

Instructions for Completing the Annual Chesapeake Bay Spreadsheet v2.1

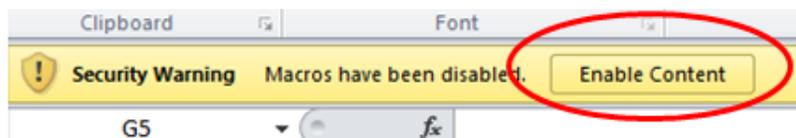
The Annual Chesapeake Bay Spreadsheet is used to document sampling results for nutrients (Total Phosphorus, Total Nitrogen and Nitrogen species) throughout the Compliance Year and report credit transactions and offsets applied toward compliance with Annual Net Mass Load limits (“Cap Loads”). Use of the Spreadsheet is required by all facilities with Cap Loads in NPDES permits and by DEP’s Nutrient Trading Program to generate credits.

The Spreadsheet is available as a macro-enabled spreadsheet (.xlsm, for Excel versions 2007 and later). Users may download the spreadsheet from:

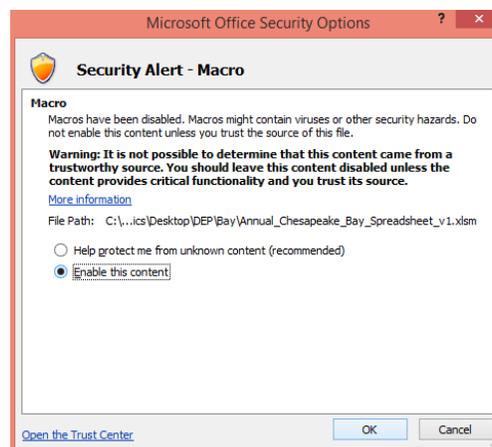
- DEP’s Chesapeake Bay – Wastewater website (www.dep.pa.gov/npdes-bay), or
- DEP’s DMR Supplemental Reports website (www.dep.pa.gov/edmr, select Supplemental Reports), or
- DEP’s Nutrient Credit Trading Program website (www.dep.pa.gov/Nutrient_Trading, select Trading Resources, Calculation Spreadsheets).

Click on the appropriate link and save the spreadsheet file to your computer. If you open the file directly from the website without first saving the file to your computer, the file may be locked in Read Only mode. Save the file to your computer first and then open it to use the spreadsheet. Save the file using the same extension as the original file (i.e., save the spreadsheet as an .xlsm file).

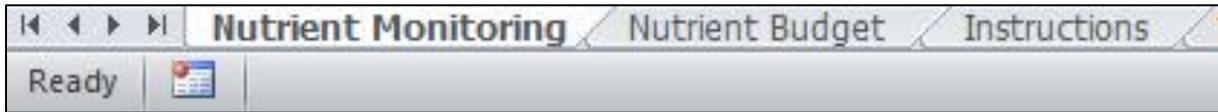
When you open the macro-enabled spreadsheet, you should see a yellow Security Warning message at the top of the screen. Click “Enable Content”. The warning should then disappear.



In some versions of Excel, you may see a blue Security warning. Click on Options, then select Enable this Content, and select OK.



There are three worksheets located in the lower left corner within this Excel spreadsheet: the Annual Nutrient Monitoring (Nutrient Monitoring) worksheet, the Annual Nutrient Budget (Nutrient Budget) worksheet, and the Instructions worksheet. Start with the Nutrient Monitoring worksheet.



Nutrient Monitoring Worksheet

The first thing you need to do is enter the information for your facility in the fields located on the top left corner of the first worksheet (the Nutrient Monitoring worksheet).



**CHESAPEAKE BAY SUPPLEMENTAL
ANNUAL NUTRIENT MONITORING**

Facility Name:	A	
Municipality:	B	County: C
Watershed:	D	
TN Cap Load (lbs):	E	<input checked="" type="radio"/> Sewage <input type="radio"/> Industrial Waste
TN Delivery Ratio:	F	G

- A. Facility Name
- B. Municipality
- C. County
- D. Enter the Watershed number (SWP) from your NPDES permit:

is authorized to discharge from a facility known as _____, located in _____, **Cumberland County**, to **Susquehanna River** in Watershed(s) 7-E in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B and C hereof.

- E. Enter the TN Cap Load (Annual Net Mass Load limit) from your NPDES permit.
- F. Enter the TN Delivery Ratio for your facility; delivery ratios are found in the Phase 2 WIP Wastewater Supplement, available on DEP's website at www.dep.pa.gov/npdes-bay.
- G. Select whether the facility treats sewage or industrial waste

Enter the rest of the information for your facility on the top right side of the first worksheet (the Nutrient Monitoring worksheet). All fields in this top portion must be completely filled out in order for the second worksheet (Nutrient Budget) to function correctly.

Continuous Discharge Checkbox - By default this box is checked. DO NOT UNCHECK this box unless there is no (0) discharge from the outfall for an entire day during the Compliance Year. Flow values must be entered every day if the Continuous Discharge Checkbox is not checked (if the Continuous Discharge Checkbox is checked, flow may only be reported on days in which samples were collected). If there is any day in which there is no discharge, un-check this box and enter a flow of "0" into the appropriate cell in the table. When this box is not checked, the spreadsheet calculates Monthly and

Annual Total Mass Loads using the actual number of days in which there is a discharge > 0, rather than assuming there is a discharge every day.

Continuous Discharge [View Statistics](#)

Compliance Year: A Outfall: B
 NPDES Permit No.: C
 This permit will expire on: D
 TP Cap Load (lbs): E
 TP Delivery Ratio: F

- A. Select the Compliance Year from the drop-down list. The year you select should be the year in which the end of the compliance period occurs (2019 would be the selection for Oct. 1, 2018 – Sept. 30, 2019). Once selected, the Sample Date fields in the main body of the worksheet will auto-fill with every day of that year.

Compliance Year: 2019 ▼

- B. Outfall number
 C. NPDES Permit number (PA*****)
 D. Permit Expiration Date (“This permit will expire on:”)
 E. Enter the TP Cap Load (Annual Net Mass Load limit) from your NPDES permit.
 F. Enter the TP Delivery Ratio for your facility; delivery ratios are found in the Phase 2 WIP Wastewater Supplement, available on DEP’s website at www.dep.pa.gov/npdes-bay.

Your permit may contain more than one Effluent Limitations table that includes TN & TP cap load limits. Make sure that you reference limit values from the table that corresponds with the compliance year for which you are reporting information.

Next, you will complete the main body of the table. Fields available for data entry are highlighted in yellow.

Sample Date	FLOW MGD	Total Phosphorus (TP)				NH ₃ -N				TKN				NO ₂ +NO ₃ as N			
		Q	mg/L	Q	lbs/day	Q	mg/L	Q	lbs/day	Q	mg/L	Q	lbs/day	Q	mg/L	Q	lbs/day
10/1/15																	
10/2/15																	
10/3/15																	
10/4/15																	
10/5/15																	

Start by entering the average daily effluent Flow in million gallons per day (MGD) for each day in which you have nutrient parameter concentrations to report. Then enter the corresponding nutrient parameter concentrations in mg/L. Repeat this for each day you have data to report for the entire Compliance Year. If no monitoring data are available for the day, leave the row blank.

Note – if you would like to copy data from another spreadsheet and paste it into the Annual Chesapeake Bay Spreadsheet, the source data will need to be formatted identically as the Bay spreadsheet (i.e., two columns merged). To copy data from a previous version of the annual Bay spreadsheet, you must copy a single column at a time (highlight the cells from 10/1 to 9/30, not the entire column). Copying multiple columns may not work due to locked and merged cells.

Enter the results exactly as received from the laboratory, including any non-detect notations. If you need to enter a non-detect notation, click in the “Q” (Qualifier) column box next to the value. A dropdown arrow will appear. Select the less than symbol (“<”) from the dropdown menu. If you need to clear the < symbol or any value, click on the cell and press Backspace on your keyboard.

Sample Date	FLOW	Total Phos	
	MGD	Q	mg/L
10/1/15	1		0.2
10/2/15		<	

A warning will appear if a value you enter does not fall within normal parameters. Click “Yes” if that value is the value you received from the lab (even though it triggered the error warning), or you can click “No” or “Cancel” if you need to correct the value.

NH ₃ -N		TKN		NO ₂ +NO ₃ as N		Total Nitrogen (TN)	
Q	mg/L	Q	lbs/day	Q	mg/L	Q	lbs/day
	3.2						
	1.4						
	1.0						
	2.8						
	3.6						
	4.2						
	3.5						
	2.5						
	1.2		145.0				
	2.6		299.5	2.2		253.4	
	2.0		209.1				

TKN Should Be >= NH3-N

TKN Should Be >= NH3-N. If Flow = 0, No Value Should Be Entered. If Flow <> 0, Value Should Be > 0.

Continue?

Yes No Cancel Help

The worksheet will automatically calculate the daily loading (lbs/day) for all parameters and the Total Nitrogen concentrations (shown in blue). Daily concentrations for Total Nitrogen are calculated by summing the concentrations for TKN (Total Kjeldahl Nitrogen) and NO₂ + NO₃ as N (Nitrite plus Nitrate).

Sample Date	FLOW MGD	Total Phosphorus (TP)		NH ₃ -N		TKN		NO ₂ +NO ₃ as N		Total Nitrogen (TN)	
		Q	mg/L	Q	lbs/day	Q	mg/L	Q	lbs/day	Q	lbs/day
10/1/15	0.498						73.5				
10/2/15	0.691						77.5				
10/3/15	0.706		0.312		1.8		60.0				
10/4/15	0.629						49.2				
10/5/15	0.724	<	0.1	<	0.6		54.5				
10/6/15	0.786						71.5				

Average annual concentrations and mass loadings (Avg row), as well as the Annual Total Mass Loads in lbs/yr (white text in black fields row), are automatically calculated at the bottom of the worksheet. Prior to the end of the Compliance Year, the Annual Total Mass Loads are estimates based on the data entered thus far.

Avg	12.654	<	0.9	<	132	<	0.5	<	70	1.8	191	<	3.6	<	354	5.6	564
Annual Total Mass Loads (lbs):	<	48120	<	25718	<	69604	<	129211	<	205814							

If, at any point, you want to see what your annual totals are, you can click the “View Statistics” button in the upper right corner of the screen. This will jump the worksheet down to the bottom where those totals are located.

[View Statistics](#)

Another option available is a “Clear Form” button at the bottom of the worksheet. This will clear all data from the body of the table and cannot be undone. Make sure you really want to clear all data before clicking this! A warning message will appear prior to deleting the data that the user must acknowledge.

CLEAR FORM

If TP and/or TN credits were generated, the number of credits that may be verified and registered by DEP are also shown at the bottom of the page.

Avg	12.654	<	0.9	<	132	<	0.5	<	70	1.8	191	<	3.6	<	354	5.6	564																
Annual Total Mass Loads (lbs)					48120				25718	69604					129211		205814																
TP Credits Generated:											164											TN Credits Generated:											19391

CLEAR FORM

The formula for calculating credit values is contained within the Phase 2 WIP Wastewater Supplement, available on DEP’s website at www.depweb.state.pa.us/npdes-bay. Please note that the spreadsheet will not generate nutrient credits if any of the following are true:

1. The radio button for “Industrial Waste” is selected in the header.
2. The Annual Total Mass Load exceeds the corresponding Cap Load for TN or TP.
3. The sum of the net daily loads compared to baseline is zero or negative. Daily effluent concentrations of TN and TP are compared to baseline concentrations of 6.0 mg/L TN and 0.8 mg/L TP. The difference is multiplied by the daily flow and a conversion factor of 8.34 to determine a net daily load compared to baseline. If the sum of all net daily loads throughout the year does not exceed zero, no credits are recognized.

Example – Day 1 has a flow of 1 MGD and a TN concentration of 4 mg/L. Day 2 has a flow of 2 MGD and a TN concentration of 8 mg/L. The sum of net daily loads for these days is calculated as follows:

Day 1: (6 mg/L baseline – 4 mg/L effluent) * 1 MGD * 8.34 = 16.7 lbs/day
 Day 2: (6 mg/L baseline – 8 mg/L effluent) * 2 MGD * 8.34 = - 33.4 lbs/day
 Sum: 16.7 – 33.4 = - 16.7 lbs/day (no credits generated)

Avg	0.3328	1.789	4.6	1.151	3	2.434	6.4	10.12	27.3	12.558	33.7
Annual Total Mass Loads (lbs)			1695		1102		2324		9980		12304
No P Credits Generated											No N Credits Generated

CLEAR FORM

To complete this worksheet, the person preparing the report needs to read the certification statement at the bottom of the report. If that person agrees to the statement, they should enter their name (“Prepared By”), job title (“Title”), DEP License number (“License No.” - if applicable), and date the form was completed (“Date”). The report is not considered complete unless this portion of the report is filled out.

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Prepared By: _____ License No.: _____
 Title: _____ Date: _____

Monthly statistics are available below the certification section. Click on the Show button to show these statistics and Hide to hide the statistics. These statistics may be useful during the course of the Compliance Year for Monthly DMR reporting.

Monthly Statistics					
<input type="button" value="Show"/> <input type="button" value="Hide"/>					
Monthly Total Mass Loads (lbs)					
Month	Total Phosphorus (TP)	NH ₃ -N	TKN	NO ₂ +NO ₃ as N	Total Nitrogen (TN)
October	6282.3	3482.1	3884.4	11791	12312.2
November	1930.1	669.7	5075.8	15768.6	24449.1

Average Monthly Concentrations (mg/L)					
Month	Total Phosphorus (TP)	NH ₃ -N	TKN	NO ₂ +NO ₃ as N	Total Nitrogen (TN)
October	0.8	0.4	1.3	2.9	4.2
November	0.8	0.3	1.9	6.2	9

NOTE – Although the Annual Chesapeake Bay Spreadsheet is intended for one annual submission at the time the Annual DMR is submitted, the Spreadsheet may be submitted with Monthly DMRs as well, particularly when there are monitoring requirements in the permit for parameters that are reported monthly. For example, facilities may elect to attach the Spreadsheet to Monthly DMRs to report daily concentration results for Ammonia-Nitrogen and/or Total Phosphorus. If results for nutrient parameters are reported on the Spreadsheet and submitted with Monthly DMRs, the “Daily Effluent Monitoring” report (typically submitted monthly) does not need to include those same results.

Nutrient Budget Worksheet

Click on the “Nutrient Budget” tab at the bottom left of the screen.



Most of the information at the top of the worksheet will auto populate based on the information that was entered on the Nutrient Monitoring worksheet.



**CHESAPEAKE BAY SUPPLEMENTAL REPORT
ANNUAL NUTRIENT BUDGET**

Version 2.0, 3/1/2019

Facility Name: Anywhere STP
 Municipality: Anywhere Borough County: Somewhere
 Watershed: 4-E
 Were **Credits Purchased** During Compliance Year? No
 Were **Credits Sold** During Compliance Year? No
 Were **Offsets Generated** During Compliance Year? No

Compliance Year: 2019 Outfall: 001
 NPDES Permit No.: PA1234567
 This permit will expire on: December 1, 2019
 TN Delivery Ratio: 0.961
 TP Delivery Ratio: 0.436

SUMMARY

	TN	TP
Annual Total Mass Load (lbs)	205,814	< 48120
Adjusted Credits (Purchased)	0	0
Adjusted Credits (Sold)	0	0
Offsets Generated	0	0
Annual Net Mass Load (lbs)	205,814	< 48120
Cap Load (lbs)	474,880	63,317

(Annual Total Mass Load + Adjusted Credits (Sold) - Adjusted Credits (Purchased) - Offsets)

Compliance Compliance

The worksheet will indicate whether you are in compliance with Cap Loads (“Compliance” per above) or if you are presently in violation of Cap Loads (“Violation” per below). If a violation has occurred, a note will appear stating what is needed to achieve compliance.

SUMMARY

	TN	TP
Annual Total Mass Load (lbs)	12,304	1,695
Lbs from Credits Purchased	0	0
Lbs from Credits Sold	0	0
Lbs from Offsets Generated	0	0
Annual Net Mass Load (lbs)	12,304	1,695
Cap Load (lbs)	9,132	1,218

(Annual Total Mass Load + Lbs from Credits Sold - Lbs from Credits Purchased - Offsets)

Violation Violation 3172 lbs TN from Credits/Offsets and 477 lbs TP from Credits/Offsets are needed to achieve compliance. If credits are purchased, 3049 TN Credits and 208 TP Credits would be needed.

If you have not purchased or sold credits and have no offsets to report during the Compliance Year and Truing Period (Oct. 1 through Nov. 28), select “No” in answer to the three questions at the top of the worksheet.

Were **Credits Purchased** During Compliance Year?

Were **Credits Sold** During Compliance Year?

Were **Offsets Generated** During Compliance Year?

If you have purchased credits during the Compliance Year and/or Truing Period (Oct. 1 through Nov. 28), select “Yes” from the dropdown menu to the right of the “Were **Credits Purchased** During Compliance Year?” question. A “Credits Purchased” table will appear.



**CHESAPEAKE BAY SUPPLEMENTAL REPORT
ANNUAL NUTRIENT BUDGET**

Version 2.0, 3/1/2019

Facility Name: Anywhere STP Compliance Year: 2019 Outfall: 001
Municipality: Anywhere Borough County: Somewhere NPDES Permit No.: PA1234567
Watershed: 4-E This permit will expire on: December 1, 2019
Were **Credits Purchased** During Compliance Year? TN Delivery Ratio: 0.961
Were **Credits Sold** During Compliance Year? TP Delivery Ratio: 0.436
Were **Offsets Generated** During Compliance Year?

Credits Purchased					
Credit Type	Registration ID	Contract Effective Date	DEP Approval Date	No. Credits Purchased	Pounds (lbs)*

Enter the information for your DEP-registered credit purchases. Select the “Credit Type” (either Nitrogen or Phosphorus) from the first drop-down list and enter the DEP Registration ID number (“Registration ID”), effective date of the sale contract (“Contract Effective Date”), date of DEP’s letter registering credits (“DEP Approval Date”), and the number of credits purchased (“No. Credits Purchased”). Enter each purchase transaction for each nutrient on a separate line. Click the box for “Add Rows” if additional lines are needed to report credits purchased.

When all the required information about the transaction has been entered, the “Pounds (lbs)” will be calculated automatically (by dividing the credits purchased by the TN/TP Delivery Ratio entered on the Nutrient Monitoring worksheet) and reflected in the Summary Table at the bottom of the worksheet in the “Lbs from Credits Purchased” row.

Add Rows Credits Purchased					
Credit Type	Registration ID	Contract Effective Date	DEP Approval Date	No. Credits Purchased	Pounds (lbs)*
Nitrogen	123	10/1/2019	10/1/2019	6,200	6,452
Phosphorus	456	10/1/2019	10/1/2019	3,600	8,257

* Pounds (lbs) = No. Credits Purchased / Delivery Ratio

SUMMARY

	TN	TP
Annual Total Mass Load (lbs)	206,377	48,165
Lbs from Credits Purchased	6,452	8,257
Lbs from Credits Sold	0	0
Lbs from Offsets Generated	0	0
Annual Net Mass Load (lbs)	199,925	39,908
Cap Load (lbs)	200,000	40,000

(Annual Total Mass Load + Lbs from Credits Sold - Lbs from Credits Purchased - Offsets)

Compliance Compliance

If you have sold credits during the Compliance Year and Truing Period (Oct. 1 through Nov. 28), select “Yes” from the dropdown menu to the right of the “Were Credits Sold During Compliance Year?” question. A “Credits Sold” table will appear.



**CHESAPEAKE BAY SUPPLEMENTAL REPORT
ANNUAL NUTRIENT BUDGET**

Version 2.0, 3/1/2019

Facility Name: Anywhere STP
 Municipality: Anywhere Borough County: Somewhere
 Watershed: 4-E
 Were Credits Purchased During Compliance Year? No
 Were Credits Sold During Compliance Year? Yes
 Were Offsets Generated During Compliance Year? No

Compliance Year: 2019 Outfall: 001
 NPDES Permit No.: PA1234567
 This permit will expire on: December 1, 2019
 TN Delivery Ratio: 0.961
 TP Delivery Ratio: 0.436

[CLEAR FORM](#)

Add Rows Credits Sold					
Credit Type	Registration ID	Contract Effective Date	DEP Approval Date	No. Credits Sold	Pounds (lbs)*

Enter the information for your DEP-registered credit sales. Select the “Credit Type” (either Nitrogen or Phosphorus) from the first drop-down list and enter the DEP Registration ID number (“Registration ID”), effective date of the sale contract (“Contract Effective Date”), date of DEP’s letter registering credits (“DEP Approval Date”), and the number of credits sold (“No. Credits Sold”). Enter each sale transaction for each nutrient on a separate line. Click the box for “Add Rows” if additional lines are needed to report credits sold.

When all the required information about the transaction has been entered, the “Pounds (lbs)” will be calculated automatically (by dividing the credits sold by the TN/TP Delivery Ratio entered on the Nutrient Monitoring worksheet) and reflected in the Summary Table at the bottom of the worksheet in the “Lbs from Credits Sold” row.

Add Rows Credits Sold					
Credit Type	Registration ID	Contract Effective Date	DEP Approval Date	No. Credits Sold	Pounds (lbs)*
Nitrogen	123	10/1/2019	10/1/2019	10,000	10,406
Phosphorus	456	10/1/2019	10/1/2019	2,000	4,587

* Pounds (lbs) = No. Credits Sold / Delivery Ratio

SUMMARY

	TN	TP
Annual Total Mass Load (lbs)	206,377	24,558
Lbs from Credits Purchased	0	0
Lbs from Credits Sold	10,406	4,587
Lbs from Offsets Generated	0	0
Annual Net Mass Load (lbs)	216,783	29,145
Cap Load (lbs)	350,000	40,000
	Compliance	Compliance

(Annual Total Mass Load + Lbs from Credits Sold - Lbs from Credits Purchased - Offsets)

If you have generated offsets during the Compliance Year that have been approved by DEP and/or there are offsets recognized in your permit, select “Yes” from the dropdown menu to the right of the “Were Offsets Generated During Compliance Year?” question. An “Offsets Generated” table will appear.



**CHESAPEAKE BAY SUPPLEMENTAL REPORT
ANNUAL NUTRIENT BUDGET**

Version 2.0, 3/1/2019

Facility Name: Anywhere STP
Municipality: Anywhere Borough County: Somewhere
Watershed: 4-E
Were Credits Purchased During Compliance Year? No
Were Credits Sold During Compliance Year? No
Were Offsets Generated During Compliance Year? Yes

Compliance Year: 2019 Outfall: 001
NPDES Permit No.: PA1234567
This permit will expire on: December 1, 2019
TN Delivery Ratio: 0.961
TP Delivery Ratio: 0.436
[CLEAR FORM](#)

Offsets Generated				
Offset Type	Source	Amount (lbs)	DEP Approval Date	Approval Method

Enter the information for your DEP-approved offsets. Select the “Offset Type” (either Nitrogen or Phosphorus) and “Source” from the drop-down lists. Enter each offset type on a separate line. If transferring offsets between facilities, select either “Transfer to Another Facility” or “Transfer from Another Facility as appropriate for the facilities involved. Enter the number of pounds of offsets claimed (“Amount (lbs)”). For septage (only septage, not holding tank or other hauled in wastes), divide the total gallons of septage received by 1,000 and multiply by 3 to determine the total amount (lbs) of offsets to report in the Offsets Generated table. Enter the “DEP Approval Date” for the offsets. For offsets identified and approved in permits, list the date of permit issuance; otherwise list the date of written DEP approval. Select the “Approval Method” (either DEP permit or DEP letter).

When all the required information about the offset has been entered, the pounds of offsets generated will be calculated automatically and reflected in the Summary Table at the bottom of the worksheet in the “Lbs from Offsets Generated” row.

Offsets Generated				
Offset Type	Source	Amount (lbs)	DEP Approval Date	Approval Method
Nitrogen	Hauled-In Septage	5,000.0	1/1/2016	DEP Permit
Phosphorus	Transfer from Another Facility	800.0	1/1/2016	DEP Letter

SUMMARY

	TN	TP
Annual Total Mass Load (lbs)	12,304	1,695
Lbs from Credits Purchased	0	0
Lbs from Credits Sold	0	0
Lbs from Offsets Generated	5,000	800
Annual Net Mass Load (lbs)	7,304	895
Cap Load (lbs)	9,132	1,218

(Annual Total Mass Load + Lbs from Credits Sold - Lbs from Credits Purchased - Offsets)

Compliance Compliance

If needed, there is a “Clear Form” button on the upper right corner of the worksheet. This will clear all data from the worksheet and cannot be undone. Make sure you really want to clear all data before clicking this!

CLEAR FORM

Once you have entered all the credits purchased/sold and offsets for the Compliance Year and Truing Period for your facility, the final step in completing the worksheet is for the person preparing the report to read the certification statement at the bottom of the report. If that person agrees to the statement, they should enter their name (“Prepared By”), job title (“Title”), DEP License No. (“License No.” - if applicable), and date the form was completed (“Date”). The report is not considered complete unless this portion of the report is filled out.

<small>I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).</small>	
Prepared By: _____ Title: _____	License No.: _____ Date: _____

Last updated 4/8/2019