

R2 Reasonable Potential Tool Parameter Report

PR0020486 - 001 : Nitrogen, total [as N]

Evaluated from 06/09/2017 to 06/09/2022

FACILITY INFORMATION:

PRASA GUANICA WWTP

YAGUER STREET

GUANICA, PR

WQS Import File: PR2019Standards-RPToolEDIT.xlsx

SUMMARY STATISTICS:

Number of Samples: 46

Min: 2160 TEST

Mean: TEST

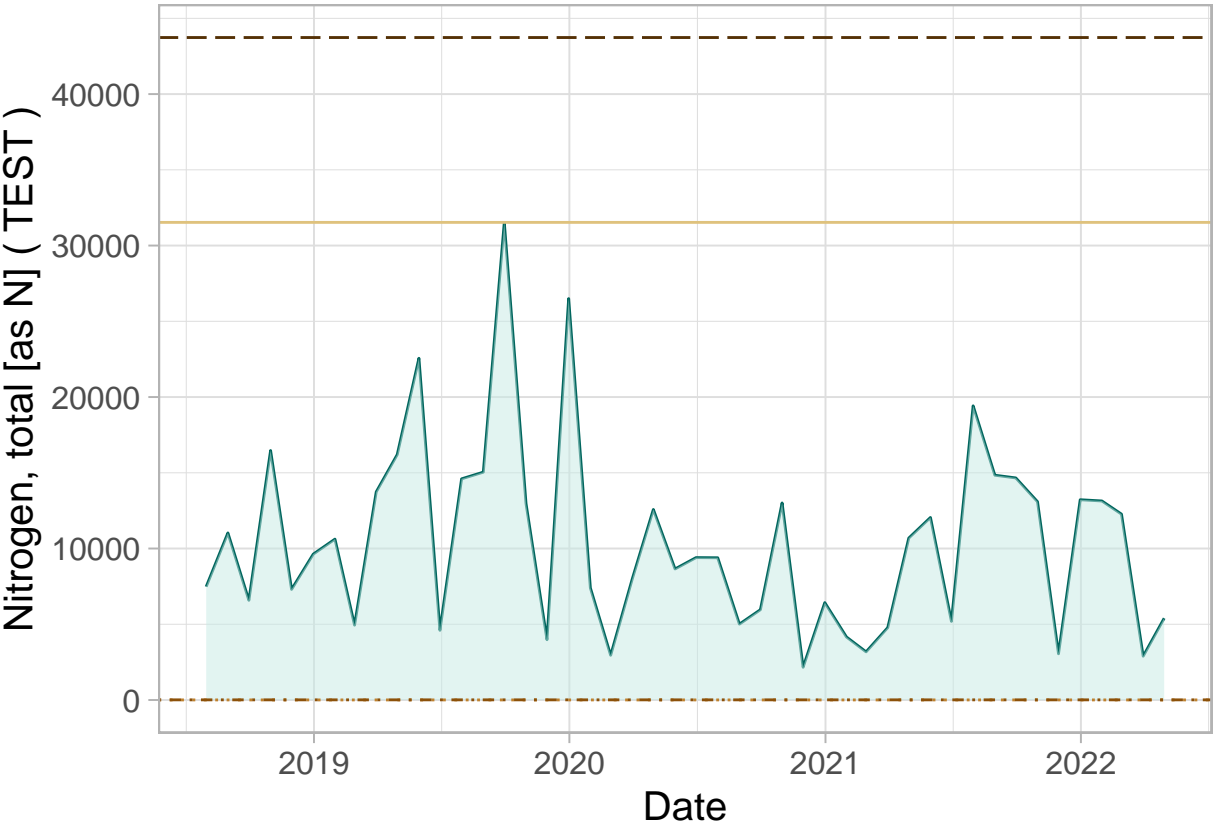
Max: 3.153×10^4 TEST

TIME SERIES AND WQS

WQS - SB: 5 TEST

WQS - SD: 10 TEST

RWC: 4.3733×10^4 TEST



RECEIVING WATER CONCENTRATION CALCULATIONS

assuming a 95% confidence level and a 95% probability basis

$$\text{Number of samples} = n$$

$$\text{Maximum effluent concentration} = \max$$

$$\text{Dilution Ratio} = DR$$

$$\text{Coefficient of Variation (CV)} = S_n/\mu \text{ or } 0.6 \text{ when } n \leq 10$$

$$Z - \text{statistic} = Z_x$$

$$RPM = \frac{\exp(Z_{95} \ln(1 + CV^2)^{0.5} - 0.5 \ln(1 + CV^2))}{\exp(Z_x \ln(1 + CV^2)^{0.5} - 0.5 \ln(1 + CV^2))}$$

$$RWC = \text{maximum effluent concentration} * RPM * \text{Dilution Ratio}$$

$$n = 46$$

$$\max = 3.153 \times 10^4$$

$$DR = 1$$

$$CV = 0.6$$

$$Z_{95} = 1.46$$

$$Z_x = 0.87$$

$$\begin{aligned} RPM &= \frac{\exp(1.46 \ln(1 + 0.6^2)^{0.5} - 0.5 \ln(1 + 0.6^2))}{\exp(0.87 \ln(1 + 0.6^2)^{0.5} - 0.5 \ln(1 + 0.6^2))} \\ &= 1.39 \end{aligned}$$

$$\begin{aligned} RWC &= 3.153 \times 10^4 * 1.39 * 1 \\ &= 4.3733 \times 10^4 \end{aligned}$$