:

- 2005 Fugro Airborne Survey Ltd. MIDAS II high resolution dual sensor airborne horizontal gradiometer magnetometer survey of 14,642 line km covering 2000 sq km of 4000 sq km. where 11 high priority geochemical targets based on heavy mineral anomalies/clusters were selected for geophysical follow-up.
- 8 of 11 targets were defined by both chrome diopsides and magnesium ilmenites.

7.0 GEOLOGICAL SETTING

7.1. Regional Geologic Setting

7.1.1 General

The regional geology is presented in Figure 7.1 The geological history in the Northern Baffin Island Region is complex, and excluding the kimberlites which are undated, is characterized by four main assemblages as summarized on Table 7.1

Table 7.1- Regional Stratigraphy

Eclipse Trough (Cretaceous-Eocene)

Eclipse Group (1200 to 1600 m): sediments, hydrocarbons.

Kimberlite Intrusions (Cretaceous?)

Freightrain (Zulu-1), Cargo-1, Tuwawi, Nanuk, Kuuriaq, 5 Borden Pen. Occ.
Somerset Island Kimberlites (19 bodies) 105-88 Ma

Prince Regent Basin (Early Cambrian to Early Silurian)

Brodeur Group (0-896 m) – carbonates
Ship Point Formation (45-274 m) – carbonates, sandstones, shales
Admiralty Group (0-650 m) – sandstone, dolomites, clastic sediments, oolitic iron (Polaris Zn-Pb-Ag Mine 400 km NW)

Franklin Dykes - (Late-Proterozoic ~732 Ma)

Borden Rift Basin (Mid-Proterozoic 1.19-1.27 Ga),

Bylot Supergroup (6,000 m) - volcanics – sediments :
(Nanisivik Pb-Zn-Pb-Ag Mine 125 km E)

Archean Rae Tectonic Domain (formerly the Committee Fold Belt)

Felsic Intrusives - monzogranite, quartz monzonite.
Mafic and Ultramafic Intrusives - gabbros, pyroxenites, serpentinites.
Mary River Group - greenstone-(basalt-komatiite- IF) belts (2759 - 2718 Ma):
Mafic dyke swarms
Granite gneiss, granodiorite basement terrane.

The Archean Rae Tectonic Domain (also commonly known as the Committee Fold Belt in this region) extends for more than 3000 km northeastward from south of the Athabasca Basin in Saskatchewan through northern Baffin Island and along the eastern half of Ellesmere Island. It is likely that Archean granite gneiss-greenstone rocks of the Rae Tectonic Domain are the basement rocks on the Property.

7.1.2 Rae Tectonic Domain

Along its length, the Rae Tectonic Domain is characterized by a series of dominantly NE trending linear Archean greenstone terranes composed of mafic-ultramafic volcanic rocks, shallow water quartzose arenite, iron formation and minor felsic volcanic rocks. In Northern Baffin Island the greenstone belt rocks are known as the Mary River Group.

The deformed granitic basement is composed mostly of nebulitic migmatitic granitic gneisses that were migmatized and intruded by granite-granodiorite plutons that in turn were also deformed and metamorphosed. These ancient rocks were intruded by mafic dyke swarms before the Mary River Group was deposited.

The Mary River Group is a metamorphosed and intensely deformed assemblage composed chiefly of felsic and mafic volcanics, pelites, and greywackes. Quartzite iron formation, ultramafic rocks and anorthositic and gabbroic intrusions are commonly an integral part of the assemblage.

7.1.3 Mid-Proterozoic Bylot Supergroup

While Mid-Proterozoic rocks do not outcrop on Brodeur Peninsula, they are exposed approximately 50 km to the east on Baffin Island proper, and have been interpreted to overlie the Archean Rae Domain assemblages on the Property.

The Mid-Proterozoic rocks form the Borden Basin, one of several pene-contemporaneous, temporarily interconnected basins which developed by rifting along the NW edge of the Canadian-Greenlandic Shield. The basins are probably related to the 1200-1250 Ma old opening of the Proto-Arctic Ocean and generally consist of three groups of sediments: a lower clastic group, a middle carbonate platform group, and an upper clastic group.

Sedimentation in the Borden Basin (~6000 m) began as 1000 m of braided fluvial marginal marine quartz arenites and plateau basalts that accumulated over a local regolith developed on a peneplaned gneiss complex. (Eqalulik Group). Deposition was initially restricted to a narrow fault controlled channel that merged northwestward into an alluvial braidplain. A thin regolith (maximum 6 m) is locally present at the contact between the Bylot Supergroup rocks and the gneissic Archean basement. The gneisses are commonly stained red for several meters below the unconformity.

The Eqalulik Group has been subdivided into three formations:

Fabricius Fiord Fm (400-2000+ m)

- sandstone, siltstone, shale, conglomerate

Adams Sound Fm (0-610 m)

- quartz sandstone, minor conglomerate.

Nauyat Fm. (0- 430m)

- plateau basalts (extend over 300 sq. km)
- quartz arenite, subarkose, basalt.

The overlying 1100 m of strata were deposited during major faulting in large sandstone-shale, marine influenced delta fan complexes that grade laterally northward into subtidal shales. (Uluksan Group)

Subordinate faulting continued during deposition of the succeeding 1700 m of supracrustal to shallow subtidal stromatolitric shelf carbonates that include a subtidal shale zone and contain economic Zn-Pb-Ag deposits and many gypsiferous coastal sabkha cycles.

The Uluksan Group has been subdivided into three formations:

Victory Bay Fm. (156-735 m)

- limestone, dolostone, flat pebble conglomerate
- shale siltstone, sandstone, limestone

Society Cliffs Fm. (263-856 m)

- stromatolitic and massive dolostone. (Nanisivik Pb-Zn-Ag Deposit)
- stromatolitic dolstone, shale, sandstone, gypsum.

Arctic Bay Fm. (180-770 m)

- shale, siltstone, dolostone, quartz arenite.

Major faulting accompanied by local erosion and karsting occurred as about 1000 m of interbedded sandstones, shales, carbonates and bolder conglomerates accumulated in alluvial fan to subtidal environments. (Nunatsiaq Group)

The upper most 1200 m of strata were deposited during a relatively stable tectonic period. Fluvial to intertidal sandstones grade upwards into shallow subtidal shelf quartz arenites and are overlain disconformably by lower Paleozoic strata.

The Nunatsiaq Group has been subdivided into three formations;

Elwin Fm (470-1220 m)

- quartz arenite, siltstone.
- sandstone, siltstone, dolostone.

Strathcona Sound Fm (430-910+ m)

- polymictic conglomerate
- siltstone, greywacke,

- arkose – greywacke, shale,
- dolostone, dolostone conglomerate,
- shale, siltstone

Athole Point Fm (0-585 m)

- limestone, sandstone, shale

7.1.4 Late-Proterozoic Diabase Dykes (~700 Ma)

NW trending tholeiitic Franklin diabase dykes (~700 Ma) cut all of the Precambrian rocks in the area and are particularly prominent in the Bylot Supergroup strata. They are approximately 700 Ma and are up to several hundred feet thick and appear to post date most of the deformation and faulting of the Bylot Supergroup.

There are also a few dykes with a more northerly trend that are undated and probably not Franklin.

7.1.5 Prince Regent Basin (Early Paleozoic)

The stratigraphy of the Prince Regent Basin is summarized on Table 7.2.

Table 7.2 Stratigraphy of the Prince Regent Basin

Middle Ordovician to Middle Silurian

Brodeur Group

Cape Crauford Fm (0-408 m)

- dolomitic limestone, calcareous dolomite, evaporate solution breccia

Baillarge Fm (0-487 m)

- dolomitic limestone, minor calcareous dolomite, shaly carbonates, shale, organic zones.

Early and Middle Ordovician

Ship Point Fm (0 - 165m)

- dolomite, in part shaly and silty, minor dolomitic intraformational conglomerate, siltstone, sandstone, shale

Cambrian and Early Ordovician

Admiralty Group

Turner Cliffs Fm (0-97 m)

- dolomite, mostly shaly and silty, quartzose and dolomitic sandstone, intraformational conglomerate, minor siltstone, shale, minor oolitic iron

Gallery Fm (0-98 m)

- quartzose and minor dolomitic sandstone, minor siltstone, shale, conglomerate, minor breccia, dolomite.

A thin Cambro-Ordovician shelf-carbonate and quartz-arenite blanket the northern and western half of the Baffin Island proper and the Brodeur Peninsula.

On the Baffin Island proper, as much as 600 m of fossiliferous Early Cambrian to Late Ordovician strata overlie a thin regolith developed over mostly Archean gneiss and subordinate greenstone terrane.

The basal Gallery Fm. (0- 98 m) is mostly fluvial to intertidal quartz-rich sandstone with minor conglomerate that grades upward into tidal dolostones of the Turner Cliffs Fm (0-97 m)

The Ship Point Fm (70-165 m) is mostly intertidal dolomite cemented quartz sandstone and dolostone. It is bounded by unconformities and is overlain by dolostones and limestones, minor shales of the subtidal Baillarge Fm.(+100 m), the lower of two formations that make up the Brodeur Group.

On Brodeur Peninsula, the Baillarge Fm (up to 487 m) is overlain by the Crauford Fm (0-408 m) composed of mainly dolomitic limestone, calcareous dolomites, and evaporite solution breccias.

The lower two formations were deposited largely in a shelf environment between the contemporary Admiralty Basin to the NW and the ancestral Foxe Basin to the SE. The upper formations were each deposited during a marine transgression that followed a retreat of the sea.

On Baffin Island proper, the Paleozoic rocks have been down-faulted against Precambrian rocks and preserved in a series of NW-SE trending grabens. The Phillips Creek Trough is the most prominent and is bounded on the north by the central Borden Fault Zone and to the south by the Nina Bang Fault Zone. Both of these faults zones have been active since ~2000 Ma, with approximately 600 m vertical movement in the former following Early Paleozoic sedimentation. Adjacent to the south is a subsidiary graben, the Neergaard Graben, which is bounded on the south by a major horst known as the Steensby High. Vertical movement is estimated as up to 300 m. GSC geologists have interpreted these NW trending structures to continue through the northern portion of the Brodeur Peninsula and through portions of the Property.

Magnetite and hematite rich beds were observed in the Gallery Fm and Turner Cliffs Fm west of Navy Board Inlet. These are possibly derived from erosion of the Archean iron formations deposits.

7.1.6 Somerset Island Kimberlite Field[62-64]

Originally mapped in the early 1960's as "ultrabasic igneous breccias", these bodies were identified as kimberlites in the 1970's and became the first kimberlite field to be discovered in Canada with at least 19 bodies.[62]. The kimberlites range in surface area from 39 ha for the Batty Bay Pipe to 0.08 ha for a 30.5 m enlargement on a dyke known as Nord, and are scattered along a NE trend approximately 80 km in length diagonally across Somerset Island[62-64]. Exploration in the region since the early 1990's has interpreted the kimberlite field to extend farther east to include at least five known kimberlite bodies on Brodeur Penisula of Baffin Island[63]. Three of these kimberlites, Tuwawi, Nanuk and Kuuriaq are discussed in Section 15.0, while the Freightrain and Cargo-1 kimberlites are the principal focus of this report.

Somerset Island is mainly covered by soil and felsenmeer, and not by glacial drift. Kimberlites along with mafic intrusives are readily detectable on airphotos or by visual observation as was the case on Somerset Island and Brodeur Peninsula where the country rock consists of light-coloured Paleozoic carbonate host rocks with the results that some of kimberlites in this region were identified as "colour anomalies". [64]

Localization of kimberlite magmatism on Somerset Island appears to have been controlled by three distinct fracture sets at azimuths of 052^0, 125^0 and 175^0 , which developed on the Precambrian basement. Age dating on a number of Somerset Island kimberlite bodies has shown that the field was emplaced during the Cretaceous period. The Ham kimberlite is dated at 88 Ma, and Elwin Bay at 105 Ma using the U-Pb perovskite dating method, while a 100 Ma Rb-Sr, phlogopite date is recorded for one of the Batty kimberlites[63,64].

The Cretaceous period is one of extensive worldwide kimberlite activity. In the North Atlantic region extensive rifting was taking place notably manifested by the opening of the Labrador Sea that now separates west Greenland from eastern Labrador, Baffin and Ellesmere Islands in North America. This principal rifting system has a generally northwest-southeast trend. Other fractures and Cretaceous kimberlite dykes mapped in the region indicate that lesser rifting phenomena may have taken place in the Gulf of Boothia between Somerset Island and the Brodeur Peninsula and in the Parry Channel through the High Arctic islands[60,64].

Field work and petrographic studies have recognized that the Somerset Island kimberlites consist principally of hypabyssal facies kimberlite. Detailed mapping of the surface expression of the Batty Bay Pipe has shown that it is highly irregular, consisting of at least seven petrographically distinct types of kimberlite. These observations are consistent with root zone morphology[63]. Dykes occur at the Ham, Jos and Batty Bay, and enlarged fissures (blows) are found at Ham, Nord Ouest, Peuyuk, Elwin Bay and Batty Bay. The root zone is often characterized by simple contact breccias containing only locally derived clasts and the Tunrag pipe in the Batty Bay group exhibits this type of breccia. Rare diatreme facies (pelletal lapilli-bearing) and transitional hypabyssal/diatreme facies kimberlite occur at Batty Bay K-1 and volcaniclastic textures typical of diatreme facies have been observed as localized features at Elwin Bay.

Overall, these observations suggests the current exposure level of the Somerset Island pipes is at the kimberlite root zone level (hypabyssal and lowermost diatreme facies rocks) indicating 1-2 km of erosion has taken place since emplacement.[60]

Mantle xenoliths, dominantly spinel, spinel + garnet, and garnet lherzolite, with rare garnet dunite and harzburgite, have been found at a number of the kimberlite bodies. Xenoliths which show cryptic (e.g. high Ti-garnet lherzolite) and modal (e.g. phlogopite- and rutile-bearing garnet lherzolite) metasomatism are also present in the xenolith population. A single eclogite xenolith was reported in during a study published in 1992. Studies of heavy mineral concentrate recognized minerals associated with the mantle xenoliths and the megacryst suite. Xenolith drived minerals are dominantly from spinel and garnet-bearing lherzolites. Garnet dunite/harzburgite and eclogite xenoliths are rare, consistent with the heavy mineral concentrate data and the paucity of diamonds[63].

The mantle xenoliths collected at the Batty Bay Complex were all peridotitic including garnet lherzolites, garnet-spinel lherzolites and spinel lherzolites with a few dunites and harzburgites. No eclogites were found in the 21 xenolith samples studied by the GSC in the mid 1990's, however, for the first time in the region a number of xenoliths (3 of 21) were found to equilibrate in the diamond stability field[63]. Earlier studies on the on the Ham kimberlite had encountered no xenoliths in the diamond field, although the majority of the points moved into the diamond field when the data were replotted with an alternative method[65]. Both kimberlites are assumed to be diamondiferous having been tested with mini bulk samples collected and processed by Diapros Canada Ltd[60].

Details regarding diamond recoveries from Somerset Island kimberlites are not well reported. One report mentions that bulk sampling in the 1970's resulted in the recovery of five small diamonds (net weight 0.297 carats) from a 174.7 tonne sample[63]. A second report indicates that during the summers of 1974 and 1975, Diapros Canada Ltd. sampled the Batty, Ham, Elwin and Diapros (Peuyuk) pipes. A total of 414 tons of kimberlite were treated at a sample plant (capacity 1 tph) constructed near the Batty Pipe. The bulk sample yielded " a few small diamond . . .". and the project was terminated[64]

The Elwin Bay (Nikos) kimberlite and the Zulu-1 kimberlite, (now known Freightrain) on the Brodeur Peninsula were also the subject of mantle xenolith and geothermobarometric studies[65,64]. Mantle xenoliths from

Nikos and Zulu-1 included garnet lherzolite, garnet-spinel lherzolite, spinel lherzolite, dunite, garnet websterite, spinel websterite and garnet clinopyroxenite. No eclogitic xenoliths were found. Two of ten xenoliths from this study were found to equilibrate in the diamond stability field however, as the Nikos and Zulu-1 data were grouped together for plotting, it is not possible to determine whether any of the two samples came from Zulu-1 (Freightrain) Kimberlite[65,64].

7.1.7 Lower Cretaceous – Eocene (Eclipse Trough)

The Eclipse Trough is a small segment of an extensive network of Tertiary structures that developed throughout northeastern Arctic in response to the Mid-Atlantic rifting. Approximately 1200 m to 1600 m of Cretaceous to Eocene sediments are preserved in the Eclipse Trough, a southeast trending almond-shaped basin, 130 km by 45 km that extends along the southern portion of Bylot Island southward across Pond Inlet and for approximately 25 km onto to Baffin Island.

7.2. Property Geology

7.2.1 General

The bedrock geology of the Brodeur Peninsula and the Property is shown on Figure 7-1 and stratigraphy summarized in Table 7.3

Table 7.3 Property Stratigraphy

Cretaceous (?)

Kimberlite

Freightrain (Zulu-1), Cargo-1

Middle Ordovician to Middle Silurian

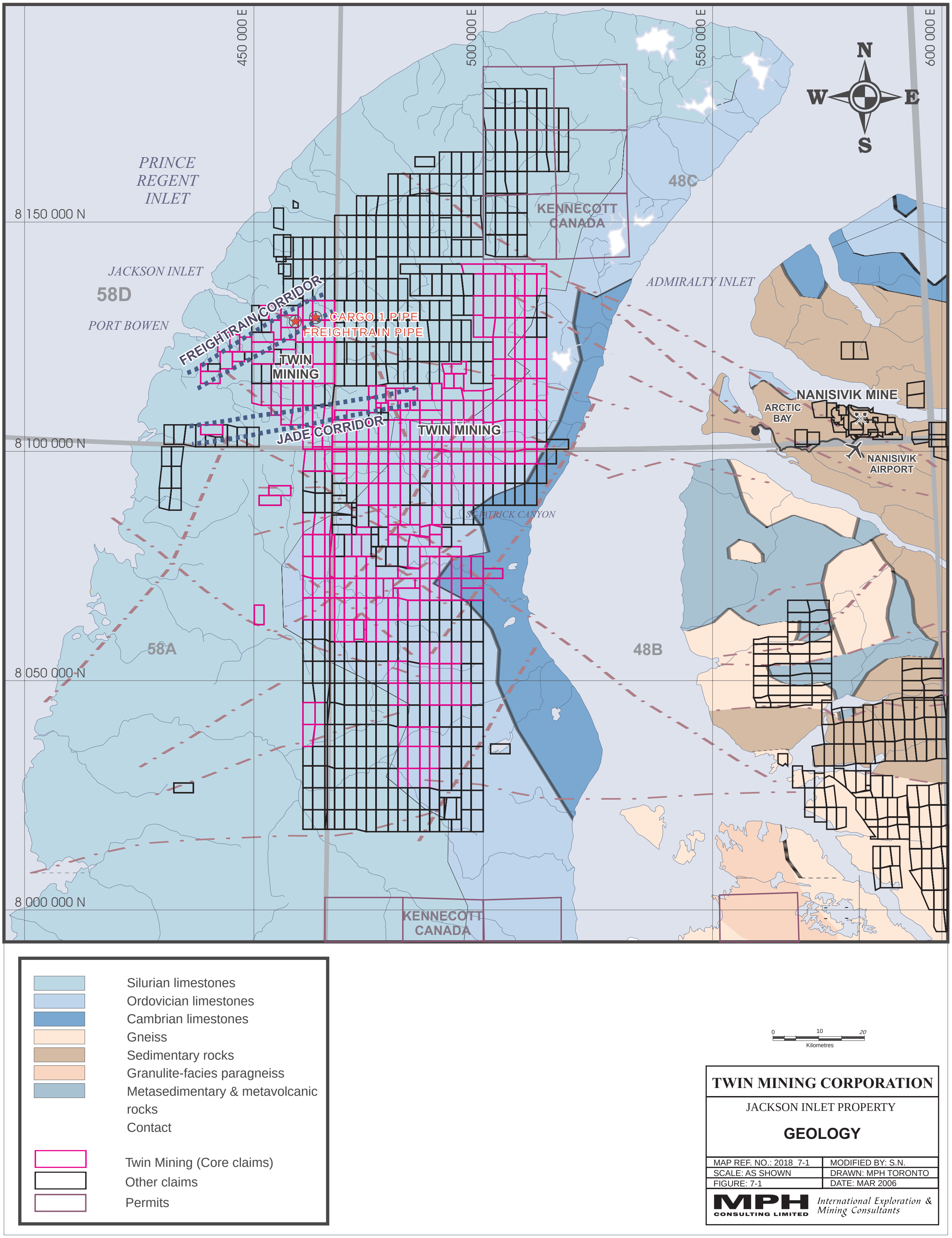
Brodeur Group

Cape Crauford Fm (0-408 m)

- dolomitic limestone, calcareous dolomite, evaporate solution breccia

Baillarge Fm (0-487 m)

-dolomitic limestone, minor calcareous dolomite, shaly carbonates, shale and two organic zones


450 000 E
500 000 E
550 000 E
600 000 E
8 150 000 N
8 100 000 N
8 050 000 N
8 000 000 N
N
S
W
E
PRINCE REGENT INLET
JACKSON INLET
58D
PORT BOWEN
FREIGHTRAIN CORRIDOR
CARGO 1 PIPE
FREIGHTRAIN PIPE
TWIN MINING
JADE CORRIDOR
TWIN MINING
KENNECOTT CANADA
48C
ADMIRALTY INLET
NANISIVIK MINE
ARCTIC BAY
NANISIVIK AIRPORT
ST PATRICK CANYON
58A
48B
KENNECOTT CANADA
Silurian limestones
Ordovician limestones
Cambrian limestones
Gneiss
Sedimentary rocks
Granulite-facies paragneiss
Metasedimentary & metavolcanic rocks
Contact
Twin Mining (Core claims)
Other claims
Permits
0
10
20
Kilometres
TWIN MINING CORPORATION
JACKSON INLET PROPERTY
GEOLOGY
MAP REF. NO.: 2018 7-1
MODIFIED BY: S.N.
SCALE: AS SHOWN
DRAWN: MPH TORONTO
FIGURE: 7-1
DATE: MAR 2006
MPH CONSULTING LIMITED
International Exploration & Mining Consultants

7.2.2 Paleozoic Lithologies

The northwestern portion of the Brodeur Peninsula forms part of the southern margin of the Arctic Platform and is underlain a thick succession of flat lying Ordovician and Silurian carbonates belonging to the Brodeur Group that were deposited in a shallow, tropical marine environment. As shown on Figure 7.2, on the Property, the Paleozoic lithologies dip and young to the west.

The basal Baillarge Formation has been subdivided into two distinctive members, A and B[13,6]. Member A consists of dolostone with interbedded, partly brecciated limestone. Member B consists of massive dolomitic limestone with local solution breccia.

The overlying Cape Crauford Formation has been subdivided into Lower and Upper Members separated by an unconformity. The Lower Member consists of limestone with interbedded dolomitic limestone and dolostone. The overlying Upper Member consists massive buff dolostone and limestone. Paleokarst breccias found specifically in the Lower Member are thought to have formed by dissolution of limestone rather than by evaporites during a period of subaerial exposure. This type of environment of paleo-brecciation suggests that the area also has high potential for lead-zinc mineralization[13,6].

7.2.3 Kimberlites

<u>Freightrain Kimberlite Prospect</u>

From the air, evidence of kimberlite is manifested as three dark brown to black circular patches along a NE-SW trending axis and surrounded by a larger tan-coloured halo approximately 600 m by 500 m. Within the darker patches, geological mapping by Twin Mining has identified five “showings” of kimberlite within an area approximately 400m by 125m. The surrounding tan-coloured halo is largely due to patches of sparse, tan-brown weathered fragments of kimberlite interspersed among predominantly angular limestone fragments on frost boil surfaces[5,28]. As some of the limestone fragments are also tan-coloured, Twin Mining geologists have suggested that this is the result of clay produced from the weathering of the limestone that was dolomitized by the introduction of Mg from the kimberlite magma. The surrounding unaltered limestone maintains its typical grey colour[19]. Mapping in 2000 identified 11 “areas of surface kimberlite fragments” in the immediate area of the five kimberlite showings.

The earliest field description of two showings of the Freightrain Kimberlite Prospect was by Lumina geologists[6]. The “kimberlite showings” were approximately 100 m apart, and were not considered actual outcrops, but distinctive areas of dark coloured material elevated two m above the surrounding level, and composed of coarse to fine shattered gravel identified as kimberlite in the field by the presence of purple garnets with well developed kelyphitic rims, rarer chrome diopsides and almost gem quality olivines[6]. The company reported both peridotitic and eclogitic pyropes from the kimberlite samples, however it is uncertain whether any samples were processed for microdiamonds.

A small ground magnetic survey covering an area 250 m by 200 m area carried out by Lumina indicated two elliptical eyes, 200 -400 gammas above background, with each eye 70 m by 35 m, elongated ENE and 40 m apart, set in more subdued (+/- 50- gamma anomaly, 200 m by 70 m with similar elongation. The core of the eyes are coincident with the two surface occurrences of kimberlite[6].

Subsequent mapping by Twin Mining has indicated that the main exposure of the Freightrain Kimberlite consists of a prominent, dark coloured knob within the aforementioned colour anomaly comprising olivine-macrocrystic kimberlite and approximately 50% cobbles of gneiss. The exposure is unusual as kimberlite is generally recessive weathering[5]. As shown on Figure 7-2, the Freightrain Kimberlite Prospect occurs as a series of 5 frost-heaved and weathered kimberlite showings and 11 "areas of surface kimberlite fragments" interspersed between predominant blocks of limestone in an oval area approximately 500 m by 250 m[22].

The unweathered kimberlite has a dark, brownish-green, fine-grained serpentinite-calcite groundmass comprising 20% to 30% of the rock. The remaining 70% to 80% consists primarily of light green olivine of random orientation, up to 2 cm in longest dimension. Fragments of garnet, harzburgite, ilherzolite, limestone, shale and gneiss are also present. Although hand specimens are reported to be only slightly magnetic, many contain 5% to 10% magnetic fragments. These fragments resemble siliceous iron-manganese shale or iron formation, and are prominent in weathered material in permafrost and residual soil above the kimberlite[5].

Petrological studies indicated that typical samples contained major amounts of weakly to completely serpentinized macrocrytic olivine, olivine-macrocrystic juvenile lapilli, kimberlite autoliths and an extremely fine grained, commonly pervasively altered, serpentine-rich matrix. Trace amounts of macrocrystic garnet, phlogopite, spinel and ilmenite were observed in thin sections. Kimberlite autoliths are olivine-macrocrystic and contain textural evidence of altered phlogopite, monticellite and /or calcite microphenocryts set in a very fine grained, serpentine-calcite-spinel-phlogopite matrix[5]. Garnet and chrome harzburgite and garnet-spinel lherzolite xenoliths (up to 10 cm) all have granular textures and are thoroughly serpentinized with only rare relics of primary minerals remaining[5].

Initial multi-element analyses by electron microprobe on approximately 100 grains of chromite and garnet from caustic fusion residues of weathered kimberlite showed "that approximately 40% of the chromite population could have been derived from potentially diamondiferous chromite harzburgite". Even though the garnets are more readily destroyed by caustic fusion than chromite, the preserved population contained:

-" 5% G10 sub-calcic pyrope garnet derived from potentially diamondiferous chromite harzburgite source rocks",

- 70 % G9 Cr-pyrope garnet derived from barren lherzolitic source rocks,

- 20 % G1 Ti Cr pyrope garnet having a megacrystic paragenesis,and

- "5% G3 eclogitic garnet derived from high pressure eclogitic source rocks, of which 17% of the 6 analyses are compositionally similar to eclogitic garnet from diamondiferous eclogite xenoliths."[71,12]

Subsequent multi-element analyses by electron microprobe of chromite and garnet grains selected from ten samples of 8-10 kg heavy mineral concentrate ("HMC") from fresher kimberlite showed that for the ten sites, between 14% and 68% of the chromite compositions plot within the compositional field of world wide chromite inclusions in diamond, with an average of about 46%. Interpretation of the garnet data shows that between 9% and 56% (av. 28%) of the garnets are classified as G10 Cr-pyrope and between 0% and 12% (av. 5%) as high pressure eclogitic garnet, both of which are similar to the compositions of garnet inclusions in diamond as determined form a world wide database[12].

Age dating on a number of Somerset Island kimberlite bodies has shown that the field was emplaced during the Cretaceous period. Although the kimberlites on Brodeur Peninsula have not been age dated, three of the Somerset Island kimberlites Ham, Elwin Bay and Batty Bay that are located approximately 100 km to the west, have ages ranging from 105 Ma to 88 Ma, and there are enough general similarities to assume that Freigthtrain and Cargo-1 kimberlites are of similar age[60].

Despite the completion of 20 core holes of which 314 m out of 1108 m was logged as kimberlite, the geometry of the Freightrain Kimberlite Prospect is not well known. The earliest interpretation was "16 small kimberlites clustered within a 500 m diameter area." Following a petrographic interpretation of some of the kimberlite as pyroclastic facies and the results of a magnetometer survey, a second interpretation suggested a single pipe approximately 500 m in diameter where giant blocks of limestone i.e., large floating reefs of country rock, had collapsed into the pipe after eruption.

Following field examination of the kimberlite showings and drill core from the 2001 campaign, an alternative interpretation was presented by P. Sobie of MPH who indicated that the textures and morphologies he observed appeared to be typical of small, dominantly intrusive bodies rather than large extrusive kimberlitic volcanic complexes. He suggested that the Freightrain Kimberlite Prospect was more likely an intrusion breccia-dyke system, and perhaps a root zone-diatreme-feeder dyke interface or transition zone[36].

Cargo-1 Kimberlite Prospect

The Cargo-1 kimberlite is located approximately 4.2 km east of Freightrain Kimberlite. It is characterized by an oval NE trending ground magnetic anomaly approximately 160 m by 80 m in size that is defined by the 58,100 nT contour with a peak amplitude of 58,400 nT against a background of less than 58,080 nT and has been tested by five core holes[66]. The ground magnetic anomaly of approximately 300 nT on the ground and 15 nT recorded by the helicopter system stands out clearly against an otherwise quiet background[66].

It differs from the Freightrain kimberlite in several ways. Perhaps owing to slightly thicker overburden of 2-3 m than the 1-2 m at Freightrain, it is not characterized by either surface colouration or kimberlite fragments on frost boil surfaces[46] Drilling has not encountered the large floating limestone reefs common at Freightrain.

Two distinct facies have been recognized in the drill core by Twin Mining geologists:

- coarse grained macrocrystic olivine facies is generally located at the margins, and

- a fine grained, ashy, facies in the central core area.

A petrographic study suggested a chemistry different from Freightrain as the garnet, chromite and clinopyroxene grains analysed have an overwhelming peridotite parentage, combined with a low eclogitic garnet population. Notable is the high percentage of chromite grains (40% to 70%) within the field of chromites derived form inclusions in diamonds. Based on preliminary observations, texture at both Freightrain and Cargo-1 suggest diatreme facies although the fine grained core at Cargo-1 appears to show primary banding, potentially a result of mechanical sorting[26]. Albeit, based on a very small sample of 924 kg, the number of diamonds per tonne has been calculated at 255 for the coarse grained rim and 188 diamonds for the fine grained core. With respect to the macro-diamonds, 2 were recovered from the core (or 10 per tonne) and 26 were recovered form the coarse rim (or 37 per tonne). A significantly larger sample is required to verify the preliminary results.

Magnetic susceptibilities for kimberlite intersected in vertical drill holes JI-CG-03, 04 and 05, that follow the strike axis of the magnetic anomaly but tend to lie outside the magnetic core were very uniform, in the range of 0.18 x 10-3 emu to 0.20 x 10 -3 emu, and are closely matched with the airborne profile model results of 0.1 x 10-3 emu[66].

7.2.4 Structural Features Potentially Affecting Kimberlite Emplacement

Structural features that may have influenced kimberlite emplacement on the Property may include any of the following[6,26]:

(i). The Middle-Proterozoic rocks assumed to underlie the Brodeur Peninsula are interpreted to have formed in a rift environment and are preserved in the Borden Peninsula immediately to the east of the Property in a series of NW trending grabens alternating with uplifted areas. The NW trending fault zones that mark graben and uplift margins have been intruded by Franklin diabase dykes.

(ii). A NE-SW striking gravity high of approximately 40 milligals trends across Prince Regent Strait which separates Brodeur Peninsula from Somerset Island to the west. The emplacement of kimberlites diatremes on Somerset Island that similarly intrude Paleozoic sediments, appears to have been controlled by a NE-SW striking fracture system. The Somerset Island kimberlites are located 70 km to 100 km west of the Property.

(iii). Paleozoic sedimentation was locally disrupted along the N-S trending Boothia Uplift on Somerset Island during several periods of uplift, and particularly during the Devonian.

(iv). A network of dominantly WNW to NNW trending Cretaceous/Tertiary structures that developed throughout northeastern Arctic in response to the Mid-Atlantic rifting and/or Eurekan rifting has been mapped by the GSC in the region and includes portions of Lancaster Sound along the north coast of Brodeur Peninsula. Portions of older structures described in subsections (i.) to (iii.) were likely reactivated during the rifting.

8.0 DEPOSIT TYPES

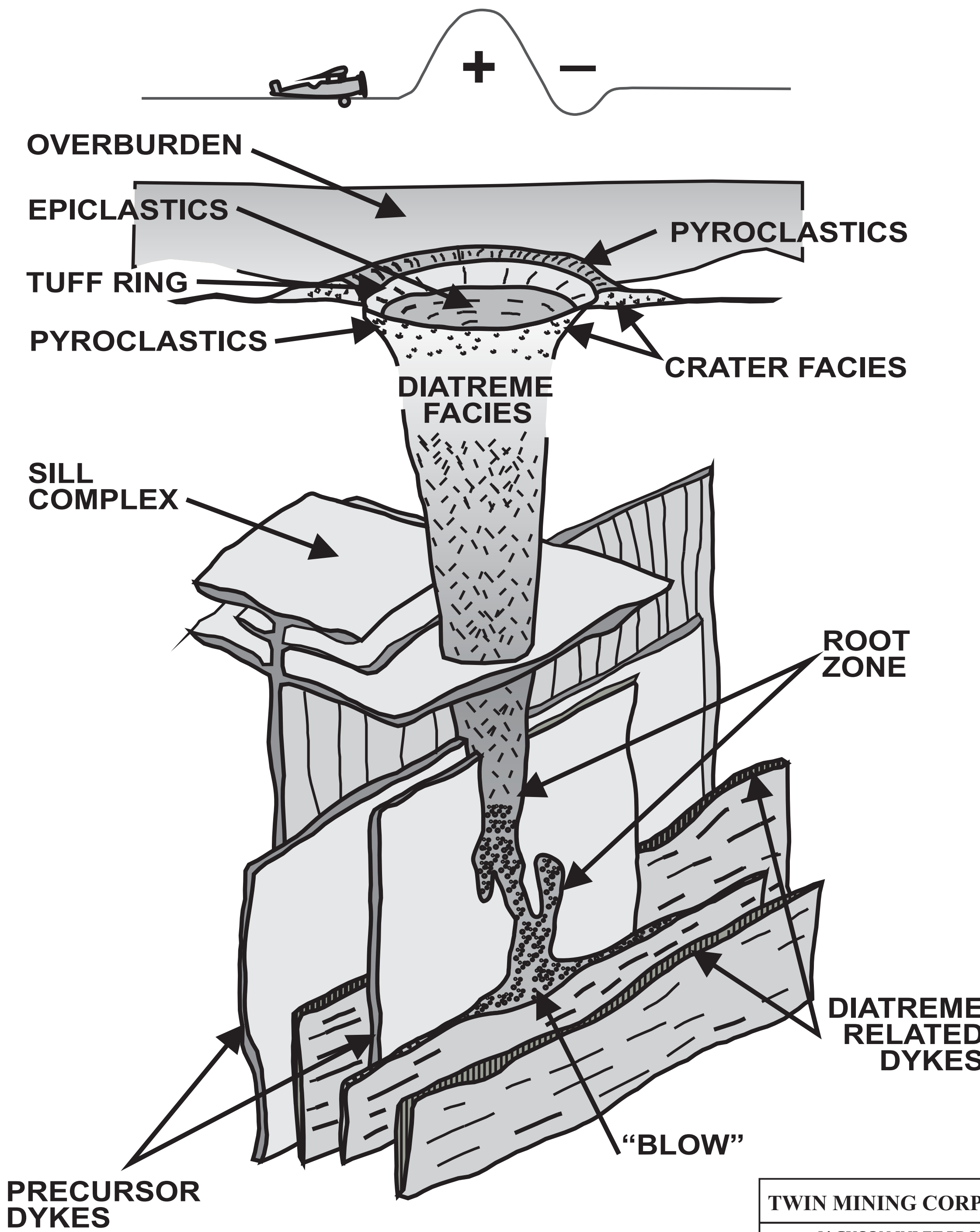
Twin Mining's exploration target is economic diamondiferous kimberlite pipes or dykes, of which Canada in now well-represented in that viable mines have been established some 1300km to the SW of Jackson Inlet at Ekati (BHP-Billiton 80% majority owner) and Diavik (RTZ 60% - Aber 40%) exploiting multiple closely oriented small pipes. Three other Canadian diamond projects are in development, namely Jericho of Tahera Diamond Corporation in Nunavut, Snap Lake of De Beers in the NWT, and Victor of De Beers in Northern Ontario.

The Jericho project, some 1200km SW of Jackson Inlet, is perhaps the best target size for Twin Mining, in that it is the smallest of the five, and represents a realistic minimum threshold for an Arctic diamond mine. The Tahera mine plan is based on resources and reserves totalling 5.5Mt at 0.85cpht, producing ~500,000 carats per annum over nine years, with the diamonds valued at C$145/ct. Capital costs for this ~75tph operation amount to ~C$100,000,000 and operating costs are estimated at C$70/tonne, but the project is still robust with a base case IRR of 30%[91].

Kimberlite is an ultrabasic, potassic, CO2-rich magma magmatic rock with a large component of macrocrystic mantle-derived minerals which must include olivine, as well as phenocrystic olivine. Significantly diamondiferous kimberlitic intrusions are generally confined to the cratonic portions of continents as is the case at Jackson Inlet where the Brodeur Peninsula is underlain by Archean Rae Domain rocks. Cratons are large coherent land masses that have been stable for considerable periods, up to billions of years, of geologic time. This appears to be critical to the formational process of diamond, which requires considerable pressure and temperature conditions known as the diamond stability field, and can only be found beneath the keels of cratonic land masses within the mantle. The diamond stability field generally exists between 120km and 200km below surface, with the kimberlite magma originating at deeper levels and capturing diamonds, as well as other diamond indicators that co-exist in this region of the mantle, on its ascent, as xenoliths and xenocrysts.

The morphology of any individual kimberlite deposit is dependent upon the near surface conditions of its emplacement, with all manner of hypabyssal dykes, sills and plugs possible with no explosive volcanism, and pipes forming when the magma interacts with groundwater and gases to form true volcanic eruptive diatremes that are the equivalent of tuffs and are known as tuffisitic kimberlite (+/- breccias). These can form craters deposits when subjected to later in-filling processes within the tuff cone, and in the classic Southern African model, a kimberlite will grade from hypabyssal root zones at depth into an outward tapering diatreme zone and be capped by crater facies sediments, over vertical distances of ~1,000m or more (Fig. 8-1). In Canada, there are numerous examples of pipes that are exclusively pyroclastic or volcaniclastic kimberlites formed by lava-fountain types of eruptions, and others that are resedimented volcaniclastic kimberlites, with the highest grading pipes generally the resedimented (RVK) types found around Lac de Gras.

KIMBERLITE INTRUSIVE MODEL



TWIN MINING CORPORATION	
JACKSON INLET PROPERTY	
KIMBERLITE MODEL	
MAP REF. NO.: 2018 8-1	MODIFIED BY: S.N.
SCALE: AS SHOWN	DRAWN: MPH TORONTO
FIGURE: 8-1	DATE: MAR 2006
MPH CONSULTING LIMITED	International Exploration & Mining Consultants

from Mitchell, 1991

9.0 MINERALIZATION

Twin Mining Corporation has carried out sampling programs on the two kimberlite intrusives discovered to date, the Freightrain and Cargo-1 bodies, as well as on limited dyke intersections near to Cargo-1. The results as reported herein must be considered as final, as Twin has not retained microdiamond sample residues, nor macrodiamond tailings and concentrates from their mini-bulk sample programmes. In essence this means it is not possible to carry out audit programmes to establish the veracity of previous results obtained by SGS Lakefield, both in terms of caustic fusion analysis, and the DMS work on larger samples.

9.1. Freightrain Kimberlite Prospect

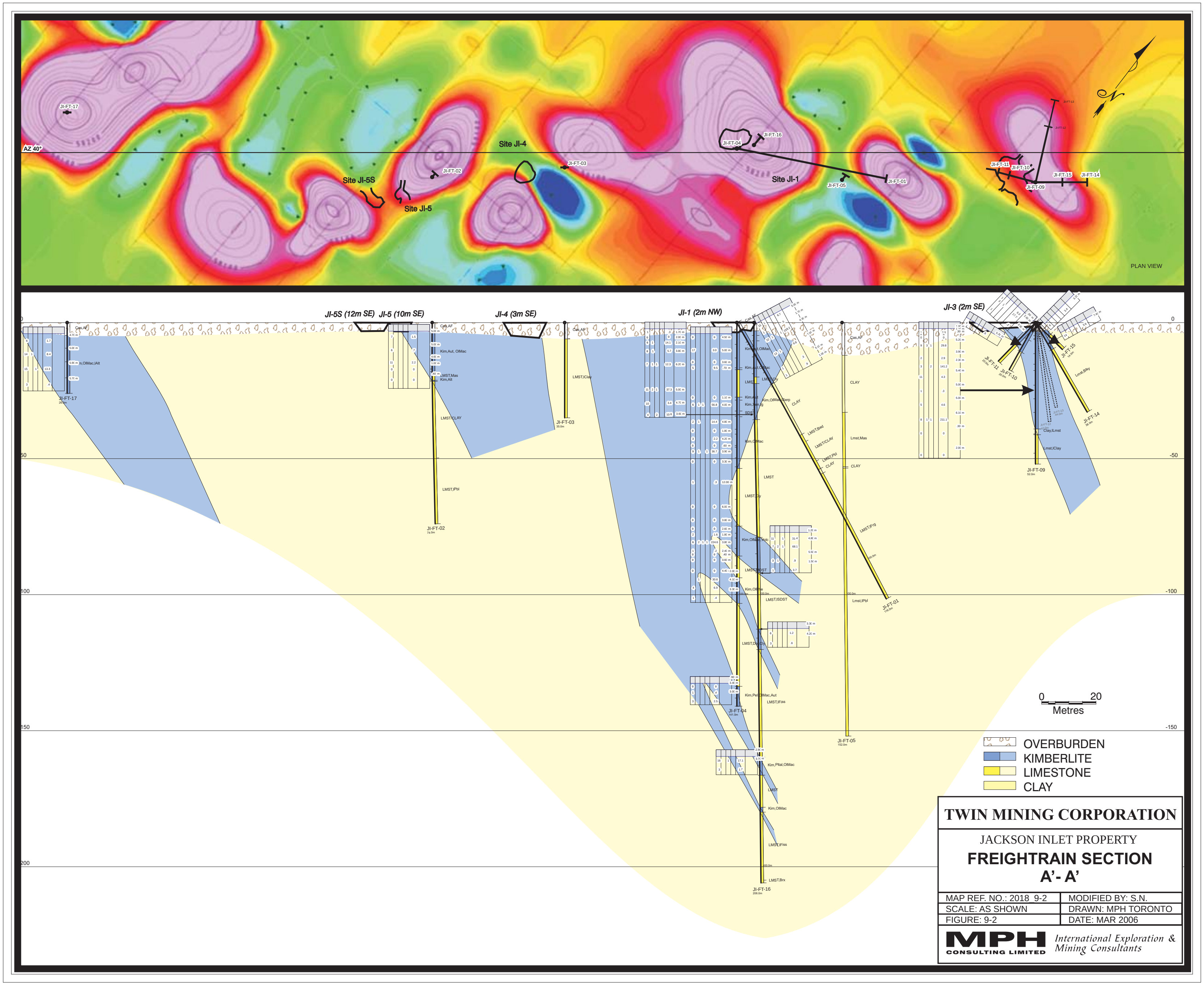
The Freightrain Kimberlite is poorly understood at present in terms of size, shape and internal variation, but has received multiple sampling campaigns as described below. At present it is known to occur sporadically over a surface area of approximately 125m x 400m, on the basis of pitting and magnetic surveying, with a very limited program of core drilling unable to demonstrate physical continuity between showings (Figs 9-1, 9-2, and 9-3). MPH considers it to be best described as a system of genetically related blows and dykes (on the basis of core and showing observations, petrographic observations and kimberlitic indicator mineral analysis) until such time as detailed exploration demonstrates otherwise.

9.1.1 Microdiamond Results from 2000 Samples[26]

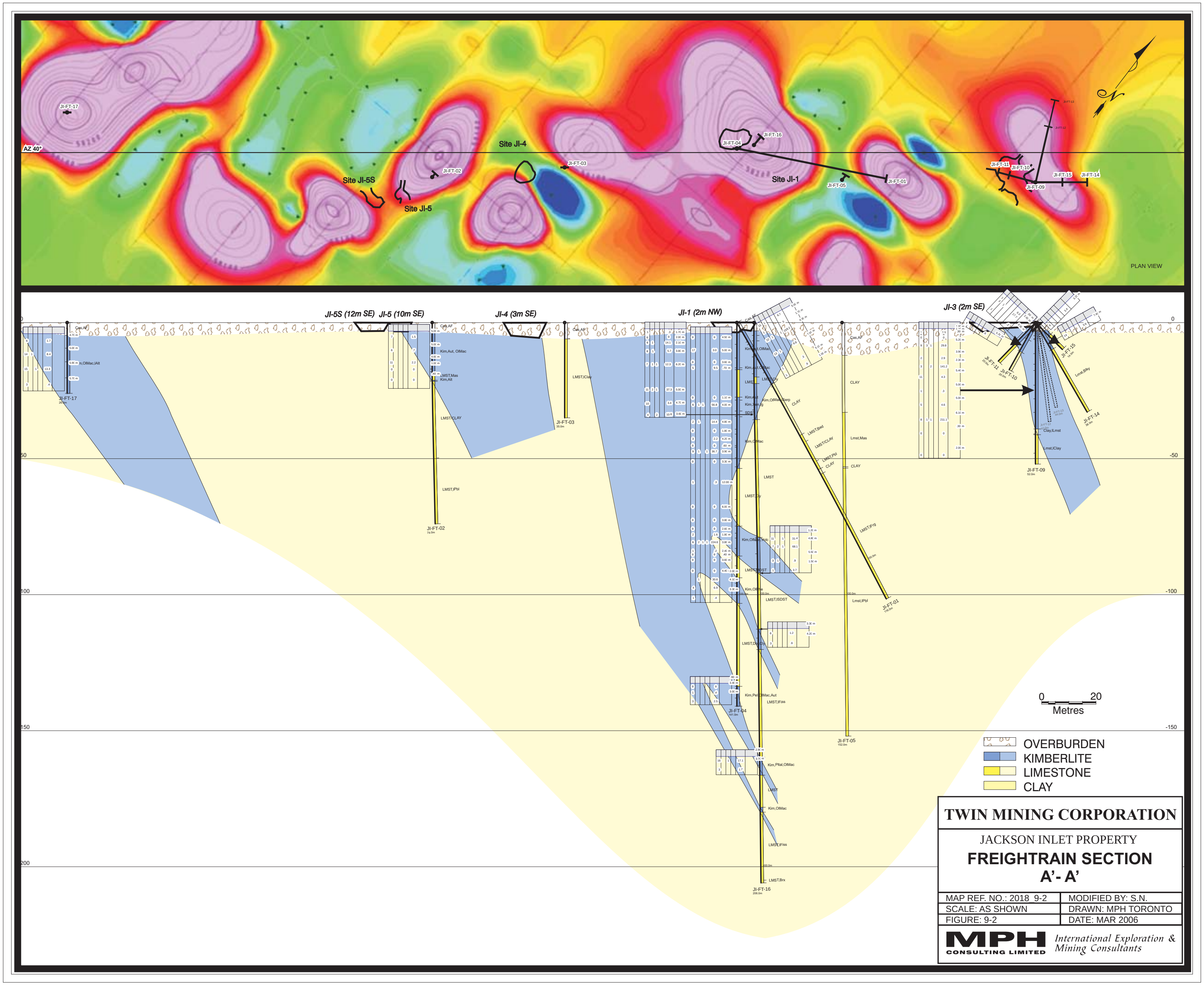
Diamond recoveries by caustic dissolution methods from the 2000 due diligence and trench sampling programs are presented in Table 9.1.

The due diligence sample was a composite of 17 surface samples of weathered kimberlite to a maximum depth of 10 cm collected randomly from an area of 10 m by 10 m exposed in the snow cover. A total of 42 diamonds were recovered with three greater than 0.5 mm in longest dimension, from 94.52kg of submitted material. The majority exhibited 85% -95% preservation, white colour and transparent to transluscent clarity.

It should be noted that the 2000 reconnaissance trench samples consisted of bedrock kimberlite, weathered kimberlite, kimberlite sands and scattered kimberlite fragments. At several localities, notably JI-1-4, trenches were able to be excavated to depths of 1-2m with the aid of blasting, and totalled 65.5 linear metres which were sampled by collecting blast-rock over representative sub-intervals, later combined for reporting over the entire trench length as below:



AZ 40°
Site JI-5S
Site JI-5
Site JI-4
Site JI-1
JI-FT-17
JI-FT-02
JI-FT-03
JI-FT-04
JI-FT-16
JI-FT-05
JI-FT-01
JI-FT-11
JI-FT-10
JI-FT-09
JI-FT-15
JI-FT-14
PLAN VIEW
JI-5S (12m SE)
JI-5 (10m SE)
JI-4 (3m SE)
JI-1 (2m NW)
JI-3 (2m SE)
0
-50
-100
-150
-200
50
100
150
200
0
20
Metres
OVERBURDEN
KIMBERLITE
LIMESTONE
CLAY
TWIN MINING CORPORATION
JACKSON INLET PROPERTY
FREIGHTRAIN SECTION
A'- A'
MAP REF. NO.: 2018 9-2
SCALE: AS SHOWN
FIGURE: 9-2
MODIFIED BY: S.N.
DRAWN: MPH TORONTO
DATE: MAR 2006
MPH
CONSULTING LIMITED
International Exploration & Mining Consultants


AZ 40°
Site JI-4
Site JI-5S
Site JI-5
Site JI-1
PLAN VIEW
JI-5S (12m SE)
JI-5 (10m SE)
JI-4 (3m SE)
JI-1 (2m NW)
JI-3 (2m SE)
0
20
Metres
OVERBURDEN
KIMBERLITE
LIMESTONE
CLAY
TWIN MINING CORPORATION
JACKSON INLET PROPERTY
FREIGHTRAIN SECTION
A'- A'
MAP REF. NO.: 2018_9-2
MODIFIED BY: S.N.
SCALE: AS SHOWN
DRAWN: MPH TORONTO
FIGURE: 9-2
DATE: MAR 2006
MPH
CONSULTING LIMITED
International Exploration & Mining Consultants

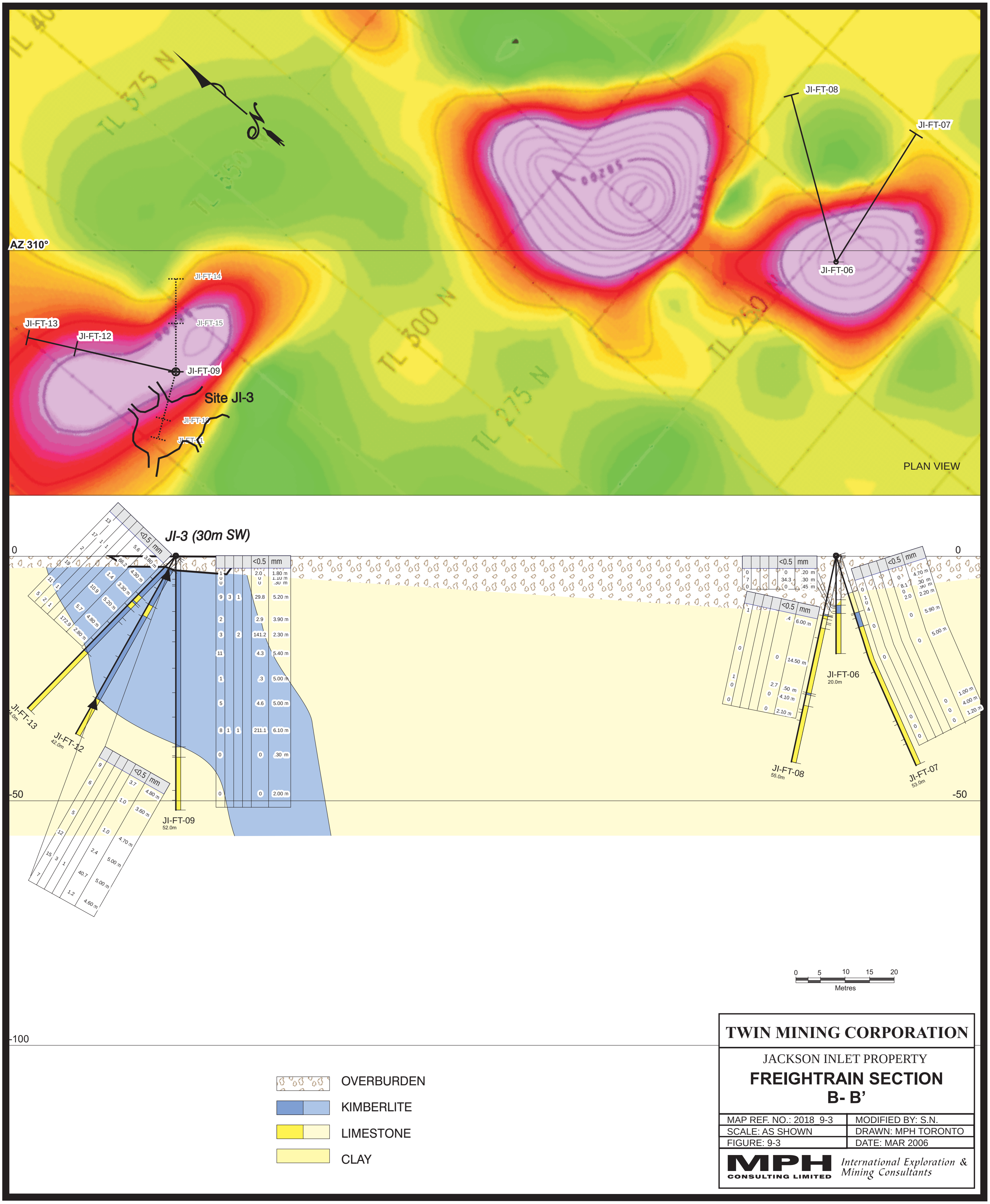

AZ 310°
JI-FT-08
JI-FT-07
JI-FT-06
JI-FT-13
JI-FT-12
JI-FT-09
Site JI-3
PLAN VIEW
JI-3 (30m SW)
0
-50
-100
OVERBURDEN
KIMBERLITE
LIMESTONE
CLAY
Metres
TWIN MINING CORPORATION
JACKSON INLET PROPERTY
FREIGHTRAIN SECTION
B- B'
MAP REF. NO.: 2018 9-3
MODIFIED BY: S.N.
SCALE: AS SHOWN
DRAWN: MPH TORONTO
FIGURE: 9-3
DATE: MAR 2006
MPH CONSULTING LIMITED
International Exploration & Mining Consultants

Table 9.1 Microdiamond Recovery From Twin Mining 2000 Samples[12, 83]

Sample Site	Weight (kg)	Total Stones	+1.7 mm	-1.7+ 1.18mm	-1.18 +.85 mm	-.85 +.60 mm	-.60+ .425 mm	-.425 +.30 mm	-.30+ .212 mm	-.212+ .150 mm	-.15+ .100 mm	Total Carats
Due Dilig. (JI-1/JI-2)	94.52	42	0	0	0	0	0	5	7	18	12	.00438
Trench JI-1	411.85	213	0	1	1	6	5	9	19	52	120	.06681
Trench JI-2	486.06	396	0	3	2	10	9	18	47	104	203	.19589
Trench JI-3	474.51	143	1	1	0	3	4	8	10	39	77	.25381
Trench JI-4	194.68	105	1	0	0	2	1	3	6	24	68	.15599
Trench JI-5	6.37	9	0	0	0	0	1	1	1	5	1	.00254
Pit JI-6	20.73	12	0	0	0	2	1	0	1	3	5	.02302
Total Trench	**1,688.72**	**920**	**1**	**5**	**3**	**23**	**21**	**44**	**91**	**245**	**486**	**.70244**

9.1.2 Macrodiamond Recovery from 2001 Spring Mini-Bulk Samples[26]

Diamond recoveries from the 2001 Spring Mini-Bulk samples are presented in Table 9.2a and 9.2b [27]

This was a minimalist program using non-mechanized methods, which was monitored and audited for QA/QC purposes by MPH Consulting Limited[60]. It should be noted that the samples were processed at SGS Lakefield through a small DMS plant to generate a concentrate, with final recovery through caustic fusion methods which therefore are near 100%, and are certainly better than would be obtained through xray and/or grease methods.

Table 9.2a +1.0mm Diamond Recovery from 2001 Spring Mini-Bulk Samples[10]

Sample No.	Sample Site	Weight (t)	No. Stones (+1 Sieve ~0.82mm)	No. Stones +3 mm	No. Stones 2-3 mm	No. Stones1-2 mm	Carats (+1 Sieve, ~0.82mm)	Two largest stones (cts)	Two largest stones (mm)
Sample #1	JI-6	1.91	12	2	3	7	0.560	0.311	3.28 x 2.99 x 2.70
									3.19 x 2.17 x 2.70
Sample #2	JI-3	16.50	74	6	22	46	3.084	1.217	6.98 x 5.64 x 3.60
									3.90 x 3.19 x 2.40
TOTALS		**18.41**	**86**	**8**	**25**	**53**	**3.644**		

MRDI monitored the processing of the samples and noted that while the process plant bottom cut-off screen was a 1 mm slotted wedge screen, the results reported by SGS Lakefield include a significant number of diamonds smaller than the bottom cut-off size. These small diamonds were recovered as a result of the caustic fusion process utilized for recovery, liberating locked microdiamonds from the +1 mm DMS concentrates fed to the caustic fusion kilns. Diamonds recovered from the DMS plant greater than #1 Antwerp diamond sieve (approximately equivalent to a 0.82 mm square mesh screen) are shown on Table 9.2a[15], with table 9.2b showing total diamonds recovered including the large number of microdiamonds in Sample 2 from JI-3.

MRDI concluded that due to the extremely small sample sizes, the number of diamonds was small and therefore firm conclusions were not possible, however indicated that the macro-diamond results appeared to be supported by the micro-diamond recoveries from the sample head feed character splits and recommended using a 0.5 mm bottom cut-off size for any future work to better define the micro/macro diamond relationship[15].

Table 9.2b Total Diamond Recovery from 2001 Spring Mini-Bulk Samples[15]

Sample No.	Sample Site	Sample weight (t)	Total Diamonds	Total Carats
Sample #1	JI-6	1.91	12	0.549
Sample #2	JI-3	16.50	131	3.097
TOTALS		**18.41**	**143**	**3.646**

In addition, microdiamond extraction selection and description was also completed on two samples of DMS tailings from samples JI-6 and JI-3 by SGS Lakefield using the standard caustic fusion technique with collection of caustic residue on a 150 –mesh screen. The results are shown on Table 9.2c[17] and indicate that no +1.0mm diamonds were missed in the processing of these two mini-bulk samples.

Table 9.2c Microdiamond Recovery from DMS Tailings 2001 Spring Mini-Bulk Samples[17]

Sample Site	Sample weight (kg)	# of -850/ +600um diamonds	# of -600/ +425um diamonds	# of -425/ +300um diamonds	# of -300/ +212 um diamonds	# of -212/ +150 um diamonds	150/ +100 um diamonds	Total # stones	Total weight (carats)
JI- 6	48	1	0	2	1	12	4	20	0.0028
JI-3	48	0	0	1	1	2	4	8	0.0009
TOTAL	**96**	**1**	**0**	**3**	**2**	**14**	**8**	**28**	**0.0037**

Diamond Valuation Opinion - 2001 Spring Mini-Bulk Samples[26]

Mr. Daniel de Belder, president of Diamond Trading N.V. of Antwerp N.V. performed an examination of the 86 diamonds (+1 Sieve) recovered from Site JI-6 and JI-3 and summarized the results of their examination as follows:[37]

"The diamonds are similar to high quality South African diamonds but without having their characteristic yellow colouring.

In comparison to the Slave Craton diamonds (e.g. Ekati and Diavik), which are generally octahedrons with higher occurrence of black piqués *(impurities) and maccles (intergrown diamond crystals), the Jackson Inlet sample differs in the total absence of boart, rejections, coated and cubes, which are low-grade and low-yield diamonds. We also noted the absence of small feathers (small diamond crystal flaws) that appear across the range of Slave Craton diamonds. The absence of feathers, impurities and colouring in the better half of the Freightrain sample, combined with their rounded shape will produce high yielding polished diamonds of good lustre, high purity and colour grading. The purity (IF - VVSI) and colour (average F or better) of the sawable (highest yield diamonds) is remarkably high and they represent a much higher proportion of the sample than is current in South African and Canadian kimberlite mine production."*[37]

It should be noted that Diamond Trading N.V. was a minority shareholder of Twin Mining at that time and therefore not an independent appraiser[37]

9.1.3 Macrodiamond Recovery from the 2001 Fall Mini-Bulk Samples[26]

A larger campaign of mini-bulk sampling by Twin Mining was carried out in August, 2001, with processing again taking place at SGS Lakefield Research utilizing DMS for concentration, with xray and grease table methods for recovery. A +0.85mm square mesh bottom screen size was used for this program. The combined 2001 mini-bulk samples produced a total of 30 diamonds between 0.25 carats and 1.557 carats. Details of diamond recoveries from the 2001 Fall Mini-Bulk samples are presented in Tables 9.3, 9.4 and 9.5[27,19]

Table 9.3 Macrodiamond Recovery from 2001 Fall Mini-Bulk Samples [9,19,20,]

Sample Site	Sample dry weight (t)	No. Diam. +0.85 mm	Total Carats	Recovered Grade ct/t (+0.85 mm)	AMEC Modeled Grade ct/t (+0.85 mm)	De Beers Modeled Grade ct/t (+1.0mm)	Largest Stone (ct)	Dimensions (mm)
JI- 1	76.30	257	17.309	0.227	0.5	0.26	1.557	7.10 x 6.27 x 3.94
JI-3	56.86	169	7.454	0.131	0.2	0.12	0.384	4.45 x 3.96 x 3.15
JI-4	41.87	273	14.083	0.336	0.5	0.50	0.867	6.98 x 5.64 x 3.60
JI-5	23.72	44	2.525	0.107	0.1	0.07	0.936	7.07 x 4.99 x 3.30
JI-5S	2.49	6	0.302	0.121	0.1	0.17	0.133	2.76 x 2.34 x 1.99
JI-6	26.95	120	4.535	0.169	0.3	0.20	0.466	3.90 x 3.73 x 3.50
TOTALS	**228.19**	**869**	**46.208**	**0.202**	**0.4**	**0.28**		

Dimensions (mm) and weights (ct) of the five largest stones overall in 2001 were[27]:

7.10 x 6.27 x 3.94 1.557 ct 7.07 x 4.99 x 3.30 0.936 ct

6.56 x 4.85 x 3.08	0.870 ct	6.21 x 4.22 x 3.46	0.867 ct
4.56 x 4.56 x 3.93	0.809 ct		

As noted on Table 9.3, the Recovered Grades from the six samples ranged from 10.7 cpht to 33.6 cpht. Twin Mining geologists reported that although the textures observed in the six samples appeared to be similar, the diamond population differed and may reflect differences in kimberlite geology[19,].

AMEC[15,20] audited the diamond processing and extraction at Lakefield on an on-going basis for Twin Mining and noted inefficiencies in the recover process around the bottom cut-off size resulting from diamond lock-up and screening. As a result, a modeled total diamond content grade/size curve was developed for each sample, which takes into account of these process inefficiencies and more closely depicts the total diamond content grade/size curve. The modeled total diamond grades as shown on Table 9.3 were developed by fitting a second- order polynomial equation to the data points and integrating the area under the curve to yield a modeled diamond grade in carats per tonne[19,20].

AMEC reported that "due to the relatively small mini-bulk sample sizes, the confidence limits around the modeled grades for each individual samples should be considered as indicative, rather than absolute, and should be viewed as one of the significant criteria for ranking the mini-bulk samples for future follow-up sampling.

An assessment of the Freightrain data was carried out by De Beers Mineral Resource Management Department (MRM) on the micro and macrodiamond database of Twin Mining, with the exception of the microdiamond data from core holes. The MRM approach involves re-classifying the diamonds according to the Diamond Trading Company diamond sieves and lower critical stone sizes, and using the individual weights of the recovered stones. MPH notes that the results are in general agreement, though of lower tenor, than the AMEC results, which is to be expected given De Beers' rigorous approach and higher minimum cut-off. De Beers notes that the combined JI samples exhibit a size frequency distribution that is indicative of a coarse size distribution which could have positive implications on diamond revenue[82].

It should be noted that the modeled grades shown in Table 9.3 represent total diamond content. A recovery factor must be applied to account for inefficiencies in a commercial processing plant." [19,20]

Finally, MPH notes that 46.208 carats is a very small diamond parcel, and in this case is derived from spot surface localities for which representivity is not understood at present. A preliminary evaluation of a kimberlite diamond deposit generally requires a minimum of 2,000 carats, that are spatially and geologically representative, to provide useable grade and value estimates.

Diamond Valuation Opinion - 2001 Fall Mini-Bulk Samples[26]

Twin Mining also submitted the Fall program diamonds to Diamond Trading N.V. for examination. Again cognizance must be taken that Diamond Trading N.V. was a minority shareholder of Twin Mining and therefore not an independent appraiser.

Mr. Daniel de Belder, president of Diamond Trading N.V. summarized the results of his examination as follows:

"The quality profile of the diamonds of the present sample is consistent with the sample reported previously. Notable is the high colour and purity grading of the sawable and makeable stones and the absence of boart, rejection, cubes and coated. As before, the better quality diamonds are rounded rather than angular, giving a high yield after polishing (recovery of polished as a percentage of rough). Compared to the previous sample, larger, top quality diamonds are present and more small diamonds were recovered. Noteworthy is the even distribution of the higher quality diamonds across the better size range with a stronger bias in the larger sizes. (Conversely there is a bias to lower quality in the very small sizes, i.e. smaller than 0.05 ct). In terms of value, the gem quality sawable and makeable diamonds represent 89% of total value." [26]

Table 9.4 Macrodiamond Recovery from 2001 Fall Mini-Bulk Samples- Results by Screen Size and Number of Diamonds [9,19,20,]

Sample Site	Sample weight (dry t)	# +4.75mm diamonds	# 3.35 to 4.7 mm diamonds	# 2.36 to 3.3 mm diamonds	# 1.70 to 2.36mm diamonds	# 1.18 to 1.7 mm diamonds	# 0.85 to 1.18mm diamonds	Total diamonds
JI- 1	76.30	2	5	21	40	93	96	257
JI-3	56.86	0	0	10	21	64	74	169
JI-4	41.87	0	1	15	49	100	108	273
JI-5	23.72	0	1	2	4	16	21	44
JI-5S	2.49	0	0	0	2	3	1	6
JI-6	26.95	0	0	1	15	49	54	120
TOTAL	**228.19**	**2**	**8**	**49**	**131**	**325**	**869**	**869**

Table 9.5 Macrodiamond Recovery from 2001 Fall Mini-Bulk Samples- Results by Screen Size and Carat Weight [9,19,20,]

Sample Site	Sample weight (dry t)	+4.75mm Carats	3.35 to 4.75mm Carats	2.36 to 3.3 mm Carats	1.70 to 2.3 mm Carats	1.18 to 1.70mm Carats	0.85 to 1.18mm Carats	Total Carats
JI- 1	76.30	2.346	3.050	4.224	3.377	3.107	1.205	17.309
JI-3	56.86	0	0	2.734	1.735	2.066	0.919	7.454
JI-4	41.87	0	0.868	4.132	4.411	3.359	1.313	14.083
JI-5	23.72	0	0.936	0.538	0.260	0.484	0.307	2.526
JI-5S	2.49	0	0	0	0.210	0.086	0.006	0.302
JI-6	26.95	0	0.285	0.466	1.540	1.567	0.677	4.535
TOTAL	**228.19**	**2.346**	**5.139**	**12.094**	**11.532**	**10.669**	**4.427**	**46.208**

In addition, microdiamond extraction selection and description was also completed on composite character split samples of DMS head feed from each mini-bulk sample by SGS Lakefield using the standard caustic fusion technique with collection of caustic residue on a 150 –mesh (0.10mm) screen. The results are shown on Table 9.6[20] and were used to assist in establishing size frequency plots for the six samples and thereafter model grade curves.

Table 9.6 Microdiamond Recovery from 2001 Fall Mini-Bulk Character Split Samples[20, 84]

Sample Site	Weight (kg)	# -1.7 +1.18mm	# -1.18 +.85mm	# -.85 +.60mm	# -.60 +.425 mm	#-.425 +.30mm	# -.30 +.212 mm	# -.212 +.150 mm	-.150 +.10 mm	Total diamonds	Total weight Carats
JI- 1	100	1	0	0	2	5	15	24	24	71	.03410
JI-3	100	0	0	2	1	2	1	6	15	27	.01325
JI-4	100	0	0	2	1	6	10	17	37	73	.01456
JI-5	100	0	2	0	2	1	6	4	9	24	.01851
JI-5S	75	0	1	1	0	1	0	3	0	6	.01076
JI-6	100	0	0	2	0	1	1	10	15	29	.01348
TOTALS	**575**	**1**	**3**	**7**	**6**	**14**	**33**	**64**	**100**	**230**	**.10466**

9.1.4 Microdiamond Recovery from 2001 Core Samples[26]

Microdiamond samples from the 2001 core drilling were processed at SGS Lakefield using caustic dissolution techniques and a 0.100mm cut-off, and are presented in Table 9.6[26].

Table 9.7 Microdiamond recovery from 2001 Core Samples from Freightrain[26]

Hole Number	FT Zone	Sample weight (kg)	+1.7 mm	1.18 mm	0.85 mm	0.60 mm	0.425 mm	0.30 mm	0.212 mm	0.15 mm	0.10 mm	Total Diamonds	Carats
JI-FT-01	FT-CORE	85.23	0	1	0	0	1	4	9	18	24	57	0.03702
JI-FT-02	FT-SW	64.85	0	0	0	0	0	0	2	4	18	24	0.00089
JI-FT-04	FT-CORE	311.80	0	2	1	2	5	0	4	29	28	71	0.05365
JI-FT-06	FT-EAST	3.29	0	0	0	0	0	0	0	4	3	7	0.00030
JI-FT-07	FT-EAST	56.36	0	0	0	0	0	0	0	1	4	5	0.00018
JI-FT-08	FT-EAST	37.88	0	0	0	0	0	0	0	1	1	2	0.00008
JI-FT-09	FT-NE	116.21	0	1	1	1	2	4	5	15	19	48	0.06061
JI-FT-10	FT-NE	19.92	0	1	0	0	0	0	0	1	3	4	0.00013
JI-FT-11	FT-NE	27.52	0	0	0	0	0	1	0	1	4	6	0.00130
JI-FT-12	FT-NE	112.23	0	0	0	0	3	2	3	10	40	58	0.00836
JI-FT-13	FT-NE	77.55	0	0	1	1	0	4	10	21	36	73	0.02654
JI-FT-14	FT-NE	22.37	0	0	0	0	0	0	4	2	8	14	0.00080
JI-FT-15	FT-NE	8.00	0	0	0	0	0	0	1	1	4	6	0.00027
JI-FT-16	FT-CORE	225.94	0	0	1	2	3	6	16	35	49	112	0.03453
JI-FT-16B	FT-CORE	31.63	0	0	0	0	0	2	4	1	7	14	0.00131
JI-FT-17	FT-SW	76.00	0	0	0	0	1	1	6	15	17	40	0.00484
TOTAL		**1,276.78**	**0**	**5**	**4**	**6**	**15**	**24**	**64**	**159**	**265**	**541**	**0.23081**

For convenience, the holes were grouped by Twin Mining into 4 different locations in order to compare with the six 2001 Fall mini-bulk sample results[27]. MPH would note that the table below is lacking intersections totaling 172.21kg. that were dilute internal intervals within certain holes that were dominantly limestone country rock but still returned a total of 3 microdiamonds. The +0.85mm and +1.18mm columns were added by MPH.

Sample grouping	Samples Aggregated	Sample weight (kg)	No. of Micro-diamonds (-0.5 mm)	No. of Macro-diamonds* (>0.5mm)	No. of +0.85mm Diamonds	No. of +1.18mm Diamonds
FT-Core[27]	FT-01, -04,-16	573.90	220	32	5	3
FT-NE[27]	FT-09 to -15 incl.	378.09	190	19	4	2
FT-East[27]	FT-06, -07,-08	11.73	13	0	0	0
FT-SW[27]	FT-02, -17,-03	140.85	62	2	0	0
TOTALS[27]		**1,104.57**	**485**	**53**	**9**	**5**

* defined as exceeding 0.5 mm in one dimension

Note: 15 macro-diamonds measure greater than 0.5 mm in two dimensions

8 macro-diamonds measure greater than 1.0 mm in two dimensions

The four largest stones were[27]:

2.08 x 1.43 x 0.94 mm	2.05 x 1.43 x 0.21 mm
2.02 x 1.31 x 0.96 mm	1.71 x 1.57 x 1.27 mm

and were described by Lakefield as fragments. The diamonds are white, transparent and gem quality character[10].

FT East Area: consists of holes JI-FT-06, -07, and -08 drilled on a magnetic anomaly located east of the main trenches where frost-heaved kimberlite is abundant. The three holes intersected only minor amounts of kimberlite material (totaling 11.73 kg) which returned 13 microdiamonds and no macrodiamonds. The magnetic anomaly associated with the FT East Area consists of two magnetic highs approximately 25 m to 40 m in diameter oriented approximately N45W. Only the central high was tested. Twin Mining geologists interpreted that these anomalies represent a SE trending dyke, possibly related to the FT NE Area[26].

FT NE Area: includes site JI-3 where a mini-bulk sample totaling 56.86 t was collected (refer to Table 9.5). A series of seven core holes (JI-FT-09 to -15) were drilled to investigate the relationship between the magnetic anomaly associated with the FT NE Area, the JI-3 Site, and the remainder of the Freightrain Kimberlite Prospect[26].

A total of 95.5 m of kimberlite material was recovered from these holes, for a total weight of 378.09 kg. All kimberlite samples processed contained diamonds. Out of 209 diamonds recovered, 19 were classified as macrodiamonds, seven of which are greater than 1mm in at least one dimension. The kimberlite body below the JI-3 Site appears as a small offshoot of the main pipe, plunging WNW, similar to the kimberlite occurring in the FT-Core Area[26].

FT Core Area: includes the JI-1 Site and the two deepest core holes drilled to date, JI- 04, and –16. Part of the FT Core Area was tested by holes JI-FT-01 and JI-FT-05 which did not intersect kimberlite[26].

A total of 573.9 kg of kimberlite was recovered from holes JI-FT–01, -04, and –16. Both holes JI-FT–04 and JI-FT-16 were stopped prematurely due to tightening around the rods from the unconsolidated clay sequences in the upper parts of the holes. A total of 252 diamonds were recovered from the three holes, including 32 macrodiamonds. Seven of the macrodiamonds are greater than 1 mm in at least on dimension while an additional three are greater than 2mm in at least one dimension. The diamond distribution does not show any obvious change at depth, with macrodiamonds evenly distributed throughout the core samples[26].

The percentage of macrodiamonds with respect to both the total diamond count (12%) and to the total weight (56 per tonne) is highest at the FT Core Area when compared to other drilled areas at the Freightrain Kimberlite Prospect. On the other hand, the amount of diamonds with one dimension greater than 1 mm is subtly higher at the NE Area (18.5 per tonne) compared to the FT Core Area (17.4 per tonne), but none of the holes drilled at the FT NE Area contained diamonds greater than 2 mm in one dimension while three were recovered from those drilled at the FT Core Area[26].

FT SW Area: includes holes JI-FT-02, -03 and –17. Hole JI-FT–02 is located near the bulk sample JI-5 and JI-5S sites while hole JI-FT-03 is 15 m NE of bulk sample sitesite JI-4. Hole JI-FT-03 remained in limestone from the collar to 35 m before being stopped. A total of 140.85 kg of kimberlite material was obtained from holes JI-FT-02 and JI-FT 17. The latter was stopped in kimberlite at a depth of 26 m due to poor weather conditions and lack of water. A total of 64 diamonds were recovered, including two macrodiamonds both from hole JI-FT-17, of which one measured more than 1mm in one dimension[26].

The ground magnetic survey in the vicinity of JI-FT-17 shows a N-S magnetic high, 100 m x 30 m, trending N-S and the largest observed within the Freightrain Kimberlite Prospect[26].

9.2. Cargo-1 Kimberlite Prospect

Cargo-1 appears on the basis of geophysics and limited core drilling (and associated petrographic/kimberlitic indicator mineral analysis) carried out thus far, to be a single discrete pipe-like intrusion approximately 150m x 50m in longest dimensions. An associated dyke-like body of unknown dimensions is indicated to be present to both the East and West of Cargo-1, which has blow-like enlargements along it as demonstrated by the small satellite geophysical feature drilled by hole CG-05 (Fig. 9-4). This may or may not be contiguous with the main body of Cargo-1. Diamond recoveries from the 2001[27] and 2002[8] core drilling samples are presented in Table 9.7.

Table 9.8 Microdiamond Recovery from Cargo-1

Hole Number	Sample weight (kg)	Micros -0.5 mm	Macros +0.5mm	+1.7 mm	1.18 mm	0.85 mm	0.60 mm	0.425 mm	0.30 mm	0.212 mm	0.15 mm	0.10 mm	Carats
JI-CG1-01	336.31	65	9	0	0	0	1	1	6	8	27	31	.01197
JI-CG1-02	587.88	115	34	0	1	1	2	6	16	19	32	73	.06519
2001 Total	924.19	180	43	0	1	1	2	7	22	27	59	104	.07716
JI-CG1-03	284.00	41	1	0	0	0	0	1	2	7	12	20	.00505
JI-CG1-04	647.00	166	24	1	1	0	2	5	17	24	53	86	.14542
JI-CG1-05	87.00	10	0	0	0	0	0	0	0	0	5	5	.00036
2002 Total	1,018.00	217	25	1	1	0	2	6	19	31	70	111	.15083
Totals	**1,924.19**	**397**	**68**	**1**	**2**	**1**	**4**	**13**	**41**	**58**	**129**	**215**	**.22799**

* Macrodiamonds are defined as exceeding 0.5 mm in one dimension

Six macro-diamonds measure greater than 0.5 mm in two dimensions in core samples from the two 2001 holes.

A 5 m sub-sample of core from hole JI-CG1-02 weighing 18.65 kg returned 11 diamonds of which four were macrodiamonds[10]. Two of these stones were greater than 1 mm weighed 0.028 carats, measured 2.05 x 1.48 x 1.12 mm and 1.14 x 0.80 x 0.22 mm and were described by Lakefield as fragments. The diamonds are white, transparent and gem quality character[10.] Relating the 2001 sample results to the geology, and albeit, based on a very small sample, the number of diamonds per tonne was calculated Twin Mining geologists at 255 for the coarse grained rim, and 188 diamonds for the fine grained core. With respect to the macro-diamonds, two were recovered from the core (or 10 per tonne) and 26 were recovered from the coarse rim (or 37 per tonne). A significantly larger sample is required to verify the preliminary results[26].

The two largest stones recovered in the 2002 core samples were both in hole JI-CG1-04 with the following dimensions (mm) and weights (ct)[8]:

2.34 x 2.25 x 1.65 mm   0.0869 carats

2.14 x 1.68 x 1.14 mm   0.0269 carats

The diamonds recovered from core holes JI-CG-03 to JI-CG1-05, were reported to be mostly white and transparent[3,46]. The results were reviewed by John Lindsay, P. Eng, of AMEC who concluded that the results were consistent with those from JI-CG-01 and JI-CG1-02.

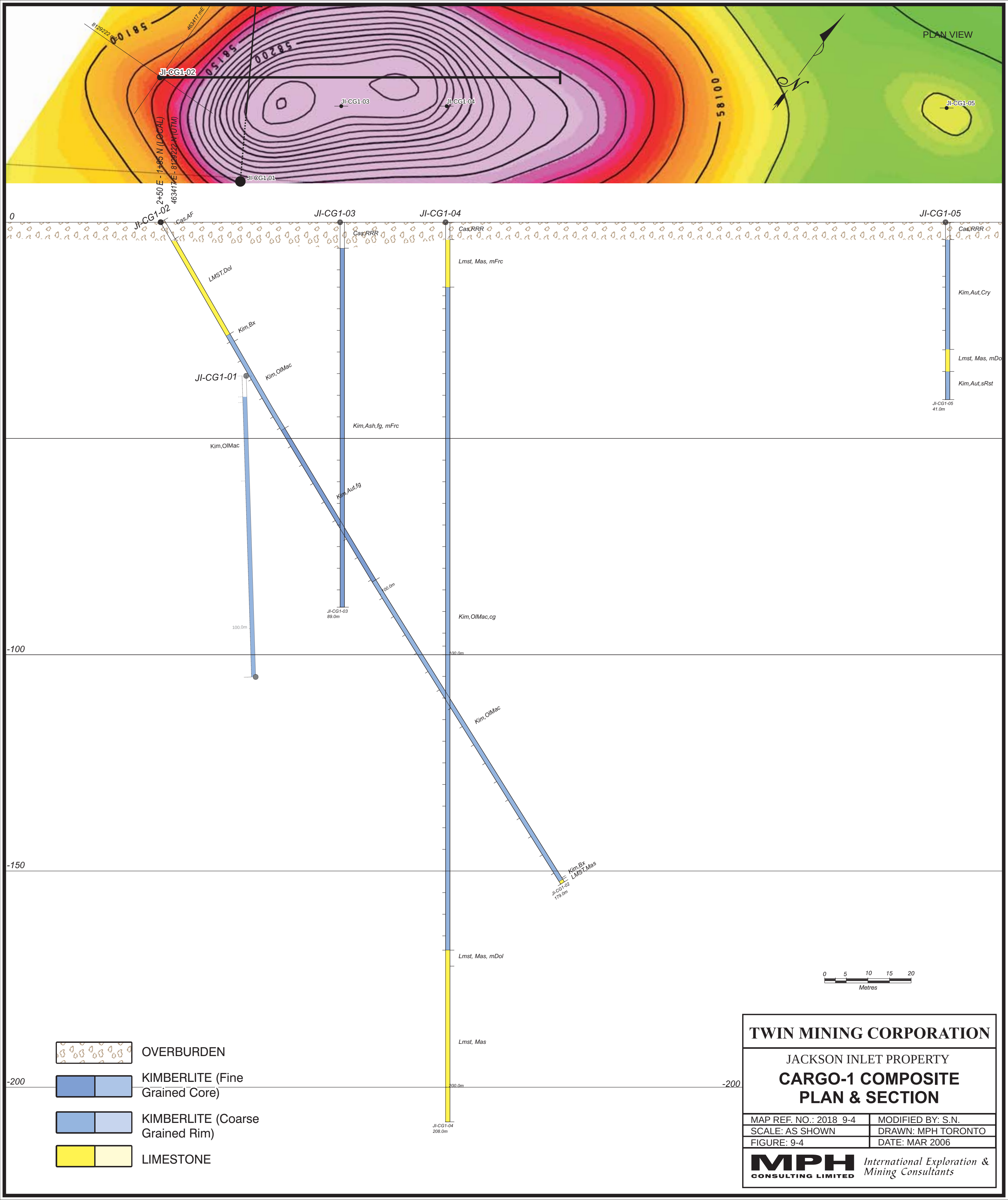
9.3. Kimberlite Fragments Corridor Area

In 2003, Twin Mining personnel discovered a series of kimberlite fragments in a 1700 m long NE-SW trending area herein referred to as the Kimberlite Fragment Corridor Area, that extends 700 m NE from the Cargo-1 Kimberlite Prospect and for 1000 m to the SW towards the Freightrain Kimberlite Prospect[48] (Fig 9-5).

Twin Mining geologists interpreted the fragments to originate from kimberlite bodies beneath and brought to surface by frost boil action. They were mapped to occur across widths up to 50 m and three samples totaling 50.51 kg were collected from separate portions along a 1700 m length. Details for the 13 microdiamonds recovered from the three samples are in Table 9.9[48]. Most are diamond fragments.

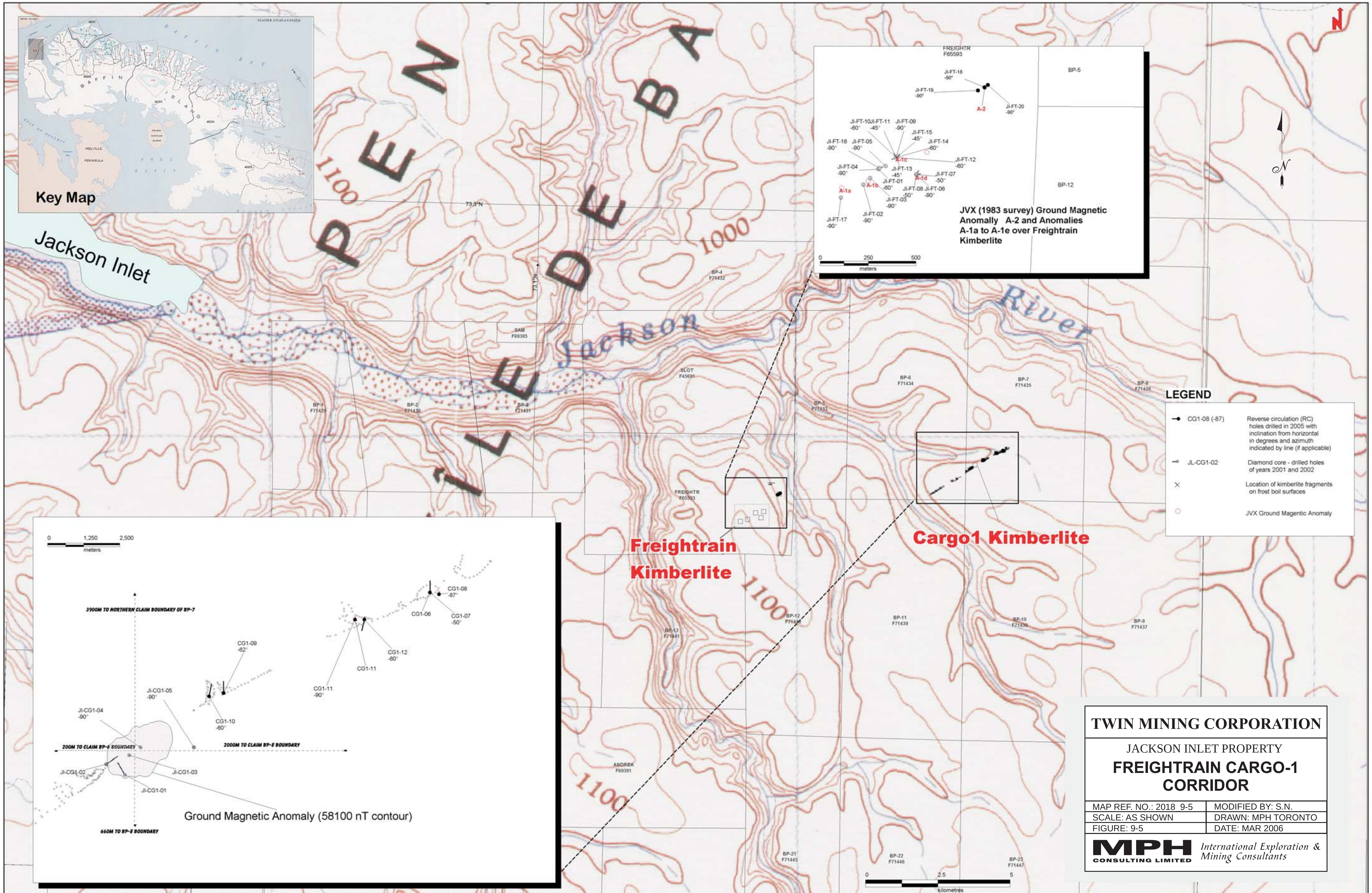
Table 9.9 Microdiamond Recovery from the Kimberlite Fragments Corridor: Diamonds By Sieve Class[48]

Sample Number	Sample weight (kg)	Total	0.60 mm	0.425 mm	0.30 mm	0.212 mm	0.15 mm	0.10 mm	Carats
886701	14.30	2	0	0	0	0	0	2	.000055
886702	15.87	6	0	0	0	1	2	3	.000425
886703	20.34	5	0	0	0	2	1	2	.000495
TOTAL	**50.51**	**13**	**0**	**0**	**0**	**3**	**3**	**7**	**.000975**



PLAN VIEW
JI-CG1-02
JI-CG1-03
JI-CG1-04
JI-CG1-05
JI-CG1-01
58100
58150
58200
2+50 E - 1+65 N (LOCAL)
463417E - 8129222 N (UTM)
0
-100
-150
-200
Cas,AF
LMST,Dol
Kim,Bx
Kim,OlMac
Cas,RRR
Kim,Ash,fg, mFrc
Kim,Aut,fg
Lmst, Mas, mFrc
Kim,OlMac,cg
Lmst, Mas, mDol
Lmst, Mas
Kim,Aut,Cry
Kim,Aut,sRst
LMST,Mas
JI-CG1-03 89.0m
JI-CG1-04 208.0m
JI-CG1-05 41.0m
JI-CG1-02 179.0m
100.0m
200.0m
0 5 10 15 20
Metres
OVERBURDEN
KIMBERLITE (Fine Grained Core)
KIMBERLITE (Coarse Grained Rim)
LIMESTONE
TWIN MINING CORPORATION
JACKSON INLET PROPERTY
CARGO-1 COMPOSITE PLAN & SECTION
MAP REF. NO.: 2018 9-4
MODIFIED BY: S.N.
SCALE: AS SHOWN
DRAWN: MPH TORONTO
FIGURE: 9-4
DATE: MAR 2006
MPH CONSULTING LIMITED
International Exploration & Mining Consultants

No microdiamonds were recovered from the 2005 RC chip samples from 1.83 m interval of kimberlite intersected in RC hole RC-CG1-12, which was the only material submitted from the 2005 work[80]. This hole was drilled some 330m NE of the Cargo-1 kimberllite.



Key Map
Jackson Inlet
PENINSULE DE BA
Jackson River
1100
1000
JVX (1983 survey) Ground Magnetic Anomally A-2 and Anomalies A-1a to A-1e over Freightrain Kimberlite
A-2
A-1a
A-1b
A-1c
A-1d
0 250 500 meters
LEGEND
CG1-08 (-87) Reverse circulation (RC) holes drilled in 2005 with inclination from horizontal in degrees and azimuth indicated by line (if applicable)
JL-CG1-02 Diamond core - drilled holes of years 2001 and 2002
Location of kimberlite fragments on frost boil surfaces
JVX Ground Magentic Anomaly
Freightrain Kimberlite
Cargo1 Kimberlite
0 1,250 2,500 meters
3900M TO NORTHERN CLAIM BOUNDARY OF BP-7
200M TO CLAIM BP-6 BOUNDARY
2000M TO CLAIM BP-8 BOUNDARY
660M TO BP-8 BOUNDARY
Ground Magnetic Anomaly (58100 nT contour)
CG1-08 -87°
CG1-07 -50°
CG1-06
CG1-12 -60°
CG1-11
CG1-09 -62°
CG1-10 -60°
CG1-11 -90°
JI-CG1-05 -90°
JI-CG1-04 -90°
JI-CG1-02
JI-CG1-03
JI-CG1-01
TWIN MINING CORPORATION
JACKSON INLET PROPERTY
FREIGHTRAIN CARGO-1 CORRIDOR
MAP REF. NO.: 2018 9-5
MODIFIED BY: S.N.
SCALE: AS SHOWN
DRAWN: MPH TORONTO
FIGURE: 9-5
DATE: MAR 2006
MPH CONSULTING LIMITED
International Exploration & Mining Consultants
0 2.5 5 kilometres

10.0 EXPLORATION

10.1. Introduction

The Property is at an intermediate stage of exploration with the two principal kimberlite prospects, Freightrain and Cargo-1, tested with 1,902.26 m of drilling in 22 core and 10 RC drill holes. The Freightrain Kimberlite Prospect has also been subjected to small scale bulk sampling of approximately 246.59 tonnes in 2001. The remainder of the Property has been explored with limited drilling (8 core and 22 RC) as the exploration focus from 2002 to 2005 was to develop new follow-up drill targets through several programs of geophysical surveying (36,851 line km) and geochemical sampling (2,176 samples).

Approximately 32 % of the total of 3,593.37 m of drilled on the Property has been on the Freightrain Kimberlite Prospect with core accounting for over 95% of the total of 1,155.01 m drilled on this prospect. The drilling consists of 17 core holes totalling 1,108 m and three RC holes totalling 47.01 m. A total of 314 core m of kimberlite was intersected in 15 core holes at the Freightrain Kimberlite Prospect.

Approximately 20 % of the total drilled on the Property has been on the Cargo -1 Kimberlite Prospect with core accounting for over 89% of the total of 747.25 m drilled on this prospect. The drilling consists of five core holes totalling 668 m and seven RC holes totalling 79.11 m. A total of 489.10 m of kimberlite was intersected in five core holes and one RC hole at the Cargo-1 Kimberlite Prospect.

The remaining 48% of the drilling (1,691.11 m) attempted to test 18 geophysical and geochemical targets consisted of eight core holes totalling 954 m and 22 RC holes totalling 737.11m. Kimberlite was not intersected in any of the holes.

The exploration activities are summarized in Table 10.1

As with any exploration program, ancillary exploration techniques were utilized at early stages to develop drill targets and included the following:

- Geological mapping.
- Geochemistry: soil, rock, stream sediment sampling.
- Mineralogical and petrographic studies.
- Geophysics: magnetic, electromagnetic, gravity.

More advanced exploration techniques included the following:

- Trenching and Mini-Bulk Sampling
- Core and RC drilling
- Geotechnical logging (core recoveries, RQD, magnetic susceptibility measurements, bulk density determinations).

Table 10.1 Summary of Twin Mining Exploration Activities (2000-2006)

	2000	2001	2002	2003	2004	2005	Totals
Geology	Yes						
GEOCHEMISTRY							
Soil simples	-	120	488	355	1,213	25	2,201
Stream sediments	-	-	-	71	-	-	71
Near-crop samples	124 kg	-	-	50.5 kg	-	-	174.5 kg
Bedrock samples	94.52 kg	-	-	-	-	-	94.52 kg
Trench samples	1,424 kg	-	-	-	-		1,424 kg
Mini-Bulk samples	-	246.59 t	-	-	-	-	246.59 t
Core/RC samples	-	2,030 kg	1,018 kg	-	-	13 smpls	3,048 kg
Core (NQ) number Meters	-	20: 1,558 m	10: 1,172 m	-	-	-	30: 2,730m
RC (93mm) number Meters	-	-	-	-	-	32: 863.37m	32: 863.37m
GEOPHYSICS							
Air magnetics (ln km)	-	6,641	-	-	15,568	14,642	36,851
Air electromagnetic	-	6,641	-	-	-	-	6,641
Beep Mat	Yes	-	-	-	-	-	N/A
Ground magnetics (km)	-	~26.4	~262.5	~52	-	-	~340.9
Gravity (ha)	-	-	~79	-	-	-	~79

10.2. Coordinates and Datums

Topographic maps published by the government utilize UTM coordinates tied to either of two datum, North American Datum 1927 (NAD 27), UTM Zone 16, and North American Datum 1983 (NAD 83), UTM Zone 16. The coordinate system utilized by Twin Mining on the Property is only NAD 27, UTM Zone 16, but follow-up of target areas often also employ local grids, but also tied to NAD 27 [26].

10.3. Geographic/Grid Control[31]

All of the ground geophysical surveys, were conducted on picketed and chained grids. Line spacing was generally picketed at 100 m spacing with stations marked with small wooden pickets at 5 m intervals[31]. Intermediate lines at 25 m or 50 m spacing were interpolated by field personnel during the surveying. Grids with N-S and E-W lines were established at Freightrain, Cargo-1, ANO-8 (Jade Grid), ANO-5, ANO-4A, ANO-4B, ANO-9 and ANO-10 (Domenic Grid). The GAP Grid (NW lines) covered that area from Freightrain to Cargo-1 inclusive. The Cargo-2 target was covered with N-S lines with the JVX Grid, and other grids were established at the following airborne magnetic targets: B1- 2004: -04, -08, -9, -20, -35, -46, -48, -49, -52, B2 -2004: -03, -06, -13, -14, -21, -22, -23, 2005-JI_A2 (1-001 or 8-001). [31]

Locations of all off-grid geochemical sampling and geophysical surveys and drill collar, trench locations were determined with a Magellan GPS mobile units (12 channel) in 2001-2 and with Garmin GPS12 (12 channel) mobile units in subsequent years.[31]

The topography coverage for the Property is from government topographic maps at scales of 1:50,000 and 1:250,000.

10.4. Geological Mapping and Related Studies

Geological mapping and related studies were completed mainly on Freightrain and Cargo-1 Kimberlite Prospects. Much of the relevant data resulting from this work are reported in sections on the property geology and mineralization, Section 7 and Section 9 respectively. The geological work carried out by Twin Mining geologists include the following:

i. geological mapping of kimberlite occurrences, outcrops, trenches, boulders, and rock chips around frost boils; and regional structural studies.

ii. alteration studies on kimberlite wallrocks (see subsection 10.6.2)

iii. detailed petrographic studies on core and rock fragments from Freightrain and Cargo-1 kimberlites, and the kimberlite dyke[74,43] (see sub section 7.3)

iv. CKIM and microdiamonds were recovered from Freightrain and Cargo-1 kimberlites (see subsection 10.6 and Section 9)

v. petrographic study of goethite encrusted quartz sandstone and limestone.(see subsection 10.8) [58]

vi. magnetic susceptibility measurements, and bulk density determinations on drill core to assess the implications of magnetic and gravity data respectively.

vii. multi-element ICP analyses on 25 till samples collected in 2005 to investigate the potential use of REE and other elements for screening airborne magnetic targets.

10.5. Remote Sensing and Satellite Imagery

Twin Mining did not conduct any remote sensing or satellite studies.

10.6. Geochemistry

10.6.1 Soil Geochemical Sampling (refer to Fig 10-1)

2001: Orientation Soil (Till) Surveys:

Prior to commencing systematic soil (till) sampling the Property, Twin Mining conducted a series of orientation surveys to determine the dispersion direction and extent of the indicator minerals in the immediate area surrounding the two known kimberlite prospects. As the Cargo 1 Kimberlite is not exposed on surface, the orientation survey helped understand the distribution of indicator minerals for a sub-cropping kimberlite[26]. Single samples were also collected in the areas underlain by airborne magnetic anomalies ANO-4B, ANO-6, ANO-7 and ANO-8[26]. Soil sampling was designed to find resistant heavy minerals such as garnet, chromite, ilmenite and chrome diopside, herein referred to as candidate kimberlite indicator mineral ("CKIM") grains, on the basis of their visible identification at the laboratories, prior to microprobe confirmation.

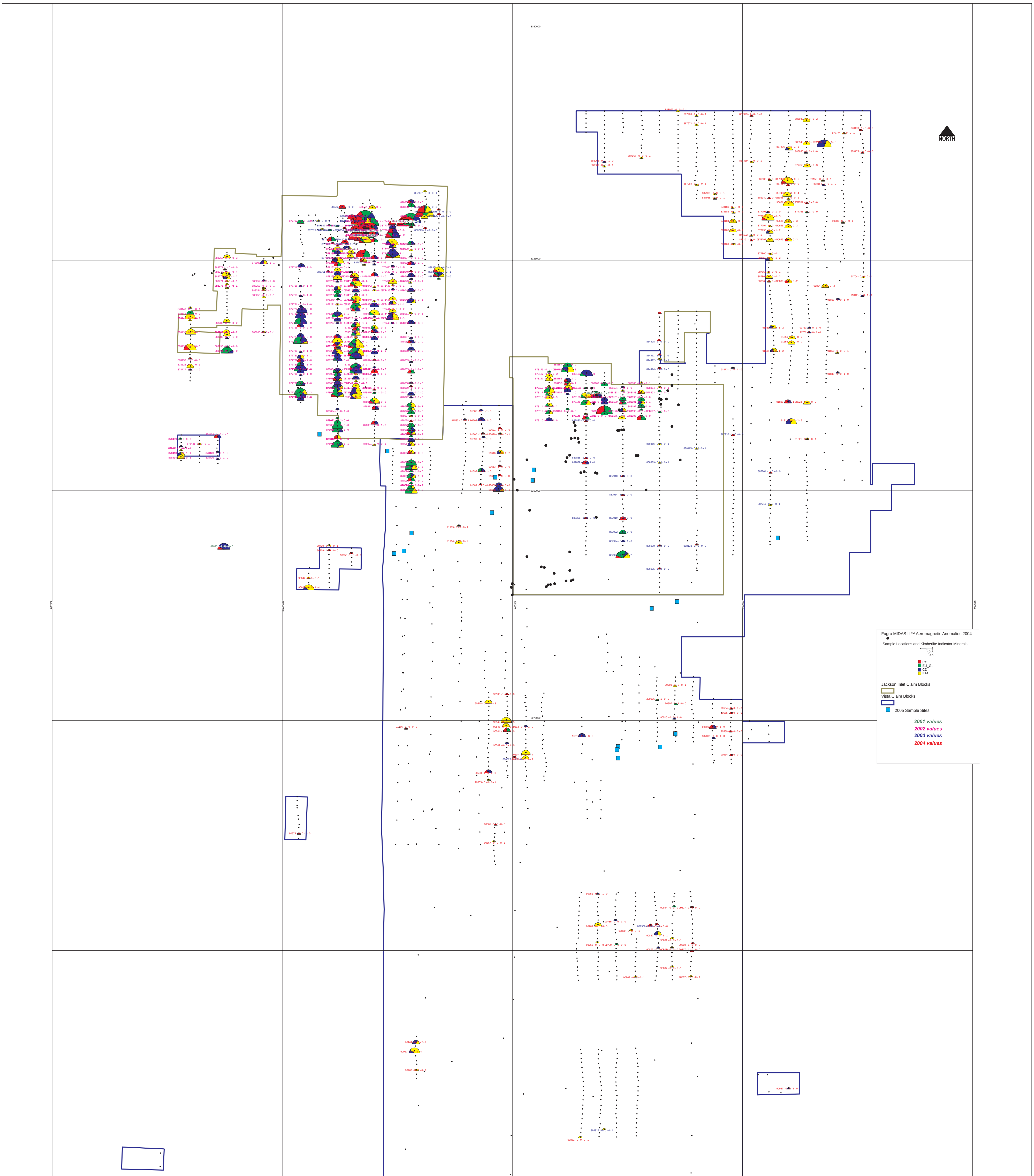
The collection of approximately 60 samples in 2001 was by contract employees of Twin Mining. Qualified Persons involved were Mr. D. Davis, P. Eng., who participated in the field activities intermittently during the field season of 2001, and Mr. R. Roy, P. Geo., a member of the Association Professional Geoloques and Geophysicists du Quebec (APGGQ) of NordQuest Inc. who provided technical assistance and field management and was on site for the entire program between late June to mid- September, 2001.

Heavy mineral concentrates produced from the samples were visually screened for CKIM grains and the chemical compositions of selected CKIM grains considered representative of those which could have originated in the diamond stability field were determined by electron microprobe. The sampling details are in subsections 12.2.1 and 13.2.1. Float/rock samples of limestone were analysed for trace elements (whole rock geochemistry[26]) that could identify alteration haloes outward from the kimberlites. Statistical details of the CKIM study on shown on Table 10.2 and are as follows:

Pyrope and chrome were found to be by far the most abundant CKIM grains, followed by clinopyroxene and eclogitic garnets. As shown on Table 10.2, Ilmenite was not recovered in soil samples collected above the known kimberlite bodies[26].

A soil sample from the interpreted center of ANO-3 magnetic anomaly (Cargo-1 Kimberlite) contained G10 pyrope garnets, eclogitic garnets and diamond inclusion chromites with similar chemistry and proportions to those found at the Freightrain Kimberlite Prospect. One micro-diamond was recovered from a 21.41 kg of frost boil material in a second sample.

Eclogitic garnets are less abundant at ANO-3 than at the Freightrain Kimberlite Prospect, an observation consistent with petrographic studies which suggested much lower eclogitic garnet content within the Cargo-1 Kimberlite[26].



TWIN MINING CORPORATION

JACKSON INLET PROPERTY

GEOCHEM COMPILATION MAP

MAP REF. NO.: 2018_10-1	MODIFIED BY: S.N.
SCALE: AS SHOWN	DRAWN: MPH TORONTO
FIGURE: 10-1	DATE: MAR 2006

MPH CONSULTING LIMITED *International Exploration & Mining Consultants*

Table 10.2 – CKIM Recovered in Soil Samples From Freightrain and Cargo-1 Kimberlite Areas

Target	N=	PYROPE*	ECL	CPX	ILM	CHR
Freightrain (Jackson)	42	+825 (in 40 samples)	73(24)	+208(29)	0	526(36)
Cargo-1(ANO-3)	18	205 (in 13 samples)	25 (7)	6(2)	0	79(12)
		* 25 max per sample				

Key CKIM such as pyrope, eclogitic garnet, clinopyroxene were recovered in samples from both ANO-4B and ANO-8. A total of 4 pyropes, 2 eclogite garnets, and 3 clinopyroxenes and one red corundum from two samples from ANO-8 and suggested the presence of kimberlite proximal to the samples. Owing to similarities with samples collected at the Cargo-1 and Freightrain Kimberlite Prospects, ANO-4B was referred to as Cargo-3, and ANO-8 became Cargo-2. Sample results were inconclusive for targets ANO-6 and ANO-7 but the sample sizes were deemed to be too small by Twin Mining geologists[26]. One or two soil samples were also collected in the projected centers of airborne magnetic targets ANO-4B, ANO-8, ANO-6 and ANO-7.

Twin Mining concluded that the results of the orientation surveys indicated that for most of the typical CKIM (pyrope, eclogite, clinopyroxene, ilmenite and chromite) their presence was abundant in the immediate area of both kimberlite prospects, and that continued use of soil (tills) surveys was appropriate for the Property[26].

Whole rock chemistry of the rock samples adjacent to the kimberlites indicated a significant change in the major element chemistry of the limestone with an input of Mg and Fe from the intrusion. The decalcification was reflected by a net gain of SiO_2 and a net loss in CaO from samples near the kimberlite body. In addition, both MgO and Fe_2O_3 increase significantly near the kimberlite body. The decalcification was also observed by the presence of unconsolidated limestone mud near the contacts with the kimberlite, while the increase in Fe and Mg was demonstrated by a local dolomitization of the limestone that was also observed in drill core.

2002: Spring and Summer Soil (Till) Sampling[8]

Prior to commencing the summer regional sampling program, single soil (till) samples were collected in the spring over seven magnetic anomalies identified by the 2001 Fugro SIAL airborne magnetic survey and over 16 anomalies identified on airborne magnetometer surveys published by the Geological Survey of Canada.

The collection of 23 samples in the spring of 2002 was by contract employees of Twin Mining. The Qualified Person involved was Mr. R. Roy, P.Geo. who provided technical assistance and field management, and was on site for the entire program during April and May 2002.

Heavy mineral concentrates produced from the samples were visually screened for CKIM grains and the chemical compositions of selected CKIM grains considered representative of those which could have originated in the diamond stability field were determined by electron microprobe. Details regarding sampling, sample preparation, analyses and security are in subsections 12.2.2 and 13.2.2. Statistical details of the CKIM study of the spring 2002 soil samples are shown on Table 10.3 and results are as follows:

Only single CKIM grains were recovered from 3 of the 23 samples as shown on Table 10.3. CKIM were not recovered in 20 samples collected over airborne magnetic anomalies ANO-7, ANO-6, ANO-5, ANO-4D ANO-2, ANO-1, JI10-9, JI8-1, JI10-3, JI10-3, JI10-5, JI10-11, JI10-17, JI10-18, JI10-20, ANO-9, JI1-2, JI2-1, JI3-1, and JI16-1[48].

Table 10.3 CKIM Grains Recovered in Spring 2002 Soil Samples Over 23 Airborne Magnetic Anomalies.

KIM Type	Total	ANO-4C	ANO-10	JI4-1
Pyrope (PYR)	0	0	0	0
Eclogite(ECL)	0	0	1	0
Clinopyroxene (CPX)	0	0	0	0
Ilmenite (ILM)	0	0	0	0
Chromite (CHR)	2	1	0	1
Olivine(OLI)	0	0	0	0
Omphacite (OMP)	0	0	0	0
Others	0	0	0	0
TOTALS	3	1	1	1

The objective of the 2002 summer soil sampling program was to provide a complete database of indicator minerals across three areas:

i. Main Block: the large group of claims which include the Freightrain and Cargo 1.

ii. Jade Block: series of isolated airborne magnetic anomalies 30 km SE of Freightrain (ANO-8)

iii. Domenic Block: series of isolated airborne magnetic anomalies 30 km SW of Freightrain that were identified by the 2001 magnetic survey.(ANO-09, AN0-10)

The collection of 488 samples in the summer of 2002 was by contract employees of Twin Mining. The Qualified Person involved was Mr. R. Roy, P.Geo. who provided technical assistance and field management and was on site for the entire program from early July to mid-September 2002.

Heavy mineral concentrates produced from the samples were visually screened for CKIM grains and the chemical compositions of selected CKIM grains considered representative of those which could have originated in the diamond stability field were determined by electron microprobe. Details regarding sampling, sample preparation, analyses and security are in subsections 12.2.3 and 13.2.3. Statistical details of the CKIM study on shown on Table 10.4 and are as follows:

Table 10.4 – CKIM Grains Recovered From 2002 Summer (Till) Sampling

Notes: No. of Samples: 488(also reported as 475)[52]
Total Heavy Mineral Concentrate ("HMC"): 2.75 kg
Average HMC per sample: 5.63 g

CKIM Type	Total CKIM	CKIM Recovered No. of Samples	No.of barren Samples	Highest Value
Pyrope (PYR)	365	67	421	123
Eclogite(ECL)	224	100	388	14
Clinopyroxene	272	136	352	22
Ilmenite	260	120	368	18
Chromite	2407	298	190	81
Orthopyroxene	0	0	488	0
Olivine	320	43	445	51
Omphacite	0	0	488	0
Grossularite	0	0	488	0
Others	32	26	462	3
TOTALS	3880	375	113	224

Out of the total CKIM grains recovered, 24 samples contained 25 or more CKIM grains and two samples contained more than 100 CKIM grains. Both of these samples, (#878891 and (#878950) are associated with the Freightrain and Cargo-1 Kimberlites respectively[52].

In the ANO-8- Cargo-2 area, 85 samples were collected, and more than 10 CKIM grains were recovered from each of six samples. One of these #88174 contains 13 garnets: 7 eclogite ("ECL") and 6 pyrope ("PYR"). One features of the ANO-08-Cargo-2 area is the high ratio of ECL/(ECL+PYR). Typically, samples from the Freightrain and the Cargo-1 Kimberlite Prospects have ratios of approximately 0.10 or 0.20, and ECL are generally present only near kimberlite. At ANO-8-Cargo-2 area, ECL is more abundant than PYR. Of the 331 CKIM recovered from the ANO-08-Cargo-2 area, 61 CKIM are garnets of which 47 (or 77%) are ECL[52].

2003: Soil (Till) Sampling [52,8]

The objectives of the 2003 sampling program were:

i. to carry out a regional survey over the newly staked claims to the east and south of the Freightrain-Cargo-1 Kimberlite Prospects Areas to help prioritise more detailed follow-up work through the identification of areas of KIMs,

ii. to increase the sample density of the regional survey coverage of the Freightrain-Cargo-1 Kimberlite Prospect Areas.

The collection of 355 samples in July and August 2003 was by contract employees of Twin Mining. Qualified Persons involved were Mr. D. Davis P. Eng., who participated in the field activities for a 10 day period, and Mr. R. Roy, P. Geo. of NordQuest Inc. who provided technical assistance and field management and was on site for the entire program from early July to mid-September, 2003.

Heavy mineral concentrates produced from the samples were visually screened for CKIM grains and the chemical compositions of selected CKIM grains considered representative of those which could have originated in the diamond stability field were determined by electron microprobe. Details regarding sampling, sample preparation, analyses and security are in subsections 12.2.4 and 13.2.4. Statistical details of the candidate CKIM study on shown on Table 10.5 and are as follows:

Table 10.5 – CKIM Grains Recovered in 2003 Soil (Till) Sampling[52]

Notes: No. of Samples: 355
Total Heavy Mineral Concentrate ("HMC"): 1.39 kg
Average HMC per sample: 3.91 g

CKIM Type	Total CKIM	CKIM Recovered in No. of Samples	No.of barren Samples	Highest Value
Pyrope	2,104*	44	311	1630+
Eclogitic garnet	496	15	340	425
Chrome diopside	80	12	343	64
Low Cr pyroxene	159	35	320	92
Ilmenite	62	11	344	23
Chromite	1,286*	31	324	1,100*
Olivine	47,629*	38	317	40,000*
Omphacite	19	4	351	15
TOTALS	51,826	110	245	43,349*

*** = total is more than number shown due to a very large number of grains in some samples.**

NOTE: Approximately 83.6% of all CKIMs recovered are from one sample (# 887826) that is located down slope and within 100 m of the Freightrain Kimberlite Prospect[48].

The dispersion of CKIM at the Freightrain Kimberlite is illustrated ON Table 10.6 in the results from 21 samples of which 5 samples were collected within 1 km and 16 samples were collected 1 km to 2.5 km from the Prospect. Note that the amounts in Table 10.6 are also included in the totals shown in Table 10.5.

Table 10.6 – CKIM Recovered From 2003 Soil (Till) Sampling in the Vicinity of the Freightrain Kimberlite Prospect[8]

CKIM Type	5 samples within 1 km of Freightrain	16 samples 1 km to 2.5 km from Freightrain	Total
Pyrope	2,019*	28	2,047*
Eclogitic garnet	465	7	472
Chrome Diopside	66	5	71
Low Cr pyroxene	96	5	101
Picroilmenite	25	10	35
Chromite	1,208*	17	1225*
Olivine	46,508*	580	47,088*
Omphacite	15	1	16
TOTALS	50,402	653	51,055
Weight of HM and Non- & Para-Mag	14.38 grams	42.24 grams	56.62 grams

*** = total is more than number shown due to a very large number of grains in some samples.**

CKIM grains were recovered in 110 out of the 355 soil and 71 stream sediment samples (refer to subsection 10.6.6) and 9 CKIM soil clusters and 3 CKIM stream sediment clusters were identified[8]. Twin Mining geologists defined soil clusters as based on a combination of CKIM grain counts and confirmed KIM chemistry results with a minimum criteria of at least two adjacent samples each containing more than one CKIM[31]. Details are in Tables 10.7 and 10.8. Soil clusters # 1 to # 5 were in the West Jackson Inlet West and within three km to six km of the Freightrain and Cargo-1 Kimberlite Prospects. Soil clusters #6 to #9 were mainly in the East Jackson Inlet East and NE portion of the Vista Blocks[8]. Stream sediment clusters #10, #11 and #12 were in the southern part of the Vista Block (see Figure 10-1).

Table 10.7 – Details of Soil Clusters #1-#9

Cluster No.	No. of Samples with CKIM	Total CKIM grains	No. of KIM grains confirmed	Sample Type
Cluster #1	2	14	6	Soils
Cluster #2	2	5	3	Soils
Cluster #3	3	41	20	Soils
Cluster #4	8	103	23	Soils
Cluster #5	8	168	25	Soils
Cluster #6	14	81	10	Soils
Cluster #7	4	24	6	Soils
Cluster #8	15	34	11	Soils
Cluster #9	18	66	10	Soils

The investigations in 2003 also included field checks in the vicinity of samples of interest collected in 2002. One of these samples (# 788891 with 224 CKIM) is located 500 m to the east and across a valley from Cargo-1 Kimberlite Prospect, and thus considered by Twin Mining geologists to have a different source than the Cargo-1 Kimberlite[48,52].

Field observations during soil sampling led to the discovery of a 1,700 m long NE-SW trending trail of scattered kimberlite fragments on frost boil surfaces that is up to 50 m in width. Herein referred to as the Kimberlite Fragment Corridor, it continues through the Cargo-1 Kimberlite Prospect for 700 m to the NE and for 1000 m to SW towards the Freightrain Kimberlite Prospect.

Twin Mining geologists suggested that this may reflect a dyke-like body with possibly a few enlargements or blows. Kimberlite chips were collected from frost boils along separate portions of the trend to make composite samples (#886701, #886702 and #886703)[48]. A total of 13 microdiamonds were recovered from these three samples by SGS Lakefield after caustic fusion of 50.5 kg of kimberlite[35]. Most are diamond fragments[48]. Two of the samples were analysed for diamond indicator minerals. Results indicated the presence of "highly depleted Cr-pyrope garnet (G10) and rare high-pressure eclogitic garnet and mantle ilmenite" and that mantle ilmenite compositions indicate that diamond will be highly preserved, if present."[8,70] "Pressures and temperatures calculated using single clinopyroxene geothermometry for clinopyroxene grains that are interpreted to have equilibrated with garnet in garnet lherzolite, indicate that all of these clinopyroxenes and host kimberlites errupted from within the diamond stablility field. Calculated pressures and temperatures form a linear array coincident with a relatively cool 35 to 40 mW/m(2) conductive geotherm similar to that of geothermal arrays for kimberlites from the Slave province in Canada." [8, 70]

There are no kimberlite bedrock exposures along this trend, and only a single set of anomalous magnetic readings noted only on and in the vicinity of one survey grid line in the detailed magnetic survey completed in this portion of the Gap Grid. The interpretation at that time was based solely on the linear pattern of kimberlite fragments found on frost boils. CKIMs observed in samples in #878903, #878904, #888374 and #888375 suggested that the trend may continue further east[48,52]. In 2005, the Kimberlite Fragment Corridor was tested with seven RC drill holes and a 1.83 m intersection of kimberlite in one hole confirmed the presence of a dyke in this area, approximately 200m NE of Cargo-1 Kimberlite.

2003: Stream Sediment Sampling

The 2003 soil sampling program was supplemented by the collection of reconnaissance stream samples in order to complete broad, first pass coverage of as much of the claims newly staked in August 2003, in the south (Vista Block) as was possible[8,48].

The collection of 71 stream sediment samples in 2003 was by contract employees of Twin Mining. Qualified Persons involved were Mr. D. Davis P. Eng., who participated directly in the field activities during July and August 2003, and Mr. R. Roy, P.Geo. of NordQuest Inc. who provided technical assistance and field management and was on site for the entire program from early July to mid-September 2003.

Details regarding sampling, sample preparation, analyses and security are in subsections 12.2.5 and 13.2.5. Three broad stream sediment CKIM clusters (#10-#12) were located in the southern half of the Property, in the Vista Block[8]. Details are in Table 10.8

Table 10.8 – Details of Stream Sediment Clusters #10 to #12[31]

Cluster No.	No. of Samples with CKIM	Total CKIM grains	No. of KIM grains confirmed	Sample Type
Cluster #10	2	4	1	Stream seds
Cluster #11	3	3	1	Stream seds
Cluster #12	3	7	3	Stream seds

2004: Soil (Till) Sampling[53]

The objectives of the 2004 soil (till) sampling program were:

- to complete a regional survey over previously untested northeast portion of the Property (ICE claims),

- to investigate CKIM Clusters #10, #11 and #12 identified by the 2003 stream sediment sampling,
- to investigate several magnetic anomalies selected by a study of the Geological Survey of Canada regional aeromagnetic data[53].

The collection of 1200 soil samples in July and August 2004 was by contract employees of Twin Mining[53]. Qualified Persons involved were Mr. D. Davis P. Eng., who participated directly in the field activities for two weeks in July 2004, and Mr. A. Davis, supervisor Level II-WCB, who provided technical assistance and field management and was on site for the entire program during July and August, 2004.

Heavy mineral concentrates produced from the samples were visually screened for CKIM grains and the chemical compositions of selected CKIM grains considered representative of those which could have originated in the diamond stability field were determined by electron microprobe. Details regarding sampling, sample preparation, analyses and security are in subsections 12.2.5 and 13.2.5.

In addition, 13 soil samples were collected for Twin Mining by geologists with Kennecott at the locations of selected magnetic anomalies identified in the 2004 Fugro airborne magnetometer survey[53].

Statistical details of the CKIM study on Table 10.9 and results are as follows:

Table 10.9 – CKIM Recovered From 2004 Soil (Till) Sampling[53]

Notes: No. of Samples: 1213
Total Heavy (S.G.>2.96) Mineral Concentrate ("HMC"): 10.64 kg
Average HMC per sample: 10.64 g.

CKIM Type	Total CKIM	CKIM Recovered in No. of Samples	No.of barren Samples	Highest No. in One Sample
Pyrope (PYR)	53	51	1162	2
Eclogite ? garnet (ECL)	17	17	1196	1
Chrome diopside	26	26	1187	1
Low Cr pyroxene	68	64	1149	2
Picroilmenite	196	11	1075	7
Chromite >60% Cr_20_3	1	1	1212	1
Chromite 40-60% Cr_20_3	292	207	1006	13
Chromite 20-40% Cr_20_3	125	103	1109	4
Olivine	1	1	1212	1
Other	4	4	1209	1
TOTAL	783	Na	Na	Na

Note: It was not established with certainty that the eclogitic garnets are of eclogitic origin.

"Other" refers to 3 grains of niobium rutile and a corundum grain.

The number of CKIM grains per till sample was lower than in areas of the Property sampled in 2002 and 2003. Twin Mining geologists indicated that the lower number of CKIM per sample appears inconsistent with the much higher average weight of HMC recovered from each till sample than in previous years. The 2004 survey areas lie along or close to the height of land for the Brodeur Peninsula. As a result, the plateau is less dissected by erosion and average thickness of till appears to be thicker than in areas to the west that had been sampled in previous years. Twin Mining geologists were of the opinion that this could explain the lower average number of CKIM per sample than further to the west where erosion has exposed the Freightrain Kimberlite and left only a few meters of till overlying Cargo 1 Kimberlite Prospect. Alternatively, the low numbers may reflect a paucity of kimberlite sources in the bedrock in the areas sampled.

Another feature that differs significantly from previous years is a much higher proportion of ilmenite relative to other CKIM. This is especially characteristic of the NE portion of the Property, and includes picroilmenite grains with Al_2O_3 - FeO ratios indicating moderate to high diamond preservation, and Cr_2O_3 - MgO ratios indicating origin in mantle xenoliths were recovered.

Crusts and fragments of goethite exhibiting botryoidal surfaces were noted in the till in many places within the 2004 sampling area. The possibility of a period of tropical weathering was one explanation for the presence of goethite and the apparent higher proportion of oxide CKIM, Tropical weathering could result in dissolution of silicate minerals, with the result that the only silicate CKIM would come from isolated sample sites where more active erosion has exposed bedrock nearby. However, the aforementioned hypothesis was not definitively supported by the results of a petrographic study completed fro Twin Mining in 2006.

During soil sampling, kimberlite fragments on frost boil surfaces were discovered at the A-2 magnetic anomaly located 450 m NE of the Freightrain Kimberlite Prospect that had been identified during a JVX ground magnetometer survey carried out in 2003. A check of a previously collected till sample at this site indicated that a total of 83 pyropes, 2 clinopyroxenes and 5 chromite grains had been recovered from a 25 kg sample of frost boil till.[7]

2005: Soil (Till) Sampling[8]

The objectives in 2005 were to investigate selected magnetic targets identified in the 2004 and 2005 airborne magnetic surveys with soil sampling and prospecting.

The collection of 25 samples in 2005 was by contract employees of Twin Mining. The Project was managed by Mr. A. Davis, Supervisor Level II-WCB, who provided technical assistance and field management, and Dr. J. Whitehead, project geologist. Both were on site for the entire program during July and August 2005

Heavy mineral concentrates produced from the samples were visually screened for CKIM grains and the chemical compositions of selected CKIM grains considered representative of those which could have originated in the diamond stability field were determined by electron microprobe. Details regarding sampling, sample preparation, analyses and security are in subsections 12.2.6 and 13.2.6. Details of the airborne magnetic anomalies and observations of surface conditions are shown on Table 10.10 and are as follows:

Table 10.10 – Soil (Till) Sampling Over Airborne Magnetic Anomalies

Magnetic Anomaly	Magnetic peak	Conditions at Surface	Northing	Easting
B2-16	4nT, 1 line	No magnetite	8119888	465866
B2-17	3.5nT, 1 line	No magnetite	8118881	465733
B2-21	3nT, 2 lines	No magnetite	8119196	461609
B2-22	3nT, 3 lines	No magnetite	8122076	449912
B2-23A	5nT, 2 lines	No magnetite	8115313	461306
B2-12	3nT, 1 line	No magnetite	8113113	452543
B2-13	3nT, 1 line	No magnetite	8111128	451711
B2-14	6nT, 1 line	No magnetite	8110806	450671
B2-03	3nT, 1 line	No magnetite	8123842	442559
B1-01	3.5nT, 3 lines	No magnetite	8089455	474887
B1-02	2nT, 3 lines	v. slight goethite/ magnetite	8089859	474989
B1-03	1.5nT, 2 lines	No magnetite	8088637	474986
B1-64	1.5nT, 1 line	goethite/magnetite cemented sandstone +isolated magnetite	8112560	492337
B1-11	3.5nT, 1 line	No magnetite	8104873	478633
B1-17	5nT, 2 lines	No magnetite	8089855	479590
B1-22	4nT, 2 lines	No magnetite	8105627	481393
B1-32	3nT, 1 line	v. slight magnetite/goethite	8091290	481226
B1-44	3.5nT, 1 line	v. slight magnetite/goethite	8089455	474887

B1-45	3.5nT, 2 lines	No magnetite	8089859	474989
B1-50	4nT, 2 lines	lots magnetite + tan soil	8088637	474986
B1-53	3nT, 1 line	Magnetite at surface	8112560	492337
B1-57	4nT, 1 line	Magnetite at surface	8104873	478633
B1-58	6nT, 2 lines	No magnetite	8089855	479590
B1-59	5nT, 2 lines	No magnetite	8105627	481393
F2005-1	Blk 4 Fugro	No magnetite	na	Na

Magnetite and or goethite/magnetite were noted at seven out of the 25 sites investigated.

Statistical details of the CKIM study are on Table 10.11.

Table 10.11 – CKIM Recovered From 2005 Soil (Till) Sampling

KIM	**Total KIM**	**Number of Barren Samples**	**Highest Number/sample**
G9 Chrome Pyrope	12	31	3
G10 Chrome Pyrope	1	37	1
Eclogitic Garnet	0	38	0
Clinopyroxene	0	38	0
Mantle Ilmenite	67	26	33
Orthopyroxene	0	38	0
Mantle Spinel > 60% Cr_20_3	0	38	0
Mantle Spinel 40-60% Cr_20_3	80	22	34
Mantle Spinel 20-40% Cr_20_3	83	23	30
Mantle Spinel <20% Cr203	1	37	1
Mantle Olivine	23	29	7
Other (Chrome Grossular)	1	37	1
TOTAL	**268**	**12**	**98**

Notes: Number of samples: 38, of which 25 were surface frost boil till and 13 were reverse circulation (RC) drill cuttings of till.
Total paramagnetic heavy mineral concentrate with specific gravity more than 3.1: 518.8 grams
Average weight of paramagnetic concentrate (>3.1 S.G.) per 20-litre till sample: 13.65 grams

Interpretation of the electron microprobe analyses from (353 CKIM) grains selected from HMC indicates the following[55]:

-"ilmenite is the only bona fide kimberlite megacryst recovered from till concentrates as megacrytic Ti-rich pyrope—almandine-garnets, clinopyroxene, olivine, zircon and phlogopite were not recovered." [55]

-mantle-derived peridotitic suite kimberlite minerals selected from the sample concentrates included Cr-pyrope garnet, chromite/spinel, ilmenite and olivine[55].

-ecologitic suite minerals were not found[55].

-compositional discrimination plots indicate that all grains of Cr-bearing clinopyroxene likely have a crustal paragenesis and therefore the grains that were recovered are no value to diamond exploration[55].

-the Cr-pyrope suite comprises nine grains as having a lherzolitic paragenesis (G9) and a single grain (G10) of harzburgitic (G10) Cr-pyrope. The major and minor element composition of this grain indicate that it likely did not equilibrate in the diamond stability field if a 40 mW/m2 geotherm prevailed prior to the eruption of the source kimberlite[55].

-spinel grains similar in composition to DI-chromite were not recovered although roughly 83% of the spinel grains classified as having a mantle paragenesis and these likely comprise a mixed population of mantle xenocrysts derived form disaggregated lherzolitic and harzburgitic xenoliths and phenocrysts that crystallized from an outcropping or sub-cropping kimberlite. The ilmenite population is dominated by MgO-rich (>5.6 wt % MgO) grains having a mantle paragenesis[55].

-the majority (96 %) of olivine grains were interpreted as having a mantle paragenesis and derived from disaggregated dunitic, harzburgitic or lherzolitic xenoliths[55].

MPH would note that for all of the till sampling campaigns described above, surface texture descriptions and observations of remnant kimberlite features etc., all of which help determine proximity to source, appear to be lacking.

10.6.2 Bedrock Geochemical Sampling

2000: Due Diligence Composite Sampling[12, 86]

On May 29, 2000, D. Davis, P. Eng., Director Diamond Mining for Twin Mining, collected a composite surface sample totalling 94.52 kg of weathered kimberlite from 17 randomly scattered sample points to a maximum depth of 10 cm in the only 10 m by 10 m surface area of the Freightrain Kimberlite Prospect that was not snow covered[12]. The composite sample was submitted to SGS Lakefield for recovery of micro-diamonds by caustic fusion and characterization.

Microdiamond recoveries are reported on Table 9.1, and the sampling details in subsection 12.3.1. and processing and analytical details in subsection 13.3.1.

Results and interpretation of multi-element analyses by electron microprobe by B.C. Jago of SGS Lakefield of approximately 100 chromite and 100 garnet grains from caustic fusion residues of weathered kimberlite showed:

- "that approximately 40% of the chromite population could have been derived from potentially diamondiferous chromite harzburgite".[71,86]

Even though the garnets are more readily destroyed by caustic fusion than chromite, the preserved garnet population contained:

-" 5% G10 sub-calcic pyrope garnet derived from potentially diamondiferous chromite harzburgite source rocks[86]",

- 70 % G9 Cr-pyrope garnet derived from barren lherzolitic source rocks[86],

- 20 % G1 Ti-Cr pyrope garnet having a megacrystic paragenesis[86], and

- "5% G3 eclogitic garnet derived from high pressure eclogitic source rocks, of which 17% of the 6 analyses are compositionally similar to eclogitic garnet from diamondiferous eclogite xenoliths."[71,12],[86]

2000: Trench and Pit Sampling of Trench Bedrock Kimberlite, Overlying Kimberlitic Sands and Scattered Kimberlite Fragments[12]

During the period of August 11-23, 2000, D. Davis, P. Eng., collected a total of 1,424 kg of material composed of bedrock from four of five trenches in three kimberlite exposures of the Freightrain Kimberlite Prospect, and kimberlitic sands from one trench and one shallow pit.

In addition, approximately 150 kg of weathered kimberlite and kimberlite fragments in five samples were collected from frost boils in the vicinity of the trench samples and all ten samples were submitted to SGS Lakefield for recovery of micro-diamonds by caustic fusion and for microprobe analysis of diamond indicator minerals and petrology[12].

The analytical results for KIM are incorporated into the discussion in subsection 7.2.3, microdiamond data are reported on Table 9.1, the sampling details are in subsection 12.3.2 and processing and analytical details in subsection 13.3.2.

Results and interpretation of multi-element analyses by electron microprobe of 822 chromite, 1,166 garnet and 80 ilmenite grains selected from ten samples of 8-10 kg HMC showed the following:

-"the majority of grains selected have either a peridotitic or eclogitic parentage[73],

- between 14% and 68% (average 46%) of the chromite compositions plot within the compositional field of chromite inclusions in diamond (Fipke et al 1995)[73],

- between 9% and 56%, (average 28%), of the garnets are classified as sub-calcic, Cr-pyrope and have a dunitic or harzburgitic parentage, as defined by the plotting methods of Sobolev(1973) and Gurney (1985), although the number of such grains is drastically reduced using Dawson and Stephens(1975) classification scheme to a range of 0% to 14.5% (average 3.3%) [73],

- between 0% and 12% (average 5%) of the garnets are classified as potentially high pressure eclogotic garnet similar to the compositions of garnet inclusions in diamond as defined by McCandless and Gurney (1989)

- a small proportion of the ilmenite population (approximately 14%) has a mantle parentage although ilmenite generally is scarce in all samples. Those occurring as mantle ilmenite suggest moderate levels of diamond preservation.",[73]

2001: Spring 2001 Mini-Bulk Sampling

A mini-bulk sampling program of two outcrop areas within the Freightrain Kimberlite Complex known as JI-3 and JI-6, where a significant number of microdiamonds and macrodiamonds had been recovered in reconnaissance samples was carried out in the spring of 2001[15,60].

The Qualified Persons involved were Mr. D. Davis, P. Eng., who participated directly in the field activities from April 25th to May 12th, 2001, and Mr. R. Roy, P.Geo. of NordQuest Inc. who provided technical assistance and field management and was on site for the entire program between April 25th and May 26, 2001. G. Lamothe and D. Bergeron of G.L. Geoservice Inc. drilled and blasted the trenches[15,60].

A total of 18.41 tonnes were kimberlite collected at Sites JI-3 (16.50 t) and JI-6 (1.91 t) and shipped to SGS-Lakefield for recovery of macro-diamonds by Dense Media Separation ("DMS")[60]. The macrodiamond data are reported on Table 9.2a and 9.2b, the sampling details are in subsection 12.3.3, and processing and analytical details in subsection 13.3.3

Results and interpretation of multi-element analyses by electron microprobe by B.C. Jago of 203 garnet, 174 chromite, 50 Cr-diopside grains and 1 ilmenite grain selected from HMC indicates the following[16]:

- the vast majority (>95%) of garnet and clinopyroxene grained have a peridotitic rather than eclogitic parentage[16].

- although garnet populations have a dominantly lherzolitic (G9, Cr-pyrope) mineral chemistry, between 25% (Sobolev 1973) and 30% (Gurrney 1985) of garnets from Site JI-6, and between 5% (Sobolev 1973) and 12% (Gurney 1986) of garnets from Site JI-3 have a harzburgitic (G10, subcalcic, Cr-pyrope) parentage and are compositionally similar to sub-calcic, Cr-pyrope garnet inclusions in diamond[16].

- approximately 43% of chromite grains are compositionally similar to chromite inclusions in diamond and chromite intergrowths with diamond[16].

- clinopyroxene grains are Cr-rich (>1.0 wt. % Cr_20_3) and classified as Cr-diopside; interpretative plots indicate that such grains have been derived from four phase garnet-lherzolite xenoliths[16].

- the P/T arrays calculated from single clinopyroxene grains roughly define a 46 to 48 mW/m^2 geotherm[16].

- the P/T array calculated from single clinopyroxene grains from both Sites JI-6 and JI-3 extend well into the diamond stability field. This indicates that the host kimberlites were derived from within the diamond stability field and could have sampled potentially diamond-bearing garnet and chromite-harzburgite prior to eruption and emplacement into the cupper crust. Both of these potentially diamond-bearing sources are interpreted to have been present in the sub-continental lithospheric mantle beneath Jackson Inlet as indicated by the presences of sub-calcic, Cr-pyrope (G10, Cr-pyrope) garnet and chromite both having compositions similar to garnet and chromite inclusions in garnet[16].

- the single grain of ilmenite had low MgO (<0.5wt %), and Cr_20_3 (<0.5wt %) contents and is interpreted to have crustal parentage. The lack of ilmenite, which generally is regarded as a megacryst phase, accords with the lack of other megacrystic minerals, such as Ti-garnet and sub-calcic, Cr-diopside and does not have any impact on the use of mineral chemistry otherwise to determine diamond productivity in the Freightrain kimberlite.

- Site JI-6, with the higher weight average of diamonds also has the greatest proportion of sub-calcic, Cr-pyrope garnets (G10, Cr-pyropes), interpreted to have been derived from diamond bearing garnet harzburgite, while the proportion of chromite grains that are compositionally similar to chromite inclusions in diamond is approximately equal in both Site JI-3 and Site JI-6[16].

2001: Fall 2001 Mini-Bulk Sampling

A second mini-bulk sampling program consisting of six samples, herein referred to as the Mini-Bulk Samples Fall (2001), was carried out at the Freightrain Kimberlite Prospect. The site selection was based on the results from the reconnaissance sampling of the six JI trenches and pits in 2000, and the position of the outcropping kimberlite.

The objective was to obtain an indication of the diamond distribution across the kimberlite system and, at the same time, obtain a spatial relationship between the pit samples and the underlying kimberlite based on core holes drilled near the trenches[15,60,69].

The Qualified Persons involved were Mr. D. Davis P. Eng., who participated directly in the field activities during July and August 2001, and Mr. R. Roy, P.Geo., of NordQuest Inc. who provided technical assistance and field management and was on site for the entire program from late June to mid September 2001[15,60].

Approximately 255 wet tonnes of kimberlite were collected at Sites JI-1, JI-3, JI-4, JI-5S and JI-6, and shipped to SGS-Lakefield for recovery of macro-diamonds by DMS. The macrodiamond data are reported on Table 9.3, 9.4 and 9.5, the sampling details are in subsection 12.3.4, and processing and analytical details in subsection 13.3.4

Results and interpretation of multi-element analyses by electron microprobe by B.C. Jago of 136 chromite, 856 garnet, 16 Cr-diopside and 8 ilmenite grains selected from HMC indicated the following[69]:

- between 33% and 57% of the chromite compositions plot within the compositional field of chromite inclusions in diamond (Fipke et al 1995), with an average of about 43%[69].

- the majority (>80%) of garnet grains are peridotite-dominated regardless of the classification method applied, with eclogitic and crustal garnets typically comprising <15% of each population[69].

- the peridotite paragenesis is dominated (>70 %) by major amounts of lherzolitic garnet (G1, G9, G11) with major to trace amounts (0% to 20%) of harzburgitic (G10) and wherlitic (0 % to 5%) garnet also being present[69].

- trace to minor proportions (2% to 15%) of the populations are interpreted as having an eclogitic (G3, G4, G6 and G8) or crustal paragenesis with high pressure eclogitic garnet comprising 1 % to 7% of the total[69].

Bulk Sample (# of garnets)	% G10 after Gurney (1985)	% G10 after Sobolev (1973)	% G10 after Dawson & Stephens (1975)	% eclogitic after McCandless and Gurney (1989)	% eclogitic after Dawson & Stephens (1975)
JI-1 (145)	6.2	1.4	0.0	0.7	0.0
JI-3 (156)	13.5	8.3	5.8	4.5	0.6
JI-4 (86)	20.9	5.8	2.3	4.7	1.2
JI-5 (143)	13.3	11.2	7.0	1.4	0.0
JI-5S (162)	13.0	5.6	1.9	0.6	0.6
JI-6 (164)	9.7	3.7	3.7	7.3	4.9

- the majority of the 16 clinopyroxene grains are classified as Cr-diopside and interpreted as having been derived from garnet lherzolite xenoliths except the grains from JI-1 which are interpreted as having been derived from spinel or spinel lherzolite xenoliths. This interpretation accords with the observations based on garnet compositions that the lherzolitic xenolith population comprises at least two sub-types including garnet- and garnet-spinel bearing members[69].

- clinopyroxene derived from spinel-lherzolite plots well within the graphite stability field along a "hot" 50 mW/m^2 geotherm (Nimis and Taylor 2000), whereas clinopyroxene derived from garnet-lherzolite plots well with the diamond stability along a relatively "cold" 35 mW/m^2 geotherm[69].

- ilmenite generally is scarce in all samples, and all 8 grains have a crustal parentage[69].

- none of the contemporary indicators of diamond prospectivity (sub-calcic Cr-pyrope garnet, high-pressure eclogitic garnet, diamond inclusion chromite) demonstrates anything more than a weak positive correlation with recovered or modelled diamond grade and in some cases there is a negative correlation. The reason(s) for the lack of correlation are not clear[69].

De Beers[78,89] in 2003, reviewed all of the Freightrain mineral chemistry data reported on above by Jago, from the surface sampling programs. Their conclusions for Freightrain were that it is rated as HIGH INTEREST with regard to mineral chemistry, that 85% of the garnets are peridotitic and a subpopulation is from depleted garnet-bearing harzburgitic mantle, several garnets are classified as high interest eclogitic grains associated with diamond, 22% of the spinels are diamond-inclusion type grains, and that clinopyroxenes derived from garnet peridotite are present and define a cold 35mW/m^2 geotherm, suggesting they derive from the diamond stability field.

10.6.3 Core Sampling

2001: Core Samples

A total of 314 core meters of NQ (47.6 mm diameter) kimberlite was intersected in 15 out of 17 core holes at Freightrain Kimberlite Prospect and 231 core meters in two core holes at the Cargo-1 Kimberlite Prospect.

A total of 110 samples of kimberlite core weighing approximately 2 tonnes of kimberlite core (1105 kg from Freightrain) and 924.72 kg from Cargo 1) were collected and shipped to SGS Lakefield for recovery of micro-diamonds by caustic fusion and for microprobe analysis of diamond indicator minerals and petrology. Microdiamond data are reported on Table 9.6 and 9.7, the sampling details are in subsection 12.4, and processing and analytical details in subsection 13.4.

One composite sample weighing 6.6 kg was prepared from random pieces of core from drill hole JI CG-01 from the Cargo-01 Kimberlite. The HMC weighed 54.29 g, with the small weight reflecting the generally low macrocrystic and xenocryst content of the sub-cropping kimberlite.

Results and interpretation of multi-element analyses by electron microprobe by B.C. Jago of 86 chromite, 1102 garnet, 42 Cr-diopside and 17 ilmenite grains selected from HMC indicated the following[85]:

- "chromite, garnet, ilmenite and clinopyroxene grains from the HMC have an overwhelming peridotitic parentage almost to exclusion of eclogitic representation[85].

- lherzolitic garnets are dominant over harzburgitic (<10%), megacrystic (<1%) or eclogitic(<5%) grains[85].

- the lherzolitic garnet population comprises garnet-and garnet-spinel-lherzolite sub-populations[85].

- less than 1% of the very small eclogitic population has elevated Na_20 contents (0.7 wt % Na_20) similar to garnet from diamondiferous eclogitic environments[85].

- the chromite population contains between 40% and 70% of grains with compositions similar to chromite inclusions in diamond similar to that of samples from the Freightrain Kimberlite Prospect[85].

- ilmenite generally is scarce, the few grains found have compositions similar to Cr-poor ilmenite megacrysts or ilmenite in peridotitic xenoliths[85].

- diamond preservation potential as estimated from Fe0 contents is rated as moderate indicating that co-existing or co-erupted diamond will exhibit at least moderate degrees of resorption and mass loss[85].

- clinopyroxene grains are interpreted as having been derived from garnet- and garnet-spinel lherzolite source rocks, similar to that of the lherzolitic garnet population[85].

- a P/T array calculated form a single clinopyroxene analyses roughly defines a 42 mW/m^2 geotherm with its origin in the diamond stability field. This indicates that the host kimberlite was erupted from within the pressure-temperature regime of the diamond stability field but does not give an indication of whether, or to what degree, diamond bearing rocks were sampled by the kimberlite during eruption and emplacement of it from the mantle into the upper crust."[85]

De Beers[90,93] in 2003, reviewed all of the Cargo-1 mineral chemistry data reported on above by Jago, from the till sampling and core drilling programs. Their conclusions for Cargo-1 were that it is rated at least as MODERATE TO HIGH INTEREST with regard to mineral chemistry, that 89% of the garnets are peridotitic and a subpopulation is from depleted garnet-bearing harzburgitic mantle, two distinctive lherzolite trends are present which suggests the possibility of sampling different mantle from different depth, ~26% of the spinels are diamond-inclusion type grains, and that clinopyroxenes derived from garnet peridotite are present and define a conductive $42mW/m^2$ geotherm, suggesting they derive from the diamond stability field.

2002: Core Samples

A total of 266.2 core meters of NQ (47.6 mm diameter) kimberlite was intersected in three drill holes at the Cargo-1 Kimberlite Prospect and shipped to SGS Lakefield for recovery of micro-diamonds by caustic fusion and for microprobe analysis of diamond indicator minerals and petrology. HMC was prepared form one sample was prepared from random pieces of core from drill hole JI CG1-05 from the satellite body to the Cargo-01 Kimberlite. The sampling details are in subsection 12.4, and processing and analytical details in subsection 13.4.

Results and interpretation of multi-element analyses by electron microprobe by B.C. Jago of grains selected from HMC indicated the following[77]:

- "the mineral chemistry of CG1-05 core is interpreted to have a predominantly peridotitic character. This suggests that the sub-continental lithospheric root in this part of the Brodeur Peninsula is dominantly peridotitic although there is a small but significant population of eclogitic garnet indicating local concentrations of eclogitic mantle present and that these were sampled during eruption and emplacement of the host magma into the upper crust[77].

- the dominance of Cr-pyrope garnet, Cr-diopside, chromite and olivine suggests that garnet-, garnet-spinel and spinel bearing peridotitic source rocks such as dunite, harzburgite and lherzolite dominate the mantle section beneath this part of Baffin Island whereas eclogitic, wehrlitic and websteritic rock types are relatively rare to quite rare. Megacrystic minerals such as Ti-pyrope, Cr-poor sub-calcic diopside, Fe-rich olivine and ilmenite are present in trace to minor amounts and in this aspect JI-CG1-5 mineral concentrates are somewhat unusual compared to mineral concentrates produced from other Brodeur Peninsula kimberlites[77].

- 29% of the chromite grains were compositionally similar to chromite inclusions with the balance interpreted as having been derived form various spinel- and garnet spinel-bearing, mantle derived ultrabasic xenoliths. A small proportion (<5%) of grains are enriched in $Ti0_2$ (>2 wt%) $Ti0_2$) and interpreted as titaniferous aluminous chromite phenocrysts that likely crystallized from the kimberlite magma[77].

- the majority of the analyses are interpreted as having a peridotitic parentage with most grains plotting within Sobolev's(1973) lherzolite field to the right of Gurney's (1985) field boundary that separates lherzolitic (G9) from sub-calcic Cr-pyrope (G10) garnet. A small proportion of grains plot within Gurney's field of sub-calcic Cr-pyrope garnet and is interpreted as having a dunitic (Cr_20_3 < 4 wt%) or harzburgitic (Cr_20_3 >4 wt %) parentage[77].

- grains having an interpreted eclogitic parentage are relatively abundant compared to other kimberlite samples from the Brodeur Peninsula. Six of 45 grains with less than 1 wt % Cr_20_3 have equal to or greater than 0.07 wt % Na20 and are interpreted as having been derived form potentially diamondiferous eclogite[77].

- ilmenite is comparatively enriched in this sample; 44% of the grains are strongly enriched in Mg0 (>4 wt%) and interpreted as having a mantle paragenesis, althpughnit is not possible to determine whether they have a megacrystic or xenocrystic origin"[77].

10.6.4 RC Chip Sampling (2005)

Mineral chemistry results for the one sample of a kimberlite, a 1.83 m interval of dyke that was intersected in the RC drilling near the Cargo-1 Kimberlite are pending.

10.7. Geophysical Surveys

10.7.1 Geophysical Coverage

Helicopter-borne and ground geophysical surveys cover most (>90%) of the current Twin Mining mineral claims in the Brodeur Peninsula. A combination of helicopter-borne magnetic, electromagnetic, and ground magnetic survey grids were acquired for kimberlite exploration in this area. Several ground gravity grids were also acquired on a test-case basis. All airborne and ground magnetic surveys are displayed on Figures 10-2 and 10-3, respectively.

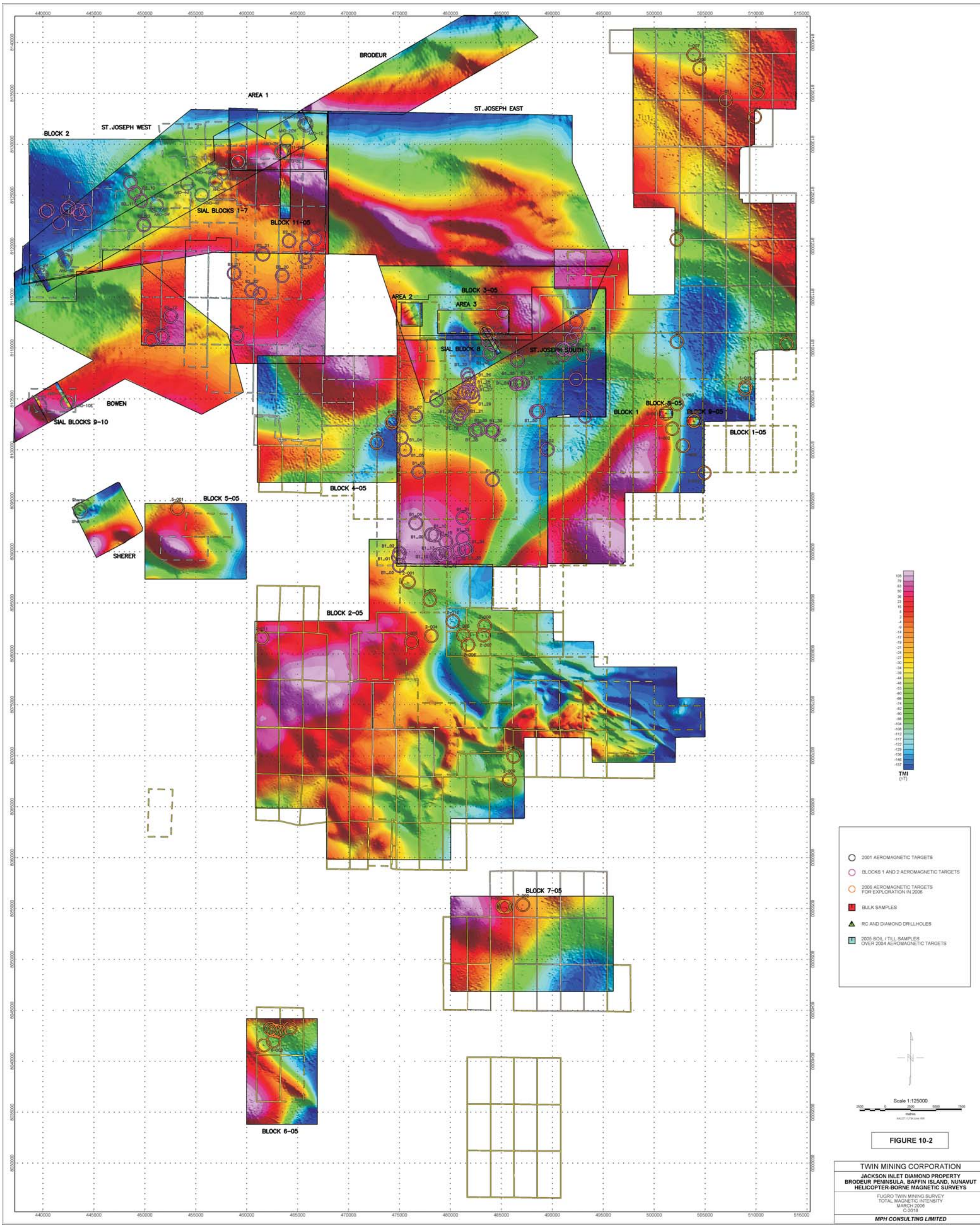
The magnetic data sets can be characterized as reasonably quiet, typical of the thick sedimentary sequence which overlies the Archean basement rocks in the area. This presents an environment favourable for detecting and categorizing weak magnetic anomalies for kimberlite exploration. A similar scenario is present in the James Bay Lowlands and, as such, case studies and successful exploration methodologies from this area should be drawn upon for the design or re-design of the kimberlite exploration program in the area. The magnetic data has been shown to correlate with the two known kimberlites on the property.

Geophysical survey coverage can be categorized by year. Significant helicopter-borne combined magnetic and electromagnetic surveys were conducted in 2001, important ground magnetic surveys under in 2001/2002, and extensive high-resolution helicopter-borne magnetic gradiometer surveys conducted in 2004 and 2005.

10.7.2 Helicopter-borne Magnetic and Electromagnetic Surveys (2001)

Helicopter-borne magnetic an electromagnetic surveys were conducted by SIAL (Fugro) over 16 blocks, covering the NW portion of the Jackson inlet project area. A total of 6641 line kilometres were flown at various line spacings, as indicated below. The surveys were flown with traverse line directions of 330°, 90°, 60°, and nominal ground clearances of 30m.

SIAL completed a helicopter reconnaissance geophysical survey over the Freightrain Kimberlite Prospect area to characterize the geophysical signature of the kimberlite and determine the parameters for a regional survey over various areas of the Brodeur Peninsula. Pursuant to this, larger grids were flown to cover the northern extents of the property. A description of these blocks is as follows:


BRODEUR
AREA 1
ST.JOSEPH EAST
BLOCK 2
ST.JOSEPH WEST
SIAL BLOCKS 1-7
BLOCK 11-05
AREA 2
BLOCK 3-05
AREA 3
SIAL BLOCK 8
ST.JOSEPH SOUTH
BLOCK 1
BLOCK 8-05
BLOCK 9-05
BLOCK 1-05
BOWEN
SIAL BLOCKS 9-10
BLOCK 4-05
BLOCK 5-05
SHERER
BLOCK 2-05
BLOCK 7-05
BLOCK 6-05
TMI
(nT)
2001 AEROMAGNETIC TARGETS
BLOCKS 1 AND 2 AEROMAGNETIC TARGETS
2006 AEROMAGNETIC TARGETS FOR EXPLORATION IN 2006
BULK SAMPLES
RC AND DIAMOND DRILLHOLES
2005 SOIL / TILL SAMPLES OVER 2004 AEROMAGNETIC TARGETS
Scale 1:125000
metres
FIGURE 10-2
TWIN MINING CORPORATION
JACKSON INLET DIAMOND PROPERTY
BRODEUR PENINSULA, BAFFIN ISLAND, NUNAVUT
HELICOPTER-BORNE MAGNETIC SURVEYS
FUGRO TWIN MINING SURVEY
TOTAL MAGNETIC INTENSITY
MARCH 2006
C-2018
MPH CONSULTING LIMITED

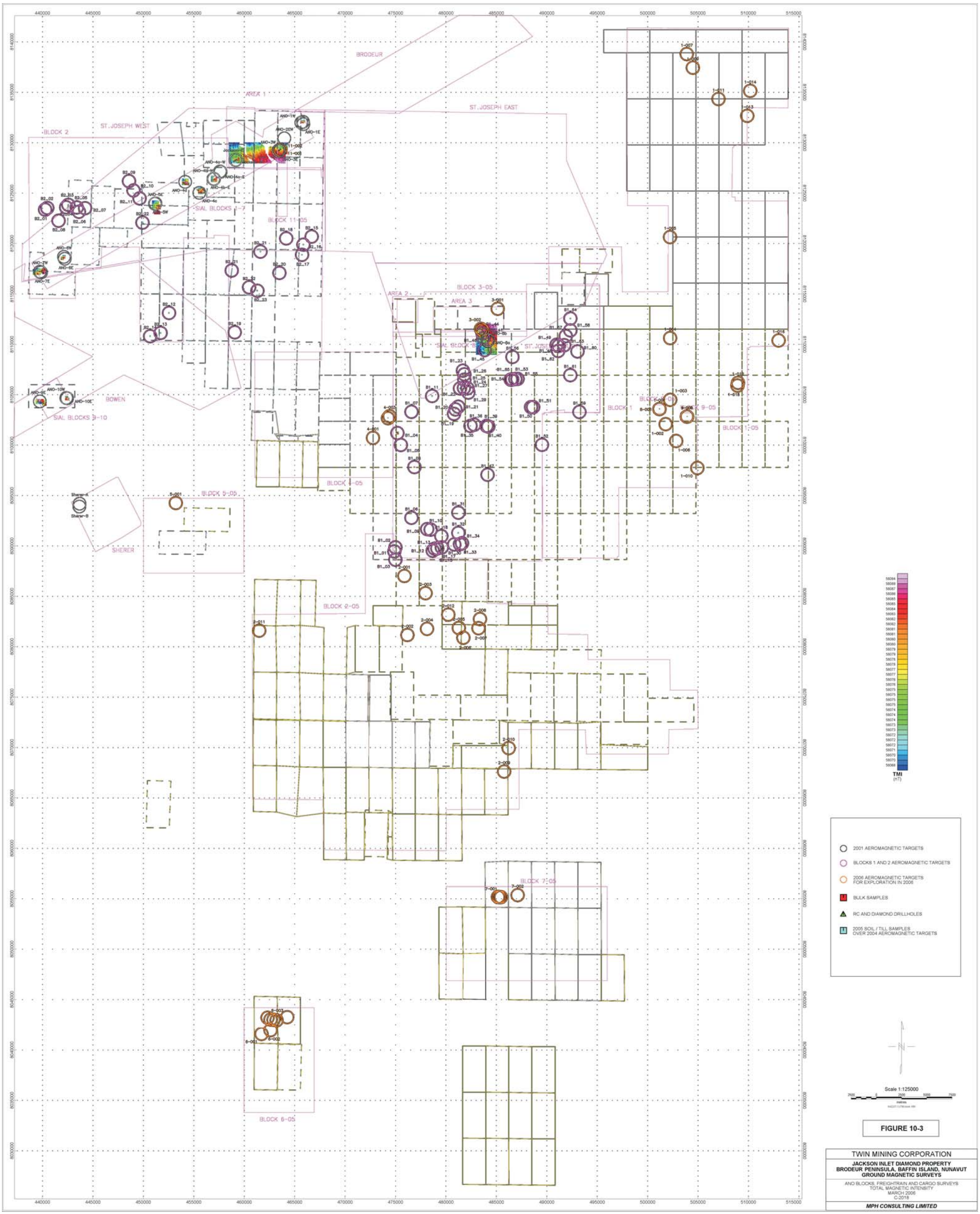

BRODEUR
AREA 1
ST.JOSEPH EAST
ST.JOSEPH WEST
BLOCK 2
SIAL BLOCKS 1-7
BLOCK 11-05
AREA 2
AREA 3
BLOCK 3-05
BLOCK 1
BLOCK 1-05
BLOCK 9-05
BLOCK 4-05
BLOCK 5-05
BOWEN
SIAL BLOCKS 8-10
SHERER
BLOCK 2-05
BLOCK 7-05
BLOCK 6-05
TMI
(nT)
2001 AEROMAGNETIC TARGETS
BLOCKS 1 AND 2 AEROMAGNETIC TARGETS
2006 AEROMAGNETIC TARGETS
FOR EXPLORATION IN 2006
BULK SAMPLES
RC AND DIAMOND DRILLHOLES
2005 SOIL / TILL SAMPLES
OVER 2004 AEROMAGNETIC TARGETS
N
Scale 1:125000
metres
FIGURE 10-3
TWIN MINING CORPORATION
JACKSON INLET DIAMOND PROPERTY
BRODEUR PENINSULA, BAFFIN ISLAND, NUNAVUT
GROUND MAGNETIC SURVEYS
ANO BLOCKS, FREIGHTRAIN AND CARGO SURVEYS
TOTAL MAGNETIC INTENSITY
MARCH 2006
C-2018
MPH CONSULTING LIMITED

Table 10.12 2001 SIAL Helicopter-borne Geophysical Survey Blocks

BLOCK	Coverage	Line Spacing	Direction
St. Joseph West	80% overlap with current claims	250m	60°
St. Joseph East	<5% overlap with current claims	250m	60°
St. Joseph South	~60% overlap with current claims	250m	60°
Brodeur Block	Off current claims	250m	60°
Bowen Coulter Block	25% overlap with current claims	250m	60°
Sherer	Off current claims	250	60°
Block A	Off current claims	200	0°
ANO1-7	100% overlap with current claims	100	330°
ANO8-10	100% overlap with current claims	50	330°

Twin Mining notes that detailed surveys, completed over the 10 small areas with lines at 330° azimuth and 100 m line spacing, were identified as follow-up targets from the regional survey. The regional survey identified 14 magnetic anomalies, including the (known) Freightrain kimberlite. The anomalies are reportedly characterized by subtle, but well-defined peaks on the survey profiles. Eleven (11) of the anomalies including Freightrain follow an ENE trend, while three targets ANO-8, -9, and 10 are located to the south of this trend. Target ANO-3 is located 4.5 km ENE from Freightrain, and was considered a "first Priority Target" with a shape and magnetic susceptibility closest to the signature of Freightrain. Drilling of target ANO-3 led to the intersection of the Cargo-1 Kimberlite. The magnetic data indicated a dominant 120 azimuth trend of anomalies and believed to reflect Proterozoic Diabase Dykes underlying the Paleozoic bedrock.

Targets identified from the 2001 Sial airborne survey are as follows:

Table 10.13- Magnetic Anomalies Observed in 2001 Airborne Survey

Anomaly	Line No.	x (Nad 27)	y (Nad 27)	Approx. Diameter (metres)	Max. Amplitude (nT)	Mag sensor to source (m)	Source Depth (m)
*Jackson-E *Jackson-W (Freightrain)	3503 7801	459180.94 459134.66	8128295.00 8128287.00	120/500 100/300	34 38	25 29	0 0
ANO 1-E ANO 1-W	2804 30011 30112	465652.59 465860.00 465829.00	8131993.50 8131840.00 8132077.00	100 100 150	2.0 2.0 1.25	N/A	N/A
ANO2-E ANO2-W	3004 weak,	463975.81	8130440.00	100	0.35	N/A	N/A
*ANO 3-E *ANO 3-W (Cargo-1)	3304 26612	463388.34 463453.22	8129228.50 8129167.50	140 100	19 20	47 38	16 18
ANO 4a-E ANO 4a-W	2903 20512	457658.97 457594.59	8127109.00 8127152.00	150 240	1.1 0.6	N/A	N/A
ANO 4b-E ANO 4b-W ANO 4c ANO 4d	3004 19612 17702 17001	457007.91 456951.94 455550.00 454143.78	8126407.50 8126415.00 8125030.00 8126117.50	90 300 613 633	5.5 4.0 7.0 5.0	N/A	N/A
*ANO 5-E *ANO 5-W	2703 13301	451203.25 451141.69	8123978.00 8123945.95	600 300	12.41 12	290	250
ANO 6-E ANO 6-W	2804 2901	442204.19 442126.91	8118490.00 8118679.00	300 169	4.63 4.00	N/A	N/A
ANO 7-E ANO 7-W	2804 301	439856.16 439742.34	8117129.00 8117210.20	130 300	2 2	N/A	N/A
*ANO 8a *ANO 8b	401 201	484210.34 484096.34	8110407.50 8110398.50	50 52	2 4	50 60	22 29
*ANO 9-E *ANO 9-W	7214 ***	439736.00	8104340.50	30	16	21	0
*ANO 10-E *ANO10-W	7614 412	442354.25 442438.63	8104685.50 8104644.00	60 52	5 6	29 30	0 0
*Sherer-A	204	443672.78	8094195.50	75	17	50	15
*Sherer-B	304	443654.59	8093905.50	75	17	54	15

10.7.3 Ground Magnetometer Surveys (2002)

Ground magnetic surveys over the 2001 airborne targets are reported by Twin Mining as carried out by in-house personnel (Richard Roy) with two magnetometers, a mobile GSM-19 V.6 unit and a Base Station GSM-19 (V4). Surveys were conducted on 25-50m spaced survey lines with GPS control (Magellan hand-held GPS). No wooden pickets were reportedly used for ground control. The base station was positioned at the Jackson Camp for the duration of these surveys. The Freightrain and Cargo-1 anomalies were surveyed first, and by the end of 2002, a total of 321 square kilometres of ground magnetic surveys were completed over 14 targets. The grid specifications for the various targets are as follows:

Table 10.14 – Ground Grid Specifications 2002

TARGET	Grid Description	Anomalies Observed
ANO1	~250x275m grid with 25m-spaced NS and EW gridlines	Complex anomaly pattern
ANO2	~450x300m grid with 25m-spaced NS and EW gridlines	Complex anomaly pattern, including discrete ~2nT anomalies
CARGO-3	~600x600m grid with 50m-spaced NS and EW lines	Complex anomaly pattern, with discrete ~2-4 nT anomalies
ANO4C	~500x500m grid with 50m-spaced NS and EW lines	Complex anomaly pattern with 4-8nT anomalies
ANO4D	~600x600m grid with 50m-spaced NS and EW lines	Discrete ~200m diameter ~5nT anomaly
ANO5	~600x600m grid with 50m-spaced NS and EW lines and ~250x400m at 100 and 50m line-spcings	One 3nT anomaly
ANO6	~250x450m grid with 50m-spaced NS and EW gridlines	One ~6nT anomaly
ANO7	~450x1400m grid with 50m-spaced NS and EW gridlines, and 100m NS lines only over ~15% of the eastern margin of the grid	One ~2nt and one ~4nT anomaly
ANO9	~400x1000m grid with 50m-spaced NS and EW lines and 25m NS and EW infill lines over ~40% of the gridlines	Two ~8-12 nT anomalies
ANO8	~200x300m grid with 25m-spaced NS and EW lines	Clear resolution of the ~65nT main Cargo-I anomaly and smaller ~10nT satellite anomalies
ANO9	~500x1100m grid with unknown line-spacing	Two 8nT anomalies
ANO10	~400x400m grid with 50m-spaced NS lines	One 60nT anomaly
FREIGHTRAIN	~400x700m grid with 25m-spaced NS and EW lines	Multiple complex anomalies up to 150nT
CARGO-2	~1100x2300m grid with 25m, 50m and	Several oval anomalies, 10-

	100m-spaced NS and EW lines	15nT in amplitude
CARGO-2	200X300m grid with 50m NS and EW lines	200x100m, 260nT anomaly with small 30nT satellite (drilled by CG1-05)

Three targets were reported to have been tested by Twin Mining with diamond drilling in 2002. These were the ANO-8-(Cargo-2), ANO-9 and ANO-10 targets. Target ANO-4D had previously been drilled in 2001. The drillhole which tested ANO-4D did not intersect kimberlite, and did not explain the source of the circular magnetic anomaly observed in the airborne data, or the nearby occurrence of KIM's from till sampling. Target ANO-8 (also known as Cargo-2) is located 30 km SE of Freightrain kimberlite and was tested with three holes. Again, kimberlite was not intersected. Targets ANO-9 and ANO-10 are located 2.5km apart and located 30km SW of the Freightrain kimberlite. These were tested with a single hole and three holes, respectively, but none of the four holes intersected kimberlite or encountered material that could explain the airborne and ground magnetic anomalies.

Since no kimberlite was intersected and the causative magnetic bodies were not explained, it is recommended by this author that the positions of these holes and magnetic data be verified in the field with a differential GPS, if possible. The drill logs should also be examined for possible magnetic lithologies/alteration.

It was also reported by Twin Mining that generally, the ground magnetic data correlated well with the results from the earlier SIAL regional helicopter-borne magnetometer survey. Significant shape changes are noted by this author, when comparing the airborne and ground anomalies for the above ground grids. The locations appear reasonable, however, given the airborne survey line-spacing.

10.7.4 Ground Magnetometer Surveys (2003)

Ground magnetic surveys were carried out by JVX Ltd. in 2003 over the Freightrain / Cargo I areas (Gap grid) and the Cargo II area, totaling some ~52 line-km. A differential GPS unit was used JVX to surmount positioning errors encountered with previous surveys, reported by Twin Mining.

The two grids were picketed and DGPS surveyed by personnel of JVX. The Gap Grid covers approximately a 2km by 6km area encompassing the Freightrain and Cargo I kimberlites, while the ANO-8 / Cargo-2 Grid covers approximately a 2km by 3km area, centered on the ANO-8 aeromagnetic anomaly.

The surveys were, as reported by Twin Mining, intended to further clarify structural control of kimberlite emplacement and to better define drill targets, not readily apparent from low resolution and suspect ground data, obtained by the 2002 ground magnetic surveys. The two main areas surveyed were the Freightrain-Cargo 1 area (JVX Gap Grid) and the ANO-8 (JVX Cargo-2) area. The Gap grid data was acquired using a 100m line-spacing with 50m infill lines over approximately 60% of the survey. The Cargo-2 grid was acquired using a 100m line-spacing with 50m infill line-spacing over ~50% of the grid. These were covered using a grid based survey at 25 m line spacing (JVX, July 28th, 2005).

A total of seven magnetic anomalies were recommended for follow-up on the Cargo II grid by JVX, based on the field data. These were identified based on their amplitude and inferred depth. A NE-SW dike or chain of similarly-trending anomalies is noted and a further seven discrete anomalies were identified for follow-up on the Gap grid. The magnetic signatures of the Freightrain and Cargo I kimberlites were noted by JVX as visible in the GAP survey. These anomalies ranged in amplitude from 8nT to 23 nT. An inspection of this data by this author yields anomaly diameters in the range of 25 to 100m, and a clear resolution of the Freightrain and Cargo-I kimberlites, as well as the Cargo-II anomaly.

It is recommended by this author that a correlation/compilation of these anomalies with airborne and other ground magnetic anomalies is warranted. The modeling of these anomalies, and comparison with the known kimberlites on the property is recommended, for priority ranking and follow-up.

10.7.5 Helicopter-borne Magnetometer Survey (2004)

Fugro Airborne Surveys completed a Midas helicopter-borne magnetic gradiometer survey over norther portions of the Twin Mining Property during June and July, 2004. The Twin Mining St. Joseph Camp was used as a base of operations. The program was funded and directed by Kennecott (Canada) Exploration Inc.

A total of ~15,568 line km of magnetic data was collected with 8,955 line-km flown over Block 1 and 6,613 line-km over Block 2. Traverse lines where flown on a spacing of 50 m for Block 1 and 75 m for Block 2, with a control line separation of 1000 m. Survey height was nominally 30 m. Both blocks were flown with N-S traverse line directions (000° UTM).

Kennecott (Canada) Exploration Inc. selected sixty-five anomalies in Block 1 (B1_01 to B1_65) with amplitudes between 3 and 12.5nT, and twenty-two anomalies in Block 2 (B2_01 to B2_22) with amplitudes between 3 and 9nT. Kennecott reported that the magnetic gradient data assisted in prioritization of subtle anomalies. The selected anomalies are as follows:

Table 10.15 Magnetic Anomalies Survey Block 1 (East Jackson Inlet Block)

X(Eastm)	Y(Northm)	Anomaly	Line	FID	# of Lines	Strenght (nT)
474887.33	8089455.07	B1_01	L10030	2871.2	3	3.5
474989.28	8089859.15	B1_02	L10050	4477.3	3	2
474986.39	8088637.06	B1_03	L10051	4508.3	2	1.5
475188.45	8101195.86	B1_04	L10090	3714.2	3	5
475529.76	8100015.16	B1_05	L10160	7184.5	2	1
476580.81	8092788.72	B1_06	L10370	2921.3	2	2
476583.58	8103303.05	B1_07	L10370	2634.6	2	2
476874.56	8097826.46	B1_08	L10430	7320.3	1	1
478140.11	8091673.62	B1_09	L10680	4641.1	1	1.5
478479.95	8091618.29	B1_10	L10750	2751.2	1	1
478632.90	8104872.98	B1_11	L10780	5066.3	1	3.5
478685.72	8089528.31	B1_12	L10790	5954	1	2
478878.61	8089729.40	B1_13	L10830	9121.8	2	1
479145.95	8089760.84	B1_15	L10880	2956.2	2	2
479547.32	8090972.95	B1_16	L10960	9237.4	1	2
479589.68	8089854.74	B1_17	L10970	1348	2	5
480799.04	8103106.77	B1_19	L11210	1832.7	3	8.5
480937.83	8103546.57	B1_20	L11240	3831.4	3	5.5
481219.19	8103810.94	B1_21	L11300	8307.8	1	2
481393.09	8105627.21	B1_22	L11330	1981.9	2	4
481684.5	8107384.68	B1_23	L11390	6452.7	1	2
481782.56	8105675.93	B1_24	L11410	7867.7	2	2.2
481824.03	8106494.71	B1_25	L11420	685.9	2	1.5
481826.73	8107025.61	B1_26	L11420	672.1	1	1.2
482133.24	8105640.24	B1_27	L11480	5060	2	2
482226.88	8105214.79	B1_29	L11500	1078.1	2	5
480827.14	8090148.85	B1_30	L11220	2722.8	3	2
481233.36	8093297.99	B1_31	L11300	8583.6	1	2
481226.16	8091290.37	B1_32	L11300	8635.8	1	3
481389.83	8090178.92	B1_33	L11330	1466.8	1	1.5
481593.19	8090270.24	B1_34	L11370	4429.1	1	2.5
482432.67	8101905.98	B1_35	L11540	2881.8	3	7
482804.44	8102027.70	B1_36	L11610	8543	1	1.5
484027.90	8101907.02	B1_39	L11860	820.2	1	2
484200.31	8101846.72	B1_40	L11890	3217.6	2	2.2
483720.18	8110614.34	B1_41	L11800	5298.9	3	8
483623.71	8111103.02	B1_44	L11780	3739.7	1	3.5
483837.62	8109432.99	B1_45	L11820	6940.8	2	3.5
484129.02	8110359.09	B1_46	L11880	2086.7	5	5
484124.88	8097061.16	B1_47	L11880	2465.1	2	2
490975.69	8109958.03	B1_48	L13250	3048.8	4	12.5
491176.14	8109850.63	B1_49	L13290	4714.1	3	11
488437.69	8103771.93	B1_50	L12740	3869.1	2	4
488646.96	8103768.52	B1_51	L12780	7480.3	1	2
489523.36	8100031.88	B1_52	L12960	4752.7	3	10
486880.41	8106557.74	B1_53	L12430	5176.3	2	3
486427.70	8106501.81	B1_54	L12340	5743.4	2	2.5
487102.20	8106569.96	B1_55	L12470	8644.7	1	2
486592.38	8108745.20	B1_56	L12370	543.5	1	2.5

491881.86	8110820.67	B1_57	L13430	1482	1	4
492338.73	8111380.33	B1_58	L13520	5918.8	1	6
493234.19	8103291.20	B1_59	L13700	4343.3	1	5
493044.00	8109297.00	B1_60	L13660	2717	1	2.5
492334.00	8106936.00	B1_61	L13520	5722.8	1	2.5
491127.00	8109344.00	B1_62	L13280	4294.4	1	2
491729.00	8109914.00	B1_63	L13400	9309.8	1	1.5
492337.00	8112560.00	B1_64	L13520	6044.8	1	1.5
486577.00	8106515.00	B1_65	L12370	608.6	1	1

Table 10.16 Magnetic anomalies Survey Block 2 (West Jackson Inlet)

X(Eastm)	Y(Northm)	Anomaly	Line	FID	# of Lines	Strenght (nT)
440472.31	8123526.11	B2_02	L20245	1817.2	1	65
442559.06	8123842.32	B2_03	L20520	4193.1	1	3
442341.95	8123594.98	B2_04	L20490	2820.8	3	11
443398.72	8123576.45	B2_05	L20630	5201.8	1	1
443611.93	8123153.95	B2_06	L20660	908.9	1	9
444217.10	8123508.20	B2_07	L20740	5179.7	1	1.5
441588.70	8122260.60	B2_08	L20390	2579.5	1	1.5
448572.51	8126188.85	B2_09	L21320	3998.3	5	2.5
449021.21	8125263.71	B2_10	L21380	6491.8	4	1
449625.24	8124475.20	B2_11	L21460	2048.4	1	2
452543.00	8113112.85	B2_12	L21850	2217.3	1	3
451710.65	8111128.27	B2_13	L21740	1016.3	1	3
450670.90	8110806.11	B2_14	L21600	5164.8	1	6
466688.31	8120685.87	B2_15	L23740	2006.9	1	2.5
465866.05	8119887.86	B2_16	L23630	9315.5	1	4
465733.03	8118881.33	B2_17	L23610	1663.4	1	3.5
464165.71	8120506.70	B2_18	L23400	2763.2	2	2.5
459059.51	8111192.86	B2_19	L22720	7471.6	2	2
460480.27	8115657.55	B2_22	L22910	3377.1	3	3
461305.96	8115312.96	B2_23	L23021	4207.5	2	5
458759.67	8117322.89	B2_21	L22680	2472.7	2	3
463488.40	8117080.82	B2_20	L23310	1679	3	2.5
461609.47	8119196.16	B2_21	L23060	1515.8	1	1
449912.23	8122075.88	B2_22	L21500	4810.7	2	1

Twin Mining has reported that the 2004 Fugro aeromagnetic survey areas covered portions of the area surveyed by Fugro Sial for Twin Mining Corporation in year 2001. The anomalies selected by Sial in 2001 in the area overlapped by the 2004 survey are:

ANO-4A in mineral claim BP13 (0.6 - 1.1 nT, depending on flight direction),

ANO-4B in claim BP14 (1.5 to 5.5 nT),

ANO-5 in claim EMILY (12.0 to 12.41nT),

ANO-6 in claim ROBYN (4.0 to 4.63 nT),

ANO-7 in claim KRISTA SOUTH (2 nT)

ANO-8 in claim JADE (5.0 to 5.7 nT).

Twin Mining notes that no satisfactory explanation is evident as to why Fugro's MIDAS II survey in 2004 failed to detect 5 out of the 6 above anomalies. Only ANO-8 was detected, as B1-46 (5 nT amplitude).

Twin Mining has further noted that flight line spacing for the 2001 SIAL aeromagnetic survey was 250 m, with follow-up lines at 100 m spacing over all except ANO8 which was at 50 m spacing. Target B1-46 (ANO-8) was detected by the 2004 Midas survey with a 50 m line spacing. The year 2004 flightline spacing, for blocks that over-flew the other year 2001 anomalies listed in the above paragraph, was 75 m.

This author further notes that the Sial anomalies are, for the most part, verified by the 2001 Twin Mining (Richard Roy) ground magnetic grids. This infers a problem with the 2004 Fugro Midas Block 1 and 2 data. It is possible that the Midas data have been harshly filtered to remove line-noise, or that errors occurred during the levelling and micro-levelling processes, which attenuated the above-mentioned anomalies. (There is no mention of horizontal gradient enhanced gridding in the Fugro logistics report for this survey.) It is recommended by this author that the line-archive data be examined to determine the cause of this problem, as there are implications for undetected/unidentified anomalies within the Midas data sets.

Twin Mining reports that anomaly profiles, strengths and the nearby presence or absence of kimberlite indicator minerals were considered in deciding that initial ground magnetometer and drill testing should focus on 10 anomalies: B1-04, B1-19, B1-20, B1-35, B1-46, B1-48, B1-49, B1-52, B2-23 and B2-06. All of these anomalies were drill-tested without intersecting kimberlite.

10.7.6 Helicopter-borne Magnetometer Surveys (2005)

A Fugro MIDAS II dual sensor helicopter-borne magnetic gradiometer survey was flown for Twin Mining over the Cargo-1 kimberlite and 7 blocks that covered ~80% of the current Jackson Inlet property. This was completed in August, 2005, with the base of operations at the Twin Mining Jackson Camp.

Traverse lines were oriented N-S (UTM 000°) and control lines oriented E-W (UTM 090°). A total of 15,239 km of flight line data was collected, with a nominal survey height of 30m. The line spacing for blocks 1/05 through 7/05 was 150 m, blocks 8/05 through 10/05 had line-spacings of 50m and block 11/05 used a 100m line-spacing. A test block over Cargo-1

(75.6 line km) and three small blocks of in-fill lines were also flown, totalling 58.2 line-km.

The Fugro Midas survey produced a total magnetic field product which was horizontal-gradient enhanced. This effectively increased the line-resolution of the survey. The IGRF was also removed.

Fugro has reported that Blocks 1/05 and 2/05 contain the most promising anomalies for follow-up. Block 1/05 has several isolated moderately strong magnetic anomalies in the south of the block. Anomalies in the northern part of the block are mapping numerous low-amplitude narrow `meandering' linear features whose origin is unknown. Most of the more significant anomalies in Block 2/05 seem to be concentrated in the north-central region of the survey area, where there seem to be more numerous high-frequency responses, both isolated and in narrow curvilinear features similar to those seen in Block 1/05.

Table 10.17 Significant magnetic anomalies selected by Fugro, from 2005 flight data

Anomaly	Approx. Diameter (meters)	Maximum Amplitude (nT)	Mag sensor to source (meters)	Source Depth (metres)
11-001 (Cargo 1)	90	37.25	60	25
9-001	125	22.20	78	46
8-001	100	29.66	60	21
7-001	100	9.52	70	38
7-002	100	5.37	63	28
6-001	140	6.21	84	52
6-002	120	3.15	58	21
5-001	75	2.59	NA	NA
4-001	150	6.60	79	49
4-002	200	5.57	93	61
4-003	100	8.03	68	36
3-001	70	2.79	51	23
3-002	60	3.82	53	20
2-001	90	11.79	69	44
2-002	100	12.53	95	58
2-003	120	10.87	81	50
2-004	110	21.98	100	67
2-005	100	15.36	50	17
2-006	125	15.63	73	35
2-007	150	20.81	89	46
2-008	120	26.09	63	30
2-009	80	14.30	51	19
2-010	100	13.08	75	38
2-011	180	8.24	100	67
2-012	100	13.59	61	26
1-002	110	10.94	48	19
1-003	75	11.97	48	19
1-004	100	12.83	49	19
1-005	140	10.54	59	29
1-006	180	19.16	67	35
1-007	100	8.01	46	14
1-009	100	9.39	57	24
1-010	100	16.56	67	36
1-011	110	10.12	68	36
1-012	140	14.43	103	71
1-013	140	12.63	84	51
1-014	225	12.67	82	47
1-015	125	16.65	78	40
1-016	100	15.45	69	32

Twin Mining notes that:

1. Anomalies 8-001 and 9-001 represent anomalies 1-001 and 1-008, respectively, verified and detailed by east-west flight lines at 50 m line spacing. (Drilled)

2. Anomaly 11-001 in CG-1 Test Block-05, reflects the Cargo 1 kimberlite pipe which is considered a typical target for the area.

3. Anomaly 11-002 reflects the combined effect of kimberlite and a (wrecked) Longyear 38 diamond drill situated at the site of drill hole CG1-05 which was stopped at 41 m in kimberlite due to freezing of water in the supply line.

A total of 17 ground magnetic surveys were completed in 2005 over geophysical targets generated by the Fugro 2005 helicopter-borne magnetic surveys. These targets include: B1-04, 08, 19, 20, 35, 46, 48/49 and 52 as well as B2-3, 6, 13, 14, 21, 22 and 23. These data have been plotted on the ground geophysical compilation map Figure 10-3. A thorough examination of the line-spacings, line-directions and specifications for these anomalies is recommended, in addition to a thorough interpretation.

10.7.7 Ground Gravity Surveys

A selected group of airborne targets were also covered by ~79ha of gravitometer surveys. These included the ANO4, ANO4D, ANO5, Cargo I, Cargo II and Freightrain targets/kimberlites. Unfortunately, the gravity data provided for the Freightrain kimberlite was not georeferenced and cannot be evaluated at this time. The Cargo 1 pipe was also covered in order to determine if a clear response could be obtained. Specific gravity measurements were taken from selected kimberlite and limestone drillcore by Twin Mining to enhance the interpretation, and should be incorporated into a future detailed evaluation of the method.

Twin Mining has reported that the Cargo 1 and Freightrain pipes did not respond well to the survey and that no clear anomaly was obtained coincident with the interpreted position of the pipes, as determined by diamond drilling. Upon examination, however, and based on the current data quality it appears that the method does work, albeit providing weak anomaly responses. This provides a good case study for the gravity response for kimberlite in the area. The negative ~0.3mGal gravity anomaly is not inconsistent with that expected for weathered (porous) kimberlite in the local sedimentary environment.

A thorough evaluation of the current gravity data, compared with other magnetic anomaly data and the Freightrain kimberlite, is recommended by this author.

10.7.8 Electromagnetic Data

Airborne Elecetromagnetic (AEM) data was acquired over the Fugro-Sial blocks flown for Twin Mining in 2001. These include the Bowen-Cotter, Sherer, St Joseph (W, E and S), and Brodeur blocks. As well, there is EM coverage over Block A, which is outside of the current property boundary.

Sial reported that all EM responses observed on the property were typical of surficial conductors and generally weak. Further, no EM anomalies appeared to be directly related to the magnetic responses. It is not noted, however, how this EM system will behave for kimberlites in a sedimentary environment, as many EM systems are designed for greenstone belts.

The gridded EM data examined for this system was not leveled to a sufficient degree that a comprehensive comparison could be done with the known kimberlites or other magnetic anomalies. Properly leveled (or re-leveled) gridded data, together with detailed profiles should be examined to determine if any anomalies are coincident with kimberlites, subtle magnetic targets or structural features relevant to kimberlite exploration in the area.

10.7.9 Beep Mat

Twin Mining reported the use of a “Beep Mat” (manufactured by GDD) to locate areas of magnetic soil and rock fragments in year 2000, however, there are no additional details in the technical data provided to MPH for review. It appears to have been used informally as a reconnaissance exploration tool. This system is typically used in base-metals exploration.

10.7.10 General Comments on Survey Design, Interpretation and Target Sizes

The magnetic anomalies are generally small on the Jackson Inltet property, measuring approximately 100m metres in diameter. The line spacing for most airborne surveys was generally adequate. All airborne and ground magnetic surveys are displayed in Figures 10-2 and 10-3 respectively.

Preliminary interpretation maps were received during the writing of this report, detailing the results of an interpretation underway at Fugro. Some 1362 anomalies have been identified, using an anomaly identification algorithm, and are in the process of being reported-on by Fugro. Such algorithms are not recommended by this author and it appears that the procedure has identified vast numbers of anomalies, with many being due to the ‘boudinage’ patterns caused by flight-line spacing and others probably due to near-surface features such as heavy mineral concentrations in drainages. Anomaly amplitudes are in the range of 2.5 to

30nT and the estimated diameters of the causative bodies range from 60 to 225 meters with an average of 115 meters.

A set of 39 priority targets have been identified by Fugro, as a priority sub-set of the above 1362 anomalies, and are reasonable as a first pass given the level of compilation and interpretation conducted on the exploration data for the property to date. Upon examination of the aeromagnetic data, these anomalies appear to conform to an idealized model for intrusive diatremes. Further prioritization of these anomalies, using multiple magnetic, structural and other parameters is advisable, as per standard industry procedures. Secondary geophysical methods such as ground electromagnetics or ground penetrating radar should also be considered. Further, it has become industry standard among senior geophysicists accustomed to exploring for kimberlites in Canada, to use a sophisticated multi-parameter ranking scheme for targets. This should encompass all available geophysical, geomorphological, structural, and geochemical parameters.

Also, magnetic anomalies are present on the new 2005 Fugro aeromagnetic blocks, which were not identified in the list of 39 priority targets by Fugro. Several of these appear attractive, from a kimberlite exploration standpoint, and should be incorporated into a list of priority targets.

The Freightrain kimberlite was surveyed magnetically on the ground by Twin Mining (NordQuest - Richard Roy) in 2001. Several versions of the magnetic coverage for the Freightrain anomaly are available, each showing slightly different positional variations for the magnetic anomalies. A synthesis of these data, or the revision of the data in the field with tighter better-controlled line-spacing is suggested by this author.

Twin Mining reports that the magnetic data over the Freightrain kimberlite, indicates a large, and complex system measuring approximately 500 m by 200 m, consists of a series of highs and lows (-100 gammas to +350 gammas from background). Individual anomalies are up to 100m in diameter and are positioned along a NE trend. Twin Mining further interprets the highly variable nature of the anomaly pattern to reflect both the complex nature of the kimberlite body and potentially great variability in the magnetic susceptibility within the kimberlite. Test-pitting of the Freightrain kimberlite appears to indicate the presence of kimberlite off of the main magnetic anomaly highs. This would either indicate the presence of kimberlite on the flanks of the magnetic responses (and confirm Twin Mining's interpretation of a large kimberlite), or errors in the GPS positioning of the geophysical data or pit locations. A due diligence on this matter in the field is highly recommended by this author, and will have a crucial bearing on the interpretation of the extents on the Freightrain kimberlite.

Twin Mining also reports that significant problems occurred while surveying the ANO-8 (Cargo II) area. Diamond drilling commenced immediately following the preliminary survey over the anomaly. At that time, the holes were positioned based on the existing data and centered on the core of the magnetic anomaly. Further, after extending the Cargo II ground magnetic surveys, the geometry of the anomaly changed considerably. The holes were then interpreted by Twin Mining to test only the edge of the anomaly. In addition, data quality is gauged as mediocre at best by Twin Mining. In light of the questionable data, favorable soil samples and the presence of a diamond recovered from overburden material in the drill casing, the Cargo 2 area remains a very important target area. This author recommends that the a thorough examination of all geophysical and positioning data be undertaken for the Cargo II area.

10.7.11 Positioning Comments

Several GPS positioning errors have been detected within the data sets for the Jackson Inlet project. These consist of minor offsets between airborne and ground data, as well as significant (kimberlite-scale) inferred positional errors.

The ground geophysical contractor JVX has commented on a positioning error of ~60m over Cargo II, and noted a displacement between the readings taken with the Twin Mining Magellan hand-held GPS and the differential GPS (DGPS) used by JVX. Some Magellan GPS units are known to this author to be problematic in the Arctic, due to GPS satellites being low on the horizon and that the Magellan antenna seems poorly designed for these conditions.

Further, Dallas Davis (pers. comm.) has indicated that a number of airborne anomalies, detected by the Sial Survey of 2001, could not be located by subsequent ground magnetic surveys. Furthermore these were not detected by the Fugro magnetic gradiometer survey in 2004. These include anomalies ANO-5, ANO-6 and ANO-7. Though it is possible that spurious aeromagnetic anomalies can exist in airborne data sets (and these should be checked for), a GPS error is more probable.

A check of all positioning, on the property is recommended for geophysics, drilling and sampling. Differential GPS (DGPS) systems are recommended, however, good-quality GPS units such as the Garmin GPS-76 should work very well at the property latitude and provide accurate positioning, to within a ~5m error. A thorough comparison of these systems on the property and positional repeatability is warranted.

10.7.12 Twin Mining Planned Program and Comments

A list of anomalies has been identified and press released as targets for follow-up by Twin Mining. These targets consist of magnetic anomalies identified from the 2005 aeromagnetic surveying, conducted by Fugro.

The proposed targets have been reviewed by this author and verified as viable kimberlite exploration targets. Most of the targets listed amongst the 39 Fugro priority targets are arguably high priority for follow-up, in this author's opinion. However, additional targets are present within the data sets which would be (relatively) highly ranked by this author for priority follow-up. A through review of the Fugro priority targets and the development of a standardized target ranking system for the property is warranted.

It should be noted that targets 9-001 and 8-001 have been reported by Twin Mining as drilled and unless this drilling was improperly targeted, these targets should be removed from the priority list.

The Fugro targets, although not ranked for priority of follow-up, are listed in section 10.7.7.

10.7.13 Geophysical Conclusions and Recommendations

The following geophysical recommendations are suggested by this author for the Twin Mining Jackson Inlet Project:

- A detailed examination of the positioning of all geophysical data and GPS positioning. A verification of the GPS position of drillholes and the targeted discrete magnetic anomalies on the ground is also advisable, with simple crossed magnetic profiles being employed to locate the anomalies.
- Detailed examination of the correlation of all ground magnetic and airborne magnetic anomalies, with attention to the preservation of anomaly shape, extents (for causative body size estimation) and amplitude.
- The airborne line-profile magnetic data should be examined as a validity-check on all airborne magnetic anomalies. Data spikes and gridding errors/atifacts are always possible and should be screened from the interpretation.
- A re-examination of all airborne EM data, with checks for correlation to both known kimberlites and structures (which may be the controlling structures for emplacement). To date, the EM has not been presented in a useable format and should be re-leveled.
- The correlation of any and all structural information with air photo and satellite data for a lineament / controlling-structure analysis should be performed.

- A very large amount of airborne and ground geophysical data has been collected and archived by Twin Mining. It is apparent that no comprehensive compilation work has been done with the geophysics, and that data formats, projections and coordinates have not been standardized. This is highly recommended.
- It is not apparent that a senior geophysicist was utilized for project design or quality control. This has resulted in sub-optimal survey design and quality control issues and positioning questions. Line-spacing, GPS positioning accuracy, data leveling and control of gridding artifacts, are all factors. Examples of this are the magnetic leveling problems apparent for ANO5 and Cargo II. Other data types such as the ground gravity cannot be meaningfully interpreted without a thorough due diligence on the position and Bouguer gravity compensation methods (no report was available).
- Given the small size of kimberlites on the property, airborne survey line-spacing may be a factor. Several of the surveys were flown at 250m and 100m line-spacing and may have missed smaller targets. The areas covered by these surveys should be reviewed, and infill lines considered.
- The Cargo I kimberlite should be selected for comprehensive geophysical tests. This should include: a very detailed ground magenetic survey, a HLEM (MaxMin) survey using frequencies appropriate to the local geology, detailed gravity and ground penetrating radar (GPR)
- Advanced filter products for all geophysical datasets should be created, including state-of-the art Fourier-filtered gridded images. It is crucial that the regional trends and sub-sedimentary basement responses should be removed to create a high-frequency residual map and remove the loss of dynamic range in the colourization of the total magnetic intensity maps. At least four different derivative products, including the first vertical derivative, analytic signal, tilt derivative and total horizontal derivative should be employed, and sophisticated band-pass filtering (including, but not limited to ‘Butterworth’and ‘cosine roll-off’filters) should be used to remove data noise or wavelength unrelated to possible intrusions. Also, depth estimation algorithms may be utilized in conjunction with detailed profile modeling to determine the size, geometry and depth of all prospective anomalies on the property that conform to an idealized model for intrusive dikes, blows and pipes. Further, the second vertical derivative should be utilized for flight-line noise and leveling error analysis.
- The re-leveling of data sets by a proficient senior geophysicist should be considered, where warranted.

- An analysis and discussion of basement structures is warranted, in order to determine if Archean basement faults, related to rifting, are obvious and discernible controls for kimberlite emplacement. It may be possible to further prioritize targets based on this model.
- It appears that Twin Mining has relied heavily on interpretation and/or interpretation reports from geophysical contractors, who may not have any particular specialization in kimberlite exploration, kimberlites in sedimentary environments or is the assembly and interpretation of multi-disciplinary (combined geophysical, geological and geochemical) exploration datasets. This practice is discouraged by the author and the compilation and interpretation of all available geoscience data is recommended by qualified explorationists (qualified persons).

The above recommendations have a consistent theme: inappropriate geophysical data acquisition methods, advice and recommendations may have harmed the efficacy of Twin Mining's exploration program to date. The rectification of this situation could seriously improve the ability for Twin to intersect kimberlite on its Jackson Inlet property.

10.8. Mineralogical and Petrographic Studies

Mineralogical studies of CKIM recovered from each of the sampling programs have been have been reported throughout subsection 10.6 and studies of kimberlite have been incorporated in discussions of kimberlite geology in subsection 7.3. Following the RC drill program of 2005, SGS Minerals Services carried a petrographic and mineralogical investigation for evidence of laterization in 11 RC chip samples collected from three RC holes B1-48, B-49 and F2005-2 that tested airborne magnetic anomalies and RC hole CG1-11 drilled along the Kimberlite Fragment Corridor. As reported on Table 11.6, RC B1-48 intersected a total of 23.46 m of limonitic-goethite-magnetite-quartz sandstone in three intervals, RC B1-49 intersected 9.55 m of limonitic-goethite-magnetite-quartz sandstone, while sandstone and limestone bedrock are reported in the other two holes. The 30 mm polished sections were prepared and examined using a petrographic microscope and photographed using a digital camera and Clemex and DJH-View programs[58].

Sample #92033, collected from RC CG1-11, a RC hole drilled along the Kimberlite Fragment Corridor, was examined with a binocular microscope for the presence of any kimberlite fragments or kimberlitic minerals including serpentine and/or chlorite pseudomorphs after phlogopite. None of these minerals were observed[58].

The following observations and conclusions are as reported by SGS-Lakefield geoscientists[58]:

* abundant limestone fragments with evidence of dissolution by underground water and light to moderate degrees of weathering. These features include

  - pores and caverns in a carbonate matrix;

- bay-like pockets on the surface of debris,

- goethite films around euhedral carbonate crystals, pore walls and surfaces of limestone fragments,

- goethite infillings within fissures.

* limestone fragments in the samples are mainly composed of fossiliferous limestone with minor amounts of fine grained limestone. There is evidence of different degrees of diagenetic crystallization.

* goethite occurs mainly as liberated compact or porous particles, with minor amounts of sandstone fragments with goethite cement, and fragments where goethite encapsulates angular quartz particles.

* lesser amounts of angular fragments of goethite occur as a clastic component in very loosely packed quartz sandstones cemented by carbonate.

* abundant liberated quartz sand grains contain traces of Fe-oxy/hydroxide cement on their surfaces. Thin films of Fe-oxides are also observed along fractures within many quartz grains.

* some examined samples mainly consisted of liberated quartz sand particles with partial remnants of cement.

* fragments of quartz sandstones are rare; there are three varieties of quartz sandstone particles observed;

- tightly packed with authogenic quartz cement;

- loosely packed with goethite cement;

- loosely packed with carbonate cement and sometimes containing goethite fragments.

SGS concluded that the samples did not show any direct evidence of previous laterization on Brodeur Peninsula. Generally, the presence of numerous fragments of colloform, highly porous and homogeneous goethite in surface and subsurface sediments can be construed as positive evidence indicating the existence of the lateritic soils in the past[58].

The question as to whether the goethite cement in quartz sandstones is primary (sedimentary) feature or due to some post depositional secondary process (e.g. infiltration) is also not clear. The presence of angular goethite fragments as a clastic component in loosely packed sandstones, cemented by medium crystalline carbonate shows that at least some primary goethite was eroded and redeposited with clastic quartz grains and later cemented by secondary carbonate[58].

10.9. Diamond Valuation Studies (2001, 2002)

Brief comments from two studies on stones recovered from the Spring and Fall 2001 Mini-Bulk Samples were carried out by Mr. Daniel de Belder, president, President of

Antwerp-based appraiser Diamond Trading N.V. are provided in Section 9. It should be noted that Diamond Trading N.V. at that time was a minority shareholder of Twin Mining and thus not an independent appraiser.

10.10. Drilling

Drilling and down hole direction surveys are discussed in Section 11 and results incorporated in discussions in Sections 7 and 9.

10.11. Geochronology

MPH is not aware of any age dating of kimberlite from the Property.

11.0 DRILLING

11.1. Introduction

A total of 3593.37 m in 62 core and reverse circulation (RC) holes has been drilled on the Property during three drilling campaigns. Statistical details of the core drilling carried out in July and early September in each of 2001 and 2002, and RC drilling carried out in July and August of 2005 are summarized in Table 11-1.

Table 11.1 Summary of Drilling

Year	NQ Core	Core	RC	RC	Contractor	Drill Rig
	Holes	(m)	Holes	(m)		
2005	-	-	32	863.37	Northspan Expl. Co.	Northspan Custom RC
2002	10	1172	-	-	Boart/Longyear	Longyear 38
2001	20	1558	-	-	Boart/Longyear	Longyear 38
Totals	30	2730	32	863.37		

The main objective of the core drilling in 2001 and 2002 was to test and sample the Freightrain and Cargo-1 Kimberlite Prospects, and to test five geophysical and geochemical targets. One of the targets, ANO-3 that was tested in 2001, resulted in the discovery of the Cargo-1 Kimberlite.

A total of 2730 m in 30 NQ (47.6 mm diameter) holes were completed and kimberlite was intersected in 15 out of 17 core holes at Freightrain Kimberlite Prospect and in all five core holes at the Cargo-1 Kimberlite Prospect. The source of the magnetic features at the other four targets tested with eight core holes remained unexplained.

The main objective of the RC drilling in 2005 was to test 11 of the 87 geophysical and geochemical targets identified in the 2004 and an additional three targets identified in an airborne magnetic survey carried out in 2005. As noted on Tables 11-4 and 11-6, this also included 10 short holes on targets peripheral to the Freightrain and Cargo-1 Kimberlite Prospects. A total of 863.37 m in 32 RC holes with a hole diameter of 92 mm was completed.

Excluding a 1.83 core m kimberlite dyke that was intersected in one out of the seven RC holes testing beneath kimberlite rock chips found on surface along the Kimberlite Bedrock Chip Corridor located immediately NE of the Cargo-1 Kimberlite Prospect, no new kimberlite bodies were intersected in any of the other holes.

Magnetite-bearing sedimentary units, commonly limonitic-goethite-magnetite quartz sandstone, were encountered in Paleozoic bedrock and/or in the overburden in RC holes testing nine airborne magnetic anomalies: B1-06, B1-23, B1-29, B1-35, B1-46 (Cargo-2), B1-48, B1-49 , A2-30 nT, and A3-20 nT, anomalies[40]

As noted in Subsection 7.2, the GSC has mapped magnetite and hematite bearing sandstone strata interbedded in the lower portion of the Paleozoic carbonate stratigraphy elsewhere in the district. The iron bearing units likely originated from the erosion of the

Mary River Group iron formations in the greenstone-granite domain located immediately to the east that was marginal to the carbonate shelf at that time.

The RC drilling results did not adequately explain sources for five magnetic anomalies: B1-04, B-10, B-20, B1-52 and F2005-2[40]

Table 11.2 Summary of Prospect and Anomaly Drilling

Prospect	Core Holes	Metres Drilled	RC Holes	RC Meters Drilled	Total	Core Hole No.
Freightrain	17	1108	3	47.01	1155.01	JI-FT-01 to -17
Cargo-1	5	668	7	79.25	747.25	JI-CG1-01 to -05
Geophysical & Geochemical Targets	8	954	22	737.11	1691.11	JI-ANO4B-01, CG2-1,2,3, ANO-9, ANO-10 -1,2,3
TOTALS	30	2,730	32	863.37	3,593.37	

Drilling data and drilling statistics for the Freightrain and Cargo-1 Kimberlite Prospects and other exploration targets are summarized in Tables 11.1, 11.2, 11.3 and 11.4. Selected analytical data are in Tables 9.1 and 9.2, and the geology, analytical results and interpretation of results have been discussed and incorporated throughout Sections 9.0 and 7.0.

The drill hole distribution on the Property is illustrated in Figures 10-2 and 10-3 and Figures 9-1 through to Figure 9-5 are plans and sections through the Freightrain and Cargo-1 Kimberlite Prospects. Microdiamonds recovered from the core are summarized in Table 9.7 for Freightrain and Table 9.8 for Cargo-1.

11.2. Core Drilling (2001, 2002)

11.2.1 General

Twin Mining's drilling programs were carried out between July 24 and September 16 in 2001 and between July 24, 2002 and September 7 in 2002. All core was NQ (46.7 mm) in diameter. Drilling was carried out by Boart-Longyear Ltd., of North Bay, Ontario, with a Longyear 38 drill rig.

As summarized in Table 11.4, 16 of the 30 core holes were vertical, six were inclined at inclined at - 60 ^{o} to the horizontal, four were inclined at -45 ^{o} to the horizontal, two were inclined at - 45 ^{o} to the horizontal, and one each - 70 ^{o} and - 80 ^{o} to the horizontal.

As can be expected when testing near circular targets, drill hole azimuths of the 14 inclined holes were variable with five holes drilled to the NE, one to the E, two to the SE, three to the SW, and three NW. Hole lengths ranged from 14.0 m to 209.0 m, and averaged 91 m. According to Twin Mining geologists, core drilling conditions were poor with badly fractured core, and holes were frequently lost when in 100% limestone as the rods tighten in sandy and muddy intervals.

With the exception of a suite of 15 cm long representative samples, all of the kimberlite core was submitted to SGS-Lakefield for caustic fusion processing for microdiamonds and heavy mineral concentration for selection of CKIM and mineral chemistry of selective grains[19]. It was deemed important to process as large as sample possible to determine the fine diamond distribution. The non-kimberlitic core was discarded after logging.[31] Details regarding core logging and sampling protocol and procedures are described in subsections 12.4 and 13.4.

All of the hole collars (but not elevations) were surveyed using a Garmin GPS hand held mobile unit. No base station was utilized[31]. Data on the logs indicate that 21 down-hole deviation acid tests were taken in 11 drill holes generally at 50 m down-hole intervals and primarily in those intersecting kimberlite. Only two holes were tested down hole in the 2002 drilling. It is uncertain whether the entries are the uncorrected or corrected readings. The author recommends that down hole surveys capable of determining azimuth in areas of magnetic rocks should be incorporated into the next drilling kimberlite program as the results will assist in increasing the confidence level for use of the holes in any resource estimation that may be made in the future. At the completion of each hole, the casing was removed but the drill collars were not cemented.[31]

During a site visit in 2002, H. Coates of MPH recommended giving more attention to recording core angles of bedding in the sedimentary rocks, kimberlite contacts with the sediments, and joints/fractures in the kimberlite units[38].

Statistics regarding core drilling of the kimberlites are on Tables 11.2 to 11.5. The breakdown of the 1,902.26 meters of drilling on the Kimberlite Prospects is in Table 11.3. Of this total, 803.93 meters was kimberlite.

Table 11.3 Kimberlite Drill Core and RC Sampling Statistics

Year	2001	Kimberlite	2002	Kimberlite	2005	Kimberlite	Totals	Totals
Prospect	Kimb Holes	Core m (kg)	Holes	Core m/kg	Kimb Holes	Chip m/kg	Kimb Holes	Kimb core+RC
Freightrain	15/17	314 (1105)	0	0	0/3	0/0	15	314 m
Cargo -1	2/2	231 (924.72)	3/3	257.1(1018)	1/7	1.83/??	6	489.93 m
TOTALS	17		3		1		21	803.93 m

The Freightrain Kimberlite Prospect has been tested with 17 core holes totalling 1108 m over an area of approximately 700 m by 100 m, and 5 core holes totalling 668 m tested an area of 250 m by 50 m at the Cargo-1 Kimberlite Prospect.

Eight core holes totalling 954 m tested four targets selected from the 2001 Fugro-SIAL airborne magnetic survey that were considered high priority based on their geophysical and geochemical characteristics. These are discussed in subsections 11.2.4 to 11.2.7

11.2.2 Freightrain Kimberlite Prospect[26]

The kimberlite geometry of the Freightrain Kimberlite Prospect was investigated with 17 drill NQ core holes in 2001. Guided by the surface exposures for the first nine holes and by magnetometer survey results thereafter, 11 of the 17 drill holes tested the outer edge of the 450 m by 250 m NE trending magnetic feature while 6 holes were drilled in the central core area[10]. A total of 314 core meters of kimberlite was intersected in 15 drill holes as summarized on Tables 11.2 and 11.3[10]. The deepest intersection of kimberlite was at a vertical depth of 260 m[27].

Hole JI-FT-01 is located between trenches JI-01 and JI-02. The hole was targeted to Site 2 where a 16.5 tonne sample (JI-03-02) was collected in the spring 2001. At a downhole length of 200 m, hole JI-FT-01 would have been vertically below trench JI-03. Following 26 m of kimberlite, the hole entered unconsolidated clay and lime mud, and some limestone intervals to a depth of 116 m where the hole sanded at that depth and was lost. NQ rods and the core barrel were not recovered[26].

Holes JI-FT-02 to 04 were the first of a series of holes along a section that includes Trenches JI-4, JI-2, and JI-3, and hole JI-FT-01. These holes were designed to explore the geometry of the upper portion of the kimberlite. Hole JI-FT-02 was drilled immediately NE of Trench JI-4 and following 3.5 m of casing, crossed 18.1 m of kimberlite followed by 52.4 m of limestone. Hole JI-FT-03 located 50 m to the NE of hole JI-FT-02, did not intersect kimberlite. Hole JI-FT-04 was drilled on Trench JI-1 and into the highest airborne magnetic peak which occurs approximately in the center of the 500 m oval anomaly, and intersected 71.9 m of limestone blocks, 2.1 m to 30.5 m in core width, within a 137.7 m interval of kimberlite[26].

Hole JI-FT-05 was designed to test the area between holes JI-FT-01 and JI-FT-03 and below JI-FT-03, but did not intersect any kimberlite[26].

Holes JI-FT-06, JI-FT-07 and JI-FT-08 were drilled from the same collar in different directions and dips to test the geometry of the kimberlite intrusion near its anticipated eastern margin as suggested by the abundance of frost-heaved fragments. The narrow intersections of kimberlite in these holes suggest the area is underlain by a narrow (<1 m) NE trending kimberlite dyke[26].

Seven holes, JI-FT-09 to JI-FT-15, were drilled from the same collar in different directions and dips to test the geometry of the kimberlite intrusion near Site 2 where a 16.5 tonne mini-bulk sample was excavated in the Spring of 2001. The geology in these holes suggest a NE trending plunge of the small JI-3 offshoot[26].

Hole JI-FT-16 was located NE from hole JI-FT-04 and in the center the "Pipe 2 Magnetic Anomaly" identified in the detailed ground survey. The hole intersected variable intervals of kimberlite and limestone. The core is locally strongly magnetic due to abundant fine magnetite. The hole froze in kimberlite at a downhole length of 206 m[26].

Hole JI-FT-17 is collared 125 m SW of hole JI-FT-02 at the center of a prominent magnetic high. Drilling was stopped at 26 m in kimberlite owing to the scarcity of drilling water and flying restrictions imposed as a result of the September 11, 2001 terrorist activities in the USA[26].

Although a total of 314 core meters of kimberlite was intersected and sampled in 15 holes out of a total of 1108 m drilled in 17 core holes, the geometry of the Freightrain Kimberlite Prospect is poorly understood. One possible interpretation to explain the drilling results is the intersection of prominent "floating" blocks of limestone reefs in the holes. A preferable interpretation put forth by P. Sobie of MPH in 2001 was that the Freightrain Kimberlite Prospect is an intrusion breccia-dyke system at the root zone-diatreme zone interface with individual small small pipes blows and dykes that appear dispersed into a variety of structures with attitudes ranging from near vertical to near horizontal. Significantly more core drilling will be required to adequately map the geometry and geology of the intrusion.

During the drilling Twin Mining geologists noted that the kimberlite has imparted a contact alteration on the adjacent sediments. Lithogeochemistry of wallrocks suggested the presence of significant amounts of both sandstones and siltstone along with the limestone. Some of the mud samples contain large proportions of clay and quartz, and the relative amounts of SiO_2 and Al_2O_3 were high compared to typical limestone. Many of the mud samples also contained a "fair amount" of MgO, suggesting input from the kimberlite. The presence of silty and sandy mud near kimberlite contacts suggests that the intrusion caused extensive breakdown of the more porous and permeable sandstones and siltstone compared to the limestone.[26]

11.2.3 Cargo-1 Kimberlite Prospect[26]

Hole JI-CG1 was an angle hole (-70^0) drilled to the NW that tested magnetic anomaly ANO-3, 140 m in diameter that is located 4.2 km ENE of the Freightrain Kimberlite Complex.

One micro-diamond and several KIMs including G10 garnets and one chromite grain were recovered from a 21.14 kg till sample collected over anomaly ANO-3[26]. The hole intersected 83.2 core m of kimberlite from 43 m to 126.2 m before ending in limestone at 152 m. According to Twin Mining geologists, the Cargo-1 Kimberlite has neither the topographic expression, nor any visible kimberlite fragments in the overlying soils, both features that characterise the nearby Freightrain Kimberlite Prospect.

Hole JI-CG2 was drilled perpendicular to the discovery hole and intersected 147.9 core m of kimberlite in an NE direction. Both holes were reported by the company to have penetrated the SW and NE margins of the kimberlite body and intersected two distinct facies, a coarse macrocrystic autolithic rim and a dark, ashy core zone that appears to be distinctly crater facies[27]. Based on the limited drilling, the deepest intersection of kimberlite was at vertical depth of 150 m[27].

The objective of vertical holes JI-CG1-03 and JI-CG1-04 spaced 25 m apart, was to obtain representative samples of the fine grained ashy facies in the core area, and the coarse facies in the rim area to test for their diamond content[8]. Hole JI-CG1-03 intersected 83 m of fine grained ashy facies, while hole JI-CG1-04 intersected 153.3 core m of coarse facies.

Hole JI-CG1-05 tested a small, 10 m diameter, weak magnetic response immediately east of the main Cargo-1 magnetic anomaly. The weak response in the surface surveys is reflected by low magnetic susceptibility readings of the 31.9 core meters of kimberlite intersected in the hole intersected in the 41 m long hole[8]. Twin Mining concluded that the surface dimension of the Cargo-1 Kimberlite may be larger than those suggested by the magnetic surveys[46].

A total of 497.20 core meters of kimberlite was intersected in the five core holes at Cargo-1 with the deepest intersection of kimberlite at a vertical depth of approximately168 m[27].

Table 11.4 Drilling Data Summary for 2001, 2002, 2005

Hole Number	Length (m)	Azim.	Dip	In-hole length to bedrock (m)	Kimberlite (core m)	Northing	Easting	Tarrget Magnetic Anomaly
JI-FT-01[19]	116	061º	-60°	3.0	23.0	8128273	459147	Freightrain
JI-FT-02[19]	74	-	-90°	3.0	16.0	8128193	459068	Freightrain
JI-FT-03[19]	35	-	-90°	6.0	0	8128227	459103	Freightrain
JI-FT-04[19]	141	-	-90°	3.5	137.5/65.6	8128273	459147	Freightrain
JI-FT-05[19]	152	-	-90°	12.0	0	8128289	459184	Freightrain
JI-FT-06[19]	20	-	-90°	9.0	1.7 wth/1.0	8128245	459343	Freightrain
JI-FT-07[19]	53	082°	-50°	9.0	3.4 wth/2.5	8128245	459343	Freightrain
JI-FT-08[19]	55	035°	-50°	15.5	1.0 tot /0.6	8128245	459343	Freightrain
JI-FT-09[19]	52	-	-90°	3.0	36.1	8128334	459239	Freightrain
JI-FT-10[19]	20	245°	-60°	6.8	9.1	8128334	459239	Freightrain
JI-FT-11[19]	20	245°	-45°	2.0	9.0	8128334	459239	Freightrain
JI-FT-12[19]	42	333°	-60°	3.0	30.6	8128334	459239	Freightrain
JI-FT-13[19]	44	333°	-45°	3.0	24.2	8128334	459239	Freightrain
JI-FT-14[19]	38	050°	-60°	4.2	7.4	8128334	459239	Freightrain
JI-FT-15[19]	14	050°	-45°	3.8	3.2	8128334	459239	Freightrain

JI-FT-16[19]	206	-	-90°	3.0	203.0 /59.2	8128278	459151	Freightrain
JI-FT-17[19]	26	-	-90°	4.2	21.3	8128125	458950	Freightrain
JI-CG1-01[19]	152	330°	-70°	2.5	83.1	8129203	463450	ANO 3/Cargo-1
JI-CG1-02[19]	179	055°	-60°	5.0	147.9	8129222	463417	ANO 3/Cargo-1
JI-ANO-4B-01[19]	119	150°	-80°	18.0	0	8126380	456970	ANO 4B
2001 NQ total	**1558 m**							
JI-CG1-03[8]	88	-	-90°	6.0	83.0	8129238	463458	AN0 3/Cargo-1
JI-CG1-04[8]	208	-	-90°	4.0	151.3	8129252	463478	ANO 3/Cargo-1
JI-CG1-05[8]	41	-	-90°	4.0	31.9	8129318	463573	ANO 3/Cargo-1
JI-CG2-01[8]	121	-	-90°	57.0	0	8110304	484094	ANO 8/Cargo-2
JI-CG2-02[8]	85	-	-90°	66.0	0	8110371	484081	ANO 8/Cargo-2
JI-CG2-03[8]	109	-	-90°	71.0	0	8110627	483737	ANO 8/Cargo-2
JI –ANO-10-01[8]	98	-	-90°	27.5	0	8104740	442373	ANO 10
JI- ANO-10-02[8]	125	155°	-60°	17.5	0	8104769	442373	ANO 10
JI- ANO-10-03[8]	88	-	-90°	7.0	0	8104720	442400	ANO 10
JI- ANO-9-01[8]	209	265°	-45°	3.0	0	8104352	439829	ANO 9
2002 NQ total	**1172 m**							
RC JI-FT-18[34]	21.40a	-	-90°	1.80	0	8128700	459700	Freightrain
RC JI-FT-19[34]	5.49	-	-90°	1.22	0	8128684	459665	Freightrain
RC JI-FT-20[34]	20.12	-	-90°	1.22	0	8128712	459718	Freightrain
RC JI-CG1-06[34]	10.36	-	-90°	1.52	0	8129528	463994	Cargo-1
RC JI-CG1-07[34]	14.63	007°	-50°	2.74	0	8129528	463994	Cargo-1
RC JI-CG1-08[34]	11.58	-	-90°	2..74	0	8129528	464010	Cargo-1
RC JI-CG1-09[34]	5.49a	008°	-62°	2.74	0	8129349	463626	Cargo-1
RC JI-CG1-10[34]	10.06	027°	-60°	2.74	0	8129343	463600	Cargo-1
RC JI-CG1-11[34]	7.32	-	-90°	2.74	0	8129480	463860	Cargo-1
RC JI-CG1-12[34]	19.81a	208°	-60°	2.13	1.83	8129480	463877	Cargo-1
RC JI-B2-23[34]	29.57	-	-90°	3.66	0	8115345	461258	B2-23
RC JI-B2-06[34]	40.23	-	-90°	31.09	0	8123157	443602	B2-06
RC JI-A2-30nT[34]	8.53	-	-90°	0.91	0	8103588	501174	Blck 1 Anom (2005)
RC JI-A2-30b[34]	9.10	-	-90°	0.00	0	8103603	501175	Blck 1 Anom (2005)
RC JI-A3-	12.80	-	-90°	5.49	0	8102836	503918	Blck 1 Anom

20nT[34]								(2005)
RC JI-F2005-2[34]	67.97	-	-90°	64.62	0	8102700	474249	Blck 4 Anom (2005)
RC JI-B1-04[34]	43.33	-	-90°	32.31	0	8101196	475188	B1-04
RC JI-B1-19[34]	54.25	-	-90°	51.82	0	8103107	480799	B1-19
RC JI-B1-19B[34]	57.00a	305°	-60°	57.00	0	8103086	486830	B1-19
RC JI-B1-20[34]	40.54a	-	-90°	36.58	0	8103547	480938	B1-20
RC JI-B1-35[34]	11.58	-	-90°	5.49	0	8101906	482433	B1-35
RC JI-B1-35B[34]	20.42	-	-90°	3.66	0	8101906	482433	B1-35
RC JI-B1-29[34]	10.10	-	-90°	10.10	0	8105215	482227	B1-29
RC JI-B1-46[34]	81.83	-	-90°	64.31	0	8110359	484129	B-46/Cargo-2
RC JI-B1-46B[34]	58.52a	-	-90°	51.80	0	8103086	486830	B-46/Cargo-2
RC JI-B1-46C[34]	40.20	-	-90°	34.70	0	8110344	484254	B-46/Cargo-2
RC JI-B1-46D[34]	8.50	-	-90°	8.50+	0	8110301	483982	B-46/Cargo-2
RC JI-B1-46E[34]	71.00a	-	-90°	63.70	0	8110426	484176	B-46/Cargo-2
RC JI-B1-48[34]	34.14	-	-90°	5.18	0	8109958	490976	B1-48
RC JI-B1-49[34]	10.06a	-	-90°	0.61	0	8109851	491176	B1-49
RC JI-B1-49B[34]	14.33	-	-90°	0.61	0	8119833	491194	B1-49
RC JI-B1-52[34]	13.11	-	-90°	7.62	0	8100032	489523	B1-52
2005 RC totals	**863.37 m**							

Table 11.5 Core Drilling Targets and Results

Core Hole Number	Comments	Target
JI-FT-01	Out of kimberlite at 26 m, aban. at 116 m	Freightrain
JI-FT-02	Out of kimberlite at 21.6 m, blocky, aban. at 74 m	Freightrain
JI-FT-03	No kimberlite	Freightrain
JI-FT-04	Abandoned in kimberlite at 206 m as rods froze	Freightrain
JI-FT-05	No kimberlite	Freightrain
JI-FT-06	Out of kimberlite at 11.8 m	Freightrain
JI-FT-07	Out of kimberlite at 17.1 m	Freightrain
JI-FT-08	Narrow kimberlite intervals from 15.5 to 37 m.	Freightrain
JI-FT-09	JI -3 Definition, out of kimberlite at 39.1 m	Freightrain
JI-FT-10	JI -3 Definition, out of kimberlite at 12.1 m	Freightrain

JI-FT-11	JI -3 Definition, out of kimberlite at 11.0 m	Freightrain
JI-FT-12	JI -3 Definition, out of kimberlite at 33.6m	Freightrain
JI-FT-13	JI -3 Definition, out of kimberlite at 11.1 m	Freightrain
JI-FT-14	JI -3 Definition, out of kimberlite at 11.6 m	Freightrain
JI-FT-15	JI -3 Definition, out of kimberlite at 7.0 m	Freightrain
JI-FT-16	Hole is 20 m from abandoned hole JI-FT-04	Freightrain
JI-FT-17	Abandoned in kimberlite at 26 m as no water left	Freightrain
JI-CG1-01	Kimberlite: Crossed the SW limit of pipe	ANO 3/Cargo-1
JI-CG1-02	Kimberlite: Followed NW contact ?	ANO 3/Cargo-1
JI-ANO-4B-01	Magnetic target unexplained - no kimberlite	ANO 4B
JI-CG1-03[8]	Kimberlite: 83 core m	AN0 3/Cargo-1
JI-CG1-04[8]	Kimberlite: 153.3 core m	ANO 3/Cargo-1
JI-CG1-05[8]	Kimberlite: 31.9 core	ANO 3/Cargo-1
JI-CG2-01[8]	Magnetic target unexplained limestone, ,massive, clayey, weathered	ANO 8/Cargo-2
JI-CG2-02[8]	Magnetic target unexplained limestone, massive	ANO 8/Cargo-2
JI-CG2-03[8]	Magnetic target unexplained limestone, massive	ANO 8/Cargo-2
JI -ANO-10-01[8]	Magnetic target unexplained: limestone, rusty, sandy, shaly ,massive	ANO 10
JI- ANO-10-02[8]	Magnetic target unexplained: limestone, rusty, clayey, fractured	ANO 10
JI- ANO-10-03[8]	Magnetic target unexplained: limestone, rusty, sandy, massive	ANO 10
JI- ANO-9-01[8]	Magnetic target unexplained: limestone, massive, breccia, shaly, clay	ANO 9

11.2.4 ANO 8 (Cargo-2) Magnetic Target[46]

The prominent airborne ANO-8 magnetic anomaly identified by the 2001 airborne magnetometer survey and defined by ground magnetic grid surveys was tested with three vertical holes totalling 315 m. Heavy mineral sample results in the area of the ANO 8 (Cargo 2) Target also suggested the presence of a kimberlite source in the immediate area[46].

While kimberlite was not intersected in the holes, Twin Mining geologists reported that strongly altered limestone similar to that observed proximal to the kimberlite at the Freightrain Kimberlite Prospect was observed in all three holes. A thick layer of overburden up to 71 m was omnipresent in the drill holes. One micro-diamond was recovered from a sample of till from immediately above bedrock in JI-CG2-02[8]. Based on the calculated depth of the magnetic response, the anomaly was expected to be much shallower. It was interpreted by Twin Mining that at least part of the magnetic response may be caused by a variation in the magnetic susceptibility of the overburden[46]

It should be noted that in 2005, the ANO 8 Target (renamed Target B1-46 from a subsequent airborne magnetic survey) was tested with five vertical RC drill holes totalling 260.05 m. Results are summarized on Table 11.6.

Kimberlite was not intersected in four of the holes that penetrated bedrock, however, two of the holes encountered 4.20 m and 2.43 m intervals of limonitic-goethite-magnetite quartz sandstone. In addition, the overburden that varies between 34.70 and 63.70 m appears to be well mineralized throughout with magnetite. Hole RC B1-46-E for example is described by Twin Mining geologists as “minimal to moderate magnetite contents in the fine fraction at most intervals”. As a result, the magnetite in both the overburden and bedrock appears to be the source of the Cargo-2 magnetic anomaly[40].

11.2.5 ANO 10 Magnetic Target[46]

Airborne targets ANO 10 and ANO 9 are located on the Domenico claim approximately 30 km SW of the Freightrain Kimberlite Prospect. Ground magnetic surveys over the airborne ANO 10 Target identified a small circular, but relatively strong and well defined magnetic anomaly. The target was rested with two vertical holes and one angled (-60) hole totalling 311 m, however, Twin Mining geologists reported that there was no obvious explanation for the magnetic anomaly in the core apart form local rusty alteration[48].

11.2.6 ANO 9 Magnetic Target[46]

The airborne ANO 9 Target is located approximately 2.5 km west of the ANO 10 Target. As the target is located under the south half of a small lake, ground surveys were not able to exactly position the anomaly on the ground. One angled hole (-45) was drilled from the west shore into the lake, however Twin Mining indicated that neither kimberlite, nor material that could explain the airborne and ground magnetic anomalies was intersected in the 209 m long hole[48,8].

11.2.7 ANO 4B Magnetic Target[46]

The airborne ANO 4B Target is located 30 km SW of the Freightrain Kimberlite Prospect and was tested with one angled (-80) hole, but did not intersect kimberlite in the 119 m long hole. The presence of indictor minerals in the soil sample taken at this location and the circular magnetic anomaly observed in the airborne magnetic survey remain unexplained[19, 26].

11.3. RC Drilling (2005)

Twin Mining’s RC drilling program of 32 holes totalling 863.37 m was carried out between July 19 and August 21, 2005. The company contracted a custom heli-portable reverse-circulation (RC) drill of Northspan Exploration Ltd. of Kelowna, B.C., Canada that had been developed for Trigon Exploration Canada Ltd. According to Twin Mining, the rig facilitates rapid moves and the testing of many more anomalies than would be possible in the same time span with a diamond core drill. The hole diameter is 92 mm vs 47.6 mm of an NQ core. Another advantage is that it does not require water or a salt solution to remove cuttings. Compressed air brings the cuttings to the surface and avoids drill hole blockage due to freezing of drilling solution. Additional comments regarding the operations and performance of the RC rig are included at the end of this subsection.

Drill hole details are summarized in Table 11.4. A total of 27 of the 32 holes were vertical, three were inclined - 60 ^{o} to the horizontal, and one each - 62 ^{o} and - 50 ^{o} to the horizontal. Drill hole azimuths of the five inclined holes were variable with three holes drilled to the N or NNE, one to the SSW, and one to the WNW. Hole lengths ranged from 5.49 m to 71.0 m, and averaged approximately 27 m. Seven holes were abandoned due to drilling difficulties.

The results of the RC program are summarized in Table 11.6. As previously mentioned in subsection 11.1, excluding the 1.83 m of kimberlite dyke intersected in one of the seven RC holes testing beneath kimberlite rock chips found on surface along the Kimberlite Bedrock Chip Corridor, located immediately NE of the Cargo-1 Kimberlite Prospect, no new kimberlite bodies were intersected in any of the other holes.

Magnetite-bearing sedimentary units, commonly limonitic-goethite-magnetite quartz sandstone, were encountered in Paleozoic bedrock and/or in the overburden in RC holes testing nine airborne magnetic anomalies: B1-06, B1-23, B1-29, B1-35, B1-46 (Cargo-2), B1-48, B1-49 , A2-30 nT, and A3-20 nT, anomalies[40]

The RC drilling results did not adequately explain sources for five magnetic anomalies: B1-04, B-10, B-20, B1-52 and F2005-2[40]

Table 11. 6 Twin Mining 2005 RC Drilling Targets and Results

RC Hole Number	Target/Comments	Target
RC JI-FT-18[34]	limestone//marls: hole abandoned	Freightrain JVX Anomaly-A2:
RC JI-FT-19[34]	limestone bedrock	Freightrain Kimb in frost boils within 40 m of JVX Anomaly A2:
RC JI-FT-20[34]	limestone/marl bedrock, target unexplained	Freightrain Center of Trigon anomaly near Fugro A2, near kimberlite fragments
RC JI-CG1-06[34]	limestone/marl bedrock	Cargo-1 7m N of frost boil with kimb chips
RC JI-CG1-07[34]	limestone/marl bedrock	Cargo-1 3m N of frost boil with kimb chips
RC JI-CG1-08[34]	limestone/bedrock; target unexplained	Cargo-1 unnamed JVX mag anomaly
RC JI-CG1-09[34]	limestone/marl bedrock, target unexplained	Cargo-1 Test under kimb chips for dyke
RC JI-CG1-10[34]	limestone/marl bedrock, target unexplained	Cargo-1 Test under kimb chips for dyke
RC JI-CG1-11[34]	sandstone/marl bedrock,	Cargo-1

	target unexplained	Test under kimb chips for dyke
RC JI-CG1-12[34]	1.83 m kimberlite dyke in limestone, marl bedrock	Cargo-1 Test under kimb chips for dyke
RC JI-B2-23A[34]	4.27 m of extremely high concentration of **magnetite**	B2-23 anomaly
RC JI-B2-06[34]	+ 10 m of moderate to abundant **magnetite** with goethite in clay	B2-06 - minor goethite at surface
RC JI-A2-30nT[34]	-high fraction of porous **magnetite**/goethite and goethite-**magnetite** cemented sand in 0.91 m of overburden, +3.04 m goethite-**magnetite** limonite rich bedrock; hole abandoned	Fugro 2005 anomaly A2-30 nT located in 2004 Block 1.
RC JI-A2-30b[34]	+9.10 m of goethite-**magnetite** limonite sand/silt.	Fugro 2005: A2-30 nT in 2004 Block 1, 15 m N of RC A2-30nT
RC JI-A3-20nT[34]	**Magnetite** in overburden, 2.14 m limonitic-goethite-**magnetite**-quartz sandstone in 2 intervals	Fugro 2005 anomaly A3-20 nT located in 2004 Block 1.
RC JI-F2005-2[34]	Unexplained	Fugro 2005 Hmag 6 nT anomaly in a cluster of 3, - located 1560 m at 202 az. from 1 Cr diopside and 2 ilmenites
RC JI-B1-04[34]	Unexplained	(B1-19,-20,-21 chain: 8.5 nT
RC JI-B1-19[34]	Unexplained	(B1-19,-20,-21 chain: 8.5 nT
RC JI-B1-19B[34]	Unexplained	(B1-19,-20,-21 chain: 8.5 nT
RC JI-B1-20[34]	unexplained/diabase in overburden	(B1-19,-20,-21 chain: 5.5 nT
RC JI-B1-35[34]	**Abundant magnetite**	B1-35, 7 nT, 3 lines 1 km SW of 2 pyropes, 1 Cr diopside
RC JI-B1-35B[34]	**Abundant magnetite**	B1-35, 7 nT, 3 lines, 1 km SW of 2 pyropes, 1 Cr diopside
RC JI-B1-29[34]	**Magnetite** very abundant in overburden; hole stopped at 10.1 m	B1-29, 5.5 nT , 2 line, 1 Cr diopsode.
RC JI-B1-46[34]	2.43 m of limonitic-goethite-**magnetite**-quartz sandstone in limestone	B1-46/ Cargo-2 Area
RC JI-B1-46B[34]	**Magnetite** in overburden & bedrock	B1-46/Cargo-2 Area 33 m SE of RC B1-46
RC JI-B1-46C[34]	**Magnetic diabase**, quartz-biotite-**magnetite** in overburden	B1-46/ Cargo-2 Area, 146 m E of RC B1-46
RC JI-B1-46D[34]	**Magnetite** in overburden	B1-46/Cargo-2 Area
RC JI-B1-46E[34]	Abandoned in 4.2 m of limonitic-goethite-**magnetite**-quartz sandstone in limestone	B1-46/Cargo-2 Area
RC JI-B1-48[34]	- 23.46 m of limonitic-goethite-**magnetite**-quartz sandstone in 3 intervals	B1-48 - surface is strewn with goethite and minor **magnetite**-goethite clasts
RC JI-B1-49[34]	9.55 m of limonitic-goethite-**magnetite**-quartz sandstone	B1-49 -surface is strewn with goethite and minor **magnetite**-goethite

		clasts
RC JI-B1-49B[34]	13.72 m of limonitic-goethite-**magnetite**-quartz sandstone	B1-49 surface is strewn with goethite and minor **magnetite**-goethtite clasts
RC JI-B1-52[34]	unexplained, ended in limestone at 13.11 m	B1-52

RC logs provided to MPH for review are generally very brief, one-two pages in length. Information such as such as hole core elevations, hole diameter, contractor, drill type are not identified in the data provided. As the main objective of the RC drilling was as an exploration tool for testing magnetic anomalies, and only one narrow interval of kimberlite was intersected, RC chip samples when collected were not taken at regular intervals. Based on the data provided by Twin Mining, sample intervals appeared to vary between 5 ft to 102 ft. however, are not noted for several holes, with entries simply as "sample 90 ft.", or "at bottom of hole". The sample data on the logs is incomplete and numbers have not been entered on any of the logs.

It is unknown whether any down hole deviation tests were conducted, or whether samples were weighed, or any attempts to estimate recoveries attempted. The drill hole collar coordinates are to the nearest meter and it is assumed that they were measured with a small portable GPS unit. Thirteen samples were submitted for analysis for CKIM and microdiamond recovery. The analytical results of the RC drilling are discussed in Section 10.0 and details regarding sampling, sample preparation, analyses are in subsections 12.4 and 13.4. For any future RC drilling programs, the author recommends that Twin Mining adopt a more regular sampling approach and adhere to guidelines in CIM Exploration Best Practices.

Comments regarding the RC drill rig performance and problems are provided by Dr. James Whitehead, the geologist who supervised the drilling in 2005.

" The drill is portable and in good weather can be dismantled, moved short distances (i.e., a matter of 10-100's of metres) by a helicopter long line, and re-erected in approximately 1.5 hours. The apparatus has to be slung in a minimum of seven loads, assuming diesel is already at the next site: the drill mast, two rod baskets, two separate parts of a compressor, a Kubota generator and a basket containing various accessories. Deeper holes require an additional basket with casing sections and additional drill rods. Moving longer distances, 30 km for example can take upwards of five-six hours, as the helicopter fuel is kept low to minimise weight, requiring frequent re-fuelling.

Despite its excellent portability and relatively rapid set-up and drilling time, several problems have been encountered with the drill. It does not cope well with clayey overburden, which is present in large abundance in the study area. Bedrock, which grinds to a clay, rather than breaking into larger chips, is also problematic. The clay clogs the return conduit preventing further sample retrieval. Pulling the rods and flushing the return conduit and bit with air generally provides only a temporary solution. Clay-rich till at the first hole attempted……prevented 65' of rod in the hole from being extracted, along with 10' of casing. During an attempt to retrieve the rods, stress on the drill head following the use of a back hammer, caused the drill head to catastrophically fail, scattering metal pieces and requiring a trip to Arctic Bay for welding.

The regular bit (a hammer bit) was replaced with a tri-cone bit at drill site …., which was used in the hope that the increased airflow might aid an improved sample return and minimise clogging. Despite the overburden at this site being a clay-sand mix, which contains significantly less clay than most areas, this attempt failed. The longer duration of the casing in the hole caused it to freeze to the substrate and only one 5' segment of the 15' present could be retrieved. The use of a back hammer in an attempt to retrieve the casing again caused a breakage of the drill head, requiring the installation of a replacement part which had been ordered following the earlier failure of this component.

Drilling at another target was delayed until a full day could be dedicated to penetrating the overburden until bedrock is encountered. The casing has to be removed as soon as possible after the completion of drilling, and cannot be left overnight as it will freeze in place and then cannot be retrieved. At another location, a maximum depth of 138' (42 m) could only be reached before the hole had to be abandoned due to the presence of abundant ice over a 13' interval, which caused stress on the rotation of the drill rods as it attempted to freeze to them. In subsequent holes, the use of de-icing fluid proved successful in allowing the drill to pass through ice-rich sections. The aforementioned hole which had originally been abandoned at 138' was re-entered and completed to bedrock at 211' (64.3 m)."

Considering the aforementioned RC drilling difficulties, the author recommends returning to core drilling in future programs.

11.4. Drill Intersections

As shown on Figures 9.1 to 9.5.

11.5. Core and RC Recoveries, RQD, Magnetic Susceptibility Measurements

Entries in the core logs indicate that core recoveries were estimated and rock quality determinations ("RQD") were made for all of the 30 core holes[40].

There is no mention of methodologies or a discussion of results of core recoveries and RQD, or whether any attempts were made to estimate recoveries in the RC holes in the technical data provided by Twin Mining to MPH for review[3`].

The core was not subjected to magnetic susceptibility measurements or bulk density determinations systematically along the core as part of the logging protocol[31]. The author considers this extremely important for both documenting/mapping kimberlite intervals, as well as relating airborne, and ground magnetic readings with the measurements of the bedrock and/or the overburden, and recommends that Twin Mining adopt the practice of field measurements of magnetic susceptibilities as a regular component of its exploration activities.

The author understands that magnetic susceptibility readings and bulk density determination were carried out on selected samples submitted to SGS-Lakefield at the laboratory in an attempt to assess gravity and magnetic survey results. Results of bulk density determinations showed little difference between kimberlite and enclosing carbonate rocks indicating that the use of gravity surveys was not effective in identifying kimberlite bodies[31].

11.6. Other Drilling

The author is not aware of any drilling for geotechnical or hydrological purposes anywhere on the Property.

12.0 SAMPLING METHOD AND APPROACH

12.1. Introduction

Sampling programs on the Property by Twin Mining included soils (tills), stream sediments, rock fragments, trench samples, mini-bulk samples, drill core and RC chips. All of the sampling was carried out by contract employees of Twin Mining.

Information briefly outlining most of the sampling protocols, sample preparation and logging procedures were provided by Twin Mining geologists. The author did not observe any of the sampling carried out by Twin Mining to verify its accuracy.

12.2. Soil Sampling Procedures/Protocol

12.2.1 2001 Orientation Soil (Tills) and Float/Rock Sampling

1. Description of Sampling Method:

Sample collection was by teams of two persons walking along sample lines with line numbers corresponding to assigned NAD 27 UTM Zone 16 easting co-ordinates[53].

ii. The soil samples were collected from frost boils if possible to a maximum depth of 15 cm using a metal shovel with care to take soil rather than a frost-shattered rock sample.

iii. Float/rock samples were generally 2-4 kg in weight and consisted of large rock fragments collected from the edges of frost boil surfaces, as these samples were deemed by Twin Mining geologists to represent bedrock immediately below the site of collection.

iv. Sample locations were determined with hand held Garmin GPS units (various models). The sample numbers were marked at sample sites with red plastic ribbon tied around rocks, and samples described as to physical characteristics, terrain type, colour of frost boil material and local slope direction and other relevant parameters/characteristics on a standard form.

v. After discarding cobbles and large stones, sample material ranging in weight form approximately 25 kg to 35 kg was placed in 20-litre plastic buckets and the snap-on lids firmly affixed.

vi. Each sample bucket was inscribed with the sample numbers on the sample tag which was placed inside the bucket which in turn, was in a small sealed plastic bag to protect the sample tag from water and mud[5]

vii. Samples were left at the sampling sites for helicopter transfer to the base camp.

2. Details of Location:

Soil sampling was carried on geophysical grids at the Freightrain Kimberlite Prospect and ANO-03 Target (Cargo-1 Kimberlite) as described in subsection 10.7.1. Single samples were also collected in the areas underlain by airborne magnetic anomalies ANO-4B, ANO-6, ANO-7 and ANO-8, however details regarding these samples do not appear to have been provided by Twin Mining to MPH for review[26].

Table 12.1 – 2001 Soil and Rock Sampling Details

Target Name	Grid Size	Area Surveyed	Sample Spacing	No. Soil Samples	No. of Float/Rock Samples
Freightrain (Jackson)	600 m x 500 m	30 ha	100 m by 100 m	42	42
Cargo-1(ANO-3)	500 m x 400 m	20 ha	100 m by 200 m	18	18
ANO-4B	na	na	Single sample	1	1
ANO-06	na	na	Single sample	1	1
ANO-07	na	na	Single sample	1	1
ANO-08	na	na	Single sample	1	1

3. Number of samples: The exact number of samples is uncertain, but as shown on Table 12.1, a total of 60 samples consisting of 42 soils (tills) and 18 kimberlite float/rocks were collected at Freightrain and Cargo-1 and at least two or one at ANO-4B, ANO-6, ANO-7, and ANO-8.

4. Sample type: soils (till), kimberlite float/rocks; as per Table 12.1.

5. Nature and spacing or density of samples: variable; as per Table 12.1

6. Size of area covered: variable; as per Table 12.1.

12.2.2 Spring 2002 Soil (Till) Sampling

Prior to commencing the 2002 summer program, single till samples were collected over 23 magnetic anomalies identified by the Fugro SIAL airborne magnetic survey and surveys published by the Geological Survey of Canada.

1. Description of Sampling Method:

i. The sampling method was the same as described for the summer 2001 described in subsection 12.2.1, the difference being that the frozen samples were collected using a pick axe and placed in the collection buckets.

2. Details of Location: 23 sites over airborne anomalies as follows: ANO-1, ANO-2, ANO-4C, ANO-4D, ANO-5, ANO-6, ANO-7, ANO-9, ANO-10, JI1-2, JI4-1, , JI8-1, JI10-3, JI10-4, JI10-5, JI10-9, JI10-11, JI10-17, JI10-18, JI10-20, JI2-1, JI3-1, and JI16-1[48].

3. Number of samples: 23 soils (tills)

4. Sample type: soils (till)

5. Nature and spacing or density of samples: one per site

6. Size of area covered: not applicable, as single samples

12.2.3 Summer 2002– Regional Soil (Till) Sampling

On the basis of the area's glacial history and the results of the 2001 and orientation CKIM sampling at the Cargo 1 Kimberlite Prospect, systematic soil (till) sampling on the Property was appropriate[8]. The objective of the 2002 summer program was to provide a complete database of indicator minerals across three areas.

1. Description of Sampling Method:

The sampling method was the same as described for the summer 2001 described in subsection 12.2.1

Groups of samples were transported by helicopter to the Jackson Inlet base camp for pre-processing.

2. Details of Location: - as per Table 12.2

Main Block: the large group of claims which include the Freightrain and Cargo 1 Kimberlites

Jade Block: series of isolated airborne magnetic anomalies 30 km SE of Freightrain (ANO-8)

Domenic Block: series of isolated airborne magnetic anomalies 30 km SW of Freightrain that were identified by the 2001 magnetic survey.(ANO-09, AN0-10)

Table 12.2 – Summer 2002 Regional Soil Sampling Details

Target/Area Name	Coverage	Area Surveyed	Sample Spacing
Main Block	10 km x 10 km 17.5 km by 27km	10,000 ha 47,250 ha	400 m by 2000 m
Domenic Block	3 km x 5 km	1,500 ha	400 m by 4000 m
Jade Block	13.5 km x 6 km	8,100 ha	400 m by 4000 m
Other Areas: overburden tills in diamond drill holes at Jade and Domenic Blocks, and other sites	Single samples	Single samples	Single samples

3. Number of samples: 488

4. Sample type: soils (till)

5. Nature and spacing or density of samples: samples collected at 400 m intervals on N-S lines spaced 4000 m apart; as per Table 12.2.

6. Size of area covered: as per Table 12.2; approx. 668.5 sq. km (27,053 acres)

12.2.4 Summer 2003 – Regional Soil (Till) Sampling

The objective of the 2003 summer program was infill sampling at the Freightrain Kimberlite Prospect and to carry out reconnaissance sampling over an area to the east and southeast.(East Jackson Inlet Block)

1. Description of Sampling Method:

i. The sampling method was the same as described for the summer 2001 described in subsection 12.2.1

ii. Groups of samples were transported by helicopter to the Jackson Inlet base camp for pre-processing.

2. Details of Location: as per Table 12.3

Table 12.3 – Summer 2003 Regional Soil Sampling Details[31]

Area Name	Coverage	Area Sampled	Sample Spacing
Jade S Extn.	14 km x 21 km	29,400 ha	500 m by 4000 m
E. of Jade	10 km x 10 km	10,000 ha	500 m by 4000 m
Freightrain Kimberlite Prospect	5 km x 13 km	6,500 ha	variable to fill in to 500 m centers

3. Number of samples: 355 soils [8].

4. Sample type: soils (till) [8].

5. Nature and spacing or density of samples: samples collected at 500 m intervals on N-S lines spaced 4000 m apart; as per Table 12.3

6. Size of area covered: as per Table 12.3; approx. 459 sq. km[8]. (18,575 acres).

12.2.5 Summer 2003 – Stream Sediment Sampling

Soil sampling was supplemented in 2003 by the collection of 71 reconnaissance stream samples in order to complete broad, first pass coverage of as much of the claims newly staked in August 2003, in the south (Vista Block) as was possible[8,48].

1. Description of Sampling Method:

i. Approximate sample locations were predetermined on a 1:50,000 topographic maps. Due to the many intermittent drainage courses and wide spacing between the main or permanent watercourses in the survey area.

ii. The samplers were flown to the predetermined sample locations by helicopter and the closest river bed was sampled. Some of the rivers were dried up. An effort was made to select the lowest points and creek intersections where heavy minerals would potentially concentrate. Soil samples were taken when stream sampling was not possible and as complementary samples.

iii. The sampling method was the same as described for the summer 2001 described in subsection 12.2.1

iv. Samples were transported by the helicopter to base camp as collected.

2. Details of Location: within the Vista River drainage basin,

Table 12.4 – Summer 2003 Regional Stream Sediment Sampling Details[31]

Anomaly Cluster No.	Drainage Basin Coverage
Cluster #10	Vista River Basin
Cluster #11	Vista River Basin
Cluster #12	Brodeur River Basin

3. Number of samples: 71.

4. Sample type: stream sediments

5. Nature and spacing or density of samples: Sample spacing along the drainages was 3 km to 8 km of watercourse, for an average of at a density of one sample per 42 sq. km[48]

6. Size of area covered: approximately 2,982 sq. km. [8,48]

12.2.6 Summer 2004 – Regional Soil (Till) Sampling

A total of 1200 soil (till) samples were collected by Twin Mining. In addition, thirteen (13) samples were collected for Twin Mining by geologists with Kennecott at the locations of selected magnetic anomalies detected by the year 2004 Fugro airborne survey[53] Sampling details regarding the Kennecott samples were not provided by Twin Mining to MPH.

1. Description of Sampling Method

i. The sampling method was the same as described for the summer 2001 described in subsection 12.2.1

ii. Samples were left at the sampling sites for helicopter transfer to base camp.

2. Details of Location: as per Table 12.5

Areas covered included:

i. the previously untested northeast portion of the Property (ICE claims),

ii. the areas of interest identified by the 2003 stream sediment sampling, and

iii. several magnetic anomalies selected by a study of the Geological Survey of Canada regional aeromagnetic data[53].

Table 12.5 – Summer 2004 Regional Soil Sampling Details[31]

Area Name	Coverage	Area Surveyed	Sample Spacing
Cluster #10	50 km x 16 km	80,000 ha	500 m by 2000 m
Cluster #11	16 km x 9 km	14,400 ha	500 m by 2000 m
Cluster #12	10 km x 9 km	9,000 ha	500 m by 2000 m
Ice Claims	32 km x 7.5 km 20 km x 7.5 km 12 km x 22 km	24,000 ha 15,000 ha 26,400 ha	500 m by 2000 m
JI Claims	18 km x 3 km to 9 km	10,800 ha	500 m by 2000 m
Other JI Claims	5 km x 4 km 5 km x 2 km 5 km x 2 km 5 km x 2 km	2,000 ha 1,000 ha 1,000 ha 1,000 ha	500 m by 2000 m

In addition, 13 samples were collected by Kennecott personnel for Twin Mining at locations of selected targets identified by an airborne magnetic survey completed in 2004[53].

3. Number of samples: 1,213 (1200 by Twin Mining, 13 by Kennecott personnel)

4. Sample type: soils (tills)

5. Nature and spacing or density of samples: as per Table 12.5; most samples were collected at 500 m intervals on N-S lines spaced 2000 m apart, and some at 4,000 m line spacing[48]

6. Size of area covered: as per Table 12.5; approximately 1,846 sq. km (74,704 acres)

12.2.7 Summer 2005 –Soil (Till) Sampling

A total of 25 single soil (till) samples were collected over 25 airborne magnetic targets.

1. Description of Sampling Method

i. The sampling method was the same as described for the summer 2001 described in subsection 12.2.1

ii. Samples were left at the sampling sites for helicopter transfer to base camp

2. Details of Location: (as on Table 12.6)

Table 12.6 – Summer 2005 Soil (Till) Sampling Details over Magnetic Targets

Magnetic Anomaly	Magnetic peak	Conditions at Surface	Northing	Easting
B2-16	4nT, 1 line	No magnetite	8119888	465866
B2-17	3.5nT, 1 line	No magnetite	8118881	465733
B2-21	3nT, 2 lines	No magnetite	8119196	461609
B2-22	3nT, 3 lines	No magnetite	8122076	449912
B2-23A	5nT, 2 lines	No magnetite	8115313	461306
B2-12	3nT, 1 line	No magnetite	8113113	452543
B2-13	3nT, 1 line	No magnetite	8111128	451711
B2-14	6nT, 1 line	No magnetite	8110806	450671
B2-03	3nT, 1 line	No magnetite	8123842	442559
B1-01	3.5nT, 3 lines	No magnetite	8089455	474887
B1-02	2nT, 3 lines	v. slight goethite/ magnetite	8089859	474989
B1-03	1.5nT, 2 lines	No magnetite	8088637	474986
B1-64	1.5nT, 1 line	goethite/magnetite cemented sandstone +isolated magnetite	8112560	492337
B1-11	3.5nT, 1 line	No magnetite	8104873	478633
B1-17	5nT, 2 lines	No magnetite	8089855	479590
B1-22	4nT, 2 lines	No magnetite	8105627	481393
B1-32	3nT, 1 line	v. slight magnetite/goethite	8091290	481226
B1-44	3.5nT, 1 line	v. slight magnetite/goethite	8089455	474887
B1-45	3.5nT, 2 lines	No magnetite	8089859	474989
B1-50	4nT, 2 lines	lots magnetite + tan soil	8088637	474986
B1-53	3nT, 1 line	Magnetite at surface	8112560	492337
B1-57	4nT, 1 line	Magnetite at surface	8104873	478633
B1-58	6nT, 2 lines	No magnetite	8089855	479590
B1-59	5nT, 2 lines	No magnetite	8105627	481393
F2005-1	Blk 4 Fugro	No magnetite	na	Na

3. Number of samples: 25

4. Sample type: soils (tills)

5. Nature and spacing or density of samples: single samples

6. Size of area covered: not applicable- single samples only

12.3. Bedrock Sampling Procedures/Protocol

12.3.1 Due Diligence Sample (2000) [31]

1. Description of Sampling Method:

Samples were collected using pick and shovel down to a maximum depth of 10 cm of frozen weathered kimberlite.

Samples were collected in a series of 17 plastic and cloth sacks sealed with lock ties and placed directly into a waiting helicopter at site.

2. Details of Location: the only non-snow covered 10 m by 10 m patch of the Freightrain kimberlite on May 29, 2000. Latitude: 73 14'48'' N and Longitude: 88 16' 12".

3. Number of samples: 1 composite sample totalling 94.52 kg. from 17 random point locations.

4. Sample type: Decomposed kimberlite "kimberlite sand with coarser chips" and country rock inclusions.

5. Nature and spacing or density of samples: one composite sample.

6. Size of area covered: approximately 100 sq. m.

12.3.2 Trench and Pit Samples (2000)[12]

1. Description of Sampling Method:[12]

G. Lamothe and D. Bergeron of G.L. Geoservice Inc. with field direction and sampling by D. Davis drilled and blasted five trenches to a depth of 1-2 m with a surface width of 1 m to 1.5 m tapering to less than 0.5 m at pit bottom, with an overall length of 65.5 m in kimberlite bedrock at the Freightrain Kimberlite Prospect[12]

Trench JI-1 exposed bedrock at a depth of 1 m across a length of 23.8 m.

Trench JI-2 exposed bedrock at a depth of 1 m across a length of 16.4 m.

Trench JI-3 exposed bedrock at a depth of 1.5 m across a length of 24.3 m

Trench JI-4 exposed bedrock at a depth of 2.0 m across a length of 1.0 m

Trench JI-5 no bedrock; black kimberlitic sand at a depth of 2.0 m across a length of 1 m.

Pit JI-6 no bedrock: black kimberlitic sand at 10 cm depth (less than 0.5 m in longest dimension)

Sample JI-7: weathered kimberlite fragments picked from frost boil surfaces above an inferred kimberlite body.

Sample JI-8: weathered kimberlite fragments picked from frost boil surfaces above an inferred kimberlite body.

Sample JI-9: weathered kimberlite fragments picked from frost boil surfaces above an inferred kimberlite body.

Sample JI-10: weathered kimberlite fragments picked from frost boil surfaces above an inferred kimberlite body.

After blasting, trench material was sampled by D. Davis by collecting 3 cm to 15 cm diameter bedrock kimberlite pieces into 20 litre buckets that were numbered and sealed. Sampling sites were located with UTM coordinates using a Garmin GPS unit.

2. Details of Location: Freightrain Kimberlite Prospect: center of prospect has UTM Coordinates: 8128266 m N, 459144 m E Nad 27, Zone 16.

3. Number of samples: 10 samples totalling: 1,424 kg bedrock + ~ 150 kg of weathered material et cetera from the following:

(TR1)[73] Trench: JI-1: 15 pails of bedrock kimberlite- composite.

(TR 2)[73] Trench: JI-2: 13 pails of bedrock kimberlite.- composite.

(TR 3)[73] Trench: JI-3: 18 pails of bedrock kimberlite - composite.

(JI410)[73] Trench: JI-4: 4 pails of bedrock kimberlite plus 4 pails of overlying black kimberlite sand- composite; 1 m long sample.

(JI510)[73] Trench: JI-5: 1 pail dark sand from trench containing unidentified rock fragments plus 1/3 pail of kimberlite from frost boil surfaces (1 m trench sample)

(Grab JI610)[73] Pit JI-6: 1 pail of weathered kimberlite – grab of trench composite

(Grab JI-5): 3 grab samples from Trench JI-5 and Trench JI-7

(Grab JI-7)[73]: weathered (residual) kimberlite – 3 grab samples

(Grab JI-8): 3 grab samples

(Grab JI-9)[73]: weathered (residual) kimberlite – 3 grab samples

(Grab JI-10)[73]: weathered (residual) kimberlite – 4 grab samples

4. Sample types: Trench composite material was bedrock kimberlite and overlying black kimberlite sand; also grabs of kimberlite float fragment s as indicated.

5. Nature and spacing or density of samples: Trenches JI-1 to JI-5 and Pit JI-6 aligned NW-SE and irregularly spaced 20 m to 100 m apart.

6. Size of area covered: NE area approximately 350 m by 100 m (3.5 hectares)

12.3.3 Mini-Bulk Samples Spring (2001)[60]

1. Description of Sampling Method:[60]

The surface trenching and drilling/blasting was carried out by Denis Bergeron and Francois Durette of GL Geoservices with field direction and sampling by Qualified Persons D. Davis, P. Eng. and R. Roy, P. Geo[60].

The sample sites were selected to coincide with the most promising micro-diamond sample locations obtained from JI-3 and JI-6 with approximately a 17 tonne sample at the former and a 3 tonne sample at the latter. In terms of sample representivity, the sampling program was not designed nor intended to be representative of the kimberlite body(ies) but to collect larger samples for diamond characterization. No internal or external geological contacts were encountered during the trenching program. Only bedrock exposures were sampled. Except for a small amount of material retained for petrographic work, virtually all of the broken kimberlite was collected for macrodiamond recovery[60].

The two sampling sites were located/relocated by topographic features, UTM coordinates using GPS methodology and were confirmed by magnetometer readings[60].

After a blast, and under the supervision of Mr. D. Davis and Mr. R. Roy, all available personnel participated in the hand mucking and placement of kimberlite material generally consisting of pieces 3 cm to 15 cm in diameter into 20 litre (5 gallon) plastic buckets with self-locking lids and removing same to a location several metres away from the trench. Upon completion of mucking G.L. Geoservices would begin drilling off the next round with portable gasoline powered plugger drills while Twin Mining and NordQuest personnel would enclose the sample tags, place the lids on the buckets, and affix the security seals. This procedure was repeated until sufficient buckets of kimberlite, herein referred to as sub-samples, were collected to make up the two samples[60]

After completion of the sampling, each excavation site was geologically mapped in detail and a suite of representative and special (eg. showing inclusions) geological specimens collected[60].

2. Details of Location: Freightrain Kimberlite Prospect:

* Site JI-3: UTM-NAD-27, Zone 16, coord. 8128317m.N; 459240m.E; elevation ~310 masl.

* Site JI-6: UTM-NAD 27, Zone 16, coord. 8128205m.N; 459222m.E; elevation ~310 masl.

3. Number of samples: two mini-bulk samples totalling approximately 20 t (wet tonnes) from the following:

Excavation Site JI-3: approximately 17 t of bedrock kimberlite in 660 buckets from an excavation of approximately 7 m in length by 2.5 m in width by 2 m into bedrock at the deepest.

Excavation Site JI-6: approximately 3 t of bedrock kimberlite in 106 buckets from an excavation of approximately 3.5 m in length by 2.5 m in width to a maximum depth of 1.25 m.

4. Sample types: bedrock kimberlite was sampled.

5. Nature and spacing or density of samples: Excavation Sites JI-3 and JI-6 are spaced 125 m apart.

6. Size of area covered: Surface area of excavations was approximately 30 sq. m.

12.3.4 Mini-Bulk Samples Fall (2001)[31]

1. Description of Sampling Method:

i. The fall 2001 mini bulk sampling work was conducted by a six-person crew including two persons on drilling and blasting, one mini-backhoe operator for mucking, two field technicians for hand sorting and waste removal during sampling and a supervising geologist.

ii. Mechanical equipment included a diesel powered air compressor with 'jackleg' blast hole drilling equipment and a 'Kubota' mini-backhoe for overburden removal and mucking. Workers, equipment and supplies were transported to the site by a Hughes 500D light helicopter which was also used for transportation of the mini-bulk sample from the Freightrain Kimberlite Prospect sites to the ship loading area near the north shore of Jackson Inlet.

iii. Two active work sites or test pits were maintained to facilitate the work. One site was usually being drilled and loaded while the other was in the mucking/sorting/slinging phase. In the mucking cycle the Kubota was used to place kimberlite material into 1000 kg capacity 35"x35"x29" plastic fibre bulk bags manufactured for Twin Mining by Endurapak Inc. of Sudbury Ontario.

iv. Under the supervision of Qualified Person Mr. R. Roy, P. Geo. approximately 375 kg of wet kimberlite was placed in each bag. The bags were colour coded for site identification. A total of 664 bulk bags of kimberlite were collected to make up an approximate gross wet shipping weight of 255 tonnes. The one tonne bags were flown by helicopter to the estuary at Jackson Inlet and stockpiled for shipping.

v. After completion of the sampling, each excavation site was geologically mapped in detail[60].

2. Details of Location: Freightrain Kimberlite Prospect:

Samples JI-1, -2, -3, -5, and -6 were all taken at their respective 2000 trench sites, while JI-5S is a new site located approximately 15 m south of JI-5.

* Site JI-1. UTM- 8128270 m N; 459145 m E; Nad 27, Zone 16.

* Site JI-3. UTM- 8128327m N; 459230 m E; Nad 27, Zone 16.

* Site JI-4. UTM- 8128215 m N; 459092 m E; Nad 27, Zone 16.

* Site JI-5. UTM- 8128180 m N; 459065 m E; Nad 27, Zone 16.

* Site JI-5S. UTM- 8128171 m N; 459053 m E; Nad 27, Zone 16.

* Site JI-6. UTM- 8128212 m N; 459210 m.E; Nad 27, Zone 16.

3. Number of samples: six samples totalling approximately 255 wet tonnes from the following:

Excavation Site JI-1: 201 bags of bedrock kimberlite estimated at 84 tonnes.

Excavation Site JI-3: 57 bags of bedrock kimberlite estimated at 62 tonnes.

Excavation Site JI-4: 126 bags of bedrock kimberlite estimated at 46 tonnes.

Excavation Site JI-5: 73 bags of bedrock kimberlite estimated at 12 tonnes.

Excavation Site JI-5S: 12 bags of bedrock kimberlite estimated at 4 tonnes.

Excavation Site JI6: 95 bags of bedrock kimberlite estimated at 33 tonnes.

4. Sample types: bedrock kimberlite

5. Nature and spacing or density of samples: Excavation Sites JI-1 to JI-6 aligned NW-SE and irregularly spaced 20 m to 100 m apart.

6. Size of area covered: NE area approximately 350 m by 100 m

12.4. Drill Core Logging and Sampling Procedures[31]

12.4.1 Logging Procedures/Protocol (2001)

1. The drill core was placed in wooden core trays by the drilling crew and wooden blocks marking the down hole length of the hole after each drill run inserted at the appropriate intervals. The core boxes with lids secured with tape were transported daily to a core and examination tent at the Jackson Inlet base camp where it was carefully logged and sampled by Antoine Fournier, P. Geo. MPH consultant, P. Sobie, P. Geol. visited the property early in the 2001 drilling program to assist in establishing suitable procedures for logging and sampling of the core.

2. The logging and recording process was designed for comprehensive descriptions of lithologic units while systematically recording the percentage and size of various lithologic fragments, xenoliths and diamond indicator minerals. Data were entered into an electronic database.

3. A photographic record was kept of all core prior to sampling.

4. Non-kimberlitic core sections were discarded after logging and sampling was completed.

12.4.2 Core Sampling Procedures (2001)[19]

1. Description of Sampling Method:

i. Sampling was carried out at the base camp. Owing to the paucity of kimberlite intersections at the Freightrain Kimberlite Prospect, and the need to collect relatively large +/- 25 kg. microdiamond samples for caustic dissolution, it was recommended to utilize most of the core for this purpose, keeping only a 15 cm reference sample for each lithologic unit or facies. Thus the entire NQ (47.6 mm diameter) kimberlite core was sampled.

ii. As much as possible the core samples were collected on the basis of geology and the optimum 25 kg weight.

iii. Individual samples for given core intervals were numbered from standard 3-tag sample books. One tag was left in the sample book while the remaining two were placed with the core inside a plastic sample bag that was then tied or stapled.

iv. The bagged samples in turn were placed individually or as groups inside similarly numbered 20 liter buckets and the lids were each fixed with two green or red Twin Mining security seals.

v. Sampling data were entered onto the electronic drill logs[19].

2. Details of Location: Freightrain Kimberlite Prospect:

The location of the drill holes sampled in 2001 are shown on Table 12.7

Table 12.7 Kimberlite Core Drilling Sample Data (2001)

Core Hole Number	Kimberlite Total core meters	Hole Collar Northing	Hole Collar Easting	Kimberlite Prospect
JI-FT-01	23.0	8128273	459147	Freightrain
JI-FT-02	16.0	8128193	459068	Freightrain
JI-FT-04	137.5	8128273	459147	Freightrain
JI-FT-06	1.7	8128245	459343	Freightrain
JI-FT-07	3.4	8128245	459343	Freightrain
JI-FT-08	1.0	8128245	459343	Freightrain
JI-FT-09	36.1	8128334	459239	Freightrain
JI-FT-10	9.1	8128334	459239	Freightrain
JI-FT-11	9.0	8128334	459239	Freightrain
JI-FT-12	30.6	8128334	459239	Freightrain
JI-FT-13	24.2	8128334	459239	Freightrain
JI-FT-14	7.4	8128334	459239	Freightrain
JI-FT-15	3.2	8128334	459239	Freightrain
JI-FT-16	203.0	8128278	459151	Freightrain
JI-FT-17	21.3	8128125	458950	Freightrain
JI-CG1-01	83.1	8129203	463450	Cargo-1
JI-CG1-02	147.9	8129222	463417	Cargo-1

3. <u>Number of samples:</u> 110 samples totalling approximately 2 tonnes from the following:

Freightrain Kimberlite: 1,108 kg of NQ core from drill holes as shown in Table 12.7.

Cargo-1 Kimberlite: 924.72 kg of NQ core from drill holes as shown in Table 12.7.

4. <u>Sample types:</u> NQ diameter cores of kimberlite.

5. <u>Nature and spacing or density of samples:</u> Core samples are continuous down the hole within kimberlite intervals.

6. <u>Size of areas covered:</u>

Freightrain Kimberlite drill holes are within an area of approximately 600 m by 100 m

Cargo-1 Kimberlite drill holes are within an area of approximately 165 m by 40 m

12.4.3 Logging Procedures/Protocol (2002)

- same as in 2001 and described in subsection 12.4.1, including the drill geologist

12.4.4 Core Sampling Procedures (2002)

1. <u>Description of Sampling Method[19]:</u>

- same as in 2001 and described in 12.4.4. but triple sealed with Twin Mining security seals.

2. <u>Details of Location:</u> Cargo-1 Kimberlite Prospect:

The location of the drill holes sampled in 2002 are shown on Table 12.2

Table 12.8 Kimberlite Core Drilling Sample Data (2002)

Core Hole Number	Kimberlite Total core meters	Hole Collar Northing	Hole Collar Easting	Kimberlite Prospect
JI-CG1-03[8]	83.0	8129238	463458	AN0 3/Cargo-1
JI-CG1-04[8]	151.3	8129252	463478	ANO 3/Cargo-1
JI-CG1-05[8]	31.9	8129318	463573	ANO 3/Cargo-1

3. <u>Number of samples:</u> three composite samples from Cargo-1 Kimberlite: 266. 2 core meters of NQ core from three drill holes as shown in Table 12.8.

4. Sample types: NQ diameter cores of kimberlite.

5. Nature and spacing or density of samples: Core samples are continuous down the hole within kimberlite intervals.

6. Size of area covered: Drill holes are within an area of approximately 165 m by 40 m

12.5. Reverse Circulation ("RC") Drilling, Logging and Sampling Procedures/Protocol

12.5.1 RC Logging Procedures

As the primary objective was to use the RC drill as an exploration tool to test airborne magnetic targets for kimberlite (and only one out of the 32 holes completed intersected kimberlite) the overburden was not examined nor described in detail. A representative fraction of the coarser material was washed and inspected at the drill site on an ongoing basis. The RC logs provided to MPH for review are generally very brief, many consisting of one-two pages with single line entries. While adequate for the main objective of the program, the author recommends that Twin Mining geologists adopt a more detailed logging approach and that sampling be conducted at regular intervals in any future RC drilling programs.

12.5.2 RC Sampling Procedures

i. The reverse circulation drill with a hole diameter of 93 mm sends the spalled material from the hole to an outlet mounted on a tripod.

ii. A 25 kg sample pail, capped by a (0.25 inch) sieve and an ad-hoc apparatus consisting of a cut-down pail to prevent loss of material which bounces off the sieve are placed beneath the cyclonic outlet. The returned chips are sieved into fines which pass through to the pail.

iii. As the primary objective was to use the RC drill as an exploration tool to test airborne magnetic targets for kimberlite (and only one out of the 32 holes completed intersected kimberlite) samples and details of the overburden were not generally collected at regular intervals. On test material of limestone at the Cargo-1 site, the vast majority of fragments were chips significantly less than 0.25 inch with only half a bucket weighing approximately 12.5 kg) of sieved material with a clast size greater than 0.25 inches collected from a 23' drilled interval.

iv. A representative fraction of the coarser material was washed and inspected at the drill site on an ongoing basis.

v. If the sample returned was mainly fine grained with little/no material caught on the sieve, then a bulk sample is retained. If the hole failed to intersect bedrock owing to thick overburden, or drilling failed, then a sample was collected from the deepest levels of recovered overburden, for possible use in geochemical analysis/kimberlite indicator mineral studies.

vi. limestone bedrock chips in earlier RC holes were not retained however for latter holes, representative samples were collected every 5', for short-term review and generally discarded on site.

vii. samples were not collected on a regular basis and some holes do not appear to have been sampled. Sample intervals vary between 5 ft to 102 ft. however, are not noted for several holes with entries simply as "sample 90 ft.", or "at bottom of hole". Only 13 RC samples were submitted to SGS-Lakefield for HMC and CKIM selection and mineral chemistry.

The author recommends that Twin Mining geologists adopt a more systematic and detailed sampling approach inline with CIM Best Exploration Practices in any future RC drilling programs.

13.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

13.1. Introduction

Contract employees of Twin Mining carried out all of the field preparation. As described in subsections 13.2 1 to 13.2.7, sample preparation of soil (tills) sediments collected between 2001 and 2005 varied from the screening of all samples in 2001, to some samples in 2002 and 2003, to no field preparation in 2004 and 2005. None of the bedrock, rock fragments, trench samples, mini-bulk samples, drill core and RC chip, and stream sediment samples were subjected to field preparation[31].

The sampling logging protocols, sample preparation and procedures were provided by Twin Mining geologists[31]. The author did not observe any sample preparation to verify the accuracy of the prceedures reported by Twin Mining. Twin Mining did not insert duplicate, blank or spiked (QA/QC) samples into any of the sample streams[31].

SGS-Lakefield Research Laboratory ("SGS-Lakefield") in Lakefield Ontario, Canada was the principle analytical laboratory for sample preparation, heavy mineral concentration, the selection of candidate kimberlite indicator minerals ("CKIM"), the determination of the mineral chemistry of selected the CKIM and the interpretation of the analytical data, and the recovery and description of micro- and macro-diamonds. On occasion, other laboratories and individuals carried out the selection of CKIM and the determination of the mineral chemistry of selected the CKIM, however, none of these served in the capacity of a check laboratory. The other laboratories and individuals involved are identified wherever relevant throughout sections 13.2 and 13.3. Copies of flowsheets of preparation and analytical techniques are included in Appendix A.

While normal care was taken during the collection of all samples, and all samples were securely sealed in buckets and bags as described throughout subsections 13.2 and 13. 3, no particular other security measures were in place at the sample site. Samples were often left unattended at the individual remote sample sites or core logging area until they could be transported to the Twin Mining campsite and other sites prior to transfer to commercial loading areas, primarily the Nanisivik Dock or Airport. The sample sites are so remote and inaccessible that the possibility of tampering or vandalism by outsiders is considered extremely unlikely[60,81].

On many occasions, contract employees of Twin Mining accompanied the shipment of samples by commercial transport, generally by ship and truck, continuously to SGS-Lakefield, and this was the case for the Fall 2001 mini-bulk samples collected from the Freightrain Kimberlite Prospect. As security was regarded a significant factor in the collection and transport of bulk samples of kimberlite collected for macro diamond recovery, MPH were involved with both the Spring 2001 and Fall 2001 Mini-Bulk samples in the capacity as described in Section 14.0[81].

13.2. Preparation and Analysis of Soil and Stream Sediment Samples

13.2.1 2001 Orientation Soils (Tills) and Float Rock (~60 samples)

1. Field Sample Preparation Method Including Sample Reduction:

i. All soil samples were wet screened at the Twin Mining base camp to reduce sample weight, while retaining the size fractions normally processed for CKIM[31].

ii. The collection bucket containing the field sample was placed on its side on a table and flushed with water through a 5 mm ($^1/_5$ inch) square mesh screen into a second bucket with a row of holes near its top. In this manner, the + 5 mm rock particles were collected and discarded, while some of the fines suspended in the decant water overflowed the bucket and were similarly discarded.

iii. The screened sample was placed into a numbered cloth sample bag with two waterproof numbered sample tags stapled inside. The pre-processed samples were then placed inside a temporary storage structure to drain before packaging and shipping.

iv. In practice, the screened samples are estimated to have ranged between 3 kg and 8 kg. For shipping, the two or three drained samples were placed into 20 litre buckets with self-locking lids[31].

<u>2. Quality Control Measures</u>: - QA/QC samples were not inserted into sample stream[31].

<u>3. Security measures taken to ensure validity and integrity of the samples:</u>

i. The sample number was inscribed with a black waterproof marker on the inside and side of the bucket, and on the bucket lid. The lid was sealed to ensure sample integrity by inserting plastic locking seals in holes drilled through the overlapping portion of the lid and bucket lip.

ii. From each field sampling site, samples were transported by helicopter to either Nanisivik Airport and stored outside on pallets, or to a sample cache at the Jackson Inlet landing strip, and thence by Kenn Borek Twin Otter to Nanisivik Airport53.

iii. After all of the sample buckets were delivered to Nanisivik Airport, they transferred to the Nanisivik dock site via a flat bed truck owned by Nanisivik Mines, loaded onto pallets and shrink-wrapped. The samples were then loaded onto the M/V Umiavut, a Lloyd's 100 A1-Ice class 1 classified multipurpose/container vessel with a deadweight cargo capacity of 9,587 tonnes, owned by Nunavut Eastern Arctic Shipping Inc. (NEAS), Port of Montreal Building, Cite du Harve, Wing No. 2, Suite 2060, Montreal Quebec, and shipped to Valleyfield, Quebec.

iv. At the port facility at Valleyfield, the samples were unloaded and stored in the ALPORT/NEAS warehouse until transfer onto two Cabano Kingsway Ltd. transport trucks for shipment to SGS-Lakefield in Lakefield, Ontario on November 5th and 6th, 2001.

v. The transfer was carried out in the presence of a MPH representative and the opening and unloading of two of the sealed transport trucks from Valleyfield at SGS Lakefield was also monitored by MPH on November 7th. The sample material was accepted by the laboratory in its entirety and none of the shipment was discarded. It is concluded that the exploration program being conducted by Twin Mining was mostly efficiently performed to a high standard.[53]

4. Sample Preparation was carried out by: contract employees of Twin Mining under supervision of Mr. Roy, P. Geo.

5. Name Location and Certification of the Laboratory:

Heavy Mineral Concentration: SGS-Lakefield, Lakefield, Ontario

CKIM Selection: SGS-Lakefield- Lakefield, Ontario.

KIM Chemistry: SGS-Lakefield- Lakefield, Ontario.

SGS-Lakefield is formally accredited by the Standards Council of Canada under ISO/IEC Guide 17025.

6. Laboratory Sample Preparation Method:

- Heavy Mineral Concentration at SGS-Lakefield is as follows:
- Wet screening at 10 and 60 mesh,
- Heavy liquid separation (Methylene Iodide at a density split point of 3.1 g/cc)
- Ferro-magnetic separation of the heavy liquid concentrate using a hand magnet and a Frantz electro-magnetic separation of the para-magnetic fraction

7. Laboratory Analytical Procedures Used:

CKIM selection at SGS-Lakefield is as follows:

- HMC was observed with a binocular for the selection of a targeted number of each indicator mineral species,
- in this case, a 10 g riffled split of the HMC was stripped of indicator minerals coarser than 60 mesh (~0.25 mm).
- a generalized flow sheet for this procedure is given in Appendix A.

KIM Chemistry at SGS-Lakefield is as follows:

- CKIM grains were mounted in standard 1" epoxy grain mounts,
- CKIM grains were analysed for major and minor elements under standard operating conditions (15 KeV, 20 nA operating current with a JEOL 733 electron microprobe
- data were interpreted using industry standard bi-variate plots and data classification schemes published by any of the following: Sobolev (1973), Gurney (1985), McCandless and Gurney

(1989), Kopylova et al, (2000), Grutter et al, (2003), Dawson and Stephens (1975), Fipke et al (1995), Schulze (1995, 1997), Grutter and Apter (1998), Gurney and Zweistra (1995), Nimis and Taylor (2000), Ramsay and Tompkins (1994), Rudnick et al (1994), Pollack and Chapman (1977), Kennedy and Kennedy (1976) and in-house diamond indicator mineral databases and data reduction programs70.

13.2.2 2002 Spring Soil (Till) Samples – (23 samples)

1. Field Sample Preparation Method Including Sample Reduction:

Field sample preparation was not carried out as all samples were washed and screened at SGS Lakefield.

2. Quality Control Measures: - QA/QC samples were not inserted into sample stream.[31]

3. Security measures taken to ensure validity and integrity of the samples:

i. The sample number was inscribed with a black waterproof marker on the inside and side of the bucket, and on the bucket lid. The lid was sealed to ensure sample integrity by inserting plastic locking seals in holes drilled through the overlapping portion of the lid and bucket lip.

ii. The sealed buckets were transferred by helicopter to Nanisivik Airport, and loaded onto a First Air flight to Ottawa .

iii. At Ottawa, the samples were transferred onto a Cabano Kingsway Ltd. transport truck and trucked to SGS-Lakefield in Lakefield, Ontario.

4. Sample Preparation was carried out by: not applicable

5. Name, Location and Certification of the Laboratory:

Heavy Mineral Concentration: SGS-Lakefield, Lakefield, Ontario

CKIM Selection: SGS-Lakefield, Lakefield, Ontario

KIM Chemistry: SGS-Lakefield, Lakefield, Ontario

SGS-Lakefield is formally accredited by the Standards Council of Canada under ISO/IEC Guide 17025

6. Laboratory Sample Preparation Method:

Heavy Mineral Concentration at SGS-Lakefield is as follows:

- Wet screening at 10 and 60 mesh,
- Heavy liquid separation (Methylene Iodide at a density split point of 3.1 g/cc)
- Ferro-magnetic separation of the heavy liquid concentrate using a hand magnet and a Frantz electro-magnetic separation of the para-magnetic fraction

7. Laboratory Analytical Procedures Used:

CKIM selection at SGS-Lakefield is as follows:

- HMC was observed with a binocular for the selection of a targeted number of each indicator mineral species,
- in this case, a 10 g riffled split of the HMC was stripped of indicator minerals coarser than 60 mesh (~0.25 mm).
- a generalized flow sheet for this procedure is given in Appendix A.

KIM Chemistry at SGS-Lakefield is as follows:

- CKIM grains were mounted in standard 1" epoxy grain mounts,
- CKIM grains were analysed for major and minor elements under standard operating conditions (15 KeV, 20 nA operating current with a JEOL 733 electron microprobe
- data were interpreted using industry standard bi-variate plots and data classification schemes published by any of the following: Sobolev (1973), Gurney (1985), McCandless and Gurney (1989), Kopylova et al, (2000), Grutter et al, (2003), Dawson and Stephens (1975), Fipke et al (1995), Schulze (1995, 1997), Grutter and Apter (1998), Gurney and Zweistra (1995), Nimis and Taylor (2000), Ramsay and Tompkins (1994), Rudnick et al (1994), Pollack and Chapman (1977), Kennedy and Kennedy (1976) and in-house diamond indicator mineral databases and data reduction programs70.

13.2.3 2002 Soil (Till) Sampling – (488 samples)

1. Field Sample Preparation Method Including Sample Reduction:

i. Approximately 75% of the 488 soil samples were wet screened at the Twin Mining base camp to reduce sample weight, while retaining the size fractions normally processed for CKIM. The remaining samples were screened directly at the laboratory due to shipping time constraints.

ii. The collection bucket containing the field sample was placed on its side on a table and flushed with water through a 5 mm ($^{1}/_{5}$ inch) square mesh screen into a second bucket with a row of holes near its top. In this manner, the + 5 mm rock particles were collected and discarded, while some of the fines suspended in the decant water overflowed the bucket and were similarly discarded.

iii. The screened sample was placed into a numbered cloth sample bag with two waterproof numbered sample tags stapled inside. The pre-processed samples were then placed inside a temporary storage structure to drain before packaging and shipping.

iv. In practice, the screened samples were estimated to range between 3 kg. and 8 kg. For shipping, the two or three drained samples were placed into 20 litre buckets with self-locking lids.

2. Quality Control Measures: -QA/QC samples were not inserted into the sample stream.

3. Security measures taken to ensure validity and integrity of the samples:

i. The sample number was inscribed with a black waterproof marker on the inside and side of each bucket, and on the bucket lid. The lid was sealed to ensure sample integrity by inserting plastic locking seals in holes drilled through the overlapping portion of the lid and bucket lip.

ii. From each field sampling site, the sample buckets were transported by helicopter to either Nanisivik Airport and stored outside on pallets, or to a sample cache at the Jackson Inlet landing strip, and thence by Kenn Borek Twin Otter to Nanisivik airport[53].

iii. After all of the sample buckets were delivered to Nanisivik Airport, they were transferred to the Nanisivik dock site via a flat bed truck owned by Nanisivik Mines, loaded onto pallets and shrink-wrapped. During the last week of August 2002, they were loaded onto the MV Umiavut and shipped to Valleyfield, Quebec.

iv. At Valleyfield, the samples were transferred onto a Cabano Kingsway Transport vehicle and trucked to SGS-Lakefield in Lakefield, Ontario.

4. Sample Preparation was carried out by: contract employees of Twin Mining under supervision of Mr. Roy, P. Geo.

5. Name, Location and Certification of the Laboratory:

Heavy Mineral Concentration: SGS-Lakefield- Lakefield, Ontario.

CKIM Selection: SGS-Lakefield- Lakefield, Ontario.

KIM Chemistry: SGS-Lakefield- Lakefield, Ontario.

SGS-Lakefield is formally accredited by the Standards Council of Canada under ISO/IEC Guide 17025.

6. Laboratory Sample Preparation Method:

Heavy Mineral Concentration at SGS-Lakefield is as follows:

- Wet screening at 10 and 60 mesh,
- Heavy liquid separation (Methylene Iodide at a density split point of 3.1 g/cc)
- Ferro-magnetic separation of the heavy liquid concentrate using a hand magnet and a Frantz electro-magnetic separation of the para-magnetic fraction

7. Laboratory Analytical Procedures Used:

CKIM selection at SGS-Lakefield is as follows:

- HMC was observed with a binocular for the selection of a targeted number of each indicator mineral species,
- in this case, a 10 g riffled split of the HMC was stripped of indicator minerals coarser than 60 mesh (~0.25 mm).
- a generalized flow sheet for this procedure is given in Appendix A.

KIM Chemistry at SGS-Lakefield is as follows:

- CKIM grains were mounted in standard 1" epoxy grain mounts,
- CKIM grains were analysed for major and minor elements under standard operating conditions (15 KeV, 20 nA operating current with a JEOL 733 electron microprobe
- data were interpreted using industry standard bi-variate plots and data classification schemes published by any of the following: Sobolev (1973), Gurney (1985), McCandless and Gurney (1989), Kopylova et al, (2000), Grutter et al, (2003), Dawson and Stephens (1975), Fipke et al (1995), Schulze (1995, 1997), Grutter and Apter (1998), Gurney and Zweistra (1995), Nimis and Taylor (2000), Ramsay and Tompkins (1994), Rudnick et al (1994), Pollack and Chapman (1977), Kennedy and Kennedy (1976) and in-house diamond indicator mineral databases and data reduction programs70.

13.2.4 2003 Soil (Till) Sampling – (355 samples)

1. Field Sample Preparation Method Including Sample Reduction:

i. Approximately 33% of the 355 soil samples were wet screened at the Twin Mining base camp to reduce sample weight, while retaining the size fractions normally processed for CKIM. The remaining samples were screened directly at the laboratory due to shipping time constraints.

ii. The collection pail containing the field sample was placed on its side on a table and flushed with water through a 5 mm ($^1/_5$ inch) square mesh screen into a second bucket with a row of holes near its top. In this manner, the + 5 mm rock particles were collected and discarded, while some of the fines suspended in the decant water overflowed the bucket and were similarly discarded.

iii. The screened sample was placed into a numbered cloth sample bag with two waterproof numbered sample tags stapled inside. The pre-processed samples were then placed inside a temporary storage structure to drain before packaging and shipping.

iv. In practice, the screened samples were estimated to range between 3 kg. and 8 kg. For shipping, the two or three drained samples were placed into 20 litre buckets with self-locking lids.

2. Quality Control Measures: -QA/QC samples were not inserted into the sample stream.

3. Security measures taken to ensure validity and integrity of the samples:

i. The sample number was inscribed with a black waterproof marker on the inside and side of each bucket, and on the bucket lid. The lid was sealed to ensure sample integrity by inserting plastic locking seals in holes drilled through the overlapping portion of the lid and bucket lip.

ii. From each field sampling site, samples were transported by helicopter to either Nanisivik Airport and stored outside on pallets, or to a sample cache at the Jackson Inlet landing strip, and thence by Kenn Borek Twin Otter to Nanisivik Airport[53].

iii. After all of the sample buckets were delivered to Nanisivik Airport, they were transferred to the Nanisivik dock site via a flat bed truck owned by Nanisivik Mines, loaded onto pallets and shrink-wrapped. During the last week of August, 2003, they were loaded onto the MV Umiavut and shipped to Valleyfield, Quebec.

iv. At Valleyfield, the samples were transferred onto a Cabano Kingsway Ltd. transport truck and trucked to SGS-Lakefield in Lakefield, Ontario.

4. Sample Preparation was carried out by: contract employees of Twin Mining under supervision of Mr. R. Roy, P.Geo.

5. Name, Location and Accreditation of the Laboratories:

Heavy Mineral Concentration: SGS-Lakefield- Lakefield, Ontario.

CKIM Selection: HDM Laboratories Inc. ("HDM") operated by Dr. M. McCallum, Loveland, Co, USA.

KIM Chemistry: SGS-Lakefield, Lakefield, Ontario, Canada.

SGS-Lakefield is formally accredited by the Standards Council of Canada under ISO/IEC Guide 17025.

6. Laboratory Sample Preparation Method:

Heavy Mineral Concentration at SGS-Lakefield is as follows:

- Wet screening at 10 and 60 mesh,
- Heavy liquid separation (Methylene Iodide at a density split point of 3.1 g/cc)
- Ferro-magnetic separation of the heavy liquid concentrate using a hand magnet and a Frantz electro-magnetic separation of the para-magnetic fraction

7. Laboratory Analytical Procedures Used:

Due to the backlog of CKIM counting work at SGS Lakefield, the visual inspection of CKIM grains was done at HDM Laboratories Inc. ("HDM") which is operated by Dr. Malcolm McCallum and located in Loveland, Co, USA. According to Twin Mining, HDM has specialized in CKIM recovery and evaluation for the last 10 years and uses the same approach as SGS Lakefield for visual selection of indicator minerals[7,8].

CKIM selection at HDM is as follows:

- CKIM observation and selection from heavy mineral concentrate is performed using a binocular microscope and a list of tools including automated picking belts, picking trays, magnetic and non-magnetic tweezers and brushes.
- The -20+35 and -35+60 mesh 0.3 amp magnetic fractions contain the vast majority of chromite and ilmenite grains and emphasis is placed on picking these fractions for those minerals.
- The -20+35 and -35+60 mesh 0.3 amp non-magnetic fractions contain the vast majority of the silicate indicator minerals and emphasis is placed on picking these fractions for those minerals.
- HDM selected and mounted 885 of the indicator grains considered representative of those which could have originated in the diamond stability field in standard 1" epoxy grain mounts.

KIM Chemistry at SGS-Lakefield:

- CKIM grains were analysed for major and minor elements under standard operating conditions (15 KeV, 20 nA operating current with a JEOL 733 electron microprobe
- data were interpreted using industry standard bi-variate plots and data classification schemes published by any of the following: Sobolev (1973), Gurney (1985), McCandless and Gurney (1989), Kopylova et al, (2000), Grutter et al, (2003), Dawson and Stephens (1975), Fipke et al (1995), Schulze (1995, 1997), Grutter and Apter (1998), Gurney and Zweistra (1995), Nimis and Taylor (2000), Ramsay and Tompkins (1994), Rudnick et al (1994), Pollack and Chapman (1977), Kennedy and Kennedy (1976) and in-house diamond indicator mineral databases and data reduction programs70.

13.2.5 2003 Stream Sediment Sampling – (71 samples)

1. Field Sample Preparation Method Including Sample Reduction: -

All 71 stream sediment samples were sieved in Nanisivik to reduce sample weight, while retaining the size fractions normally processed for CKIM[48].

Refer to subsection 13.2.4 as all of the other information is the same as for the 355 soil samples.

13.2.6 2004 Soil (Till) Sampling – (1,213 samples)

1. Field Sample Preparation Method Including Sample Reduction: - none with the exception that cobbles and large stones were discarded on site.

2. Quality Control Measures: -QA/QC samples were not inserted into the sample stream.

3. Security measures taken to ensure validity and integrity of the samples:

i. The sample number was inscribed with a black waterproof marker on the inside and side of each bucket, and on the bucket lid. The lid was sealed to ensure sample integrity by inserting plastic locking seals in holes drilled through the overlapping portion of the lid and bucket lip. The sample number was inscribed with a black waterproof marker on outside of each bag.

ii. From each sample site, the samples were flown by helicopter to either Nanisivik Airport, or to a sample cache at a southern airstrip (72°41.46'N and 87°33.2'W) and thence by Kenn Borek Twin Otter to Nanisivik Airport[53].

iii. After all of the sample buckets (1,056) and bags (144) were delivered to Nanisivik Airport, those in buckets had the lids sealed to ensure sample integrity by inserting wire Multi-Lok 3/32" CableSeals in holes drilled through the overlapping portion of the lid and bucket lip. Seals were individually numbered and stamped "TWNMNG" .

iv. Buckets and bags were transported to the Nanisivik dock by flat bed truck operated by Nanisivik Mines, stacked on pallets, shrink-wrapped, loaded on the M V Umiavut on 26 August 2004 and shipped to Valleyfield, Quebec.

v. A number of samples did not have seal numbers and others had only one seal number. This was because the bags that were surplus to Kennecott's soil/till sampling needs were used when Twin Mining's supply of buckets was exhausted and also because the shipment of extra seals ordered at the beginning of the summer did not arrive.

vi. The samples arrived at Valleyfield aboard the M V Umiavut on 20 September 2004

From Valleyfield, they were loaded onto tractor trailer trucks of Cabano Kingsway Transport. In order to obtain commitments for production of heavy mineral concentrate and counting of kimberlite indicator minerals, the sample processing was divided between two laboratories as follows:

One shipment departed Valleyfield, Quebec on 20 Sept. 2004 with 22 pallets of dimensions 1.23 m x 1.23 m x 0.91 m, each with 32 buckets of soil samples for a total of 704 samples to Vancouver Indicator Processors Inc. (VIPI), Unit 101 - 6200 Darnley St., Burnaby, BC V5B 3B1.

A second shipment departed Valleyfield, Quebec on 21Sept. 2004 with 8 pallets of bagged samples (1.23 m X 1.23 m X 0.95 m) plus 11 pallets each with 32 buckets of soil samples to Kennecott Canada Exploration Inc., Mineral Processing Laboratory, Thunder Bay, Ontario.

On 24 November 2004, after being advised by the Kennecott laboratory that they could not commence processing their shipment of till samples until 2005, it was arranged for Cabano Kingsway Transport to pick up all the Twin Mining pallets and deliver them to Vancouver Indicator Processors Inc. Also shipped at this time from the Kennecott laboratory to the VIPI laboratory were the 13 till samples collected by Kennecott on Twin Mining claims (sample numbers KD5714 - KD5724 inclusive, KD5727 and KD5728). Along with other Kennecott samples, these samples had been shipped separately from Nanisivik by air to Yellowknife and delivered to their laboratory in Thunder Bay[53].

4. Sample preparation was carried out by: not applicable

5. Name and Location of the Laboratories:

Heavy Mineral Concentration: Vancouver Indicator Processors Inc. (VIPI)

CKIM Selection: HDM and KIM Dynamics

KIM Chemistry: Ingrid Kjarsgaard, Carlton University, Ottawa.

6. Laboratory Sample Preparation Method:

Heavy Mineral Concentration: at VIPI:

To recover a heavy mineral concentrate of the specific gravity range which includes kimberlite indicator minerals, VIPI used:

- wet screening to collect the -0.86mm+0.25mm size fraction,
- a permanent Fe-Nd dry magnetic separator and,
- for those samples with more than 10 or 15 g of concentrate greater than S.G. > 2.96: a two-stage heavy liquid separation utilizing tetrabromoethane (TBE) of 2.96 specific gravity and methylene iodide (MI) of 3.33 specific gravity53.

7. Laboratory Procedures Used:

CKIM selection at HDM was as follows:

- CKIM observation and selection from heavy mineral concentrate is performed using a binocular microscope and a list of tools including automated picking belts, picking trays, magnetic and non-magnetic tweezers and brushes.

- The -20+35 and -35+60 mesh 0.3 amp magnetic fractions contain the vast majority of chromite and ilmenite grains and emphasis is placed on picking these fractions for those minerals.
- The -20+35 and -35+60 mesh 0.3 amp non-magnetic fractions contain the vast majority of the silicate indicator minerals and emphasis is placed on picking these fractions for those minerals.

A total of 200 HMC were sent to Maja Kiridzija of KIM Dynamics (#802-121 W. 15thStreet N. Vancouver, BC V7M 1R8) who submitted her results to HDM together with the concentrates and minerals selected[53].

CKIM selection at KIM Dynamics was as follows:

- Sieving each concentrate through two (0.3mm and 0.25mm) or four mesh sizes (0.5mm, 0.4mm, 0.3mm and 0.25mm) in order to separate the material into batches for which the size range would facilitate easier focusing under the binocular microscope.
- Samples with MI/TBE sink weights < 10g were passed through two sieves while samples with MI/TBE sink weights >10 g were passed through four mesh sizes.
- All collected CKIM and possible CKIM were placed on the labeled mineral cards and stored for later mounting by HDM in resin plugs for microprobe analyses53.

KIM Chemistry: Ingrid Kjarsgaard, Carlton University, Ottawa.

- Mineral compositions of high priority mineral grains that have been mounted in 1" epoxy mounts are determined by electron microprobe.
- Selected CKIM graisn were tested using a scanning electron microscope fitted with an energy dispersive X-ray analyser to determine whether their compositional profile that expected from grains known to have a mantle parentage.

8. MPH Comment:

The differences in the concentrating systems, (i.e. S.G., mesh sizes . . .) employed by VIPI and SGS Lakefield must be considered whenever both datasets are utilized in data interpretation.

13.2.7 2005 Soil (Till) Sampling – 25 samples

1. Field Sample Preparation Method Including Sample Reduction: - none, with the exception that cobbles and large stones were discarded on site.

2. Quality Control Measures: -QA/QC samples were not inserted into the sample stream.

3. Security measures taken to ensure validity and integrity of the samples:

i. The sample number was inscribed with a black waterproof marker on the inside and side of each bucket, and on the bucket lid. All of the sample buckets had the lids sealed to ensure sample integrity by inserting wire Multi-Lok 3/32" CableSeals in holes drilled through the overlapping portion of the lid and bucket lip. Seals were individually numbered and stamped "TWNMNG" .

ii. From each sample site, the samples were flown by helicopter to Nanisivik Airport[53].

iii. Buckets were transported to the Nanisivik dock by flat bed truck operated by Nanisivik Mines, stacked on pallets, shrink-wrapped, loaded on the M V Umiavut in late August 2005 and shipped to Valleyfield, Quebec.

iv. The samples arrived at Valleyfield in September 2005 and were transferred to a Cabano Kingsway Transport vehicle and trucked to SGS-Lakefield in Lakefield, Ontario.

4. Sample Preparation was carried out by: not applicable

5. Name, Location and Accreditation of the Laboratory:

Heavy Mineral Concentration: SGS Lakefield, Lakefield, Ontario

CKIM Selection : SGS Lakefield, Lakefield, Ontario

KIM Chemistry: SGS Lakefield, Lakefield, Ontario

6. Laboratory Sample Preparation Method:

Heavy Mineral Concentration at SGS-Lakefield is as follows:

Wet screening at 10 and 60 mesh,

Heavy liquid separation (Methylene Iodide at a density split point of 3.1 g/cc)

Ferro-magnetic separation of the heavy liquid concentrate using a hand magnet and a Frantz electro-magnetic separation of the para-magnetic fraction.

7. Laboratory Analytical Procedures Used:

CKIM selection at SGS-Lakefield is as follows:

- HMC was observed with a binocular for the selection of a targeted number of each indicator mineral species,
- in this case, a 10 g riffled split of the HMC was stripped of indicator minerals coarser than 60 mesh (~0.25 mm).
- a generalized flow sheet for this procedure is given in Appendix A.

KIM Chemistry at SGS-Lakefield is as follows:

- CKIM grains were mounted in standard 1” epoxy grain mounts,

- CKIM grains were analysed for major and minor elements under standard operating conditions (15 KeV, 20 nA operating current with a JEOL 733 electron microprobe
- data were interpreted using industry standard bi-variate plots and data classification schemes published by any of the following: Sobolev (1973), Gurney (1985), McCandless and Gurney (1989), Kopylova et al, (2000), Grutter et al, (2003), Dawson and Stephens (1975), Fipke et al (1995), Schulze (1995, 1997), Grutter and Apter (1998), Gurney and Zweistra (1995), Nimis and Taylor (2000), Ramsay and Tompkins (1994), Rudnick et al (1994), Pollack and Chapman (1977), Kennedy and Kennedy (1976) and in-house diamond indicator mineral databases and data reduction programs70.

13.3. Preparation and Analysis of Rock Samples

13.3.1 Due Diligence Composite Sample (2000)[12]

1. Field Sample Preparation Method Including Sample Reduction: - none.

2. Quality Control Measures: none; QA/QC samples were not inserted into sample stream.

3. Security measures taken to ensure validity and integrity of the samples: - QP sampled and physically delivered samples to First Air land courier service at Ottawa Airport for direct courier delivery to SGS-Lakefield.

4. Sample preparation was carried out by: - not applicable

5. Name and location of the Laboratories:

Heavy Mineral Concentrates: SGS-Lakefield, Lakefield Ontario, Canada

CKIM Selection: SGS-Lakefield, Lakefield Ontario, Canada

KIM Chemistry: SGS-Lakefield, Lakefield Ontario, Canada

Caustic Dissolution/Microdiamonds: SGS-Lakefield, Lakefield Ontario, Canada

SGS-Lakefield is formally accredited by the Standards Council of Canada under ISO/IEC Guide 17025

6. Laboratory Sample Preparation Methods:

Heavy Mineral Concentration at SGS-Lakefield was produced from representative, ten, 8 kg to 10 kg samples as follows:

- Wet screening at 10 and 60 mesh,
- Heavy liquid separation (Methylene Iodide at a density split point of 3.1 g/cc)

- Ferro-magnetic separation of the heavy liquid concentrate using a hand magnet and a Frantz electro-magnetic separation of the para-magnetic fraction.

Diamond (and CKIM) Extraction by Caustic Dissolution at SGS-Lakefield [17]

Caustic dissolution of exploration samples efficiently produces a concentrate from which diamonds can readily be extracted during microscopic examination. The process takes advantage of diamond's property of high resistance to caustic soda (NaOH), eliminating diamond size reduction and loss that often occurs during extraction procedures that rely on crushing and attrition milling[17].

The samples are processed in the following stages:

i. Sample preparation (including drying).

ii. Dissolution (molten NaOH).

iii. Collect residue (150 mesh screen).

iv. Water wash and acid leach residue.

v. Dry and remove ferromagnetics.

vi. Frantz -magnetic separation

vii. Microscope examination – Diamond selection.

Very few minerals survive the harsh attack therefore weight reductions commonly exceed 99% of the initial sample weight[17].

As-received samples are divided into equally sized charges of less than 8 kg. Smaller charge sizes are necessary if the sample contains a high proportion of carbonate minerals, which are vigorously reactive with NaOH (the carbonate content is evaluated by an acid test prior to charge preparation). If a high proportion of the sample is composed of fragments larger than 8 cm, simple breakage, crushing or attrition milling may be required for an effective dissolution, or the length of the dissolution process may be increased. Client consultation and approval is necessary before any size reduction of the sample is initiated[17].

After digestion in molten caustic soda, the sample is poured onto a large-diameter 150 mesh (100 μm) screen. The + 150 mesh residue is liberated from the NaOH by washing the sample in a series of water and acid leach (HCl) baths. Once all of the NaOH is dissolved and removed, the concentrate is dried and screened on a 6 mesh screen to remove undigested material. The undigested material is examined microscopically by a mineralogist. If a significant amount of +6 mesh remains, or if the material consists of possible diamondiferous rock fragments, further digestion may be required. If the undigested material is of insignificant size or not considered as a possible source of diamonds, the -6 mesh residue is further processed by a two (possibly three if the residue is large) stage magnetic separation procedure utilising a permanent magnet and a Frantz Barrier Magnetic Separator[17].

7. Laboratory Analytical Procedures Used: -

CKIM Selection at SGS Lakefield:

- garnet, chromite and ilmenite were picked from kimberlite residues using a binocular microscope such that each riffled aliquot was striped of its garnet and chromite contents73.
- the total grain yield was approximately 100 grains of each mineral.

Microdiamond Recovery at SGS-Lakefield: (continued from Caustic Dissolution):

The magnetically characterized residue is then submitted for microscopic examination and diamond selection. In addition to diamonds, the residue may contain partially undigested indicator minerals, colourless to opaque spinel, garnet, ilmenite, graphite, moissanite, zircon and kyanite. Each of the magnetic fractions is examined at a magnification of 40x using a binocular microscope. Grains of questionable mineralogy are examined using a scanning electron microscope equipped with an energy dispersive spectral (SEM-EDS) analyser. Although each magnetically characterized fraction is examined, particular emphasis is given to the diamagnetic portion[17].

The X, Y and Z dimensions of selected microdiamonds are measured in millimetres. Macrodiamonds are weighed individually while microdiamonds are weighed in groups of 20 or 30, with the milligram weight, in each case, converted to carats. The colour, clarity and morphology of each diamond are determined and all observations reported in a Certificate of Analysis. Synthetic diamonds released into a sample by diamond drill bits are selected and reported as “syndites” on the diamond description sheet[17].

Routine quality control tests are utilised to evaluate the efficiency of the caustic dissolution processing technique, both by spiking client samples with a variety of natural diamonds (“Congo Rounds”) and synthetic diamonds (easily identifiable, colour treated diamond fragments), and running spiked blank samples which are later investigated for diamond spikes and indicator mineral contamination. Recovery of the diamond spikes typically ranges from 97 to 100% and for 2002 was 98.2%. Further 2002 statistics showed that an average of 1.18 indicator mineral grains (73% of which were oxides, 27% silicates) were carried over into the caustic soda blanks run between different client’s samples[17].

Each caustic dissolution residue is picked twice by separate diamond pickers. Questionable grains are examined by SEM-EDS for verification[17].

Every effort is made at each stage of sample handling during caustic dissolution, residue preparation and diamond picking to eliminate the possibility of contamination. These steps include:

- A rigorous sample tracking procedure.
- Dedicated screens and equipment for each sample during sample processing.
- Replacement of screens between each sample after pouring caustic soda.
- Thorough washing and scrubbing of all sample containers.
- Thorough cleaning of equipment used to prepare caustic residues between each processed sample.
- Sandblasting of each kiln pot between clients projects to ensure the removal of any microdiamonds or indicator minerals17.

KIM Chemistry at SGS-Lakefield is as follows:

- CKIM grains were mounted in standard 1" epoxy grain mounts,
- CKIM grains were analysed for major and minor elements under standard operating conditions (15 KeV, 20 nA operating current with a JEOL 733 electron microprobe
- data were interpreted using industry standard bi-variate plots and data classification schemes published by any of the following: Sobolev (1973), Gurney (1985), McCandless and Gurney (1989), Kopylova et al, (2000), Grutter et al, (2003), Dawson and Stephens (1975), Fipke et al (1995), Schulze (1995, 1997), Grutter and Apter (1998), Gurney and Zweistra (1995), Nimis and Taylor (2000), Ramsay and Tompkins (1994), Rudnick et al (1994), Pollack and Chapman (1977), Kennedy and Kennedy (1976) and in-house diamond indicator mineral databases and data reduction programs70.

13.3.2 Trench and Pit Samples (2000) [12]

<u>1. Field Sample Preparation Method Including Sample Reduction:</u> - none

<u>2. Quality Control Measures:</u> - none; QA/QC samples were not inserted into sample stream

<u>3. Security measures taken to ensure validity and integrity of the samples:</u>

i. After each round of sample collection, the on-site geologist and the QP, D. Davis, P. Eng., inserted the sample tags into the buckets, placed the lids on the buckets, and affixed four security seals, one through each of four holes drilled at equal intervals through the lip of the lid and rim of each bucket. This procedure was repeated until sufficient buckets of kimberlite were collected to make up approximately 1,600 kg of samples (1,424 kg kimberlite, 150 kg kimberlite fragments and weathered rock) [60].

ii. The official sub-sample numbers were linked to the site number and interval that was sampled and written on waterproof paper placed inside a small plastic bag and in turn inserted inside the appropriate sample bucket. A matching sample tag was retained for reference. The buckets were marked on the lids and on their side with the sample number with a waterproof marker so that each sample was clearly identifiable during shipping, handling, and at the laboratory[60].

iii. The buckets were transported by helicopter directly to Nanisivik Airport and transferred onto a chartered DC-3 of Aviation Boreal for the flight to Val D'Or Airport. Upon arrival, the samples were transferred to the Aviation Boreal cargo area and taken by G. Lamotte, a contract employee and sampler for Twin Mining, by personal truck directly to SGS-Lakefield in Lakefield, Ontario. Thus the samples were transported under the continuous supervision of a Twin Mining contract employee.

<u>4. Sample preparation was carried out by:</u> - none

<u>5. Name . Location and Accreditation of the Laboratory:</u>

Heavy Mineral Concentrates: SGS-Lakefield, Lakefield Ontario, Canada

CKIM Selection: SGS-Lakefield, Lakefield Ontario, Canada

KIM Chemistry: SGS-Lakefield, Lakefield Ontario, Canada

Caustic Dissolution/Microdiamonds: SGS-Lakefield, Lakefield Ontario, Canada.

SGS-Lakefield is formally accredited by the Standards Council of Canada under ISO/IEC Guide 17025

<u>6. Laboratory Sample Preparation Methods:</u>

Heavy Mineral Concentrates: - (as described in subsection 13.3.1)

Diamond (and CKIM) Extraction by Caustic Dissolution- (as described in subsection 13.3.1)

<u>7. Laboratory Analytical Procedures Used:</u> - describe

CKIM by SGS-Lakefield:

- garnet, chromite and ilmenite were picked from riffled aliquots of concentrates using a binocular microscope such that each riffled aliquot was striped of its garnet and chromite contents73.
- a sufficient number of riffled aliquots were picked that the total grain yield was between 45 and 125 grains of chromite and from 90 to 130 grains of garnet.

KIM Chemistry by SGS-Lakefield: - (as described in subsection 13.3.1)

Microdiamonds by SGS-Lakefield: (as described in subsection 13.3.1)

13.3.3 Spring 2001 Mini Bulk Samples (JI-6 and JI-3)

1. Field Sample Preparation Method Including Sample Reduction: - none

2. Quality Control Measures: - none; as QA/QC samples were not inserted into the sample stream.

3. Security measures taken to ensure validity and integrity of the samples:

i. After each round of sample collection, Twin Mining and NordQuest staff would insert the sample tags, place the lids on the buckets, and affix the security seals. This procedure was repeated until sufficient buckets of kimberlite were collected to make up the 17 tonne and three tonne samples[60]

ii. The official sub-sample numbers were those of the consecutively numbered three-tag sample books together with either three, two or no security seal tag numbers. Two of the three sample book tags were placed inside the appropriate bucket while the third was retained by the Q.P. The sub-sample buckets were marked on the lids with a spot of fluorescent spray paint using a different colour for each sample site so that each sample was clearly identifiable during shipping, handling and at the laboratory[60].

iii. Three security seals were affixed through drilled holes through the lid and sample buckets making it difficult to gain easy access to the sample material. Due to a logistical problem, insufficient seals were available on site to complete the entire program so it was decided to reduce the number of seals per bucket to two in order that all buckets might be secured[60].

iv. Twin Mining placed an order for its own customized seals of this type prior to the field program. However when it became evident that these seals would not be ready for the start of field work it was decided to utilize seals left over from another project and some blue plastic seals purchased off the shelf. When used in the field, the blue seals were found to be very fragile, often breaking during the routine process of insertion and during careful handling. Because of this problem, the buckets had to be re-inspected each time they were shipped or handled between the sample site and the Nanisivik warehouse, and any broken seals were immediately replaced. Near the end of the program Twin Mining ran out of numbered seals and could only use unnumbered plastic ties to fix the lids[60].

v. The buckets were weighed on a Kilo-Tech spring scale (45 kg maximum) at the storage/ maintenance building located in Nanisivik. Generally, the wet sample weights per bucket ranged between 23 kg and 35 kg. The buckets were quite robust even under low temperature conditions commonly in the -10^{o} C to -20^{o} C range. The lids were difficult to dislodge under normal handling but may be pried off or dislodged during rough handling. Between the sampling sites and the SGS-Lakefield receiving area there were no instances of sample loss due to open or ruptured buckets. It was noted that three lids were crushed without sample spillage during the trip from Yellowknife, NWT to SGS-Lakefield. Since the breaching occurred inside a sealed transport truck, the sample material was not discarded[60].

vi. The sample shipping and handling process, as organized by Twin Mining, was relatively straight forward in spite of the remote location and the long distance to the process facility. The following sub-sections outline the chain of control during transportation of the samples and describe the handling / storage procedures along the shipping route[60].

vii. At the Property sample excavation sites, the buckets with lids were left unattended until transported to the Admiralty Inlet and Arctic Bay-Nanisivik transfer points with a Bell 206L light helicopter supplied by Universal Helicopters Newfoundland Limited. This process was considerably delayed by adverse weather conditions, although with good weather conditions several trips could be completed in a day. No particular security measures were put in place at the sample sites. These sites are so remote and inaccessible that the possibility of tampering or vandalism by outsiders is extremely unlikely[60].

viii. The buckets that were transferred from the excavation sites to the west shore of Admiralty Inlet were stacked at a temporary fuel cache that was established for refueling the helicopters supporting the Twin Mining sampling program and an airborne geophysical survey being conducted concurrently. This site located approximately 35 km west of Arctic Bay was readily accessible by snow machine and Komatek over the sea ice[60]. A resident of Arctic Bay was hired to service the fuel cache and to transport sealed buckets from Admiralty Inlet to Arctic Bay. Once delivered to Arctic Bay, the buckets were deposited on the beach to await pick up by Twin Mining. Twin Mining picked up the buckets as soon as possible after delivery and transferred them by light truck and road to a storage / maintenance building in Nanisivik owned by the Nunavut transportation authority at Nanisivik Airport. The security measure at these locations was the use of only double or triple sealed buckets along the surface route[60].

ix. The buckets that were transported directly to Nanisivik Airport by helicopter were also placed inside the storage / maintenance building owned by the Nunavut transportation authority. Access to this area was restricted to the Nanisivik Airport manager and Twin Mining authorized personnel for the duration of the program, and the building was locked when not in use[60].

x. The buckets that had been transported via snow machine and light truck were previously sealed at the respective excavation sites by NordQuest and Twin Mining personnel. These buckets were then checked, weighed and spray paint colour coded according to excavation site by an employee of Twin Mining. They were stored in groups according to their excavation site while awaiting shipment and then double-checked by the NordQuest sampling QP.

xi. For the buckets that were transported to Nanisivik Airport by helicopter, the sealing process was carried out by Twin Mining as soon as possible after delivery. Once checked, the buckets were placed in batches of 32 on twenty 4 ft. x 4 ft. shipping pallets and encased in shrink-wrap plastic. The secured pallets were then stored in the storage/maintenance building until the sampling program was completed[60].

xii. On May 27 2001, the pallets were placed by forklift on a flat bed trailer and moved to Nanisivik Airport where most but not all were loaded into a chartered First Air L-382 G Super Hercules aircraft for shipment to Yellowknife, NWT. The 64 sample buckets that could not be accommodated in the aircraft were placed back in storage/maintenance building and the process was monitored by the sampling QP[60].

xiii. A representative of MPH authorized by Twin Mining was positioned at Yellowknife Airport for the arrival of the shipment of samples from Nanisivik. First Air ground crews unloaded the aircraft immediately upon arrival and loaded the sample pallets into a waiting transport trailer provided by RTL- Robinson Enterprises Ltd. / Kindersley Transport Ltd[60].

xiv. The MPH representative noted three damaged but unbroken seals on the top layer of buckets and three additional loose broken seals (#0003924, 0002918 and 0003295) presumably from the bottom layer were found inside the aircraft. All had the fragile blue seals mentioned in the previous section[60].

xv. As the transfer process was undertaken it was found that the 4 ft x 4 ft pallets were somewhat too wide to fit in a single layer into the transport trailer. The options were; to repackage the buckets onto smaller pallets, to find a second tractor-trailer, or to stack the pallets in two layers. MPH made the decision to stack the pallets in two layers inside the available truck so that the sample shipment could be placed and sealed in a secure location without delay. In addition only pallets from the same sample location were stacked so that in the event of possible damage to containers the material from different sites would not be mixed and could be recovered even in the event of some spillage. Empty pallets were placed on end inside the truck to prevent the load from shifting laterally[60].

xvi. The key issue in this instance is that the sample batches were placed in a secure location while under continuous supervision and in good condition. Even if some crushing damage occurred to the underlying buckets, the tag numbers marked in duplicate on the lids and inside the buckets would enable the various samples to be identified even though the seals may be broken in transport. Once the trailer was loaded the trailer doors were securely latched, padlocked and sealed with two red plastic security tag imprinted with unique sets of letters and numbers. The latching/sealing process was carried out by the truck driver and witnessed by MPH. From Yellowknife, the buckets were transported by RTL-Robinson Enterprises Ltd. / Kindersley Transport Ltd. by truck to SGS Lakefield in Lakefield, Ontario[60]. The shipment was received at SGS Lakefield on June 4, 2001.

xvii. On May 29th, 2001 the remaining 64 buckets were loaded into a scheduled First Air Boeing 727-100C aircraft to Igaluit and Ottawa by a NordQuest representative who took the same flight to Ottawa. Upon arrival, the NordQuest representative immediately loaded the buckets into a personal truck and delivered them to SGS Lakefield in Lakefield, Ontario. These buckets were received at SGS Lakefield on May 30, 2001. In this case, the samples were continuously in the possession of a representative of the sampling QP[60].

4. Sample preparation was carried out by: - none

5. Name and Location of the Laboratories:

Heavy Mineral Concentrates (by DMS): SGS-Lakefield, Lakefield, Ontario.

CKIM Selection: SGS-Lakefield, Lakefield, Ontario

KIM Chemistry: SGS-Lakefield, Lakefield, Ontario

Diamond Recovery (Caustic Dissolution): SGS-Lakefield, Lakefield, Ontarion

6. Laboratory Sample Preparation Method:

Heavy Mineral Concentrates/ Processing by Dense Media Separation ("DMS"):

Samples JI-3 and JI-6 were processed using DMS technology to concentrate the heavy minerals. To prepare the kimberlite for DMS, the samples were crushed to 100% passing 6 mm and fed to a rotary scrubber where water was added to create a slurry at approximately 50% solids by weight. Scrubbed kimberlite was screened to remove all minus 1 mm material before treatment through the DMS unit.

The DMS system used by SGS Lakefield was a 1 tonne per hour standard module designed and fabricated by Bateman Minerals and Industrial Limited (M+BMI) of South Africa. DMS is a well-established technique for diamond recovery with many similar units in operation worldwide.

It was planned to process the heavy mineral concentrates ("HMC") produced by the DMS over a vibrating grease table, another well-established technology for diamond recovery. Due to hydrophobic nature of diamonds, they are not wetted by water and hence adhere to the grease layer when passed over a surface of specially prepared grease. However, due to the small amounts of HMC generated, it was decided to process the DMS concentrates through caustic fusion to maximize diamond recovery.

Composite samples of feed to the plant were taken and subject to caustic fusion for recovery of micro-diamonds to assess the relationship between microdiamond and macrodiamond populations.

In addition, microdiamond extraction, selection, and description was also completed on two samples of DMS tailings from samples JI-6 and JI-3 by SGS-Lakefield using the standard caustic fusion technique with collection of caustic residue on a 150 –mesh screen[17].

Caustic Dissolution: [17]

Caustic dissolution of exploration samples efficiently produces a concentrate from which diamonds can readily be extracted during microscopic examination. The process takes advantage of diamond's property of high resistance to caustic soda (NaOH), eliminating diamond size reduction and loss that often occurs during extraction procedures that rely on crushing and attrition milling[17].

The samples are processed in the following stages:

i. Sample preparation (including drying).

ii. Dissolution (molten NaOH).

iii. Collect residue (150 mesh screen).

iv. Water wash and acid leach residue.

v. Dry and remove ferromagnetics.

vi. Frantz -magnetic separation

vii. Microscope examination – Diamond selection.

Very few minerals survive the harsh attack, therefore weight reductions commonly exceed 99% of the initial sample weight[17].

As-received samples are divided into equally sized charges of less than 8 kg. Smaller charge sizes are necessary if the sample contains a high proportion of carbonate minerals, which are vigorously reactive with NaOH (the carbonate content is evaluated by an acid test prior to charge preparation). If a high proportion of the sample is composed of fragments larger than 8 cm, simple breakage, crushing or attrition milling may be required for an effective dissolution, or the length of the dissolution process may be increased. Client consultation and approval is necessary before any size reduction of the sample is initiated[17].

After digestion in molten caustic soda, the sample is poured onto a large-diameter 150 mesh (100 μm) screen. The + 150 mesh residue is liberated from the NaOH by washing the sample in a series of water and acid leach (HCl) baths. Once all of the NaOH is dissolved and removed, the concentrate is dried and screened on a 6 mesh screen to remove undigested material. The undigested material is examined microscopically by a mineralogist. If a significant amount of +6 mesh remains, or if the material consists of possible diamondiferous rock fragments, further digestion may be required. If the undigested material is of insignificant size or not considered as a possible source of diamonds, the -6 mesh residue is further processed by a two (possibly three if the residue is large) stage magnetic separation procedure utilising a permanent magnet and a Frantz Barrier Magnetic Separator[17].

<u>7. Laboratory Analytical Procedures Used: -</u>

Diamond and CKIM Recoveries:[17]

The magnetically characterized residue was submitted for microscopic examination and diamond selection. In addition to diamonds, the residue may contain partially undigested indicator minerals, colourless to opaque spinel, garnet, ilmenite, graphite, moissanite, zircon and kyanite. Each of the magnetic fractions was examined at a magnification of 40x using a binocular microscope with targets of approximately 100 grains of garnet and chromite, 50 grains of ilmenite and 25 grains of Cr-diopside set to ensure that representative populations of each mineral were obtained. Grains of questionable mineralogy were examined using a scanning electron microscope equipped with an energy dispersive spectral (SEM-EDS) analyser. Although each magnetically characterized fraction was examined, particular emphasis is given to the diamagnetic portion[17].

The X, Y and Z dimensions of selected microdiamonds were measured in millimetres. Macrodiamonds were weighed individually while microdiamonds were weighed in groups of 20 or 30, with the milligram weight, in each case, converted to carats. The colour, clarity and morphology of each diamond were determined and all observations reported in a Certificate of Analysis.

Routine quality control tests are normally utilised to evaluate the efficiency of the caustic dissolution processing technique, both by spiking client samples with a variety of natural diamonds ("Congo Rounds") and synthetic diamonds (easily identifiable, colour treated diamond fragments), and running spiked blank samples which are later investigated for diamond spikes and indicator mineral contamination[17].

Each caustic dissolution residue was picked twice by different diamond pickers. Questionable grains were examined by SEM-EDS for verification[17].

Every effort is made at each stage of sample handling during caustic dissolution, residue preparation and diamond picking to eliminate the possibility of contamination. These steps include:

- A rigorous sample tracking procedure.
- Dedicated screens and equipment for each sample during sample processing.
- Replacement of screens between each sample after pouring caustic soda.
- Thorough washing and scrubbing of all sample containers.
- Thorough cleaning of equipment used to prepare caustic residues between each processed sample.
- Sandblasting of each kiln pot between clients projects to ensure the removal of any microdiamonds or indicator minerals17.

KIM Chemistry at SGS-Lakefield is as follows:

- Approximately 100 grains of garnet and chromite, 50 grains of ilmenite and 25 grains of Cr-diopside set to ensure that representative populations of each mineral were obtained
- CKIM grains were mounted in standard 1" epoxy grain mounts,
- CKIM grains were analysed for major and minor elements under standard operating conditions (15 KeV, 20 nA operating current with a JEOL 733 electron microprobe
- data were interpreted using industry standard bi-variate plots and data classification schemes published by any of the following: Sobolev (1973), Gurney (1985), McCandless and Gurney (1989), Kopylova et al, (2000), Grutter et al, (2003), Dawson and Stephens (1975), Fipke et al (1995), Schulze (1995, 1997), Grutter and Apter (1998), Gurney and Zweistra (1995), Nimis and Taylor (2000), Ramsay and Tompkins (1994), Rudnick et al (1994), Pollack and Chapman (1977), Kennedy and Kennedy (1976) and in-house diamond indicator mineral databases and data reduction programs70.

8. MRDI QA/QC Monitoring at SGS Lakefield:

Mr. John Lindsay, P. Eng., of MRDI Canada a division of AMEC Mining and Metals Consulting, ("MRDI") was the independent Qualified Person who established and monitored data verification quality control and quality assurance policies and procedures with respect to the dense media separation (DMS), caustic dissolution and diamond recovery conducted by SGS Lakefield for the mini- bulk kimberlite samples collected on the Property in 2001, and other samples in 2001 and 2002.

Prior to commencing the sample processing MRDI reviewed the standard operating procedures (SOP) developed by SGS Lakefield for the diamond recovery process. These are summarized as follows[15]:

SOP D001-Sample Receipt

SOP D002-Sample Storage

SOP D003-Sample Crushing

SOP D004-Operation of Scrubbing and Feed Preparation

SOP D005-Operation of DMS Section

SOP D006-Coarse Tailings Storage

SOP D007- Fine Tailings Disposal

SOP D008- Transport of Diamonds between Plant Area and Diamond Picking Lab

SOP D009- Degreasing and Cleaning of Grease Table Concentrate

SOP D010-Storage of Sorted Stones

SOP D011-Plant Access

SOP D012-Access to Diamond Picking Lab

SOP D013-Glove Box Security

SOP D014-Full Efficiency Test for SDMS

SOP D015-Abbreviated DMS Plant Efficiency Test

SOP D016-Grease Table Efficiency Test

MRDI Observations and Conclusions:

During the site visits to SGS Lakefield, MRDI audited compliance with each of the SOP's that was applicable. In summary, MRDI noted that all the prescribed quality control related activities were adhered to during plant operations. These key activities included access control and security, tracer efficiency during the testing of the DMS and monitoring of the size distribution of the plant effluent[15].

MRDI noted that while the DMS process plant bottom cut-off screen was a 1 mm slotted wedge screen, the results reported by SGS Lakefield include a significant number of diamonds smaller than the bottom cut-off size. These small diamonds were recovered as a result of the caustic fusion process liberating locked diamonds from the +1 mm DMS concentrates fed to the caustic fusion kilns and recommended using a 0.5 mm bottom cut-off size for any future work to better define the micro/macro diamond relationship[15].

Overall, MRDI concluded that the sample processing work conducted by SGS Lakefield on both samples was considered to have been conducted to an acceptable standard with adequate security and QA/QC provisions in place. “It is MRDI’s opinion that the sample processing work met acceptable industry standards for similar facilities.”[15]

13.3.4 Fall 2001 Mini Bulk Samples (6 samples)

1. Field Sample Preparation Method Including Sample Reduction: - none

2. Quality Control Measures: - none; QA/QC samples were not inserted into sample stream.

3. Security measures taken to ensure validity and integrity of the samples:

i. The sample shipping and handling process, as organized by Twin Mining was relatively straight forward in spite of the remote location and the long distance to the process facility. The transportation route began by the delivery of samples from the sample collection sites to Jackson Inlet by light helicopter. The samples were barged and loaded onto the M V Umiavut immediately after its arrival at Jackson Inlet on September 18, 2001, and the vessel departed for Valleyfield, Quebec on September 19, 2001. The shipment was accompanied to Valleyfield, Quebec by a NordQuest employee under contract to Twin Mining who had worked on the summer sampling program.

ii. At the port facility at Valleyfield, Quebec, the samples were unloaded and stored in the ALPORT/NEAS warehouse until transfer onto two Cabano Kingsway Ltd. transport trucks for shipment to SGS-Lakefield in Lakefield, Ontario on November 5th and 6th, 2001. The transfer was carried out in the presence of a MPH representative and the opening and unloading of two of the sealed transport trucks from Valleyfield at Lakefield was also monitored by MPH on November 7th. The sample material was accepted by the Laboratory in its entirety and none of the shipment was discarded. It is concluded that the exploration program being conducted by Twin Mining was mostly efficiently performed to a high standard.

4. Sample preparation was carried out by: - not applicable

5. Name and location of the Laboratories:

Heavy Mineral Concentrates (by DMS X-Ray-Sortex, Caustic Dissolution): SGS-Lakefield, Lakefield Ontario, Canada

CKIM Selection: SGS-Lakefield, Lakefield Ontario, Canada

KIM Chemistry: SGS-Lakefield, Lakefield Ontario, Canada

Diamond Recovery: SGS-Lakefield, Lakefield Ontario, Canada

6. Laboratory Sample Preparation /Processing Method:

Heavy Mineral Concentrates: Processing by Dense Media Separation (“DMS”):

The six mini-bulk samples were processed using DMS technology to concentrate the heavy minerals. To prepare the kimberlite for DMS, the samples were crushed to 100% passing 12 mm and fed to a vibrating grease table, a well established technology for diamond recovery, to recover any large diamonds present in the samples. Due to hydrophobic nature of diamonds, they are not wetted by water and hence adhere to the grease layer when passed over a surface of specially prepared grease. Greaser table rejects were then crushed to less than 6 mm and fed to a rotary scrubber where water was added to create a slurry at approximately 50% solids by weight. Scrubbed kimberlite was screened to remove all minus 0.8 mm material before treatment through the DMS unit[20].

The DMS system used was a 1 tonne per hour standard module designed and fabricated by Bateman Minerals and Industrial Limited (M+BMI) of South Africa. DMS is a well-established technique for diamond recovery with many similar units in operation worldwide[20].

Heavy mineral concentrates ("HMC") produced by the DMS were screened into two size fractions: -6 mm + 3 mm, and, -3 mm + 0.8 mm, and each fraction was passed over the vibrating grease table. Grease rejects were then passed through a single stage Flowsort X-ray sorter for further recovery of diamonds[20].

DMA concentrates were stored in drums prior to grease recovery and were attritioned immediately before being fed to the grease table by tumbling in the drum for approximately two hours. This attritioning step was deemed necessary to remove any mineral coatings which may have formed on the diamonds during storage in the drums which could have rendered them refractory to recovery by grease[20].

To maximize recovery of small diamonds, the -6 mm + 3mm rejects from the grease table were crushed to less than 3 mm and reprocessed using the grease table and X-ray sorter[20].

X-ray sorter and grease table concentrates were sorted by hand in SGS-Lakefield's secure, limited access picking facility by trained diamond sorted. Hand sort rejects were processed further by caustic fusion, and the caustic fusion residues picked to ensure complete recovery of diamonds from concentrates[20].

Composite samples of feed to the plant (character splits) were taken and subjected to caustic fusion for recovery of micro-diamonds to assess the relationship between micro diamond and macrodiamond populations. The samples were taken by hand at the transfer point between the feed hopper and the scrubber feed conveyor by passing a tray through the entire stream, and were taken on a regular basis throughput the processing of each mini-bulk sample. The sample frequency was varied for each mini-bulk sample, depending on the sample size, to yield a composite of 100 kg per mini-bulk sample. The entire 100 kg composite was processed for micro-diamond recovery. Because of the small sample size, the DMS concentrate form sample JI-5S was processed by caustic fusion[20].

Caustic Dissolution: (refer to description in subsection 13.3.3)

7. Laboratory Analytical Procedures Used: -

Diamond and CKIM Recoveries:[17]

The magnetically characterized residue is then submitted for microscopic examination and diamond selection. In addition to diamonds, the residue may contain partially undigested indicator minerals, colourless to opaque spinel, garnet, ilmenite, graphite, moissanite, zircon and kyanite. Each of the magnetic fractions is examined at a magnification of 40x using a binocular microscope. Grains of questionable mineralogy are examined using a scanning electron microscope equipped with an energy dispersive spectral (SEM-EDS) analyser. Although each magnetically characterized fraction is examined, particular emphasis is given to the diamagnetic portion[17].

The X, Y and Z dimensions of selected microdiamonds are measured in millimetres. Macrodiamonds are weighed individually while microdiamonds are weighed in groups of 20 or 30, with the milligram weight, in each case, converted to carats. The colour, clarity and morphology of each diamond are determined and all observations reported in a Certificate of Analysis. Synthetic diamonds released into a sample by diamond drill bits are selected and reported as “syndites” on the diamond description sheet[17].

Routine quality control tests are utilised to evaluate the efficiency of the caustic dissolution processing technique, both by spiking client samples with a variety of natural diamonds (“Congo Rounds”) and synthetic diamonds (easily identifiable, colour treated diamond fragments), and running spiked blank samples which are later investigated for diamond spikes and indicator mineral contamination. Recovery of the diamond spikes typically ranges from 97 to 100% and for 2002 was 98.2%. Further 2002 statistics showed that an average of 1.18 indicator mineral grains (73% of which were oxides, 27% silicates) were carried over into the caustic soda blanks run between different client’s samples[17].

Each caustic dissolution residue is picked twice by separate diamond pickers. Questionable grains are examined by SEM-EDS for verification[17].

Every effort is made at each stage of sample handling during caustic dissolution, residue preparation and diamond picking to eliminate the possibility of contamination. These steps include:

- A rigorous sample tracking procedure.
- Dedicated screens and equipment for each sample during sample processing.
- Replacement of screens between each sample after pouring caustic soda.

- Thorough washing and scrubbing of all sample containers.
- Thorough cleaning of equipment used to prepare caustic residues between each processed sample.
- Sandblasting of each kiln pot between clients projects to ensure the removal of any microdiamonds or indicator minerals17.

KIM Chemistry: - refer to description in subsection 13.3.3

8. AMEC QA/QC Monitoring at SGS Lakefield:

Mr. John Lindsay, P. Eng., of AMEC Mining and Metals Consulting, ("AMEC") was the independent Qualified Person engaged by Twin Mining to monitor and audit QA/QC procedures applied by SGS-Lakefield during the processing of the samples and to review and comment on the diamond recoveries. This included six site visits to SGS-Lakefield to audit the process work. Sample extraction, transportation to Lakefield, sample chain of custody of the recovered diamonds were excluded from AMEC's scope.

Prior to commencing the sample processing, AMEC reviewed the standard operating procedures (SOP) developed by SGS Lakefield for the diamond recovery process. These are summarized as follows[20]:

SOP D001- Sample Processing

SOP D002-Sample Receipt

SOP D003-Sample Storage

SOP D004-Sample Crushing

SOP D005-Operation of Scrubbing and Feed Preparation

SOP D006-Operation of DMS Section

SOP D007-Coarse Tailings Storage

SOP D008- Fine Tailings Disposal

SOP D009- Transport of Diamonds between Plant Area and Diamond Picking Lab

SOP D010- Degreasing and Cleaning of Grease Table Concentrate

SOP D011-Storage of Sorted Stones

SOP D012-Plant Access

SOP D013-Access to Diamond Picking Lab

SOP D014-Glove Box Security

SOP D015-Full Efficiency Test for DMS

SOP D016-Abbreviated DMS Plant Efficiency Test

SOP D017-Grease Table Efficiency Test

SOP D018-Seal Control and Issue

SOP D019- Purging the Plant between Samples

SOP D020- Control and Storage of Videotapes.

AMEC Observations, Conclusions and Recommendations:

During the sample processing program, AMEC made several site visits to audit compliance with each of these SOP's[20].

AMEC noted that while the DMS process plant bottom cut-off screen was a 0.8 mm slotted wedge screen, the results reported by SGS Lakefield include a significant number of diamonds smaller than the bottom cut-off size. These small diamonds were recovered as a result of the caustic fusion process liberating locked diamonds from the +0.8 mm hand sort rejects fed to the caustic fusion kilns[15].

Overall, AMEC concluded that the sample processing work conducted by SGS Lakefield on all samples was considered to have been conducted to an acceptable standard with adequate security and QA/QC provisions in place. AMEC noted that all the prescribed quality control related activities were adhered to during plant operations. These key activities included access control and security, tracer efficiency testing of the DMS, grease tables and x-ray sorter, and monitoring of the size distribution of the plant effluent. "It is AMEC's opinion that the sample processing work met acceptable industry standards for similar facilities." [20]

AMEC recommended that prior to treating any future samples, the flowsheet should be revised to bring the X-ray sorter ahead of the grease table and the X-ray sorter tails attritioned using a more energy intensive method than the drum tumbler before being passed over the grease table. Alternatively, the time delay and storage between DMS and grease processing could be eliminated by processing the DMS concentrates immediately, however this would entail additional process operators, with an associated increase in cost. AMEC also recommended auditing tailings from sample JI-4, but no reason was offered[20].

13.4. Core Samples

13.4.1 Core Samples (2001) – 110 samples

1. Field Sample Preparation Method Including Sample Reduction: - none

2. Quality Control Measures: none; QA/QC samples were not inserted into sample stream.

3. Security measures taken to ensure validity and integrity of the samples:

Core samples were stored in the Jackson Inlet base camp and transferred to the Jackson Inlet barge landing area just prior to loading onto the M V Umiavut. After loading, refer to notes for 2001 Fall Mini Bulk Sample as both types of samples were shipped to SGS-Lakefield together.

4. Sample preparation was carried out by: not applicable

5. Name and location of the Laboratories:

Heavy Mineral Concentrates SGS-Lakefield, Lakefield Ontario, Canada

CKIM Selection: SGS-Lakefield, Lakefield, Ontario

KIM Chemistry: SGS-Lakefield, Lakefield, Ontario

Diamond Recovery(Caustic Dissolution): SGS-Lakefield, Lakefield, Ontario

6. Laboratory Sample Preparation /Processing Method:

Diamond extraction, selection and description was performed on 110 NQ diameter core samples using standard caustic dissolution technique with collection of residues on a 150 mesh screen.

Caustic Dissolution:

As-received drill core samples require very little preparation prior to processing by caustic dissolution. All core smaller than NQ is broken into fist-sized pieces by breaking one piece of core against a second piece of core. Core larger than NQ is broken by hammer with low impact blows to produce approximately double fist-sized pieces. Caustic dissolution of exploration samples efficiently produces a concentrate from which diamonds can readily be extracted during microscopic examination. The process takes advantage of diamond's property of high resistance to caustic soda (NaOH), eliminating diamond size reduction and loss that often occurs during extraction procedures that rely on crushing and attrition milling.

As-received samples are divided into equally sized charges of less than 8 kg. Smaller charge sizes are necessary if the sample contains a high proportion of carbonate minerals, which are vigorously reactive with NaOH (the carbonate content is evaluated by an acid test prior to charge preparation). If a high proportion of the sample is composed of fragments larger than 8 cm, simple breakage, crushing or attrition milling may be required for an effective dissolution, or the length of the dissolution process may be increased. Client consultation and approval is necessary before any size reduction of the sample is initiated.

After digestion in molten caustic soda, the sample is poured onto a large-diameter 150 mesh (100 µm) screen. The + 150 mesh residue is liberated from the NaOH by washing the sample in a series of water and acid leach (HCl) baths. Once all of the NaOH is dissolved and removed, the concentrate is dried and screened on a 6 mesh screen to remove undigested material. The undigested material is examined microscopically by a mineralogist. If a significant amount of +6 mesh remains, or if the material consists of possible diamondiferous rock fragments, further digestion may be required. If the undigested material is of insignificant size or not considered as a possible source of diamonds, the -6 mesh residue is further processed by a two (possibly three if the residue is large) stage magnetic separation procedure utilizing a permanent magnet and a Frantz Barrier Magnetic Separator.

7. Laboratory Analytical Procedures Used: -

Diamond and CKIM Recoveries: (refer to description in subsections 13.3.4 and 13.3.3)

KIM Chemistry: - (refer to description in subsection 13.3.3)

13.4.2 Core Samples (2002)

1. Field Sample Preparation Method Including Sample Reduction: - none

2. Quality Control Measures: - none; QA/QC samples were not inserted into sample stream.

3. Security measures taken to ensure validity and integrity of the samples:

i. The sealed pails were transported to the Jackson Inlet airstrip by helicopter and then to Nanisivik Airport by fixed-wing charter aircraft. At Nanisivik the sealed pails were placed on shipping pallets and encased in shrink wrap for shipment. During the last week of August 2002, they were loaded onto the M V Umiavut and shipped to Valleyfield, Quebec.

ii. For details regarding transport to SGS-Lakefield, refer to descriptive notes for 2002 Soil Samples in subsection 13.2.3 as both types of samples were shipped to SGS-Lakefield together.

4. Sample preparation was carried out by: none

5. Name and location of the Laboratories:

Heavy Mineral Concentrates (Caustic Dissolution): SGS-Lakefield, Lakefield, Ontario, Canada

CKIM Selection: SGS-Lakefield, Lakefield Ontario, Canada

KIM Chemistry: SGS-Lakefield, Lakefield, Ontario, Canada

Diamond Recovery: SGS-Lakefield, Lakefield, Ontario, Canada

6. Laboratory Sample Preparation /Processing Method: as per 2001 core samples

Caustic Dissolution: refer to subsection 13.4.1

7. Laboratory Analytical Procedures Used: - as for 2001 core samples

Diamond and CKIM Recoveries: (refer to description in subsections 13.3.4 and 13.3.3)

KIM Chemistry: (refer to description in subsection 13.3.3)

13.5. RC Chip Samples (2005) - 13 samples

1. Field Sample Preparation Method Including Sample Reduction: - refer to description in subsection12.5.2.

2. Quality Control Measures: -QA/QC samples were not inserted into the sample stream.

3. Security measures taken to ensure validity and integrity of the samples:

i. The sample number was inscribed with a black waterproof marker on the inside and side of each bucket, and on the bucket lid. All of the sample buckets had the lids sealed to ensure sample integrity by inserting wire Multi-Lok 3/32" CableSeals in holes drilled through the overlapping portion of the lid and bucket lip. Seals were individually numbered and stamped "TWNMNG" .

ii. From each sample site, the samples were flown by helicopter to Nanisivik Airport[53].

iii. Buckets were transported to the Nanisivik dock by flat bed truck operated by Nanisivik Mines, stacked on pallets, shrink-wrapped, loaded on the M V Umiavut in late August 2005 and shipped to Valleyfield, Quebec.

iv. The samples arrived at Valleyfield in late September 2005 and were transferred to a Cabano Kingsway Transport vehicle and trucked to SGS-Lakefield in Lakefield, Ontario.

4. Sample Preparation was carried out by: not applicable

5. Name, Location and Accreditation of the Laboratory:

Heavy Mineral Concentration: SGS Lakefield, Lakefield, Ontario

CKIM Selection:SGS Lakefield, Lakefield, Ontario

KIM Chemistry: SGS Lakefield, Lakefield, Ontario

6. Laboratory Sample Preparation Method:

Heavy Mineral Concentration at SGS-Lakefield is as follows:

- Wet screening at 10 and 60 mesh,
- Heavy liquid separation (Methylene Iodide at a density split point of 3.1 g/cc)
- Ferro-magnetic separation of the heavy liquid concentrate using a hand magnet and a Frantz electro-magnetic separation of the para-magnetic fraction.

7. Laboratory Analytical Procedures Used:

CKIM selection at SGS-Lakefield was as follows:

- HMC was observed with a binocular for the selection of a targeted number of each indicator mineral species,
- in this case, a 10 g riffled split of the HMC was stripped of indicator minerals coarser than 60 mesh (~0.25 mm).
- a generalized flow sheet for this procedure is given in Appendix A

KIM Chemistry at SGS-Lakefield was as follows:

- CKIM grains were mounted in standard 1" epoxy grain mounts,
- CKIM grains were analysed for major and minor elements under standard operating conditions (15 KeV, 20 nA operating current with a JEOL 733 electron microprobe
- data were interpreted using industry standard bi-variate plots and data classification schemes published by any of the following: Sobolev (1973), Gurney (1985), McCandless and Gurney (1989), Kopylova et al, (2000), Grutter et al, (2003), Dawson and Stephens (1975), Fipke et al (1995), Schulze (1995, 1997), Grutter and Apter (1998), Gurney and Zweistra (1995), Nimis and Taylor (2000), Ramsay and Tompkins (1994), Rudnick et al (1994), Pollack and Chapman (1977), Kennedy and Kennedy (1976) and in-house diamond indicator mineral databases and data reduction programs70.

14.0 DATA VERIFICATION

The data verification include the confirmation of existence of work sites such as survey grids, property boundaries, drill hole core and microdiamond sample sites and mini-bulk sample trenches by MPH and audits of the sample processing phases by AMEC.

Prior to proceeding with the 2000 sampling programs Twin Mining had retained MPH to prepare a QA/QC manual which was followed for the mineralization sampling programmes at Jackson Inlet, and their other property, Torngat in Quebec.

In-laboratory data verification is a normal part of SGS-Lakefield QA/QC protocol. All process efficiencies are monitored by spiking samples with known natural and synthetic diamonds. No abnormalities were found with the Jackson Inlet analytical results. Twin Mining did not implement any intra-laboratory data verification procedures.

14.1. MPH QA/QC Manual and Audits for Twin Mining Sampling Programs

Early in 2000 MPH prepared a manual for Twin Mining which covered the following topics:

- Qualified person, field program.
- Topographic control, sample locations.
- Geological field observations.
- Representivity.
- Sample integrity.
- Sample containers.
- Packaging, sealing procedures.
- Sample identification.
- Documentation and forms.

MPH has considerable experience in diamond project evaluations, including management and design of programs as well as consulting and auditing assignments for major and junior diamond companies. The manual described the system and procedures to be followed to ensure the integrity of the sampling program, from collection in the field through to acceptance of the samples at the contracted process facility. Another consulting firm, AMEC oversaw and audited the processing end.

Implementation of strict and rigorous rules for documentation and description of samples, security measures, chain of custody controls and related activities are vital to all exploration/evaluation programs, but are especially important for diamonds. The controls and methodologies established from the outset a transparent and formal database and system that can be added to and built upon. The procedures were designed to ensure compliance with National Instrument 43-101, and allowed for results to be reported in a manner consistent with guidelines issued by the Toronto Stock Exchange.

The confirmation of existence of work sites, investigations and technical observations were done by Mr. Paul Sobie and Mr. Howard Coates of MPH during the three site visits. In essence all of the work sites and technical observations reported by Twin Mining and checked by MPH are properly recorded and accurate within acceptable limits.

The various sampling programs were generally carried out in accordance with the suggested protocols.

14.2. AMEC QC/QA and Audits of Micro and Macrodiamond Sample Processing

In May 2002 MRDI (now AMEC) prepared a manual which covered the following topics:

- Quality Assurance/Quality Control
- Processing
- Data handling

The laboratory work in the programs was conducted under the supervision of AMEC. All work in the SRC jig plant and SGS-Lakefield caustic dissolution and diamond recovery facilities was conducted in accordance with a comprehensive series of detailed written operational procedures, which have been reviewed and audited by AMEC. During the course of the various sample treatment programmes, AMEC made several visits to SGS Lakefield to witness the work, and to audit compliance with operational procedures[15, 19, 20].

No abnormalities were found with the Jackson Inlet analytical procedures or results.

14.3. QA/QC Procedures at the SGS-Lakefield Caustic Dissolution Facility

Routine quality control tests are utilised to evaluate the efficiency of the caustic dissolution processing technique by running blank samples spiked with "Congo Rounds". The chance of diamond or indicator mineral contamination is evaluated by running caustic soda blanks between client's samples and examining the residue for microdiamonds and indicator minerals. Recovery of the diamond spikes typically ranges from 97 to 100%. 2002 statistics showed that, on average, 1.18 indicator mineral grains (73% of which were oxides, 27% silicates) were carried over into the caustic soda blanks run between different client's samples.

Each residue is picked twice by separate diamond pickers. Questionable grains are examined by SEM-EDS for verification.

Every effort is made at each stage of sample handling during caustic dissolution, residue preparation and diamond picking to eliminate the possibility of contamination. These steps include:

- A rigorous sample tracking procedure.
- Dedicated screens and equipment for each sample during sample processing.
- Replacement of screens between each sample after pouring caustic soda.

Thorough washing and scrubbing of all sample containers.

Thorough cleaning of equipment used to prepare caustic residues between each processed sample.

Sandblasting of each kiln pot once a month to remove any scale build-up that might entrap microdiamonds or indicator minerals.

In AMEC's opinion, the caustic dissolution work conducted by SGS-Lakefield for the Jackson Inlet project during 2000-2002 is in accordance with accepted industry standards[2].

14.4. QA/QC Procedures at the SGS-Lakefield DMS Plant

Prior to commencing the sample processing, MRDI/AMEC reviewed the standard operating procedures that had been formulated by SGS-Lakefield. The following topics are covered by individual standard procedures:

Sample Receipt

Sample Storage

Sample Crushing

Operation of Scrubbing and Feed Preparation

Operation of DMS Section

Coarse Tailings Storage

Fine Tailings Disposal

Transport of Diamonds Between Plant Area and Diamond Picking Lab

Degreasing and Cleaning of Grease Table Concentrate

Storage of Sorted Stones

Plant Access

Access to Diamond Picking Lab

Glove Box Security

Full Efficiency Tests for DMS

Abbreviated HMS Plant Efficiency Test

Grease Table Efficiency Test

During several visits to Lakefield during 2001 and 2002, MRDI audited compliance with each of these standard operating procedures[15,19,20]. The results of MRDI's audits are detailed in trip reports. In summary, MRDI found some minor deviations to the procedures, but that all the key quality control related activities were adhered to during plant operations. These key activities include access control and security, tracer efficiency testing of the DMS, tracer efficiency of the Xray sorter, efficiency testing of the grease table and monitoring of the size distribution of the plant effluent.

14.5. 2001 MPH Site Visits

MPH visited the Jackson Inlet Property in connection with the logging and sampling procedures QA/QC on three occasions during the 2001 field program.

14.5.1 Field Visit of H. Coates, May 12-16, 2001

MPH Consultant Howard Coates visited the Property between May 12th and 16th, 2001 during the Spring 2001 mini-bulk sampling program. The visit from was timed to coincide with early stages of the blasting and sample collection process at the initial site, JI-3 at Pipe 2. Much of the time on the Property was spent observing and participating in the sample collection, sealing and tagging activities at both Excavation Site JI-3 at Pipe 2 and Excavation Site JI-6 at Pipe 5.

Mr. Coates was present for part of the drilling and blasting operations and the collection of buckets of kimberlite material by the field crew which included personnel from Twin Mining NordQuest and G.L. Geoservices

Mr. Coates also inspected the shipping and handling process of the samples while on the Property, at Admiralty Inlet, Arctic Bay and Nanisivik during the site visit. The facilities at Nanisivik airport were also examined. The arrival of the majority of samples in Yellowknife by chartered aircraft, the aircraft unloading and the transfer of the samples to the trucking firm was examined by a MPH representative on May 27, 2001. The opening and unloading of the sealed transport truck from Yellowknife at Lakefield was also monitored by MPH. The sample material was accepted by the Laboratory in its entirety and none of the shipment was discarded. It is concluded that the Spring 2001 Mini- Bulk Sampling being conducted by Twin Mining was generally efficiently performed to a high standard. [60]

14.5.2 Field Visit of H. Coates, August 1-3, 2001

The site visit was conducted between August 1st and 3rd, 2002. During this period MPH examined the field operations including:

- the ground follow-up (prospecting, ground geophysics and overburden KIM sampling) of the 2001 airborne geophysical survey,
- the logging/sampling/sample preparation activities at the Jackson Inlet base camp,
- and the sample storage area at Jackson Inlet.

14.5.3 Field Visit of P. Sobie, - August 8-11, 2001:

MPH Consultant Paul Sobie visited the property during the course of the Fall 2001 mini-bulk sampling program, which was also concurrent with core drilling at Freightrain. At that time core from the first Cargo-1 drillhole and collar site was examined, as well as Freightrain holes up to FT-07 which was in progress. As well, all mini-bulk sample sites had been blasted, with excavation and sampling of JI-3 in progress. Sampling was generally proceeding smoothly on all of these functions, and the logging nomenclature and sampling protocols for the core drilling were reviewed and implemented at that time. Due to the paucity of actual kimberlite intersections on Freightrain, the decision was made to photograph the holes, and to submit whole core in order to obtain samples of sufficient size from the short NQ intervals, to be statistically valid[36].

14.6. MPH Consulting Limited Shipping & Handling Procedural Audits

MPH Consulting Limited inspected the shipping and handling process on the property, at Admiralty Inlet, Arctic Bay and Nanisivik during the site visits between May and August, 2001. The facilities at Nanisivik airport were also reviewed and examined. The arrival of the majority of samples in Yellowknife by chartered aircraft, the aircraft unloading and the transfer of the samples to the trucking firm was examined by a MPH representative. on May 27, 2001. The opening and unloading of the sealed transport truck from Yellowknife at Lakefield was also monitored by MPH.

MPH identified some areas of potential concern during these audits. Mitigation procedures were implemented and all samples were considered acceptable for technical purposes.

It was concluded that the macrodiamond sampling program being conducted by Twin Mining was generally efficiently performed to a high standard.

14.7. Inter-Laboratory Verification Sampling Procedures

Twin Mining did not implement any intra-laboratory data verification procedures.

15.0 ADJACENT PROPERTIES

15.1. Oz Claims - Brodeur Property

In 2003, Kennecott Canada Exploration (“Kennecott”), Rio Tinto’s Canadian exploration division, announced the discovery of “three large kimberlites with abundant microdiamond” on the Brodeur Property which adjoins the Jackson Inlet Property immediately to the north[22] .

According to Kennecott, the Tuwawi Pipe has the largest surface of the three (250 m x 150 m) at approximately four hectares, and was tested with four drill holes. It is located approximately eight km north of the Freightrain Kimberlite Prospect. A total of 319 microdiamonds were recovered from 1520 kg of kimberlite core samples and “shows significant coarse diamond potential with four stones caught on a +1.18 mm square mesh sieve, and a single diamond exceeding a +1.7 mm classification.” A detailed diamond distribution is provided on Table 15.1.

Table 15.1 Tuwawi Pipe Microdiamond Distribution[22]

Sieve Size	No. Diamonds
+1.700 mm	1
+1.180 mm	4
+0.850 mm	7
+0.600 mm	10
+0.425 mm	19
+0.300 mm	13
+0.212 mm	89
+0.150 mm	176
Total Diamonds	319
Sample Wt (kg)	1,520

Details regarding the two other diamondiferous kimberlite bodies, Nanuk and Kuuriaq located approximately eight to ten km[8] north of Freightrain-Cargo 1 Kimberlite Prospects were not provided by Kennecott although the company indicated that 20 targets (type unspecified) remained to be tested.

David Klinger, Rio Tinto’s head of exploration indicated that ”while the grade of these bodies will probably be less than one carat per tonne and will therefore probably not be economic in this location, it is encouraging that the first three kimberlites located are highly diamondiferous.”[22]

In May 2005, Diamondex Resources Limited (“Diamondex”) announced it had signed a letter of intent to acquire 100% interest in the Os Claims and prospecting permits on the Brodeur Peninsula. At that time, the company indicated that a broad, low amplitude magnetic feature measuring 300 m by 300 m and centered 400 m east of the Tuwawi Pipe had yet to be tested successfully. In addition, several magnetic targets remained untested, and that numerous kimberlite indicator mineral clusters had not been resolved[23]. In 2005, Diamondex flew 21,225 line km of fixed wing magnetic surveys and 2,800 line km of Fugro Resolve airborne surveys over previously identified airborne magnetic targets.

Diamondex also collected 661 till and stream sediment samples and recovered several kimberlite float boulders up to 30 cm in diameter. The boulders were found down-ice from several airborne geophysical targets. Diamondex has allocated C$ 800,000 to drill these newly defined geophysical targets. To date, Kennecott and Diamondex have spent $9.5 million on the Brodeur project area. Analytical results from sampling carried out during the 2005 field season have not been released by the company.

16.0 MINERAL PROCESSING AND METALLURGICAL TESTING

Details regarding the processing of the two mini-bulk samples of kimberlite from the Freightrain Kimberlite Prospect are provided in subsections 13.3.3 and 13.3.4. These data will be useful for the planning and implementation of further bulk sampling programs, and can be incorporated into formal ore dressing studies to optimize pilot scale and commercial flow sheets if warranted.

17.0 MINERAL RESERVE AND RESOURCE ESTIMATES

No mineral resources or reserves which comply with CIM reporting standards or regulations as set out in NI 43-101 exist on the Jackson Inlet Property.

18.0 OTHER RELEVANT DATA AND INFORMATION

No other relevant data or information have been provided to MPH that should be included in this report.

19.0 INTERPRETATION AND CONCLUSIONS

Work-to-date at Jackson Inlet has been extensive, and has served to demonstrate that potentially significant diamond deposits exist at Freightrain and Cargo-1, and that there is potential to discover more within Twin Mining's overall Brodeur Peninsula land position.

The large body of regional exploration is deemed by MPH sufficient to justify an aggressive discovery-oriented program within the Property but with extensive pre-field processing of the data needed to help prioritize geophysical and geochemical (KIM) anomalies. Similarly, the work on the known kimberlites is also deemed sufficient to plan and implement advanced evaluations of the known kimberlite bodies. MPH is confident that for the most part, industry best-practises have been followed on all programs and data integrity are intact.

The one rather important exception is the lack of sample spiking, duplicates samples, umpire laboratories and auditing of the microdiamond sampling programmes, and subsequent discarding of virtually all residues. As well, all tails and concentrates from the bulk sample programs have similarly been discarded by Twin Mining. In essence this means that results as reported herein must regarded as final, andno revisions upward of the mineralization results to date is possible, by reprocessing and optimizing previous work.

The present report is the first that compiles all work over the past six field seasons, and recommends a phased coherent evaluation program to advance the property.

Twin's work on the Project has accomplished the following:

The Freightrain Kimberlite Prospect has been shown to occur sporadically over a surface area of approximately 125m x 400m, on the basis of limited local pitting (~240t from six sites) and magnetic surveying, with a very limited program of core drilling unable to demonstrate physical continuity between showings (Fig. 20-1). Thus far the deepest intersection of kimberlite is at ~220m vertical, which demonstrates some measure of depth extent and continuity. MPH considers Freightrain best described as a system of genetically related blows and dykes (on the basis of core and showing observations, petrographic observations and kimberlitic indicator mineral analysis) until such time as detailed exploration demonstrates otherwise.

A large body of microdiamond sampling from surface and core, macrodiamond sampling from small local pits, mineral chemistry interpretations, petrographic observations and statistical modelling of potential grades, by Twin's independent consultants and also by De Beers internal experts, have all been positive. Overall grade estimate forecasts for the Freightrain system range between 28cpht (De Beers) to 40cpht (AMEC), but most importantly in MPH's opinion, are demonstrating a coarse size frequency distribution, which bodes well for large stones and high values in most deposits. Initial indicative comments received by Twin Mining on the quality of the ~46 carats recovered thus far are highly encouraging in terms of quality, but must be substantiated with independent expert valuations and value modelling.

MPH notes though that all macrodiamond work has been derived from spot surface localities for which representivity are not understood at present. Much work needs to be done in order to concisely understand the prospect's overall size, shape, geology and emplacement model, all of which have a bearing on the grade results to date, and on the overall economic potential of this deposit and the project as a whole.

The Cargo-1 Kimberlite Prospect appears on the basis of geophysics and limited core drilling (and associated petrographic/kimberlitic indicator mineral analysis) carried out thus far, to be a single discrete pipe-like intrusion approximately 150m x 50m in longest dimensions. An associated dyke-like body of unknown dimensions is indicated to be present to both the East and West of Cargo-1, which has blow-like enlargements along it as demonstrated by the small satellite geophysical feature drilled by hole CG-05 (Fig. 9-4). This may or may not be contiguous with the main body of Cargo-1.

Cargo-1 has begun to demonstrate geological continuity from the five core holes drilled to-date, and on the basis of microdiamond sampling, mineral chemistry interpretations and petrographic observations, Cargo-1 appears to rank slightly below Freightrain in terms of grade expectations. MPH would add however that vertical hole JI-CG1-04, which appears closest to the centre of the pipe, does seem to be demonstrating similar grade potential to the better Freightrain microdiamond and macrodiamond results.

Again MPH would add that this is a poorly understood deposit at present in terms of the representivity of these samples, and in its overall size, shape, morphology and emplacement model.

The Kimberlite Fragment Corridor Area, extends ~700 m NE from the Cargo-1 Kimberlite Prospect and for 1000 m to the SW towards the Freightrain Kimberlite Prospect. Twin Mining geologists interpreted the fragments to originate from kimberlite bodies beneath and brought to surface by frost boil action. They were mapped to occur across widths up to 50 m and three samples totalling 50.51 kg were collected from separate portions along the 1700 m length were found to contain low numbers of microdiamonds that, combined with petrographic interpretations and proximity, suggest similarity to Cargo-1. One inclined RC hole has confirmed the existence of a thin dyke-like body 330m NE of Cargo-1, beneath kimberlite fragments on surface.This corridor needs systematic trenching and core drilling, initially along initially 100m centres to better understand these occurrences.

The Target Economic Threshold of a Jackson Inlet Mine:

The Jericho Project, some 1200km SW of Jackson Inlet, illustrates perhaps the best target size for Twin Mining, in that it is the smallest of Canada’s diamond mines, and represents a realistic minimum threshold for an Arctic diamond mine. The Tahera mine plan is based on reserves totalling 5.5Mt at 0.85cpht, producing ~500,000 carats per annum over nine years, with the diamonds valued at C$145/ct. Capital costs for this ~75tph operation amount to ~C$100,000,000 and operating costs are estimated at C$70/tonne, but the project is still robust with a base case IRR of 30%[91].

Simplistically then, one might expect that Brodeur, with access to tidewater only 12km from Freightrain for supplies such as fuel (and a longer shipping season than the NWT winter road), and with generally superior geological conditions for mining, overall revenue per tonne requirements may be considerably less than Jericho’s ~C$120/t. Also, and for the same reasons, overall capital may be considerably less in that a modular process plant, and other major infrastructural buildings can be barge mounted in warmer climes, and simply floated to Jackson Inlet and commissioned. These cost parameters need to be established.

The most important step forward though, is to establish to at least high-confidence inferred status, the size, shape, grade and diamond values of Twin's three diamond deposits, to ascertain whether these bodies could feed a similar sized operation. Based on very conservative "back-of-the-envelope" volumes and tonnages, it would appear that Cargo-1 plus Freightrain (assuming a total of one hectare of Freightrain surface area is outlined), could just make the threshold to a depth of -200m. Grade as presently understood is likely 35-50% of Jericho, therefore revenue per carat would likely have to be greater than Jericho's C$145, which there is some suggestion from the present small parcel of Jackson Inlet diamonds, is possible. Again, this economic parameter can be better constrained with expert valuations and valuation modeling, and is best conducted on a parcel of 100-200 carats for first-order estimates.

Finally there is the exploration potential to discover more deposits on the vverall Brodeur Property that could ultimately factor into any economic analysis of a potential diamond mine at Jackson Inlet, as evidenced by the adjacent, significantly diamondiferous 4ha Tuwawi kimberlite of Kennecott/Diamondex.

1.) Exploration by Twin Mining on the Property has resulted in near complete aeromagnetic coverage that is complimented with till and stream sediment geochemistry to at least a reconnaissance density of sampling. Approximately 35 magnetic targets from the 2001 and 2004 airborne surveys have been assessed with till geochemistry through either grid sampling or single samples.

    MPH has serious reservations about the present suitability of the geophysical dataset for target selection, that are outlined in detail in section 10.7.13, these include positioning issues, levelling issues, projection issues, some surveys are too wide for the small target size, and most-importantly, the lack of usage by Twin Mining of a qualified geophysical QP to manage the acquisition and interpretation of all geophysical datasets to-date. That being said, MPH believes that the situation can be rectified and the combined geophysical dataset optimized for on-going usage.

2.) For the 2006, field program, Twin Mining has identified approximately 40 follow-up targets from the 2005 airborne magnetic survey that require further assessment within the context of any relevant geochemical results and prospecting prior to selection for drill testing.

3.) MPH believes that other potential follow-up targets may be developed through a thorough assessment of the revised and compiled geophysical and geochemical databases.

4.) This regional database MPH believes has been under-utilized and needs to be better organized and specifically we note that Twin Mining must upgrade the Jackson Inlet geochemical and geological database from essentially a series of analytical and consultants reports and "in-house type" correspondence into a more comprehensive, organized and easily accessible electronic database.

MPH has noted an apparent lack of completeness and continuity in the end of field season reporting. In part, this may be attributed to the long period between collection of samples and completion of analyses, which in some cases extended well into the next calendar year. This delay may also have resulted in the absence of an up-to-date compilation of the till mineral chemistry for the Property and an assessment of same in combination with the geophysical data. Currently, only portions of the till mineral chemistry database have been compiled. While till geochemistry has been for the most part a reconnaissance exploration tool and drill target selection has been principally based on airborne magnetometer survey results, the geochemistry could be utilized to a further degree in prioritizing the magnetic targets. No observations of surface grain textures and remnant kimberlitic features for instance, have been made on the KIMs recovered, which is critical in discerning proximity to source.

MPH has also noted that not all of the till sampling field data has been entered into the electronic database. While these data were collected, they are not currently in readily accessible format and should become part of the electronic database as required.

20.0 RECOMMENDATIONS

MPH has concluded that significant further work on the project is justified to ascertain its economic potential based on the known kimberlites, as well as to endeavour to discover more. MPH has noted that most of the 35 targets outside of the Feightrain-Cargo-1 Kimberlite area that are recommended for exploration in 2006 occur on claims which due to shortfalls in work credits in previous years, require deposits totalling ~$1.53M, as estimated on Tables 4-2 and 4-3 for 2005 and 2006 to maintain them in good standing. To ensure that the claims affected remain in good standing for 2006, MPH recommends that Twin Mining closely monitor their status with the relevant Nunavut government officials, and ensure that prompt payment of deposits is made as required.

A two-pronged approach is advocated as follows:

<u>Freightrain-Cargo Advanced Exploration</u>

At present the combined Freightrain-Cargo1 kimberlite deposits have received relatively limited amounts of encouraging exploration including core drilling (315m of kimberlite from 1,108m) and mini-bulk sampling (228t) at Freightrain, and 568m of coring at Cargo-1. The intervening dyke system is poorly understood at present but deemed to also be of high interest.

In MPH's opinion, it is imperative that this system be concisely delineated and evaluated during 2006 to establish resources to at least high confidence Inferred Status under NI 43-101 policy to enable a Scoping Study to be completed, which if positive, would trigger a Pre-feasibility Study in 2007. In order to meet the timelines, this will require a detailed exploration program in 2006 to construct a sound geological and grade model for each deposit, such work to include a combination of core drilling, systematic mechanical surface trenching, and mini-bulk sampling of all thus-far un-sampled deposits, to allow for first-order estimates of volume, tonnes, grade and revenue for a conceptual mining project at Jackson's Inlet. The onus will be on establishing high-confidence micro-macrodiamond databases for each deposit at surface, allowing for extrapolation to depth from the core-derived microdiamond information for grade estimates.

Figure 20-1 portrays some 2,500m of preliminary recommended trenching on Freightrain, designed to allow for a concise understanding of the surface morphology, which in turn would dictate the drilling array, and mini-bulk sampling sites. A similar, but far less complex, amount of trenching is needed at Cargo-1 and the Corridor.

MPH recommends that an additional ~850-1,000t of mini-bulk sampling be carried out, comprising a minimum of ~250t at Freightrain, 500t at Cargo-1 and ~100t from various 10t sites along the Corridor. Based on present estimates of grades, one can infer that this work, given the small sample size, should yield at least ~50 additional carats from Freightrain, ~50 carats from Cargo-1 and perhaps 20 carats from the Corridor. This entire macrodiamond population must then be subjected to sophisticated independent valuations and revenue modeling, to arrive at a range of revenue/tonne values for the project, which in turn will allow for the first concise economic evaluations of the project's potential.

The combined mechanical trenching, mini-bulk sampling and core drilling program will be designed to provide the following information for the Scoping study, and subsequent Prefeasibility Study:

i. Concise geological, geophysical and structural models.
ii. Systematic macro- and microdiamond sample database for grade models.
iii. Mini-bulk sample material for process testwork and macrodiamond recovery data as well as parcel valuation and value modelling.
iv. Rock quality data.
v. Resource estimates
vi. Preliminary pit design modeling.

A positive Scoping Study completed in late 2006 would allow for the planning and implementation of a Pre-feasibility Study in the first half of 2007. The field component of the Pre-feasibility would be dominated by environmental and large diameter drilling programs as well as further delineation drilling, general site layout, surveying and engineering studies. The camp and airstrip would need to be upgraded, and as well as wharf and storage buildings would need to be constructed at Jackson Inlet.

Regional Exploration

Over the last several years Twin Mining has acquired a large regional database including proprietary airborne geophysical and KIM geochemical surveys. Efforts to determine causative sources of a number of seemingly highly prospective geophysical/geochemical targets have met with mixed success to date. Prior to next season's field program, MPH strongly recommends a thorough re-assessment, re-processing and re-interpretation of the geophysical data along with compilation of the multidisciplinary aspects of the database in a GIS digital format.

According to Twin Mining there are approximately 90 magnetic targets, including several with associated KIM in soil anomalies, with no apparent cause determined as yet. It is necessary to conduct on-going field work in such a manner that the actual anomaly cause is clearly identified as either kimberlite or some other material, such as magnetite in gravel beds, etc. MPH would recommend the following for each of the targets ultimately selected for follow-up:

i. Prior to field work prepare a file for each individual target with compilation map and description of targets geophysical and other parameters.
ii. Conduct ground reconnaissance of the target with a two-person crew including a geologist to map the geomorphological, surficial and bedrock characteristics of the anomaly area, and a geophysical technician to fix the location of the target and run one or more magnetic profiles along and across the target.

iii. Email ground magnetic data to geophysicist for modeling and comparison with airborne data.

iv. Geological and geophysical staff prioritize targets for drilling

v. Approximately 20 highest priority targets would be systematically tested by drilling, with the onus obviously on those with both the best diamond potential from the indicator data, as well as those that through proximity, could factor into the conceptual Jackson's Inlet mining project. Success at any one site would lead to similar trenching and delineation programs to those above, either late in the 2006 field system if possible, or early in the 2007 program.

Database Management and Field Procedure Issues:

MPH recommends that the database become more organized and interactive, which has commenced with this reporting exercise to some extent, but specifically must include the following:

1. That Twin Mining upgrade the Jackson Inlet geophysical, geochemical and geological database from essentially a series of analytical and consultants reports and "in-house type" correspondence into a more comprehensive, organized, interactive and easily accessible electronic database.
2. This should include compiling all work by Twin's neighbours, particularly the assessment reporting of Kennecott as there are indications that some of Twin's KIM dispersion anomalies may have their sources on neighbouring ground.
3. Implement a modest QA/QC into all sample streams by inserting duplicate samples to other facilities, and by spiking samples with small recognizable synthetic or alluvial diamonds to ensure recoveries being generated, within not only diamond samples but KIMs as well, are acceptable.
4. During drill hole logging, incorporate the practice of continuous magnetic susceptibility measurements and bulk density determinations of kimberlite intervals in the core for geological and geophysical characterization and for utilization in resource estimation that made be carried out the future.
5. Adopt the practices of collecting RC chips at regular intervals, a more formal examination of the RC chips, and the storage of RC samples for reference.
6. Discontinue the practice of discarding non-kimberlitic core. The geotechnical and geochemical characteristics of wall rocks are important considerations for any mining operation that may be planned in the future.
7. Assess the stream sediment geochemistry within the context of current drainages though basin analysis.

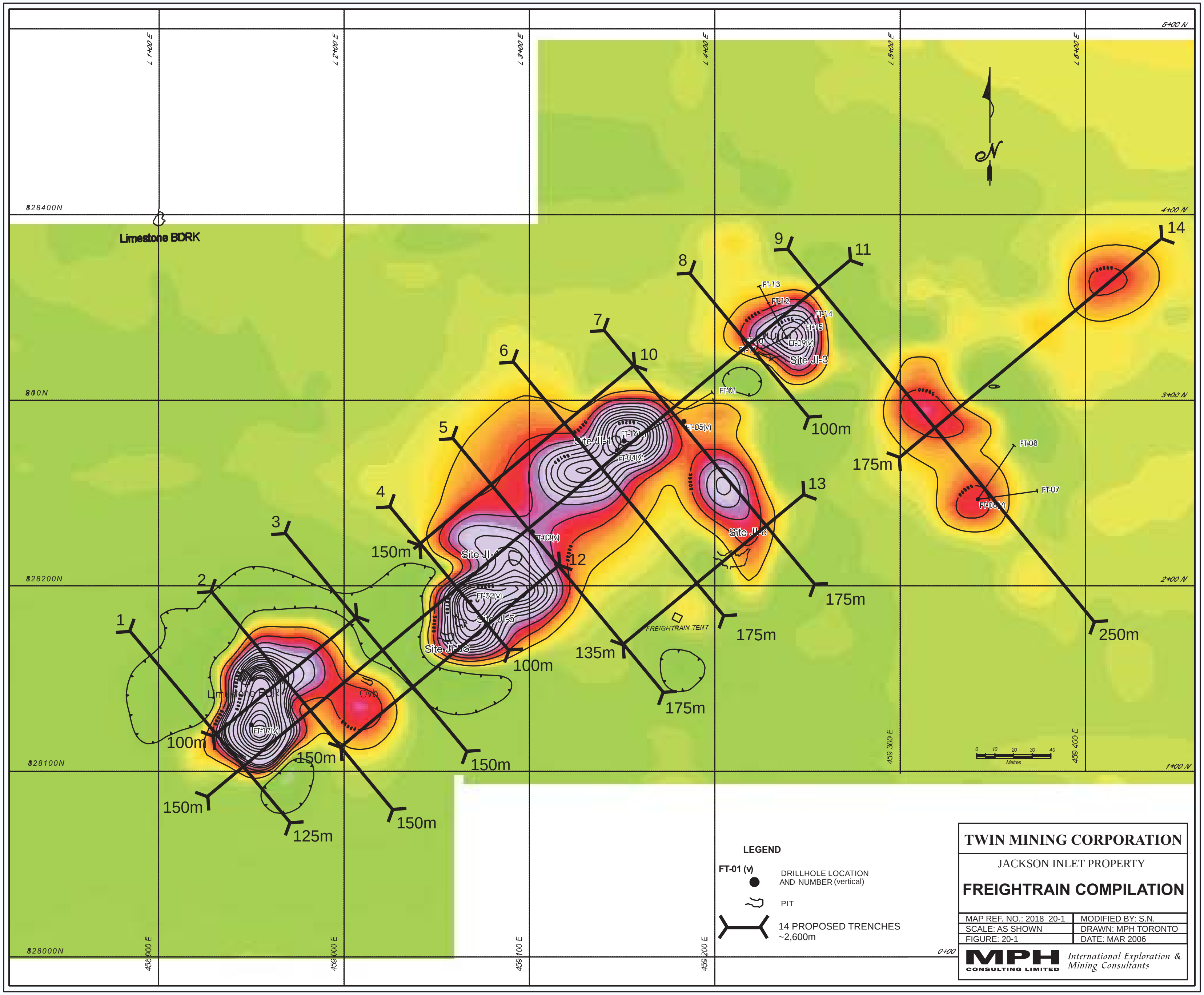
8. Utilize HQ calibre core drilling equipment and only submit half of the core, by sawing (with non-diamond impregnated blades), for any type of sample.
9. Immediately institute a programme to assess all of the regional indicator minerals by examination of surface texture and remnant kimberlitic textures to prioritize true anomalies.
10. Have any microdiamond residues that still exist from past core and surface samples assembled, examined for inefficient dissolution and re-processed at a separate facility to establish the effectiveness of the past work.

Budget Estimate:

A conceptual estimate of the program costs, based on Twin Mining's past expenditures and present industry rates from quotations, is as follows covering all office, administrative and field aspects of implementing the recommended program:

I)	Data compilations, upgrading and project planning	$ 100,000
	Mobilization/Demobilization inc. samples, equipment etc. ~estimate	$ 500,000
		$ 600,000
II)	Trenching of Freightrain, Cargo-1 and Corridor Kimberlites ~5,000m	$1,000,000
	Mini-bulk Sampling of ~850-1,000 tonnes, including explosives ~400m3 @ $1000/m3	$ 400,000
	Macrodiamond Sample Processing and Diamond Recovery ~1,000t @ $1000/t.	$1,000,000
		$2,400,000
III)	Delineation HQ coring of Freightrain, Cargo-1 and Corridor ~8,000m @ $200/m	$1,600,000
	Regional NQ coring of ~20 targets ~2,000m @ $200/m	$ 400,000
	Microdiamond Samples of Freightrain, Cargo-1 and Corridor (surface and core, also of any discoveries) ~5,000kg @ $100/kg.	$ 500,000
		$2,500,000
IV)	Geological, Geophysical, Consulting and Contracting Staff	$ 400,000
	Expediting, Camp Upgrades and Support Costs	$ 500,000
	Helicopter Support	$ 500,000
		$1,400,000
V)	Project and Scoping Study Reporting	**$ 100,000**
	Grand Total	**$7,000,000**

This program would constitute the definitive evaluation of the Freightrain and Cargo-1 prospects and with success should lead to pre-feasibility evaluations. The Regional Exploration component should also be definitive in discovering more kimberlites on Twin's property should they exist, which if proven diamondiferous with the discovery hole, would trigger similar delineation-type programs later in 2006 or very early in 2007.


Limestone BDRK
1
2
3
4
5
6
7
8
9
10
11
12
13
14
100m
150m
125m
175m
135m
250m
Site JI-1
Site JI-3
Site JI-4
Site JI-5
Site JI-6
FT-01
FT-05(V)
FT-03(V)
FT-02(V)
FT-08
FT-07
FT-13
FT-12
FT-14
FT-09(V)
FREIGHTRAIN TENT
828400N
828200N
828100N
828000N
4+00 N
3+00 N
2+00 N
1+00 N
5+00 N
0+00
459 300 E
459 400 E
LEGEND
FT-01 (v)
DRILLHOLE LOCATION AND NUMBER (vertical)
PIT
14 PROPOSED TRENCHES ~2,600m
TWIN MINING CORPORATION
JACKSON INLET PROPERTY
FREIGHTRAIN COMPILATION
MAP REF. NO.: 2018 20-1
MODIFIED BY: S.N.
SCALE: AS SHOWN
DRAWN: MPH TORONTO
FIGURE: 20-1
DATE: MAR 2006
MPH CONSULTING LIMITED
International Exploration & Mining Consultants

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22.0 DATE AND SIGNATURE PAGE

The undersigned, Miron G. S. Berezowsky, prepared all or portions of Sections 2 to 7, and 9 to13, and 15 to18 of this technical report, titled Technical Report on the Jackson Inlet Property, Brodeur Peninsula ,Nunavut Canada with an effective date of March 13, 2006, in support of the public disclosure of technical aspects of the Jackson Inlet Property. The format and content of the report are intended to conform to Form 43-101F1 of National Instrument 43-101 of the Canadian Securities Administrators.

Signed,

(Signed) *Miron Berezowsky*
Miron G. S. Berezowsky, P.Eng. April 18, 2006

The undersigned, Jeremy S. Brett, prepared all or portions of Sections 1, 10, 19, 20 of this technical report, titled Technical Report on the Jackson Inlet Property, Brodeur Peninsula ,Nunavut Canada with an effective date of March 13, 2006, in support of the public disclosure of the technical aspects of the Jackson Inlet Property. The format and content of the report are intended to conform to Form 43-101F1 of National Instrument 43-101 of the Canadian Securities Administrators.

Signed,

(Signed) *Jeremy Brett*
Jeremy, S. Brett, P. Geo. April 18, 2006

The undersigned, Paul A. Sobie, prepared all or portions of Sections 1-2, 8-9,14, 19 and 20 of this technical report, titled Technical Report on the Jackson Inlet Property, Brodeur Peninsula, Nunavut Canada with an effective date of March 13, 2006, in support of the public disclosure of technical aspects of the Jackson Inlet Property. The format and content of the report are intended to conform to Form 43-101F1 of National Instrument 43-101 of the Canadian Securities Administrators.

Signed,

(Signed) *Paul Sobie*

Paul A. Sobie, P.Geo April 18, 2006

The undersigned, Howard J. Coates, prepared all or portions of Sections 14 of this Technical report, titled Technical Report on the Jackson Inlet Property, Brodeur Peninsula ,Nunavut Canada with an effective date of March 13, 2006, in support of the public disclosure of technical aspects of the Jackson Inlet Property. The format and content of the report are intended to conform to Form 43-101F1 of National Instrument 43-101 of the Canadian Securities Administrators.

Signed,

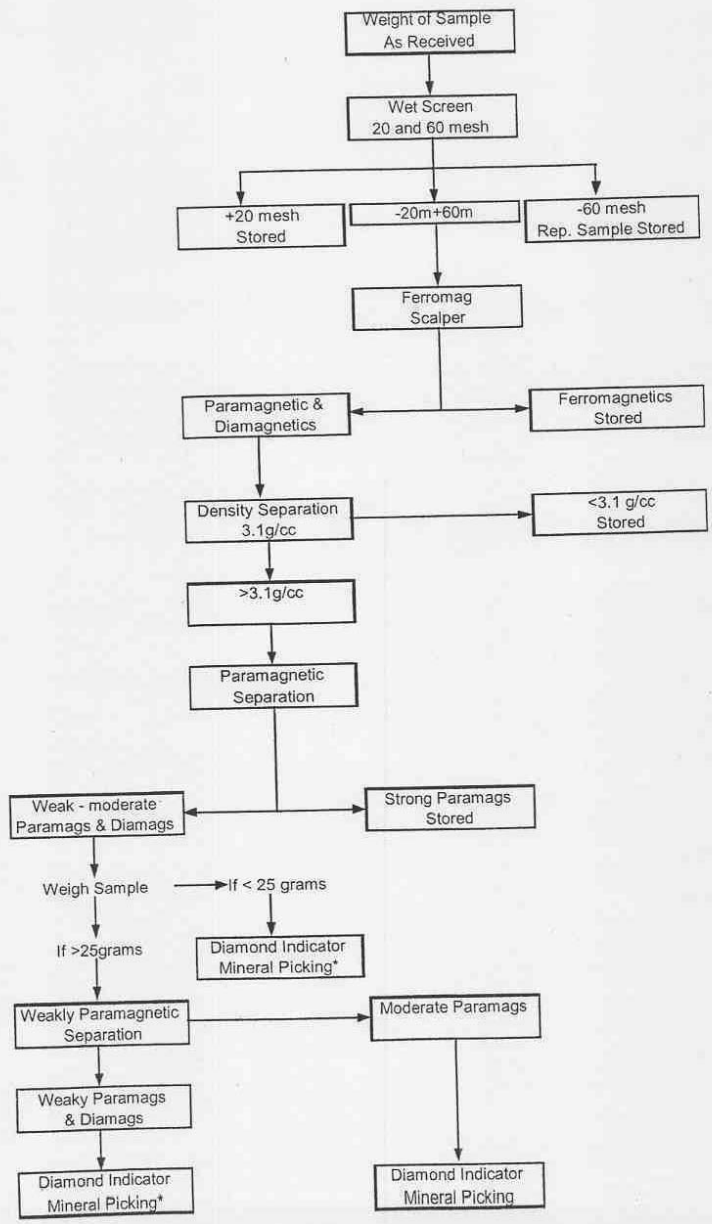
(Signed) *Howard Coates*

Howard J. Coates April 18, 2006

APPENDIX A

LABORATORY SAMPLE PROCESSING FLOWSHEETS

Diamond Indicator Mineral Recovery from Till, Sand and Gravel



*Primary diamond indicator mineral fractions

Vancouver Indicator Processors Inc

HEAVY MINERAL CONCENTRATION PROCEDURES

Concentration of heavy minerals at Vancouver Indicator Processors Inc follows the accompanying flow chart, although these procedures may be varied due to the nature of the sample, or at a client's request. Samples are typically raw tills to 25 kg, field-screened tills or stream sediments. Samples are first **deslimed and disaggregated** in a concrete mixer, and wet screened using 2 mm, 0.86 mm and 0.25 mm screens, and a heavy concentrate is made from the –0.86+0.25mm fraction with a magnet and heavy liquids. This fraction is a good size for indicator mineral observation because it contains a range of sizes from relatively coarse to fine. Kimberlite indicators are often most abundant in the finer grain sizes, but material finer than 0.25 mm is tedious and expensive to examine.

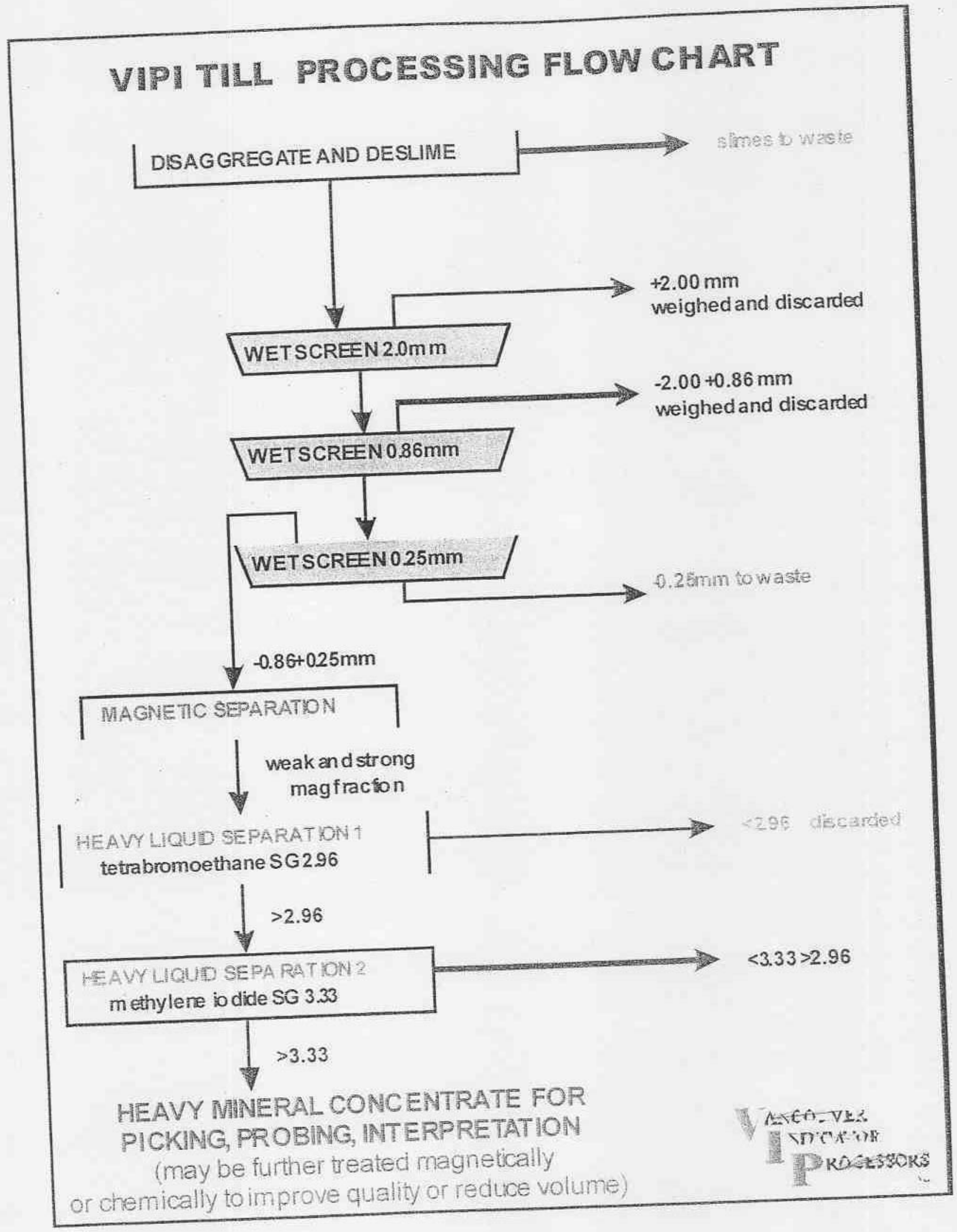
Wet screening is carried out on two single-deck, 30 inch, vibrating, self-cleaning screens manufactured by *Kason Corporation* and operated in tandem, with the underflow from the 0.86 mm screen cascading onto the 0.25 mm screen. The **–0.86+0.25 mm fraction** is dried and a magnetic concentrate is made from it. All other fractions are normally discarded, but any fraction can be retained at the client's request.

The **magnet** used is a permanent Fe-Nd dry magnetic separator operating at about 2.1 Tesla, and manufactured by *Outukumpu Technology Inc*. The weak and strong magnetic (ferromagnetic and paramagnetic) fractions are combined, and the heavy minerals in this fraction further concentrated by heavy liquids.

Heavy liquid processing, typically on material up to 1 kg, is carried out at the Global Discovery Laboratories of partner Teck Cominco Ltd, using a 2-stage process in which the heavy sink from **tetrabromoethane** (2.96 SG) is further separated in **methylene iodide** (3.33 SG) to produce a concentrate heavier than SG 3.32. Concentrates may be further processed by magnetic or chemical means to reduce concentrate volume , remove limonite, crustal garnets etc.

Heavy concentrates and floats (>2.96<3.32) are sent to various independent groups for microscopic examination and grain analysis as instructed by the client.

VIPI Laboratory Supervisor
P.C.LeCouteur, Ph.D, P.Eng., FGAC


VIPI TILL PROCESSING FLOW CHART
DISAGGREGATE AND DESLIME
slimes to waste
+2.00 mm
weighed and discarded
WETSCREEN 2.0mm
-2.00 +0.86 mm
weighed and discarded
WETSCREEN 0.86mm
WETSCREEN 0.25mm
-0.25mm to waste
-0.86+0.25mm
MAGNETIC SEPARATION
weak and strong
mag fraction
HEAVY LIQUID SEPARATION 1
tetrabromoethane SG 2.96
<2.96 discarded
>2.96
HEAVY LIQUID SEPARATION 2
methylene iodide SG 3.33
<3.33 >2.96
>3.33
HEAVY MINERAL CONCENTRATE FOR
PICKING, PROBING, INTERPRETATION
(may be further treated magnetically
or chemically to improve quality or reduce volume)

DIAMOND EXTRACTION BY CAUSTIC DISSOLUTION

Introduction

Caustic dissolution of exploration samples efficiently produces a concentrate from which diamonds can readily be extracted during microscopic examination. The process uses diamond's property of high resistance to caustic soda (NaOH) and eliminates diamond size reduction and losses that often occur during extraction procedures that rely on crushing and attrition milling.

Procedure

The samples are processed according to the attached flowsheet. Very few minerals survive the harsh attack; therefore weight reductions commonly exceed 99% of the initial sample weight.

As-received samples are divided into equally sized charges of less than 8 kg. Smaller charge sizes are necessary if the sample contains a high proportion of carbonate minerals that are vigorously reactive with NaOH (evaluated by an acid test completed prior to charge preparation). If a high proportion of the sample is composed of fragments larger than 8 cm, simple breakage, crushing or attrition milling may be required, or the length of the dissolution process increased. Client consultation and approval is necessary before any size reduction of the sample is initiated.

After digestion in molten caustic soda, the sample is poured onto a large diameter 150 mesh screen. The + 150 mesh residue is liberated from the NaOH by washing the sample in a series of water and acid leach (HCl) baths. Once all of the NaOH is dissolved and removed, the concentrate is dried and screened on a 6 mesh screen to remove undigested material. The undigested material is examined microscopically by a mineralogist. If the + 6 mesh material is significant or consists of possible diamondiferous rock fragments, further digestion may be required. If the undigested material is of insignificant size or not considered as a possible source of diamonds, the - 6 mesh residue is further processed by a two (possibly three if the residue is large) stage magnetic separation procedure utilising a permanent magnet and a Frantz Barrier Magnetic Separator.

The magnetically characterised residue is then submitted for microscopic examination and diamond selection. (In addition to diamonds, the residue may contain partially undigested indicator minerals, colourless to opaque spinel, garnet, ilmenite, graphite, moissanite, zircon and kyanite.) Each of the magnetic fractions is examined at a magnification of 40x using a binocular microscope. Grains of questionable mineralogy are examined using a scanning electron microscope equipped with an energy dispersive spectral (SEM-EDS) analyser. Although each magnetically characterised fraction is examined, particular emphasis is given to the diamagnetic portion.

The X, Y and Z dimensions of selected microdiamonds are measured in millimetres. Macrodiamonds are weighed individually while microdiamonds are weighed in groups of 20 or 30 and the milligram weight, in each case, converted to carats. The colour, clarity and morphology of each diamond are determined and all observations reported in a Certificate of Analysis.

Quality Control

Routine quality control tests are utilised to evaluate the efficiency of the caustic dissolution processing technique by running blank samples spiked with "Congo Rounds". The chance of diamond or indicator mineral contamination is evaluated by running caustic soda blanks between client's samples and examining the residue for microdiamonds and indicator minerals. Recovery of the diamond spikes typically ranges from 97 to 100%. 1998 statistics showed that, on average, only a single indicator mineral grain was carried over into the caustic soda blanks run between different client's samples.

Each residue is picked twice by separate diamond pickers. Questionable grains are examined by SEM-EDS for verification.

Every effort is made at each stage of sample handling during caustic dissolution, residue preparation and diamond picking to eliminate the possibility of contamination. These steps include:

- A rigorous sample tracking procedure.
- Dedicated screens and equipment for each sample during sample processing.
- Replacement of screens between each sample after pouring caustic soda.
- Thorough washing and scrubbing of all sample containers.
- Thorough cleaning of equipment used to prepare caustic residues between each processed sample.
- Sandblasting of each kiln pot once a month to remove any scale build-up that might entrap microdiamonds or indicator minerals.

Customized flowsheets for sample processing utilising caustic dissolution and other sample preparation techniques (magnetic, gravity, flotation, acid leaching, etc.) can be developed, in consultation with the client, to meet specialised requirements.

Lakefield Research Limited is not responsible for the determination of the origin, quality or valuation of any diamonds recovered unless otherwise instructed by the client.

Electron Microprobe Operating Conditions Used for Kimberlite Indicator Mineral Analysis

Date: January 28, 2006
Instrument: JEOL 733 Superprobe
Conditions: Accelerating voltage - 15 kV
Cup electron beam - 20 nA
Measuring time for each standard - 20 seconds
Measuring time for each analyzed element - 20 seconds
Peak and background intensities were measured for each element

Phases Studied: 335 Kimberlite Indicator Minerals (KIM) on 4 polished sections.

Standard Reference Materials:

The following natural and synthetic mineral standards from the Smithsonian Institute, SPI Supplies and Institute of Experimental Mineralogy were used for microprobe calibration: magnetite (Fe Kα measured with the LiF crystal); rutile (Ti Kα measured with the PET crystal); chromite (Cr Kα measured with the PET crystal); diopside (Ca Kα measured with the PET crystal, Si Kα measured with the TAP crystal), rhodonite (Mn Kα measured with the PET crystal); pyrope (Mg Kα measured with the TAP crystal,: Al Kα measured with the TAP crystal); willemite (Zn Lα measured with the TAP crystal), sanidine (K Kα measured with the PET crystal); jadeite (Na Kα measured with the TAP crystal), and synthetic $NiFe_2O_4$ (Ni Kα measured with the LiF crystal), synthetic NiFeCo alloy (Co Kα measured with the LiF crystal), and metallic Nb (Nb Lα measured with the PET crystal).

QC Schedule:

The following natural and synthetic mineral standards from the Smithsonian Institute and SPI Supplies were used for QC cross-checking the microprobe calibration at the beginning, at the end and in the course of the Kimberlite Indicator Mineral (KIM) analysis between the Oxide (Chromite, Ilmenite) and Silicate (Garnet, Pyroxene, Olivine) KIM analytical sessions:

> Magnetite
> Rutile
> Diopside
> Pyrope
> Chromite
> Synthetic NiFe2O4 Spinel

QA Schedule:

<u>For each Oxide (Chromite, Ilmenite) grain</u>: Iron, chromium, manganese and titanium compositions were verified with two different WD spectrometers and WD crystals. A comparative analysis was performed using conventional Excel X-Y-Scattering charts. The average values of compared element compositions were reported for each KIM grain analyses if no systematic calibration error was revealed for those values during the QA procedure.

<u>For each Silicate (Garnet, Pyroxene, Olivine) grain</u>: Iron, chromium, manganese, potassium and calcium compositions were verified with two different WD spectrometers and WD crystals. A comparative analysis was performed using the conventional Excel X-Y-Scattering charts. The average values of compared element compositions were reported for each KIM grain analyses if no systematic calibration error was revealed for those values during the QA procedure.

Oleg Valeyev, Ph.D., P.Geo.
Senior Mineralogist, Microbeam Specialist

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> Magnetite
> Rutile
> Diopside
> Pyrope
> Chromite
> Synthetic NiFe2O4 Spinel

QA Schedule:

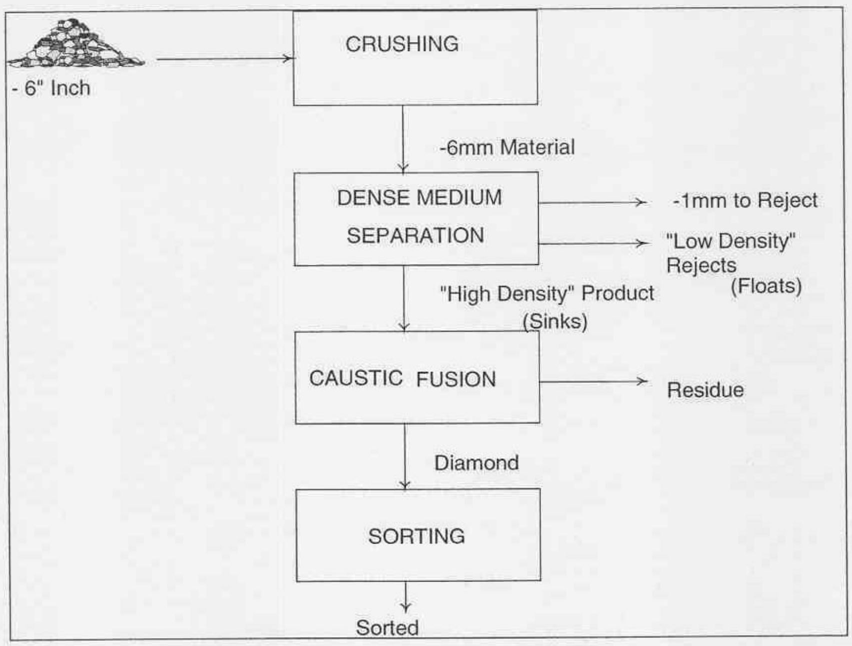
For each Oxide (Chromite, Ilmenite) grain: Iron, chromium, manganese and titanium compositions were verified with two different WD spectrometers and WD crystals. A comparative analysis was performed using conventional Excel X-Y-Scattering charts. The average values of compared element compositions were reported for each KIM grain analyses if no systematic calibration error was revealed for those values during the QA procedure.

For each Silicate (Garnet, Pyroxene, Olivine) grain: Iron, chromium, manganese, potassium and calcium compositions were verified with two different WD spectrometers and WD crystals. A comparative analysis was performed using the conventional Excel X-Y-Scattering charts. The average values of compared element compositions were reported for each KIM grain analyses if no systematic calibration error was revealed for those values during the QA procedure.

Oleg Valeyev, Ph.D., P.Geo.
Senior Mineralogist, Microbeam Specialist

Spring 2001 Mini Bulk Sample Processing
Jackson Inlet Diamond Project

Figure 1 - Plant Flowsheet



LakefieldResearch	Standard Operating Procedure for Diamond Recovery Plants				
	SOP # :	D001	*Sample Processing*		
	SHEET:	1 of 1			
	REV:	A	REV DATE:	Oct 01	REV BY: S.Cole

A Brief Description of the Flowsheet to be used for the 300t Mini Bulk Sample from Jackson Inlet (November 2001)

It is proposed that the following stages be used to process the bulk kimberlite sample:

1. Crushing, to reduce the feed size of the material to a 12.7 mm.
2. The – 12.7 mm + 6.35 mm material will be passed over a grease table.
3. The tails from the grease table will be crushed to –6.35 mm in a cone crusher and then passed through the DMS plant.
4. Dense Media Separation (DMS) will be used to concentrate the heavy minerals and diamonds from the –6.35 mm portion of the feed.
5. Diamonds recovery from the DMS concentrate using a grease table.
6. The grease table concentrate will be hand-sorted.

The expected top size of the material is 152.4 mm. This material will be crushed down in stages to a nominal 12.7 mm top size. Two stages of crushing will be used in order to achieve the desired product top size. Material will be fed into our mobile crushing plant by means of a front-end loader. The crushed material will be stockpiled ahead of the DMS plant.

The crushed material will be scrubbed in a scrubber. The +6.35 mm material will be screened from the feed and passed over the grease table to recover large diamonds. The –6.35 mm material will be pumped to a feed preparation screen ahead of the DMS plant. The grease table tails will be crushed in a cone crusher and passed back into the scrubber.

The DMS plant that is proposed to be used for this project is a pump-fed cyclone plant, equipped with a one hundred-millimetre dense media cyclone. Cyclone plants have become the process route of choice in the majority of diamond production plants, due to the simplicity of the plants as well as the inherent reliability and efficiency.

The crushed material will be fed to a feed preparation screen where the minus 0.8 mm material will be wet-screened from the ore. The screened material will pass into the feed hopper of the cyclone plant. From the feed hopper, the ore will be fed at a controlled rate (by means of a vibrating feeder) to the cyclone mixing box. Ferrosilicon medium is pumped into the mixing box from a circulating medium sump to form a slurry, which is then pumped to the DMS cyclone. The underflow (DMS concentrate) of the cyclone passes over a vibrating screen to drain and rinse the medium from the ore. The concentrate then passes into a locked drum for subsequent processing on the grease table.

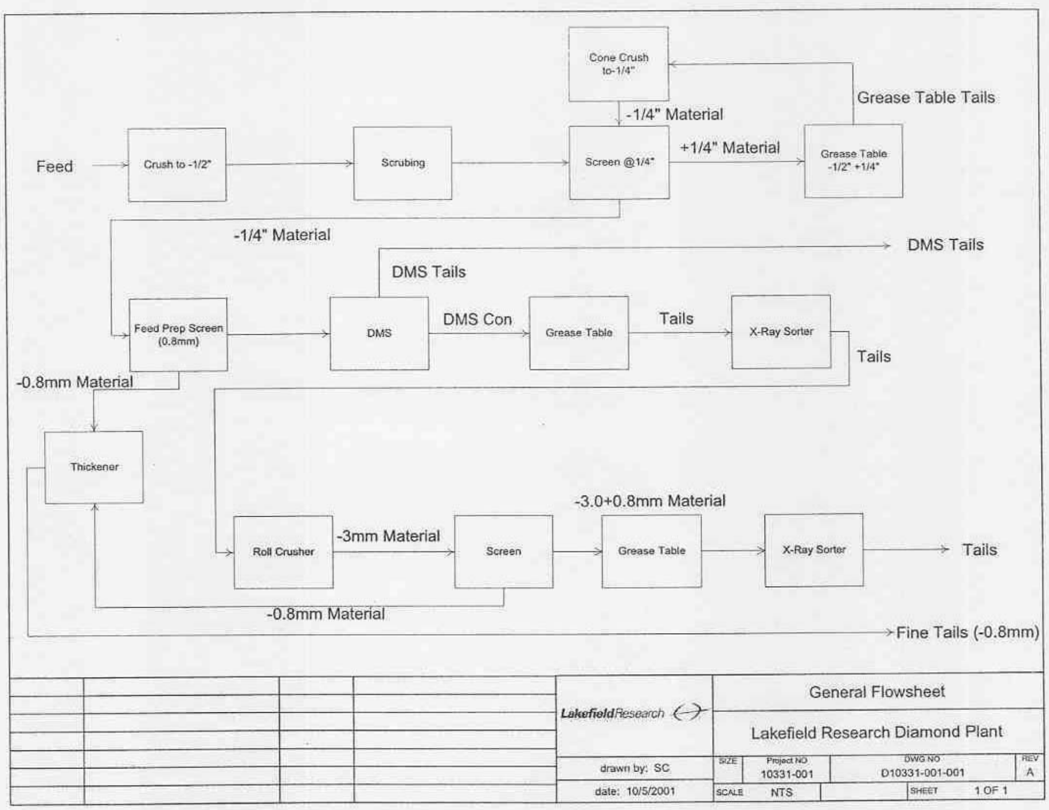
The overflow passes over a separate section of the screen for medium recovery, prior to discharging from the plant. This stream is the waste "gravel" stream.

The medium recovered from the screen is recycled (through a system comprising a magnetic separator) to the circulating medium sump. Injecting water into the suction of the circulating medium pump controls the density of the medium, fed to the mixing box. The density measurement and control is fully automated, this feature helps ensure the plant runs under stable operating conditions and that a constant product quality is produced.

The DMS concentrate will be batch fed to the grease table. The grease will capture the hydrophobic diamonds while other hydrophilic minerals will pass over the table. The table reject will be passed through an x-ray sorter. The tails from the X-ray sorter will be crushed to –3 mm and screened at 0.8 mm. The +0.8 mm material will be re-passed over the grease table and the x-ray sorter

The grease table and x-ray sorter concentrates will be hand sorted in a secure environment with the grease and x-ray concentrates being kept separately and the diamonds recorded separately. All sorted products will be delivered to Twin Mining for their evaluation.

Note that this flowsheet is provisional and depends on the successful commissioning of the x-ray sorter. Should the x-ray sorter not be commissioned in time an alternate flowsheet will be developed.



Lakefield Research Limited. Standard Operating Procedure for Diamond Recovery Plants.

Caustic Dissolution for Microdiamond Recovery