Karelian Diamond Resources plc (KDR.L)* 3 Aug 2021

The Future is Pink!

In this initiation research note on Karelian Diamond Resources (KDR) we analyse each of the Group's diamond prospective projects and in particular focus on the potential of pink diamond production, which could significantly boost the economics of a future mining operation at Lahtojoki in Finland, which already enjoys the benefits of an excellent location and infrastructure.

- Lahtojoki represents the Group's flagship project, which includes a 1.6-hectare kimberlite pipe, along with the potential to discover new diamondiferous sources to the south of the deposit.
- A preliminary economic assessment (PEA) at Lahtojoki 2017, based on a non-JORC resource of 2.25m carats, estimated the deposits contained value at $225m, with an NPV8 of $39m, enough to support a 9-year mine life. Capital costs come to a modest $22m.
- Subsequent exploration and data analysis at Lahtojoki following the 2017 PEA has established the presence of pink diamonds, the extraction of which could substantially increase profitability for any future mining operation, given that pink diamonds command prices up to 20 times that of colourless diamonds.
- Until its closure in late 2020, the Rio Tinto-operated Argyle Mine in Australia accounted for 90% of global pink diamonds. Although pink diamonds made up less than 5% of production volumes, revenues from pink diamonds accounted for a staggering 50% of the mine's revenue.
- Miri Chen, the CEO of the Fancy Color Research Foundation, said *"Pink diamonds from the Argyle mine are already traded at a very high price per carat and their value will probably rise significantly over the next decade." – (Source: Daily Telegraph – 1 Jan 2020).*
- KDR is also focused on what could be a new kimberlite province in the Kuhmo region, where the Riihivaara kimberlite body has been found, along with 'Anomaly 5', which is prospective for green diamonds.
- Following the recent completion of a geophysics survey on 'Anomaly 5', and depending on the analysis of the results, 3 to 4 holes are expected to be drilled soon on the identified kimberlites.

Valuation & Recommendation

To calculate a valuation and price target for KDR, we have amended the 2017 PEA numbers to include the highly lucrative impact of pink diamond production revenues. Under our base-case model, we have assumed 3% of recovered diamonds at Lahtojoki will be pink, with a pink diamond price 10x that of colourless equivalents. Our estimated un-risked NPV8 comes to $69m, representing a 77% increase on the 2017 PEA NPV8 of $39m. At the risked level, to factor in exploration, finance and discovery risks, our NPV8 computes to $33.1m (£24.0m) and a price per share to KDR of 35p, representing a substantial 11 times uplift from the current market price of 3.15p.

Our valuation represents only the current economic potential of Lahtojoki, and not any additional exploration upside from the discovery of new diamondiferous kimberlites that could be present in the project area. For prudence purposes, we have not at this stage incorporated any exploration and discovery uplift from the Kuhmo project area, including the potential for green diamond mining.

The market has not to date understood Karelian's potential to benefit from the exploitation and mining of pink diamonds and the substantial economic uplift attainable, which thus represents today's buying opportunity. We therefore recommend **Karelian Diamond Resources** as a '**Buy'** with a 12-month price target of 35p.

BUY

TP 35p

MARKET DATA:

Name:	**Karelian Diamond Resources plc**
Ticker:	**KDR.L**
Price:	**3.15p**
SII:	**68.5m**
Market Cap:	**£2.2m**
Sector:	**Resources**
Main Geo:	**Finland**
Listing:	**AIM – London**
Domicile:	**Ireland**

FINANCIALS:

Cash:	£400K (FEL est. 31/07/21)
Last Placing:	May '21 - £600K @ 4p
Last Results:	26/02/21 – Half Year results to 30 Nov '20
Last AGM	23 Dec '20

ACTIVITIES:

Exploration & Development of diamond projects in Finland & Northern Ireland.

KEY PROJECTS / ASSETS:

Lahtojoki
Seitaperä
Riihivaara
Kuhmo
Brookeborough

DIRECTORS & MANAGEMENT:

Prof. Richard Conroy (Chairman)
Maureen T.A Jones (MD)
Seamus P. FitzPatrick (Non-ex)
Dr.Sorća C. Conroy (Non-ex)
Brendan McMorrow (Non-ex)
Howard Bird (Non-ex)

SHAREHOLDINGS: (>3%)

Prof. Richard Conroy	15.0%
Kevin Taylor	8.0%
John Story	7.6%
Martello Holdings Limited	5.7%
Fredrik Björnberg	4.4%
Steve Coomber	3.4%

First Equity Limited acts as Joint Broker to Karelian Diamond Resources Plc.

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OVERVIEW & INTRODUCTION

Karelian Diamond Resources plc (KDR) listed on the London AIM in September 2005 after being spun-out from its holding company Conroy Diamonds and Gold plc (now Conroy Gold and Natural Resources plc).

Karelian is focused on exploration and development of diamond prospective projects in Finland (along with one project in Northern Ireland) and is headed up by two executive directors, Chairman. Professor Richard Conroy and Managing Director Maureen Jones.

To finance exploration and development, Karelian has completed several secondary placings, the most recent of which was announced in late May 2021, with £600K gross funds raised in a Placing at 4p. An existing debt of £80K owed to Richard Conroy and Maureen Jones was converted into equity as part of the financing. A total of 16.25m Warrants were issued to Placing investor subscribers (13m), debt conversion holders (2m) and Broker First Equity Limited (1.25m), at an exercise price of 8p per share, which could raise additional funds of £1.3m if they are all exercised within their 30-months period life.

KARELIAN CRATON

The Group's Finnish projects all lie within the Karelian Craton (or Baltic Shield) that overlays north and eastern Finland, along with the north-west tip of Russia, as illustrated in Fig 1:

On the Russian side of the Craton, two world class diamond deposits, Lomonosov and the Grib Pipe have been discovered.

Karelian's management believe that given the similar geology on the Finnish side of the craton to that in the Russian area, a world class diamond discovery could be made in Finland.

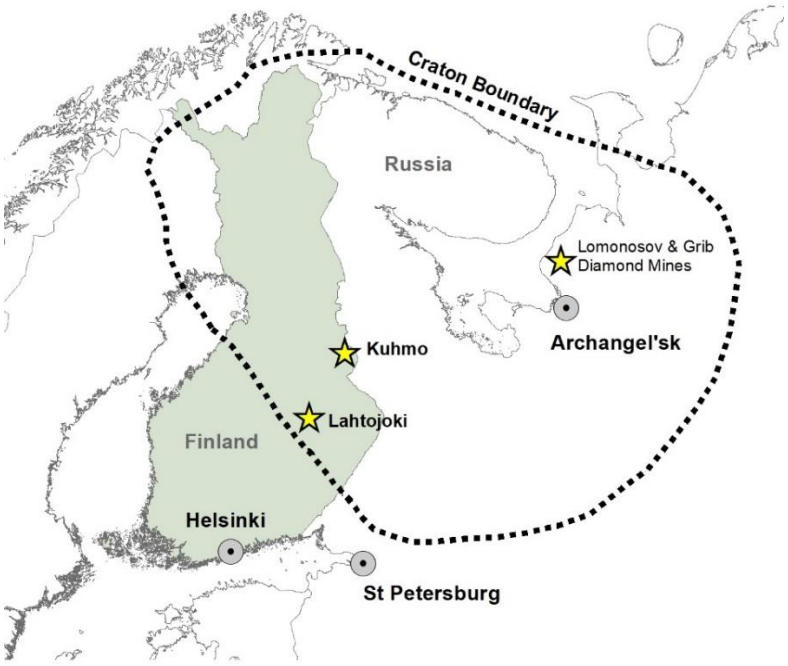

Fig 1: The Karelian Craton overlaying Finland and north-west Russia (Source: KDR).

INFRASTRUCTURE AND ACCESS

The infrastructure in Finland is excellent. There is direct access by road to the Lahtojoki diamond deposit and the discoveries by the Company in the Kuhmo area are also readily accessible. This situation in Finland is in great contrast with the relatively few other diamond deposits at an advanced stage of development such as, for example, the Naujaat project (North Arrow Minerals Inc.–NAR.V) in Northern Canada where other than by helicopter, access can be limited to ice-free shipping lasting for only about three months in the year.

Other advantages of Finland are the ready availability of power and a skilled work force, together with advanced technical and logistical services.

PINK DIAMONDS

Overview

Pink diamonds are highly sought after and extremely scarce, typically commanding a price up to 20 times that of normal colourless diamonds. The price depends on several factors in addition to the carat size, such as the colour intensity, cut, clarity and shape of the gemstone.

Pink diamonds come in a variety of shades, and like other coloured diamonds, are graded depending on colour intensity from 'Faint', 'Very Light', 'Fancy Light' at the lower end of the scale to the more highly valued shades of 'Fancy Vivid' and 'Fancy Deep'.

Argyle Mine Closed in 2020

Most of the world's supply has come from the Argyle Mine in Western Australia, which Rio Tinto operated until its closure in late 2020 and accounted for around 90% of global production. Pink diamonds are also mined in India, South Africa, Canada, Russia and Brazil. It is believed that once Rio's last inventory of recently mined pink diamonds from the closed mine are sold, that pink diamond prices could substantially increase and attain even higher multiple prices to colourless equivalents.

Production from pink diamonds at Argyle accounted for less than 5% of production but generated a staggering 50% of its revenue. For around 35 years during Argyle's operation, an annual tender took place, in which 50 to 60 small stones were typically sold to approved bidders in a sealed bidding process.

Auction Prices and Market Outlook for Pink Diamonds

Large pink diamonds have recently attained some astonishingly high prices at auction. A 15.8 carat purple-pink diamond (named 'Sakura') sold for HK$226m (US$29.3m) through Christies in Hong Kong in May 2021, representing a value of US$1.8m per carat. This diamond was cut from a rough 27.8 carat diamond discovered in Yakutia, northeast Russia in 2017. In November 2020, a 14.8 carat purple-pink diamond sold for US$27m at auction in Geneva by Sotheby's (US$1.82m per carat).

The record price in terms of overall value obtained at auction for a pink coloured diamond is the 59.6 carat 'Pink Star', for US$83.2m in 2013 at Sotheby's, Geneva. Although the buyer defaulted on payments, the diamond was sold again by Sotheby's in Hong Kong for US$71.2m in 2017 (US$1.19m per carat). The 'Pink Star' was originally mined by De Beers in South Africa in 1999 from a 132.5 carat rough diamond.

Commenting on coloured diamonds, and in particular pink diamonds, Miri Chen, the CEO of the Fancy Color Research Foundation, said *"Fancy colour diamonds are a good outlet for long-term wealth preservation, and when a whole colour subcategory is about to disappear from the face of the earth, an investment prospect is even more relevant,"* ... *"Pink diamonds from the Argyle mine already trade at a very high price per carat and their value will probably rise significantly over the next decade. Their disappearance will be greatly felt in the jewellery landscape."* (Daily Telegraph 1st Jan 2020).

(Sources: Cape Town Diamond Museum, Christies and Sotheby's websites, "What to Invest in for 2020: from £2.5m hyper-cars to diving watches and pink diamonds" – Daily Telegraph – 1st Jan 2020).

LAHTOJOKI PROJECT

The Lahtojoki project comprises a Mining concession covering 71 hectares, which includes a kimberlite pipe over a surface area of 1.6 hectares, along with two exploration permits as outlined on Fig 2. A full mining permit to enable development of the deposit is currently being processed and awaiting issue.

The project was acquired in April 2016 for a cash consideration of €150K, along with the payment of a royalty to A & G Mining of 1% on diamond production up to 2.5m carats and 2% above 2.5m carats.

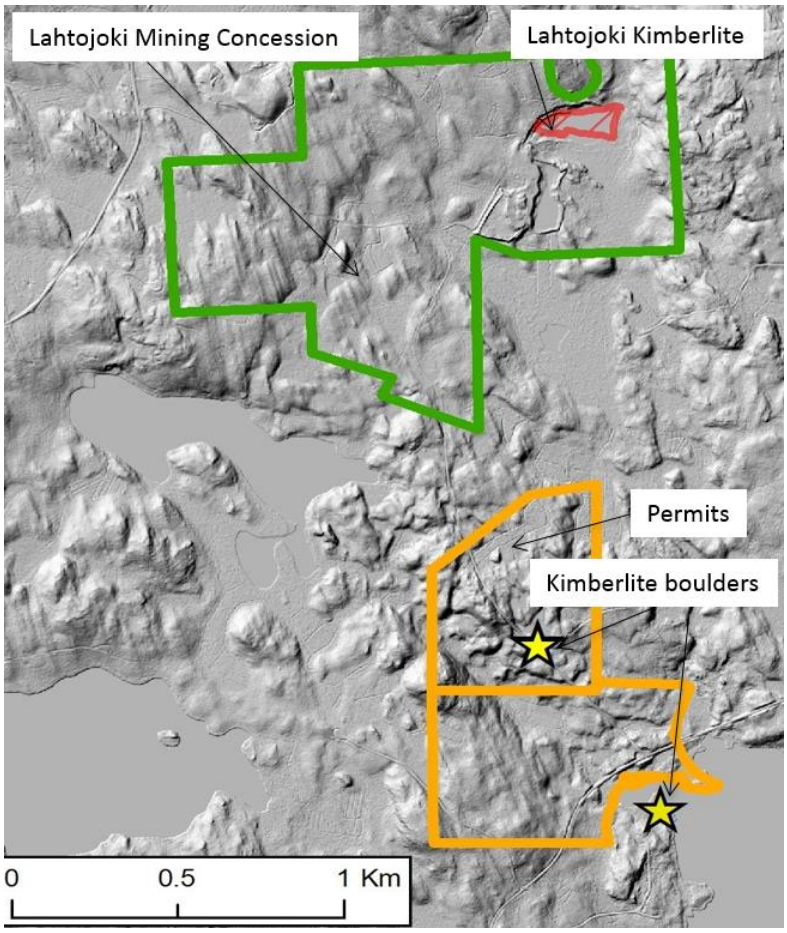

Fig 2: Lahtojoki Licence areas (Source: KDR).

Previous Bulk Samples

Exploration over the project has been conducted by several prospecting companies. Work undertaken by Ashton Mining (1989 to 1993) and European Diamonds (2004/05) advanced the furthest, involving both drilling and bulk sampling.

Ashton Mining undertook a 512-metre large diameter drilling programme in 1990 and obtained a mini-bulk sample of 23.3 tonnes. An average +0.85mm grade of 28 carats per hundred tons (cpht) was recorded.

In 1993 Ashton Mining excavated a 1,500-tonne bulk sample from one location on the western part of the kimberlite. Some of the sample was treated at a processing facility, returning an average +0.85mm grade of 5.7 cpht from 1,000 tonnes. The sample was collected within a highly diluted zone of kimberlitic breccias and is un-representative of the Lahtojoki Deposit.

European Diamonds did a 2,000-tonne bulk sample in two areas close to the Ashton bulk sample, of which only 500 tonnes of material were processed. The precise results are unknown and the processing is believed to have been sub-optimal.

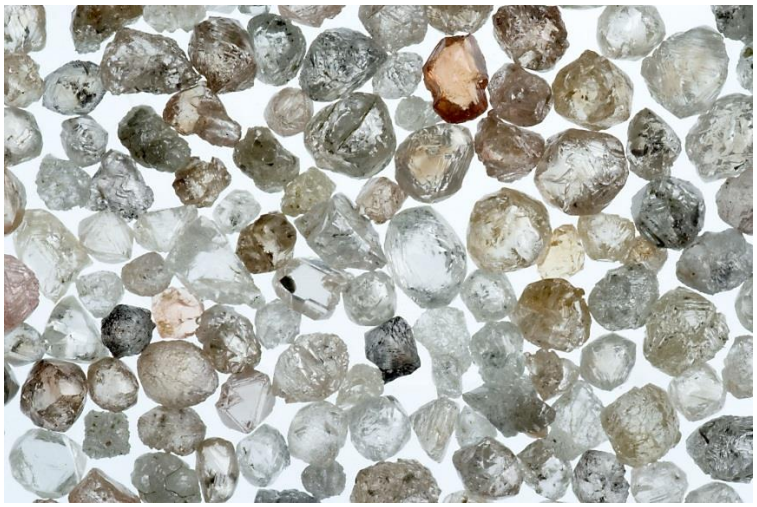

Fig 3 & 4: Lahtojoki diamonds (Source: KDR).

Expansion of Prospective Area

Kimberlite boulders have been discovered to the south of the Lahtojoki diamond deposit. Subsequent studies have shown that the boulders are not derived from the Lahtojoki diamondiferous kimberlite pipe. Given that kimberlites occur in clusters, the findings could point to the potential of an undiscovered diamondiferous source in the area to the south of the Lahtojoki deposit. Exploration permits have been applied over this area, as detailed in the 5 March 2021 RNS.

Pink Diamonds Exploration

The management are particularly excited about the presence of pink diamonds and coloured stones at Lahtojoki and their economic potential to substantially increase the profitability of any future mining operation.

Analysis and review of data available for inspection by the Company, along with photographs of diamonds from the deposit, would suggest the population of pink diamonds at Lahtojoki may be at least 3% and of 'high quality'.

Fig 5: Pink Diamonds at Lahtojoki (Source: KDR).

2017 Economic Analysis

A **Preliminary Economic Assessmen**t (PEA) on the 1.6-hectare - Lahtojoki diamondiferous kimberlite pipe was published in August 2017, from work undertaken by consultant Michael Brennan based upon the extraction of clear (colourless) diamonds.

From analysis of microdiamond and mini-bulk sample data, the study estimated a +1mm recoverable grade of 39.7 carats per hundred tonnes. A non-JORC resource of 2.25m carats was estimated, based on drilling data down to 160 metres below the surface, with 5.6m tonnes. Assuming a value of US$100 per carat, a contained value of US$225m was computed.

Mine Life – 9 Years

Recoverable Carats – 2.11m

NPV - $39m (8% discount rate)

IRR – 55%

Payback – 2 years

Capital Costs – US$22m ($14m plant costs, $3m infrastructure & $5m sustaining capital)

KUHMO PROJECT AREA

Karelian's secondary focus after Lahtojoki is exploration in the Kuhmo region of Eastern Finland which lies next to the border with Russia. The management believe that from results achieved to date, the Kuhmo region could be a new kimberlite province in the making.

Four exploration permits are held at Kuhmo, covering a total area of 8.15 sq. km, along with two reservation licences over a larger area of 2,930 sq. km.

At **Riihivaara** in 2015, Karelian discovered a new kimberlite body from till sampling and ground geophysics. Based on indicator mineral analysis, the kimberlite is likely to be diamondiferous. It has been identified as being at least 350 metres in length, with the kimberlite open along strike and at depth.

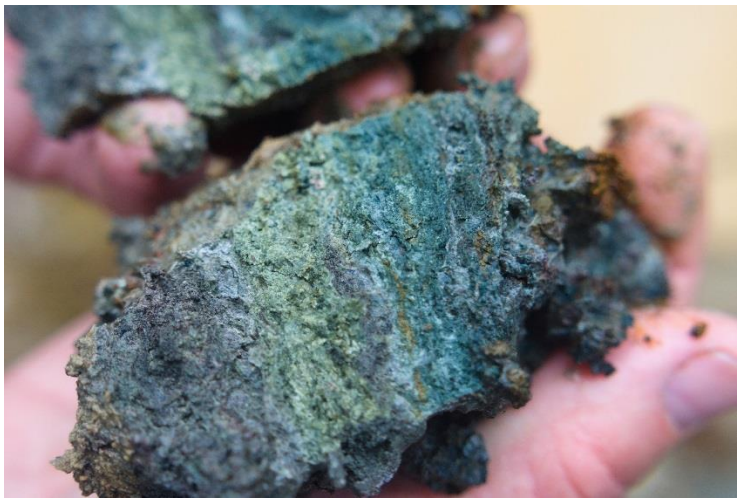

Fig 6: Riihivaara kimberlite (Source: KDR).

Several kimberlite anomalies have been found by Karelian in the Kuhmo area, one of which is **`Anomaly 5'**, consisting of an interesting green diamond found in 2017 from till sample material.

The discovery of this very rare green diamond, along with high concentrations of kimberlitic indicator minerals in the area, strongly suggest that a diamondiferous kimberlite is present.

Fig 7: Kuhmo green diamond (Source: KDR).

Karelian recently secured additional exploration acreage adjacent to this anomaly, in the hope that other undiscovered kimberlites may lie nearby, given that kimberlites tend to occur in clusters.

An unmanned (drone) geophysics survey was completed in June 2021 over the 'Anomaly 5' target and nearby area. Results from the survey are being combined with existing kimberlite indicator minerals data and drilling information in the area to assist in the location of potential kimberlite bodies and hopefully the source of the green diamond find. Depending on the results of this analysis, 3 to 4 shallow holes of up to 50 metres could be drilled soon on identified kimberlite targets.

Exploration work undertaken by Karelian on its **Seitaperä** project helped to increase the size of previously reported 4.0 hectares dyke to 6.9 hectares, which makes it the largest diamondiferous kimberlite pipe discovered in Finland to date.

Drill core extraction work from the Seitaperä pipe recovered 67 diamonds from a 100kg sample, which included 6 macro diamonds of greater than 0.5mm diameter.

BROOKEBOROUGH PROJECT

Karelian holds an exploration licence over the historic Brookeborough diamond discovery in County Fermanagh, Northern Ireland covering a sizeable area of 247.15 sq. km (licence KDR1/19). Diamond exploration interest in the area goes back to 1816, when an uncut diamond was found by a young girl in the Colebrooke river, which was then given to Lady Brookeborough.

No serious follow up exploration was conducted until 1996 when a regional sampling programme identified some chromites which could possibly indicate the presence of kimberlite source rocks.

A heavy mineral stream sediment programme was completed by Karelian in July 2021, which involved the taking of ten lots of 20kg sample material from various sites around the Colebrooke river. The samples have been sent to a laboratory in Canada for analysis, with the objective of identifying kimberlite indicator minerals, the results of which are awaited.

VALUATION ANALYSIS

To determine a valuation for Karelian Diamond Resources, we have amended the numbers from the Lahtojoki PEA in 2017 to include the highly lucrative potential of pink diamond production revenue.

Inflation costs since 2017 have been factored into our calculations (+5.5%), along with some increased costs associated with pink diamond production in terms of higher marketing, processing and labour costs.

Our base case analysis assumes 3% of recovered diamonds will be 'pink diamonds', along with a price per pink diamond 10x that of its colourless equivalents.

All other parameters within the 2017 PEA remain the same, such as a non-JORC resource of 2.25m carats and 9-year mine life.

An un-risked NPV of $69m is computed using a discount rate of 8%, representing a substantial 77% improvement on the $39m 2017 PEA NPV8.

Lahtojoki – NPV (US$')	**2017 PEA est.**	**2021 FEL est.**
Resource	2.25m carats	2.25m carats
Recoverable Grade	39.7 cpht	39.7 cpht
Recoverable Carats	2.11 carats	2.11 carats
Mine Life	9 years	9 years
Value Per Carat		
Colourless Diamonds	$100 per carat	$100 per carat
Pink Diamonds	not included	$1,000 per carat
Production %		
Colourless Diamonds	100%	97%
Pink Diamonds	not included	3%
Capital Costs	$22m	$24m
Contained Value	$225m	$261m
NPV8	$39m	$69m

Fig: 8: 2017 PEA and 2021 FEL NPV estimates (Source: FEL).

To determine a price per share for Karelian, we have applied several risk factors such as an exploration and pink diamond discovery risk (40%) and development/finance risk (20%), to arrive at a risked NPV of $33.1m, which computes to a price per share of 35p. This only considers the economic potential of Lahtojoki and production of pink diamonds and does not attribute any upside to other projects.

Lahtojoki – Value to Karelian Shareholders (US$' / £')	
2021 FEL NPV est.	$68.9m
Less Exploration Risk (-40%)	$41.4m
Less Development / Finance Risk (-20%)	$33.1m
(£/US$ 1.38 Ex. Rate)	£24.0m
KDR SII	68.54m
Price Per Share	35.0p

Fig: 9: Lahtojoki value to shareholders (Source: FEL).

SENSITIVITY ANALYSIS

The value derived from any mine operation will be dependent upon the percentage obtained (1% to 5%) from pink diamonds compared to colourless diamonds and comparable value multiple obtained (x5 to x15).

Our sensitivity analysis (Fig 10 and 11) shows both the risked and un-risked NPV at different percentage and value multiple figures, compared to a base-case assumption (3% and x10 value).

An ultra-prudent assumption of (1% pinks and x5 value) gives an un-risked NPV8 of $32m, or risked $15.4m, using the risk parameters applied to our base case calculation.

At the higher end (5% pinks and x15 value), which we believe is near to what the Argyle mine achieved in certain years of its operation, the risked NPV8 is $65m, which equates to a price of 69p per share.

Un-Risked NPV8 Sensitivity Values (US$')	**Price of Pink Diamond x Colourless Diamond**		
Percentage Pink Diamonds	**x5**	**x10**	**x15**
1%	$32.0m	$34.4m	$46.8m
2%	$39.4m	$54.2m	$68.9m
3%	$46.8m	$68.9m	$91.1m
4%	$54.2m	$83.7m	$113.3m
5%	$61.5m	$98.5m	$135.4m

Fig: 10: Un-risked sensitivity NPV table (Source: FEL).

Risked NPV8 Sensitivity Values (US$')	**Price of Pink Diamond x Colourless Diamond**		
Percentage Pink Diamonds	**x5**	**x10**	**x15**
1%	$15.4m	$18.9m	$16.8m
2%	$18.9m	$26.0m	$33.1m
3%	$22.5m	$33.1m	$43.7m
4%	$26.0m	$40.1m	$54.4m
5%	$29.6m	$47.2m	$65.0m

Fig: 11: Risked sensitivity NPV table (Source: FEL).

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First Equity Limited, its clients and employees may hold shares and warrants in Karelian Diamond Resources plc.

First Equity Limited is a member of the London Stock Exchange

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