

SUMMARY – ODD Sn-Ta Pegmatite

The Bird River belt of volcanic and sedimentary rocks is well known for hosting a large field of highly fractionated granitic pegmatites. The best known of these dikes is the Tanco pegmatite, which hosts a world class deposit of tantalum, lithium and cesium. Tantalum Mining Corporation of Canada Ltd (Tanco) has been in periodic production for these commodities since 1967. The Odd pegmatite lies within a cluster of dikes, referred to as the Rush Lake group of pegmatites, several kilometers east-northeast of Tanco. Most pegmatites are coarse- to very coarse-grained, as are most of the Rush Lake pegmatites. However, the Odd dike is mainly comprised of fine- to medium-grained, white aplitic feldspar-quartz, mineralized with cassiterite, hence the name “Odd” dike.

The Odd pegmatite was one of many that were discovered in a rush for tin properties in the 1920s. During World War Two, tin was considered a strategic commodity, and the federal Department of Mines and Resources undertook surface sampling and drilled nine holes on the Odd pegmatite. In 1968, Chemalloy Minerals, which operated the nearby Tanco mine, drilled 31 holes totaling 5557 feet on the Odd pegmatite. These holes were drilled at 100 foot section spacing along a length of 1600 feet, roughly covering the portion of the dike presently contained within the ODD claim. The best drill intersection from this program was in hole BA-17, which cut three close-spaced dikes which returned a weighted average grade of 0.026 % Ta_2O_5 and 0.322 % Sn (SnO_2 ?) across 32.4 feet (9.88 m), though the true width is about half. Overall, the Chemalloy drill program in 1968 indicated sub-economic values, with a maximum tantalum analysis of 0.07 % Ta_2O_5 (but typically in the 0.02 to 0.04 % Ta_2O_5 range) and a maximum tin analysis of 0.60 % Sn (SnO_2 ?) (but typically in the 0.15 to 0.30 Sn range), with common dike widths around 3 to 4 feet (1 m).

The author of this report, William C. Hood, staked claim MB7171, ODD, in 2008 to cover the main tin-tantalum mineralized section of the Odd dike. This report describes the results of a small program of detailed geologic mapping completed over the claim in 2012. The objective of this work was to determine whether there were any structural or other geologic controls on the emplacement of the Odd dike that could be used as a guideline for additional exploration for other and larger pegmatites in the area.

Detailed geologic mapping was completed at a scale of 1:1000 over the ODD claim during June, 2012. The claim was found to be underlain mainly by turbidite sediments with bedding and schistosity striking 095°-275° azimuth, with dips consistently 80° south. The turbidite sediments are intruded by several narrow granitic pegmatite dikes, which strike about 095°-275° azimuth, concordant with the sediments in strike, but appear to dip steep north. The largest of these pegmatites is the Odd dike, which extends for 600m across the claim with mapped widths up to 4m. The Odd pegmatite transitions from a poorly fractionated lithology at its west end, to a highly fractionated albite aplite mineralized with cassiterite at its east end before pinching out. This local fractionation trend, from west to east, is the opposite of the regional fractionation, which is from east-southeast to west-northwest in the Bird River belt.

While the Odd pegmatites appear concordant with the sediments on the map of surface geology, they are discordant in two ways. First, the dip of the pegmatites, while measured varying between 80° north and 80° south (concordant with the sediments), has been shown by drilling to be steep north, likely around 85° north. And second, the overall pattern of the pegmatites on the ODD claim is “en echelon”, with the southernmost pegmatites successively pinching out to the east, while new pegmatites open to the north. From this interpretation, an overall tensile fracture orientation striking about 085°-265° azimuth, dipping 85° north, can be estimated.

Two types of exploration targets become apparent from this work. Additional en echelon pegmatites are clearly present along strike and may be present down-dip, with an offset. Three pegmatites (the Odd Northeast dikes) were mapped in the northeast corner of the ODD claim. They pinch to the west at roughly the point where the Odd dike pinches to the east, suggesting that the same amount of tensile fracture opening continues to the east, but is offset about 70m to the north. While the Odd Northeast dikes do not appear to be significantly mineralized where seen in outcrop, they may improve in fractionation levels to the east, under overburden, as the Odd dike does. There is no evidence that the Odd Northeast dikes have been tested in previous drilling.

The other exploration target, probably of greater interest, would be whether any subhorizontal tensile fractures, intruded by pegmatite, exist in the subsurface on

the north side of the Odd dike. Surface joint sets in the Bernic Lake area near Tanco are known to be oriented parallel in some places to sub-surface, shallow-dipping pegmatites. The presence of shallow north-dipping joints in the southeast corner of the ODD claim is supportive of this hypothesis. Previous drilling by Tanco on other pegmatites in the area has intersected steep-dipping and shallow north-dipping segments in the same pegmatite, with better mineralization in the shallow-dipping sections. Most of the large, highly-fractionated pegmatites in the world are flat-lying or shallow-dipping. The possibility of a shallow-dipping pegmatite in the subsurface north of the Odd dike should be investigated by drilling.

Further work is recommended to explore the area of the ODD claim for rare metal mineralization in granitic pegmatites.