

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

## Use of Treatment Chemicals Guidance Document

In order for the operator to be authorized by MDE to use any chemical additives, other than those authorized in the permit, the operator must provide conclusive data showing that, as used, and at the concentration discharged, the agent is not toxic to aquatic life. The conclusive data must include a list of chemicals composing the additive and aquatic toxicity data, a description of how the product will be used and the expected concentration that will exist in the effluent, appropriate controls and implementation procedures designed to ensure that their use of cationic treatment chemicals will not lead to a violation of water quality standards.

This document provides instructions and minimum permit requirements for operators requesting permission to use any chemical additives, other than those authorized in the permit, at a site.

If your request is approved, you will be authorized to use the approved chemicals, provided you comply with the requirements in Part II.1 of this document, and any additional site-specific requirements MDE considers necessary to be protective of surface water quality.

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### **I. Instructions for Requesting Approval for Use of Chemical Additives**

#### **1. Step 1 – Provide Additional SWPPP Documentation - *prior to submitting your NOI.***

In addition to the SWPPP requirements for all operators, the use of chemical additives requires supplementing the SWPPP with the following additional supporting information:

##### **a. Basis for Use of Chemical Additives**

- i. An explanation of why the use of chemical additives is necessary at your site; and
- ii. Information to support why the particular chemicals chosen are appropriate for use in light of the specific soils present at your site and the background levels of pH and turbidity in the receiving water(s). Background pH and turbidity levels are considered, for the purposes of this permit, to be based on the levels found in the receiving water during dry weather conditions.

##### **b. Specific Chemical Information**

- i. A listing of all chemicals to be used at your site;
- ii. Copies of Material Safety Data Sheets (MSDS) for each chemical to be used at your site;
- iii. Toxicity data for each chemical to be used at your site. This includes data provided by the supplier/provider of the chemical to be used;
- iv. Jar test results for each chemical to be used at your site;
- v. Manufacturer specifications regarding the use or recommended dosage levels for each chemical to be used at your site; and
- vi. Other chemical product information that will assist the Maryland Department of the Environment (MDE) in evaluating the use of these chemicals.

##### **c. Site Map**

Submit a map with the following information related to your use of cationic treatment chemicals:

- i. Locations where cationic treatment chemicals will be applied and stored on site;
- ii. Point(s) of discharge;
- iii. Areas of earth disturbance; and
- iv. Soil types.

##### **d. Schematic Drawings**

Submit schematic drawings showing the design of the chemical treatment systems (*e.g., chitosan-enhanced sand infiltration system, passive treatment systems*) to be used at the site.

##### **e. Responsible Personnel**

Submit a list of personnel who will be responsible for operating the chemical treatment systems, application of the chemicals, and for compliance with any permit requirements specific to all chemicals to be used at your site. Cite the training that the personnel have received in operation and maintenance of the treatment system(s) and use of the specific chemical(s) proposed.

##### **f. Sampling and Record Keeping Schedules**

Submit estimated treatment period start and end dates.

Once you have compiled all of the documentation required in Step 1, you must submit it to MDE no later than the date that you submit your NOI. Failure to provide all of this information could result in a delay in processing your request or in rejecting your NOI and requiring that a new NOI be submitted once you have satisfactorily submitted all required documentation.

Note that if you have been approved for use of chemical additives under this permit, the authorization is limited to the types of chemicals you had notified MDE you intended to use. If after such approval, you

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decide that a new chemical or a new or modified chemical treatment system is needed, you must re-apply for authorization to use the given chemicals at your site.

**2. Step 2 – Submit Request for Chemical Treatment Form** – *(required for cationic chemical treatment) prior to submitting your NOI.*

### **3. Step 3 – Submit NOI**

If at the time you received coverage under this permit, you had no plans to use treatment chemicals at your site, but you have since determined that you will need to use such chemicals, you are not authorized to use such chemicals until you have completed Steps 1 through 2, above, and you have received approval from MDE.

## **II. Permit Requirements Applicable to the Use of Treatment Chemicals**

If you are approved for the use of treatment chemicals, you will be subject to the minimum requirements that apply to the use of any treatment chemical and the requirement that there be no discharge of detectable levels of cationic chemicals. You may also be subject to additional requirements for the use of treatment chemicals on a case-by-case basis.

### **1. Minimum Permit Requirements**

- a. Maximize use of conventional pretreatment controls so that amount of chemical used is minimized;
- b. Select chemicals based on soil types;
- c. Store chemicals in leak-proof containers kept under storm-resistant cover;
- d. Comply with applicable state/local requirements;
- e. Apply chemicals and operate treatment systems in accordance with manufacturer specifications related to water quality;
- f. Ensure personnel have received product-specific training;
- g. Document in SWPPP all chemicals to be used, treatment systems, location where all chemicals will be applied and stored; and
- h. The discharge of stormwater must contain no detectable levels of cationic chemicals.

### **2. Additional Permit Requirements**

In addition, on a case-by-case basis, MDE may determine that it is necessary for you to comply with additional site-specific requirements. Examples of the types of requirements that you may be subject to include, but are not limited to, the following:

- Specific training requirements geared towards specific treatment chemicals to be used;
- Specific inspection requirements related to the locations where chemicals are used and stored;
- Maximum dosage rates based on jar test information submitted, other state NPDES permit requirements, and/or manufacturer information;
- Requirement to periodically recalculate the optimal dosage rate based on influent and effluent monitoring of pH and turbidity;
- Requirements related to the use of specific conventional pretreatment controls;
- Aquatic toxicity testing and applicable reporting, recordkeeping, and corrective action requirements; and
- Residual chemical testing and applicable reporting, recordkeeping, and corrective action requirements.

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### **III. Qualifying Background Turbidity and pH Data**

To satisfy the submittal requirement in Part I.1, your data should adhere to the following instructions:

#### **1. For Use of Published Data**

You may use data from a peer-reviewed publication or a local, state, or federal government publication to determine background levels of pH and turbidity if your site discharges within 5 miles downstream of the sampling location where the data was derived. For the purpose of this permit, your background levels for pH and turbidity must be based on the average of at least three of the most recent years of data. One possible source for determining your background levels of pH and turbidity is data from the U.S. Geological Survey's National Water Information System (NWIS), which can be accessed at <http://waterdata.usgs.gov/nwis/qw>. The NWIS allows you to compute daily, monthly, or annual mean time-series data for the available parameters. Note that there are a limited number of USGS stream monitoring stations across the nation, and only certain monitoring stations report data on pH and/or turbidity.

#### **2. For Data Based on Samples Taken by the Operator**

If you will be conducting sampling to determine your background pH and turbidity, you must conduct sampling during dry weather conditions of all surface waters to which your site discharges, and must comply with the following procedures:

##### **a. For measuring turbidity:**

- i. To ensure that the sample is representative of the flow conditions and other characteristics of the discharge, you must:
  - a) Avoid stirring the bottom sediments in the surface water in which samples are taken by not kicking up the sediment when walking and not disturbing the sediment with the sampling device;
  - b) Hold the sampling container so that the opening faces the upstream direction of the surface water in which samples are taken;
  - c) Do not overfill the sampling container; and
  - d) Keep the samples free from floating debris.
- ii. To ensure accurate analysis of your sample(s), you must:
  - a) Use a field-calibrated nephelometer or turbidity meter (also referred to as a "turbidimeter"). *i.* To ensure proper calibration, you are required to recalibrate your nephelometer or turbidity meter prior to each day's use of the device.
  - b) You are required to maintain the nephelometer in proper operating condition. Do not subject the nephelometer to mechanical shock, extreme heat, or humidity. Prevent moisture or dust from entering and accumulating inside the nephelometer.
  - c) Wear gloves to prevent contamination of the sample; and
  - d) Comply with additional requirements in accordance with 40 CFR Part 136 procedures and manufacturer's specifications.

##### **b. For measuring pH**

- i. You must follow the same procedures for sample collection as described for measuring turbidity; and
- ii. To ensure accurate analysis of your sample(s), you must:
  - a) If you are using a "pocket pal" or color comparator, follow the manufacturer's instructions.
  - b) If you are using a pH meter, you must:

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- Rinse the electrode with deionized water;
- Place the pH meter or electrode into the sample. Depress the dispenser button once to dispense electrolyte. Read and record the pH.