The reaction of Fe^{III}-TAML (Tetra Amido Macrocyclic Ligand) with peroxide in an aqueous solution has been examined. The addition of one equivalent of H$_2$O$_2$ to Fe^{III}-TAML at pH = 11 yields an intermediate which we have characterized. X-band EPR spectroscopy shows a ground state $S = 1/2$ signal with $g = 2.14, 2.11, 1.99$ that broadens with $^{57}$Fe enrichment. Mössbauer spectra at low temperature on the same samples show a new paramagnetic species. At high temperature this species collapses into a broadened doublet which can be fit with two doublets of equal area having isomer shifts of $\delta = 0.00$ mm/s and $\delta = -0.11$ mm/s indicating the formation of a mixed valence Fe^{III} Fe^{IV} species. A fit to the temperature dependence of the EPR signal finds an antiferromagnetic spin exchange coupling of $J = 50$ cm$^{-1}$. The species has new optical bands above 500nm.