

## **Exploration and Discovery of the Pine Ridge Uranium Deposits**

### **Powder River Basin, Wyoming, USA**

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The Pine Ridge uranium deposits are named for a newly identified area between the Pumpkin Buttes and Southern Powder River Basin (PRB) mining districts. This regional prospect, covering nine contiguous townships, is northwest of the Cameco Smith Ranch in situ leach mine and west of the Uranium One Allemand-Ross project in Converse County, Wyoming.

Surface mapping and 350+ measured sections of well exposed outcrops have identified 250 target sandstones and contributed to a model of the complex braided stream channel architecture within the Eocene Wasatch and Paleocene Fort Union Formations. The uranium-bearing sandstones occur in 3-D bundles of vertically aggrading river systems flowing into the PRB from distant uranium source areas of the Granite Mountains to the west and the northern Laramie Range to the south. Large volumes of mudstone overbank and swamp facies separate the individual river systems laterally, resulting in greater vertical reservoir continuity from sandstones stacking. At least five major paleo-river systems have been identified and named.

High organic content, within the host formations, and rising veils of hydrocarbon gases from underlying oil and gas deposits have resulted in classic roll front uranium deposits in individual sandstones and intervals. Mineralization, in stacked sandstone bundles several hundred feet thick, shows a crescent-shaped distribution within the shallow mineralized interval “attic”, the “cellar” at the base of the alteration cell, and the farthest basin-ward “front door”.

An estimated 66-72 million pounds resource potential has been identified along over 200 miles of redox boundary string length mapped from the 1,650 control points consisting of outcrop data, pre-existing uranium drilling, oil and gas wells, and proprietary drilling over three years by Stakeholder. All technical and land data is managed in ArcView GIS with 3-D capability.

Very few restrictions apply to the Stakeholder project area. Exploration drilling is permitted solely by the Wyoming Department of Environmental Quality. There are no threatened and endangered species, and no surveys have been required for wildlife or archeological resources. There are only three surface owners, secured by long-term agreements.

This paper will provide an update on the project status and outlook.