Fact Sheet Appendix - Reasonable Potential Analyzer

Facility Name   Village of Cloudcroft

NPDES Permit Number   NM0023370   Outfall Number   001

Proposed Critical Dilution*   100

*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

Date (mm/yyyy)	VERTEBRATE				INVERTEBRATE			
	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU
Nov-09					100		1.00	
Nov-07					100		1.00	
	0	0			100	0	1.00	
Count			0	0			2	0
Mean							1.000	
Std. Dev.							0.000	
CV			0.6	0.6			0.6	0.6
RPMF			6.2	6.2			3.8	6.2

1   Reasonable Potential Acceptance Criteria

Vertebrate Lethal

Vertebrate Sublethal

Invertebrate Lethal   3.800   Reasonable Potential exists, Permit requires WET monitoring and WET limit.

Invertebrate Sublethal

WET testing reports reveal two (2) passing tests for the *Daphnia pulex* test species during the last permit term. The EPA Reasonable Potential Analyzer indicates that RP exists. However, EPA is overruling this finding because the Village of Cloudcroft 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.

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.

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