

Sediment-hosted stratiform Pb-Zn-Ag

Province:

Potential:

Certainty: High

Index (out of 10):

Critical Elements (Assessment Criteria)	Identified	Not Identified, but likely	Unlikely	Weighting
<p>Setting</p> <ul style="list-style-type: none"> • Intracratonic or passive continental margin with syn-rift or rift/sag rock packages (first order basins), which may be indicated by bends in Australia's Apparent Polar Wandering Path • Regions of intensive deformation and metamorphism (up to granulite facies important for BHT) • Age: Most known Australian deposits are Palaeoproterozoic age. Paleozoic age could be important. 	<ul style="list-style-type: none"> • 			
<p>Source (fluid, metal, energy)</p> <ul style="list-style-type: none"> • Presence of evaporitic and hematitic (or equivalent) oxidised rocks important for basinal saline/oxidised brines. • Felsic igneous rocks and/or arkosic sediments and calcareous rocks as possible sources of lead and zinc • Energy for fluid flow: <ul style="list-style-type: none"> • felsic/mafic igneous rocks (thermal energy for fluid flow and reduced fluids) • thickness of the rock package (for thermally driven fluid flow and/or overpressuring) • crustal extension and normal faulting (seismic pumping) • folding and thrusting (tectonically driven fluid flow) 	<ul style="list-style-type: none"> • 			

<ul style="list-style-type: none"> • palaeogeography (gravity driven fluid flow, hard to evaluate, Irish Style) 				
<p>Fluid pathway</p> <ul style="list-style-type: none"> • Regional growth faults associated with second, third or smaller basins that tap deep rift basin fluids. • Bends in Australia's Apparent Polar Wandering Path can possibly indicate changes in the basin geometry triggering fluid flow 	<ul style="list-style-type: none"> • 			
<p>Trap (any of the following):</p> <ul style="list-style-type: none"> • Structural: <ul style="list-style-type: none"> • second, third order or smaller basins (half grabens) • geochemical (lithological) <ul style="list-style-type: none"> • black shale in carbonate/minor black shale sag packages (Nth Australian type) or in black shale sag packages (Canadian type). • permeable carbonate horizons intersected by growth faults bearing metal fluids (Irish style). • pelites associated with ?volcanics/intrusives (higher heat-flow) at transition from rift to sag rock packages for Broken Hill type deposits. 	<ul style="list-style-type: none"> • 			
<p>Signs of mineralising process (any of the following, but if occurrences have been identified the level of certainty increases)</p> <ul style="list-style-type: none"> • Alteration: <ul style="list-style-type: none"> • halos of Fe and Mn carbonates • barite occurrence/anomalism associated laterally with ore horizons (black shale sag type) • Geochemical anomalies 				

<ul style="list-style-type: none"> • Extensive elevated Fe and Mn in units lateral to (for 10's of km) and above/below (100's of metres) ore horizons (carbonate sag type). • Presence of gahnite in BHT • Lead isotope values consistent with those of the known deposits • Known occurrences of sediment-hosted stratiform/Irish style Pb-Zn-Ag. 				
<ul style="list-style-type: none"> • Preservation (not very important) 				