TCEQ REGULATORY GUIDANCE
Small Business and Local Government Assistance
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Quarterly Visual Monitoring of Stormwater Runoff:

A Guide for Industries Operating under the TPDES Multi-Sector General Permit, TXR050000

Introduction

This guide is aimed at industrial facilities that are subject to the Texas Pollutant Discharge Elimination System (TPDES) Multi-Sector General Permit (MSGP) for discharges of stormwater—TXR050000. The MSGP is also known as the Industrial Stormwater General Permit.

Quarterly visual monitoring is designed to help you assess the effectiveness of your Stormwater Pollution Prevention Plan (SWP3) in reducing pollution in stormwater runoff from your facility. The ultimate goal of the TPDES program is to improve the quality of surface water in the state.

This guide is intended to help you perform quarterly visual monitoring of stormwater runoff; however, the guide is not a substitute for the rules. To find the requirements, refer to the TPDES MSGP; the Code of Federal Regulations (CFR), Title 40, Section 122.26; and the Texas Water Code, Sections 26.027, 26.040, and 26.121.

A copy of the MSGP can be obtained at the TCEQ website: www.tceq.texas.gov/permitting/stormwater/industrial. If you have any questions about this document, or if you need further assistance, contact the Stormwater and Pretreatment Team at 512-239-4671, or the Small Business and Local Government Assistance (SBLGA) Section at 1-800-447-2827.

What is visual monitoring?

Visual monitoring is examining and assessing a grab sample of stormwater for these characteristics, or parameters: color, clarity, oil sheen, odor, solids, foam, and other obvious indicators of stormwater pollution. A *grab sample* is a water sample that is collected all at once, in a clear glass container, from the specific water source—in this case, each of your facility's outfalls or representative outfalls (those that represent other outfalls with similar characteristics).

On a quarterly basis, visual monitoring should be conducted by a member of your Pollution Prevention Team, as described in your SWP3. Where practical, the same person should collect and examine the samples for the entire term of the permit to ensure consistency.

Outfalls

An *outfall* is the point (or points) at the boundary of your facility where stormwater runoff leaves your site, or within your facility where the discharge enters a receiving water. When discharges enter a receiving water on company property, the outfall is the point immediately before where the discharge meets the receiving water.

When discharges enter a receiving water—which can include an intermittent stream—off company property, the outfall is the point where the discharge leaves your site.

Substantially similar outfalls

Substantially similar outfalls are discharges from drainage areas undergoing similar industrial activities, where the discharges are expected to be of similar quantity, quality, and composition. If you have substantially similar outfalls, you may be able to do representative discharge sampling.

Representative discharge sampling makes it possible for you to sample one outfall and allows it to count as the sampling for a substantially similar outfall. Taking this approach could reduce the amount of staff time required for monitoring. Substantially similar outfalls may not be established for non-stormwater discharges.

In order to conduct representative discharge sampling, you must first document in your SWP3 how you determined that your outfalls are substantially similar. At a minimum you must compare:

- the industrial activities that occur in the drainage area of each outfall;
- any significant materials stored or handled within the drainage area of each outfall; and
- the management practices and pollution control structures that exist within the drainage area of each outfall.

Why should I do quarterly visual monitoring?

Quarterly visual monitoring is required in the permit for all facilities, and it helps you to assess whether *best management practices* (BMPs) are effectively working to reduce the potential for contamination of stormwater runoff as it leaves your facility. Quarterly visual monitoring may also indicate a source of pollution that you had not considered during the development of BMPs, such as recurring spills or an infrequent industrial activity.

BMPs are those practices implemented at your facility to control, prevent, or reduce the discharge of pollutants so that they do not enter waters of the state. Examples of BMPs can include operating procedures, maintenance procedures, and physical controls. Inactive facilities are not required to conduct quarterly visual monitoring if they have notified the TCEQ in writing of their inactive status.

How often do I perform quarterly visual monitoring?

You must visually examine each outfall authorized by the general permit every quarter, starting with the first full quarter following the submission of your permit application form. The permit application form is called a *Notice of Intent* (NOI). You must describe your monitoring process in detail in your SWP3. For the purposes of the MSGP, quarters are defined as follows:

- January through March
- April through June
- July through September
- October through December

When during the quarter should I perform monitoring?

You are required to perform visual monitoring during a discharge that occurs as a result of a qualifying storm event.

For purposes of the MSGP, a *qualifying storm event* is defined as an event that results in a discharge from the permitted facility and occurs at least 3 days (72 hours) from the previous measurable storm event.

Make every attempt to obtain your samples within the first 30 minutes after discharge is observed at your outfall(s). If you are not able to do so, then sample within the first hour of runoff at the outfall. If you cannot collect samples within the first 30 minutes after discharge begins, you must document in your SWP3 why you could not collect samples during that time.

Monitoring must be conducted during normal hours of operation for the facility and examined in a well-lit area. Once you collect a sample for a particular quarter, you are not required to sample again until the next quarter.

You must maintain a rain gauge on site to help identify qualifying rain events.

What if I can't get a sample?

We recognize that you cannot always get a sample—for example if the rainfall occurs outside normal operating hours, or there are hazardous weather conditions. In such cases you must attempt to sample two qualifying storm events during the next quarter. If you are unable to sample two events during the next quarter, the missed sample is permanently waived.

Be sure to document in your SWP3 that you were unable to collect a sample, and state a reason or reasons why (for example, drought conditions, or the rainfall occurred outside normal operating hours). Do not attempt to take a sample during dangerous conditions caused by the presence of lightning strikes or other weather hazards. If you cannot collect a sample because of a dangerous situation, note the condition in your SWP3.

Do I have to sample *all* of my outfalls every time I

conduct monitoring?

No, facilities with significantly similar drainage areas for each outfall may be able to claim representative outfalls. This approach allows a facility to sample one outfall and have it represent other outfalls with similar characteristics

Outfalls are considered *significantly similar* if their drainage areas exhibit the same industrial activities, the same exposed materials, and implementation of similar pollution control measures.

How is a sample collected and examined?

When examining samples, take the following steps:

- Collect grab samples from the outfall locations using a clean, clear glass jar.
- Attempt to take the sample from the middle of the water column to avoid scooping sediment or solids into the sample.
- Record the outfall number, date, and time you collected the sample, as well as the name of the person conducting the monitoring.
- Examine the sample in a well-lit area within 30 minutes after collecting it.
- Document your observation of the required parameters and other obvious indicators of stormwater pollution.
- Include your visual monitoring reports in your SWP3. Your SWP3 must be located at your facility, or in a place where it may be readily available for review by authorized TCEQ personnel upon request.

What parameters must be examined?

As part of your visual examination, you must document what you observe in each sample regarding six parameters: color, clarity, oil sheen, odor, solids, and foam.

If you notice an impact to any of these parameters, then determine what industrial activities or conditions might be the cause. Also determine whether additional BMPs or pollution prevention measures need to be employed to prevent this condition.

The following paragraphs discuss each parameter.

Color

If the sample is colorless, then it may indicate that your BMPs are helping to prevent certain pollutants from leaving your site. Color in water can be due to pollutants or suspended matter. Look for dramatic changes in the normal water color when assessing this parameter.

This parameter refers to the degree of cloudiness present in the sample. It is usually an indication of less pollutants in the water if the sample is clear or transparent. If the clarity has changed since the last sample, identify what might have caused this to happen.

Oil Sheen

An oil sheen is present if a film of iridescent color is noted on the surface of the sample. Look for a rainbow effect that can appear to be floating on the surface of the water.

Odor

Note whether any odors are present and what they smell like (for example, gasoline fumes, rotten eggs or sulphur, a sour smell, sewage, solvent fumes).

Solids

Examine samples for floating, suspended, and settled solids, such as silt, mud, and dirt.

- Floating solids will remain on or near the top of the sample.
- Suspended solids will be suspended within the column of water and may contribute to changes in water color or clarity.
- Settled solids will sink to the bottom of the sample container.

If a large volume of solids is present, determine the cause and note it in your SWP3.

Foam

Gently shake the sample and observe any foaming.

Foam in the sample is most likely caused by surfactants, and may resemble dish-washing soapsuds.

How do I document visual monitoring?

Visual monitoring documentation is required by the MSGP. The form that is included in this guide provides a format to record your findings; however, you may also choose a different record-keeping method to document your visual monitoring observations.

How do I respond to the monitoring results?

Once quarterly visual monitoring is performed, members of the Pollution Prevention Team should review the monitoring results. If there were indications of pollutants leaving the site, examine your facility to ensure that you have addressed all industrial activities occurring on your site and that all your BMPs are operating properly. Make any changes necessary to the facility and the BMPs and note your actions in your SWP3.

Notes

Quarterly Visual Monitoring Form

Fill out a separate form for each sample you collect (**one form per outfall**).

Outfall number:	**Person collecting/examining sample:**	
Quarter/year:	**Date & time collected:**	**Date & time examined:**
Rainfall amount:	**Qualifying:** Yes or No	**Runoff source:** rainfall or snowmelt

Parameter	Parameter Description	Parameter Characteristics
Color	Does the water appear to be colored? **Yes** **No**	**Describe:**
Clarity	Is the water clear or transparent, meaning can you see through it? **Yes** **No**	Which of the following best describes the clarity of the water? **Clear** **Milky** **Opaque** Other (describe) _____
Oil sheen	Can you see a rainbow effect or sheen on the water surface? **Yes** **No**	Which of the following best describes the water sheen? **Oily** **Silver** **Iridescent**
Odor	Does the sample have an odor? **Yes** **No**	**Describe:**
Floating solids	Is there something floating on the surface of the sample? **Yes** **No**	**Describe:**
Suspended solids	Is there something suspended in the water column or sample? **Yes** **No**	**Describe:**
Settled solids	Is there something settled at the bottom of the sample? **Yes** **No**	**Describe:**
Foam	Is there foam or material forming on top of the water? **Yes** **No**	**Describe:**

Detail any concerns, corrective actions taken, and any other obvious indicators of pollution present in the sample:

Collector's signature:

Example: Quarterly Visual Monitoring Form

Fill out a separate form for each sample you collect (**one form per outfall**).

Outfall number: 1	**Person collecting/examining sample:** Scott Doitall	
Quarter/year: Q2/03	**Date & time collected:** 8/31/17, 10 a.m.	**Date & time examined:** 8/31/17, 10:15 a.m.
Rainfall amount: 0.25 inches	**Qualifying:** (Yes) or No	**Runoff source:** (rainfall) or snowmelt

Parameter	Parameter Description	Parameter Characteristics
Color	Does the water appear to be colored? **(Yes)** **No**	**Describe:** water is brown
Clarity	Is the water clear or transparent, meaning can you see through it? **Yes** **(No)**	Which of the following best describes the clarity of the water? **Clear** **Milky** **Opaque** water is cloudy or muddy looking
Oil Sheen	Can you see a rainbow effect or sheen on the water surface? **Yes** **(No)**	Which of the following best describes the water sheen? **Oily** **Silver** **Iridescent** N/A
Odor	Does the sample have an odor? **(Yes)** **No**	**Describe:** The sample smells like soil or dirt
Floating solids	Is there something floating on the surface of the sample? **Yes** **(No)**	**Describe:** N/A
Suspended solids	Is there something suspended in the water column or sample? **(Yes)** **No**	**Describe:** There is silt/dirt in the water column
Settled solids	Is there something settled at the bottom of the sample? **Yes** **(No)**	**Describe:** After the sample sat for awhile, silt settled to the bottom of the container
Foam	Is there foam or material forming on top of the water? **Yes** **(No)**	**Describe:** N/A

Detail any concerns, corrective actions taken, and any other obvious indicators of pollution present in the sample:

Collector's Signature: