Modeling Guidance 3 Final	Reasonable potential: calculating loading capacity to determine Group 4 or 5 status	
	Rule reference: OAC 3745-2-06 (B)(1)(b)(i)	Revision 0, January 30, 1998

Reasonable potential is determined using a grouping procedure established in OAC rule 3745-2-06 (A)(3). The two-part determination compares the projected effluent quality (PEQ) of the discharge to the results of the wasteload allocation (the preliminary effluent limit (PEL)), as follows:

- Average: divide the average PEQ by the average PEL (the lowest WLA based on chronic criteria (aquatic life, human health, agricultural water supply, public water supply, wildlife, as applicable))

- Maximum: divide the maximum PEQ by the maximum PEL (the WLA based on acute aquatic life criteria)

The percentages resulting from these comparisons will place the parameter into a grouping as described in OAC rule 3745-2-06 (B). The higher result of the two comparisons determines the grouping.

Situation
Considering the loading capacity in the receiving water is necessary when the highest reasonable potential percentage after evaluating PEQ/PEL (for average and maximum, respectively) is greater than or equal to 75% and less than 100% (OAC 3745-2-06 (B)(1)(b)). This situation requires further analysis to see if a permit limit is required (Group 5) or if a monitoring requirement only (Group 4) is required. A permit limit is required if the total load of the pollutant is greater than or equal to 75% of the loading capacity of the stream downstream of the discharge.

Prelude
To perform the necessary calculations, first isolate the quantities used in the calculation of the PEL that triggered the 75 - 100% reasonable potential condition. For example, if the average comparison was between 75 and 100% and the average PEL was based on the chronic aquatic life standard, then the stream design flow referred to in the Methods section below would be the 7Q10 and the WQS would be the chronic aquatic life standard. If both the maximum and the average reasonable potential evaluations trigger this condition, then follow the steps below for either the maximum or the average quantities. If the parameter does not evaluate to Group 5, then repeat for the other quantity.

Method

1. Calculate the loading capacity by multiplying the WQS by the flow in the stream just downstream of the discharge. This flow should be the sum of 100% of the upstream flow and the effluent flow used in the PEL calculation. Upstream interactive discharges and tributaries would be included in this flow.

2. Calculate the background load by multiplying the background concentration by 100% of the stream design flow.

3. Calculate other input loads, if any, by multiplying each input concentration by the corresponding input flow. For example, tributaries, other upstream discharges used in the PEL calculation and the discharge of concern all would have input loads. Loads for discharges receiving an allocation would be calculated using the allocated concentration.

4. Determine the total pollutant loading by summing all input loads including the background load.

5. If the total pollutant loading is 75% or greater of the total loading capacity, the parameter requires a permit limit (Group 5); otherwise, the parameter is a Group 4 parameter.

Epilogue

If the parameter is evaluated as a Group 5 parameter, then all upstream discharges that were included in the determination of the PEL and that had a reasonable potential percentage between 75 and 100% for the parameter of concern would also be Group 5 parameters (per the "cause or contribute" language in OAC 3745-2-06 (A)(2)). In other words, any NPDES discharge that contributed to the total pollutant loading and required this further analysis (i.e., the parameter had a reasonable potential percentage between 75% and 100%) would also be a Group 5 parameter. Because of this consideration, it may be helpful to begin with the most downstream discharge requiring this additional analysis.

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