Industrial Stormwater Chesapeake Bay TMDL Loading Calculations Manual Calculations Instructions

Use these instructions if you do not have access to a computer or want to calculate the loading values by hand; otherwise use the Excel spreadsheet to calculate the loading values.

You will need the following information to complete the loading calculations:

1. The laboratory results for the first four permit monitoring periods (i.e., first two years of permit coverage) for Total Suspended Solids (TSS), Total Nitrogen (TN), and Total Phosphorous (TP) reported on the Chesapeake Bay TMDL DMR. Make sure you are reporting the correct concentration values on the Chesapeake Bay TMDL DMR and using the correct values in the loading calculations (see Step 1 of the *Chesapeake Bay TMDL Loadings Errata Sheet*).
2. Impervious area of the industrial activity at the facility in acres, from question 10 of the registration statement.
3. Industrial activity area at the facility in acres, from Question 10 of the registration statement.
4. Area in acres draining to each industrial activity outfall, from question 10 of the registration statement.

Instructions for completing the forms and calculations:

1. Complete *Form 1 – Individual Outfall Loading Calculations* for each industrial activity outfall.
    a. Enter the laboratory results from the Chesapeake Bay TMDL DMRs. Follow instructions in STEP 1 of the *Errata Sheet* to calculate the concentration for TN and/or if you have a value below the quantification level (QL).
    b. Each pollutant should have four results to enter because sampling for the Chesapeake Bay TMDL is required twice per year for two years.
2. Transfer the Loading Calculations for TSS, TN, and TP from every *Form 1* onto the *Summary Page*.
    a. The *Summary Page* is set to a default of five industrial activity outfalls. Include as many industrial activity outfalls as exist at the facility, whether more or fewer than five.
3. Follow instructions at the bottom of the *Summary Page* to determine if the calculated facility loading values are above the permit loading values for TP, TN, or TSS presented in Part I A 7 b (3) (a) of the permit. If you answered "YES" for any of the loadings values, you will need to develop a Chesapeake Bay TMDL Action Plan as described in Part I A 7 b (3) (c) and submit it via email (preferable) to [regional contact] at [email address] or at the following address:

Regional Contact
Regional Address

FORM 1 - INDIVIDUAL OUTFALL LOADING CALCULATIONS

(Complete one sheet per outfall)

Outfall Number: _____

Outfall Drainage Area*:_____ **(acres)** **Total Outfall Drainage Area**:**_____ **(acres)**

**The drainage area of each outfall was reported in Question 10 of the Registration Statement.*

***The Total Outfall Drainage Area = the sum of all of the drainage areas for each outfall.*

	TSS	TN	TP	
Result 1:				*If your Certificate of Analysis has a lab result value less than the laboratory's QL, see STEP 1 of the Errata Sheet to determine the correct concentration to input here to calculate the loading values.*
Result 2:				
Result 3:				*Also, see STEP 1 of the Errata Sheet for instructions on how to calculate the concentration for TN.*
Result 4:				
Average:				*Add the four results for each pollutant and divide by 4.*
Weighted Average:				Skip this step if you only have one outfall. *= (Average x Drainage Area) / Total Drainage Area*
Conversion Factor:	**9.01**	**9.01**	**9.01**	
LOADING CALCULATION:				*Multiply the Weighted Average (or the Average, if only one outfall) times the Runoff Coefficient (on Summary Page) times the Conversion Factor* *= Weighted Average x Runoff Coefficient x 9.01* *Units = lbs/acre/year*

Copy each Loading Calculation value from every FORM 1 page onto Summary Page

SUMMARY PAGE - INDUSTRIAL STORMWATER NUTRIENT LOADING CALCULATIONS

Facility Name: _____

Permit Number: _____

***Impervious area of Industrial Activity (acres):** _____

***Industrial Activity Area (acres):** _____

**Impervious area of industrial activity and industrial activity area can be found in Question #10 of Registration Statement*

Impervious Fraction: _____ *(round to two decimals)*

Impervious fraction =Total impervious area of the industrial activity divided by the total industrial area of your facility

Runoff Coefficient: _____

Multiply 0.9 times the Impervious Fraction above. Then add 0.05 to calculate the runoff coefficient.

Add the loading calculation results for each outfall from Form 1 below:

TSS	TN	TP	
			Outfall 001
			Outfall 002
			Outfall 003
			Outfall 004
			Outfall 005
	TOTAL SITE LOADING		*Add all individual outfall loading calculations.*
440	**PERMIT LOADING 12.3**	**1.5**	*These are the permit allowable loadings.*
YES* NO	**ACTION PLAN NEEDED** YES* NO	YES* NO	*Circle YES if <u>Total Site Loading</u> is greater than <u>Permit Loading</u> value.*

***Refer to permit Section 1.A.6(b) for Action Plan requirements if YES is circled for any parameter.**

All loading units are pounds per acre per year.