• The physiological properties of chromium depend on its oxidation state. Consider the half reaction in which Cr(VI) is reduced to Cr(III).

 $\text{CrO}_4^{2-}(\text{aq}) + 4\text{H}_2\text{O}(1) + 3\text{e}^- \rightarrow \text{Cr}(\text{OH})_3(\text{s}) + 5\text{OH}^-(\text{aq})$ $E^\circ = -0.13 \text{ V}$ Calculate the potential for this half reaction at 25 °C, where pH = 7.40 and $[\text{CrO}_4^{2-}(\text{aq})] = 1.0 \times 10^{-6} \text{ M}$.

Answer: