# Ammonia Toxicity Analysis
# for
# Waste Load Allocation Development (Updated 2013)

Date: 3/14/2022
Facility: Hahira WPCP
NPDES Permit Number: GA0037974
Receiving Stream: Unnamed Trib to Frank Creek, Suwannee River Basin
Engineer: Lucy Sun
Comments: Reissuance

November - April

**Stream and Facility Data:**

| | | |
|---|---|---|
| Background Stream pH (standard units): | 6.7 | RV_09_16324 |
| Effluent pH (standard units): | 8.5 | |
| Final Stream pH (standard units): | 7.92 | |
| Stream Temperature (Celsius): | 18 | |
| 30Q3 Streamflow (cfs): | 0.02 | |
| Stream background concentration (Total NH3-N, mg/L): | 0.03 | |
| Facility Discharge (MGD/cfs): | 0.275 | 0.43 |
| Total Combined Flow (cfs): | 0.45 | |

Effluent concentration (Total NH3-N, mg/L) = 1.0 Current limits 10 mg/L

If **1.0** is greater than 17.4 mg/L, use 17.4 mg/L in WLA modeling.

**Chronic Criterion based on Villosa iris (Rainbow mussel):**

Instream CCC = criterion continuous concentration (chronic criterion):

$$CCC = 0.8876 \times \left(\frac{0.0278}{1 + 10^{(7.688 - pH)}} + \frac{1.1994}{1 + 10^{(pH - 7.688)}}\right) \times \left(2.126 \times 10^{0.028 \times (20 - MAX(T,7))}\right)$$

Allowable instream concentration CCC (Total NH3-N, mg/l) = 0.99

Based on National Criterion For Ammonia In Fresh Water As Revised In Year 2013

Source: Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater 2013, U.S. Environmental Protection Agency, Office of Water, Office of Science and Technology, EPA-822-R-13-001. April 2013. Washington, D.C.