Figure VII-1 Alkaline Uranium Leach Chemistry In The Aquifer

$$2UO_{2(s)} + O_2 + 2H_2O \rightarrow 2UO_2^{+2}_{(l)} + 4OH^-$$
 (1)

$$UO_2^{+2} + 2HCO_3^{-} + 2OH^{-} \rightarrow UO_2(CO_3)_2^{-2} + 2H_2O$$
 (2)

Equation (1): In an aqueous environment, the oxidized uranium will form a soluble uranyl $(\mathrm{UO_2}^{+2})$ cation.

Equation (2): Sodium bicarbonate and carbon dioxide gas is introduced into the injection lixiviant. The predominant uranyl dicarbonate complex forms and stabilizes uranyl ions in solution.