

SUPPLEMENTARY MATERIAL

Speciation and partitioning of uranium in waterbodies near Ranger Uranium Mine

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DOC concentration sensitively analysis

Speciation modelling was conducted at three different DOC concentrations (1.42, 14.2 and 28.4 mg L⁻¹), while other water chemistry parameters were kept constant at the concentrations given in Table 2 of the manuscript ([SO₄²⁻] = 61.0 mg L⁻¹, [Cl⁻] = 3.5 mg L⁻¹, [HCO₃⁻] = 52 mg L⁻¹, [NH₃] = 0.0155 mg L⁻¹ [PO₄³⁻] = 0.008 mg L⁻¹). The results of this modelling shown in Figures S1-S3 demonstrate abundance uranyl-DOC species does not change significantly between 1.42 – 28.4 mg L⁻¹.

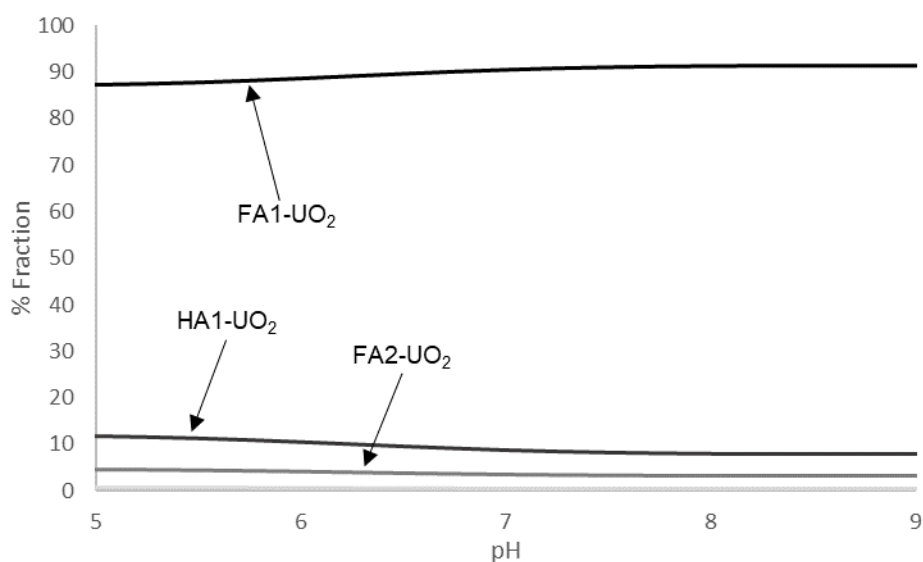


Figure S1 Distribution of aqueous uranium species for Coonjimba Billabong (CJB) at 2.8 µg L⁻¹ U with [DOC] = 1.42 mg L⁻¹. For water parameters were averaged or taken directly from Table 2 of the manuscript.

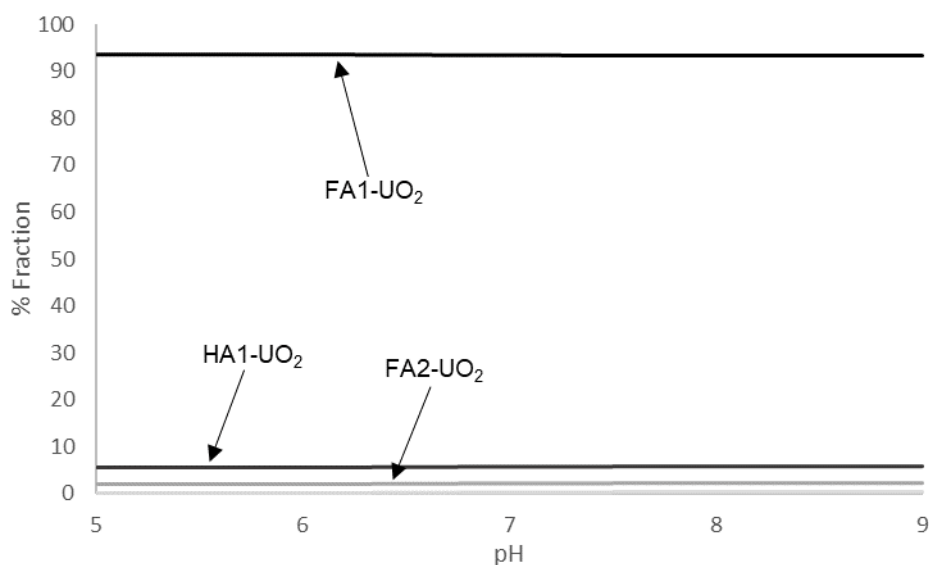


Figure S2 Distribution of aqueous uranium species for Coonjimba Billabong (CJB) at 2.8 µg L⁻¹ U with [DOC] = 14.2 mg L⁻¹. For water parameters were averaged or taken directly from Table 2 of the manuscript.

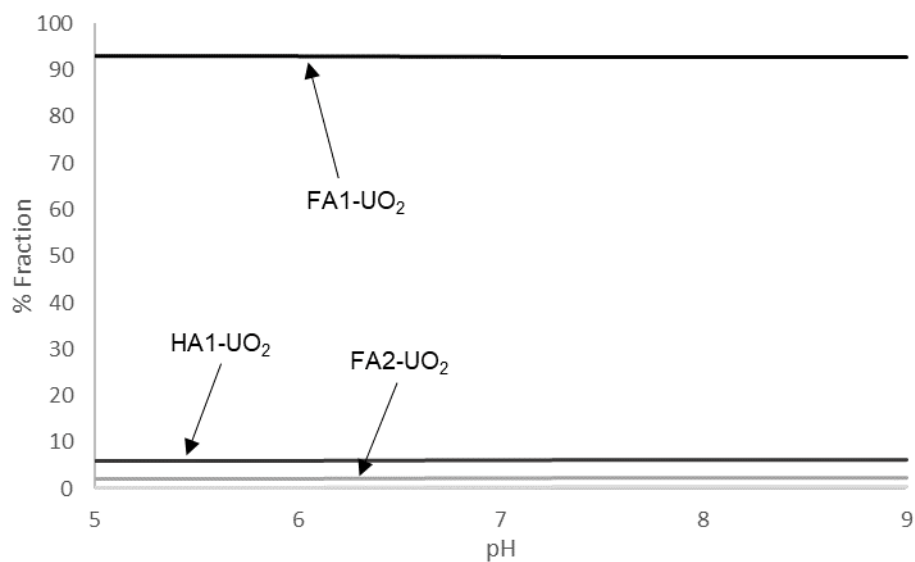


Figure S3 Distribution of aqueous uranium species for Coonjimba Billabong (CJB) at $2.8 \mu\text{g L}^{-1}$ U with $[\text{DOC}] = 28.4 \text{ mg L}^{-1}$. For water parameters were averaged or taken directly from Table 2 of the manuscript.