

**ATTACHMENT G****REQUIREMENTS FOR THE USE OF PASSIVE TREATMENT TECHNOLOGIES****NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH  
CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES  
(GENERAL PERMIT)****A. GENERAL PASSIVE TREATMENT TECHNOLOGIES REQUIREMENTS**

1. The discharger choosing to implement passive treatment technologies (passive treatment) on their site shall comply with all requirements in this Attachment and this General Permit.
2. Passive treatment is the application of natural or synthetic chemicals and products (products) to reduce turbidity in discharges through coagulation and flocculation. Passive treatment does not rely on computerized, enclosed systems with pumps, filters, and real-time controls. Passive treatment may include pumps where they are necessary to move water around the site.<sup>1</sup> This Attachment is for the use of water applied passive treatment products that remove suspended solids such as sediment from stormwater (e.g. liquid treatment chemicals, powders, slow-releasing solid blocks/socks) without using an active treatment system.
3. The discharger shall not use chemical treatment as a standalone Best Management Practice (BMP) for site erosion and sediment controls and shall maximize the use of non-chemical BMPs for site erosion and sediment controls.
4. The discharger shall employ a trained person knowledgeable in the principles and practices of passive treatment to oversee the product application or installation.
5. The discharger shall store products at the site in leak-proof containers with secondary containment kept under a storm-resistant shelter. The discharger shall follow the manufacturer's instructions for handling and storage.
6. The discharger shall use passive treatment in manner that precludes the accidental discharge of passive treatment products during storage, application, and after being applied.

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<sup>1</sup> U.S. EPA. Federal Register V 77. No 1. [Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category](https://www.govinfo.gov/content/pkg/FR-2012-01-03/pdf/2011-33661.pdf). Web. January 3, 2012. <<https://www.govinfo.gov/content/pkg/FR-2012-01-03/pdf/2011-33661.pdf>>. [as of May 20, 2021].

7. The discharger shall maintain a copy of the site-specific passive treatment plan in the Stormwater Pollution Prevention Plan (SWPPP). This document shall be kept updated in SMARTS and on-site in compliance with the record retention requirements in the Standard Provisions of this General Permit (Section VI).

## **B. PASSIVE TREATMENT DESIGN AND TOXICOLOGY REQUIREMENTS**

1. The use of cationic chemicals for passive treatment is not authorized by this General Permit. Cationic chemicals are only authorized for use in active treatment systems complying with the criteria in Attachment F of this General Permit.
  - a. Passive treatment consisting of polyacrylamides must<sup>2</sup>: Be free of nonylphenol and nonylphenol ethoxylates, often used as surfactants in emulsion-based products. Emulsion-based products may contain surfactants and petroleum distillates that can be toxic to aquatic life;<sup>3</sup>
  - b. Be food grade (National Sanitary Foundation/American National Standards Institute) products, or contain less than 0.05 percent residual monomer by volume;<sup>4</sup>
  - c. Have a charge density between 10 and 55 percent by weight;
  - d. Have a molecular weight between 6 and 25 milligrams per mole; and
  - e. Be mixed and applied in accordance with Occupational Safety and Health Administration Safety Data Sheet requirements and the manufacturer's recommendations.

<sup>2</sup> Michigan Department of Environmental Quality, Water Resources Division, [Technical Guidance for the Use of Polyacrylamide Products for Soil Erosion and Sedimentation Control \(SESC\)](#). Web. November 2014.

<[https://www.michigan.gov/documents/deq/wb-stormwater-TechnicalGuidancePAMs\\_197048\\_7.pdf](https://www.michigan.gov/documents/deq/wb-stormwater-TechnicalGuidancePAMs_197048_7.pdf)>. [as of May 20, 2021].

<sup>3</sup> Michigan Department of Environmental Quality, Water Resources Division, [Technical Guidance for the Use of Polyacrylamide Products for Soil Erosion and Sedimentation Control \(SESC\)](#). Web. November 2014.

<[https://www.michigan.gov/documents/deq/wb-stormwater-TechnicalGuidancePAMs\\_197048\\_7.pdf](https://www.michigan.gov/documents/deq/wb-stormwater-TechnicalGuidancePAMs_197048_7.pdf)>. [as of May 20, 2021].

<sup>4</sup> The U.S. EPA. [Support Document for the Third Six-Year Review of Drinking Water Regulations for Acrylamide and Epichlorohydrin](#). Web. December 2016.

<<https://www.epa.gov/sites/production/files/2016-12/documents/810r16019.pdf>>. [as of May 20, 2021].

2. A California licensed Professional Engineer shall design the discharge location(s) from the area treated with passive treatment products (treatment zone) to dissipate energy from concentrated flows.
3. Stormwater treated with passive treatment products in a treatment zone prior to being discharged from the construction site shall pass through a sediment control BMP (including, but not limited to, a sediment basin or trap) or filter (including, but not limited to, sand filter or geotextile bag) to settle or remove flocculants prior to discharge from the site.
4. The discharger shall include in the passive treatment plan, current acute and chronic toxicological test data provided by the manufacturer, a laboratory employed by the manufacturer, or a third-party organization.
  - a. The methods for the acute toxicity testing shall be those outlined for a 96-hour acute test in “Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, U.S. EPA-821-R-02-012” for Fathead minnow, *Pimephales promelas* (fathead minnow). Acute toxicity for *Oncorhynchus mykiss* (Rainbow Trout) may be used as a substitute for testing fathead minnows.
  - b. The methods for the chronic toxicity testing shall be those outlined for an 8-day chronic test in “Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, U.S. EPA-821-R-02-013” for Daphnia, *Ceriodaphnia dubia*.
  - c. All toxicity tests shall meet quality assurance criteria and test acceptability criteria in the most recent versions of the U.S. EPA test method for WET testing<sup>5</sup> as well any toxicity provisions adopted by the State Water Board.
  - d. The toxicological information in the passive treatment plan shall indicate the safety of the passive treatment product(s) based on expected release rates, toxicity reports, the anticipated concentration (calculated from product release rate) and intended use at the site.

### C. PASSIVE TREATMENT APPLICATION REQUIREMENTS

1. The discharger shall ensure passive treatment product(s) are used as follows:
  - a. The distance or barrier between the treatment zone and the receiving water(s) shall comply with surface water buffer requirements, in Attachment D Section I.G for traditional construction projects or Attachment E II.G for linear

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<sup>5</sup> [U.S. EPA. Whole Effluent Toxicity \(WET\)](https://www.epa.gov/npdes/whole-effluent-toxicity-wet). Web. <https://www.epa.gov/npdes/whole-effluent-toxicity-wet>. [as of May 20, 2021].

- underground and overhead projects, to prevent a discharge of treated effluent to the receiving water. Applying passive treatment products directly into a receiving water is prohibited.
- b. Passive treatment application rates, dosing, and methods used in treatment zones shall be determined based on the manufacturer's guidance to provide adequate sediment control without having an excess amount in runoff.
  - c. Passive treatment re-application rates, dosing, and methods used in treatment zones shall occur based on the manufacturer's recommended frequency and on-site conditions such as soil type, precipitation, and slope to avoid the discharge of excess product from in runoff.
2. The Passive Treatment Chemicals Performance Testing,<sup>6</sup> Dosing, Mixing, and Settling for use in Sediment Control BMPs
- a. The discharger shall ensure stormwater is treated and sediment from the site is tested by a person trained in the use of the passive treatment product prior to being applied at the site. The testing should demonstrate that the selected formulation is an effective product for removing suspended sediment.
  - b. The discharger shall employ a trained person to calculate the appropriate standard passive treatment product quantity per unit flow rate value using the following factors:
    - i. The specific chemical(s) or product(s) formulation being used;
    - ii. The amount of chemical/product applied;
    - iii. The flow rate of water through the system;
    - iv. The soil type and site topography; and,
    - v. The physical structure of the system.
  - c. This calculated value shall be included in the Passive Treatment Plan and be re-calculated and resubmitted via SMARTS as site conditions change.

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<sup>6</sup> Toronto and Region Conservation. [Canada Anionic Polyacrylamide Application Guide for Urban Construction in Ontario](https://sustainabletechnologies.ca/app/uploads/2013/02/Polymer-Guide-Final_NewFormat.pdf). Web. June 2013. <[https://sustainabletechnologies.ca/app/uploads/2013/02/Polymer-Guide-Final\\_NewFormat.pdf](https://sustainabletechnologies.ca/app/uploads/2013/02/Polymer-Guide-Final_NewFormat.pdf)>. [as of May 20, 2021].

- d. The discharger shall employ a trained person to ensure that the mixing and reaction time recommended by the manufacturer is followed during passive treatment application.
- e. The discharger shall ensure that the settling area for the passive treatment product-sediment laden stormwater is sized to hold the sediment and allows the reasonable cleanout frequency specified in the passive treatment plan. A sedimentation basin BMP shall be implemented upon any evidence that previously settled sediment is being re-suspended.

#### **D. PASSIVE TREATMENT MONITORING REQUIREMENTS**

1. The discharger using passive treatment shall comply with the monitoring requirements of the General Order and all other applicable Attachments.
2. Passive Treatment Plan

A Qualified SWPPP Developer shall prepare the Passive Treatment Plan describing the appropriate application rates, dosing, mixing, settling, and filtration (if applicable). The Passive Treatment Plan shall include:<sup>7</sup>

- a. A list of other erosion and sediment control BMPs implemented in the drainage area and treatment zones. Passive treatment shall not be used as a standalone BMP;
- b. Manufacturer product details (e.g., function, physical form, product name, expiration date and any other identifiers), specifications, and current acute and chronic toxicological and ecological information;
- c. The design details and drawings for maintenance and removal procedures for the products applied on-site;
- d. Contact information (name, position, email, phone number) of the trained person who is implementing passive treatment for the discharger; Qualified SWPPP Practitioner; and other site personnel who are trained to assist the discharger with the passive treatment implementation;
- e. Inspection and maintenance requirements for treatment zones;

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<sup>7</sup> Toronto and Region Conservation. [Canada Anionic Polyacrylamide Application Guide for Urban Construction in Ontario](https://sustainabletechnologies.ca/app/uploads/2013/02/Polymer-Guide-Final_NewFormat.pdf). Web. June 2013. <[https://sustainabletechnologies.ca/app/uploads/2013/02/Polymer-Guide-Final\\_NewFormat.pdf](https://sustainabletechnologies.ca/app/uploads/2013/02/Polymer-Guide-Final_NewFormat.pdf)>. [as of May 20, 2021].

- f. Monitoring, sampling and reporting plan, including quality assurance/quality control (QA/QC);
  - g. Health and safety procedures;
  - h. Spill prevention and response procedures;
  - i. Calculated and re-calculated quantities of passive treatment products used (Section C.2 above);
  - j. Site-specific performance testing results and the associated dosage/application rate(s) (Section C.2 above);
  - k. Site map of:
    - i. Site area location(s) where the product(s) is used (treatment zone);
    - ii. Treatment zone effluent discharge location(s);
    - iii. Site location(s) where product(s) will be stored;
    - iv. Locations of product recovery BMP(s), including but not limited to, ponds, chemicals and/or product recovery BMPs etc.; and,
    - v. Surface water buffer between the passive treatment zone and receiving waters.
  - l. Treatment zone soil type(s);
  - m. Proposed application date(s) or schedule;
  - n. Application method(s);
3. The discharger shall ensure a Qualified SWPPP Practitioner visually inspects the passive treatment zone surface condition within 72 hours before forecasted precipitation events and within 48 hours after qualifying precipitation events.
4. The discharger shall ensure that the trained person employed to implement the passive treatment completes a checklist with the following information during each passive treatment product application:
- a. Application date(s);
  - b. Application method(s);
  - c. Weather condition(s) during application;

- d. Estimated flow rate;
  - e. Estimated volume of water being treated;
  - f. Application rate(s), dosing, and mixing, consistent with the Passive Treatment Plan; and,
  - g. Any other site-specific conditions or observations relevant to the functioning of the product.
5. The Regional Water Boards may use site-specific information to require additional sampling and monitoring<sup>8</sup> to confirm the toxicological requirements are being met and to ensure there are no adverse impacts to waters of the United States

#### **E. PASSIVE TREATMENT REPORTING REQUIREMENTS**

1. The discharger using passive treatment shall comply with the reporting requirements of the General Order and all other applicable Attachments.
2. The Passive Treatment Plan shall be electronically certified and submitted through SMARTS 14 days prior to passive treatment use. A copy shall be available on-site during active construction. The Passive Treatment Plan shall be updated in accordance with the SWPPP update schedule specified in the Standard Provisions of this General Permit (Section VI).
3. The discharger shall ensure that all passive treatment application checklists are kept with the Passive Treatment Plan in accordance with Section VI.G in the Order.

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<sup>8</sup> Aquatic toxicity testing and applicable reporting, recordkeeping, and corrective action requirements; and/or residual chemical testing and applicable reporting, recordkeeping, and corrective action requirements.