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Developing Your Stormwater Pollution Prevention Plan

A Guide for Industrial Operators

February 2009

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Section 1: **Introduction**

This guide includes suggestions on how to develop a stormwater pollution prevention plan (SWPPP). This guide does not impose any new legally binding requirements on EPA, States, or the regulated community, and does not confer legal rights or impose legal obligations upon any member of the public. In the event of a conflict between the discussion in this document and any statute, regulation, or permit, this document would not be controlling.

Interested parties are free to raise questions and objections about the substance of this guide and the appropriateness of the application of this guide to a particular situation. EPA and other decision makers retain the discretion to adopt approaches on a case-by-case basis that differ from those described in this guide where appropriate.

1.A Why Should You Use This Guide?

You should use this guide if you are an operator of an industrial facility required to develop a stormwater pollution prevention plan (SWPPP) that complies with a National Pollutant Discharge Elimination System (NPDES) industrial stormwater permit issued by your State or the U.S. Environmental Protection Agency (EPA). You may also find this guide to be useful if you are a State or EPA inspector who reviews SWPPPs, or you operate a commercial facility that is not required to obtain an NPDES permit but you are nevertheless interested in ways to minimize stormwater-related pollution at your facility.

Because each State permit can be slightly different, this guide is written more generically in an attempt to make it applicable to as many industrial general permits as possible. Owners and operators of industrial facilities should carefully read their respective industrial stormwater general permit to understand where using this guide may conflict with a State SWPPP requirement, and make adjustments to their SWPPPs as needed. EPA includes additional text describing how to address SWPPP requirements that are specifically included in the Agency's own 2008 Multi-Sector General Permit (MSGP), the "2008 MSGP".

In addition to helping you develop a SWPPP, this guide also includes sections that will assist you in keeping your implementation records and in avoiding common compliance problems, after you are authorized under the EPA 2008 MSGP or your State's general permit. See Section 7 for a discussion of how to keep implementation records. See Section 8 for a discussion of common compliance problems.

SWPPP Tip!

Owners and operators of industrial facilities, which are subject to a State or EPA industrial stormwater general permit typically must develop a SWPPP as a basic requirement. ***If your facility is subject to such a requirement, failing to develop a SWPPP can result in enforcement action against your facility by EPA or a State!*** For example, EPA has targeted enforcement actions against some industrial sectors for failing to have developed SWPPPs for their facilities.

1.B What Is Stormwater Runoff and What Are Its Impacts?

Stormwater runoff is water from rain or snowmelt that does not immediately infiltrate into the ground and flows over or through natural or man-made storage or conveyance systems. When undeveloped areas are converted to land uses with impervious surfaces such as buildings, parking lots, and roads, the natural hydrology of the land is altered and can result in increased surface runoff rates, volumes, and pollutant loads. Stormwater runoff picks up industrial pollutants and typically discharges them directly into nearby waterbodies or indirectly via storm sewer systems. Runoff from areas where industrial activities occur can contain toxic pollutants (e.g., heavy

Tetra Tech

Figure 1. Stormwater runoff can carry pollutants from impervious surfaces to receiving waters.

metals and organic chemicals) and other pollutants such as trash, debris, and oil and grease, when facility practices allow exposure of industrial materials to stormwater. This increased flow and pollutant load can impair waterbodies, degrade biological habitats, pollute drinking water sources, and cause flooding and hydrologic changes to the receiving water, such as channel erosion.

Industrial facilities typically perform a portion of their activities in outdoor areas exposed to the elements. This may include activities such as material storage and handling, vehicle fueling and maintenance, shipping and receiving, and salt storage, all of which can result in pollutants being exposed to precipitation and capable of being carried off in stormwater runoff. Also, facilities may have performed industrial activities outdoors in the past and materials from those activities still remain exposed to precipitation. In addition, accidental spills and leaks, improper waste disposal, and illicit connections to storm sewers may also lead to exposure of pollutants to stormwater.

EPA has identified six types of activities at industrial facilities that have the potential to be major sources of pollutants in stormwater:

- ***Loading and Unloading Operations***
  Loading and unloading operations can include pumping of liquids or gases from tankers to storage facilities, pneumatic transfer of dry chemicals, transfer by mechanical conveyor systems, or transfer of bags, boxes, drums or other containers by forklift or other material handling equipment. Material spills or losses in these areas can accumulate and be washed away during a storm.

- ***Outdoor Storage***
  Outdoor storage activities include storage of fuels, raw materials, by-products, intermediate products, final products, and process residuals. Materials may be stored in containers, on platforms or pads, in bins, boxes or silos, or as piles. Storage areas that are exposed to rainfall and/or runoff can contribute pollutants to stormwater when solid materials wash off or materials dissolve into solution.

- ***Outdoor Process Activities***
  Although many manufacturing activities are performed indoors, some activities, such as timber processing, rock crushing, and concrete mixing, occur outdoors. Outdoor processing activities can result in liquid spillage and losses of material solids, which makes associated pollutants available for discharge in runoff.

- ***Dust or Particulate Generating Processes***
  Dust or particulate generating processes include industrial activities with stack emissions or process dusts that settle on surfaces. Some industries, such as mines, cement manufacturing, and refractories, also generate significant levels of dust that can be mobilized in stormwater runoff.

- ***Illicit Connections and Non-Stormwater Discharges***
  Illicit connections of process wastes or other pollutants to stormwater collection systems, instead of to sanitary sewers, can be a significant source of stormwater pollution. Non-stormwater discharges include any discharge from the facility that is not generated by rainfall runoff (for example, wash water from industrial processes). With few exceptions, these non-stormwater discharges are prohibited. Refer to your permit for a list of authorized non-stormwater discharges.

- ***Waste Management***
  Waste management practices include everything from landfills to waste piles to trash containment. All industrial facilities conduct some type of waste management at their site, much of it outdoors, which must be controlled to prevent pollutant discharges in stormwater.

Section 2: **Getting Started**

2.A Am I Required to Develop a SWPPP?

The Clean Water Act (Section 402(p)) requires that operators of "discharges associated with industrial activity" obtain a National Pollutant Discharge Elimination System (NPDES) permit. EPA regulations (40 CFR 122.26) define the categories of industrial activity required to obtain NPDES permits, and specify the application requirements for these permits. To regulate stormwater discharges from these industrial activities, EPA and authorized States issue NPDES general permits.

Most industrial stormwater discharges are covered under general permits, as opposed to individual permits, although States and EPA can and do issue individual permits to some facilities based on site-specific or industry-specific concerns. General permits are used primarily because they avoid the need to issue multiple permits, and instead only require a single permit to cover a large number of industrial facilities performing similar types of activities. To be covered under a general permit, an eligible operator of an industry must read the general permit, typically develop a SWPPP, comply with any special eligibility provisions, and submit a notice of intent (NOI) or permit application to the permitting authority.

Federal regulations require NPDES permit coverage for stormwater discharges from the following categories of industrial activity:

- Category One (i): Facilities subject to federal stormwater effluent discharge standards in 40 CFR Parts 405-471
- Category Two (ii): Heavy manufacturing (for example, paper mills, chemical plants, petroleum refineries, and steel mills and foundries)
- Category Three (iii): Coal and mineral mining and oil and gas exploration and processing
- Category Four (iv): Hazardous waste treatment, storage, or disposal facilities
- Category Five (v): Landfills, land application sites, and open dumps with industrial wastes
- Category Six (vi): Metal scrapyards, salvage yards, automobile junkyards, and battery reclaimers
- Category Seven (vii): Steam electric power generating plants
- Category Eight (viii): Transportation facilities that have vehicle maintenance, equipment cleaning, or airport deicing operations
- Category Nine (ix): Treatment works treating domestic sewage with a design flow of 1 million gallons a day or more
- Category Eleven (xi): Light manufacturing (For example, food processing, printing and publishing, electronic and other electrical equipment manufacturing, and public warehousing and storage).

SWPPP Tip!

EPA's 2008 Multi-Sector General Permit (2008 MSGP) Applies to a Limited Geographic Area – The 2008 MSGP applies in five States (Alaska, Idaho, New Mexico, Massachusetts, and New Hampshire), Indian Country lands, most territories, and some federal facilities. Alaska will be taking over administration of stormwater permits beginning in 2009. Information on where the 2008 MSGP is available is included as Appendix C of the 2008 MSGP, which can be found at **www.epa.gov/npdes/stormwater/msgp**.

Where Do I Get a Copy of the Industrial Stormwater General Permit in My State?

To determine who issues the industrial stormwater permit in your State, you can visit EPA's stormwater website at **www.epa.gov/npdes/stormwater/authorizationstatus** or the Industrial Stormwater Resource Locator at **www.envcap.org/iswrl**.

Who Is an Operator?

EPA defines the operator of an industrial facility as:

- The entity that has operational control over industrial activities, including the ability to modify those activities, or
- The entity that has day-to-day operational control of activities at a facility necessary to ensure compliance with the permit (e.g., the entity that is authorized to direct workers at a facility to carry out activities required by the permit). See definition in Appendix A of the 2008 MSGP.

In many cases, the owner and operator are one in the same person. In a few instances, there may be more than one operator at a site (with the owner being an operator based on the definition provided above). Where there is both an owner (without operational control) and an operator, it is the operator's responsibility to obtain permit coverage and comply with the permit provisions.

SWPPP Tip!

What is a SWPPP?

A SWPPP is a site-specific, written document that:

- Identifies potential sources of stormwater pollution at the industrial facility;
- Describes stormwater control measures that are used to reduce or eliminate pollutants in stormwater discharges from the industrial facility; and
- Identifies procedures the operator will use to comply with the terms and conditions of the 2008 MSGP or a State general industrial stormwater permit.

You are required to develop your SWPPP to address the specific conditions at your site and keep it up-to-date to reflect changes at your site both for your use and for review by the regulatory agencies responsible for overseeing your permit compliance.

2.B What Are the Basic Elements Required in a SWPPP?

A SWPPP is a written document that identifies the industrial activities conducted at the site, including any structural control practices, which the industrial facility operator will implement to prevent pollutants from making their way into stormwater runoff. The SWPPP also must include descriptions of other relevant information, such as the physical features of the facility, and procedures for spill prevention, conducting inspections, and training of employees. The SWPPP is intended to be a "living" document, updated as necessary, such that when industrial activities or stormwater control practices are modified or replaced, the SWPPP is similarly revised to reflect these changes.

The process of developing a SWPPP involves the following four steps:

- *Step 1*: Formation of a pollution prevention team of qualified personnel who will be responsible for preparing the plan and assisting the plant manager in implementing practices to comply with the permit;
- *Step 2*: Assessment of potential stormwater pollution sources;
- *Step 3*: Selection of appropriate control measures that minimize the discharge of pollutants during storm events for each of these sources; and
- *Step 4*: Development of procedures for conducting required inspection/monitoring activities, as well as regular maintenance of control measures.

This guide will assist you with these four steps. The selection of a pollution prevention team is discussed in the next section (Section 2.C). Site assessment is addressed in Section 3, the selection of control measures is discussed in Section 4, and inspection/monitoring procedures are addressed in Section 5. The remaining sections of the guide address implementation of practices to comply with the permit and periodic evaluation of your SWPPP.

SWPPP Tip!

Prepare your SWPPP before submitting an NOI or permit application for coverage!

A typical SWPPP includes the following elements:

- Stormwater pollution prevention team;
- Site description;
- Summary of potential pollutant sources;
- Description of control measures;
- Schedules and procedures;
- Documentation to support eligibility considerations under other federal laws; and
- Certification of the SWPPP.

EPA has developed a model **Industrial SWPPP Template**, which can be found in Appendix A, and on EPA's website at **www.epa.gov/npdes/stormwater/msgp**. This template, developed for permit holders subject to the 2008 MSGP, is available in Microsoft Word and can be customized to address SWPPP requirements in different State NPDES permits.

Where your facility has other written procedures in place, such as a Spill Prevention, Control and Countermeasure (SPCC) Plan or an Environmental Management System (EMS) developed for a National Environmental Performance Track facility, your SWPPP can reference the portions of those documents in lieu of duplicating that information in your SWPPP. In these instances, you should keep copies of the relevant portions of those documents with your SWPPP.

SWPPP Tip!

EPA's 2008 MSGP includes the requirements for a SWPPP in Part 5 of the permit.

Additional SWPPP Documentation

After you become authorized under the permit, you will need to keep records on any implementation activities required under your permit, including records related to inspections, maintenance, monitoring results, and corrective actions. This additional documentation, although separate from the actual SWPPP, should be kept with the SWPPP so that all of your NPDES stormwater records are filed in one central location (see Section 7).

To assist permittees in their recordkeeping, EPA has developed an **Additional MSGP Documentation** template, which is available at **www.epa.gov/npdes/stormwater/msgp**. This template, developed for permit holders subject to the 2008 MSGP, is available in Microsoft Word and can be modified as necessary to address State-specific permit requirements.

2.C Stormwater Pollution Prevention Team (Step 1)

The first step in developing the SWPPP is to identify the stormwater pollution prevention team. The stormwater pollution prevention team is responsible for assisting the facility manager in developing the facility's SWPPP as well as implementing and maintaining stormwater control measures, taking corrective action where necessary to address permit violations or to improve the performance of control measures, and modifying the SWPPP to reflect changes made to the control measures. Since industrial facilities differ in size and complexity, the number of team members will also vary. The stormwater pollution prevention team should consist of those people on-site who are most familiar with the facility and its operations and responsible for ensuring that necessary controls are in place to eliminate or minimize the impacts of stormwater from the facility.

A key member of the stormwater pollution prevention team (for some facilities, this may be the only member) is the person with primary responsibility for developing and overseeing facility activities necessary to comply with the permit. This should be someone who will be on-site on a daily basis and who is familiar with the facility and its operations. This person will also likely have primary responsibility for ensuring that inspections and monitoring activities are conducted. If an EPA or State inspector visits the facility, this person will be the main point of contact for the SWPPP.

What to Include in Your SWPPP

In your SWPPP, identify the staff members (by name or title) that comprise the facility's stormwater pollution prevention team as well as their individual responsibilities. Make sure you keep this information up-to-date as staff members change.

SWPPP Tip!

Consider adding a stormwater management component to employee job descriptions and annual reviews, as appropriate to specific jobs. Often these requirements compliment existing tasks such as maintaining a clean work area; promptly cleaning up spills and leaks; performing regularly scheduled equipment maintenance; and properly storing all chemicals, oils, and other liquid pollutants.

Each member of the stormwater pollution prevention team should have ready access to either an electronic or paper copy of applicable portions of the industrial stormwater general permit and the SWPPP.

SWPPP Tip!

Qualified Personnel – Members of your stormwater pollution prevention team and those conducting inspections and monitoring activities should be "qualified personnel." EPA defines qualified personnel as "those who posses the knowledge and skills to assess conditions and activities that could impact stormwater quality at your facility, and who can also evaluate the effectiveness of control measures."

2.D What Do I Need to Do to Complete My SWPPP?

After identifying your pollution prevention team, you are ready to complete the next three steps in the development of your SWPPP:

- *Step 2*: Assessing your site and activities (Section 3);
- *Step 3*: Selecting control measures (Section 4); and
- *Step 4*: Developing procedures for inspections and monitoring (Section 5).

Section 6 describes final steps necessary to complete your SWPPP and to obtain permit coverage. Section 7 suggests how records relating to permit compliance should be kept.

Section 3: **Site Assessment and Planning (Step 2)**

This section describes how to collect the information needed for your SWPPP. This information includes:

- *An assessment of the activities performed at your facility* – this assessment will help identify potential pollutant sources.
- *An evaluation of existing sampling data* – a review of sampling data will show where past problems have occurred.
- *Preparing maps of your facility* – site maps will identify the location of industrial activities, pollutant sources, control measures, and the direction of stormwater flow.

3.A Conduct an Assessment of the Activities Performed at Your Facility

The first step in developing a SWPPP is to gain a thorough understanding of the activities conducted and equipment located at your facility to be able to identify potential pollutant discharge concerns. To complete this step, you will need to conduct a detailed walk-through of your facility to identify industrial materials or material handling activities exposed to stormwater (see text box below), any stormwater controls already in place at your facility, the direction of stormwater flow through and from your facility, and the location of all stormwater outfalls. If possible, you should conduct your walk-through during a rain event so that you can observe the flow of stormwater on your site. In addition to your walk-through, you should communicate with fellow site employees who may be more familiar with daily operations than you so that you can thoroughly identify any activities that may contribute stormwater pollutants, but that may not be readily visible during a routine walk-through (e.g., to identify activities that are not performed on a routine basis).

What to Include in Your SWPPP

Develop a list of industrial activities at your site exposed to stormwater. Identify these activities on your site map.

How Does EPA Define Industrial Materials and Material Handling Activities?

Industrial materials or activities **include, but are not limited to: material handling equipment or activities; industrial machinery; raw materials; industrial production and processes; and intermediate products, by-products, final products, and waste products.** ***Material handling activities*** **include, but are not limited to: the storage, loading and unloading, transportation, disposal, or conveyance of any raw material, intermediate product, final product or waste product. See 40 CFR 122.26(g).**

The facility assessment will reveal locations where industrial materials or material handling activities may be contributing stormwater contaminants, and help you identify the most important pollutant sources. The following approach is suggested for completing your facility assessment:

Identification of Activities Exposed to Stormwater. As you conduct your facility assessment, make a list of the industrial activities exposed to stormwater (e.g., material storage; equipment fueling, maintenance, and cleaning; cutting steel beams). Note their location so they can be identified on the site map.

Inventory of Materials and Pollutants. Make a list of the materials and pollutants (e.g., crankcase oil, zinc, sulfuric acid, and cleaning solvents) associated with each identified activity, including pollutants associated with these materials, based on how they are stored, handled, disposed, etc. Note whether these materials are exposed to stormwater, or have the potential to be exposed to stormwater. How materials are stored and handled has a bearing on the potential for stormwater pollution.

What to Include in Your SWPPP

For each of the activities identified above, create an inventory of the materials associated with each activity (this may be easiest to do in a table). Identify whether these materials are or have the potential to be exposed to stormwater. Also, identify any pollutants associated with these materials based on how they are stored, handled, disposed, etc.

Areas with Spill or Leak Potential. Document where potential spills and leaks may occur, and specify the outfall(s) that could be affected by such spills and leaks. Document all significant spills and leaks that actually occurred at exposed areas, or that drained to a stormwater conveyance, in the three years prior to the date you prepare or amend your SWPPP. You should consider spillage and leakage of all types of materials when preparing for and documenting such releases.

What to Include in Your SWPPP

Identify locations of potential spills and leaks that could contribute pollutants to stormwater discharges, and the corresponding outfalls that would be affected. Review past records of all significant spills and leaks that occurred in areas exposed to stormwater or that drained to a stormwater conveyance over the past three years, and provide a summary or copy of such records in your SWPPP.

Presence of Non-Stormwater Discharges. A non-stormwater discharge is any discharge from your facility this is not composed entirely of rainfall or snowmelt runoff. Non-stormwater discharges often come from potable water sources or process wastewater discharges. With few exceptions, the discharge of non-stormwater as runoff from your facility is prohibited unless it is specifically allowed under an NPDES permit.

You must evaluate for the presence of non-stormwater discharges and be able to demonstrate that all unauthorized non-stormwater discharges have been eliminated prior to obtaining coverage under a stormwater permit (or that any other discharges are otherwise covered under a different NPDES permit). Conduct your evaluation during a period of dry weather (no rain for at least the previous three days). Walk your site and evaluate each outfall to identify any locations with flowing or stagnant water or discharging liquid; the presence of such water or liquid that would be indicative of a non-stormwater discharge. You should try to identify the source of the water or liquid, and determine if it is one of the allowable non-stormwater discharges identified below or otherwise in need of further action to eliminate the source. You should also identify any indicators of past or intermittent non-stormwater discharges (such as evidence of stains at the outfall).

SWPPP Tip!

Allowable Non-Stormwater Discharges

Most industrial stormwater general permits include a list of non-stormwater discharges that are "allowable" and do not need to be eliminated. As used in EPA's 2008 MSGP, "allowable non-stormwater discharges" are those that while not stormwater discharges, are covered under the terms and conditions of the stormwater permit. These are often discharges that if not covered under a stormwater permit would require coverage under some other NPDES permit. The list of allowable non-stormwater discharges from the 2008 MSGP (Part 1.1.3) includes:

- Discharges from fire-fighting activities;
- Fire hydrant flushings;
- Potable water, including water line flushings;
- Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids;
- Irrigation drainage;
- Landscape watering provided all pesticides, herbicides, and fertilizer have been applied in accordance with the approved labeling;
- Pavement wash waters where no detergents are used and no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed);
- Routine external building washdown that does not use detergents;
- Uncontaminated ground water or spring water;
- Foundation or footing drains where flows are not contaminated with process materials; and
- Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of your facility, but not intentional discharges from the cooling tower (e.g., "piped" cooling tower blowdown or drains).

If any non-stormwater discharges are identified during the evaluation, you should take steps to eliminate any that are prohibited under your permit. For example, plug a floor drain, re-route a sink drain to the sanitary sewer, or submit an NPDES permit application for an unauthorized cooling water discharge.

What to Include in Your SWPPP

Documentation of your evaluation for non-stormwater discharges. Typically, this documentation should include:

- The date of any evaluation;
- A description of the evaluation criteria used;
- A list of the outfalls or onsite drainage points that were directly observed during the evaluation;
- The different types of non-stormwater discharge(s) and source locations; and
- The action(s) taken, such as a list of control measures used to eliminate unauthorized discharge(s), if any were identified.

Location of Salt Storage. Document the location of any storage piles containing salt used for deicing or that are used for other commercial or industrial purposes. Salt and deicing materials should be stored inside and not exposed to stormwater runoff, if possible.

What to Include in Your SWPPP

If your facility has storage piles containing salt, document the type of material, amount, and its location.

3.B Evaluate Sampling Data

You should evaluate any stormwater sampling data you, or others, collected, from the previous permit term or any time in the past 5 years, which are associated with stormwater discharges from the facility. This includes any analytic sampling data, such as benchmark monitoring or effluent limitation guideline data. The purpose of evaluating your past sampling data is to identify or pinpoint any pollutants of concern, hotspots, or control measures that are not functioning correctly. This information will be useful as you identify and select control measures (described in Section 4).

What to Include in Your SWPPP

A summary of all stormwater discharge sampling data collected at your facility during the previous permit term. You should summarize the data by pollutant, and indicate whether the pollutant parameter exceeded any applicable benchmark or effluent limit.

Include in your SWPPP your evaluation of the data, particularly where pollutants exceeded the 2008 MSGP benchmark values (see SWPPP Tip below). Attempt to identify why that pollutant existed in elevated concentrations, what are the potential sources of that pollutant at your facility, and what potential measures you could use to reduce that pollutant.

SWPPP Tip!

Compare your sampling results to EPA's 2008 MSGP Benchmark values below.

Pollutant	2008 MSGP Benchmark
Ammonia*	2.14 mg/L
Biochemical Oxygen Demand (5 day)	30 mg/L
Chemical Oxygen Demand	120 mg/L
Total Suspended Solids	100 mg/L
Turbidity	50 NTU
Nitrate + Nitrite Nitrogen	0.68 mg/L
Total Phosphorus	2.0 mg/L
pH	6.0 – 9.0 s.u.
Aluminum (T) (pH 6.5 - 9)	0.75 mg/L
Antimony (T)	0.64 mg/L
Arsenic (T)	0.15 mg/L
Beryllium (T)	0.13 mg/L
Cadmium (T)†	0.0021 mg/L
Copper (T)*†	0.014 mg/L
Cyanide	0.022 mg/L
Iron (T)	1.0 mg/L
Lead (T)*†	0.082 mg/L
Magnesium (T)	0.064 mg/L
Mercury (T)	0.0014 mg/L
Nickel (T)†	0.47 mg/L
Selenium (T)*	0.005 mg/L
Silver (T)*†	0.0038 mg/L
Zinc (T)†	0.12 mg/L

(T) Total recoverable

* New criteria are currently under development, but values are based on existing criteria.

† These pollutants are dependent on water hardness. The benchmark value listed is based on a hardness of 100 mg/L. The 2008 MSGP requires industrial facility to analyze receiving water samples for hardness, and use the hardness tables provided in the 2008 MSGP to determine the applicable benchmark value for that facility.

3.C Develop General Location and Site Maps

The final step in the site assessment process is to document the results of your site assessment on a detailed site map. If you have already developed a site map for an earlier permit, you should modify the map as necessary to reflect changes at your facility, including changes to any of your control measures or industrial activities.

Your SWPPP must include both a general location map and a detailed site map. The following is a discussion of what is required for each type.

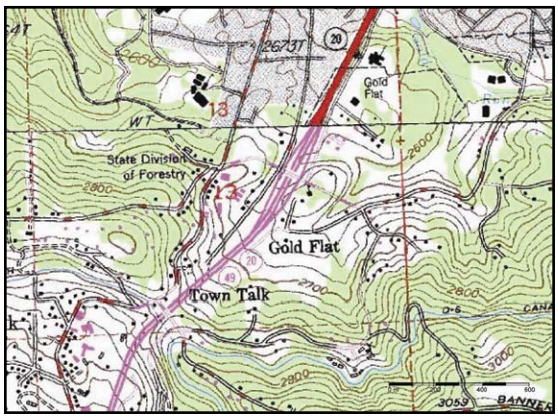

Figure 2. Example general location map.

General Location Map

A general location map is helpful to identify nearby, but not necessarily adjacent, waterbodies around your facility. Include in your SWPPP a general location map (e.g., U.S. Geological Survey (USGS) quadrangle map, or other large scale area map) with enough detail to identify the location of your facility and all nearby receiving waters that may receive your stormwater discharges. Create a USGS map for your area by using the USGS National Map Viewer (**http://nmviewogc.cr.usgs.gov/viewer.htm**). Maps can be printed or saved as PDF documents and inserted into your SWPPP.

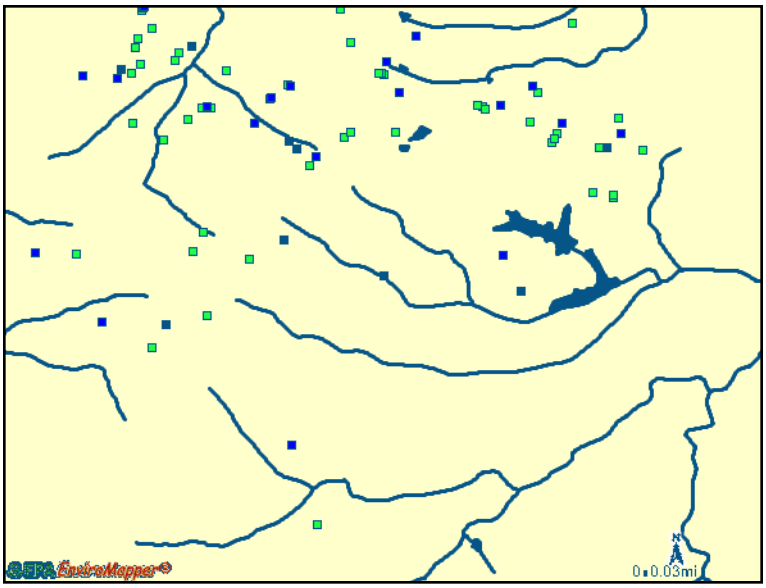

Figure 3. Example general location map.

One free web-based mapping service is EPA's Water Locator Tool, which is available at **www.epa.gov/npdes/stormwater/msgp**. To use the tool, enter your facility address in Step 1, then click on "Window to My Environment" in Step 2 (make sure your pop-up blocker is turned off). You will be able to zoom and reposition the map. When you get the map to the appropriate scale and location, you can copy and paste it into your SWPPP. Use a graphics program or a pen to mark the location of your facility on the map. An example general location map is included in Figure 3.

What to Include in Your SWPPP

Develop a general location map of your facility that shows:

- the location of your facility
- receiving waters to which your facility discharges

It may also be helpful to include roads or political boundaries to better locate your facility.

Site Map

Develop a map of your site that includes, among other things, the footprint of all buildings, structures, paved areas, and parking lots. The site map is intended to show the direction of stormwater flow throughout your facility and the potential pollutant sources that may come into contact with your stormwater runoff.

EPA recommends that you develop a first draft of the site map based on the information collected during your assessment. After you select appropriate control measures (Section 4) and monitoring locations (Section 5), you should revise your site map to reflect this information and any additional changes identified as you develop your SWPPP. If you are unable to fit all the information on one map, use multiple maps to provide a full characterization of the information described above. Also, if activities and conditions change at your site during the term of the NPDES permit, you should update the map as described in Section 6.C of this guide. An example of a site map is included (see Figure 4) and in Appendix C.

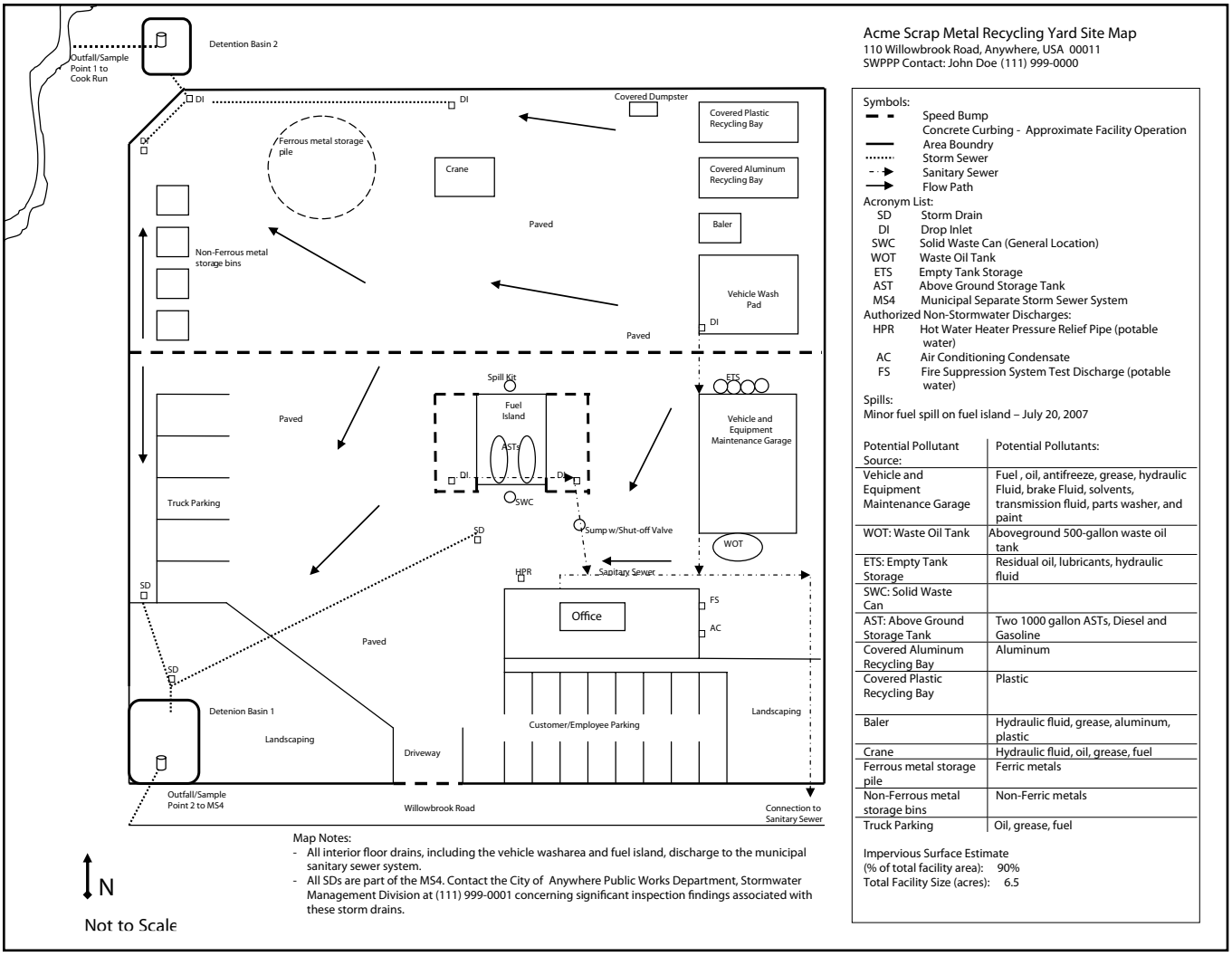

Figure 4. Example site map.

What to Include in Your SWPPP

Include a site map of your facility which includes the items below:

- The size of the property in acres;
- The location and extent of significant structures and impervious surfaces;
- Directions of stormwater flow (use arrows);
- Locations of all existing structural control measures;
- Locations of all receiving waters in the immediate vicinity of your facility, indicating if any of the waters are impaired and, if so, whether the waters have TMDLs established for them;
- Locations of all stormwater conveyances including ditches, pipes, and swales;
- Locations of potential pollutant sources identified (see Section 3.B);
- Locations where significant spills or leaks have occurred;
- Locations of all stormwater monitoring points;
- Locations of stormwater inlets and outfalls, with a unique identification code for each outfall (e.g., Outfall No. 1, No. 2, etc), indicating if you are treating one or more outfalls as "substantially identical", and an approximate outline of the areas draining to each outfall;
- Municipal separate storm sewer systems, where your stormwater discharges to them;
- Locations and descriptions of all non-stormwater discharges;
- Locations of the following activities where such activities are exposed to precipitation:
  - Fueling stations;
  - Vehicle and equipment maintenance and/or cleaning areas;
  - Loading/unloading areas;
  - Locations used for the treatment, storage, or disposal of wastes;
  - Liquid storage tanks;
  - Processing and storage areas;
  - Immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility;
  - Transfer areas for substances in bulk; and
  - Machinery; and
- Locations and sources of run-on to your site from adjacent property that contains significant quantities of pollutants.

Section 4: **Selecting Control Measures (Step 3)**

Control measures are the best management practices (BMPs) or other structural or non-structural practices that are used to prevent or reduce the discharge of pollutants in stormwater. Structural control measures, as the name implies, focus on installation of hard structures to control discharges. Structural controls include practices such as vegetative swales, collection and reuse of stormwater, inlet controls, snow management, infiltration devices, and wet retention measures. Non-structural control measures are intended to prevent or reduce the generation of pollutants in stormwater and/or the volume of stormwater runoff using practices that focus on facility operations and procedures. Examples of non-structural control measures include procedural practices such as employee trainings and the posting of signs that raise staff awareness to the BMPs and procedures in place to control stormwater pollutants.

SWPPP Tip!

Effluent limits = stormwater control requirements. In the 2008 MSGP, as with most state industrial stormwater general permits, stormwater control measures are those structural or non-structural practices that are used to achieve the permit's effluent limits.

A combination of preventive and active treatment control measures usually results in the most effective stormwater management for minimizing the offsite discharge of pollutants in stormwater runoff. Most control measures require regular maintenance to function as intended. Some control measures have simple maintenance requirements, while others may require more extensive upkeep in order to maximize their performance. Note that identifying weaknesses in current facility practices will help permittees determine appropriate control measures for use at the site.

What does "minimize" mean?

The technology-based limits included in EPA's 2008 MSGP require that you minimize (i.e., defined as reduce and/or eliminate) stormwater exposure to pollutants using control measures that are technologically available, economically practicable, and achievable in light of best industry practice.

General Stormwater Management Principles

In most industrial stormwater permits, including the 2008 MSGP, the site operator is given the flexibility to select the type of control measures, including specific technologies, which he/she believes are best suited to the facility and that will meet the permit's requirements. This flexibility is necessary given the variability of each industrial operation, the differences in the topography from site to site, and the dissimilarities in the activities and materials exposed to stormwater. However, there are certain general principles of stormwater management that are common to all sites, and that can be used by operators in their selection and design of control measures. These general principles, listed below, should be considered as a way to maximize the performance of control measures at your site.

- **Pollution prevention** – The best way to prevent stormwater pollution is to minimize the use of water contaminants in your industrial activities. When selecting control measures for the facility, you should focus on controls that are geared toward reducing pollutants at the source to prevent stormwater pollution. Source control practices include maintaining equipment, picking up trash and debris, training site staff on appropriate spill procedures, and proper materials management and storage.

- **Minimizing exposure** – Another effective way to minimize stormwater pollution is to eliminate opportunities for stormwater to come into contact with industrial activities and polluting materials. You should look for opportunities to relocate industrial activities/materials to covered or contained areas and to properly store and transport any accumulated scrap or waste material.
- **Combining controls** – Combined control measures are often more effective than control measures in isolation. For example, good housekeeping will often go a long way to minimize stormwater pollution but is more effective when combined with minimizing the exposure of significant materials or activities and a structural control, such as inlet protection.
- **Examining your site's pollutant sources** – Understand the type and quantity of pollutants that could contaminate stormwater leaving your facility. Use your knowledge of the potential pollutants to drive your selection and design of effective control measures.
- **Maximizing infiltration** – Onsite infiltration reduces overland runoff, improves groundwater recharge, and augments base flow in local streams. You should look for opportunities to minimize impervious area and increase areas where stormwater can infiltrate on-site. Keep in mind, however, that the use of onsite infiltration typically must be combined with other control measures to avoid ground water contamination.
- **Using existing vegetated areas** – Open vegetated swales and natural depressions can be used to dissipate energy in overland flow and reduce erosion. Vegetated swales and natural depressions can increase infiltration and, in some cases, promote uptake of metals and nutrients by plants.
- **Buffering on-site or adjacent waterbodies or drainage systems** – Maintain or restore vegetated buffer zones between your facility's impervious areas and adjacent surface waters.
- **Using structural practices (as applicable)** – When non-structural control measures are not effective in preventing stormwater contamination, structural control measures (e.g., swirl separators, sand filters, retention basins, etc.) may be needed to treat stormwater before it leaves your facility.

EPA's Technology-Based Discharge Requirements

The following sections describe the 12 categories of discharge requirements (or "effluent limits") required by the 2008 MSGP. Although the wording of these requirements may be unique to the EPA permit, many State permits include requirements that are similar to the 2008 MSGP.

4.A Minimize Exposure

The first step in an effective stormwater control program is minimizing exposure of manufacturing, processing, material storage areas, loading and unloading areas, dumpsters and other disposal areas, maintenance activities, and fueling operations to rain, snow, snowmelt, and runoff by both locating industrial materials and activities inside or protecting them with storm resistant coverings.

SWPPP Tip!

No Exposure Exemption

EPA's regulations recognize the effectiveness of minimizing exposure by allowing facilities to opt out of the permit by submitting a "No Exposure Certification" when all industrial activities are protected from contact with stormwater. The "No Exposure Certification" is included as Appendix K of the 2008 MSGP. Note that industrial materials do not need to be enclosed or covered if stormwater runoff from affected areas will not be discharged to receiving waters or if discharges are authorized under another NPDES permit. Check your State permit for specific requirements for incorporating minimizing exposure into your SWPPP.

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Figure 5. Minimize exposure by providing cover for potential contaminants.

What to Include in Your SWPPP

Describe all structural controls or practices used to minimize the exposure of industrial activities to rain, snow, snowmelt, and runoff. The SWPPP must describe where the controls or practices are being implemented at your site. The location must also be identified on the SWPPP site map. Examples of exposure-minimizing control measures that could be used at your facility and described in the SWPPP include:

- The location and extent of grading, berms, or curbs used to contain contaminated stormwater or divert stormwater around areas of industrial activity;
- A description of the types of materials and equipment that are stored within secondary containment and the location of contained storage areas;
- The location of spill cleanup kits and a description and schedule for employee spill abatement and cleanup training;
- Proper procedures for leaky vehicles and equipment, such as drip pans; parking in a contained area, or parking indoors;
- The use and location of spill/overflow protection equipment;
- Procedures for long-term storage or disposal of equipment and vehicles, such as draining all fluids;
- The location of covered and/or contained equipment cleaning areas; and
- The disposal method for all wash water, such as an on-site sump (if a sump is used, specify the pumping frequency) or sanitary sewer.

4.B Good Housekeeping

Good housekeeping practices offer a practical and cost-effective way to maintain a clean and orderly facility to prevent potential pollution sources from coming into contact with stormwater. Good housekeeping practices also help to enhance safety and improve the overall work environment. To effectively document in your SWPPP that you are including good housekeeping procedures at your site, you should establish protocols to reduce the possibility of mishandling materials or equipment and train employees in good housekeeping techniques. An effective good housekeeping program not only benefits stormwater quality but makes the facility a clean, safe place for employees and clients.

SWPPP Tip!

Labeling Storm Drains – A good stormwater awareness practice is to label all storm drains on your industrial facility with a "No Dumping – Drains to Stream" or similar message. If select drains at your facility discharge to the sanitary sewer system or to a sump (for example, at a wash rack), you should label those with a "Drains to Sanitary Sewer" or similar message.

Common areas where good housekeeping practices should be followed include areas where trash containers are kept and adjacent areas, material storage areas, vehicle and equipment maintenance areas, and loading docks. Involving employees in routine monitoring of housekeeping practices has proven to be an effective means of ensuring the continued implementation of this control measure.

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Figure 6. Two photos showing an industrial facility before and after it followed good housekeeping practices.

What to Include in Your SWPPP

Describe any practices you are implementing to keep exposed areas of your site clean. Describe where each practice is being implemented at your site. Include here your schedule or approach for:

- Regular pickup and disposal of waste materials and scrap equipment;
- Maintenance of clean work spaces;
- Routine inspections for leaks and of the condition of drums, tanks, and containers;
- Routine inspections to make sure that industrial materials are properly stored and labeled;
- A schedule for sweeping paved areas and floors, including who will perform the sweeping (employee or contractor);
- The individual or position responsible for emptying drip pans placed beneath leaking equipment, valves, and fill lines.

4.C Maintenance

A good maintenance program requires regular inspections, testing, and the preventive maintenance and repair of industrial equipment (stationary and mobile) and industrial systems. Maintenance programs are intended to ensure that structural control measures and industrial equipment are kept in good operating condition and to prevent or minimize leaks and other releases of pollutants (see Section 4.D for more specific information). If you notice a deficiency or otherwise find that your control measures or industrial equipment need to be replaced or repaired to ensure proper functioning, and to avoid leaks or other releases, you must make the necessary repairs or modifications, typically prior to the next wet weather event and as expeditiously as practicable.

Facilities with good maintenance programs will keep a maintenance log that tracks the regular maintenance of industrial equipment and stormwater control measures. The log provides a maintenance history for each piece of equipment and demonstrates to regulatory authorities that you have implemented the maintenance program outlined in your SWPPP.

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Figure 7. Equipment should receive routine preventative maintenance to prevent drips and leaks.

What to Include in Your SWPPP

Describe procedures to:

- Maintain industrial equipment so that leaks and other releases are avoided, and
- Maintain any of your site's control measures in effective operating condition.

Include the schedule you will follow for such maintenance activities. Describe where each applicable procedure is being implemented at the site.

4.D Spill Prevention and Response Procedures

Spills and leaks, together, are the largest source of industrial stormwater pollution. For this reason, your SWPPP must identify control measures that are used at your site to minimize the potential for spills, leaks, and other releases that may come into contact with stormwater. Among the practices that should be in place at your site are plans for effective response to spills if or when they occur. If your facility has more than 1,320 gallons of oil storage capacity in aboveground tanks you may also be required to develop a Spill Prevention, Control and Countermeasure (SPCC) plan consistent with 40 CFR 112.1.

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Figure 8. Spill kits should be maintained in areas with spill potential, such as fueling stations.

SWPPP Tip!

Employees must be aware of notification procedures in the event of a spill or leak, including when to contact appropriate facility personnel, emergency response agencies, and regulatory agencies. State or local requirements may necessitate reporting of spills or other prohibited discharges to local emergency response, public health, or drinking water supply agencies. Contact information must be posted in locations that are readily accessible and available to employees. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period, you must notify the National Response Center (NRC) at (800) 424-8802 or, in the Washington, DC, metropolitan area, call (202) 267-2675 in accordance with the requirements of 40 CFR Part 110, 40 CFR Part 117, and 40 CFR Part 302 as soon as you have knowledge of the discharge.

What to Include in Your SWPPP

Describe any structural controls or procedures you are putting in place to minimize the potential for leaks, spills, and other releases. At a minimum, your SWPPP should include:

- The location(s) of spill response plans for significant materials;
- A schedule for training employees in spill response procedures;
- Procedures for plainly labeling containers (e.g., "Used Oil," "Spent Solvents," "Fertilizers and Pesticides," etc.) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;
- Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling;
- The individual or position responsible for making sure the spill kits are complete and ready for use;
- Procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases; and
- Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies.

Describe where each control is to be located or where applicable procedures will be implemented.

4.E Erosion and Sediment Controls

Permits typically require control measures to be selected and implemented to limit erosion on areas of the site that, due to topography, land disturbing activities, soils, cover, materials, or other factors, are likely to experience erosion. In general, erosion control measures, which prevent soil or sediment from becoming mobilized, should be used as the primary line of defense, while sediment control measures, which trap, infiltrate, or settle out mobilized sediments, should be used to back-up the erosion control measures. For instance, erosion control measures, include grading, seeding, mulching, and sodding, that prevent soil from becoming dislodged, should be considered first. Where sediment may be dislodged and potentially mobilized in stormwater runoff, sediment control measures that trap eroded sediment include silt fences, sediment ponds, and stabilized entrances should be considered.

When selecting, designing, installing, and implementing appropriate erosion and sediment control measures, you should consult with your Tribal, State, and local authorities to ensure that you consider the appropriate control measures. EPA's internet-based resources relating to controlling erosion and sedimentation include the sector-specific *Industrial Stormwater Fact Sheet Series*, (**www.epa.gov/npdes/stormwater/msgp**), *National Menu of Stormwater BMPs* (**www.epa.gov/npdes/stormwater/menuofbmps**), and *National Management Measures to Control Nonpoint Source Pollution from Urban Areas* (**www.epa.gov/owow/nps/urbanmm/index.html**).

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Figure 9. Slope drains to protect a hillside from erosion.

SWPPP Tip!

Projects that disturb 1 acre or more of land generally require coverage under an NPDES construction general permit (CGP). Information on EPA's 2008 CGP requirements, including links to construction SWPPP resources, is available at **www.epa.gov/npdes/stormwater/cgp**.

What to Include in Your SWPPP

Include the following:

- A narrative description of areas of your site that are susceptible to erosion (note: the site map will also identify these areas);
- A description of erosion and sediment control measures used at your site to stabilize exposed areas and contain runoff to minimize onsite erosion and potential offsite discharges of sediment.

Note: Permits often require flow velocity dissipation devices at discharge locations and within outfall channels where necessary to reduce erosion and/or settle out pollutants. Describe in your SWPPP the location of each control implemented at your site.

4.F Management of Runoff

Similar to erosion and sediment controls, the management of stormwater runoff that flows through your site is an effective way to reduce the pollutants that are discharged from your site. Where you employ structures or practices that are intended to divert, infiltrate, reuse, or otherwise reduce stormwater runoff so as to reduce the discharge of pollutants, your SWPPP must include a description of those controls. Appropriate measures are highly site-specific, but may include vegetative swales, berms, collection and reuse of stormwater, inlet controls, snow management, infiltration devices, and wet retention measures.

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Figure 10. Vegetated berm used to prevent facility inundation when the river is at flood stage.

As mentioned previously, a combination of preventive and treatment control measures usually results in the most effective approach to stormwater management for minimizing the offsite discharge of pollutants in stormwater runoff.

SWPPP Tip!

When selecting control measures, be careful not to violate local building or fire codes and other ordinances. An example would be constructing a shed for storage of chemicals and then finding out from the fire department that you are in violation for locating the shed too close to the main building, not equipping the shed with sprinklers or other fire control device, and not properly labeling containers.

What to Include in Your SWPPP

Include the following:

- A description of controls used at your site to divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff.
- A description of locations at your site where each control will be implemented.

4.G Salt Storage Piles or Piles Containing Salt

Salt is commonly used for deicing and other commercial or industrial purposes, including maintenance of paved surfaces. Salt piles or piles that are predominantly composed of other materials that contain some salt typically must be covered or enclosed and otherwise isolated from coming into contact with stormwater (e.g., good housekeeping, diversions, containment). Piles do not need to be enclosed or covered if stormwater runoff from the piles is not discharged or if discharges from the piles are authorized under another NPDES permit.

To effectively document in your SWPPP that you are minimizing exposure of these piles to stormwater, you should consider creating a checklist to verify that salt loading and offloading operations occur within contained areas with appropriate measures in place to prevent the track out of salt from the contained areas.

Tetra Tech

Figure 11. Salt pile covered with a tarp.

What to Include in Your SWPPP

Include the following:

- The identification of salt storage piles or piles containing salt, and a description of structures at your site covering or enclosing such piles, or that prevent the discharge of stormwater from such piles.
- If tarps are used to cover piles, the SWPPP should describe procedures for when tarps will be placed over the piles.
- A description of any controls or procedures used to minimize exposure resulting from adding to or removing materials from the pile.
- The locations at your site where each control and/or procedure are implemented. Note that these locations must be identified on the SWPPP site map as well.

4.H Sector-Specific Requirements

Most industrial stormwater general permits regulate discharges of stormwater from a number of different industrial sectors. For instance, EPA's 2008 MSGP regulates discharges from 29 different industrial sectors. These "sectors" consist of similar facilities categorized by the nature of their industrial activity, type of materials handled, and material management practices employed. The sectors are structured to a large extent on the definition of "stormwater discharge associated with industrial activity" found at 40 CFR 122.26 (b)(14)(i)–(ix), (xi), under which many sectors are identified based on their standard industrial classification (SIC) code.

Review your industrial stormwater general permit to determine if there are additional sector-specific discharge requirements (or "effluent limits") for which your type of industrial activity are subject. If so, you will need to specifically document how you will comply with those requirements in your SWPPP. Not all sectors will necessarily have additional sector-specific discharge requirements. For example, Sector N of EPA's 2008 MSGP includes specific requirements for scrap recycling and waste recycling facilities as defined by SIC Major Group Code 50 (5093). One of the specific Sector N discharge requirements is to "minimize surface runoff from coming in contact with scrap processing equipment." Alternatively, the Chemical and Allied Products Manufacturing, and Refining sector (Sector C) does not have any sector-specific discharge requirements in the 2008 MSGP.

Note that, if covered by the 2008 MSGP, you are responsible for complying with sector-specific requirements associated with your primary industrial activity and all co-located industrial activities. Co-located industrial activities are industrial activities, excluding your primary industrial activity, located on-site that are also required to be covered by the 2008 MSGP or a State general permit. Statewide general permits may have different requirements for specific industrial sectors.

SWPPP Tip!

Sector-specific requirements for the 2008 MSGP – All sector-specific requirements can be found in Part 8 of the 2008 MSGP.

Sector-specific fact sheets – EPA has developed fact sheets specific to the industrial activities, pollutants and control measures used at each of the 29 sectors covered by the 2008 MSGP. These sector fact sheets can be found at **http://cfpub.epa.gov/npdes/stormwater/swsectors.cfm.**

What to Include in Your SWPPP

Include the following:

- The industrial sector, or sectors, applicable to the permitted site.
- A discussion of the control measures implemented to address sector-specific requirements, if applicable, consistent with Part 8 of the 2008 MSGP.
- The location of each control and/or procedure used to comply with the sector-specific requirements.

4.1 Employee Training

Stormwater training is required for all employees who work in areas where industrial activities or material handling activities are exposed to stormwater, or who are responsible for implementing activities necessary to meet the conditions of this permit. These employees include inspectors, maintenance personnel, and all members of your Pollution Prevention Team. The training session or sessions are expected to cover the contents of the facility SWPPP, control measures implemented to achieve compliance with applicable discharge requirements, spill containment and cleanup procedures, maintenance, monitoring, inspection, planning, reporting, and documentation requirements.

EPA recommends that training be conducted for any applicable employees at least annually and whenever a new employee starts who meets the description above. You should have a sign-in/sign-out sheet at each training class to document that employees have participated. Keep the sign-in/sign-out sheet with your SWPPP.

What to Include in Your SWPPP

Include the following:

- Person(s) responsible for conducting the training (a member of the Pollution Prevention Team, contractor, or other?)
- The employees or positions that will receive stormwater training.
- The frequency of stormwater training sessions (annually, upon hire, or other). EPA recommends at least once per year. For example, the SWPPP might state that stormwater training will be conducted annually in September so employees are ready for the upcoming wet weather season.
- The stormwater topics covered during the training session or sessions.
- The sign-in/sign-out sheets from the training session.

SWPPP Tip!

Customize the employee training to the issues at your facility, and ensure that employees are trained on the control measures they are expected to implement. Among the topics you cover in your training should be some of the basic principles of stormwater management. For example, you should convey that:

- Stormwater pollution occurs when rainfall runoff picks up pollutants from the ground or areas exposed to rainfall.
- Polluted stormwater can cause significant water quality problems, such as fish kills and drinking water contamination. Stormwater runoff is typically discharged directly to receiving waters, and is not treated somewhere else, like at a wastewater treatment plant.
- Potential stormwater pollutants should be kept inside or under cover whenever possible.
- The best way to prevent stormwater problems is through general good housekeeping practices. A clean and organized facility will usually have very few stormwater problems.
- If anyone sees any potential stormwater problems, they should report it to the facility

Tetra Tech

Figure 12. In addition to employee training, labeling storm drains is a good measure to educate employees.

4.J Non-Stormwater Discharges

In Section 3.A, this guide discussed the assessment of allowable and prohibited non-stormwater discharges at your site. As stated in that section, unauthorized non-stormwater discharges cannot be discharged from your facility unless specifically authorized by a separate, individual NPDES permit. Your SWPPP should describe the assessment you conducted under Section 3.A, how you eliminated any unauthorized non-stormwater discharges, and your plans to prevent unauthorized non-stormwater discharges at your facility.

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Figure 13. Unauthorized non-stormwater discharge from an industrial facility.

What to Include in Your SWPPP

Include the following:

- A list of allowable non-stormwater discharges that occur at your facility.
- A description of unauthorized non-stormwater discharges found at your site and how they were eliminated.
- Steps taken to ensure that other unauthorized non-stormwater discharges do not occur in the future.

Note: If this section is already addressed by your documentation of non-stormwater discharges (see Section 3.A), you can simply include a cross-reference to that section of your SWPPP.

4.K Waste, Garbage, and Floatable Debris

You are responsible for making sure that stormwater runoff does not carry waste, garbage, and floatable debris to receiving waters. To verify compliance with this requirement, you should identify and implement control measures (e.g., good housekeeping, sweeping, keeping lids closed on dumpsters) to keep exposed areas free of such materials. Alternatively, your SWPPP should identify how you will intercept and properly dispose of these materials before they leave your facility.

What to Include in Your SWPPP

Include the following:

- A description of controls and procedures that will be used to minimize discharges of waste, garbage, and floatable debris.
- Descriptions of the location of these control measures and procedures at your site.

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Figure 14. Poor management of waste and garbage at a facility.

4.L Dust Generation and Vehicle Tracking of Industrial Materials

As an operator, you are responsible for minimizing generation of dust and off-site tracking of raw, final or waste materials. Dust control practices can reduce the activities and air movement that cause dust to be generated from disturbed soil surfaces. Airborne particles pose a dual threat to the environment and human health. Dust can be carried offsite, thereby increasing soil loss from disturbed areas and increasing the likelihood of sedimentation and water pollution. Control measures to minimize the generation of dust include:

- *Sprinkling/Irrigation*. Moistening the ground surface with water is an effective dust control method for haul roads and other traffic routes.
- *Vegetative Cover*. By establishing a vegetative cover on areas that will not see vehicle traffic, exposed soil is stabilized and wind velocity at ground level can be reduced, thus reducing the potential for dust to become airborne.
- *Mulch*. Mulch is a quick and effective, but not permanent, means of dust control for newly disturbed areas.
- *Wind Breaks*. Wind breaks can be trees or shrubs left in place during site clearing or constructed barriers such as a wind fence, snow fence, tarp curtain, hay bale, crate wall or sediment wall. The break reduces wind velocity, minimizing airborne transfer of soil off site.
- *Tillage*. Deep tillage in large open areas brings soil clods to the surface where they rest on top of dust, preventing it from becoming airborne.
- *Stone*. Stone can be an effective dust deterrent for construction roads and entrances or as a mulch in areas where vegetation cannot be established.
- *Spray-on Chemical Soil Treatments (Palliatives)*. Examples of chemical adhesives include anionic asphalt emulsion, latex emulsion, resin-water emulsions and calcium chloride. Chemical palliatives should be used only on mineral soils. When considering chemical application to suppress dust, determine whether the chemical is biodegradable or water-soluble and what effect its application could have on the surrounding environment, including waterbodies and wildlife.

To reduce vehicle tracking of materials and sediment, the operator should keep stored or spilled materials away from all roads within the site. Specific measures such as setting up a wash site or separate pad to clean vehicles prior to their leaving the site may be effective as well.

What to Include in Your SWPPP

Include the following:

- A description of controls and procedures used at your site to minimize the generation of dust.
- Descriptions of procedures and controls used to minimize off-site tracking of raw, final, or waste materials.
- Describe the location where each control and/or procedure will be implemented and include on the SWPPP site map.

4.M Numeric Effluent Limitations Based on Effluent Limit Guidelines

Some industrial activities identified in industrial stormwater permits also have Federal numeric effluent limits (called effluent limitation guidelines) that must be achieved in stormwater discharges. The effluent limits are maximum concentrations or levels of specific pollutants that can be discharged in facility stormwater. If your facility includes one of the industrial categories listed below, refer to your industrial stormwater general permit (Parts 6.2.2.1 and 2.1.3 of EPA's 2008 MSGP) regarding numeric effluent limits and monitoring requirements to which you are subject:

- Discharges resulting from spray down or intentional wetting of logs at wet deck storage areas
- Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished product, by-products or waste products
- Runoff from asphalt emulsion facilities
- Runoff from material storage piles at cement manufacturing facilities
- Mine dewatering discharges at crushed stone, construction sand and gravel, or industrial sand mining facilities
- Runoff from hazardous waste landfills

- Runoff from non-hazardous waste landfills
- Runoff from coal storage piles at steam electric generating facilities

An example of a numeric effluent limit is the requirement for facilities that discharge stormwater from asphalt emulsion facilities to meet specific, numeric concentration limits for TSS, pH, and oil and grease (i.e., based on the limits in 40 CFR Part 443, Subpart A).

If your facility is subject to numeric effluent limits, you must document the location and type of control measures installed at your site to meet those limits.

What to Include in Your SWPPP

Include the following:

- All numeric effluent limits the facility is required to meet based on effluent limit guidelines.
- A description of the control measures used to meet the numeric effluent limits.
- The location of each control measure at your site.

4.N Additional Controls to Address Impaired Waters

Many general permits have additional requirements for discharges to impaired waters. "Impaired waters" have been identified by a Tribe, State, or EPA as not meeting applicable State water quality standards pursuant to Section 303(d) of the Clean Water Act. This may include both waters with approved or established Total Maximum Daily Loads (TMDLs), and those for which a TMDL has not yet been approved or established.

SWPPP Tip!

Impaired waters are streams, rivers, and lakes that do not currently meet designated uses and water quality standards. States, territories, and authorized tribes are required under the Clean Water Act to compile lists of known impaired waters, called 303(d) lists. Stormwater discharges to impaired waters may trigger additional control measures and monitoring requirements. For facilities subject to EPA's 2008 MSGP, see Part 2.2 for a more detailed discussion of water quality-based effluent limitations and conditions for discharging to impaired waters.

A TMDL determines the greatest amount of a given pollutant, such as sediment, that a water body can receive without violating water quality standards and designated uses. The TMDL then establishes pollution reduction goals to bring the water body into compliance with water quality standards. Facilities that are subject to NPDES permits (i.e., "point sources"), such as facilities subject to EPA's 2008 MSGP, which discharge the pollutant causing the water body impairment, receive "waste load allocations" or "WLAs". The WLA estimates the daily amount of the impairment pollutant that can be discharged from particular sources or categories of sources so that the waterbody can be restored to meeting its applicable water quality standards.

Should your facility discharge stormwater to a water body subject to a TMDL, EPA or a State permit authority may require additional effluent limits, monitoring requirements, or other restrictions consistent with an applicable WLA, or you may be required to apply for an individual NPDES permit. Where you have been informed either in the permit or directly by EPA or a State permit authority that you are subject to any "water quality-based" discharge requirement consistent with an applicable WLA, you are required to document in your SWPPP the control measures used to meet that requirement and to describe the location of such control measures.

SWPPP Tip!

Find impaired waters near your facility – Use EPA's Water Locator Tool (available at **www.epa.gov/npdes/stormwater/msgp**) or other tool to map impaired waters within 10 miles of your facility. Enter your facility address in Step 1, then click on "Retrieve List of Impaired Waterbodies" under step 3 to see the list.

What to Include in Your SWPPP

Include the following:

- A description of the control measures used to meet the water quality-based effluent limits.
- The location of each control measure at your site.

Section 5: **Procedures for Inspections and Monitoring (Step 4)**

The next step in developing your SWPPP is to set out the procedures you will follow for inspecting your site and monitoring your stormwater discharge. The procedures you develop in your SWPPP for inspection and monitoring will help you understand whether your control measures are working and, if not, provide you with ways you may improve your stormwater control.

Industrial stormwater permits typically require three types of inspections:

1. Routine facility inspections (see Section 5.A)
2. Visual assessments (see Section 5.B)
3. Annual comprehensive site inspections (see Section 5.C)

Some States also require you to take samples of your stormwater discharge for laboratory analysis. Check the applicable section of your industrial stormwater permit to determine if you are required to collect water quality monitoring samples. See Section 5.D for guidance on how to address your monitoring procedures in the SWPPP.

The following sections describe the type of information you should document in your SWPPP and the associated decisions you will have to make when planning for and conducting each of the three types of inspections.

EPA's 2008 MSGP requires three types of facility inspections.

1. **Routine facility inspections (2008 MSGP, Part 4.1)**
2. **Quarterly visual assessment of stormwater discharges (2008 MSGP, Part 4.2)**
3. **Comprehensive site inspections (2008 MSGP, Part 4.3)**

The 2008 MSGP also includes the requirements for the following types of monitoring:

1. **Benchmark monitoring (2008 MSGP, Part 6.2.1)**
2. **Effluent guidelines limitation monitoring (2008 MSGP, Part 6.2.2)**
3. **State or Tribal monitoring (2008 MSGP, Part 6.2.3)**
4. **Impaired waters monitoring (2008 MSGP, Part 6.2.4)**

Monitoring procedures are described in Part 6.1 of the 2008 MSGP.

5.A Routine Facility Inspections

Your industrial stormwater permit will likely specify a *minimum* frequency for conducting routine facility inspections. The minimum frequency typically ranges from once per month to once per quarter; however, EPA recommends that you develop a routine inspection schedule customized for your facility and specific site conditions, which in many instances will require that you inspect more frequently than the minimum requirement. EPA also suggests conducting routine inspections when measurable precipitation falls during normal business hours. Observing site conditions during storms provides you with real-time feedback on control measures that are working and those that are not working effectively.

EPA's 2008 MSGP requires quarterly routine facility inspections of all areas where industrial materials or activities are exposed to stormwater, and of all stormwater control measures used to comply with the effluent limits contained in the permit. Inspections must be conducted by qualified personnel, including at least one member of your pollution prevention team, during regular business hours. You must specify the relevant inspection schedules in your SWPPP document as required in Part 5.1.5.

The 2008 MSGP requires that at least one of the four quarterly inspections each year be conducted when a stormwater discharge is occurring.

SWPPP Tip!

You should check your industrial stormwater general permit to determine if it establishes exceptions to the inspection requirements for certain types of sites. For example, 2008 MSGP Part 4.1.3 identifies exceptions to routine visual inspections for inactive or unstaffed sites.

Recommended Routine Facility Inspection Sequence

Although you are given the discretion to determine how best to conduct your inspection, EPA recommends that your inspection follow a sequence that corresponds to how raw materials arrive at your site and are stored or processed in areas exposed to stormwater, and to how intermediate or finished products are stored, processed, or transported from your facility. Accordingly, the following recommended inspection sequence will help ensure that you conduct a thorough routine inspection at your facility. Whichever process you determine is appropriate for your facility, you are required to describe that approach in your SWPPP.

SWPPP Tip!

Invest in an inexpensive digital camera to photo-document your inspections. Maintaining a photo history of inspections and control measures can help you to recognize if conditions changed or your control measures are degrading. Photographs can also help provide documentation to EPA or state inspectors that control measures are being maintained and replaced as needed.

1. Plan your inspection: Develop a consistent process to ensure that you inspect all areas. One method to ensure that your inspections are consistent and thorough is to create a checklist (or make notes on a copy of your SWPPP) of areas to inspect. Use as a resource your updated site map identifying the locations of industrial activities exposed to stormwater, stormwater conveyances and discharge points, and any BMPs.
2. Evaluate the area where raw materials are delivered. Are these areas contained or is there potential for stormwater to carry spills or pollutants away from the drop area? If so, can these pollutants leave your site to an adjoining facility, storm drain, or surface water? If so, additional control measures should be implemented.
3. Are raw materials stored in a contained area with overhead cover, berms, or other secondary containment? If not, do the raw materials have the potential to contribute to stormwater pollution?

   Note: Single-wall chemical containers need to be located within secondary containment structures, behind berms, or covered to prevent stormwater contamination from an accidental release of containerized chemicals. Similarly, solid materials with the potential to contain pollutants (i.e., scrap material or wrecked vehicles) should include secondary containment.
4. Is equipment maintenance and fueling conducted in appropriately contained areas? Are spill kits present and full in areas where a liquid spill could be expected?
5. Do the industrial processes occur in covered and contained areas?
6. Where do you store waste material?

   Note: If the waste material has the potential to contaminate stormwater it must be stored in a contained area or otherwise controlled. Be sure to evaluate the facility "bone-yard" and scrap all equipment that is out-of-date and not intended to be reused.

7. Is the finished product appropriately contained for potential pollutant sources?
8. Following the internal evaluation, walk the perimeter of your site and look for evidence of stormwater discharges—particularly stains from oil and grease or chemicals. Should you observe these, look at the discharge area and consider additional control measures. You should specifically observe all stormwater outfalls where stormwater leaves your facility.
9. Following each inspection, you will need to make note of control measures that require maintenance, or that need to be replaced, and make sure that the SWPPP and site map are current regarding industrial activities and potential pollutants.
10. Finally, where appropriate, repair or replace worn or ineffective control measures as soon as possible but certainly before the next forecasted precipitation event.

Tetra Tech

Figure 15. Example of a sheen indicating the presence of oil or other hydro carbons.

SWPPP Tip!

As you conduct your routine facility inspections, keep in mind these visual indicators of poor control measures or missing control measures:

1. Rainbow colored sheen on the surface of stormwater indicates the presence of oil or other hydrocarbons;
2. Brown or other dark colored streaks in flowing stormwater indicates soil erosion or uncontained sediment;
3. Stormwater flowing through straw waddles or other stormwater containment barriers;
4. Foam;
5. Trash and other debris being carried off-site by stormwater; and
6. Overflowing storm drains or detention ponds could be indicative of a clog or poor inlet design.

Routine Facility Inspection Reports

Your routine facility inspections will need to be recorded and documented. Generally, a standard inspection report is taken into the field and completed for each inspection. You should include in your SWPPP a copy of the standard inspection form you will use. An example routine facility inspection form can be found in the "Additional MSGP Documentation Template" on EPA's website at **www.epa.gov/npdes/pubs/msgp2008_recordkeepingtemplate.doc**.

SWPPP Tip!

Remember to update your SWPPP if you add, remove, or modify control measures following a routine visual, or other, inspection. Should you get inspected, EPA or the State agency will expect that all control measures identified in your SWPPP to be current and to be effectively implemented at your facility.

What to Include in Your SWPPP

Your SWPPP should describe the routine facility inspection process in enough detail that a member of your staff could complete an inspection by following the description in the SWPPP. The SWPPP description should include:

1. **Person(s) or positions of person(s) responsible for conducting the routine facility inspections**

   At least one member of your stormwater pollution prevention team should be involved in the routine facility inspections. Consider involving employees who regularly work in areas where stormwater may come into contact with industrial activity or materials.

2. **Schedules for conducting the routine facility inspections**

   Identify the minimum inspection frequency (e.g., monthly, quarterly) in your SWPPP. Consider scheduling the inspections for a set day every month or quarter, yet allow sufficient flexibility to be able to take advantage of a storm event, since many permits require that at least one inspection be conducted during a rain event.

3. **Routine facility inspection procedures**

   Describe how the routine facility inspection will be conducted, including which control measures or areas will be inspected and what the inspector will be looking for. Examples of things the inspector should be looking for include the condition of stormwater outfalls (trash accumulation, staining, evidence of unauthorized non-stormwater discharges, etc.); overall good housekeeping; and the condition of installed control measures (do any need to be maintained or replaced?).

   Among other procedures to describe, provide a description of the sequence you will follow during each inspection. One option is to use the recommended inspection sequence above or customize it to better suit your facility's layout.

4. **Reporting procedures**

   Describe your reporting procedures and include a blank copy of the inspection form that will be used during the routine inspections. Most industrial stormwater general permits require that inspection reports include the following:

   - The inspection date and time.
   - The name(s), title(s), and signature(s) of the inspector(s).
   - Weather information for the day of the inspection and, if appropriate, days or weeks prior to the inspection.
   - A description of any discharges observed.
   - A description of the visual quality of discharges (sheen, turbid, etc.).
   - Control measures in need of maintenance or repairs.
   - Control measures that need to be replaced.
   - Any incidents of noncompliance observed.
   - Additional control measures needed to comply with the permit requirements.

   Inspection reports also need to be signed by the inspector. Your inspection form should include a signature line for this.

5.B Visual Assessments

The second component of an effective stormwater inspection program is periodic visual assessments of the stormwater discharging from your facility. Visual assessments are conducted on samples taken during a storm event, and require that you make observations of the stormwater sample in order to qualitatively assess the nature of your discharge based on several visual parameters. This requires that you collect a stormwater sample in a clean, clear jar and look at the sample in a well lit area. Generally, a sample must be collected from each stormwater discharge location associated with industrial activity. The purpose of conducting visual assessments is to make sure that stormwater discharges are free from objectionable characteristics (i.e., pollutants you can see). Should you observe objectionable characteristics, you should backtrack upstream from the sample collection location to identify potential sources of the pollutants.

Some pollutants may be present in stormwater but cannot be seen; for this reason EPA or your State may require benchmark or effluent limit monitoring depending on the facility SIC code or industrial sector. See Section 5.D for more information on monitoring.

Most industrial stormwater permits do not require visual assessment samples to be collected consistent with 40 CFR Part 136 procedures (the Clean Water Act guidelines for

SWPPP Tip!

Check your industrial stormwater permit to determine if you are required to submit your visual assessment samples to a laboratory for analysis. The 2008 MSGP does not require samples to be submitted to a laboratory. However, if your permit does require you to submit samples for laboratory analysis, the samples must be collected and documented in accordance with 40 CFR Part 136 guidelines.

establishing test procedures for the analysis of pollutants); however, visual assessment samples should be collected in such a manner that the samples are representative of the stormwater discharge.

EPA's 2008 MSGP includes specific requirements for when and how to collect the visual assessment sample. You should look in your permit to determine what requirements apply to your facility's visual assessments. However, EPA believes its permit's requirements offer a clear and consistent way to conduct these assessments. They are summarized as follows:

- Collect stormwater samples within the first 30 minutes of an actual discharge from a storm event. If it is not possible to collect the sample within the first 30 minutes of discharge, collect the sample as soon as possible after the first 30 minutes. In this case, be sure to document in your records (kept with your SWPPP) why it was not possible to take samples within the first 30 minutes. In the case of snowmelt, samples must only be taken during a period with a measurable discharge from your site.
- Collect the sample in a clean, clear glass, or plastic container.
- Examine the sample in a well-lit area or, if necessary, illuminate with a strong flashlight.
- Collect the samples from discharges that happen at least 72 hours (3 days) from the previous discharge event.

What to Include in Your SWPPP

Include in your SWPPP a description of your visual assessment process:

1. **Person(s) or positions of person(s) responsible for visual assessments.**
   Note: The visual assessment should be conducted by a member of your stormwater pollution prevention team.
2. **Schedules for conducting the visual assessments.**
   Note: Identify the minimum inspection frequency (typically quarterly) in your SWPPP. You should also describe procedures for determining when to conduct the visual assessments (e.g., within 30 minutes of an actual discharge, at least 3 days from previous discharge, etc.).
3. **Specific items to be covered by the assessment** (e.g., the 2008 MSGP requires permittees to visually inspect the sample in a well-lit area to assess the following water quality characteristics:
   - Color
   - Odor
   - Clarity
   - Floating solids
   - Settled solids
   - Suspended solids
   - Foam
   - Oil sheen
   - Other obvious indicators of stormwater pollution)
4. **The number and locations of outfalls scheduled for visual assessments.** List the outfalls where visual assessments will take place, and make sure these locations are identified on your site map.
5. **A description of safety considerations, requirements, and equipment for collecting samples during wet weather events.**
   Note: Sample must be collected in a clean, clear glass (required for oil and grease samples) or plastic container. Describe any other equipment necessary to collect the samples (such as sampling poles for hard to reach outfalls, rain gear, etc.). Describe any necessary safety considerations for staff while collecting the samples (for example, if they are sampling at an outfall discharging into receiving water with high flows, or sampling in a manhole).
6. **Reporting procedures:** Describe your reporting procedures and include a blank copy of the assessment form that will be used during the visual assessments. Most industrial stormwater general permits require that visual assessment reports include the following:
   - Sample location(s)
   - Sample collection date and time, and visual assessment date and time for each sample
   - The names of individuals, and titles or job positions, collecting the sample and performing visual assessment, and their signatures
   - Nature of the discharge (i.e., runoff or snowmelt)
   - Results of observations of the stormwater discharge
   - Probable sources of any observed stormwater contamination
   - If applicable, why it was not possible to collect samples within the first 30 minutes of discharge.

The SWPPP should also contain a checklist or list of the water quality parameters that must be observed and documented.

Visual Assessment Documentation

Similar to the inspection reports for the routine facility inspections, you must document the results of your visual assessments in a written report. You should include a blank copy of your visual assessment report form that you will use in your SWPPP. An example of a visual assessment report can be found in the "Additional MSGP Documentation Template" on EPA's website at **www.epa.gov/npdes/pubs/msgp2008_recordkeepingtemplate.doc**.

Digital photos of the samples are recommended, but not required, to document the condition of the sample and future reference.

5.C Annual Comprehensive Site Inspections

Most industrial stormwater general permits require an annual comprehensive site inspection. The annual comprehensive site inspection is a more in-depth version of the routine facility inspection. The annual comprehensive site inspection evaluates the condition of control measures, taking into account trends observed in analytic and visual stormwater samples taken during the year, and found during routine inspections.

Check your general permit to determine if the comprehensive site inspection needs to be conducted at a certain time (e.g., by the end of the fiscal year). Some permits require you to submit your comprehensive site inspection findings to the State permit authority as part of your annual report, typically due shortly after the end of the fiscal year. EPA's 2008 MSGP requires that the annual report be submitted and postmarked within 45 days of completing the annual comprehensive site inspection.

The comprehensive site inspection must cover all areas of the facility affected by the requirements of your industrial stormwater general permit, including all potential stormwater pollutant sources identified in the SWPPP, areas where control measures are used to comply with applicable effluent limits, and areas where spills and leaks have been documented in the three years prior to the annual comprehensive site inspection. In addition, the annual inspection must, as appropriate, include a review of visual stormwater monitoring data collected each quarter of the previous year and the results of the routine site inspections.

SWPPP Tip!

EPA's 2008 MSGP requires you to conduct annual comprehensive site inspections once during each of the following inspection periods:

Year 1: September 29, 2008 – September 29, 2009
Year 2: September 29, 2009 – September 29, 2010
Year 3: September 29, 2010 – September 29, 2011
Year 4: September 29, 2011 – September 29, 2012
Year 5: September 29, 2012 – September 29, 2013

Comprehensive site inspections must be conducted by qualified personnel with at least one member of your stormwater pollution prevention team participating in the comprehensive site inspections.

The annual inspection should be preceded by evaluation of the year's visual stormwater sample observations, analytic monitoring data, and your routine site inspection findings. The overall review of the previous year's visual and analytic monitoring results will provide you with areas of focus for the annual inspection; however, the annual inspection must include all control measures included in the SWPPP, regardless of the results from the past visual assessments and site inspections. Inspecting all stormwater control measures is meant to ensure that they are functioning correctly, and, if not, to correct any deficiency or malfunction. Accordingly, at the end of the annual comprehensive inspection you, and your stormwater pollution prevention team, should be able to answer the following questions.

- Are the control measures in place, maintained, and operating effectively?
- Is the routine site inspection protocol effective and conducted at the appropriate frequency?
- If your previous visual samples been were indicated the presence of pollutants in your stormwater, and your analytic samples been found to have high levels of any benchmark pollutants or other pollutants of concern, do you suspect that any particular areas of your site are contributing to these monitoring results? Do you suspect that the improper functioning of any stormwater control measures is contributing to these monitoring results?
- Is the SWPPP up-to-date regarding all of the stated control measures and monitoring schedules?

Based on the answers to these questions, you may need to modify your stormwater management program and to update your SWPPP to address problems found during your inspection.

Comprehensive Site Inspection Documentation

The results, and documentation, of your annual site inspection must be maintained on-site and, depending on the requirements in your stormwater permit, submitted with your annual report. An example of a comprehensive site inspection report can be found in the "Additional MSGP Documentation Template" on EPA's website at **www.epa.gov/npdes/pubs/msgp2008_recordkeepingtemplate.doc**.

What to Include in Your SWPPP

Include in your SWPPP a description of the annual comprehensive site inspection process:

1. **Person(s) or positions of person(s) responsible for inspection**
   Note: Include at least one member of the stormwater pollution prevention team.
2. **Schedules for conducting the inspections**
   Note: Describe when during the year the annual inspection will take place.
3. **Describe the list of documents to be reviewed prior to the annual site inspection.** This list will typically include:
   - The current SWPPP
   - All routine inspection reports for the past year
   - All visual assessment reports for the past year
   - Other documentation that may relate to how your facility complies with stormwater permit requirements, such as maintenance records, spill records, etc. for the past year.
4. **A copy of the current SWPPP site map**
   Note: A current copy of the site map can be used during the comprehensive site inspection to make sure the inspector is covering all required areas.
5. **Procedures for how the annual inspection will be conducted.** Describe how the annual inspection will be conducted, including which control measures or areas will be inspected and what the inspector will be looking for. Specific items to be covered by the inspection include:
   - Industrial materials, residue, or trash that may have or could come into contact with stormwater;
   - Leaks or spills from industrial equipment, drums, tanks, and other containers;
   - Offsite tracking of industrial or waste materials, or sediment where vehicles enter or exit the site;
   - Tracking or blowing of raw, final, or waste materials from areas of no exposure to exposed areas; and
   - Control measures needing replacement, maintenance, or repair.
6. **A copy of the annual site inspection form you will use.**
   Note: EPA's 2008 MSGP has a comprehensive site inspection form in Appendix I of EPA's 2008 MSGP. Your annual site inspection form should contain:
   - The date of the inspection;
   - The name(s) and title(s) of the personnel making the inspection;
   - Findings from the areas of your facility that were examined;
   - All observations relating to the implementation of your control measures including:
     - Previously unidentified discharges from the site,
     - Previously unidentified pollutants in existing discharges,
     - Evidence of, or the potential for, pollutants entering the drainage system;
     - Evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, including flow dissipation measures to prevent scouring, and
     - Additional control measures needed to address any conditions requiring corrective action identified during the inspection.
   - Any required revisions to the SWPPP resulting from the inspection;
   - Any incidents of noncompliance observed or a certification stating the facility is in compliance with this permit (if there is no noncompliance); and
   - A statement, signed and certified in accordance with Appendix B, Subsection 11 of EPA's 2008 MSGP.
7. **A schedule for completing and submitting (if required) the annual site inspection form/report in a timely manner.**

5.D Documentation of Monitoring Procedures

Your industrial stormwater general permit may include requirements to conduct stormwater discharge monitoring. The type of monitoring you are required to conduct will likely be based on your type of industrial activity. Not all types of industrial activity will be required to collect stormwater discharge samples, however, if your facility is required to conduct monitoring (such as benchmark monitoring or effluent limitation guideline monitoring), you must describe the procedures you will use to carry out this monitoring in your SWPPP.

EPA has prepared an *Industrial Stormwater Monitoring and Sampling Guide* (available at **www.epa.gov/npdes/stormwater/msgp**) that will support this guide. The *Industrial Stormwater Monitoring and Sampling Guide* provides a more detailed description of monitoring approaches and procedures that are recommended than is included in this guide.

As a general matter, your stormwater discharge samples will be taken at your facility's stormwater outfall locations, not at locations within your facility. Some stormwater general permits allow you to sample at only one outfall when multiple outfalls at your facility have similar industrial activities, control measures, exposed materials, and runoff coefficients. Outfalls that have these similar characteristics are called "substantially identical outfalls" or "representative outfalls." See your industrial stormwater general permit for more information.

What to Include in Your SWPPP

Include in your SWPPP, a description of the following monitoring requirements:

1. **What you need to monitor**

   Make sure your SWPPP clearly identifies the parameters you need to monitor, and any applicable benchmark concentrations or effluent limits associated with each parameter.

2. **Where you need to monitor**

   Your site map should identify the outfalls at your facility. In your SWPPP, identify at which outfalls you will be required to monitor. If you are allowed to sample one of the outfalls that are "substantially identical", and you plan on using a representative outfall, include the following documentation in your SWPPP:

   - Location of each substantially identical outfall;
   - Description of the general industrial activities conducted in the drainage area of each substantially identical outfall;
   - Description of the control measures implemented in the drainage area of each substantially identical outfall;
   - Description of the exposed materials located in the drainage area of each substantially identical outfall that are likely to be significant contributors of pollutants to stormwater discharges;
   - An estimate of the runoff coefficient of the drainage areas (low = under 40%; medium = 40 to 65%; high = above 65%); and
   - Why the outfalls are expected to discharge substantially identical effluents.

3. **When you need to monitor**

   If you are required to monitor, your industrial stormwater general permit will specify a monitoring frequency (typically quarterly or annually). For each of the parameters you identified above, include in your SWPPP the monitoring frequency. Some permits also specify exemptions or alternative monitoring periods, which should also be addressed in your SWPPP.

   Your SWPPP should also describe the type of storm event that should be monitored. In the 2008 MSGP, EPA requires monitoring during a storm event those results in an actual discharge from your site ("measurable storm event") that follows the preceding measurable storm event by at least 72 hours (3 days).

4. **How you will conduct the monitoring**

   Describe in your SWPPP how you will conduct the monitoring, including who will collect the samples. Typically, monitoring is conducted by taking one grab sample from a discharge resulting from a measurable storm event and collected within the first 30 minutes of a measurable storm event, during normal business hours, when stormwater is discharging from your facility.

   Also describe any sample documentation and preservation procedures you plan to use. Some samples may need to be analyzed within a short time, or may need to be preserved with blue ice before being analyzed.

5. **Where you will send the sample for analysis**

   Finally, in your SWPPP, include information about the laboratory where you will send the samples for analysis. Include information such as lab name and address, any sampling procedures required by the lab, and who will take the samples to the lab.

Section 6: **Completing Your SWPPP**

Now that you have conducted a site assessment of your facility, developed maps, selected control measures, and developed procedures for inspections and monitoring. You are almost done with your SWPPP! The last step is to make sure all this information is organized into a single document (your SWPPP) and to obtain NPDES permit coverage.

6.A Finish your SWPPP

The information you put together as part of Sections 3 through 5 make up the contents of your SWPPP. There are only two more steps for you to finish before your SWPPP is complete:

- Conduct a final review of your SWPPP; and
- Sign and certify your SWPPP

Review Your Draft SWPPP

You should review the SWPPP requirements in your industrial stormwater general permit to ensure that your SWPPP includes all required elements. For example, in the 2008 MSGP, the SWPPP requirements are in Part 5. Check off all the SWPPP permit requirements as you verify that they have been met. Also, develop a final copy of your site map and make sure that all required elements are addressed.

EPA recommends that you have both your stormwater pollution prevention team, and someone who was not involved in developing the SWPPP, review your draft SWPPP.

Sign and Certify Your SWPPP

The last step in completing your SWPPP is to have a facility executive or duly authorized representative of that executive sign and certify that the SWPPP meets all the requirements in the general permit. This signature demonstrates that the SWPPP was reviewed by someone who has operational control over the facility (i.e., can commit resources to implementing the SWPPP and ensuring compliance with the permit). You should check your general permit to determine which person is required to sign and certify the SWPPP. Note that the signatory requirements for the 2008 MSGP are found in Appendix B, Subsection 11 of EPA's 2008 MSGP.

6.B Obtain NPDES Permit Coverage

Important! Before obtaining permit coverage, you should read the appropriate industrial stormwater permit and develop your SWPPP.

Most permits require that you develop your SWPPP before you can obtain NPDES permit coverage for your industrial stormwater discharges. However, in some instances, the permit may provide you with additional time to complete or update a SWPPP after permit coverage is obtained. Nevertheless, it is recommended that your SWPPP be completed at least in draft form prior to applying for permit coverage, even in those States where additional time is granted.

Obtaining Coverage Under a General Permit

To obtain coverage under a State industrial stormwater general permit, you will typically need to fill out and submit an application form, often called a Notice of Intent or

NOI. Submitting an NOI form to the permitting authority indicates your certification that you have met the eligibility requirements for coverage under the permit, and your agreement to abide by the terms and conditions of the general permit. Depending on the permit, you may be authorized to discharge immediately or at some later time. In some cases, you are not authorized to discharge until the State has notified you accordingly. EPA's 2008 MSGP (see Part 1.3.1) uses a 30 to 60-day waiting period following the receipt of a facility's complete NOI. The waiting period expires when the permit's status changes from "waiting" to "active" on the Agency's eNOI website.

Read the application requirements in your general permit for information on the procedures and the specific form you will need to complete before becoming authorized. Some States charge an administrative fee to apply for permit coverage. Before submitting your application, you must also make sure that you meet all eligibility requirements in the permit. For example, if your facility discharges to one of several highly protected waters (e.g., a Tier 3 or "Outstanding Natural Resource Water"), you may not be eligible for coverage under a general permit and instead may have to file an application for individual permit coverage.

SWPPP Tip!

Documentation to Support Eligibility Considerations Under Other Federal Laws

The 2008 MSGP requires that you keep with your SWPPP the documentation supporting your eligibility pertaining to endangered species requirements, historic properties requirements, and NEPA review requirements described in the permit (see Part 5.1.6 of the permit). State industrial stormwater permits may have other documentation requirements.

6.C Updating Your SWPPP

Your SWPPP is a document that will need to be reviewed and updated on a regular basis. Whenever you find the need to change a procedure that is described in your SWPPP or to modify a control measure described therein, you must update the SWPPP to reflect those changes as quickly as practicable. Should the SWPPP require modification to document corrective actions, a new certification statement must be signed and dated upon completion of the revision.

Below are some examples of events that, if they result in a change in control measures or procedures, will require prompt revision of the SWPPP to reflect the new facility conditions.

- A change in the composition of the stormwater pollution prevention team or new responsible official.
- An unauthorized release or discharge (e.g., spill, leak, or discharge of non-stormwater not authorized by this or another NPDES permit) occurs at your facility.
- A discharge violates a numeric effluent limit.
- You become aware, or EPA determines, that your control measures are not stringent enough for the discharge to meet applicable water quality standards;
- An inspection or evaluation of your facility by an EPA official, or local, State, or Tribal entity, determines that modifications to the control measures are necessary to meet the non-numeric effluent limits in this permit.
- Construction or a change in design, operation, or maintenance at your facility significantly changes the nature of pollutants discharged in stormwater from your facility, or significantly increases the quantity of pollutants discharged.
- The average of four quarterly sampling results exceeds an applicable benchmark. If less than four benchmark samples have been taken, but the results are such that an exceedance of the 4 quarter average is mathematically certain (i.e., if the sum of quarterly sample results to date is more than 4 times the benchmark level) this is considered a benchmark exceedance, triggering a review of control measures and possible SWPPP modification.

Remember, revisions to the SWPPP to document corrective actions requires a new signed and dated certification statement by the responsible official. All other changes must be signed and dated by the person preparing the change.

SWPPP Tip!

In the interim between the annual inspection and completed SWPPP revision, keep a copy of the original SWPPP with your handwritten notes for SWPPP modifications at the facility. Should you be inspected before the revised SWPPP is complete, the copy with your notes can be used to demonstrate the changes that will be in the revised document.

Section 7: **Keeping Records of Your Implementation Activities**

Completing your SWPPP and obtaining NPDES permit coverage is an important step towards complying with your State or EPA Clean Water Act requirements. Having completed these steps, you are now ready to begin documenting your compliance with the requirements of your permit. EPA's 2008 MSGP and many State permits require you to keep records of any activities at your site that are related to your compliance, such as conducting inspections, visual assessments, stormwater discharge monitoring, and corrective actions.

As you conduct inspections, monitoring, corrective actions, and other permit implementation activities, you will generate additional records, such as inspection reports and monitoring results. Keep this additional documentation on-site with your SWPPP, and ensure these records are accessible, complete, and up-to-date so that they demonstrate your full compliance with the conditions of your permit.

Some examples of this additional documentation include:

- *Permit records* – copies of the NOI or permit application submitted, any letters received from the permitting authority, and a copy of your general permit.
- *Spill records* – dates of any incidences of significant spills, leaks, or other releases that resulted in a discharge of pollutants, the circumstances leading to the release, actions taken in response to the release, and measures taken to prevent the recurrence of a release.
- *Employee training records* – keep copies of all employee training records, including dates, who was trained, and the training topics.
- *Maintenance records* – retain copies of all maintenance and repairs of control measures, including dates of regular maintenance, dates when maintenance needs were discovered, and dates when control measures were returned to full function.
- *Inspection records* – keep copies of all routine facility inspection reports, quarterly visual assessment reports, and annual comprehensive site inspection reports.
- *Monitoring records* – retain records of all sampling results including data collection forms, lab results, and discharge monitoring reports (DMRs).
- *Corrective action records* – keep records of any corrective actions and follow-up activities conducted to demonstrate compliance with the permit.

SWPPP Tip!

For 2008 MSGP permit holders, the list of additional documentation requirements can be found in Part 5.4 of the permit. Also, EPA has developed an "Additional MSGP Documentation Template" with sample forms that you can download from **www.epa.gov/npdes/stormwater/msgp** to help you organize this information.

Section 8: **Common Compliance Problems at Industrial Facilities**

The following are common problems found during inspections of industrial sites conducted by EPA. These are provided to assist you in developing and maintaining an effective SWPPP. As a general matter, it is not enough to simply have a completed SWPPP at your site. To establish compliance with your permit's limits and conditions, you must also implement the procedures, and install and maintain the control measures, described in your SWPPP, and make modifications as necessary to improve your performance.

You should review these common compliance problems and consider how your SWPPP, or how your implementation of the procedures described in your SWPPP, can be modified to ensure you are not making the same mistakes.

1. **No SWPPP developed.** Some facilities do not realize that they need to develop a SWPPP, or they may copy a generic SWPPP or a SWPPP for another facility. A SWPPP is a site-specific plan and should address only your facility.
2. **Control measures described in SWPPP not used.** The SWPPP identifies stormwater control measures that are not actually being used at the site. The stormwater regulations hold you responsible for effectively implementing all control measures identified in your SWPPP. If your SWPPP has identified control measures not being used at your site, you need to edit your SWPPP accordingly to accurately reflect those measures you are in fact using.
3. **No SWPPP on-site.** A copy of the SWPPP is not available on-site for review when a permitting authority or other regulatory agency inspects your site. You are responsible for maintaining a copy on-site at all times. If your SWPPP is being updated off-site, keep a marked-up copy on-site or an electronic copy until the revised SWPPP arrives.
4. **SWPPP not signed.** The responsible facility representative did not sign and authorize the current version of the SWPPP.
5. **Stormwater pollution prevention team not up-to-date.** The stormwater pollution prevention team identified in the SWPPP is not current. This is particularly a problem at facilities with high turnover. Remember, you can identify team members by title rather than by name if high turnover makes it difficult to keep a current list of names.
6. **On-site staff not familiar with SWPPP.** Upon arrival of an inspector, no one familiar with the stormwater program is available. A common permit requirement is that at least one employee per shift is familiar with the stormwater program and has access to the relevant files.

Tetra Tech

Figure 16. Good housekeeping is probably the most common BMP in SWPPPs. Poor sweeping practices can contribute significant pollutants in stormwater runoff.

Tetra Tech

Figure 17. Leaking dumpsters can introduce pollutants into stormwater runoff.

SWPPP Tip!

SWPPP Availability – Keep a copy of the current, signed and certified SWPPP at your facility, and make it available to EPA, State, local agency or other regulatory agency staff at the time of an onsite inspection or upon request. The SWPPP should also be made easily available to facility staff, and should be readily referred to during regular facility operations to ensure that all activities are implemented as described in the SWPPP.

7. **Improper collection of visual assessment samples.** Visual stormwater samples are collected from pooled areas on site. Pooled areas tend to concentrate pollutants and are not representative, unless the contents of the pooled areas flow off of the facility (this is to your disadvantage).
8. **Uncovered dumpsters.** Dumpsters that receive metal waste are not covered or contained. Dumpsters from contract waste collection agencies are often not appropriately sealed and can leak oils or other contaminants.
9. **Poor employee/contract staff training.** Employees or contract staff are not familiar with your stormwater management program. You are responsible for educating employees and contractors because if they release pollutants at your facility, you are responsible. If you use contractors, they should be referred to in your SWPPP and required to be trained as a part of the contract.
10. **Inspection or monitoring records are not kept with the SWPPP.** Records of routine site inspections, visual assessments, or monitoring results are not available with the SWPPP for review. All records on implementation of practices required in the permit must be kept with the SWPPP (see Section 6.C for more information).

Resources

EPA, 2008 Multi-Sector General Permit, issued September 29, 2008 (available at **www.epa.gov/npdes/stormwater/msgp**).

EPA's Stormwater Website – **www.epa.gov/npdes/stormwater**

Industrial Stormwater Resource Locator – **www.envcap.org/iswrl/**

EPA's Industrial Stormwater Website – **www.epa.gov/npdes/stormwater/indust**

EPA's 2008 MSGP Website – **www.epa.gov/npdes/stormwater/msgp**

The Industrial Stormwater and MSGP Websites have a number of resources and tools to aid MSGP permittees, which include:

- *Annual Reporting Form* – Permittees can use this form to report their annual comprehensive site inspection and corrective actions to EPA.
- *Conditional "No Exposure" Exclusion* – Industrial facilities can use this form to certify that their industrial materials and operations are not exposed to stormwater.
- *Developing your Stormwater Pollution Prevention Plan: A Guide for Industrial Operators* – Provides guidance on how to develop a SWPPP that meets the requirements of the 2008 MSGP.
- *Electronic Notice of Intent (eNOI) System* – Allows permittees to quickly apply for permit coverage under EPA's 2008 MSGP.
- *Industrial Stormwater Monitoring and Sampling Guide* – Provides guidance on how to meet the monitoring and sampling requirements in the 2008 MSGP.
- *Industrial Sector Fact Sheets* – These fact sheets summarize the types of facilities included that sector, the pollutants associated with this sector, and the types of stormwater control measures generally used.
- *List of Tier 2 and Tier 3 Waters* – Lists of waters currently designated by states as Tier 2 or Tier 3 for antidegradation purposes to help you complete your NOI.
- *MSGP Discharge Monitoring Report (MDMR)* – Permittees can use this paper copy form to submit monitoring data to EPA.
- *Reporting MSGP Monitoring Data* – Allows permittees to electronically file all benchmark, effluent limitation guidelines, and impaired waters monitoring data through the eNOI system.
- *Sample MSGP SWPPP Template* – Industrial facilities can use the "Industrial SWPPP Template" to create their own SWPPPs.
- *Sample Recordkeeping Templates* – Use the sample templates and forms to keep records of your monitoring, inspection, maintenance, visual evaluation, and corrective action activities.
- *Search, Sort, and View Industrial NOIs* – Searchable database of stormwater notices of intent (NOIs) for industrial facilities seeking coverage under EPA's MSGP.
- *Water Locator Tool* – Helps industrial facilities pinpoint their site's latitude and longitude, receiving water, and impairment status of the water, applicable total maximum daily loads (TMDLs), and potential pollutants of concern.

EPA's NPDES Authorization Status Website – **www.epa.ov/npdes/stormwater/authorizationstatus**

EPA's Menu of National Stormwater BMPs – **www.epa.gov/npdes/stormwater/menuofbmps**

Industrial Stormwater Permit Guide – **www.pneac.org/stormwater/**

Appendix A: **MSGP SWPPP Template**

EPA has created a template to assist operators in developing an industrial SWPPP that addresses the requirements in the 2008 MSGP. The template includes instructions and space to help operators document activities specific to their facility, such as:

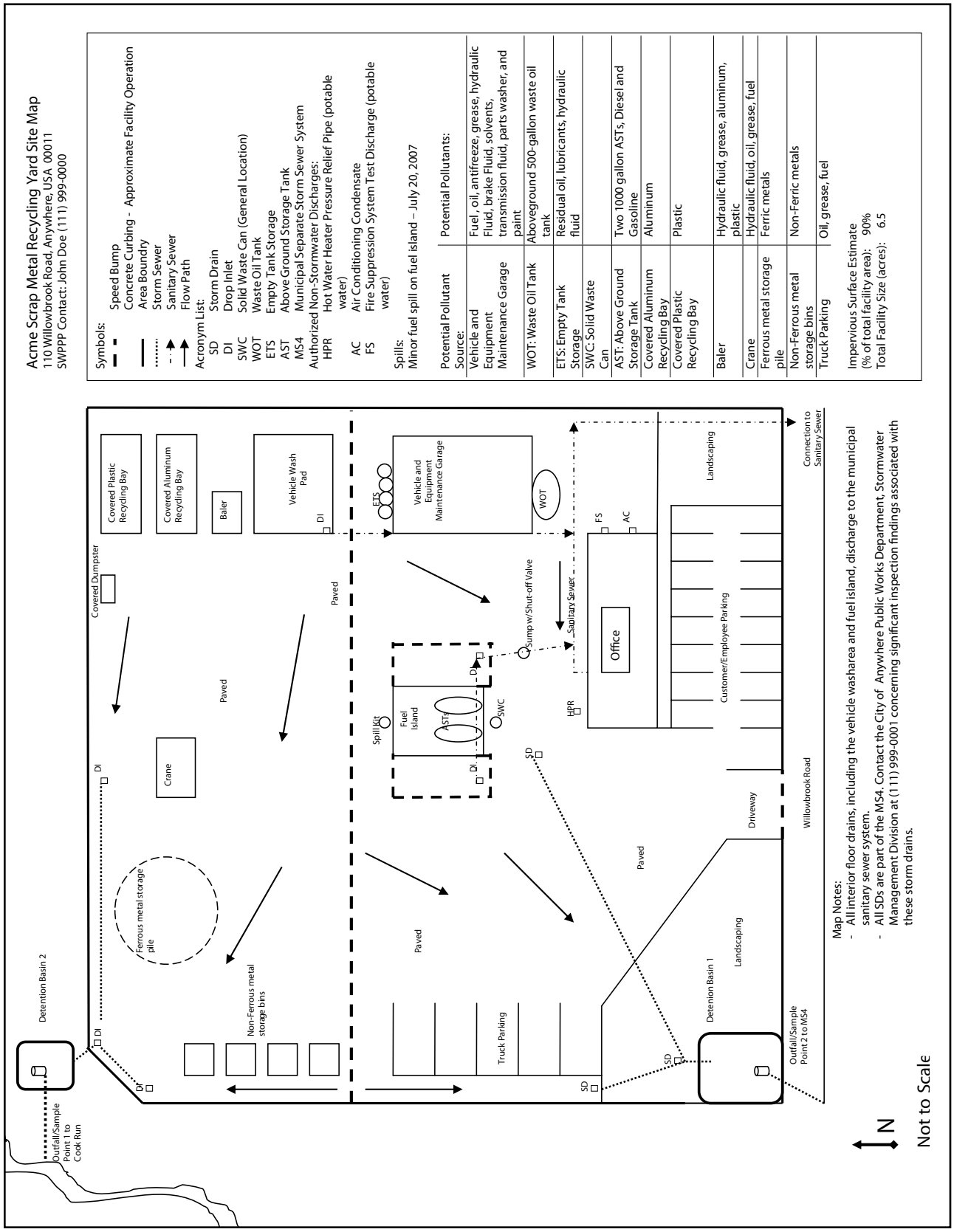
- Facility Description and Contact Information
- Potential Pollutant Sources
- Stormwater Control Measures
- Schedules and Procedures for Monitoring
- Inspections
- Documentation to Support Eligibility Considerations under Other Federal Laws
- SWPPP Certification
- SWPPP Modifications
- SWPPP Attachments

A customizable Microsoft Word version of the MSGP SWPPP Template is available for download from **www.epa.gov/npdes/stormwater/msgp**.

Appendix B: **Additional MSGP Documentation Template**

EPA has created a template to assist 2008 MSGP permit holders in collecting the additional documentation required during implementation of the permit. The Additional MSGP Documentation Template includes example forms and tables to help permittees document activities related to:

- Significant spills, leaks or other releases
- Employee training
- Maintenance
- Routine Facility Inspection Reports
- Quarterly Visual Assessment Reports
- Comprehensive Site Inspection Reports
- Monitoring results
- Deviations from assessment or monitoring schedule
- Benchmark Exceedances
- Impaired Waters Monitoring: Documentation of Natural Background Sources or Non-Presence of Impairment Pollutant
- Active/Inactive status change
- SWPPP Amendment Log

The Additional MSGP Documentation template can be downloaded in Microsoft Word format at **www.epa.gov/npdes/stormwater/msgp**.

Appendix C: **Example Site Map**