Professional Summary for Charlie Harper, PhD, PEng, PGeo

With over 40 years geological experience, Charlie has extensive experience in designing, implementing, conducting, documenting and presenting geological and mineral exploration projects in various parts of Canada and Slovakia. As a project geologist with the Saskatchewan Geological Survey (1974-2007), he managed and executed geoscience projects ranging from detailed mineral deposit studies including various iron ore types, VMS, gold, uranium, rare earth elements and sediment-hosted Pb-Zn deposits to regional scale mapping projects. He also managed and oversaw all stages of report and map production through to printing of all geoscience publications for the Survey for a period of eight years. While with the Survey Charlie completed his PhD research on the geology and uranium deposits located within the central basement uplift of the multi-ring Carswell meteorite impact structure, including detailed mapping, lithogeochemical and petrologic studies of several of the uranium deposits and impact related features found throughout the central uplift. Upon leaving the Survey, Charlie, as Chief Geologist with Triex Minerals, organized and managed a satellite office in Regina and managed a number of uranium exploration projects including soil and biogeochemical sampling, geological mapping, diamond drilling, core sampling and report preparation in the Athabasca Basin of northern Saskatchewan and in the Hornby Basin in Nunavut. He was also instrumental in recognizing a large, previously unknown meteorite impact structure at Pasfield Lake in northeastern Saskatchewan. As a geological consultant Charlie has provided consulting services on gold, uranium and rare earth element exploration programs in Canada and Slovakia; supervised several successful gold diamond drill programs; completed deposit and regional compilations, notably a compilation of rare earth elements occurrences within the Athabasca Basin of Saskatchewan. Charlie has authored and was co-author of over 100 papers and abstracts published in provincial, national, and international journals along with numerous published geology maps, co-editing two Saskatchewan Geological Society symposium volumes, and other published materials. He has been a registered Professional Engineer and Geoscientist since 1977 and belongs to a number of professional organizations. In January 2011 Charlie was inducted into the Saskatchewan Geological Society's Geologist Honour Roll. In 2015 he was awarded the APEGS Outstanding Achievement Award and in 2016 was granted Life Membership status with APEGS.

Mega Fallback Breccia and Impact Melt Bodies Discovered at the Deeply Eroded Carswell Impact Structure, Northwestern Saskatchewan, Canada

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Voluminous impact melt rocks, mega fallback breccia, and extensive impact-induced melting of host granitoid gneisses were discovered during recent uranium exploration diamond drilling by Alpha Exploration Inc. on its Middle Lake property within the central gneissic basement uplift of the Carswell Impact Structure, located in the western part of the Proterozoic Athabasca Basin in NW Saskatchewan, Canada. The impact structure's age is Ordovician, based on previous studies in the 1970s and 80s and more recently in 2010. The mega fallback breccia occupies a wedge-shaped mass 160 m wide, at least 200 m long, and up to 100 m thick along the downthrown side of a major impact-related fault that crosses the basement uplift. The breccia comprises a heterolithic suite of intensely fractured clasts up to 10 m across within a clast-rich, glassy impact breccia matrix accompanied by impact melt veins and dykes. Irregular curvilinear contacts with embayments indicate a semi-plastic state of the boulder-size clasts. In addition to drill core intersections, pink, olive brown and green, vesicular, amygdaloidal, clast-bearing, volcanic-like impact melt bodies were previously mapped on surface, and are spatially associated with the mega fallback breccia. Impact melt bodies occur in dyke to sill-like intrusions up to 30 m wide and several hundred metres long, most commonly along faults. They have a microcrystalline texture with vesicles and amygdules typically lined with chlorite and or quartz. Many amygdules have a white clay core. Quartz is the primary clast type and shows various stages of assimilation into the melt and recrystallization to very fine quartz. Flow banding is common in the impact melt rocks. The intense heat generated by the impact produced in situ melting of granitoid gneisses in this part of the structure, and resulted in the progressive destruction (melting) of the mafic mineral component and metamorphic textures, which in turn produced darker colored rocks. Quartz and feldspars also underwent progressive melting/assimilation, and are commonly present as ragged, relict grains in the black melt, with quartz showing various stages of recrystallization. Some black melt material has recrystallized to very fine, randomly oriented biotite and finer opaque grains. Decorated planar deformation features in quartz occur in all these impact-related rocks.

*Several months after this abstract was submitted to GSA Alpha Exploration merged with Lakeland Resources to become ALX Uranium Corp.