

Phase 3 Watershed Implementation Plan Nutrient Trading Supplement

Draft, August 16, 2022

Section 2 of Pennsylvania’s Phase 3 Chesapeake Bay Watershed Implementation Plan (Phase 3 WIP) describes Pennsylvania’s strategy for reducing nutrients to the Chesapeake Bay. This supplement, to the Phase 3 WIP, provides the updates made to Pennsylvania’s Nutrient Trading Program to enhance the program by including use of [the Chesapeake Bay Nutrient Trading Tool \(CBNTT\)](#). CBNTT is supported by U.S. Environmental Protection Agency (EPA) and U.S. Department of Agriculture (USDA) and will incorporate a performance-based, TMDL-linked agriculture baseline analysis into all nonpoint source nutrient credit calculations in Pennsylvania. Note that this supplement, now titled, “Phase 3 Watershed Implementation Plan Nutrient Trading Supplement,” is the same document referred to as the “Phase 2 Watershed Implementation Plan Nutrient Trading Supplement” in the Phase 3 WIP.

I. Background

Since 2005, the Pennsylvania Department of Environmental Protection (DEP) has been leading the way nationally in developing its nutrient trading program. The program is one of the first programs in the country to have both agricultural operations (nonpoint sources) and wastewater treatment facilities (point sources) participating in a nutrient credit trading program. Pennsylvania built its program with significant input from stakeholders – and those very stakeholders are now participants in the program. Pennsylvania built its program to meet Pennsylvania’s needs with regard to the Chesapeake Bay. The key to the program’s success is that it is voluntary and follows these principles:

- A trade must involve comparable credits (for example, nitrogen may only be traded for nitrogen) that are expressed as mass per unit time (pounds per year);
- Credits generated by trading cannot be used to comply with existing technology-based effluent limits except as expressly authorized by regulation;
- Trading may only occur in a PA DEP defined watershed;
- Trading may take place between any combination of eligible point sources, non-point sources and third-party aggregators; and,
- Each trading entity must meet applicable eligibility criteria established under the Nutrient Trading Program regulations, 25 Pa. Code Section 96.8.

The Phase 2 WIP identified the success of the existing program and a plan of action to move forward to address a number of recommendations the U.S. Environmental Protection Agency (EPA) made in 2012. These recommendations were divided into two tiers, with the first tier being those recommendations specific to Pennsylvania. As stated in the Phase 2 WIP, DEP has been working with stakeholders and EPA to define the details for the plan of action to address these recommendations since 2012.

In April 2014, EPA began objecting to the issuance of National Pollutant Discharge Elimination System (NPDES) permits prepared by DEP that contained Cap Loads and permit language that enabled the use of credits to achieve compliance with those Cap

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Loads. The objections were based on EPA's concerns with the nonpoint source agricultural baseline requirements in the nutrient trading regulations. EPA asserted that DEP had not made a quantitative demonstration that these requirements achieve the load allocations for agricultural sources in the Chesapeake Bay Total Maximum Daily Load (TMDL). Unlike point source discharges with NPDES permits, agricultural operations cannot quantitatively measure the potential nonpoint source loading of nutrients from their fields. To resolve EPA's objections and retain the ability to issue the NPDES permits in question, DEP has established additional eligibility and credit calculation requirements to ensure the effectiveness of the use of credits to meet legal requirements of the Chesapeake Bay TMDL as authorized by its regulations (25 Pa. Code §§ 96.8(d)(5) & (e)(3)(vi)).

The Phase 3 WIP addresses EPA's concern in Pennsylvania meeting the nonpoint source agricultural baseline requirements to achieve the load allocations for agricultural resources in the Chesapeake Bay TMDL. On July 22, 2022 Pennsylvania's Nutrient Trading Program transitioned into the use of an EPA and regionally accepted credit calculation and tracking tool, [Chesapeake Bay Nutrient Tracking Tool \(CBNTT\)](#). Transitioning to CBNTT will allow Pennsylvania to incorporate the DEP published Nutrient Credit Trading Program Manure Treatment Technology Nutrient Credit Calculation Methodology (MTT) and the performance-based TMDL-linked agriculture baseline analysis for determining nonpoint source nutrient credits, as has been requested by EPA.

Along with the release of CBNTT, Pennsylvania's Nutrient Trading Program will transition to the Phase 6 Chesapeake Bay Model delivery ratios for both point source and nonpoint source generators.

This supplement describes those additional requirements. This supplement is divided into the four key components of the trading program: Eligibility, Certification, Verification and Registration.

II. Definitions

Annual Net Mass Load (lbs): The Annual Total Mass Load, as defined below, adjusted for credits sold and applied and offsets applied. Annual Net Mass Loads are compared to Cap Loads to determine compliance.

Baseline: The compliance activities and performance standards that must be implemented to meet current environmental laws and regulations related to the pollutant for which credits or offsets are generated. The term includes allocations established under 25 Pa. Code Chapter 96 (relating to Water Quality Standards Implementation), in a TMDL, or in a similar allocation for the pollutant.

Cap Load (lbs): The mass load of a pollutant authorized by an NPDES permit. Cap Loads for Total Nitrogen (TN) and Total Phosphorus (TP) are implemented in NPDES permits by the establishment of Annual Net Mass Load limits. The term "Net" is used to recognize that Credits and Offsets may be used to comply with the limits. The Annual Net Mass Load must be less than or equal to the Cap Load to achieve compliance.

Certification: Written approval by DEP of a proposed pollutant reduction activity to generate credits before the credits are verified and registered to be used to comply with NPDES permit

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effluent limitations.

Compliance Year: The year-long period starting October 1st and ending September 30th. The Compliance Year will be named for the year in which it ends. For example, the period of October 1, 2015 through September 30, 2016 is Compliance Year 2016 (CY 2016).

Credit: The tradable unit of compliance that corresponds with a unit of reduction of a pollutant as recognized by DEP which, when certified, verified and registered, may be used to comply with NPDES permit effluent limitations.

Delivery Ratio: A ratio that compensates for the natural attenuation of a pollutant as it travels in water before it reaches a defined compliance point.

Offset: The pollutant load reduction measured in pounds (lbs) that is created by an action, activity or technology which when approved by DEP may be used to comply with NPDES permit effluent limitations, conditions and stipulations under 25 Pa. Code Chapter 92a (relating to NPDES permitting, monitoring and compliance.) The offset may only be used by the NPDES permittee that DEP determines is associated with the load reduction achieved by the action, activity or technology.

Registration: An accounting mechanism used by DEP to track certified and verified credits before they may be used to comply with NPDES permit effluent limitations.

Threshold: Activities and performance standards beyond baseline compliance which are required under 25 Pa. Code Chapter 96.8(d)(3) (relating to threshold requirement to generate credits) before credits may be certified.

Total Mass Load (lbs):

Monthly Total Mass Load = The sum of the actual daily discharge loads for TN and TP (lbs/day) divided by the number of samples per month, multiplied by the number of days in the month in which there was a discharge. The daily discharge load for TN and TP (lbs/day) equals the average daily flow (MGD) on the day of sampling, multiplied by that day's sample concentration for TN and TP (mg/l), multiplied by 8.34.

Annual Total Mass Load = The sum of the actual daily discharge loads for TN and TP (lbs/day) divided by the number of samples per year (beginning October 1st and ending September 30th), multiplied by the number of days in the year in which there was a discharge.

Total Nitrogen: For concentration and load, Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO₂+NO₃-N), where TKN and NO₂+NO₃-N are measured in the same sample.

Truing Period: The time provided following each Compliance Year for a permittee to comply with Cap Loads through the application of Credits and Offsets. The Truing Period will start on October 1st and end on November 28th of the same calendar year, unless DEP extends this period. During this period, compliance for the specified year may be achieved by using registered Credits that were generated during that Compliance Year. For example, Credits that are used to achieve compliance in Compliance Year 2016 must have been generated during

Compliance Year 2016. Approved Offsets that have been generated may also be applied during the Trading Period.

Verification: Assurance that the verification plan contained in a certification, permit or other approval issued by DEP has been implemented. Verification is required prior to registration of the credits for use in an NPDES permit to comply with NPDES permit effluent limitations.

III. Eligibility/ Requirements for Certification

For a point source or nonpoint source to be eligible to generate and trade credits, it must meet baseline and threshold eligibility requirements as defined in 25 Pa. Code §96.8(d). In addition, to address concerns expressed by EPA, the eligibility requirements summarized below must be satisfied to generate credits to meet the legal requirements of the Chesapeake Bay TMDL.

A. Point Sources

Effective July 22, 2022, to be eligible to generate credits for sale, all Significant Sewage point sources with an assigned Cap Load (see Table 5 of the [Phase 3 WIP Wastewater Supplement](#)) must demonstrate treated yearly effluent concentrations below 6.0 mg/L TN and 0.8 mg/L TP (i.e., “baseline” concentrations) in accordance with the procedures described below. Guidance on how to apply for verification and the registration of credits from a point source can also be found on the nutrient trading website, www.dep.pa.gov/nutrient_trading.

DEP’s procedures for point sources to generate and trade credits consist of the following:

- To generate credits, facilities must be able to demonstrate they are in compliance with their NPDES permit.
- The total amount of credits the facility is certified to generate cannot exceed its permitted Cap Load.
- DEP is in the process of publishing a notice in the Pennsylvania Bulletin for point source mass certification that will remain current for 5 years.
- Since October 1, 2015, the calculation of credits uses the following formulas. See the example below.

Point Source Credit Calculations

The calculation of TN and TP credits will be made using the following formulas after the end of a Compliance Year:

TN Credits: $[(Q * (6.0 - TNConc) * 8.34) / n] * y * TNdr * 0.9$

TP Credits: $[(Q * (0.8 - TPConc) * 8.34) / n] * y * TPdr * 0.9$

Where:

- Q = Average Daily Flow on day of sampling (MGD)
- TNConc = TN Effluent Concentration in sample (mg/L)
- TPConc = TP Effluent Concentration in sample (mg/L)

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- 6.0 = TN concentration baseline value for credit generation (mg/L)
- 0.8 = TP concentration baseline value for credit generation (mg/L)
- n = Number of samples taken during the year
- y = Days in the year (365 or 366)
- TN_{dr} = TN Chesapeake Bay delivery ratio
- TP_{dr} = TP Chesapeake Bay delivery ratio
- 0.9 = 10% Reserve ratio
- 8.34 = Gallons to pounds conversion factor

The average daily flow on the day of sampling in million gallons per day (MGD) is multiplied by the conversion factor of 8.34 and the difference between the actual TN and TP effluent concentrations in the sample collected and 6.0 mg/L and 0.8 mg/L, respectively. The sum of these values is divided by the number of samples taken during the Compliance Year, and then multiplied by the number of days in the Compliance Year, the TN/TP Delivery Ratio, and 0.9 (to account for a 10% reserve).

Example 1 Credit Calculation

This example assumes only one sample is collected per month for TP. The actual number of samples will generally be greater. Assume the TP delivery ratio is 0.436 and there is no local TP limit.

Effluent sampling at a sewage treatment facility produces the following TP data for a Compliance Year:

Sampling Date	Effluent TP (mg/L)	Average Daily Flow on Day of Sampling (MGD)
10/1/2015	0.7	2.2
11/1/2015	0.5	2.5
12/1/2015	0.4	2.0
1/1/2016	0.3	1.9
2/1/2016	0.6	2.0
3/1/2016	1.0	2.3
4/1/2016	0.4	2.6
5/1/2016	0.6	2.1
6/1/2016	0.5	2.0
7/1/2016	0.4	1.9
8/1/2016	0.3	1.8
9/1/2016	0.4	1.9

Step 1: Determine Total Daily Load Below Baseline

Subtract each Effluent TP concentration result from the nutrient trading baseline TP concentration (0.8 mg/L). (Note that for TN, the same step is performed using the nutrient trading TN baseline concentration of 6.0 mg/L). The difference is then multiplied by the Average Daily Flow on Day of Sampling and the conversion factor of 8.34. If the Effluent

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TP concentration exceeds 0.8 mg/L, the values will be negative. Sum the Daily Loads Below Baseline (i.e., find the sum of both positive and negative daily load values).

Calculations and rounding should be completed in accordance with DEP's guidance document, [Discharge Monitoring Reports Overview and Summary](#) (3800-BK-DEP3047). If there are non-detect values (e.g., < 1); ignore the less than symbol and use the reported value (laboratory quantitation limit) to calculate credits.

Sampling Date	Effluent TP (mg/L)	Baseline TP (mg/L)	Difference (mg/L)	Average Daily Flow on Day of Sampling (MGD)	Daily Load Below Baseline (lbs/day)
10/1/2015	0.7	0.8	0.1	2.2	1.83
11/1/2015	0.5	0.8	0.3	2.5	6.26
12/1/2015	0.4	0.8	0.4	2.0	6.67
1/1/2016	0.3	0.8	0.5	1.9	7.92
2/1/2016	0.6	0.8	0.2	2.0	3.34
3/1/2016	1.0	0.8	- 0.2	2.3	- 3.84
4/1/2016	0.4	0.8	0.4	2.6	8.67
5/1/2016	0.6	0.8	0.2	2.1	3.5
6/1/2016	0.5	0.8	0.3	2.0	5.0
7/1/2016	0.4	0.8	0.4	1.9	6.34
8/1/2016	0.3	0.8	0.5	1.8	7.51
9/1/2016	0.4	0.8	0.4	1.9	6.34
TOTAL:					59.55

Step 2: Divide Total Daily Load Below Baseline by the number of samples collected during the Compliance Year:

$$59.55 / 12 = 4.96$$

Step 3: Multiply by the number of days in the Compliance Year, the TP Delivery Ratio and 0.9:

$$4.96 \times 366 \times 0.436 \times 0.9 = \mathbf{713 \text{ TP Credits}}$$

NOTE – 713 TP Credits will be generated only IF the Annual Total Mass Load for TP is less than the Cap Load for TP. If the Cap Load is exceeded, no Credits will be generated.

Example 2 Credit Calculation

This example illustrates how a facility with a local nutrient limit that is above the baseline concentrations for trading can purchase credits to comply with a Cap Load. In this example, the Cap Load of 6,000 lbs/year TP is in effect with a TP delivery ratio of 0.436:

Sampling Date	Effluent TP (mg/L)	Average Daily Flow on Day of Sampling	Daily Load (lbs/day)
10/1/2015	2.1	2.2	38.5
11/1/2015	1.2	2.5	25.0
12/1/2015	1.6	2.0	26.7
1/1/2016	1.9	1.9	30.1
2/1/2016	2.0	2.0	33.4
3/1/2016	1.8	2.3	34.5
4/1/2016	1.4	2.6	30.4
5/1/2016	1.5	2.1	26.3
6/1/2016	1.2	2.0	20.0
7/1/2016	1.7	1.9	26.9
8/1/2016	2.0	1.8	30.0
9/1/2016	1.9	1.9	30.1
TOTAL:			352

$$\text{Annual Total Mass TP Load: } (352 / 12) \times 366 = 10,736 \text{ lbs TP/year}$$

The facility is over its TP Cap Load by 4,736 lbs-TP (10,736 – 6,000). The facility may purchase credits to come into compliance. The amount of TP Credits the facility would need to purchase is calculated as follows:

$$(\text{Annual Total Mass Load} - \text{Cap Load}) * \text{delivery ratio}$$

$$(10,736 - 6,000) * 0.436 = 2,065 \text{ TP Credits}$$

DEP's [Annual Chesapeake Bay Spreadsheet](#) provides automated calculations of nutrient credits generated on an annual basis using raw (daily) self-monitoring data. Use of this

spreadsheet is required for wastewater facilities that wish to register credits with DEP.

NOTE – A mechanism that recognizes the generation of nutrient credits by Significant Industrial Waste facilities has not been developed by the Nutrient Trading Program at this time.

B. Nonpoint Sources (NPS)

To address EPA's concern and ensure consistency with the Chesapeake Bay TMDL, DEP has developed and approved the use of [CBNTT](#) as a performance-based method for determining eligibility by meeting threshold criteria as described in 25 Pa. Code Chapter 96.8(d)(3) and calculating baseline requirements as described in 25 Pa. Code Chapter 96.8(d)(2) for nonpoint sources. For all pollution reduction activities (PRA's) not using a comprehensive and sampling protocol, the uncertainty ratio will be adjusted to 2:1 since CBNTT uses the APEX model and information from the Chesapeake Bay Model to calculate more accurate load reductions. DEP plans to implement this approach as described below.

1. Credit Certifications Baselines and Thresholds Incorporated into CBNTT:

For nonpoint sources, baseline eligibility requirements have been incorporated into CBNTT and include compliance with the following regulations, as applicable:

- 25 Pa. Code Chapter 102, Erosion and Sedimentation Control Regulations – All plowing and tilling activities must implement and maintain BMPs to minimize the potential for accelerated erosion and sedimentation. Written erosion and sedimentation control plans are required for agricultural plowing or tilling or animal heavy use areas that disturb 5,000 square feet or more.
- 25 Pa. Code Section 91.36 – these regulations define pollution control and prevention requirements at agricultural operations, including requirements related to land application of animal manure.
- 25 Pa. Code Section 92a.29 – these regulations define the requirements for Concentrated Animal Feeding Operations (CAFOs) with NPDES permits.
- 25 Pa. Code Chapter 83, Subchapter D – these regulations promulgated by the State Conservation Commission define and regulate Concentrated Animal Operations (CAOs) through the development and implementation of Nutrient Management Plans.

The additional threshold eligibility requirements that must be met before an agricultural operation can generate credits include implementation of one of the following:

- Manure is not mechanically applied within 100 feet of a perennial or intermittent stream with a defined bed or bank, a lake or a pond, and commercial fertilizer is applied at or below appropriate agronomic rates.
- A minimum of 35 feet of permanent vegetation is established and maintained between the field and any perennial or intermittent stream with a defined bed or bank, a lake, or a pond. No mechanical application of manure may occur within the

35-foot vegetative buffer.

- A downward adjustment of at least 20% to the overall amount of pollution reduction generated by the pollution reduction activity.

An additional 2:1 trading ratio and 10% credit reserve will be applied to the number of credits generated once the defined baseline compliance and threshold is reached, as authorized by the regulations (25 Pa. Code § 96.8(e)(3)(vi)). The credit calculation tool [CBNTT](#) must be used to calculate the number of credits to be certified.

Credit certifications approved by DEP can be approved for a period of no more than 5 years, regardless of when DEP receives the credit certification application.

In addition to the regulatory and threshold requirements identified above, in order to be able to generate credits from the hauling of poultry manure, the requirements must be met as outlined in the [MTT](#). CBNTT has incorporated the MTT calculations to determine the credits generated.

The eligibility of manure destruction and conversion technologies will be determined based upon a thorough review of the individual technology and, at a minimum, compliance with all local, state, and federal requirements. If the number of credits generated will be verified using a comprehensive sampling and monitoring protocol where actual reductions in nutrients can be measured and verified; no additional adjustment may be necessary. However, if it is determined during the technical review of the verification plan that the sampling and monitoring protocols are not sufficient to ensure consistency with the defined Chesapeake Bay Program (CBP) protocols¹, then an additional ratio of up to 2:1 may be applied to the generated credits. These approved certifications can be approved for up to 5 years, regardless of when DEP receives the credit certification application.

2. Approval of Credit Certifications using CBNTT and Delivery Ratios calibrated to Phase 6 of the Chesapeake Bay Watershed Model:

In July 2022, DEP approved the use of CBNTT which was developed in partnership with the U.S. Department of Agriculture (USDA) and the Chesapeake Bay Program to calculate credits from agricultural nonpoint sources using a performance-based approach. This tool was developed and calibrated to Phase 6 of the Chesapeake Bay Watershed Model, eligibility to generate credits has been determined by compliance with the previously mentioned regulations in Section 1 above as applicable, and use of this new performance-based tool to establishing the baseline nutrient loading.

DEP will approve credit certification requests that calculate credits using the performance based CBNTT where the pollution reduction activity exceeds the nutrient baseline loading rate² (lbs TN or TP/acre) as determined by the Chesapeake Bay Watershed TMDL model run. These credit certifications can be approved for up to

¹ The Chesapeake Bay Program has formed an Expert Panel to determine pollution control performance measure estimates, specifically N, P, and sediment, for several BMPs that fall under a broad umbrella of practices termed "manure technologies."

² The scale of the definition of this loading rate requirement are defined in the credit calculation tool and are based on the information in [Section 9. Chesapeake Bay TMDLS \(epa.gov\)](#).

five years.

In addition to the regulatory requirements identified above in section 1, in order to be able generate credits from the hauling of poultry manure, the poultry manure must be applied to a site outside of the Chesapeake Bay watershed that is nutrient deficient in accordance with a nutrient management plan or nutrient balance sheet completed by a certified nutrient planner. Demonstration of the baseline loading rate at the site from where the manure is hauled and the calculation of any adjustments due to the application of replacement fertilizer will be made using CBNTT which has incorporated MTT calculations into the tool. These credit certification applications can be approved for up to five years.

The eligibility for manure destruction and conversion technologies will be determined based upon a thorough review of the individual technology and, at a minimum, compliance with all local, state, and federal requirements. If the number of credits generated will be verified using a comprehensive sampling and monitoring protocol where actual reductions in nutrients can be measured and verified, no 2:1 uncertainty ratio adjustment may be necessary. However, if it is determined during the technical review of the verification plan that the sampling and monitoring protocols are not sufficient to ensure consistency with defined CBP protocols, then an adjustment of a 2:1 uncertainty ratio may be applied to the performance-based modeling tool and/or other technology specific CBP approved modeling/calculation tools to calculate the final number of generated nutrient credits. These certification applications can be approved for up to five years.

IV. Certification Review Process

Certification is a written approval by DEP of a proposed pollutant reduction activity to generate credits before the credits are verified and registered for compliance with a NPDES permitted facility.

Nonpoint Sources

A general overview of DEP's certification process for nonpoint sources follows:

- All credit calculations for certification must be made using [CBNTT](#).
- Once the account has been created in CBNTT and the data has been entered into the tool a PDF will be generated to submit along with a completed copy of the [Nutrient Credit Nonpoint Source Certification Request 3830-FM-BCW0503](#) that will only need to include E,F,J,K in Section 5 (the rest of the information will be entered directly into CBNTT) and a Verification Plan (as described below) to the Department at RA-EPPANUTRIENTTRAD@pa.gov. Once received, the Department will begin its review for administrative completeness.
- A reduction will be applied to the number of credits generated in CBNTT which includes a 2:1 uncertainty ratio for all PRA's not using a comprehensive and sampling protocol and 10% credit reserve.
- Administratively complete credit certification applications will be published in the PA Bulletin for public comment. The Bulletin Notice will allow 30 days for public comment.
- During the public comment period, DEP will complete the technical review of the credit certification application.
- After the 30-day time period given for public comments AND successful completion of a

- technical review, DEP may approve the request for certification.
- A Verification Plan is also required to be submitted as part of the Certification request. The Natural Resource Conservation Service (NRCS) Job Sheet(s) for the practice(s) should be used as a template for this plan; however, variations from this standard will be considered. This Verification Plan is reviewed and approved by DEP before certification is approved.

Point Sources

As noted above, to be eligible to generate credits for sale, all Significant Sewage point source discharges with Annual Net Mass Load effluent limitations (“Cap Loads”) in an NPDES permit (see the [Point Source Generators Table](#), Table 5 of the [Phase 3 WIP Wastewater Supplement](#)) must demonstrate effluent concentrations below 6.0 mg/L TN and 0.8 mg/L TP, as well as general compliance with the permit. This point source certification expires on September 30, 2025 but due to the calibration to the Phase 6 Chesapeake Bay Model delivery ratios all point source credit generators will be given a new certification for CY 2022 which will be valid for 5 years. Point sources are not required to submit requests for certification of credits to DEP prior to that time. However, requests for the verification and registration of credits for compliance purposes will still be required.

V. Verification Process

Verification is a written approval by DEP that the pollutant reduction activity(s) generated nutrient credits based upon the approved verification plan in the certification application. The following explains the verification process:

- Nonpoint source credit generators must follow their approved verification plan and confirm these actions in CBNTT and submit the [Nutrient Credit Nonpoint Source Verification Request 3830-FM-BCW0506a](#) in order to have DEP approval of credits before they can sell them.
- Point sources must submit their Discharge Monitoring Report (DMR) information using the Annual Chesapeake Bay Spreadsheet, available on [DEP's website](#).
- Verified credits may only be used in the Compliance Year in which they were generated.
- Nonpoint source credit generators will use CBNTT to calculate nutrient credits in addition to all other conditions set forth in their approved certification.
- Point source credit generators will use the [Annual Chesapeake Bay Spreadsheet](#) to calculate credits in addition to all other conditions set forth in their approved certification.
- The appropriate Chesapeake Bay Model Delivery ratio is applied to all verified pollution reduction activities. The delivery ratios for sewage treatment facilities are defined in Table 5 of the [Phase 3 WIP Wastewater Supplement](#). The delivery ratios for nonpoint sources are automatically calculated in CBNTT.
- A 10% reserve factor is applied to all verified pollution reduction activities.

VI. Registration Process

- Registration is the sale of credits and assignment of those credits to an NPDES permit.
- Buyers and Sellers must fill out the [Registration Form, 3800-FM-BPNPSM0504](#), attach a valid contract, and send these documents to DEP to start the registration process.
- After review, DEP will issue a Registration letter to the seller and buyer listing the number of credits applied to the NPDES permit and a registry number.

Data on Certification, Verification, and Registration is tracked in the DEP Nutrient Trading

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Database and posted on the DEP website at http://www.dep.pa.gov/nutrient_trading.