## The REDOX Setting of the Stratabound V Mineralization at the Van Property, Northwest Territories

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This project will investigate two aspects of stratbound critical metal (V) mineralization on the Van property, Northwest Territories. First, it will use sequential leach extractions to understand how V is held within the metalliferous carbonaceous shales. This will be useful for two reasons. First, knowing what phases (mineral or organic matter) the V is held within will help understand the likely depositional mechanism, fluid that transported the metals, and trap mechanism, which will be instrumental in developing a refined geologic model for this type of mineralization. Second, one of the main impediments to mining these types of deposits is the poor recovery using traditional metallurgic techniques. The sequential leaches we will conduct will give initial data to aid engineers in determining more efficient ways to process the ore. In addition to the sequential leach analyses, we will conduct pyrite framboid size analysis on the pyrite framboids from the metalliferous shales and the immediate hanging wall and footwall. This will help determine whether the host rocks for the mineralization were deposited in an oxic/anoxic or euxinic water column. This is important for economic geology because it will aid in developing a more accurate geologic model for these potential new sources for critical metals—important resources as we transition to a green economy. This project received one of the 2022 SEG Canada Foundation Undergraduate Scholarships.