Reasonable Potential Analyzer

Facility Name	Canon Air Force Base		
NPDES Permit Number	NM0030236	Outfall Number	002
Proposed Critical Dilution*	100	APPENDIX B	

***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

	VERTEBRATE				INVERTEBRATE			
Date (mm/yyyy)	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU
Jan-11	100	100	1.00	1.00	100	100	1.00	1.00
	100	100	1.00	1.00	100	100	1.00	1.00
Count			1	1			1	1
Mean			1.000	1.000			1.000	1.000
Std. Dev.								
CV			0.6	0.6			0.6	0.6
RPMF			6.2	6.2			6.2	6.2

	1	Reasonable Potential Acceptance Criteria
Vertebrate Lethal	6.200	Reasonable Potential exists, Permit requires WET monitoring and WET limit.
Vertebrate Sublethal	6.200	Reasonable Potential exists, Permit requires WET monitoring and WET limit.
Invertebrate Lethal	6.200	Reasonable Potential exists, Permit requires WET monitoring and WET limit.
Invertebrate Sublethal	6.2	Reasonable Potential exists, Permit requires WET monitoring and WET limit.

The previous permit established WET biomonitoring with CD = 100%. DMR reports reveal one (1) passing test for both the *Ceriodaphnia dubia* and *Pimephales promelas* species during the last permit term. The EPA Reasonable Potential Analyzer (See Appendix A) indicates that RP exists. However, EPA is overruling this finding because Canon Air Force Base has not failed a WET test during their last permit term and is conducting tests at the maximum critical dilution. EPA concludes that this effluent does not cause or contribute to an exceedance of the State water quality standards. Therefore WET limits will not be established in the proposed permit.

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.

Reasonable Potential Table

key1	10	11	12	13	14	15	16	17	18	19	20
0.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
0.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1
0.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2
0.4	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.2
0.5	1.6	1.6	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.3
0.6	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.4
0.7	1.9	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.4
0.8	2	1.9	1.9	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.5
0.9	2.2	2.1	2	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.5
1	2.3	2.2	2.1	2	1.9	1.8	1.8	1.7	1.7	1.6	1.6
1.1	2.4	2.3	2.2	2.1	2	1.9	1.9	1.8	1.7	1.7	1.7
1.2	2.6	2.4	2.3	2.2	2.1	2	1.9	1.9	1.8	1.8	1.7
1.3	2.7	2.5	2.4	2.3	2.2	2.1	2	1.9	1.9	1.8	1.8
1.4	2.8	2.7	2.5	2.4	2.3	2.2	2.1	2	1.9	1.9	1.8
1.5	3	2.8	2.6	2.5	2.3	2.2	2.1	2	2	1.9	1.8
1.6	3.1	2.9	2.7	2.5	2.4	2.3	2.2	2.1	2	2	1.9
1.7	3.2	3	2.8	2.6	2.5	2.4	2.3	2.2	2.1	2	1.9
1.8	3.3	3.1	2.9	2.7	2.6	2.4	2.3	2.2	2.1	2	2
1.9	3.4	3.2	3	2.8	2.6	2.5	2.4	2.3	2.2	2.1	2
2	3.6	3.3	3	2.9	2.7	2.5	2.4	2.3	2.2	2.1	2