Ironstone hosted Cu-Au-U (Olympic Dam Style)

Province:

Potential: **Certainty:**

Index (out of 10):

Critical Elements (Assessment Criteria)	**Identified**	**Not Identified, but likely**	**Unlikely**	**Weighting**
Setting • Intracratonic or continental margin rifts • anorogenic mafic and felsic magmatism • predominantly felsic volcanic-plutonic complexes containing shallow crustal level (< ~ 4 km) plutons • For Phanerozoic deposits continental arc and/or back arc extension setting				
Source (fluid, metal, energy) • Fluids: saline groundwater and/or playa lake. Magmatic related to anorogenic magmatism or deeply circulating meteoric water. • Metals: mafic and felsic volcanic acquifer for ground and lake water. Oxidised I-type granitoids • Energy: Anorogenic magmatism and high palaeo-geothermal gradient				
Fluid pathway • Transtensional and extensional faults (photo-lineaments); • diatreme-related vent zones; • permeable near-surface aquifers				
Trap (any of the following)				

• Structural: breccia complex, array of brittle faults • Chemical: Pre-existing Fe-oxide–rich bodies				

Signs of mineralising process (any of the following, but if occurrences have been identified the level of certainty increases)
• Wall rock alteration (any of the following):
  • Regional Fe-metasomatism (magnetite dominated)
  • Sodic alteration (albite-magnetite±actinolite, chlorite)
  • Potassic (K-felspar-sericite-magnetite-quartz±biotite-actinolite-chlorite)
  • Sericitic or hydrolytic (haematite-sericite±carbonate±chlorite±quartz)
  • silicification
  • skarn (in sedimentary host rocks)
  • haematite alteration overprinting magnetite-bearing alteration
• Geochemical anomalies
• Geophysical: largely coincident gravity and magnetic anomaly
• Known occurrences of copper, gold ± uranium				

Preservation (not very important) • Age: Deposits of Palaeo- Mesoproterozoic and Phanerozoic ages. For Proterozoic deposits formed at shallow levels (< 1-2 Km) the presence of rock cover (as in the Stuart Shelf) could be significant				