Reasonable Potential Analyzer

Facility Name: City of Ruidoso Downs/Village of Ruidoso WWTP

NPDES Permit Number: NM0029165 Outfall Number: 001

Proposed Critical Dilution*: 53 %

***Critical Dilution in draft permit, do not use % sign.**

Enter data in yellow shaded cells only. Fifty percent should be entered as 50, not 50%.

Test Data

	INVERTEBRATE				VERTEBRATE			
Date (mm/yyyy)	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU
12/09/17	81	81	1.23	1.23	81	81	1.23	1.23
03/17/18	81	81	1.23	1.23	81	81	1.23	1.23
06/16/18	81	81	1.23	1.23	81	81	1.23	1.23
09/15/18	81	81	1.23	1.23	81	81	1.23	1.23
12/06/18	81	81	1.23	1.23	81	81	1.23	1.23
03/02/19	71	71	1.41	1.41	71	71	1.41	1.41
08/31/19	71	71	1.41	1.41	71	71	1.41	1.41
02/29/20	71	71	1.41	1.41	71	71	1.41	1.41
08/29/20	71	71	1.41	1.41				
03/04/21	71	71	1.41	1.41	71	71	1.41	1.41
08/28/21	40	40	2.50	2.50				
10/30/21	71	71	1.41	1.41				
11/20/21	71	71	1.41	1.41				
12/18/21	71	71	1.41	1.41				
01/25/22	71	71	1.41	1.41	71	71	1.41	1.41
	40	40	2.50	2.50	71	71	1.41	1.41
Count			15	15			10	10
Mean			1.423	1.423			1.322	1.322
Std. Dev.			0.309	0.309			0.092	0.092
CV			0.2	0.2			0.1	0.1
RPMF			1.2	1.2			1.1	1.1

	1.887	Reasonable Potential Acceptance Criteria
Vertebrate Lethal	1.590	No Reasonable Potential exists. Permit requires WET monitoring, but no WET limit.
Vertebrate Sublethal	1.590	No Reasonable Potential exists. Permit requires WET monitoring, but no WET limit.
Invertebrate Lethal	0.821	No Reasonable Potential exists. Permit requires WET monitoring, but no WET limit.
Invertebrate Sublethal	0.821126761	No Reasonable Potential exists. Permit requires WET monitoring, but no WET limit.

Reasonable Potential Analyzer

Determining "Reasonable Potential" for Excursions Above Ambient Criteria Using Effluent Data Only

EPA recommends finding that a permittee has “reasonable potential” to exceed a receiving water quality standard if it cannot be demonstrated with a high confidence level that the upper bound of the lognormal distribution of effluent concentrations is below the receiving water criteria at specified low-flow conditions.

Step 1 Determine the number of total observations (“n”) for a particular set of effluent data (concentration or toxic units [TUs]), and determine the highest value from that data set.

Step 2 Determine the coefficient of variation for the data set. For a data set where n<10, the coefficient of variation (CV) is estimated to equal 0.6, or the CV is calculated from data obtained from a discharger. For a data set where n>0, the CV is calculate as standard deviation/mean. For less than 10 items of data, the uncertainty in the CV is too large to calculate a standard deviation or mean with sufficient confidence.

Step 3 Determine the appropriate ratio from the table below.

Step 4 Multiply the highest value from a data set by the value from the table below. Use this value with the appropriate dilution to project a maximum receiving water concentration (RWC).

Step 5 Compare the projected maximum RWC to the applicable standard (criteria maximum concentration, criteria continuous concentration [CCC], or reference ambient concentration). EPA recommends that permitting authorities find reasonable potential when the projected RWC is greater than an ambient criterion.