

# Sequoia Kimberlite Complex's Indicator Mineral Chemistry Points to Large Diamonds, Diagrass Project, NWT

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[Arctic Star Exploration Corp.](#) ("Arctic Star" or the "Company") (TSXV:ADD) (Frankfurt:82A2) (WKN:A2DFY5) (OTC:ASDZF) is pleased to announce that it has received diamond indicator mineral results and an interpretation of these from Chuck Fipke for the first hole into the Sequoia Kimberlite complex. The results demonstrate the existence of a number of indicator types that occur with diamonds and strongly suggest the presence of diamonds. Furthermore, indicator minerals of identical multi-element chemistry to those found as inclusions in large >50 carat diamonds world-wide are abundant. The indicators from different kimberlite types are starkly different. These observations are in agreement with the caustic diamond results, which show the different kimberlite types have different stone/kg counts and also hints at a coarse diamond distribution. Ultimately a bulk sample will be required to confirm the diamond distribution and this is the normal path of progress for diamond exploration. Prior to this a drill program defining the volumes of the different kimberlite types and their caustic fusion diamond distribution is planned for spring 2022.

Samples of kimberlite core were sent to C.F. Mineral Research Ltd. in Kelowna, BC for indicator mineral analysis. C.F. Minerals is a global-leading kimberlite and diamond analytical research facility lead by Chuck Fipke, one of the founders of the Ekati diamond mine. At the lab, the samples were lightly crushed with heavy minerals separated by dense media gravity methods. Oxides and silicates are split using magnetic separation. Candidate diamond indicator minerals are selected by a mineralogist, mounted, and scanned for chemical composition using a scanning electron microscope (SEM). Mineral grains that "light up" under different element scans are mapped and then assayed by electron microprobe. The microprobe results are presented here.

Mineral grains that grow concurrently while touching or within diamonds have distinct chemistry and are diagnostic of the presence diamonds and also of the rock types that host the diamonds at great depths.

Readers should note the following deep mantle, high pressure rock types associated with diamond mineralization that are noted in this release.

Lherzolite: Garnet, Clinopyroxene, and Olivine. (certain types host >50carat diamonds)

Harzburgite: Garnet (low calcium, high chrome), Orthopyroxene, and Olivine. (Source of the desirable "G10" garnets and P type diamonds.)

Chromite: Harzburgite: A garnet poor, Chromite rich variety of above.

Eclogite: Garnet and Pyroxene. Source of E Type diamonds

The samples analyzed thus far are from the Sequoia kimberlite, hole DG-2021-04 located in the geographical center of the complex. One sample from the interval 51m to 89m (5.1kg) from the Coherent Kimberlite ("CK"), another sample from the interval 105m to 136m (5.1kg) logged as Volcanoclastic Kimberlite transitional ("VKt") into Coherent Kimberlite and a sample from the interval 136m to 150m (5.3kg) logged as Volcanoclastic Kimberlite ("VK").

Chuck Fipke reports:

"The two Volcanoclastic samples are dominated by diamond inclusion minerals (high calcium G10 garnets (classifying as G10-2 and G10-3) found in Lherzolite, (G11) garnets, and diamond inclusions (CP5)

clinopyroxenes that have been found as inclusions in big diamonds ranging from 52 to 102 carat from the Ekati diamond mine (coined "Di\$") as well as chromite rich harzburgite containing diamond inclusion chromites and orthopyroxenes. Current research suggests these larger diamonds come from great depths >400km.

The diamond inclusion minerals from Iherzolite (DI\$, CP5 G9/G11 indicators mentioned above) found in Sequoia are identical to those present in Letseng (In Lesotho), Victor (In Canada), and Lucara's Karowe Mine (Botswana). These kimberlites are typically lower grade but contain very large high-quality diamonds routinely recovered during run-of-mine operations. This is based on analysis of inclusions from over 335 diamonds from these sources as well as Ekati's large stones. The classification scheme relies on the multi-element analysis of the Sequoia indicator minerals having the same chemical composition as the indicators from known large diamond sources.

As well as passing through and sampling of Iherzolite, the Sequoia kimberlite has sampled diamond bearing chromite harzburgite as evidence by the abundant 99 diamond inclusion composition chromites and 45 diamond inclusion orthopyroxenes present. These additional mineralogies could account for any smaller diamonds recovered. The two Volcanoclastic samples have relatively few eclogitic type garnets which can also be associated with diamond mineralization.

In contrast to the VK samples, the CK sample from 51 to 89 meters has abundant Group1 eclogitic garnets where the EMP yields 51 diamond inclusion eclogite grains. This sample also has the large diamond inclusion Iherzolite minerals and the subordinate diamond bearing (low calcium-high chrome G10-7 and G10-9) pyrope garnet bearing harzburgite not present in the VK as well as chromite harzburgite present in the VK. A total of 80 diamond inclusion composition chromites and 10 diamond inclusion olivines were recovered from the chromite harzburgite.

It is also worthy to note that the overall abundance of the Iherzolite (DI\$, CP5 G9/G11 indicators) large diamond inclusion minerals recovered from the three Sequoia DG 2021-04 drill hole samples exceeds, per sample weight, that of any of the diamond bearing (Iherzolic) kimberlites in the C.F. Minerals database. These results indicate that large diamonds should be present if sufficiently large tonnages of this kimberlite are processed by methodology that recovers large diamonds. The presence of abundant diamond inclusion chromites and orthopyroxenes, as well as abundant diamond inclusion Group 1 eclogitic garnets, and subordinate low calcium-high chrome G10 garnets and diamond inclusion olivines indicate smaller potentially commercial diamonds may also be present."

Buddy Doyle, VP Exploration for Arctic Star commented, "It is interesting that the caustic fusion microdiamond results also hint at a coarser diamond distribution. Table 1 shows the published results from the Jack Pine Kimberlite which makes up the southern 200m of the Sequoia complex, and the diamond results received from Arctic Star's caustic fusion results from the center of Sequoia. These results, plotted on a size vs frequency plot (figure 1), clearly show a coarser diamond population for our recent Sequoia results. Table 3 shows the diamond counts from the different rock types from this drill hole. Like the indicators there seems distinct populations of diamonds from the different rock types. The company has decided to send the remaining half-split core of Sequoia to the lab to get more diamond results to help construct a more robust curve of the size distribution. It is likely we will need more samples than this to get a good view of the grade and the presence of the larger stones. Given the evidence presented by Chuck Fipkes's analysis, if big diamonds are proven to be there it will be worth it. "

Table 1. Caustic Fusion Results, Sequoia Kimberlite, Arctic Star

Drill								Weight	Total
hole	0.105mm	0.15mm	0.212mm	0.3mm	0.425mm	0.6mm	0.85mm		
Stones/100kg									
stones									Kg
Sequoia	146	54	11	7	4	2	0		
292.60	224	76							
Total									

Table 2. Historic Caustic fusion Results, Jack Pine Kimberlite, Drilled by De Beers 1990s

Drill hole	0.105mm	0.15mm	0.212mm	0.3mm	0.425mm	0.6mm	0.85mm	Weight	Total
Stones/100kg									
stones									
Sequoia	146	54	11	7	4	2	0		
292.60	224	76							
Total									

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Figure 1 Size Frequency plot: Diamond size distribution. Sequoia in Orange, Jack Pine in Green. The Sequoia samples appear to have two populations of diamonds, and clearly has a higher frequency of larger diamonds than the Jack Pine sample. Figure 1 also depicts possible trajectories for the Sequoia diamond distribution. For this small sample of less than 300kg, the spread of trajectories is large. Further caustic fusion samples would narrow down this spread. It is desirable to have several commercial size stones from caustic fusion before predicting grade and size distribution with great accuracy.

Mr. Buddy Doyle further commented, "The next step for the Sequoia kimberlite complex is to do more small diameter drilling to further understand the geology, we already have diamond and indicator mineral data that suggests the different types of kimberlite in this complex have different diamond populations and grade. Drilling this body at 100m then where needed 50m centers and conduct caustic fusion analysis would achieve this and fill out the size frequency curve shown in figure 1. Should this prove encouraging and confirm the possibility of large diamonds, a bulk sample using either a large diameter drill rig or underground bulk sampling would be the next step. Which on completion would allow for a feasibility study. Given that there are two operating diamond mines within 35km Arctic Star could also seek out scenarios involving these, along the way."

Table 3 shows the geology of drill hole DG 2021 04 and each individual rock types Caustic fusion diamond count for stones over 105 microns, illustrating the diamond count differences, which will be reflected in the commercial grade. The next round of work will outline the distribution of these rock types while continuing to make a more robust size frequency curve.

Table 3: Diamond variance counts from each rock type Sequoia, Drill Hole DG 2021 04

hole	0.105mm	0.15mm	0.212mm	0.3mm	0.425mm	0.6mm	0.85mm	Weight	Total
Stones/100kg									
stones									
Sequoia	146	54	11	7	4	2	0		
292.60	224	76							
Total									

Table 3 demonstrates that the different kimberlite types have variable diamond counts. The volcanoclastic rock types have significantly less diamonds than the cohernet kimberlite rock type. (Results from Caustic fusion SRC laboratories and independent laboratory see NR dated July 6th 2021 for details).

Analysis of mineral indicator minerals from the other kimberlites is awaited. The rest of the caustic fusion diamond results from the other kimberlite discoveries are expected before the end of this week. The second round of Sequoia results where we have sampled the other half of drill holes DG 2021 04 and 05 should also

be in the next weeks.

#### Qualified Person

The Qualified Person for this news release is Buddy Doyle, AUSIMM, a Geologist with over 35 years of experience in diamond exploration, discovery, and evaluation. A Qualified Person under the provisions of the National Instrument 43-101.

#### About Arctic Star

Arctic Star is predominantly a diamond explorer, recently discovering 5 new kimberlites in the prolific Lac De Gras kimberlite field that supports 2 multi-billion dollar kimberlite mining complexes. The company also has a 958Ha Exploration permit containing several diamond bearing kimberlites on its Timantti project, Kuusamo Finland. Arctic Star has optioned its Stein diamond project in Nunavut to GGL diamonds who plan work once Covid restrictions lift. The company continues to look for appropriate diamond opportunities elsewhere.

ON BEHALF OF THE BOARD OF DIRECTORS OF [Arctic Star Exploration Corp.](#)

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