

# **KARELIAN**

**DIAMOND RESOURCES**



AIM: KDR

[www.kareliandiamondresources.com](http://www.kareliandiamondresources.com)

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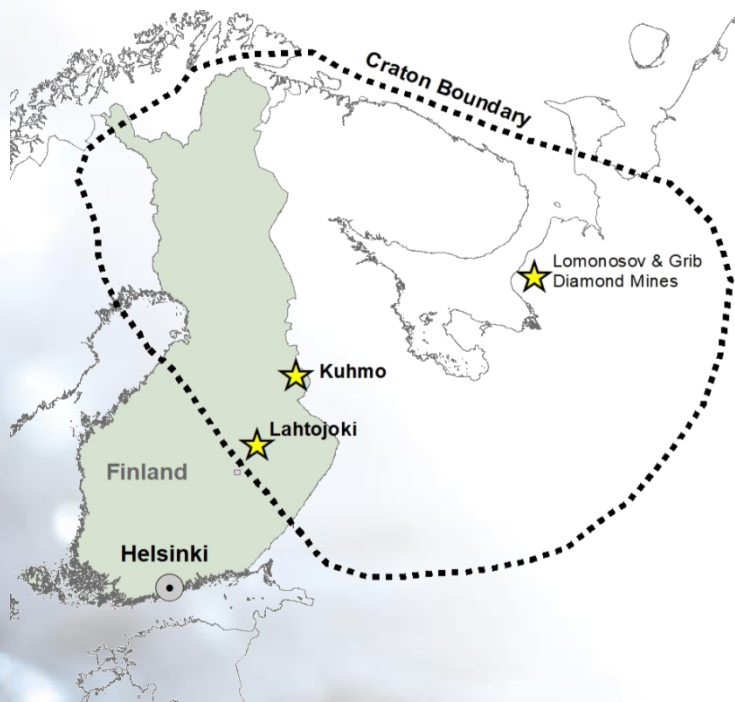
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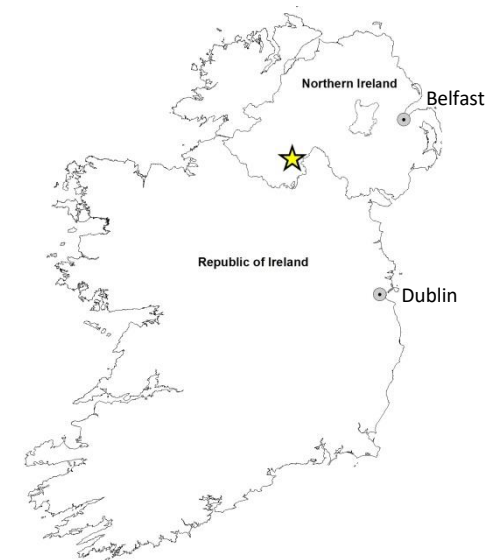
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- ◆ **Lahtojoki Diamond Deposit**  
Mining permit at advanced stage  
Pink diamond presence enhances financial potential

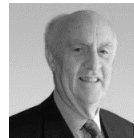
- ◆ **Diamond Exploration Programme in Finland**  
Discovery of green diamond and diamondiferous kimberlites at Kuhmo

- ◆ **Northern Ireland**  
Initial diamond exploration led to positive Nickel – Copper – PGE results





# Directors and Senior Management



**Richard Conroy**  
*(Executive Chairman)*

Professor Richard Conroy has been involved a number of major mining discoveries, including the Galmoy zinc orebodies which led to the revival of the Irish base metals industry and the Pogo gold deposit in Alaska (now in production as a world class gold mine).



**Maureen Jones**  
*(Managing Director)*

Maureen Jones has over 30 years executive experience in the natural resource sector including bringing the Galmoy mine through the mine permitting and development process and the discovery of the gold trends in the Longford Down Massif.



**Seamus P. FitzPatrick**  
*(Deputy Chairman)*

Seamus FitzPatrick has worked in both corporate finance and private equity in London and New York with Morgan Stanley, JP Morgan and Banker's Trust. In 1999 he co-founded CapVest of which he is Managing Partner (which has raised funds in excess of £2.0 billion)



**Howard Bird**  
*(Director)*

Howard Bird is an internationally experienced geoscientist. Former Senior Vice President of Global Exploration for Southern Era Diamonds Involved in the discovery to production success of several new economic diamond deposits.



**Brendan McMorrow**  
*(Non-Executive Director)*

Brendan McMorrow has over 25 years' experience in the financial aspects of the natural resource industry, incorporating a senior role with Ivernia West plc in the discovery and development of the world class Lisheen zinc mine.



**Sorca Conroy**  
*(Business Development)*

Dr Sorca Conroy has over 15 years experience in directorship roles in the natural resources industry. Her experience also includes market facing roles with ING Bank, Canaccord Adams and Hoodless Brennan.



**Cathal Jones**  
*(Chief Financial Officer)*

Cathal Jones has over 15 years corporate finance advisory experience with Deloitte and PwC, and a further 9 years direct senior executive natural resource industry experience in oil and gas and mineral exploration and development.

# Project Management and Technical Team



## **Dr Sorca Conroy – Business Development**

Dr Sorca Conroy has over 15 years experience in directorship roles in the natural resources industry. Her experience also includes market facing roles with ING Bank, Canaccord Adams and Hoodless Brennan.



## **Cathal Jones – Chief Financial Officer**

Cathal Jones has over 15 years corporate finance advisory experience with Deloitte and PwC, and a further 9 years direct senior executive natural resource industry experience in oil and gas and mineral exploration and development.



## **Kevin McNulty – Senior Geologist**

Kevin McNulty has over 25 years' international exploration experience, primarily in the gold industry. He was involved with Pioneer's (now AngloGold Ashanti's) Teberebie gold mine in Ghana, and with other gold exploration projects in Ghana (including Sefwi and Nangodi). He also worked in Niger and Burkina Faso and South America prior to joining Karelian in 2005. He is a past President of the Irish Association of Economic Geologists, a Fellow of the Society of Economic Geologists, a member of the European Federation of Geologists and a professional geologist of the Institute of Geologists of Ireland.



## **Andrew Murrells – Senior Geologist**

Andrew Murrells has over 15 years of international mineral experience, working in Liberia and Cameroon on gold, iron and uranium exploration projects before joining Conroy Gold in 2011. He was part of the team involved in discovering the billion tonne iron deposit at Nkout in Cameroon. He is a past President of the Irish Association of Economic Geologists.



## **Howard Bird – Diamond Consultant**

Howard Bird is an internationally experienced geoscientist. Former Senior Vice President of Global Exploration for Southern Era Diamonds Involved in the discovery to production success of several new economic diamond deposits.



## **Terhi Tulenheimo – Project Geologist - Finland**

Terhi Tulenheimo has over 20 years experience in exploration particularly diamond exploration in Finland including at European Diamonds where she worked on the Lahtojoki project.



## **Paul Dinkin – Project Geologist - Ireland**

Paul Dinkin has over 15 years of international mineral experience, including project development in Africa, South America and the Middle East.

# Why Diamonds

- ◆ Diamond demand has historically been driven by a growing population and increasing prosperity internationally
- ◆ Diamond supply expected to wane as older diamond mines near the end of their life with few new significant diamond discoveries
- ◆ While demand for clear diamonds has been challenged by the advances in synthetic diamonds, naturally occurring coloured diamonds are highly sought after
- ◆ Company's Lahtojoki deposit contains pink diamonds and other coloured diamonds which can command prices up to 20 times that of colourless diamonds
- ◆ Revenue from pink diamonds accounted for 50% of total revenue at Rio Tinto's Argyle mine even though the pink diamonds contributed less than 5% of the diamond total production of the mine

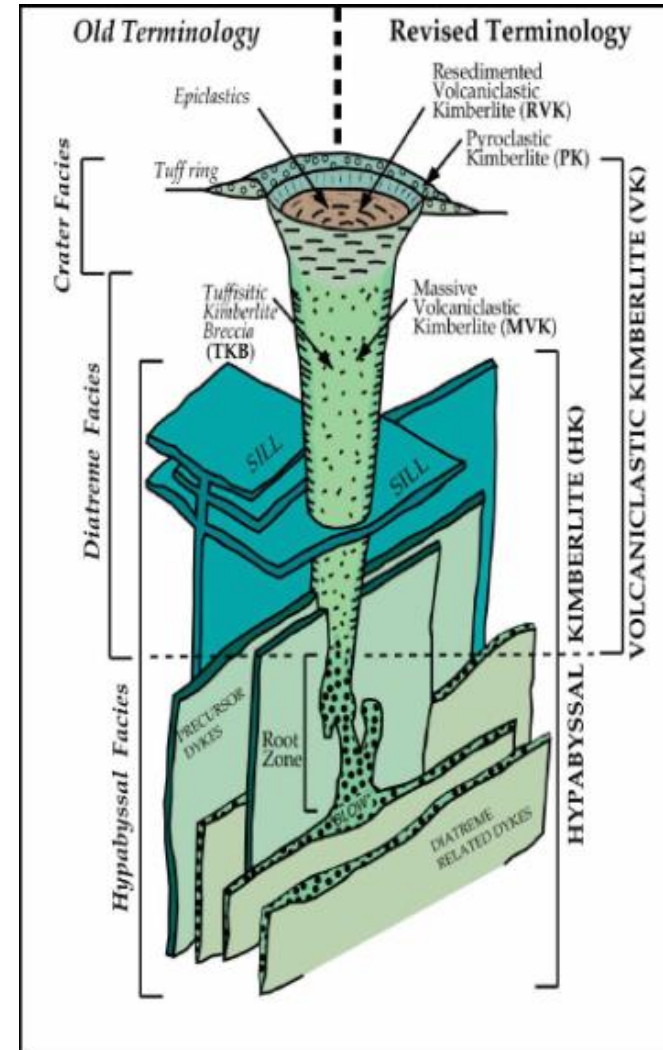
# Karelian diamond exploration target

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- ◆ Karelian's exploration target is the discovery of a world class diamond deposit in Finland similar to the world class diamond deposits found in similar geology elsewhere in the Karelian Craton
- ◆ The presence of the Lahtojoki diamond deposit confirms the diamond potential of the Finnish section of the Karelian Craton and also the potential for coloured diamonds
- ◆ Karelian owns the Lahtojoki diamond deposit which contains coloured diamonds and proposes to develop the deposit as a diamond mine



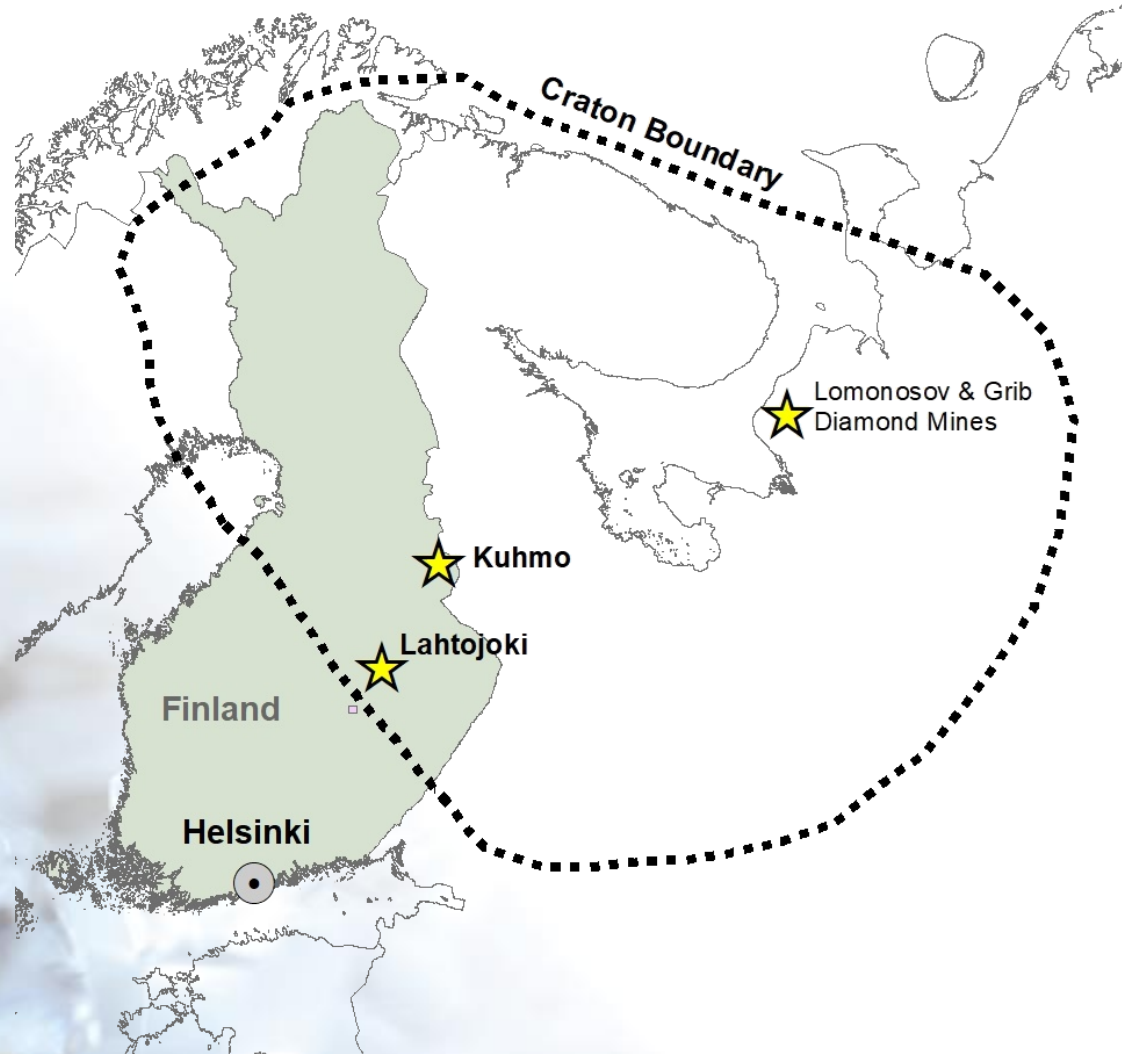
# Kimberlite Pipe: Essential pathway for diamonds formed deep below Earth's crust



Volcaniclastic Kimberlite Pipe - Cross-section



# Lahtojoki Diamond Deposit - Location



- ◆ An independent Preliminary Economic Assessment (PEA) has been completed. This was primarily based on the technical data of previous operators.
- ◆ However, the deposit is known to contain pink and other coloured diamonds. The PEA does not take into account the numbers and percentages of the pink and coloured diamonds. These figures have yet to be precisely determined. Their presence could substantially increase profitability.
- ◆ Permission to proceed with development at Lahtojoki is currently at an advanced stage

# Lahtojoki Deposit – PEA Highlights

- ◆ PEA suggests 2.11M Carats recoverable with a gross value of US\$211M
- ◆ 5.6 million tonnes at c.40 cpht
- ◆ 9 year mine life with payback in year 2
- ◆ IRR 55% and NPV (@8%) US\$39.1M
- ◆ Financial effect of the presence of pink and other coloured diamonds not accounted for in PEA
- ◆ Mining operation recommended



**LAHTOJOKI DIAMOND DEPOSIT**

- ◆ Finland has a highly skilled work force, advanced technical and logistical services and an established mining industry
- ◆ Infrastructure is excellent with direct access by road and readily available adjacent power supply to the Lahtojoki diamond deposit
- ◆ Relatively few other diamond deposits are at such an advanced stage of development, or as accessible, as Lahtojoki . Such as those in the north of Canada or the outback in Australia.



# Lahtojoki Deposit – Diamond Quality



## Lahtojoki Diamonds

High (60%) gem quality diamonds

# Lahtojoki Deposit – Pink Diamonds



**Lahtojoki Pink Diamonds**

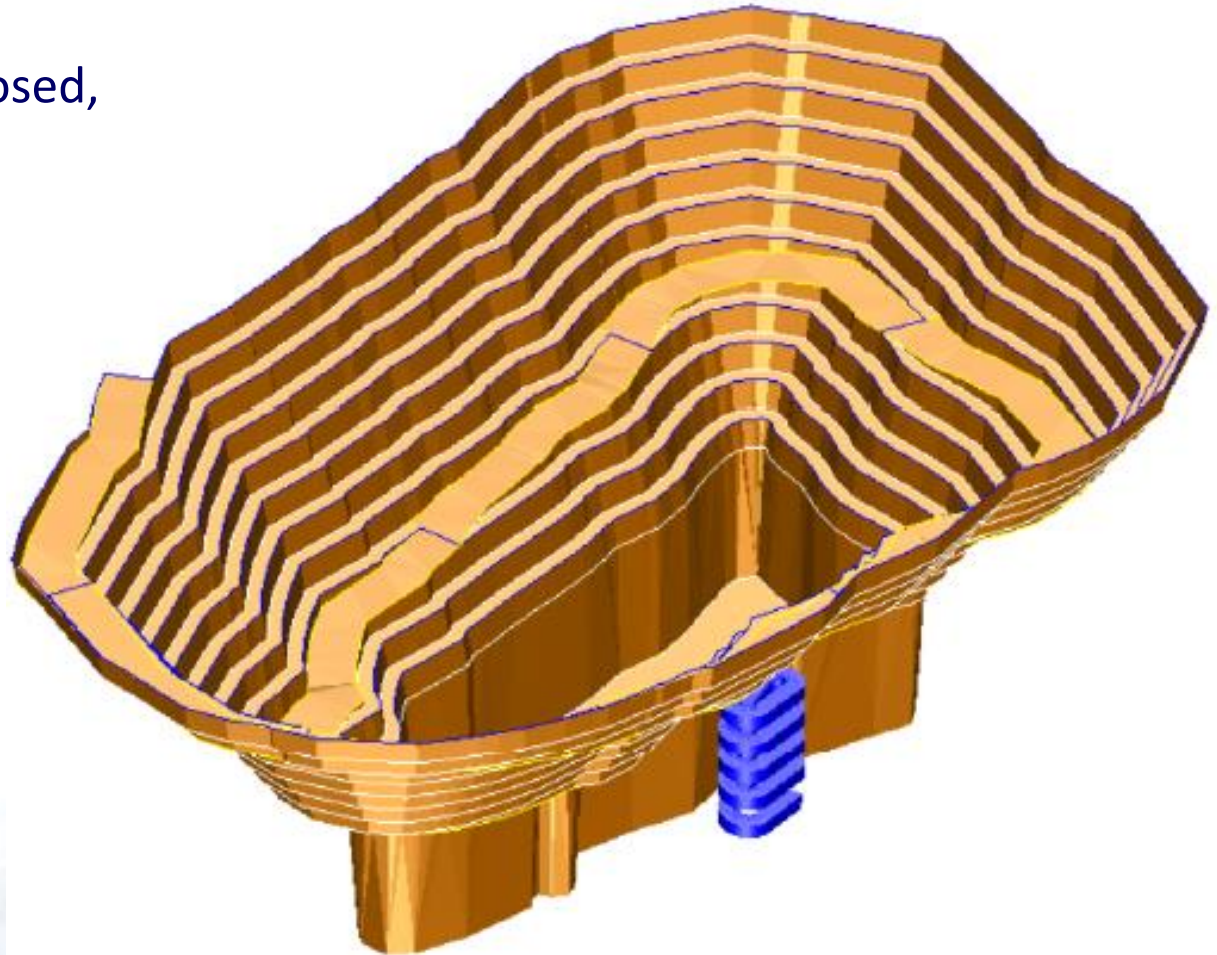


# Lahtojoki Mine – Proposed Development

A simple open pit mine is proposed,  
with an in-wall ramp extension

ESG

Diamond recovery is one of the  
cleanest forms of mining

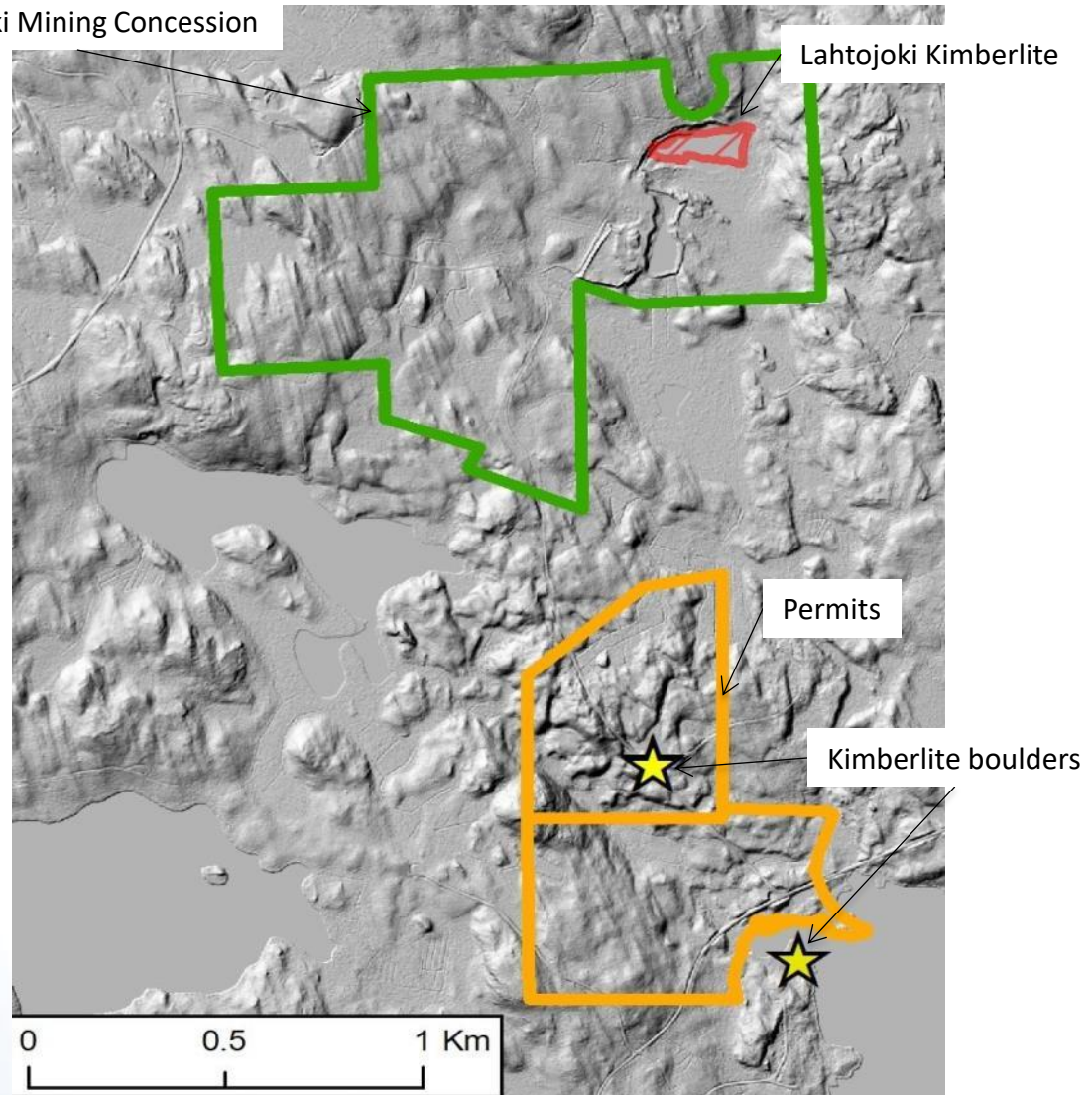


**LAHTOJOKI PROPOSED OPEN PIT**

# Lahtojoki – Adjacent potential

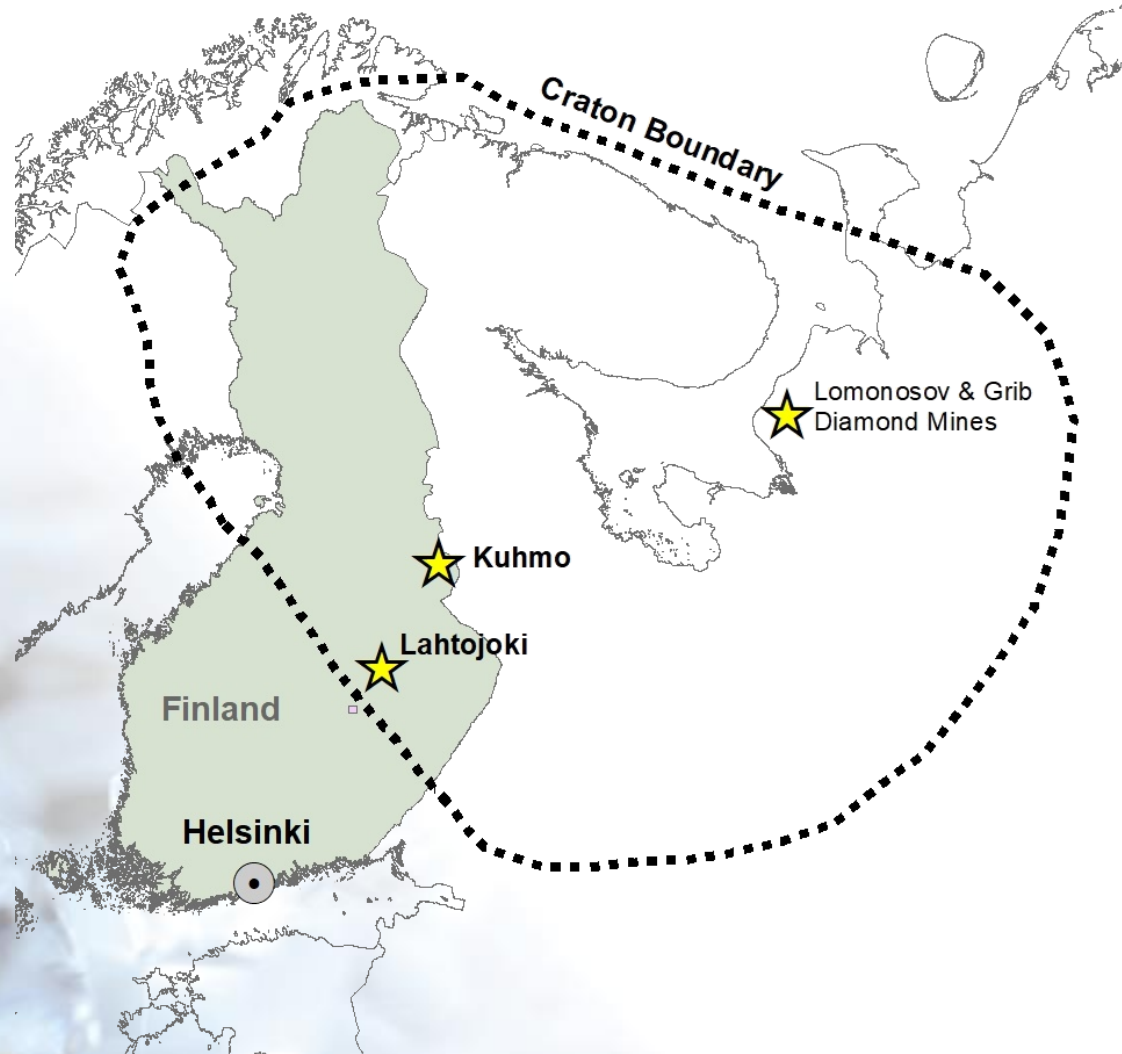
- ◆ Kimberlites tend to occur in clusters
- ◆ Potential for additional resource expansion in adjacent areas

Lahtojoki Mining Concession





# Diamond Exploration Focus – Kuhmo Region



# Diamond Exploration Programme

- ◆ A systematic exploration programme has been carried out by Karelian in the Finnish Sector of the Karelian Craton.
- ◆ The Company has focussed on the diamond potential, including coloured diamonds, of the Kuhmo region to the northeast of Lahtojoki
- ◆ Geological and geophysical studies have been followed up by an extensive till sampling programme resulting in the discovery of kimberlitic indicator trains and also the discovery of a green diamond

# Kimberlite Indicator Minerals “KIMs”

Mantle minerals known as kimberlite indicator minerals “KIMs” including diamonds are associated with kimberlite bodies. Examples include:

Chrome – pyropes  
(Garnet group)



Chrome  
Diopside (CD)



Diamonds



G10 Chrome - pyropes are particularly important as they have been found as inclusions in diamonds.

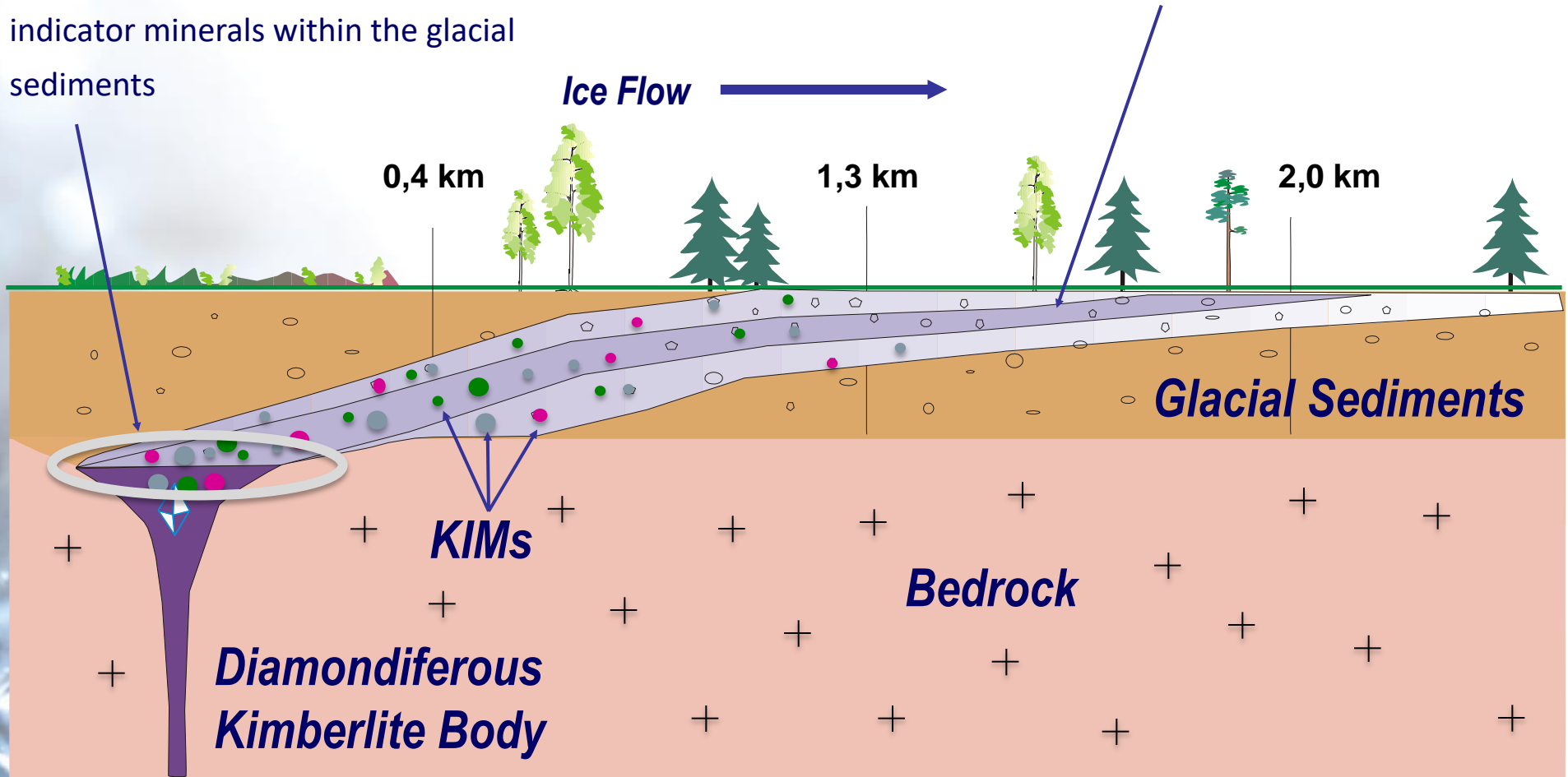
G9 Chrome – pyropes are found in the same stability field as diamonds

# Diamond Exploration

## Backtracking Kimberlite Indicator Minerals

Glaciers eroded the top of the kimberlite dispersing the kimberlite indicator minerals within the glacial sediments

Kimberlite indicator minerals dispersion train within glacial sediments





# Green Diamond Discovery by Karelian

- ◆ Sparkling clear crystal with clean faces
- ◆ Diameter 0.8mm
- ◆ ODM Laboratory, in Canada, which recovered the diamond has processed more than 50,000 exploration till samples worldwide but has only recovered less than 10 naturally occurring diamonds including the Karelian discovery seen here.



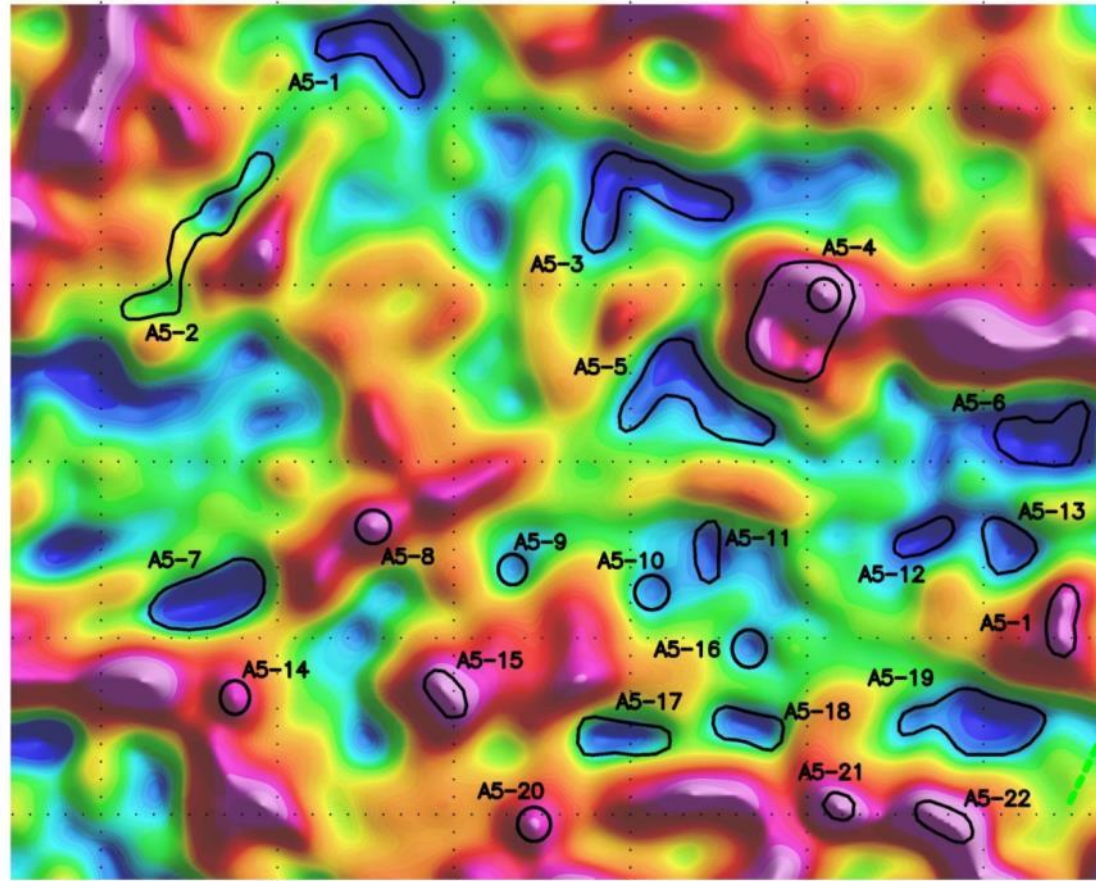
# Exploration to discover source

- ◆ Follow up exploration has been focussed on the source of the green diamond
- ◆ UAV Geophysics survey identified a number of kimberlite targets
- ◆ Till Sampling together with a pitting and drilling programme is underway



# UAV Survey: Geophysics Targets

- ◆ The UAV geophysics survey yielded a series of targets. These geophysics targets were followed up by a till sampling programme for kimberlitic indicator minerals





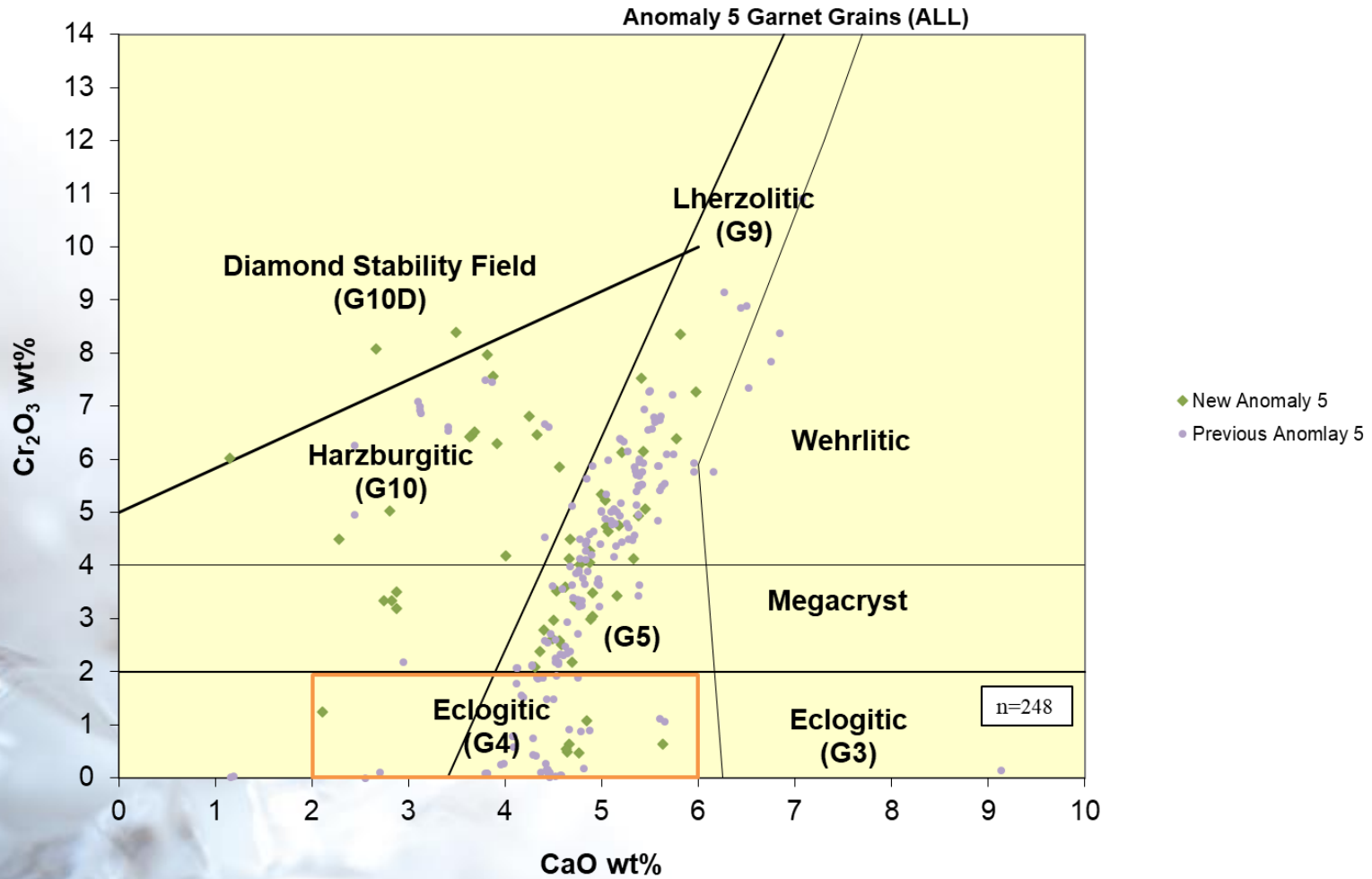
# Till Sampling Process





- ◆ 16 of the 25 basal till samples contained kimberlite indicator minerals which were sent for Electron Microprobe Analysis
- ◆ Analysis showed the presence of diamond stability field garnets (G10D) and other diamond-facies garnets (G4D and G5D)
- ◆ The results indicate a deep mantle source for kimberlite originating from the diamond stability field where diamonds are formed
- ◆ The results are a clear indicator both of the diamond potential of the Kuhmo Green Diamond Target area and of proximity to the source of the green diamond

# Garnet Chemistry



Data used in RNS – 9 April 2024

# **COLEBROOKE PROJECT**

## **Nickel, Copper and Platinum Group Elements**

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# **Colebrooke Project – Nickel, Copper and Platinum Group Elements**

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**Significant potential discovered for Nickel, Copper and Platinum Group Elements in County Fermanagh in Northern Ireland**

**Discovery of potential followed an extensive exploration programme including stream sediment sampling**

**Potential confirmed by an Independent Expert Report**

**Nickel (Ni)**

**Copper (Cu)**

**Platinum Group Elements (PGEs)**

**Zinc (Zn) and Lead (Pb) with Critical Minerals**

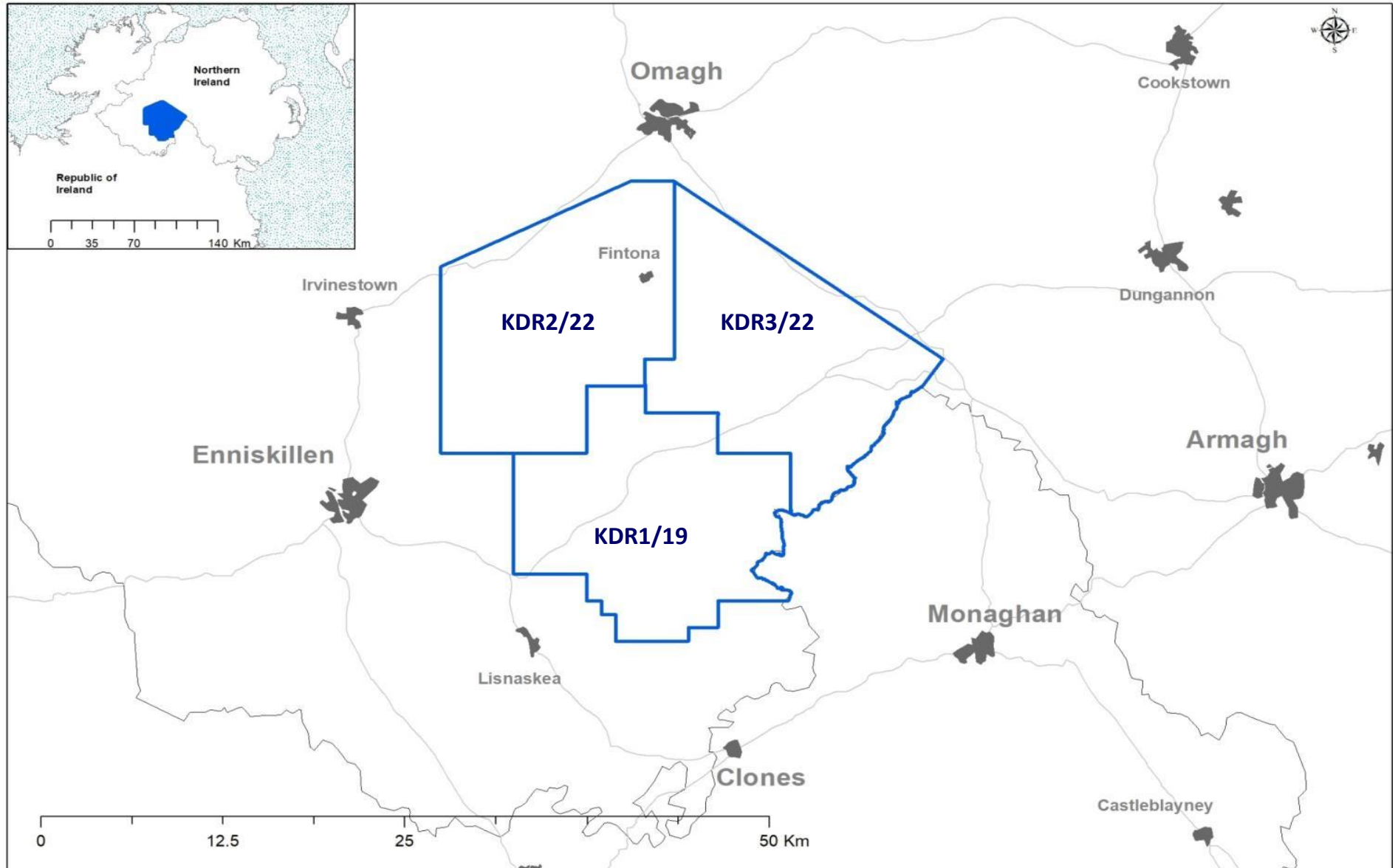
**Indium (In)**

**Tellurium (Te)**

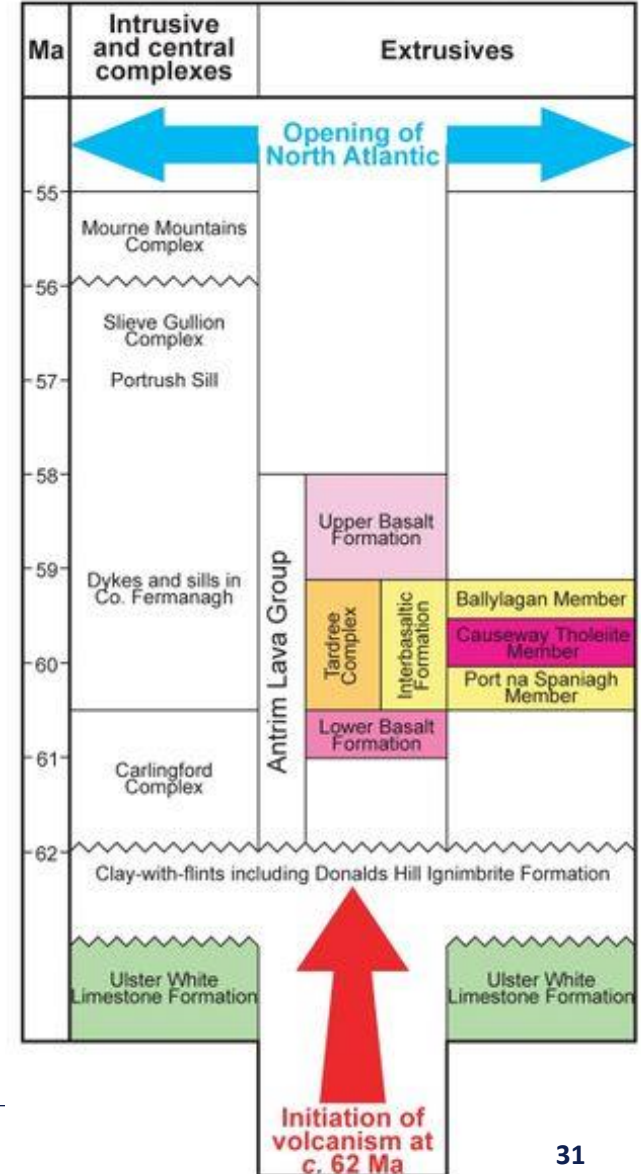
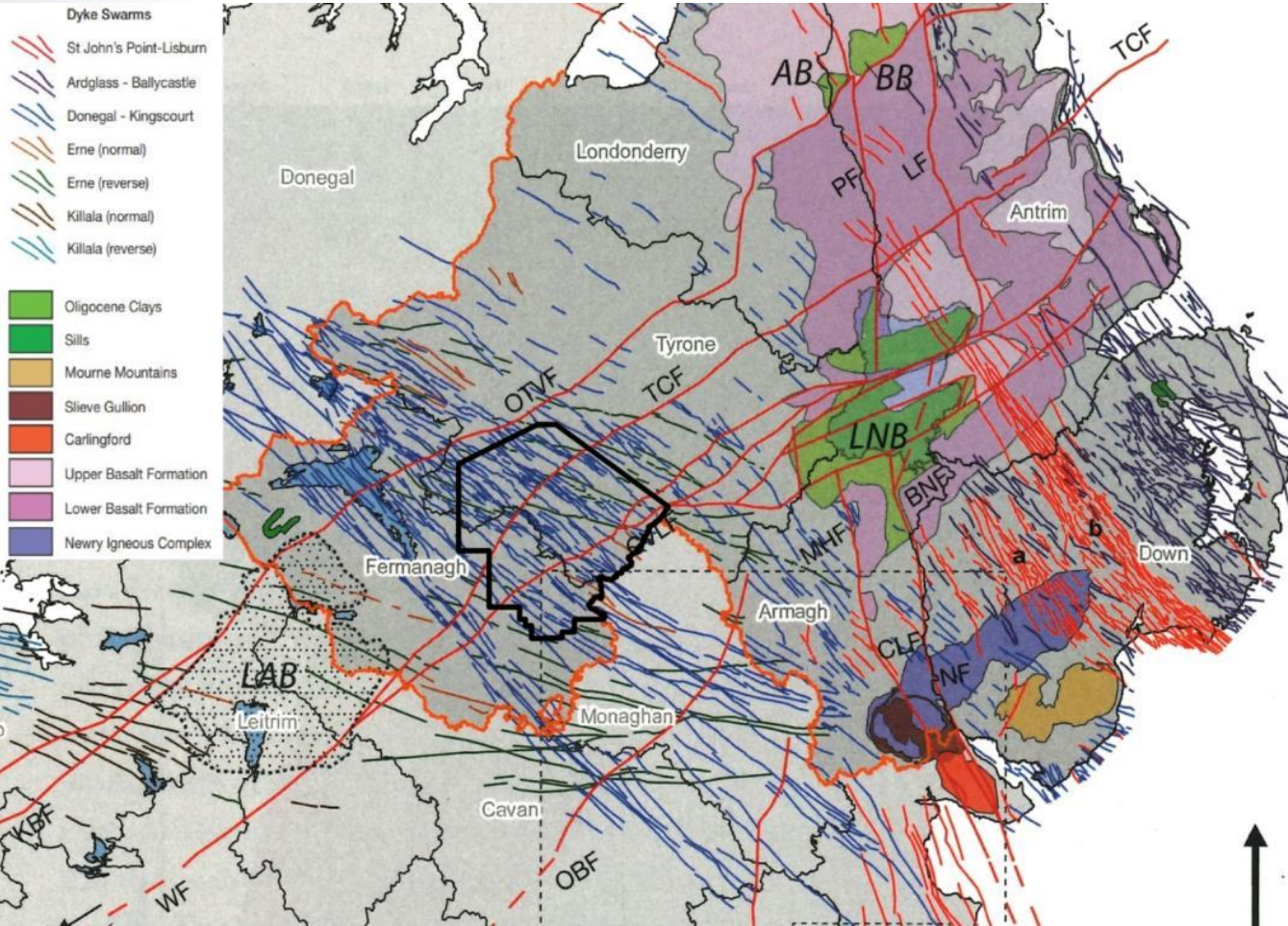
**Germanium (Ge)**



# Colebrooke Project – Licence Area



# Colebrooke Project – Licence Area and Geology of Northern Ireland



# **Colebrooke Project Discovery of indicator minerals for Nickel-Copper-PGEs**

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**The indicator minerals recovered during the sampling programme were indicative of the presence of a magmatic sulphide rich Nickel-Copper-PGE (Platinum-Group Elements) source**

**Magmatic, massive sulphide indicator minerals (MMSIM's) - Chalcopyrite, and Low Chrome Diopside with significant numbers of Chromite (CR) and Forsterite Olivine (FO) were reported - all indicative of a Ni-Cu-PGE source**

**Over 1,000 indicator minerals were recovered, primarily MMSIM's Chromite and Forsterite with some Chalcopyrite**



# **Colebrooke Project – Microprobe Analysis of Chromites**

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**Microprobe analysis of the Chromites showed high zinc oxide values**

**These high zinc oxide values in Chromites are a signature of sulphide rich Nickel-Copper- PGE deposits.**

**Microprobe analysis of the Chromites also revealed Fe-Ni-S (Pentlandite) inclusions**

**This is significant, as such inclusions demonstrate the presence of Nickel mineralisation**

# Colebrooke Project – Stream Sediment Sampling



Stream sediment sampling in County Fermanagh

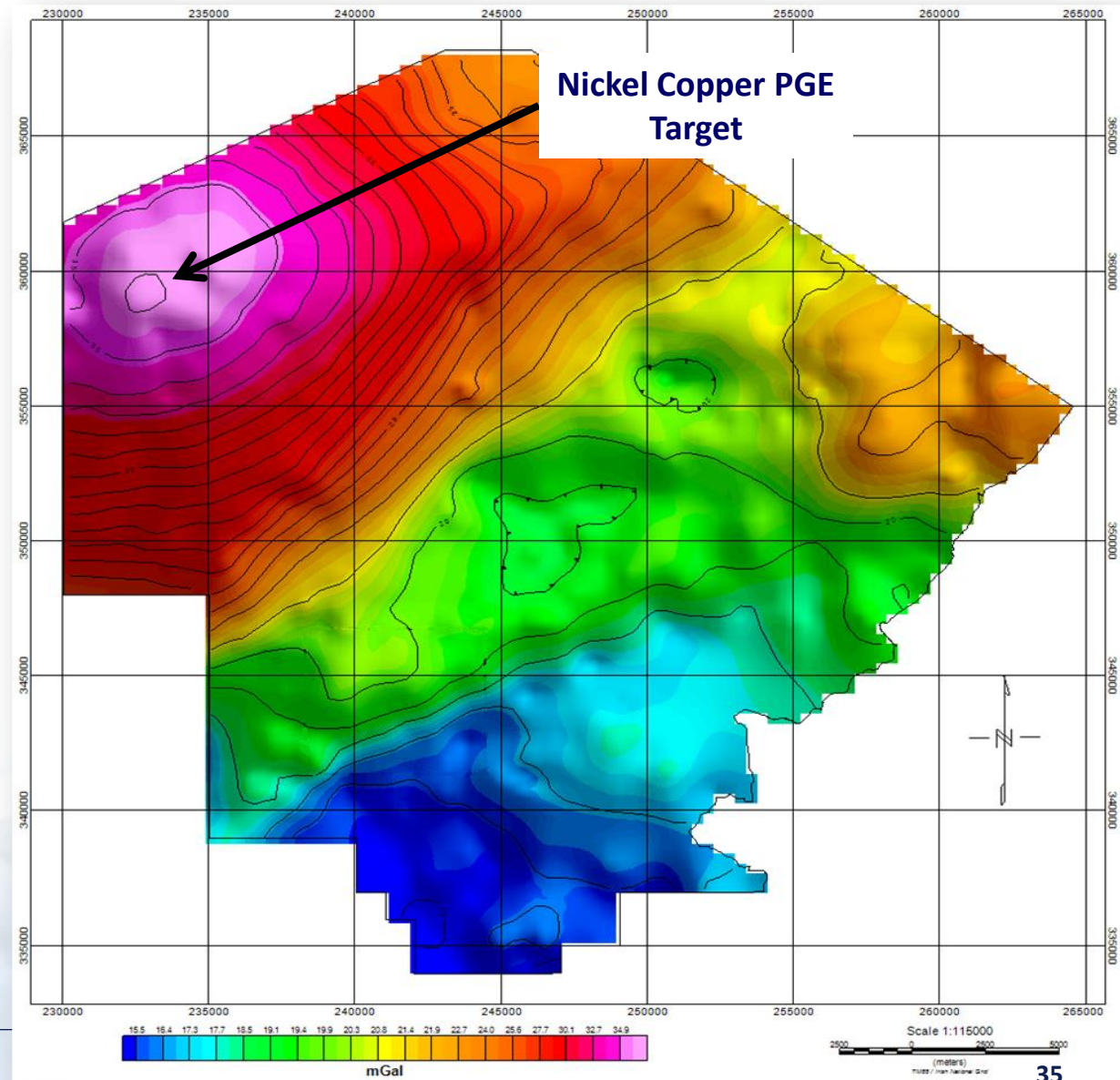


# Colebrooke Project – Dromore Gravity High and Associated Geochemistry

The Dromore gravity high is a positive gravity anomaly on the line of the Donegal-Kingscourt dyke swarm

The Dromore gravity high is associated with TELLUS geochemical nickel and copper anomalies

Interpreted as a Tertiary basic intrusive centre with the dykes acting as feeders to tholeiitic lava flows, since eroded.



# **Colebrooke Project – Similarities to systems hosting world-class Ni-Cu- PGE Deposits**

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**Expert review noted marked resemblance to the Nickel, Copper and Platinum Group Elements in the Mid - Continental Rift System of North America**

**Also to the continental flood basalts; i.e. Norilsk (Triassic) and the Emeishan Large Igneous Province in China, that host world-class Ni-Cu-PGE deposits**

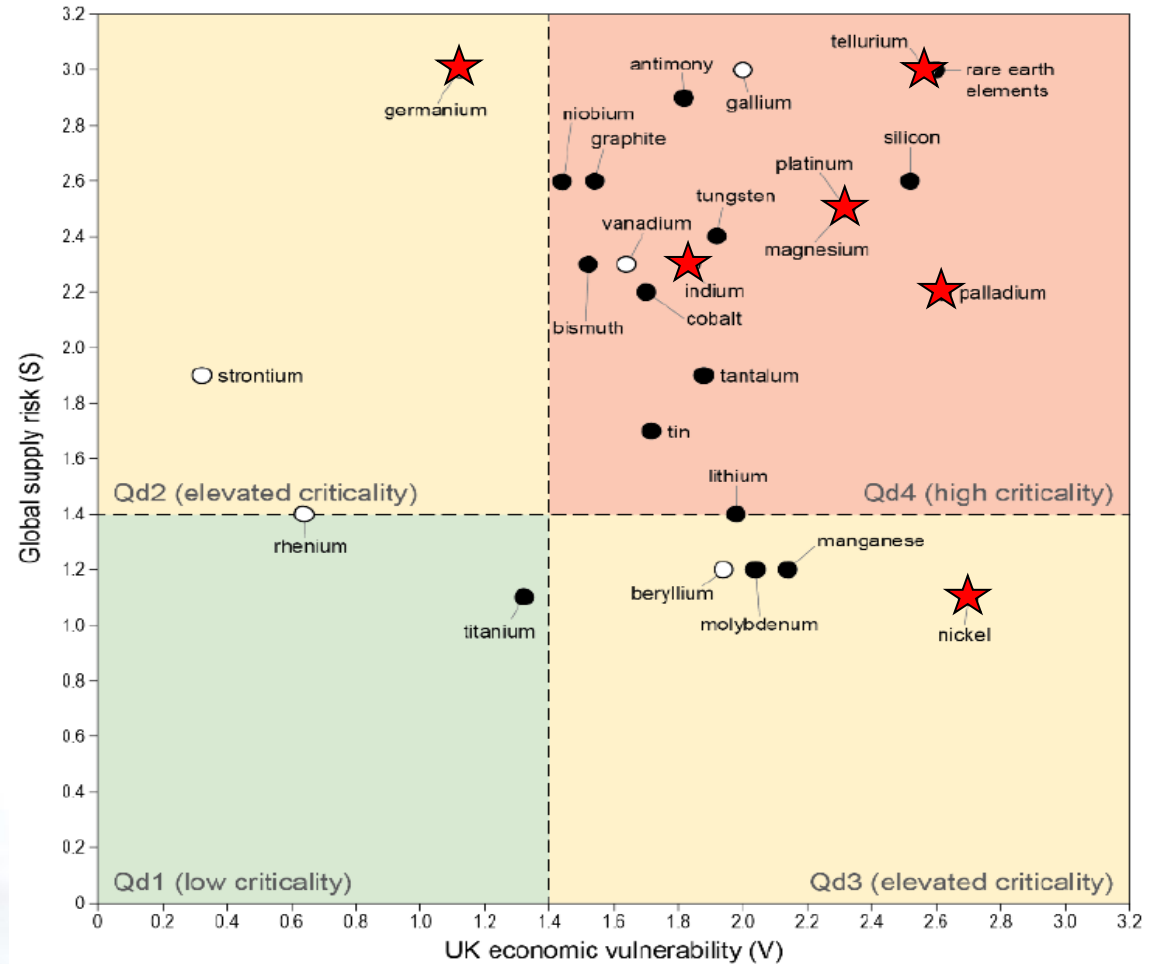
# Colebrooke Project – Critical Minerals and Metals

**Nickel (Ni)  
Platinum (Pt)  
and Palladium (Pd) are  
critical minerals and metals**

**Copper, Nickel and PGE are needed  
for clean energy technologies**

**Indium (In)  
Tellurium (Te)  
Germanium (Ge)**

**Indium, Tellurium and Germanium  
are also critical metals (primarily  
extracted as a by-product of Zinc -  
Lead mining)**



**UK criticality assessment of technology critical minerals and metals  
Commissioned Report CR/21/120**

# **Colebrooke Project – Exploration for Kimberlite Chromites**

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**The Colebrooke project was prompted by:**

**Reports of the recovery of kimberlite chromites in Northern Ireland**

**and**

**The historic discovery of the Brookeborough diamond in the Colebrooke river in County Fermanagh, in Northern Ireland**

**Similarly to Voisey Bay the exploration has identified Nickel-Copper-PGE targets**



# Colebrooke Project – Also Historic Regional Platinum Occurrences

The Curran Nugget is reported as being derived from the Urals (Doughty et al 1982, Nawaz 1993). This evidence is primarily based on a similar analytical result to a Nizhny Tagil nugget. In the paper by Doughty et al. they compare the Curran Nugget, Nizhny Tagil nugget, and Platinum grains from Co. Wicklow.



Platinum nugget “Curran Nugget”  
discovered in Curran, Larne,  
July 1979 (weight c.48g)

In 1981 a boulder was discovered in Carlingford, Co. Louth with a grade 0.4 g/t Au, 1.5 g/t Pt, 1.5 g/t Pd, 1.7% Cu and 1.0% Ni

In 1990 a dyke was discovered with narrow lens of basic dyke material hosted within a more major dyke of similar composition. The detailed setting suggested that the mineralised dyke is a later intrusive stage. Mineralogically the showing was similar to the “discovery boulder” with disseminated chalcopyrite and phyrrotite. Grade 0.21 g/t Pt, 0.19 g/t Pd, 0.61% Cu and 0.08% Ni over 10cm

# **Colebrooke Project – Nickel-Copper-PGE discoveries associated with Diamond Exploration**

**Diamond exploration has in the past led to the discovery of  
Nickel-Copper-PGE**

**The classic example of this is the world class Nickel discovery at  
Voisey's Bay in Canada**

**This famous discovery was made in 1994 during a diamond  
exploration programme, the deposit subsequently being  
purchased by INCO for \$4.3 billion**



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