Preliminary paragenetic studies of the high grade Island Pod Zn-Pb orebody, Lisheen

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Irish-type deposits are a series of Zn-Pb orebodies which formed from the carbonate replacement of Lower Carboniferous limestone, triggered primarily by fluid mixing.

This project aims to use isotopic (Zn-Cu-S and clumped O-C) techniques to identify geochemical halos and increase our understanding of hydrothermal fluid processes in these deposits.

Initially, the focus is on the Island Pod orebody, Lisheeen. Relative to the main orebody, the Island Pod is unusual in several ways: it is high grade (0.3 Mt 20% Zn, 1.6% Pb), with local thick intercepts of >40% Zn recorded; only minor extensional structures are present and they are not typically associated with the highest quality ore; and mineralization does not occur at the Waulsortian/ABL contact, but only higher in the stratigraphy.

Island Pod samples studied so far suggest a common paragenesis: early euhedral pyrite → dolomite displaying grain size reduction → disseminated sphalerite → disseminated pyrite. Noteworthy textures include (1) branching galena in non-colloform sphalerite and dolomite, and (2) possible dolomite and sphalerite intergrowths. More detailed paragenetic study will follow from a recent thorough sampling of the Island Pod. Subsequently, isotopic analysis will yield additional information about the dynamic processes responsible for mineralization.

Poster Presentation.