

The Successful Application of Modern Exploration Techniques to Previously Explored Areas in the Athabasca Basin, Canada

Kenneth L. Wheatley

Forum Uranium Corp.

wheats@Forumuranium.com

Several project areas within the Athabasca Basin of northern Saskatchewan, Canada, which were explored in the 1970's and 1980's have had recent discoveries due to the application of modern exploration techniques and the evolution in the understanding of unconformity uranium deposit models. The Otis, Barney and Opie showings of the Maurice Bay area and the Patterson Lake area deposits on the west side of the basin, and the Roughrider, Midwest A and Phoenix deposits on the east side of the basin are all recent discoveries in areas that were explored in the past.

New showings (Forum Uranium, 2012, 2013) in the Maurice Bay area on the northwest shore of Lake Athabasca were discovered mainly by the application of the Millennium basement-hosted unconformity model in conjunction with a refined ground gravity survey which easily delineated areas of less dense hydrothermal alteration within Proterozoic lithologies. Previous exploration methods relied heavily on surface prospecting of glaciated terrain and tracing uraniferous boulders back to their source, or systematic drilling of graphitic EM conductors.

The Triple R (Fission Uranium Corp., 2012) and Arrow deposits (NexGen, 2014) were found by a combination of the age-old technique of following a train of uraniferous boulders to its source along an EM conductor (Triple R), or by testing an EM conductor at a location where it bends and weakens and has an associated gravity low (Arrow).

The Midwest A deposit (Areva Resources Canada Ltd, 2005) was found along the NNE extension of the Midwest trend within a grid of previous drill holes completed in the early 1980's. A mixture of lithogeochemistry and a ground resistivity survey provided the target for the drill program. This deposit was found at the intersection of the N030E Midwest structure and a cross-cutting N070E structure and is located at the unconformity. The cross-cutting N070E structures are also present in the Midwest deposit to the south, and the Roughrider deposit to the north.

The Phoenix deposit (Denison Mines, 2008) was discovered on the southeast side of the Athabasca Basin on a project previously worked since the 1970's. Several sub-economic zones were discovered on the project by previous explorers, but the use of a detailed resistivity survey along a prospective trend based on the McArthur River deposit model (footwall of a quartzite ridge) provided three well-defined drill targets that led to the discovery.