Electronic Supplementary Information

## Redox-mediated formation of plutonium oxide nanoparticles

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	pН	Eh, mV
3M NH <sub>3</sub> ·H <sub>2</sub> O	11.9	170
$Pu(III) + 3M NH_3 \cdot H_2O$	10.8	210
$Pu(IV) + 3M NH_3 \cdot H_2O$	11.2	180
$Pu(V) + 3M NH_3 \cdot H_2O$	11.4	190
$Pu(VI) + 3M NH_3 \cdot H_2O$	10.9	320

Table S1. pH and Eh value of the studied suspension after solid phase formation.



Figure S1. (A) HRTEM images of precipitates formed in the Pu(VI) system during the first 15 minutes. Inset: SAED pattern. White lines correspond to the PuO<sub>2</sub> structure. (B) Particle size distribution for precipitates formed in the Pu(VI) system after 15 minutes and 60 days, as calculated from the HRTEM data.



Figure S2. Experimental SAXS data for equilibrium phases from the suspensions based on Pu(III), Pu(IV), Pu(V), and Pu(VI) solutions.



Figure S3. Size distribution of particles formed from (A) Pu(III) and Pu(IV), and (B) Pu(V) and Pu(VI) solutions calculated from the HRTEM data.