Introduction of the Ravar Jurassic-Cretaceous Sedimentary Basin as the First Identified Sandstone-type Uranium Mineralization in Iran

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ABSTRACT

The Ravar basin is located north of the Kerman Province, southeast Iran, which from the structural point of views is a part of the Tabas Block within the Central Iran zone. The Jurassic-Cretaceous sequence at this area is consisted of red sandstones, known as the JK formation, which its composition from the bottom, begins with fine-grained sandstone changing to medium grained brown sandstone and finally to a micro-conglomerate at the surface. Influx of organic material and sulfide minerals at different stages of basement development has formed reduction layers within the JK formation. Based on radiometric study and litho-stratigraphy sampling, copper mineralization associated with uranium, is in the form of pore and fracture filling stratabound, at a specific stratigraphic sequence and in complete relation with sub-arkose to sub-arenite reduction sandstones.Analytic results of lithogeochemical samples render 21 ppm average uranium assay and for thorium the average assay in the entire basin is about 4 ppm. The high U/Th ratio indicates entrance of mobile uranium into this basin. Reduction areas show anomalies of vanadium, selenium, cobalt and nickel. Based on this studies and comparison with similar sandstone-type uranium deposits, the Ravar Basin has been determined and introduced as the first sandstone-type uranium deposit of Iran.

Keywords: Cu & U mineralization, Reduced sandstone, Jurassic Cretaceous sequence,Sedimentary basin, Ravar, Iran