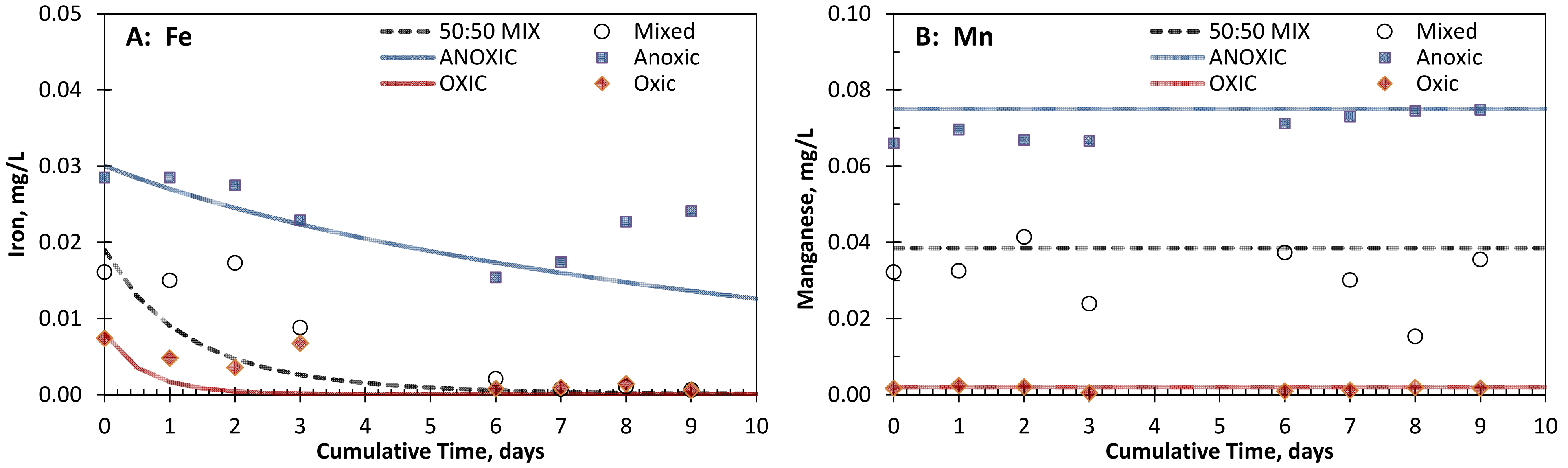

Figure 4: Empirical data (points) and PHREEQC simulation (curves) of chemical changes to anoxic water, oxic water, and 50:50 anoxic:oxic mixture over time. [Samples were collected in glass bottles immersed in a bucket with continuous flow of water from a pump set at relevant depth. For the "mixed" sample, the glass bottle was filled by the two pumps at the same time. Bottles were placed at 20°C and protected from light. Each day, one bottle of each series was sacrificed and measured for pH, O_2, and concentrations of cations and anions.] [The PHREEQC model considers kinetic and equilibrium speciation reactions with autocatalytic sorbent and bacterial catalysis. Oxidation rates of Fe^{II} and Mn^{II} include homogeneous and heterogeneous contributions, plus that for Fe^{II} also includes microbial catalysis of the heterogeneous process. Homogeneous rates depend on the aqueous metal concentration; heterogeneous rates depend on the adsorbed metal concentration.]

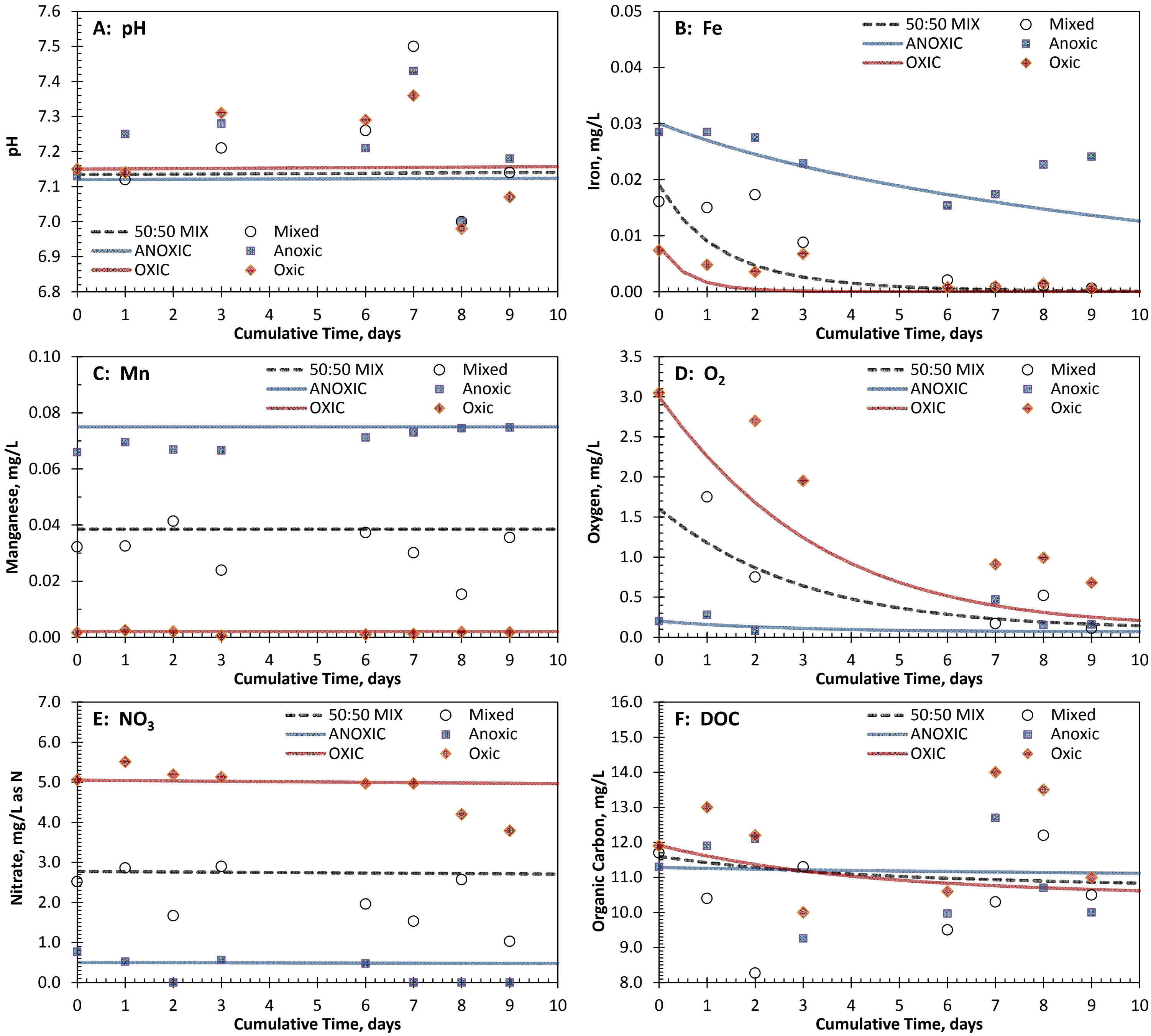

Figure SI.4: Empirical data (points) and PHREEQC simulation (curves) of chemical changes to anoxic water, oxic water, and 50:50 anoxic:oxic mixture over time. [Samples were collected in glass bottles immersed in a bucket with continuous flow of water from a pump set at relevant depth. For the "mixed" sample, the glass bottle was filled by the two pumps at the same time. Bottles were placed at 20°C and protected from light. Each day, one bottle of each series was sacrificed and measured for pH, O_2, and concentrations of cations and anions.] [The PHREEQC model considers kinetic and equilibrium speciation reactions with autocatalytic sorbent and bacterial catalysis. Oxidation rates of Fe^{II} and Mn^{II} include homogeneous and heterogeneous contributions, plus that for Fe^{II} also includes microbial catalysis of the heterogeneous process. Homogeneous rates depend on the aqueous metal concentration; heterogeneous rates depend on the adsorbed metal concentration.]