Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting Information for publication:

One-electron redox kinetics of aqueous transition metal couples $Zn^{2+/+}$, $Co^{2+/+}$, and $Ni^{2+/+}$ using pulse radiolysis

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Contents:

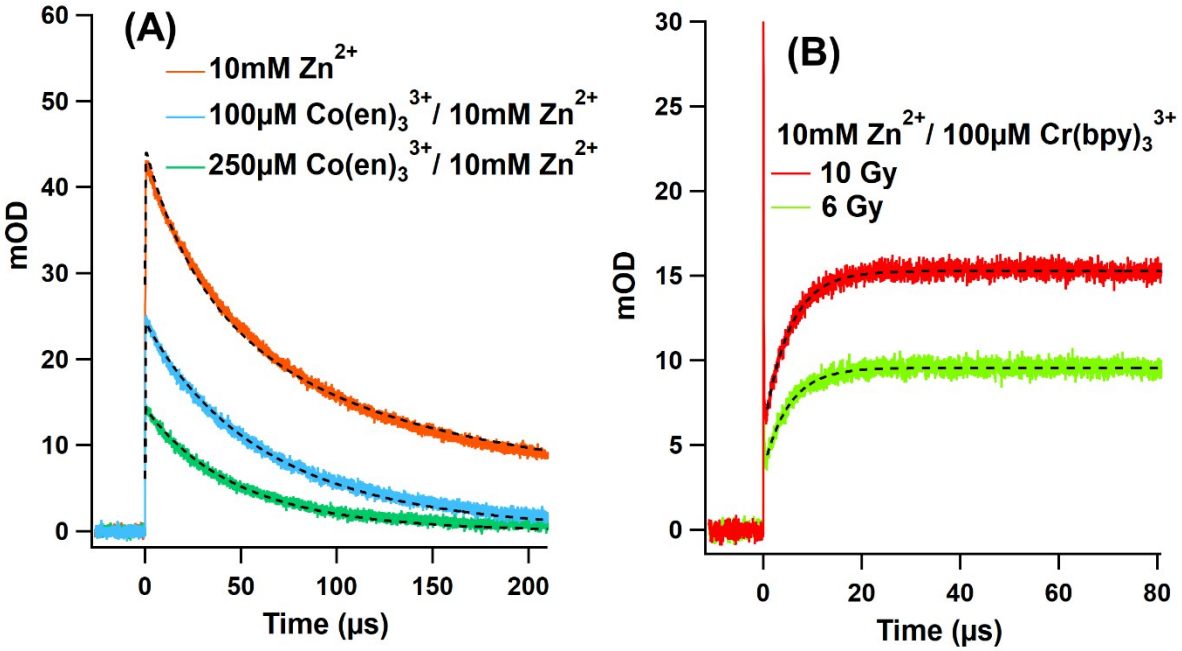

Figure S1. (A) Zn^{+} decay at 300mn in 0.1 M TBA with $Co(en)_3^{3+}$; **(B)** 100 μM $Cr(bpy)_3^{2+}$ absorption at 560 nm in 0.1 M TBA with 10mM Zn^{2+}.

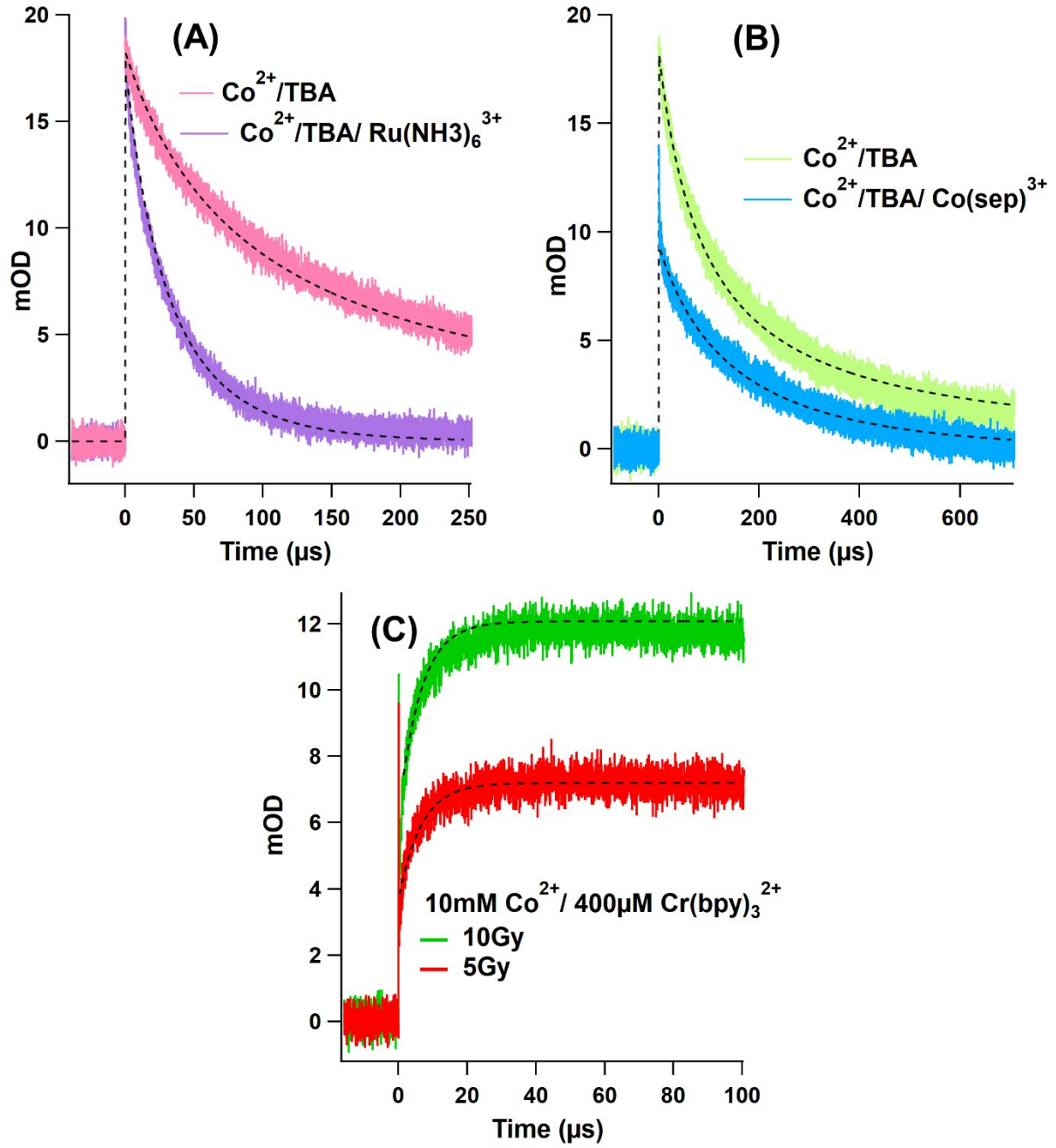

Figure S2. Co^{+} decay at 370mn in 0.1 M TBA with 200 µM $Ru(NH3)_6^{3+}$ **(A)** and 500 µM $Co(sep)^{3+}$**(B)**; **(C)** 400 µM $Cr(bpy)_3^{2+}$ absorption at 560 nm in 0.1 M TBA with 10 mM Co^{2+}. The fit curves are shown in black.

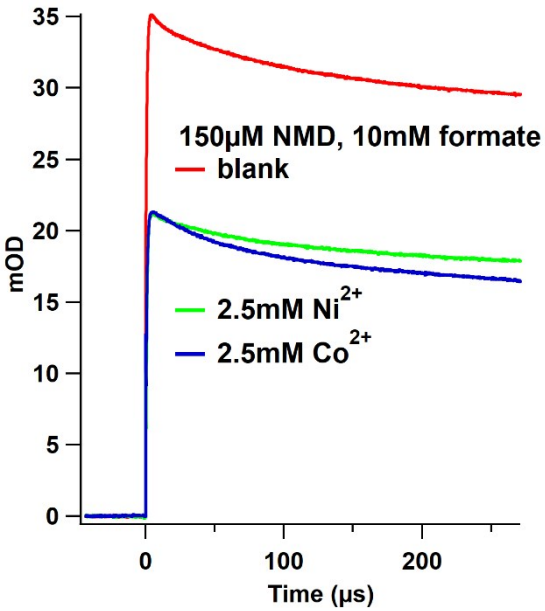

Figure S3. NMD^{+} signals at 460 nm in 150μM NMD^{2+}, 10mM formate solutions with 2.5 mM Co^{2+} and Ni^{2+}.

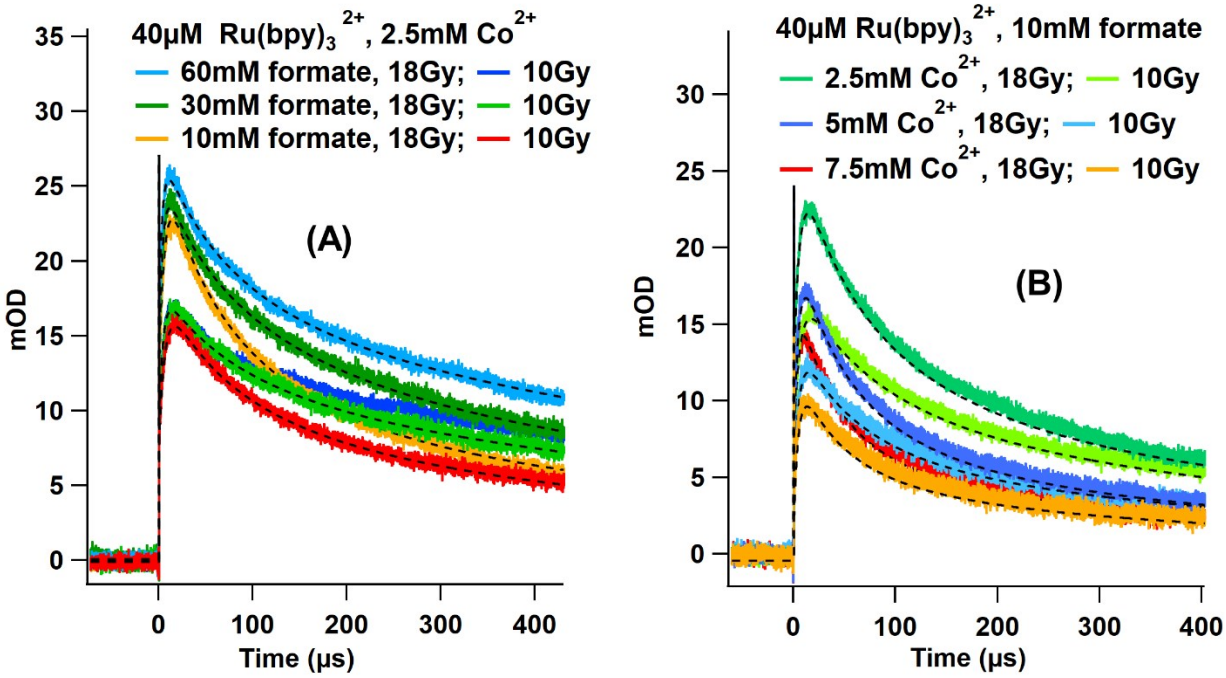

Figure S4. (A) $Ru(bpy)_3^{+}$ decays at 510 nm in 10 mM formate solutions of 40 μM $Ru(bpy)_3^{2+}$ with various concentrations of Co^{2+} (2.5, 5 and 7.5 mM). **(B)** $Ru(bpy)_3^{+}$ decays at 510 nm in the solutions of 40 μM $Ru(bpy)_3^{2+}$ with 2.5 mM Co^{2+} with various concentrations of formate (10, 30 and 60 mM). The fit curves are shown in black.

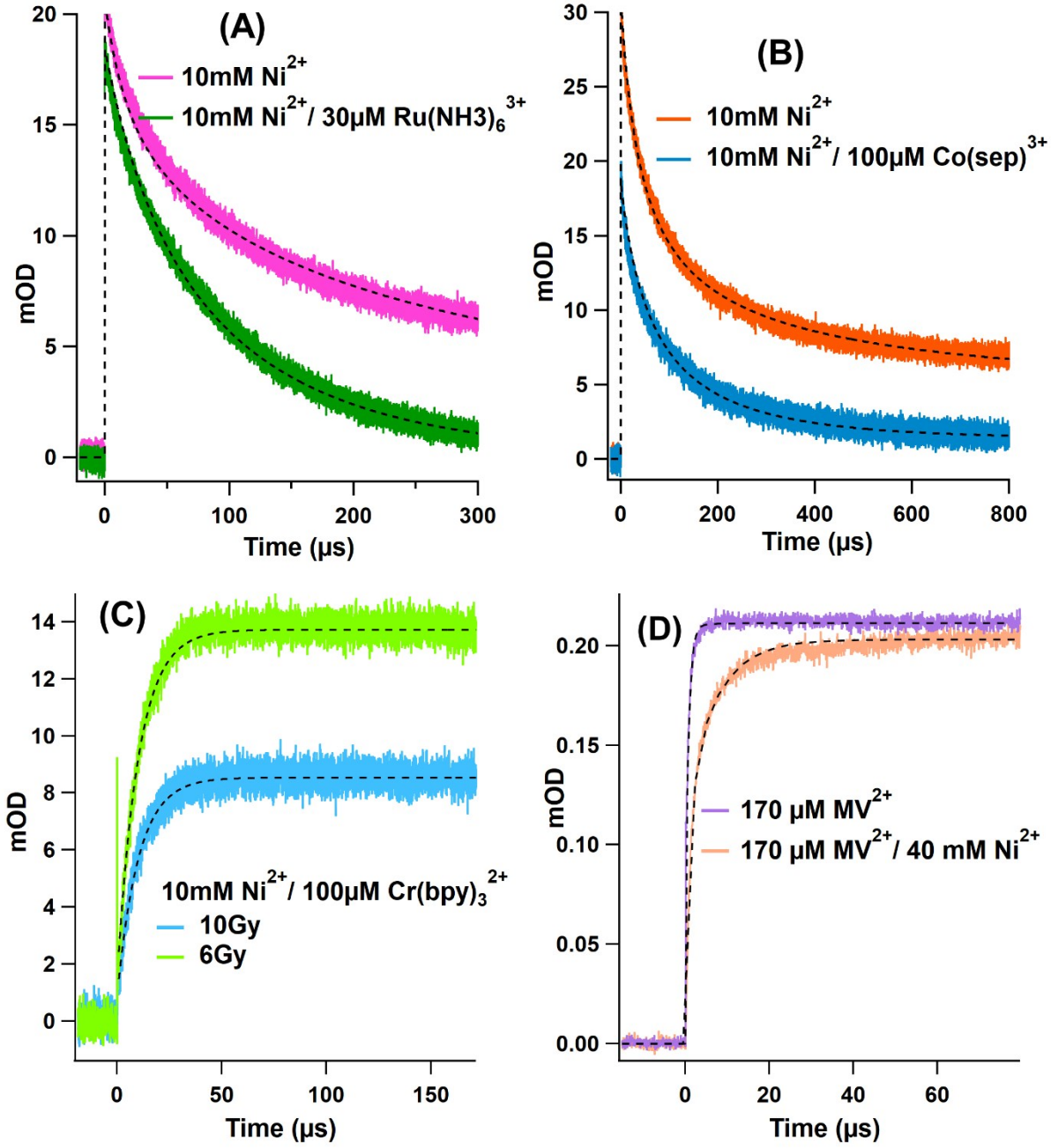

Figure S5. Ni^{+} decay at 300nm in 0.1 M TBA with 30µM $Ru(NH3)_6^{3+}$ **(A)** and 1mM $Co(sep)^{3+}$**(B)**; **(C)** 100 µM $Cr(bpy)_3^{2+}$ absorption at 560 nm in 0.1 M TBA with 10 mM Ni^{2+}; **(D)** $MV^{\bullet+}$ absorption at 600 nm in 40mM Ni^{2+} solutions with 10mM formate. The fit curves are shown in black.

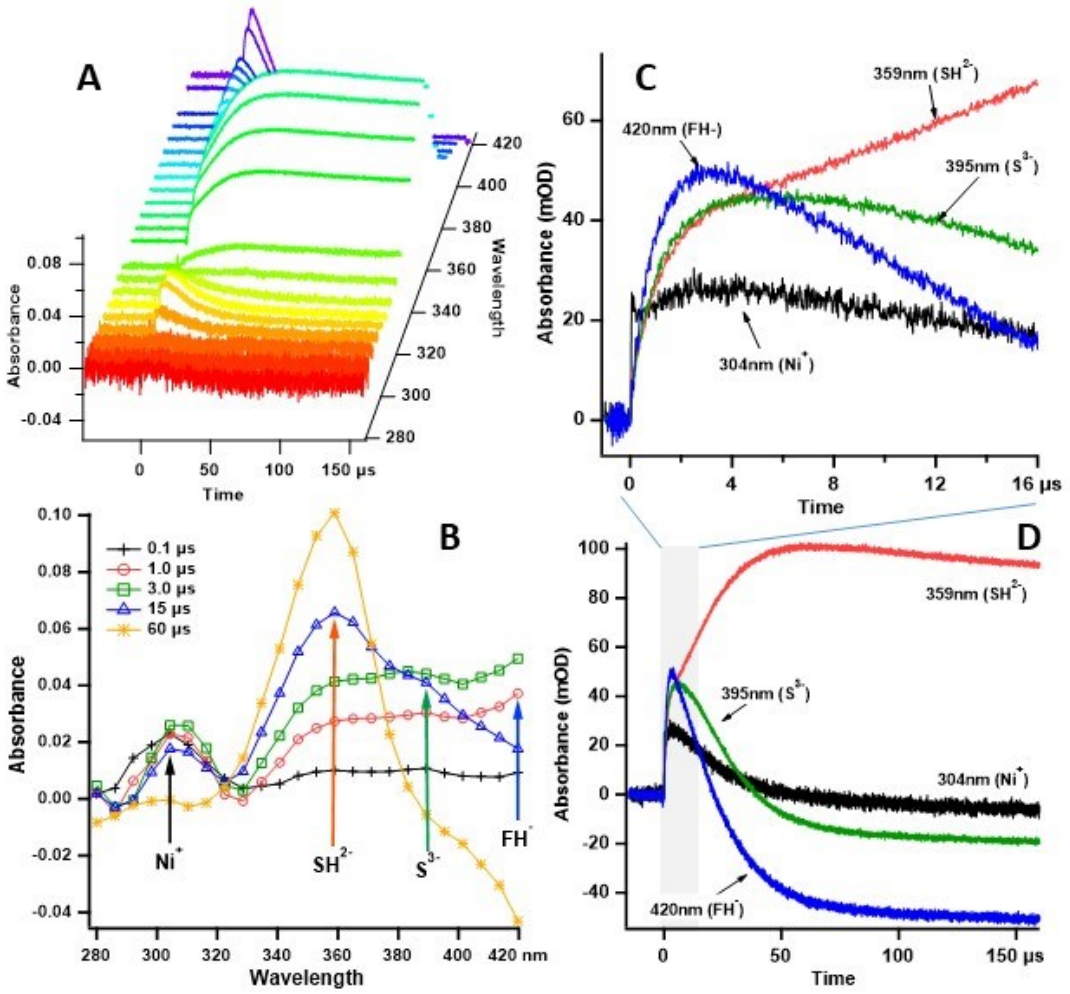

Figure S6. (A) Transient absorption upon 20Gy radiolysis in 100 µM fluorescein solutions with 10mM Ni^{2+} and 100mM TBA at pH 6.5. **(B)** Spectra extracted from (A) at several points in the kinetic development. The four major transients are indicated. **(C)** Kinetics traces showing signal growth at four wavelengths corresponding to the four major transients. **(D)** Development of the signals in (C) out to 150µs.