R2 Reasonable Potential Tool Parameter Report

PR0024163 - 001 : Zinc, total [as Zn]

Evaluated from 07/29/2017 to 07/29/2022

FACILITY INFORMATION:

PRASA HATILLO WTP

STATE ROAD 2, KM 88.9

HATILLO, PR

WQS Import File: PR2022Standards-RPTool_from_for_binder.xlsx

SUMMARY STATISTICS:

Number of Samples: 55

Min: 20 ug/L

Mean: ug/L

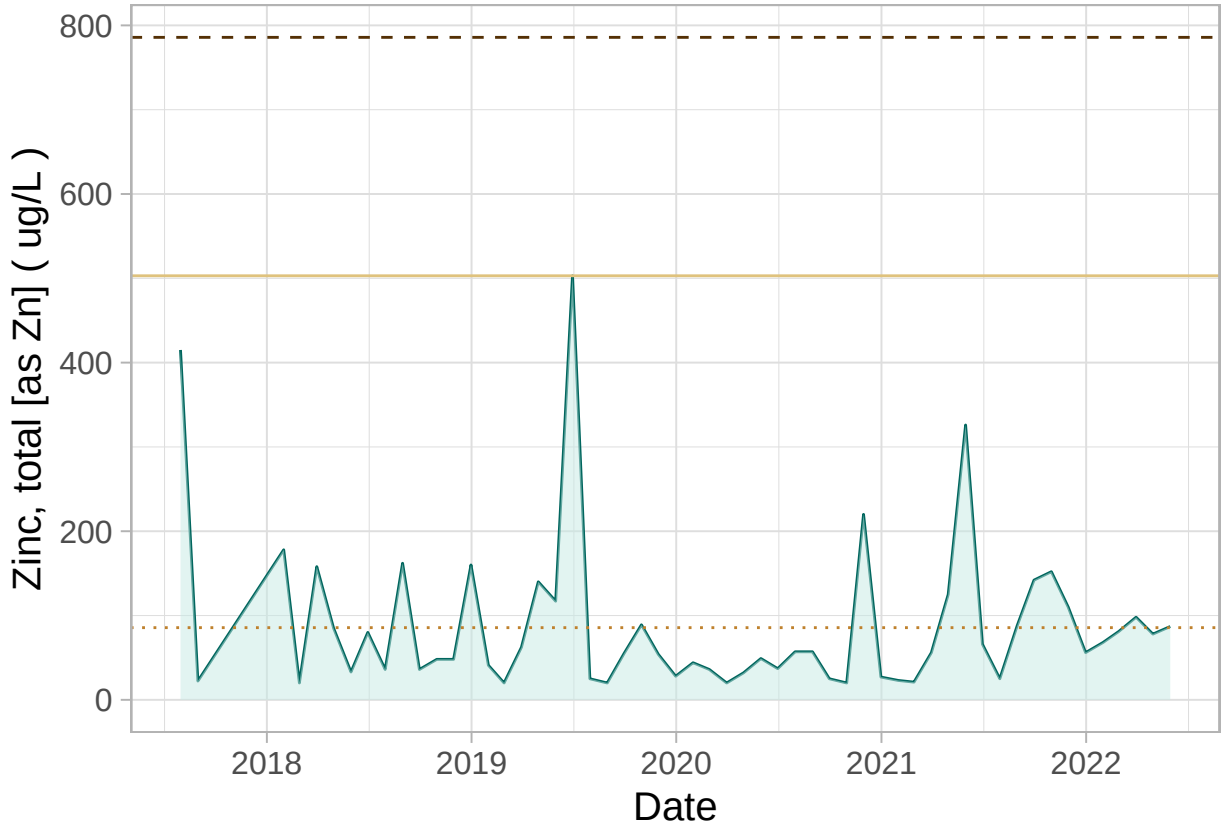
Max: 503 ug/L

WQS - SB: 85.62 ug/L

WQS - SD: NA ug/L

RWC: 785.8 ug/L

TIME SERIES


800
600
400
200
0
Zinc, total [as Zn] (ug/L)
2018
2019
2020
2021
2022
Date

RECEIVING WATER CONCENTRATION CALCULATIONS

assuming a 95% confidence level and a 95% probability basis
calculations from 1991 Technical Support Document pgs 51-55

$$
\begin{aligned}
Number of samples &= n \\
Maximum effluent concentration &= max \\
Dilution Ratio &= DR \\
Coefficient of Variation (CV) &= S_n/\mu or 0.6 when n \leq 10 \\
Z - statistic &= Z_x \\
RPM &= \frac{exp(Z_{95}\ln(1+CV^2)^{0.5} - 0.5\ln(1+CV^2))}{exp(Z_x\ln(1+CV^2)^{0.5} - 0.5\ln(1+CV^2))} \\
RWC &= maximum effluent concentration * RPM * Dilution Ratio
\end{aligned}
$$

$$
\begin{aligned}
n &= 55 \\
max &= 503 \\
DR &= 1 \\
CV &= 1.06 \\
Z_{95} &= 1.645 \\
Z_x &= 1.131
\end{aligned}
$$

$$
\begin{aligned}
RPM &= \frac{exp(1.645\ln(1+1.06^2)^{0.5} - 0.5\ln(1+1.06^2))}{exp(1.131\ln(1+1.06^2)^{0.5} - 0.5\ln(1+1.06^2))} \\
&= 1.56
\end{aligned}
$$

$$
\begin{aligned}
RWC &= 503 * 1.56 * 1 \\
&= 785.8
\end{aligned}
$$

DATA TABLE

NPDES ID	Outfall	Parameter	Monitoring Period	Value	Unit	NODI Code
PR0024163	001	Zinc, total [as Zn]	2017-07-31	415.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2017-08-31	22.27	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-01-31	178.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-02-28	20.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-03-31	158.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-04-30	85.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-05-31	33.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-06-30	80.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-07-31	36.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-08-31	162.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-09-30	36.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-10-31	48.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-11-30	48.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2018-12-31	160.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-01-31	41.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-02-28	20.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-03-31	62.40	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-04-30	140.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-05-31	117.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-06-30	503.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-07-31	25.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-08-31	20.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-09-30	55.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-10-31	89.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-11-30	54.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2019-12-31	28.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-01-31	44.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-02-29	36.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-03-31	20.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-04-30	32.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-05-31	49.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-06-30	37.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-07-31	57.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-08-31	57.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-09-30	25.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-10-31	20.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-11-30	220.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2020-12-31	27.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-01-31	23.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-02-28	21.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-03-31	56.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-04-30	125.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-05-31	326.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-06-30	66.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-07-31	25.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-08-31	88.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-09-30	142.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-10-31	152.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-11-30	110.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2021-12-31	56.00	ug/L	

NPDES ID	Outfall	Parameter	Monitoring Period	Value	Unit	NODI Code
PR0024163	001	Zinc, total [as Zn]	2022-01-31	68.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2022-02-28	81.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2022-03-31	98.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2022-04-30	78.00	ug/L	
PR0024163	001	Zinc, total [as Zn]	2022-05-31	87.00	ug/L	