

## **Thelon Project**

Lac de Gras Area Northwest Territories, Canada NI 43-101 Technical Report



Prepared for: Thelon Diamonds, Ltd.

Prepared by: Ted Eggleston, Ph.D., RM SME, P. Geo.

Effective Date: 12 January 2015



## CERTIFICATE OF QUALIFIED PERSON

I, Ted Eggleston, Ph.D., RM SME., P. Geo., am employed as a Principal Geologist with Amec Foster Wheeler E&C Services, Inc. (Amec Foster Wheeler).

This certificate applies to the technical report entitled "Thelon Project, Lac de Gras Area Northwest Territories, Canada NI 43-101 Technical Report" that has an effective date of 12 January 2015 (the "technical report").

I am a Registered Member of the Society for Mining, Metallurgy and Exploration (RM SME, membership #4115851) and licensed as a Professional Geologist in the States of Wyoming (PG-1830) and Georgia (PG002016). I graduated from Western State University of Colorado with a BA degree in 1976 and from the New Mexico Institute of Mining and Technology with MSc and PhD degrees in Geology in 1982 and 1987 respectively.

I have practiced my profession for 35 years during which time I have been involved in the exploration for, and estimation of, mineral resources and mineral reserves, for various mineral exploration projects and operating mines. In that time I have been directly involved in exploration for, and review of, exploration, geological models, exploration data, sampling, sample preparation, assaying, and other analyses, quality assurance-quality control, databases, and resource estimates for a variety of base and precious metals deposits, industrial mineral deposits, and kimberlite diamond deposits. I have been involved with DO-27, Diavik, Gahcho Kué, Snap Lake, Star, Jwaneng, Orapa, and Voorspoed kimberlitic diamond deposits in various capacities.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the project between18-24 March 2007 and 25-30 October 2007. I reviewed the geological model, exploration data, sampling, sample preparation, sample processing, quality assurance-quality control, and database for the deposit. I reviewed the results of core and reverse-circulation drilling undertaken in 2007 and 2008 by Peregrine Diamonds Ltd, operator of the project.

I am responsible for Sections 1 through 27 of the technical report.

I am independent of Peregrine Diamonds Limited as independence is described by Section 1.5 of NI 43–101.



I was involved with the Project in 2007 and 2008 during which time I observed data collection and assisted with geological modeling on the Project.

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the technical report not misleading.

Dated: 26 January 2015

"Signed and stamped"

Dr Ted Eggleston, RM SME

#### IMPORTANT NOTICE

This report was prepared as National Instrument 43-101 Technical Report for Thelon Diamonds Ltd. (Thelon) by Amec Foster Wheeler Americas E&C Services, Inc. (Amec Foster Wheeler). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in Amec Foster Wheeler's services, based on i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Thelon subject to terms and conditions of its contract with Amec Foster Wheeler. Except for the purposed legislated under Canadian provincial and territorial securities law, any other uses of this report by any third party is at that party's sole risk.

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## 1.0 SUMMARY

## 1.1 **Property Description and Location**

The Thelon Diamonds Ltd. (Thelon) properties (the Thelon Project or the Project) are located approximately 300 km north-northeast of the city of Yellowknife in the Northwest Territories, Canada to the southeast of the Diavik diamond mine, centred at approximately 64° 20' N latitude and 109° 50' W longitude.

The Project consists of three mineral leases (Thelon leases) with an aggregate area of 1,632.91 ha held by a joint venture (JV) between Peregrine Diamonds Ltd. (Peregrine; 70.54%) and Thelon Diamonds Ltd. (29.46%). The leases, NT-5269, NT-5263, and NT-5264 are registered as being owned by Peregrine Diamonds Ltd. (65%), and Thelon Capital Ltd. (35%). A royalty of 4% gross overriding royalty (GOR) on all diamonds and 4% net smelter return (NSR) royalty on all metals is payable to Mackenzie Jaims.

Theon Capital Ltd. transferred the rights to the three leases and participation in the Peregrine JV to Theon Diamonds Ltd. under a statutory plan of arrangement. That plan of arrangement was announced in a press release by Theon Capital Ltd. on 30 December 2014 and completed on 14 January 2015. This Report was prepared by Amec Foster Wheeler in support of a stock exchange listing in Canada for Theon Diamonds Ltd.

Peregrine is the operator of all work programs pertaining to the Project. Joint venture partners are required to contribute to future programs or their respective interests will be subject to dilution according to the joint venture agreement, thus the discrepancy between the registered ownership of the leases and the actual ownership.

In addition to the royalty noted above, royalty payments would also be required to be made to the Government of the Northwest Territories in the event of future production.

Peregrine, as operator of the JV, holds two current land use permits, and a current corporate prospecting licence. These permits allow the Project to explore on the leases that they control.

#### 1.2 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

Access to the area is from Yellowknife, which is the main staging area for all operations in this region. Most necessary services can be obtained in Yellowknife. Access is commonly via fixed wing aircraft equipped with wheels, floats, or skis, depending on the season. From approximately mid-January to mid-April access is provided via a winter ice road which connects Yellowknife with the Diavik and Ekati Diamond Mines. This road passes within 11 km of the Project.



The Project is located within the Canadian Arctic tundra, or barren lands. For the majority of the year, the area is covered with ice and snow. Summer begins in June, when melting commences and by October winter has returned. Temperatures range from highs of around 25°C during the brief summer months, to winter lows of -45°C which are often magnified by strong, constant winds. Daylight varies from nearly 24 hours in the summer to only a few hours per day during the winter.

For the current and recommended exploration activities sufficient water and appropriate facilities appear to be present. Land use permits for the current and recommended program are in hand.

#### 1.3 History

Mineral leases comprising the Project were originally part of the WO claim block staked by representatives of DHK consortium in February of 1992 following the announcement, by BHP Billiton (BHPB) and DiaMet Minerals Ltd. (Diamet), in the fall of 1991, of the diamond discovery at Point Lake. DHK shareholders were Dentonia Resources Ltd (Dentonia, 33%), Horseshoe Gold Ltd. (Horseshoe Gold, 33%) and Kettle River Resources (Kettle River, 33%). The claims were then optioned to Kennecott Canada Exploration Inc. (Kennecott), SouthernEra Resources Ltd (SouthernEra), and Aber Resources Inc. (Aber), who exercised the option, leaving DHK with a carried interest. Kennecott was operator and completed exploration work on the property discovering six kimberlites: DO-18, DO-27, DO-29N, DO-29S, DO-32 & AD-02 (Doyle, 1994; 1995; 1996; 1997).

In 2000, BHPB signed an option to earn an interest in part of the project area by flying a Falcon<sup>™</sup> gravity survey and drilling targets. Kennecott agreed to exchange their 40% working interest in the property for a 9.9% interest in DHK.

Between 2000 and 2004, some of the original claims were allowed to lapse and were acquired by other operators, including Thelon Ventures Ltd. and Dunsmuir Ventures Ltd. (Dunsmuir). In 2004, Peregrine acquired BHPB's interest in the remaining claims from the original WO block (which contained the OW 19, OW 20 and TT 1 to 3 claims and SAS 1 to 3 leases). Dunsmuir entered into options to earn 100% interest in the MLT 1 to 6 and MLT 8 claims from a private prospecting syndicate and to earn a 65% interest in the Oki1 to 3 claims from Thelon Ventures Ltd. In 2006, Dunsmuir and Peregrine merged and those claims were re-united.

## 1.4 Geological Setting and Mineralization

The Project lies within the Slave Structural Province of the Northwest Territories, northern Canada, which is an Archean segment of the North American Craton. The



Slave Province is subdivided isotopically into an eastern and a western domain. Kimberlites intrude granites, supracrustal rocks and, in some cases, diabase dykes (Pell, 1995, 1997) in both the eastern and western domains of the Slave Province. To date, all economic and near economic kimberlites, including those at Ekati, Diavik, Snap Lake, Gahcho Kué, and Jericho are located in the eastern Slave Province.

Subsequent to kimberlite emplacement, the area was covered by the Laurentide ice sheet during the Late Wisconsinan glaciation, which climaxed about 20,000 years before present (B.P.). Till is the most prominent surficial sediment type in the Slave Geological Province. Glaciofluvial deposits, eskers, and outwash plains, are present in the Slave Province. In the Lac de Gras area, eskers are mainly west and northwest trending.

Two-mica post-deformational granite is the only major rock type on the properties. Medium- and high-grade Archean metaturbidites occur both east and west of the property.

Mineralization in the region consists of kimberlite intrusions containing diamonds.

#### 1.5 Deposit Type

Kimberlites found in the area are diamondiferous kimberlite pipes similar to others found in the Canadian Arctic, South Africa, and Russia.

#### 1.6 Exploration

Since the claims were first staked, exploration on the Project has consisted of till sampling and geophysical studies, and core drilling by Kennecott Canada Ltd, Thelon, Dunsmuir, and Peregrine Diamonds. Exploration on the Thelon leases has been minimal with two core holes completed, about 25 till samples collected, and two airborne geophysical surveys and three ground geophysical surveys. That work was completed to industry standards at the time.

#### 1.7 Drilling

Two core holes were drilled in the Project area for a total of 239 m in 1993 and 1994. No kimberlite was intersected by those holes. Amec Foster Wheeler did not review the core and was not on site when drilling was completed. Descriptions of the drill procedures suggest that procedures were consistent with industry leading practices at the time.



#### 1.8 Data Verification

Amec Foster Wheeler reviewed the original documents containing till sample data and core logs. Few data exist for the Thelon leases.

#### 1.9 Adjacent Properties

No information or data were relied upon from adjacent properties for this report, nor is any relationship with any mineralization on adjacent properties implied.

All mineral leases to the north of the Project are held by Diavik Diamond Mines Inc. Other active mineral claims and leases in the immediate area are held by various operators.

The diamondiferous kimberlite DO-27, within the Lac de Gras property held by Peregrine Diamonds, is within 1 km of the Project. DO-27 has been extensively explored. A less well explored kimberlite, DO-18 is adjacent to DO-27. An Indicated Mineral Resource and a target for additional exploration were estimated by Amec Foster Wheeler at DO-27, in 2008.

#### 1.10 Conclusions

The Project is located adjacent to known diamondiferous kimberlites. Exploration is viewed as incomplete by Amec Foster Wheeler. The few till samples containing kimberlite indicator minerals suggest that there is potential to discover additional diamondiferous kimberlites on the Thelon leases.

#### 1.11 Recommendations

Amec Foster Wheeler recommends that Thelon completes the following single phase work program:

- Re-evaluate exploration data to identify new targets, conduct additional till sampling and geophysical surveys to identify anomalies, and if warranted, drill exploration holes to test for the presence of kimberlite pipes: \$550,000
- Ensure that mining leases are kept in good standing: \$5,000 per year.



## 2.0 INTRODUCTION

## 2.1 Terms of Reference

This report was prepared by Amec Foster Wheeler Americas Ltd. for Thelon Diamonds Ltd. (Thelon) to support of a stock exchange listing in Canada for Thelon. The report summarizes the exploration results from the mineral leases partially owned by Thelon (Thelon leases). The Thelon leases are currently included in a joint venture (JV) project with Peregrine Minerals Ltd. as operator of the project.

## 2.2 Qualified Persons

The author of the report is a qualified person under National Instrument 43-101. Ted Eggleston, Ph.D., P. Geo., RM SME, Amec Foster Wheeler Principal Geologist is responsible for sections 1 through 27.

## 2.3 Site Visits and Scope of Personal Inspection

Dr. Eggleston visited the Peregrine Lac de Gras project on 18-24 March 2007 and 25-30 October 2007. The Peregrine Lac de Gras project includes the Thelon leases. Both site visits were related to geological and exploration aspects of the project. The site visit is still considered current because there has been no material change to the scientific and technical information since October 2007.

#### 2.4 Effective Dates

The effective date of this report is 12 January 2015.

#### 2.5 Information Sources and References

Information sources and other references are listed in Section 3 and Section 27 of this report. Amec Foster Wheeler used Eggleston et al. (2014) as the basis for all sections of the report. Unless otherwise noted, all figures were prepared by Amec Foster Wheeler.

## 2.6 **Previous Technical Reports**

The following technical reports have previously been filed for Peregrine's Lac de Gras project which includes the Thelon leases. These reports include information pertinent to the Project although they were not specifically prepared for the Thelon leases:



- Pell, J., and Strickland, D., 2004, Technical Report on the Lac de Gras East Property; 15 September 2004, NI 43-101 Technical Report Prepared for Dunsmuir Ventures Ltd., 30 p.
- Coopersmith, H.G., 2005, Technical Report on the 2005 Program, DO-27 Kimberlite Pipe, WO Property, Northwest Territories, Canada, 16 November 2005, NI 43-101 Report Prepared for Peregrine Diamonds Ltd., 132 p. Modified December 6, 2005.
- Pell, J., and Coopersmith, H.G., 2006, Technical Report on the 2006 Program, DO-27 Kimberlite Pipe, WO Property, Northwest Territories, Canada; 6 December 2006, NI 43-101 Report Prepared for Peregrine Diamonds Ltd., 155 p.
- Coopersmith, H.G., and Pell, J., 2007, Technical Report on the 2007 program, DO-27 Kimberlite Pipe, WO Property, Northwest Territories, Canada; 17 December 2007, NI 43-101 Report Prepared for Peregrine Diamonds Ltd., 157 p.
- Eggleston, T.L. and Brisebois, K.R., 2008, Peregrine Diamonds Limited DO-27 Diamond Project Northwest Territories, Canada NI 43-101 Report; 7 August 2008, NI 43-101 Report prepared by AMEC E&C Services Inc. for Peregrine Diamonds Ltd., 119 p, revised 1 January 2009.
- Eggleston, T.L., Brisebois, K.R., and Pell, J., 2014, Peregrine Diamonds Ltd. Lac de Gras Diamond Project Northwest Territories, Canada NI 43-101 Technical Report; 15 July 2014, NI 43-101 Report prepared by AMEC E&C Services Inc. for Peregrine Diamonds Ltd., 187 p.



## 3.0 RELIANCE ON OTHER EXPERTS

The Qualified Person authoring this report has relied on other experts, who are not Qualified Persons, for information concerning legal, environmental, and political matters. The QP believes it is reasonable to rely on these experts and disclaim responsibility for information in the report provided by other experts as is allowed under Item 3 of Form 43-101F1 Technical Report.

# 3.1 Project Ownership, Tenure, Surface Rights, Property Agreements, Permitting, Royalties, Environmental and Social Licence.

The QP has not independently reviewed project ownership, mineral tenure, surface rights, royalties, property agreements, permitting, or environmental liabilities of the Project and the underlying property agreements. The QP has fully relied upon, and disclaims responsibility for, information provided to Amec Foster Wheeler by Lisa Hobman, of Bacchus Law Corporation, Thelon legal counsel, and Geoff Watson, Director of Thelon Diamonds Ltd. in an email letter to Ted Eggleston of Amec Foster Wheeler from Lisa Hobman, entitled "Thelon NI 43-101 Report" dated 15 July 2014 and on a letter from Lisa Hobman, entitled "Thelon Diamonds Ltd. ("Thelon Diamonds") – Lac de Gras NI 43-101 Technical Report" dated 22 January, 2015.

The information is used, as appropriate, in Section 1, Sections 4.2, 4.3, 4.4, 4.5, 4.6, 4.7 and 4.8 and Section 25 of the Report.



## 4.0 PROPERTY DESCRIPTION AND LOCATION

## 4.1 **Property Location**

The Project is located approximately 300 km north-northeast of the city of Yellowknife in the Northwest Territories, Canada to the southeast of the Diavik Diamond Mine (Figure 4-1), centred at approximately 64° 20' N latitude and 109° 50' W longitude.







## 4.1 Mineral Title in the Northwest Territories

#### 4.1.1 Mineral Title

Mining Regulations for the Government of the Northwest Territories came into effect on 1 April, 2014 as a result of the Northwest Territories Lands Act.

Under these regulations three types of tenure can be granted:

- **Prospecting Permits:** Prospecting permits are applied for and issued only once per year, on February 1. The areas are one quarter of a 1:50,000 scale National Topographic System map sheet and vary in size from 8,319 to 22,900 hectares. A prospecting permit has a fixed term of three years for areas south of 68°N, and five years for areas north of 68°N. Prospecting permits are not renewable. Any area of further interest to the holder must be converted to a mineral claim(s) prior to permit expiry provided the work requirements for the specified period have been completed.
- **Mineral Claims:** Ground staking with claim posts. Claims can be staked and issued year-round. Mineral claims may not exceed 1,250 ha in area and have a 10-year duration. If claims are to be maintained past this 10-year time period they need to be converted to mineral leases. There is no annual rental payment for a claim, but filing fees must be paid when work is filed and annual work requirements must be met. Filing fees amount to \$0.25/ha and annual work requirements are as follows:
  - \$10 per full or partial hectare in the claim during the two-year period following the day on which the claim is recorded
  - \$5 per full or partial hectare in the claim during each subsequent one-year period.

If all of the expenditure and work commitment is undertaken in Year 1, it can be reported for that year, and the claim will be taken to its ultimate anniversary date. No additional assessment reports are due. However, past the ultimate anniversary date, the claims would have to be converted to leases.

• **Mineral Leases**: Can only be issued after a claim has been staked and \$25.00/ha of work has been conducted and a boundary survey has been recorded. Application for conversion from a claim to a lease must be made a year prior to the expiry of the claim. Leases are granted for a 21-year term, and may be renewed for additional 21-year terms. Leases have an annual rental payment requirement which is \$2.50/ha during the first term and \$5.00/ha during each renewed term.



#### 4.1.2 Mineral Royalties

Each fiscal year, the owner or operator of a mine must pay the Government of the Northwest Territories royalties on the value of the mine's output during that fiscal year in: a) an amount equal to the lesser of either 13% of the dollar value of the output of the mine, or b) the sum of the royalties payable as specified in Schedule 3 of the Northwest Territories Mining Regulations.

#### 4.2 **Project Ownership**

The Thelon Property (Thelon leases) consists of the following three mineral leases: NT-5269 (claim Oki1), NT-5263 (claim Oki2), and NT-5264 (claim Oki3). The combined lease area totals 1,632.91 ha (4,035.00 acres).

As at the most recent Thelon Property cash call notice of 10 June, 2014, the JV ownership percentages were:

- Peregrine Diamonds Ltd. = 70.54%
- Thelon Capital Ltd. 29.46%.

On December 18, 2014, Thelon Capital Ltd. entered into a statutory plan of arrangement with Thelon Diamond Company Limited, a company incorporated in British Columbia, Canada, and Thelon Diamonds Ltd., also incorporated in British Columbia, Canada pursuant to which, Thelon Capital Ltd. agreed to assign to Thelon Diamonds Ltd., and Thelon Diamonds Ltd. agreed to assume, all of the Thelon Capitals Ltd.'s right, title, and interest in and to the July 12, 2002, option agreement between Mackenzie Jaims and Thelon Capital Ltd., under which Thelon Capital Ltd. obtain and option to acquire 100% undivided right, title, and interest in certain mining claims comprising Mining Lease numbers NT-5263, NT-5264, and NT-5269 (Thelon leases) with respect to mineral rights in the Northwest Territories.

On 30 December 2014, Thelon Capital Ltd. announced the statutory plan of arrangement in a press release. The arrangement was completed on 14 January 2015 (Lisa Hobman, 2015, email to Ted Eggleston dated 15 January 2015) and Thelon Diamonds Ltd. has now assumed 29.46% ownership of the JV with Peregrine Diamonds Ltd and has assumed all rights and obligations associated with that JV. The Northwest Territories Mining Recorder has not yet registered this change in ownership. As of the effective date of this report, Thelon Diamonds Ltd. is not listed on a Canadian stock exchange.

Thelon informed Amec Foster Wheeler that this ownership breakdown is different to that registered with the Northwest Territories Mining Recorder, which shows the leases to be held 65% in the name of Peregrine, and 35% in Thelon's name. The differences



are due to the changes that occur to ownership percentages with each cash call contribution subsequent to the original registration with the Northwest Territories Mining Recorder.

The Thelon leases have the following royalty payable in addition to the Northwest Territories provincial royalty requirements:

Claim staker Mackenzie Jaims has 4% gross overriding royalty (GOR) on all diamonds and 4% net smelter return (NSR) royalty on all metals. A royalty buyback applies up to 2% of the NSR in increments of 0.1% at a price of \$200,000 per 0.1% increment (for a total of \$4,000,000 to exercise the entire right to purchase 2% of the NSR royalty). A royalty buy-back also applies up to 2% of the GOR royalty in increments of 0.1% at a price of \$200,000 per 0.1% increment (for a total of \$4,000,000 to exercise the entire right to purchase 2% of the GOR royalty).

#### 4.2.1 Marketing

There is no marketing agreement in place for the Thelon Property.

#### 4.2.2 Operator

Peregrine is the operator of all work programs pertaining to the Project, and all joint venture partners are to contribute to future programs or their respective interests will be subject to dilution according to the joint venture agreement.

#### 4.3 Mineral Tenure

#### 4.3.1 **Project Mineral Tenure**

Mineral lease holdings are summarized in Table 4-1. Information in the table is current as of 12 January 2015. Ownership percentages as reported in the table are those recorded by the Northwest Mining Recorder; please refer to Section 4.3.2 for the current project ownership percentages based on the various joint venture cash calls. Figure 4-2 is a tenure location plan showing kimberlites identified to date in proximity to the Project; however no kimberlites are known within the Project area.

The lease areas cover 1,632.91 ha (4,035.00 acres) in total. Annual rental fees are payable on each lease. The lease rental rate is \$2.50 per hectare per year and the aggregate annual rental for all leases is \$4,082.28.

Thelon provided Amec Foster Wheeler with the mineral tenure information. In order to check the accuracy of the data, Amec Foster Wheeler reviewed tenure on the



Northwest Territories Mining Recorder's Mineral Tenure Map at (accessed on 12 January 2015):

http://apps.geomatics.gov.nt.ca/Html5\_SDW/Index.html?configBase=http://apps.geom atics.gov.nt.ca//Geocortex/Essentials/REST/sites/NWT\_Mineral\_Tenure\_Webmap/vie wers/NWT\_Mineral\_Tenure\_Webmap/virtualdirectory/Resources/Config/Default

The information available on the mineral tenure map supports the information provided by Thelon as to the claim numbering and ownership percentages reported by the Mining Recorder. However, Section 4.2 reports the current actual JV ownership percentages, which are based on the most recent cash calls for the various joint ventures; as noted earlier, these differ from those reported by the Mining Recorder.



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Fid.	Project	Lease Number	Claim Name	Lease Area (Acres)	Lease Area (Hectares)	Term Commencement	Renewal Date	NTS	Owner 1	Registered Ownership Percentage	Owner 2	Registered Ownership Percentage
1	Thelon	NT- 5269	Oki1	1,264.00	511.52	21-Oct-2014	2032	076C05	Peregrine	65	Thelon	35
2	Thelon	NT- 5263	Oki2	708.00	286.52	21-Oct-2014	2032	076C05	Peregrine	65	Thelon	35
3	Thelon	NT- 5264	Oki3	2,063.00	834.87	21-Oct-2014	2032	076C05	Peregrine	65	Thelon	35

 Table 4-1:
 Thelon Mineral Lease Holdings





#### Figure 4-2: Project Tenure Plan (adapted from Eggleston et al., 2014)



### 4.4 Surface Rights

#### 4.4.1 Surface Rights Administrative Jurisdictions

The Project occurs on Crown land.

The lease block falls on the administrative boundary between the Wek'eezhi Land and Water Board and the Mackenzie Valley Land and Water Board (Figure 4-3). Peregrine, as operator of the project, was advised that when such occurrences happen, the Mackenzie Valley Land and Water Board is the agency responsible for assigning the responsible agency.

#### 4.4.2 Aboriginal Groups and First Nations

The mineral leases fall within four aboriginal traditional territories:

- Tłįchǫ Government in Bechoko
- NWT Treaty 8 Tribal Corporation (Akaitcho) in Lutsel K'e
- NWT Metis Nation in Fort Smith
- North Slave Metis Alliance in Yellowknife.

The Tłįchǫ Government have a settled land claim, whereas the Akaitcho, NWT Metis Nation and North Slave Metis Alliance do not. The Tlicho, Akaitcho, and NWT Metis Nation are recognized groups by the Federal Government.

#### 4.4.3 Land Use Permits

Since 2004 Peregrine, as operator, has been issued five land/water use permits to complete exploration activities. One of those permits pertains to the Thelon leases and is still active.

#### MV2011C0005

The permit, issued by the Mackenzie Valley Land and Water Board was granted on April 28, 2011 and will expire on April 27, 2016. A reclamation deposit totaling \$9,000 is on file with the Aboriginal Affairs and Northern Development Canada.

Activities authorized under this permit are (Figure 4-4):

- Lac de Gras West Camp (demobilized)
- Core drilling.



#### **Corporate Prospecting Licence**

Peregrine, as operator, holds Corporate Prospecting Licence N32705, which is a permit that needs to be renewed annually. The current permit expires March 31, 2015 and is issued by the Mining Recorder's Office of the Government of the Northwest Territories.





## Figure 4-3: Surface Rights Administrative Boundaries (adapted from Eggleston et al., 2014)





## Figure 4-4: Location Plan, MV2011C0005 Permit Area (adapted from Eggleston et al., 2014)

## 4.5 Royalties and Encumbrances

Royalties levied by the Government of the Northwest Territories are outlined in Section 4.2. Individual royalty holders for each claims/lease group are discussed in Section 4.3.

#### 4.6 **Property Agreements**

Peregrine, as operator, has an exploration agreement with a sub-group of the Akaitcho, the Yellowknives Dene First Nation in Dettah. This agreement was signed on January 12, 2012 and is specific to the Yellowknives Dene in Dettah and not any of the other Akaitcho peoples.



#### 4.7 Permits

Permits are discussed in Section 4.4.3. These permits allow Peregrine, as operator, to explore on the claims and leases that they control. Land use permit MV2011C0005, authorizing exploration on the leases and claims, is in good standing.

#### 4.8 **Potential Environmental Liabilities**

There are no known environmental liabilities on the properties other than those expected from the past exploration activities and associated camp. Peregrine, as operator, has reclaimed exploration disturbances on an ongoing basis, and has posted two bonds for a total amount of \$115,000 to cover any potential future reclamation costs.

Land use permits were issued with applicable terms and conditions governing use of Crown lands. These permits are subject to periodic inspection by the Government of the Northwest Territories Resource Management Officer. The most recent inspection of MV2011C0005 was April 27th, 2014.

#### 4.9 Risk Factors

Although mineral tenure and surface rights appear to be secure, risks to the Project include:

- Permit requirements may change or permits may be cancelled.
- Although the Project is on Crown Land, First Nations issues may impact the project.

#### 4.10 Comments on Section 4

The Amec Foster Wheeler QPs note:

- Amec Foster Wheeler was provided with opinion from Thelon that supports Thelon's interpretation that the mining tenure is valid and sufficient to support exploration activities. Tenure arises from mineral leases.
- Amec Foster Wheeler reviewed the tenure from the publicly-available information recorded by the Northwest Territories Mining Recorder, and these support Thelon's interpretation of valid tenure holdings.
- A number of different royalties are associated with the tenure holdings.
- Project ownership percentages provided by Thelon differ slightly from those recorded by the Mining Recorder. This is because the ownership percentages



have changed since the initial registration with the Mining Recorder, because of the variations in the cash contributions to work programs that are provided by each partner that subsequently affect the ownership. Amec Foster Wheeler reviewed the most recent cash call data and considers that these documents support the current ownership percentages supplied by Thelon.

- No formal surface rights are currently held; however, the mineral leases provide for reasonable surface access to perform the recommended work on the project.
- Future exploration-stage work programs can be performed with the permits currently held by Peregrine; additional permits would be required should exploitation be considered.
- Amec Foster Wheeler is not aware of any significant environmental, social, or permitting issues that would prevent any future exploration and exploitation.



## 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

## 5.1 Accessibility

The Project is located approximately 300 km north-northeast of the city of Yellowknife, Northwest Territories (refer to Figure 4-1). Access to the area is from Yellowknife, which is the main staging area for all operations in this region. Access is commonly via fixed wing aircraft equipped with wheels, floats, or skis, depending on the season. From approximately mid-January to mid-April access is also provided via a winter ice road which connects Yellowknife with the Lupin Gold Mine and the Diavik and Ekati Diamond Mines. This road passes within about 10 km of the Project (Figure 4-2).

#### 5.2 Climate

The Project is located within the Canadian Arctic tundra, or barren lands. For the majority of the year, the area is covered with ice and snow. Summer begins in June, when melting commences and by October winter has returned. Temperatures range from highs of about 25°C during the brief summer months, to winter lows of -45°C which are often magnified by strong, constant winds. Daylight varies from nearly 24 hours in the summer to only a few hours per day during the winter.

#### 5.3 Local Resources and Infrastructure

Most necessary services can be obtained in Yellowknife. No services or permanent infrastructure are present in the area.

## 5.4 Physiography

The Project is approximately 90 km north of the tree-line in a muskeg dominated area and the main flora consist of flowering and berry producing plants, miniature arctic willows, grasses, moss and lichen. Caribou, wolves, foxes, wolverines, and grizzly bears are present in the region and arctic hare and ground squirrels are common. There is a wide variety of bird life and most lakes contain fish. Landforms, relief, and drainage are strongly influenced by several periods of glaciation. The terrain is generally low-lying and undulating with weak fluvial incision and is characterized by glacial features, resistant hills of granite and diabase outcrops, and numerous lakes. Low granitic hills with sporadic frost heave outcrop and subcrop have a maximum relief of 30 m above lake/stream level.



## 5.5 Sufficiency of Surface Rights

For the current and recommended exploration activities, potential processing plant sites, tailings and waste storage and disposal sites and other mining related issues are not relevant. However, sufficient water and appropriate facility sites appear to be present. Land use permits for the current and recommended work program are in hand.

#### 5.6 Comments on Section 5

While remote, the Project is in a similar situation to several producing diamond mines and exploration projects in the Northwest Territories. It has winter access by ice road and year-round access by air. Significant exploration and mining expertise exists in the region in spite of the harsh climate. The lack of local infrastructure is a hindrance, but with proper logistics, manageable. Surface rights are adequate to support continuing exploration of the Project.



## 6.0 HISTORY

## 6.1 Ownership History

The claims and leases comprising the Lac de Gras project, which includes the Peregrine and Thelon properties, were originally part of the WO claim block, staked by representatives of the DHK consortium in February of 1992 following the announcement, by BHPB and DiaMet, in the fall of 1991 of the diamond discovery at Point Lake. DHK shareholders were Dentonia, 33%), Horseshoe Gold, 33%) and Kettle River, 33%). The claims were then optioned to Kennecott, SouthernEra, and Aber, who exercised the option, leaving DHK with a carried interest. Kennecott was operator and completed exploration work on the property and discovered six kimberlites: DO-18, DO-27, DO-29N, DO-29S, DO-32 & AD-02 (Doyle, 1994; 1995; 1996; 1997). None of the kimberlites identified are within the Thelon property.

In 2000, BHPB signed an option to earn an interest in part of the Lac de Gras project area by flying a Falcon<sup>™</sup> gravity survey and drilling targets. A seventh kimberlite, WO-9, was discovered. Kennecott agreed to exchange their 40% working interest in the property for a 9.9% interest in DHK.

In 2002, ownership of the Lac de Gras Project was reorganised such that the partners and holdings were as follows:

- BHPB 38.475%
- DHK 28.8%
- Archon 16.45%
- Aber 9.75%
- SouthernEra 6.5%.

Kennecott retained a 1% GOR and Aber had a 0.3% GOR.

Between 2000 and 2004, some of the original claims were allowed to lapse and were acquired by other operators, including Thelon and Dunsmuir. In 2004, Peregrine acquired BHPB's interest in the remaining claims from the original WO block (which contained the OW 19, OW 20 and TT 1 to 3 claims and SAS 1 to 3 leases) and Dunsmuir entered into options to earn 100% interest in the MLT 1 to 6 and MLT 8 claims from a private prospecting syndicate and to earn 65% interest in the CRW 5, and Oki1 to 3 claims from Thelon. In 2006, Dunsmuir and Peregrine merged and those claims were re-united. Peregrine acquired its 65% interest in the Thelon leases.

Details on current ownership are listed in Section 4.



## 6.2 Historical Exploration

Historical exploration in the area (Coopersmith, 1994a; 1994b; 1995; 1998; 2005; Doyle, 1994; 1995; 1996; 1997; Doyle et al, 1994; Griffin, 1994; Kaminsky and Khachatryan-Blinova, 1999; Kivi, 1998; Pell, et al, 2005; Pell and Coopersmith, 2005; Scott-Smith, 1995) is summarized below.

#### 6.2.1 Geological Mapping

#### 1996

Coloured air photography surveys at 1:10,000 and 1:20,000 were flown over parts of the claims and used to construct surficial geology maps. This work highlighted the complicated nature of surficial deposits on the Project.

#### 6.2.2 Geochemical Sampling

#### 1992

A regional esker, stream, beach and till sampling program was completed in 1992. Figure 6-1 shows the locations of the pre-Peregrine samples collected in the area. Six samples were collected from the Project, several of which exhibited kimberlite indicator minerals.



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## Figure 6-1: Pre-Peregrine Sample Locations (from Armstrong and Chatman, 2001 and Armstrong et al, 2004)



#### 6.2.3 Geophysics

#### 1992

A helicopter-borne magnetic/electromagnetic/VLF-EM survey with 200 m line spacing and 30 m sensor height was conducted over the WO claim block by DIGHEM Surveys and Processing Inc. DO-27 and DO-18 were identified as possible kimberlites.

#### 2001

Falcon<sup>™</sup> airborne gravity gradiometry survey was flown. Figure 6-2 shows an example of the results of a Falcon<sup>™</sup> survey.

#### 2004

A DIGHEM magnetometer/EM survey was flown over the Oki1, Oki2, and Oki3 claims by Thelon.





## Figure 6-2: Example of 2001 Falcon<sup>™</sup> Results with Kimberlites Discovered (adapted from Eggleston et al., 2014)



## 6.3 Comments on Section 6

Pre-Peregrine till sampling was useful in locating areas where kimberlites were hidden. Geophysics was used to refine exploration targets as follow-up to till sampling. To date, no kimberlite bodies have been discovered in the Project area.


# 7.0 GEOLOGICAL SETTING AND MINERALIZATION

## 7.1 Regional Geology

#### 7.1.1 Regional Bedrock Geology

The Project lies within the Slave Structural Province of the Northwest Territories, northern Canada, which is an Archean segment of the North American Craton that covers 213,000 km<sup>2</sup>. The geology of the area comprises granites, gneisses, and supracrustal rocks. The Slave Province is a classical setting for diamondiferous kimberlites: a stable Archean craton with, as suggested by seismic tomography, a cool mantle root (Anderson et al, 1992).

Sialic basement remnants are well documented in the western part of the Slave Province and include some of the oldest known rocks in the world, the Acasta gneisses, which have been dated at 4.0 Ga (Bowring and Housch, 1995). Metasedimentary and subordinate metavolcanic rocks of the Yellowknife Supergroup, deposited mainly between 2.71 and 2.61 Ga, dominate the supracrustal sequences. Syn- to post-volcanic granitoid plutons cover approximately 65% of the Slave (Padgham and Fyson, 1992). Three main intrusive suites have been recognized: a synvolcanic suite consisting of 2.7 to 2.65 Ga trondhjemites and diorites; syndeformational (2.62 to 2.59 Ga) trondhjemites and hornblende-biotite monzodiorites through to granodiorites; and post-deformational (2.59 to 2.58 Ga) two-mica granites and biotite granites.

The Slave Province is subdivided isotopically into an eastern and a western domain. Lead isotopic compositions for galena from volcanogenic massive sulphides, synvolcanic veins, and breccias are characterized by high <sup>207</sup>Pb/<sup>204</sup>Pb ratios in the western part of the Slave Province and by low <sup>207</sup>Pb/<sup>204</sup>Pb ratios in the eastern Slave. The high <sup>207</sup>Pb/<sup>204</sup>Pb ratios west of the boundary are interpreted to reflect derivation of a significant component of lead from an ancient upper crustal source, whereas the low <sup>207</sup>Pb/<sup>204</sup>Pb ratios east of the boundary suggests derivation from a mantle or juvenile crustal source (Thorpe et al, 1992). Neodymium isotopic studies of supracrustal and granitoid rocks in the Slave Province support this interpretation.

The isotopic subdivision of the Slave Province is supported by the observation that Mesoarchean granitic and gneissic rocks with zircon U-Pb dates older than the Yellowknife Supergroup sequences have only been identified in the western part of the province (Bleeker and Davis, 1999) and that quartz arenites of circa 2.8 Ga and other supracrustal rocks older than the Yellowknife Supergroup occur only in the western domain. Additional support for a distinct difference between the eastern and western Slave Province comes from magnetotelluric studies in the Slave, which indicate,



among other things, that the lithosphere beneath the western Slave Province is laterally homogeneous, thicker and more resistive than lithosphere to the east (Jones and Ferguson, 1997; Jones et al, 1997). As well, the western Slave Province shows no conducting lower crust, which is in contrast to all other Archean cratons, such as the Superior, Kaapvaal and Siberian cratons (Jones and Ferguson, 1997).

Kusky (1989) first suggested that the eastern and western parts of the Slave Province represented separate cratons that were accreted during the Archean along an east dipping subduction zone. Kusky (1989) termed the older, western part of the Slave the Anton Terrane and the eastern Slave Province, the Contwoyto Terrane and Hackett River Arc. Current workers (e.g. Bleeker and Davis, 1999) support these general subdivisions but use the terms Central and Northwestern Slave Basement Complex for the western Slave Province instead of Anton Complex, and Eastern Slave Province for the Contwoyto and Hackett terranes. Recent lithoprobe studies support the accretion concept and suggest that, near surface, the main suture is west-dipping with the western Slave Province (Central Slave Basement Complex) thrust over the Eastern Slave Province. In the lower crust and upper mantle, east-dipping reflectors delineate a coeval subduction zone and an accretionary wedge with the Eastern Slave Province forming an indention into the western Slave Province (van der Velden and Cook, 2002).

Four swarms of Proterozoic diabase dykes cut the older units: the dominant northnorthwest trending (330°) Mackenzie swarm (1.27 Ga); the northerly trending (010°) Lac de Gras swarm (2.02 Ga); the east trending MacKay dykes (2.21 Ga); and the northeast trending Malley dykes (2.23 Ga) (LeCheminant and van Breeman, 1994).

During the Late Proterozoic, terrestrial sediments were deposited unconformably on top of the craton in the Kilohigok Basin in the northern part of the Slave Province. This basin is thought to have formed in response to late Proterozoic compression. From the Late Proterozoic until the Cretaceous, the craton appears to have been relatively quiescent.

During the Paleozoic the Slave Province was inundated by marine conditions and Paleozoic carbonates were deposited at least in the south-western Slave and the north central Slave Province. In the Cretaceous, the area was covered by an inland sea that deposited shales and other fine grained marine sediments into temperate waters (Doyle et al, 1999).

Kimberlites intrude granites, supracrustal rocks and, in some cases, diabase dykes (Pell, 1995, 1997) in both the eastern and western domains of the Slave Province. A number of differing ages of emplacement have been determined for the kimberlites in the Slave Craton. In the central part of the central Slave Craton around Lac de Gras kimberlites range from 45 to 75 Ma; however, the ages are not uniformly distributed



within this range and four episodic periods of emplacement can be identified at ~47 Ma, ~51-55 Ma, ~58-61 Ma and ~71-75 Ma. In the southern part of the Central Slave Craton, kimberlite ages of 522 to 542 Ma have been determined. In the northern part of the Central Slave Craton (and on Victoria Island), Jurassic (circa 173 Ma) and Permian (256 to 286 Ma) aged kimberlites have been found. In the Western Slave Craton, kimberlites of circa 440 Ma (ranging from 435 to 462 Ma) are present (Creaser, et al, 2003; Heaman et al, 2003).

To date, all economic and near economic kimberlites, including those at Ekati, Diavik, Gahcho Kué, and Jericho are located in the eastern Slave Province. The Snap Lake kimberlite is located near the boundary of the two terranes, but east of the Thorpe et al (1992) Pb line.

#### 7.1.2 Regional Surficial Geology

Subsequent to kimberlite emplacement, the area was covered by the Laurentide ice sheet during the Late Wisconsinan glaciation, which climaxed about 20,000 years before present (B.P.) and is believed to have retreated about 9,000 years ago. Local and regional ice flow patterns show considerable variation and in some areas there appear to have been at least three ice movement directions (Ward et al, 1996; Dredge et al, 1994).

Till is the most prominent surficial sediment type in the Slave Geological Province. At a regional scale, till can be divided into thin veneers, blanket deposits as thick as 10 m that include drumlins, and hummocky till as much as 30 m thick (Dredge et al, 1999). Dredge et al (1994) recognized only one till sheet formed by several glacial advances. Three dominant directions were identified, which from oldest to youngest are: southwest, west, and west to northwest.

Glaciofluvial deposits, eskers, and outwash plains, are also present in the Slave Province. In the Lac de Gras area, eskers are mainly west and northwest trending (Dredge et al, 1994; 1999).

## 7.2 Project Geology

There is one major rock type on the property (Figure 7-1), two-mica post-deformational granite. All of the kimberlites discovered near the Thelon property, including DO-27 and DO-18 intrude these granite bodies (Doyle et al, 1994). Medium and high-grade Archean metaturbidites occur both to the east and west of the project area (Stubley, 2005).



Within the Project area, glacial features including crescentic and lunate fractures, striae, and grooves indicate that the most recent ice direction was 290 to 295°. Locally, in the northern part of the area, an older ice direction of 230° was noted, and appeared to be crosscut by the younger 290° glaciation (Doyle et al., 1994). Glacial tills, with characteristic polygonal mudboils and frost heave granitic sub-crop dominate the area. A number of eskers are present in the area and can be traced for approximately 30 km until they join a major east-west trending trunk esker.

Most of the kimberlite bodies in the Lac de Gras Project area outside the Thelon project do not crop out, but are overlain by 5 to 50 m of till comprising angular granitic boulders, gravel, sand, silt, and clay, and many are under lakes.



Figure 7-1: Geology of the Lac de Gras Project (after Stubley, 2005)



#### 7.2.1 Mineralization

Mineralization near the Project consists of kimberlite intrusions containing diamonds. Nine kimberlite bodies were discovered in the area between 1993 and 2012; however, none were found on the Thelon leases. DO-27 and DO-18 are the most significantly mineralized and best explored.

#### 7.3 Comments on Section 7

The geology of the region is sufficiently well understood to support exploration in the Project.



# 8.0 DEPOSIT TYPES

Diamonds are the high-pressure form of carbon and are produced deep within the earth's mantle, more than 150 km beneath the surface. Diamonds occur in primary (hard rock) and secondary (alluvial and marine placer) deposits. Although diamonds can be found in rocks as varied as high-pressure metamorphic garnet-biotite gneisses and meteorites, the only economically significant primary source rocks known to date are kimberlites and olivine lamproites. Both of these rock types form as magmas deep in the mantle and rapidly ascend through the mantle and crust, physically incorporating diamonds from mantle source rocks along the way. It must be stressed that diamonds do not form in the kimberlite or lamproite; they are formed in the mantle and transported to a level within the earth's crust where we can access them by these magmas.

Kimberlites are volatile-rich, potassic ultrabasic rocks that commonly exhibit a distinctive inequigranular texture resulting from the presence of macrocrysts (and sometimes megacrysts and xenoliths) set in a fine grained matrix. Megacryst and macrocryst assemblages in kimberlites include anhedral crystals of olivine, magnesian ilmenite, pyrope garnet, phlogopite, Ti-poor chromite, diopside, and enstatite. Some of these phases may be xenocrystic in origin. Matrix minerals include microphenocrysts of olivine and one or more of: monticellite, perovskite, spinel, phlogopite, apatite, and primary carbonate and serpentine (Mitchell, 1986 and Pell, 1998a). Lamproites are peralkaline and typically ultrapotassic (6 to 8%  $K_2O$ ). They are characterized by the presence of one or more of the following primary phenocryst and/or groundmass constituents: forsteritic olivine; Ti-rich, Al-poor phlogopite and tetraferriphlogopite; Ferich leucite; Ti, K-richterite; diopside; and Fe-rich sanidine. Minor and accessory phases include priderite, apatite, wadeite, perovskite, spinel, ilmenite, armalcolite, shcherbakovite, and jeppeite. Glass and mantle derived xenocrysts of olivine, pyrope garnet and chromite may also be present (Mitchell and Bergman, 1991 and Pell, 1998b).

Primary economic diamond deposits are more commonly associated with kimberlites than lamproites. From measurements of kimberlite distribution, Janse (1984) observed that kimberlites occur in clusters of as many as 50 intrusions, each cluster no more than 40 km across. The distance between clusters is in the order of one hundred to several hundred kilometres. Kennedy (1964) first pointed out that diamondiferous kimberlites are restricted to cratons. Lamproites more commonly occur off craton, generally in Proterozoic mobile belts.

The idealized model for a single diamond-bearing volcanic system (Figure 8-1) includes a feeder magmatic dyke intrusion, diatreme-like breccia, an overlying crater with pyroclastic infill, epiclastic reworked sediments and a surrounding ring of



pyroclastic ejecta. The size of the crater and the depth, shape and complexity of the crater may vary considerably, and multiple intrusions typically occur. Diamond-bearing magmas are believed to rise along zones of structural weakness.



Figure 8-1: Idealized model of a kimberlite pipe (after Mitchell, 1986)

Model of an idealized kimberlite magmatic system illustrating the relationships between crater, diatreme and hypabyssal facies rocks. The diatreme root zone is composed primarily of hypabyssal rocks. (After Mitchell, 1986)

## 8.1 Comments on Section 8

The proposed deposit model accurately describes the kimberlites found in the area near the Thelon leases.



# 9.0 EXPLORATION

Current exploration in the area of the Lac de Gras Project that includes the Thelon leases by Peregrine and Thelon began in 2004 and is summarized below (Table 9-1). Additional information can be found in Coopersmith, 2005, Coopersmith and Pell (2007), Eggleston and Brisebois, 2008, Pell (2004), Pell and Coopersmith (2006), Pell and Tam (2006), Pell et al (2006, 2007, and 2008), and Eggleston et al. (2014).

 Table 9-1:
 Summary of Peregrine Exploration

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
# of till samples	3	88	108	133	0	0	0	0	0	0
# of till samples w/KIMs	0	34	32	43	0	0	0	0	0	0
Airborne Mag/EM (km <sup>2</sup> )	10.5	0	125	0	0	0	0	0	0	0
Airborne Gravity (km <sup>2</sup> )	0	0	52	0	0	0	0	0	0	0
Ground Magnetics (line-km)	0	0	204.9	110.4	554.5	0	0	93.7	118.1	0
Ground HLEM (line-km)	0	0	18.4	35.2	2.4	0	0	0	0	0
Ground OHM_Mapper (line-km)	0	0	0	0	0	0	0	0	27.4	0

## 9.1 Grids and Surveys

All surveying was done in UTM NAD 83, Zone 12, coordinates.

## 9.2 Till Sampling

Recent till sampling was designed to discover and define indicator mineral trains in the Project area and confirm work by previous operators. Approximately 20 samples were collected on the Thelon leases (Figure 9-1).

Samples collected by Peregrine typically consisted of 15-20 kg of glacial till collected using D-handled spades and placed into 18 x 24 inch woven polypropylene bags (rice bags) lined with 18 x 24 plastic sample bags. The outer bags were labelled on both sides with their respective sample numbers; a metal tag with the sample number placed inside and the opening was secured using two plastic non-removable cable ties. Samples were collected in the helicopter and ferried to a central cache at camp for transport to Yellowknife. When samples were cached, bags were checked for damage and wear. Samples were placed in order and a sample list was compiled for shipping. In Yellowknife samples were placed in shipping containers and shipped by truck to Vancouver Indicator Processors in Burnaby, B.C.



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# Figure 9-1: Peregrine Till Sample Locations and Results (adapted from Eggleston et al., 2014)

The laboratory process is briefly described below and outlined in Figure 9-2. Samples received at Vancouver Indicator Processors (VIP) are weighed upon receipt and then



deslimed and disaggregated in a concrete mixer, then wet screened using 2.0 mm, 0.86 and 0.25 mm screens. The +2.00 mm and -0.25 mm fractions are weighed and discarded.

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 coarser screen cascading onto the finer screen. The -0.86+0.25 mm fraction is dried and a magnetic concentrate made from it. Material coarser than 0.86 mm is stored in case processing of the -2.00+0.86 fraction is needed. The magnet used is a permanent type magnetic separator operating at about 2.1 Tesla and manufactured by Outokumpu Technology Inc. The weak and strong magnetic (ferromagnetic and paramagnetic) fractions are combined and the heavy minerals further concentrated by heavy liquids.

Heavy liquid processing, typically on as much as 1 kg of material, was performed at the Global Discovery Laboratories of Teck Cominco Ltd., using a two-stage process in which the heavy sink from tetrabromoethane (2.96 SG) is further separated in methylene iodide to produce a concentrate heavier than SG 3.32. Heavy concentrates were sent to KIM Dynamics of North Vancouver, BC, for grain analysis.

Peregrine till sample sampling programs were as follows:

#### 2004-2005

Ninety-one till samples were collected, three of which were on the Thelon leases.

#### 2006

In 2006, 108 till samples were collected, one of which was on the Thelon leases.

#### 2007

In 2007, 133 till samples were collected, 18 of which were on the Thelon leases.

#### Comment

Figure 9-1 shows the results of this work.

Previous sampling was confirmed and no new indicator trains were found in the Project area.





Figure 9-2: Till Sample Processing Flow Chart (Eggleston et al., 2014)



#### 9.3 Geophysics

Geophysical surveys that covered parts of the Thelon leases included:

#### 1992

A helicopter-borne magnetic/electromagnetic/VLF-EM survey with 200 m line spacing and 30 m sensor height was conducted over the area by DIGHEM Surveys and Processing Inc. The DO-27 and DO-18, located outside the Thelon leases, were identified as possible kimberlites.

#### 2001

Falcon<sup>M</sup> airborne gravity gradiometry survey was flown over the region. Figure 6-2 shows an example of the results of a Falcon<sup>M</sup> survey.

#### 2004

A DIGHEM<sup>™</sup> magnetometer/EM survey was flown over the Oki1, Oki2, and Oki3 claims (now mineral leases NT-5269, NT-5263, and NT-5264) by Thelon.

#### 2006

Peregrine Diamonds completed a ground geophysical survey (grid DW-417) consisting of 33.2 km of magnetometer and 2.1 km of HLEM lines over parts of Claims Oki2 and Oki3 (Mineral Leases 5264 and 5263). Grid spacing was 900 x 2000 m with 25 m reading spacing along the lines.

#### 2007

Peregrine Diamonds completed grid LDE07-011which covered part of Mineral Lease 5263. That grid consisted of 19 km of magnetic and 6.3 km of HLEM surveys. Grid spacing was 700 x 700 m with 25 m reading spacing along the lines.

## 9.4 Exploration Potential

No kimberlites have yet been discovered on the project area. Several till samples containing olivine and chrome diopside suggests that kimberlite may be discovered in the area of lease NT-5263. Sparse sampling on mineral lease NT-5269 has not eliminated that lease from consideration. Geophysical results have, so far, been inconclusive on the Thelon leases. Amec Foster Wheeler considers it likely that additional kimberlites will be discovered in the area; however, potential for economic extraction of diamonds is a matter of conjecture at this point and may not be realized.



#### 9.5 Comments on Section 9

Exploration to date has been consistent with industry-standard practices but have not discovered kimberlite on the Thelon leases.



#### 10.0 DRILLING

#### 10.1 Summary

Drilling is summarized, by year, in this section. Two core holes were drilled in the Project area. Figure 10-1 shows the location of the exploration drill holes on the Project. Table 10-1 summarizes drill hole locations.

#### 1993

In the 1993 exploration season, BH-1 (72 m) was completed in the Project area (Doyle, 1994). No kimberlite was discovered.

#### 1994

One exploration target was drilled in 1994 (BH-2, 167 m); however, no kimberlite was found (Doyle, 1995).

Table 10-1:	Drill Hole Locations on the Thelon Project (coordinates in UTM NAD83 Zone
	12)

Hole_ID	Year	Easting (m)	Northing (m)	Elevatio n (m)	Azimut h	Dip	LENGT H (m)	Туре	Kimberlit e
BH-1	1993	559000	7131500	NA	0	-90	72.20	Core	None
BH-2	1994	558880	7131500	NA	65	-50	167.00	Core	None





# Figure 10-1: Exploration Drilling on the Thelon Property by Year (adapted from Eggleston et al., 2014)



#### 10.2 Drill Methods

#### 10.2.1 Core Drilling

Core drilling in 1993 and 1994 was accomplished using wireline tools. Holes were cased through overburden into bedrock. Doyle (1994) reported that the 1993 drilling was performed by Midwest Drilling of Winnipeg using both a Boyles 25A and a Boyles 35A machine. In 1994, Midwest Drilling was on site with a Boyles 17A machine (Doyle, 1995). N-sized tools (47.6 mm) were used for most of the drilling, but some logs indicate that holes were collared and cased to bedrock with H-sized tools (63.5 mm) and continued onward with N-sized tools. Amec Foster Wheeler did not observe drilling during this time period but the record indicates that drilling was performed to industry standards at the time.

#### 10.3 Geological Logging

#### 10.3.1 Core Logging

Core handling, logging, and sampling procedures are summarized in Doyle (1994; 1995). These procedures are summarized as follows.

The drill core was sealed in core boxes at the drill site and flown to the Lac de Gras camp (Doyle, 1994; 1995). Once the core arrive from the drill site, it was laid out and logged. Kimberlite was split parallel to the core axis and half was placed in a plastic pail for shipping. The remainder was retained for reference. The reference core was stored on pallets near the airstrip at the Lac de Gras winter road camp.

The core was routinely logged for lithology, alteration, structure, and hardness. Magnetic susceptibility was logged in some holes.

#### 10.4 Recovery

Core recovery for the two holes drilled on the Thelon lease was not reported.

#### 10.5 Collar Surveys

All surveying in 1993-1994 was based on a GPS base station established near the exploration camp (High-Sense, 1994). That base station was located by recording several hours of GPS data and averaging the results. This may have introduced a small absolute error in the 1993-1994 location data, but the collar locations should be accurately located relative to the base station which was permanently monumented.



#### 10.6 Downhole Surveys

No downhole survey methodology is reported (Doyle, 1995). The two holes drilled in the Project area are shallow enough to not require downhole surveys.

#### 10.7 Comments on Section 10

Amec Foster Wheeler reviewed drilling procedures (Doyle, 1994; 1995) but did not visit the drills during operation. Amec Foster Wheeler is of the opinion that the drill equipment and procedures were appropriate for the intended tasks and that drilling was performed to industry standards at the time.



# 11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

#### 11.1 Sampling Methods

#### 11.1.1 Core Drill Sampling

No core from the two holes drilled in the area was sampled.

#### 11.1.2 Till Sampling

Till sampling and sample is described in Section 9.

#### 11.2 Databases

Data are maintained as hard copies of the data (Doyle, 1994; 1995; Pell and Tam, 2006). No database, per se, exists for the Project.

#### 11.3 Sample Security

Sample security of potentially diamond-bearing samples is a significant concern and very strict security and chain-of-custody procedures were in place during core drilling operations. Because no kimberlite was discovered, sample security is not considered to be a significant issue for the two cores drilled.

#### 11.4 Comments on Section 11

Sampling, sample preparation, and sample processing are consistent with industry leading practices.

Sample security measures were consistent with industry leading practices.



## 12.0 DATA VERIFICATION

#### 12.1 Core Drilling

Amec Foster Wheeler did not review the core from the two holes drilled on the Thelon leases, but did review the core logs for those holes.

#### 12.2 Till Sampling

Amec Foster Wheeler reviewed till sampling and analytical procedures and reviewed hard copies of the results provided to Peregrine, operator of the project.

#### 12.3 Database

Because no database exists for the Project, Amec Foster Wheeler reviewed the original documents containing the till sample results.

#### 12.4 Comments on Section 12

Amec Foster Wheeler verified procedures and processes used to collect data. Amec Foster Wheeler considers the processes and procedures to be adequately verified and sufficient to support continuing exploration.



# 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING



# 14.0 MINERAL RESOURCE ESTIMATES

No mineral resources have been identified at this time.



## 15.0 MINERAL RESERVE ESTIMATES

No mineral reserves have been identified at this time.



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# 16.0 MINING METHODS



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# 17.0 RECOVERY METHODS



# 18.0 PROJECT INFRASTRUCTURE



# **19.0 MARKET STUDIES AND CONTRACTS**



# 20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT



# 21.0 CAPITAL AND OPERATING COSTS



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# 22.0 ECONOMIC ANALYSIS



# 23.0 ADJACENT PROPERTIES

No information or data were relied upon from adjacent properties for this report, nor is any relationship with any mineralization on adjacent properties implied.

The nearby DO-27 kimberlite is owned by Peregrine Diamonds Ltd., the JV partner, but DO-27 is not part of this JV. Data for DO-27 is publically available and summarized in Eggleston and Brisebois (2008) and Eggleston et al. (2014).



# 24.0 OTHER RELEVANT DATA AND INFORMATION



## 25.0 INTERPRETATION AND CONCLUSIONS

#### 25.1 Conclusions

#### 25.1.1 **Property Description and Location**

The Project is located approximately 300 kilometres north-northeast of the city of Yellowknife in the Northwest Territories, Canada to the southeast of the Diavik diamond mine, centred at approximately 64° 20' N latitude and 109° 50' W longitude.

The Thelon Property consists of three leases: NT-5269, NT-5263, and NT-5264. The combined lease area totals 1,632.91 ha (4,035.00 acres).

As at the most recent Thelon Property cash call notice of 10 June, 2014, the ownership percentages were:

- Peregrine Diamonds Ltd. = 70.54%
- Thelon Capital Ltd. 29.46%.

Ownership of the leases is 65% in the name of Peregrine, and 35% in Thelon Capital Ltd.'s name which is different than the JV participation percentages.

Theon Capital Ltd. transferred the rights to the three leases and participation in the Peregrine JV to Theon Diamonds Ltd. when Theon Diamonds Ltd. on pursuant to an arrangement agreement and statutory plan of arrangement among Theon Capital Ltd., Theon Diamonds Ltd. and Theon Diamond Company Limited. The statutory plan of arrangement was completed on 14 January 2015. This Report was prepared by Amec Foster Wheeler in support of a stock exchange listing in Canada for Theon Diamonds Ltd.

Peregrine is the operator of all work programs pertaining to the Project. Joint venture partners are required to contribute to future programs or their respective interests will be subject to dilution according to the joint venture agreement.

The Thelon leases have the following royalty payable in addition to the Northwest Territories provincial royalty requirements:

• Claim staker Mackenzie Jaims has 4% gross overriding royalty (GOR) on all diamonds and 4% net smelter return (NSR) royalty on all metals.

Based on review of materials provided by Thelon, Amec Foster Wheeler considers the mineral tenure to be well established and supported by the information provided. Amec Foster Wheeler did not independently confirm tenure and there is a possibility that tenure has flaws that could invalidate any or all of the claims and leases.



#### 25.1.2 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

Access to the area is from Yellowknife, which is the main staging area for all operations in this region. Most necessary services can be obtained in Yellowknife. Access is commonly via fixed wing aircraft equipped with wheels, floats, or skis, depending on the season. From approximately mid-January to mid-April access is provided via a winter ice road which connects Yellowknife with the Lupin Gold Mine and the Diavik and Ekati Diamond Mines. This road passes within 10 km of the Project.

For the current and recommended exploration activities, potential processing plant sites, tailings and waste storage and disposal sites and other mining related issues are not relevant. However, sufficient water and appropriate facility sites appear to be present. Water permits for the current and recommended program are in hand.

#### 25.1.3 Geological Setting

The Project lies within the Slave Structural Province of the Northwest Territories, northern Canada, which is an Archean segment of the North American Craton.

Two-mica post-deformational granite is the only major rock type on the property. Medium- and high-grade Archean metaturbidites occur both east and west of the property. All of the kimberlites discovered to date in the vicinity of the Project, including DO-27 and DO-18, which lies 800 m north of DO-27, intrude the granite. The known kimberlites do not crop out but are overlain by 5-50 m of till consisting of angular granitic boulders, gravel, sand, silt and clay and most are under lakes.

No kimberlites have yet been discovered on the Thelon leases.

Amec Foster Wheeler is of the opinion that the geology of the Project is adequately known to support continuing exploration.

#### 25.1.4 Deposit Type

Known deposits in the area are diamondiferous kimberlite pipes similar to others found in the Canadian Arctic, South Africa, and Russia.

#### 25.1.5 Exploration

Exploration on the Project consists of till sampling, airborne and ground geophysical surveys and core drilling.

Till sampling and various geophysical methods were used to target exploration.



Exploration methods were appropriate for the deposit type.

#### 25.2 Drilling

Drilling on the Thelon leases consists of two core holes (239 m).

#### 25.2.1 Sampling Method and Approach

No core samples were collected from the Thelon leases.

Till samples were collected and analyzed using industry standard procedures.

#### 25.2.2 Sample Preparation, Analysis, and Security

Till samples were analyzed used industry standard procedures.

Security measures that were in place were adequate to ensure sample integrity.

#### 25.2.3 Data Verification

Amec Foster Wheeler reviewed the original documents containing till sample results.

#### 25.2.4 Adjacent Properties

No information or data was relied upon, from adjacent properties for this report, nor is any relationship with any mineralization on adjacent properties implied.

The diamondiferous kimberlite DO-27 is within about 1 km of the Project. DO-27 has been extensively explored. An Indicated Mineral Resource and a target for additional exploration were estimated for DO-27 by Amec Foster Wheeler in 2008.

#### 25.3 Conclusions

The Project is located near known diamondiferous kimberlites. Exploration is viewed as incomplete by Amec Foster Wheeler because of the sparse till samples and lack of geophysical coverage for the entire property. Five of the approximately 25 total till samples contained kimberlite indicator minerals suggesting that there is potential to discover additional diamondiferous kimberlites on the Thelon leases. Amec Foster Wheeler considers additional exploration on these properties to be warranted.



## 26.0 RECOMMENDATIONS

Amec Foster Wheeler recommends that Thelon:

- Re-evaluate exploration data to identify new targets, conduct additional geophysical surveys to identify anomalies, and if warranted, drill exploration holes to test for the presence of kimberlite pipes: \$550,000
- Ensure that mining leases are kept in good standing: \$5,000 per year.



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## 27.2 Abbreviations

cpht	carats per hundred tonnes
cpt	carats per metric tonne
spt	stones per metric tonne
spcm	stones per cubic metre
tonne	metric ton

