

**San Diego Stormwater Copermittees
Jurisdictional Urban Runoff Management Program
(URMP)**

**Existing Industrial Facilities
Model Program Guidance**

September 19, 2001



project clean water

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Section I. Background

The U.S. Census Bureau estimates that over 3,000 industrial facilities operate in San Diego County (1997 Economic Census). In keeping with the goal of preserving local water quality, each Copermittee faces the task of determining which facilities contribute to the degradation of receiving waters within the Copermittee's jurisdiction. The task becomes more difficult when considering that critical factors—proximity to receiving waters or conveyances, type of industrial activity, effectiveness of management practices, history of compliance—vary from site to site within a given industry. This document provides guidance for Copermittees in the implementation of their respective inspection programs for Existing Industrial Facilities.

Order No. 2001-01¹ (Permit) section F.3.b. establishes requirements for local jurisdictions to develop and implement a program to reduce pollutants in urban runoff originating from existing industrial facilities. The Permit generally requires that existing high-priority industrial facilities be identified, that minimum best management practices (BMPs) be established for each priority class, and that a process for ensuring the application of BMPs be implemented and enforced by Copermittees. In support of this mandate, this document provides suggested guidance to Copermittees in developing the Existing Industrial Facilities component of their Jurisdictional Urban Runoff Management Programs (URMPs) as required by Permit section H.1.a.(3)² to be submitted to the San Diego Regional Water Quality Control Board (SDRWQCB) by February 21, 2002. It does not establish, or promote the establishment of, a particular set of minimum standards or program activities for Copermittee programs. Rather, it provides guidance for establishing individual program priorities and requirements, as well as a description of viable options and approaches available to Copermittees in lawfully complying with their permit obligations. Recommended activities and BMPs are based on the consensus of the Model Existing Industrial Facilities Technical Workgroup.

A second and equally important focus of this guidance is to promote consistency among Copermittee programs. Permit section N.1 specifically requires that Copermittees “collaborate with all other Copermittees regulated under this Order to address common issues, [to] promote consistency among...Jurisdictional URMPs [and Watershed URMPs]...and to plan and coordinate activities required under this Order.” Consistency is especially crucial to the industrial owners and operators of San Diego County who must ultimately abide by the standards and requirements set forth in individual jurisdictional programs. This document represents the first phase of Copermittee collaboration with respect to existing industrial facilities. It is expected that additional collaboration will be necessary as Copermittees implement programs and evaluate their effectiveness over time.

¹ Order No. 2001-01, NPDES No. CAS0108758, *Waste Discharge Requirements for Discharges of Urban Runoff From the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, and the San Diego Unified Port District.*

² Requirements relating to existing industrial sites are located in numerous sections throughout the Permit. Specific section references are provided as necessary. These sections are also included as Appendix A.

Section II. Program Objectives

The goal of this program component is to minimize the impact of existing industrial facilities on, and, where possible, to enhance the quality of, receiving waters and other environmental resources in the County of San Diego. In support of this goal, this guidance addresses four primary objectives:

- o To provide Copermittees with model guidelines for developing and implementing industrial stormwater inspection programs;
- o To assure consistency in stormwater quality regulation on a regional basis;
- o To assist industrial facilities in complying with the local Municipal Storm Water NPDES Permit; and
- o To assist industrial facilities in complying with the statewide General Industrial Permit (Water Quality Order No. 97-03-DWQ), if applicable to that facility.

Section III. Implementation Strategy

Development and implementation of an industrial stormwater program requires the integration of several elements: (1) identifying and prioritizing industrial sites, (2) establishing discharge prohibitions, (3) providing education and outreach, (4) inspecting sites routinely and investigating complaints as needed, (5) enforcing stormwater regulations/ordinances, (6) obtaining and reviewing monitoring data, and (7) reporting of non-compliant sites.

A. INDUSTRIAL SOURCE IDENTIFICATION AND PRIORITIZATION

Permit section F.3.b.(2) requires that each Copermittee establish a watershed-based inventory of all industrial facilities within its jurisdiction. The purpose of this inventory is to assist the Copermittee in identifying industrial activities and pollutants within its jurisdiction, in prioritizing industrial sites according to their potential impacts to the municipal separate storm sewer system (MS4), in providing a compliance history for each site, and in allocating resources for future inspection, enforcement, and outreach efforts. Prioritization of facilities is discussed in greater detail in Section IV of this document.

A watershed-based inventory of facilities will also assist Copermittees in complying with the requirements of their Watershed URMP, as discussed in Permit section J. Watershed maps should show the interrelationship of MS4s and industrial sites from multiple jurisdictions.

B. ESTABLISHMENT OF DISCHARGE PROHIBITIONS AND BMP REQUIREMENTS

Copermittees must establish and maintain adequate legal authority to implement the provisions of their urban runoff programs. This effort generally requires the establishment of two types of requirements, namely, minimum BMPs and discharge prohibitions. Permit section F.3.b.(7) requires Copermittees to enforce their stormwater ordinances, including any new BMP requirements for industrial facilities. Local stormwater ordinances in many Copermittee jurisdictions do not yet require the use of BMPs at existing industrial facilities. Copermittees should review and revise these ordinances as necessary to actually implement and enforce this program. This revision should include a review of the Copermittee's authority to establish and enforce stormwater and non-stormwater discharge prohibitions at industrial facilities within their jurisdiction as per Permit sections A and B.

C. EDUCATION AND OUTREACH

Permit section F.4 requires that each Copermittee establish a stormwater education component targeting industrial facility owners and operators. This component has two objectives: to increase the knowledge of management and the workforce regarding the impacts of urban runoff on MS4s and potential BMP solutions and to change behaviors such that pollutant discharges to MS4s and the environment are reduced to the

maximum extent practicable. Elements of the education component for existing industrial facilities include the following: general training for staff and specific BMP training for workers in high-threat-discharge activities; identification and reporting of illicit connections or discharges observed while on the job; requirements of the statewide General Industrial Permit, if applicable; completion of self-audit checklists of a work area; procedures for spill response, containment, and recovery; and preventive maintenance.

D. INSPECTION AND INVESTIGATION

Permit section F.3.b.(6) mandates that each Copermittee conduct site inspections of industrial facilities within its jurisdiction. An inspection includes, but is not limited to, a review of BMP implementation plans and an assessment of their effectiveness. The inspection results will also provide additional information for updating the watershed-based inventory database required by Permit section F.3.b.(2).

1. Facility Inspections

(a) *Frequency of Inspection*

- (1) ***High-priority facilities.*** The Permit provides Copermittees with the option of inspecting a high-priority facility either once a year or once every two years. A Copermittee may choose to inspect a site every 2 years if the following set of conditions is met:

The Copermittee (a) has a record of the site's Waste Discharge Identification Number; (b) has reviewed, approved, and confirmed proper implementation of the site's Stormwater Pollution Prevention Plan (SWPPP); *and* (c) has submitted a certified statement to the SDRWQCB verifying that the site has complied with these requirements.

In addition, a Copermittee may determine that the inspection requirement is met if the SDRWQCB already has conducted an inspection, pursuant to the statewide General Industrial Permit, of a site for the year in question.

- (2) ***Low and Medium Priority Facilities.*** Low and medium priority facilities shall be inspected as determined necessary by the Copermittee.

(b) *Inspection Methods*

- (1) ***Goal.*** A Copermittee inspects an industrial site to determine if its facilities and operations are in compliance with the Permit, i.e., to ensure that runoff pollutants have been reduced to the maximum extent practicable or to technology-based standards, if applicable. To accomplish this goal, the Copermittee may provide educational materials and technical or regulatory updates, review SWPPPs and provide feedback about BMPs appropriate for a given activity, and identify any illicit discharges and connections to the MS4.

- (2) ***General Procedures.***

- (i) Pre-inspection Preparation. Using the inventory database, the Copermittee can identify the SIC code, thereby knowing what type of industrial activity and pollutants to expect on site. Section V.b.1 of this document lists industrial activities typical for most sites. The inventory database should indicate if the facility has—or should have—filed a Notice of Intent (NOI) to operate under the statewide General Industrial Permit.

The Copermittee may also consult maps to locate nearby water bodies or watercourses, as well as listings of Clean Water Act (CWA) 303(d) water bodies or environmentally sensitive areas (ESAs).

A site-specific inspection checklist can be made based on information gathered at this stage.

- (ii) Inspection Site Visit. With the exception of a preliminary scoping visit (see Section IV.A.3), the site visit should be unannounced to observe properly the effectiveness of BMPs.

After introductions, the Copermittee inspector and plant superintendent or operations manager can review the SWPPP kept on site. The SWPPP should include a map showing exterior and interior areas of industrial activity; the facility boundaries and proximity to receiving bodies of water; storm drain inlets, surface and sub-surface conveyances, and points of discharge; areas of impervious surfaces and direction of sheet flow; materials storage areas; and location of structural controls.

The inspector may also review other documentation, such as monitoring data records and the spill response log, which may indicate discharge problems.

- (iii) Documentation. In general, a standard inspection report (Appendix E) serves as a written record of compliance or non-compliance, a set of instructions for compliance, an acknowledgment by the responsible party (when signed), an update to the site's compliance history, and a basis (case file) for further administrative or legal action, if warranted.

- (iv) Post-inspection Processing. Information obtained from the inspection can be used to update the inventory database; to make referrals to appropriate agencies, e.g., notifying the SDRWQCB of NOI—non-filers; and to report to the SDRWQCB incidents of non-compliance that present a threat to human or environmental health, as specified in Permit section F.3.b.(8).

2. Investigation of Complaints Involving Industrial Sites

Permit section F.5.d requires that each Copermittee eliminate all illicit discharges, connections, and discharge sources to its MS4. Complaints of illicit discharges from an industrial site may be made by the public or another agency, or they may arise from the

results of dry-weather monitoring. The Copermittee must have an investigative procedure to identify the discharge and its source, to provide input to industrial owners and operators as they review their SWPPPs and modify BMPs, and to follow up the complaint visit to verify compliance.

3. Self-Audit Checklist (Optional)

Copermittees may choose to provide the facility operator with a sample self-audit checklist. The checklist is helpful in orienting the operator to the basic components of future stormwater inspections. To promote consistency and agreement, the checklist should include the same basic components as those on the official inspection report form. However, the checklist is not all inclusive, and additional inspection components must be considered depending on the site's activities and resources. Moreover, the facility's operating procedures may include on-going environmental compliance audits, which would provide more detail than the checklist.³

E. ENFORCEMENT

Order 2001-01 requires that each Copermittee develop an enforcement program to carry out the provisions of its Existing Industrial Facilities program element. Situations requiring such action may result from a routine inspection or complaint investigation of an industrial facility. Enforcement of stormwater pollution prevention requirements should be conducted by staff members with enforcement authority and, when necessary, by legal counsel. Enforcement procedures are discussed further in Section VII of this document.

F. MONITORING

Permit section F.3.b.(5) makes Copermittees responsible for ensuring the implementation of a monitoring program for runoff from each high priority industrial site. The program can be conducted by the Copermittee, or the Copermittee can require the facility to conduct the program individually or as part of a group monitoring program approved by the State Water Resources Control Board (SWRCB). Group monitoring instructions and a current contact list are available from the SWRCB web site at www.swrcb.ca.gov/stormwtr/industrial.htm.

The minimum monitoring criteria must include the following:

- o Quantitative data obtained from two storm events in a year;
- o Data for pollutants listed in effluent guidelines subcategories;
- o Data for pollutants with effluent limits established by an existing NPDES permit for that facility;
- o Oil/grease or total organic carbon;
- o pH;

³An industrial facility may have integrated an environmental management system (EMS) into its operations. Under the EMS, a facility periodically conducts an environmental compliance audit to ensure compliance with environmental regulations. Although an EMS does not exclude a facility from regulations, it can serve as an effective starting point between Copermittee and the facility.

- o Total suspended solids;
- o Specific conductance; and
- o Toxic chemicals and other pollutants likely to be present in stormwater discharges.

G. REPORTING OF NON-COMPLIANT SITES

Permit section F.3.b.(8) requires that each Copermittee provide the following information to the SDRWQCB:

- o A list of criteria to determine if an incident or practice of non-compliance presents a threat to human or environmental health. This list shall be submitted as part of the Jurisdictional URMP document.
- o Oral notification within 24 hours of the discovery of a non-compliant site meeting the aforementioned criteria.⁴
- o Written follow-up notification within 5 days of the discovery.⁵
- o A list of non-compliant sites. This list can be updated based on the results of inspections and follow-ups, complaint investigations, and dry-weather monitoring.

These reporting requirements also are described in Permit section R.1 and Attachment C, section B.6.

⁴ Copermittees may consider 24-hour dedicated telephone hotlines.

⁵ Copermittees may consider dedicated telephone facsimile numbers or electronic mail address.

Section IV. Establishment and Maintenance of Program Priorities

Copermittees must identify the types and locations of all industrial facilities within their jurisdictions and establish program priorities and requirements accordingly. Specifically, Permit sections F.3.b.(2) and (3) mandate that each Copermittee develop and maintain a watershed-based inventory of all industrial sites. Using this inventory, a Copermittee can classify facilities according to their threat to water quality and consequently determine appropriate minimum BMPs, inspection frequencies, monitoring schedules, and site history.

This section presents a suggested methodology for the establishment of these priorities.

A. PRIORITIZATION TOOLS

1. Initial Prioritization of Facilities by Threat to Water Quality

Prioritization involves two steps: initially classifying a facility as being a high, medium, or low priority threat; and subsequently confirming or reclassifying it based on field observations and additional information. The former step can be done administratively using the data in the industrial inventory. The latter step, however, requires a site visit either as an inspection or as a preliminary scoping visit (optional).

2. The Industrial Inventory

A comprehensive watershed-based inventory of industries within a Copermittee's jurisdiction will provide an accurate classification of industrial activities, identify concentrations of industrial sites, and assist in projections for future growth.

(a) *Minimum Data Collected for Each Site.* The database must include the following minimum data, as listed in section F.3.b.(2) of the Permit, for each inventoried industrial facility:

- o Site name;
- o Site address;
- o SIC code(s); and
- o A narrative description of the principal products or services.

For sites with multiple facilities, this minimum information must be provided for each facility.

(b) *Assigning SIC Codes*

- (1) **Existing databases.** When applying for permits, an industrial owner often is required to report an SIC code that describes the main activity of the facility. A list of registered facilities, complete with addresses, contacts, and SIC codes, can be obtained from existing databases within the municipality or from other regulatory agencies.

- i. *Municipal sources* include business license or revenue departments, wastewater treatment or industrial waste programs, fire departments, planning departments, and building departments.
 - ii. *Regional sources* include hazardous materials inspection programs, wastewater discharge permit lists, and industrial customer lists maintained by water district authorities.
 - iii. *Commercial registries*, such as Dunn & Bradstreet and Listguy.com, can be consulted for a fee.
- (2) Missing SIC Codes. If SIC codes are not identified for some of the facilities on the list, identify the codes using the *Standard Industrial Classification Manual* published by the United States Office of Management and Budget (1987).⁶
- i. To assign an SIC code, first identify the primary activity, or purpose, of the facility. The principal products manufactured or services rendered can be determined by their relative share of value added to the facility. Once identified, the primary activity can be matched appropriately with the listed SIC codes. Please note that the primary business of the owner does not necessarily reflect the primary activity.
 - ii. Consult with the published list of industries subject to the statewide General Industrial Permit.
 - a. Obtain the most current list of industries in your jurisdiction that have filed NOIs to comply with the General Industrial Permit. Check for discrepancies: an NOI filer may not appear on the Copermittee list, a local facility with a qualifying SIC code may not appear on the NOI list, an SIC code reported by a facility may fail to describe its operations accurately, etc. Revise your inventory database accordingly and advise all pertinent parties of changes.
 - b. Interview non-filers to check for correctness of SIC codes. Because the SIC code is self assigned by the facility filer, the use of the wrong code may account for the facility not appearing on the NOI filer list.
 - iii. Update the inventory database annually, as specified in Permit section F.3.b.(2).

⁶ In 1997 the OMB introduced the *North American Industry Classification System—United States (NAICS)* in response to the North American Free Trade Agreement. The *NAICS* provides greater standardization across North American economies, and the manual is intended to become the standard reference source.

3. The Preliminary Scoping Visit: An Optional Tool

Depending on the accuracy of databases and the limitations on resources, the first contact between a Copermittee and an industrial facility owner or operator may be the initial stormwater inspection. However, a Copermittee may decide to gather more information about one or several sites before implementing the inspection program. In these cases, a preliminary scoping visit can be conducted.

A preliminary scoping visit can accomplish three objectives. First, a Copermittee can confirm the accuracy of the original SIC code and make any necessary changes to the inventory database. Some sites may change from high to medium priority and others conversely. The site visit also provides an opportunity to inform the facility owner or operator of the new Permit requirements. Finally, after evaluating the industrial activities the Copermittee and owner or operator can discuss appropriate procedures such as pollution prevention methods, BMPs, monitoring, and employee training.

The following procedures are highly recommended for a preliminary scoping visit:

(a) Arrange an appointment. Unlike the unannounced stormwater inspection that assesses BMPs in action, a scoping visit focuses on the current plant operations, the BMPs in use, the effectiveness of those BMPs, and more appropriate methods and procedures, if needed. By making an appointment, a Copermittee can request that pertinent parties—owner, plant superintendent, regulatory compliance manager, independent or company engineering consultant, etc.—are present at the first meeting.

(b) Provide written materials for developing a SWPPP. Facilities operating under the statewide General Industrial Permit are required to have a SWPPP on site; this plan can be reviewed by the Copermittee during the scoping visit. Facilities that have not filed an NOI would then have a start on at least one of the requirements for filing. Finally, facilities not required to file an NOI would still have the benefit of assessing their operations and implementing pollution prevention methods.

4. On-going Prioritization Strategy

Permit section F.3.b.(2) requires that each Copermittee update its industrial inventory annually. This process allows for the re-evaluation of each facility's priority status.

The results of routine inspections or complaint investigations can provide updated information. Likewise, permit applications for change of ownership, wastewater discharges, or building additions or remodels, as received by the Copermittee, can also signal possible changes in the activities at an industrial site.

B. MINIMUM HIGH PRIORITIES

1. High Priority Industrial Sites

Permit section F.3.b.(3) lists specific minimal criteria for identifying high priority facilities. The following process is recommended in determining whether discharges from an existing industrial facility pose a high threat to water quality. *A Yes response to one or*

more of the following questions requires the Copermittee to classify the facility as high priority.

(a) Does the industrial facility contribute a significant pollutant load to the Copermittee's MS4? According to Permit sections C.1 and C.2, "significant" pollutant loads are those that "cause or contribute to the violation of water quality standards." If a Copermittee determines that an industrial discharge will cause or contribute to such a violation, the Copermittee must consider that the discharging facility is a high priority site, and effective BMPs must be instituted to achieve appropriate load reductions.

(b) Is the industrial facility tributary to an impaired water body listed in accordance with section 303(d) of the 1972 CWA? According to Permit section F.3.b.(3)(b), a facility is considered to be high priority only if it generates pollutants for which the water body is impaired. Such impairments and pollutants include, but are not limited to, coliform bacteria, sediment/siltation, nutrients, low dissolved oxygen, synthetic organic compounds, pesticides, eutrophication, copper, lead, zinc, total dissolved solids, cadmium, trash, and organic enrichment.

Copermittees must require the implementation of BMPs to decrease existing pollutant loadings from industrial sites tributary to 303(d)-listed water bodies. The degree to which such reductions are necessary is not specified in the Permit; Copermittees must make that determination. The following steps will assist Copermittees in conducting a general prioritization assessment:

- (1) Identify Clean Water Act section 303(d) impaired water bodies and the contaminants causing these impairments. A current listing of 303(d) water bodies in the San Diego Hydrologic Unit (HU) is included as Appendix B. This list also identifies the contaminant(s) for which each listing was established. It can be downloaded from the SWRCB web site at <http://www.swrcb.ca.gov/>.
- (2) Determine the industrial sites that are "tributary to" the 303(d) listed water body. Since the term "tributary to" is not defined in the Permit and has no prior Clean Water Act grounding, a reasonable working definition should be adopted by the Copermittee. The following is offered as suggested guidance in making this determination, but Copermittees must ultimately make their own determination and should consider all factors that they consider relevant.

In determining whether a site is "tributary to" a 303(d) listed water body, Copermittees should consider whether discharges from that property reach (1) concrete storm sewers that discharge into the impaired water; (2) streams that reach the impaired water even during the dry season; or (3) ephemeral streams or other natural channels likely to contribute significant pollutant loads to an impaired water at any time during the year. In the last instance, Copermittees may consider establishing an upstream distance (e.g., 1 mile) that is conservatively inclusive of these discharges.

- (3) Determine whether the industrial site generates pollutants for which the water body is impaired. The discharge from the facility must contain the pollutant for which the receiving water is classified as a 303(d) body. If the Copermittee has determined that the site is “tributary to” the body and generates the specified pollutant, the facility must be treated as a high priority site.

Printed topographical maps or electronic geographical information system (GIS) mapping can assist in matching sites with watersheds.

(c) Is the industrial facility located within or adjacent to (i.e., within 200 ft.) a coastal lagoon or a receiving water body within an environmentally sensitive area (ESA), or does the facility discharge directly to these receiving waters? Permit section F.3.b.(3)(b) states that such industrial facilities shall be classified as high priority sites. Determination of whether an industrial site is subject to this requirement can be made using the following steps:

- (1) Identify all receiving waters within the following types of ESA:
- i. CWA section 303(d) impaired water bodies. This requirement is similar to that of section IV.B.1.(b) above except that it applies only to industrial sites meeting the stricter criteria of “within or directly adjacent to or discharging directly to...” Copermittees should consider making a distinction in levels and types of BMP application because facilities closer or discharging directly to a 303(d) water body may have a greater potential to contribute to water-quality impairments than those which are simply “tributary to.”
 - ii. Areas of Special Biological Significance, as listed in the 1994 Water Quality Control Plan for the San Diego Basin.
 - o City of Encinitas Marine Life Refuge (HU 904.5)
 - o Baticuitos Lagoon Ecological Reserve (HU 904.5)
 - o Blue Sky Ecological Reserve (HU 905.5)
 - o Buena Vista Ecological Reserve (HU 904.2)
 - o McGinty Mountain Ecological Reserve (HU 909.3)
 - o San Dieguito Lagoon Ecological Reserve (HU 905.1)
 - o San Elijo Ecological Reserve (HU 904.6)
 - o San Mateo Creek Wetland Natural Reserve (HU 901.4)
 - o Los Peñasquitos Marsh Natural Preserve (HU 906.1)
 - o Tijuana River National Estuarine Research Reserve (HU 911.1)
 - o Sweetwater Marsh National Wildlife Refuge (HU 909.1)
 - iii. RARE (Rare, Threatened, or Endangered Species) Beneficial Use Water Bodies. The RARE beneficial use status applies to habitats necessary, at least in part, for the survival and successful maintenance of plant and animals species established under state or federal law as rare, threatened, or endangered. A summary of

water bodies within the SDRWQCB jurisdiction and designated with the RARE beneficial use status is provided in Appendix D.

iv. Multi-Species Conservation Program (MSCP) Preserves.

Permit section F.1.b.(a)vii specifically refers to “areas designated as preserves or their equivalent under the [MSCP] within the Cities and County of San Diego.” The MSCP is a cooperative effort among the County and 12 other local jurisdictions and agencies, such as the U. S. Fish and Wildlife Service and the California Department of Fish & Game. The program addresses the potential impacts of urban growth resulting in natural habitat loss and species endangerment, and it creates a plan to mitigate for the future potential loss of covered species and their habitat due to the direct impacts of future development within the MSCP area.

Areas “equivalent” to the MSCP preserves include those designated under the Multiple Habitat Conservation Program (MHCP), a comprehensive habitat conservation planning process that addresses multiple species needs and preservation of native vegetation communities for the cities of Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista.

GIS maps showing existing and proposed MSCP boundaries are available from the San Diego Association of Governments (SANDAG) at <http://www.sandag.org/>. Likewise, MHCP maps will become available through SANDAG as they are developed.

v. Other equivalent ESAs identified by the Copermittee. The existence of other ESAs should be considered in determining program priorities, but determination of the specific types of areas that are applicable locally should be left to individual Copermittees.

(2) Map the boundaries of inclusion. On a map, draw a line depicting a 200-foot buffer zone around the targeted water body. Any facility with property lines within this zone is potentially a high priority site.

(3) Characterize the site discharge flow. Regardless of whether an industrial facility is within the buffer zone, the site is considered high priority only if the discharge (a) enters the targeted receiving water *and* (b) is not commingled with flows from other sites. This determination may require a scoping visit. In cases of limited resources, a Copermittee initially may designate as high priority all sites within 200 feet of an ESA.

Note. The water body may be affected by sites outside the buffer zone. For example, an outlying facility may discharge into a common conveyance running along an easement or crossing another property before discharging to the targeted water body. In this case, the facility might be classified as a high priority site if the discharge is not commingled.

(d) Is the industrial facility subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)? A facility meets the section 313 reporting criteria if *all* of the following conditions are met:

- o 10 or more full-time employees;
- o A Standard Industrial Classification (SIC) code from 20 through 39, 10 (except 1011, 1081, and 1094), 12 (except 1241), 4911, 4931, 4939, 4953, 5169, 5171, or 7389; and
- o The manufacture, importation, processing, or ancillary use of a listed chemical in excess of specified threshold quantities.⁷ The SARA Title III list of chemicals is available in print (EPA 550-B-98-017) or electronic form (www.epa.gov/ceppo/pubs/title3.pdf).

(e) Is the industrial facility subject to the statewide General Industrial Permit?

- (1) Compare the facility's SIC code with the current SWRCB listing of regulated SIC codes. According to the current list, an SIC code between 0211 and 5171 identifies the site as subject to the General Industrial Permit and therefore as a high threat to water quality. Although some SIC codes (0211-0291) are in addition to those described in 40 CFR 122.26(b)(14), each Copermittee should consider the entire SWRCB list during the establishment of its industrial inventory.
- (2) Determine if the facility is subject to stormwater effluent limitation guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N. Facilities subject to this regulation likely are subject to the General Industrial Permit.

Qualifying industrial facilities are required to submit an NOI to comply with the statewide General Industrial Permit requirements, which include preparing and maintaining a SWPPP and developing and implementing a discharge monitoring program.

2. Low and Medium Priority Industrial Sites

Industrial facilities that do not meet any of the aforementioned minimum high priority criteria can now be classified into lower priority groups.

To begin this prioritization process, Copermittees need to define the term *industrial*. The U. S. Environmental Protection Agency (EPA) defines *storm water discharge associated with industrial activity* as the "discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant." This definition includes, but is not limited to, discharges from industrial plant yards; immediate access roads or rails for transporting raw materials, products, by-products, or wastes, as well as

⁷ The annual threshold quantities are 25,000 lbs. for importing, processing, or manufacturing and 10,000 lbs. for ancillary use. The thresholds can change, e.g., the reporting quantity for lead and lead compounds has been lowered to 100 lbs. beginning in year 2001.

areas where these materials are stored; material handling sites; refuse sites; equipment storage or maintenance areas; and shipping and receiving areas. The definition excludes stormwater discharges from structures, such as office buildings and accompanying parking lots, provided that the runoff is not mixed with discharges from areas of industrial activity [40 CFR 122.26(b)(14)].

(a) Other criteria. Permit section F.3.b.(3)(a) provides several criteria to be considered by Copermittees:

- (a) Type of activity (SIC code)
- (b) Materials used in the industrial processes
- (c) Types and quantities of waste generated
- (d) Potential to discharge pollutants
- (e) Authorized non-stormwater discharges
- (f) Size of the facility
- (g) Proximity to a receiving water body
- (h) Sensitivity of the nearby receiving water body

Although most facilities not meeting the minimum requirements for high priority can now be classified as low or medium threats to water quality, a Copermittee can re-classify a facility to high-priority status based on these criteria.

(b) No Exposure Certification (NEC) status. The U. S. EPA has allowed exclusion from NPDES stormwater permitting to industrial facilities with industrial activities and materials that are not exposed to precipitation, run-on, or runoff. A facility with NEC status is not subject to inspections, monitoring, or other requirements of an NPDES permit. Previously, the exemption only applied to category xi (light industry) sites, but now facilities in any of the 11 categories subject to NPDES permitting are eligible. To qualify, a facility must meet six administrative criteria and maintain 11 operational criteria; renewal of the federal NEC occurs every 5 years. This status and its conditions apply to those states in which the U. S. EPA is the NPDES permitting agency.

In California, the SWRCB is the NPDES permitting agency and can determine the conditions for NEC status. However, in its entirety Order 2001-01 does not mention NEC status and thus provides no guidance for its consideration in the prioritization process. In essence, a facility rated as a high priority site based on its SIC code alone may in fact provide a low threat to water quality if it meets the NEC criteria. Nevertheless, the facility is still classified as high priority, but it may qualify for bi-annual inspection by a Copermittee as outlined in Permit section F.3.b.6.

C. DETERMINATION OF ADDITIONAL PRIORITIES

Although the Permit specifies minimum high priority industrial sites, section F.3.b.(3) further requires that prior to the February 21, 2002, submittal of their jurisdictional URMP, Copermittees must conduct an initial prioritization to determine whether additional high priorities should be established. Since the designation of any category as high priority will necessarily result in the establishment of minimum requirements that must in turn be borne by industry, it is crucial that this designation be based on a sound and defensible methodology. Additionally, program priorities should be periodically re-evaluated to ensure that resources are appropriately allocated.

This section provides suggested guidance for determining initial program priorities and whether these priorities should be retained or others added in the future. Over time, monitoring or other data may provide support for the removal of a previously identified site⁸ from the Copermittee's high priority list. Sources of data and information that may be used individually or in combination to identify potential priorities are also described below.

1. Initial Prioritization (prior to submittal of Jurisdictional URMP)

Where possible, Copermittee prioritizations should focus on the identification of impacts, the pollutants of concern causing them, and the establishment of a nexus to industrial facilities. Copermittees will initially be limited in their ability to establish this nexus because little quantitative data currently exist to substantiate these conclusions. A greater initial reliance on qualitative sources of data and information will therefore be required. Locally collected data and information should generally be given higher priority. However, Copermittees should consider other sources, especially during their initial prioritization when availability will generally be lacking. Applicable data and information can generally be derived from a number of sources including those described below.

(a) Review of monitoring results (including field screening). The Copermittees have conducted a wet weather monitoring program since 1993. Results of this program, as well as individual Copermittee dry weather field screening, may be useful in assessing initial program priorities. Additionally, Copermittees or other parties may have collected data within their jurisdictions or watersheds. Assessment of these data may also be useful in identifying potential priorities.

(b) Results of the non-stormwater discharge evaluation (Permit section B.3). Permit section B.3 requires that Copermittees evaluate categories of non-stormwater discharges which are currently exempted from the prohibitions of Permit section B.1. Results of this evaluation will provide important information as to whether these discharges may continue to be exempted. Because some of these sources are applicable to industrial areas, results will directly support further prioritization efforts by Copermittees.

(c) Review of complaints, violations, and field investigations. Most Copermittees have responded to stormwater complaints and other types of code compliance issues for many years. Depending on the availability of data, Copermittees may consider evaluating historical trends to identify types of recurring violations in industrial areas where problems have occurred most frequently. Interviewing field staff can also help to point out problem areas.

(d) Review of other anecdotal information (e.g., municipal staff street sweepers, trash collectors, maintenance staff). Many municipal employees spend significant amounts of time outdoors during their daily activities. These workers often have extensive knowledge of the types and locations of recurring problems.

⁸ Note: The priority ranking of mandated minimum high priority industrial facilities cannot be changed without a Permit amendment or other authorization from the SDRWQCB.

(e) Review of surveys (e.g., outreach surveys conducted). Some surveys have been conducted to assess existing environmental conditions locally and elsewhere. While local information is preferable, surveys conducted in other areas may be of value in determining initial program priorities. Outreach surveys can also be useful since they provide an indication of the types of behaviors likely to be contributing to pollution problems.

Using these and other sources of data and information that the Copermittee determines are appropriate, an initial preliminary ranking of priorities should be conducted. Establishment of a matrix to compare activity or source categories with available data and information is recommended as a first step. Where possible, Copermittees should attempt to establish quantitative measures and consistent methodologies by which results can be evaluated.

2. Ongoing Prioritization Strategy

Regardless of the methods chosen by a Copermittee for its initial evaluation, program priorities should be reviewed periodically to ensure that they continue to reflect the best available data and information. In conducting these reviews, the following questions should be addressed:

- o Do the results support existing program priorities (continue)?
- o Do the results fail to support existing program priorities (discontinue)?
- o Do the results indicate that other priorities are needed (new listing)?

Based on these results, priorities should be amended as a more complete record is established.

3. The Use of SIC Codes

As discussed previously in this document, the SWRCB list of SIC Codes subject to the statewide General Industrial Permit includes codes in addition to those listed under 40 CFR 122.26(b)(14). In addition, the current classification system groups several types of activities under the same code. This problem may be resolved once the U.S. EPA and state agencies convert fully to the *North America Industry Classification System (NAICS)*. For example, the *NAICS* further classifies the general SIC code 2771—Greeting Cards—into separate manufacturing (lithographic, gravure, flexographic, and screen printing) and information (publishing) sectors. Thus, Copermittees can utilize the *NAICS* system in the prioritization strategies and maintenance of their respective industrial inventories.

Section V. Best Management Practice (BMP) Requirements and Recommendations

This section provides a description of potential BMP options for each minimum high priority category. Particular BMPs are not advocated and are not presented herein as mandated minimums since their proper application is best determined by jurisdiction in the context of local program priorities. Copermittees must individually determine the specific BMPs they will use to meet their minimum requirements.

A. POLLUTION PREVENTION

Section F.3.b.(1) of the Permit indicates that each Copermittee shall implement pollution prevention methods in its Existing Industrial Facility program and shall require their use by industry where appropriate.

1. Benefits of Pollution Prevention

Pollution prevention comprises procedures and practices that eliminate or reduce the generation of pollutants at their source. But merely reducing pollutant wastes does not guarantee efficiency: a decrease in production can also result in a decrease in waste. If properly implemented, pollution prevention can support production by decreasing labor time associated with excess pollutant waste handling, thereby re-directing labor time more efficiently to production. Thus, in industry a primary goal of pollution prevention is to decrease production costs, which reflects positively on the production team, while decreasing pollutant waste treatment and disposal costs, which are usually borne by the company in general. Support from the company's top management is crucial to this process.⁹

2. Elements of Pollution Prevention

The following pollution prevention principles apply to most industries:

- o Use smaller quantities of toxic materials or substitute less-toxic materials.
- o Change production processes to reduce waste.
- o Decrease wastewater flows.
- o Recycle wastes as part of the production process (most preferred), off site, or on site (least preferred).
- o Segregate wastes.
- o Treat wastes on site to decrease volume and/or toxicity.
- o Dispose of wastes properly.

3. Stormwater Pollution Prevention Plans (SWPPPs)

- (1) High priority industrial facilities operating under the statewide General Industrial Permit are required to maintain a SWPPP on site. All high priority facilities should be encouraged to develop and implement a

⁹ Adapted from *Pollution Prevention Handbook*, T. E. Higgins (ed.), Lewis Publishers, 1995, and *Pollution Prevention Economics*, J. R. Aldrich, McGraw-Hill, 1996.

SWPPP. Guidelines for developing a SWPPP are described in Section A of Water Quality Order No. 97-03-DWQ, *Water Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*, issued by SWRCB.

- (2) Low and medium priority facilities are not explicitly required to develop a SWPPP, according to the Permit. However, each Copermitttee should reserve the authority to require a SWPPP for any industrial facility within its jurisdiction.

B. MINIMUM BMPs FOR HIGH PRIORITY INDUSTRIAL SITES

1. Non-Structural BMPs

Non-structural BMPs consist of procedures and practices that prevent industrial pollutants from entering stormwater or authorized non-stormwater discharges. Because of their low cost and simplicity, non-structural BMPs should be considered first in the development of a facility's BMP program. Many of these methods already exist as part of the standard operating procedures for a site:

- o Good housekeeping;
- o Preventive maintenance;
- o Material handling and storage of significant materials;
- o Employee training;
- o Solid waste (non-hazardous) handling and recycling;
- o Record keeping;
- o Self inspection/quality assurance; and
- o Spill response.

2. Structural BMPs

Structural BMPs consist of specialized equipment, structural components, or engineered technologies that can be used when non-structural BMPs are ineffective. Because structural BMPs are site specific, the facility operator needs to evaluate each proposed use. Proper installation and regular maintenance of structural BMPs are imperative to their effectiveness. Examples are as follows:

- o Overhead coverage of outdoor work areas or chemical storage;
- o Retention ponds, basins, or surface impoundments that confine stormwater to the site;
- o Berms and concrete swales or channels that divert run-on and runoff away from pollutant sources;
- o Secondary containment structures; and
- o Treatment controls, e.g., infiltration devices and oil/water separators, to reduce pollutants in stormwater or authorized non-stormwater discharges.

3. Implementation of Technology-Based Standards

Permit section E requires implementation of technology-based standards, i.e., best available technology economically achievable (BAT) and best conventional technology (BCT), for specific categories of facilities described in 40 CFR 122.26 and subject to the

statewide General Industrial Permit. Generally at such sites, BATs are required for handling toxic and non-conventional pollutants, while BCTs are required for conventional ones. The facility operator must ensure that pollutants in runoff have been reduced to the BAT or BCT standard. The facility's SWPPP should specify the type of BAT or BCT as well as the plans for preventive maintenance.

All other industrial facilities are required to decrease pollutants in runoff to the maximum extent practicable.

4. Common Industrial Activities

Common industrial activities vary in work area, type of pollutant, and potential source of pollutants. To a great degree, these factors will determine the appropriate BMP for a given activity. The following activities and areas occur at most industrial sites, and recommended minimum BMPs for these activities are provided in the appropriate tables.

- o Hazardous materials storage (incl. tanks) (Table 1)
- ⊕ Solid waste storage (Table 2)
- o Loading/Unloading (Table 3)
- o Fueling (Table 4)
- o Landscaping/groundskeeping (Table 5)
- o Washing: Equipment/vehicles (Table 6)
- o Parking lots (Table 7)
- o Process water pre-treatment (Table 8)
- o Equipment storage (Table 9)
- o Rooftops (Table 10)
- o Wastewater treatment (Table 11)
- o Vehicle maintenance (Table 12)

Section VI. Inspections

Permit Section F.3.b.(6) requires that each Copermittee conduct inspections of industrial sites to ensure compliance with Order 2001-01, as well as pertinent local ordinances and permits. The following guidelines are intended to provide consistency in inspection elements and procedures across jurisdictions. The form presented herein may serve as a regional template that Copermittees, through on-going participation in technical workgroup meetings, can revise and standardize during the development and implementation of their respective inspection programs.

A. PRE-INSPECTION PREPARATION (PROFILE)

Before visiting a facility, the inspector should review the existing industrial inventory database to determine the site's primary industrial activity, the facility's proximity to water bodies, the components of its SWPPP, and any history of complaints or regulatory noncompliance. Initially, a facility's industrial profile may be incomplete, but as a result of routine inspections the facility's profile will become more complete and accurate.

1. Information Required by Order 2001-01

At a minimum, the inventory should describe the name and address of the facility, its SIC code, and a narrative description of the principal industrial activities and associated pollutants.

2. Information Critical for the Inspection Program

The following information provides the inspector with a clearer definition of each industrial facility.

- (a) Record of an individual NPDES permit. Although *not* exempt under Order 2001-01, a facility operating under a separate NPDES permit likely is required to maintain a SWPPP, to implement a monitoring program, and to keep quantitative reports of authorized non-stormwater discharges. Such a facility may qualify for bi-annual inspection certification, as described in Permit Section F.3.b.(6), with the SDRWQCB.
- (b) Record of operating under the statewide General Industrial Permit. Although *not* exempt from Order 2001-01, facilities on record as filing a notice of intent (NOI) to operate under this general permit likewise may qualify for bi-annual inspection certification. Moreover, such facilities may qualify for a No Exposure Certification (NEC). The list of local NOI-filers is available at the SWRCB web site (<http://www.swrcb.ca.gov>).
- (c) Name of responsible party. To facilitate enforcement actions, notices of violation and other orders should be addressed to legally responsible individuals. For corporations, a corporate officer or manager with authority to sign documents must be identified; for partnerships, the general or principal partner; for public agencies, a duly authorized representative.

- (d) GIS maps. Depending of the available GIS layers, these mapping tools can show the proximity of the site to water bodies, including 303(d) and other priority bodies, as well as to major tributaries or monitoring sites.
- (e) History of the site. Over time, a facility's profile may include a history of complaints, non-compliance, or exceedances of water quality standards.
- (f) SWPPP. Although SWPPPs are not required by Order 2001-01, each Copermittee, through its local ordinance, can require any facility to develop, implement, and maintain a SWPPP.

B. THE SITE VISIT

1. Approach to the Site

Before entering the facility grounds, the inspector should make note of the following:

- (a) Nearby conveyances or water bodies;
- (b) Visible discharge points along perimeter of the site;
- (c) Outdoor areas of intensive industrial activity; and
- (d) Signs of recent additions or remodels.

2. The Management Office

After introductions, the inspector can obtain much information from this initial contact with the facility operator:

- (a) Update of information for the industrial inventory, including changes in ownership or operations;
- (b) Clarification of observations noted before entering the facility, i.e., any changes in activities, materials, or physical structures should be reflected in the SWPPP; and
- (c) Review of the SWPPP, which can include these elements:
 - (1) Site map;
 - (2) List of industrial activities, types of pollutants, and existing non-structural and structural BMPs to reduce these pollutants in stormwater discharge;
 - (3) Pollution prevention methods;
 - (4) Description of type and location of non-stormwater discharges, both authorized and unauthorized; and
 - (5) Inventory of materials, including storage and loading/unloading areas.

(For a more complete description of SWPPP elements, please refer to the statewide General Industrial Permit, Order No. 97-03-DWQ. Copermittees are encouraged to establish and adopt standard SWPPP requirements through continued involvement with the Existing Industrial Facilities Technical Workgroup.)

- (d) Other considerations, such as existing pollution prevention plans or an environmental management system.

3. Facility Walk-through With Management and Shop Supervisor

The site map should be used to access areas in which industrial activities are exposed to precipitation, thereby increasing the risk of pollutants entering storm water. Attention should also be paid to run-on and runoff in these areas, as well as pollution prevention measures. From the walk-through, an inspector can assess the following:

- (a) Accuracy of site map, industrial activities, materials list, and SWPPP;
- (b) Confirmation of additions or changes observed while approaching the facility;
- (c) Evidence of illegal discharges, i.e., on-going leaks or recent spills, or connections not authorized under an NPDES permit; and
- (e) Effectiveness of BMP implementation in each area of industrial activity.

4. The Inspection Report

A sample stormwater inspection report form is provided in Appendix E. Copermitees, industrial environmental managers, and consultants have expressed a need to develop and use a standard inspection report form to ensure consistency across jurisdictions. In addition, self-audit checklists for facility operators would be based on such an inspection report. A standard inspection report, if feasible, will be developed further by the Existing Industrial Facilities Technical Workgroup.

The inspection report should contain at least the following five sections:

- (a) General information to update the inventory;
- (b) Review of the SWPPP;
- (c) Assessment of BMP implementation;
- (d) Documentation of violations and timeframe for correction; and
- (e) Signature and confirmation.

Copermittees may choose to issue a separate notice of violation rather than incorporate it into the stormwater inspection report. *Section VII of this document provides more detailed guidelines concerning enforcement action.*

C. POST-VISIT ACTIVITIES

In the office, the inspector can update the inventory database and make referrals, as needed, to other departments or agencies.

Section VII. Enforcement

A. OBJECTIVES OF AN ENFORCEMENT PROGRAM

The Copermittee's inspectors and staff members with enforcement authority will conduct enforcement action against industrial facility owners and operators failing to comply with the stormwater pollution prevention requirements specified in Order 2001-01. The inspectors, in accordance with the Copermittee's existing procedures for recording violations, will document properly each observed violation. Depending on the severity of the violation, enforcement can range from a verbal warning to large fines. In general, a Copermittee's enforcement program should strive to accomplish the following goals:

- To educate the regulated community;
- To promote compliance of the laws and regulations within the regulated community;
- To return violators to compliance in a timely manner;
- To initiate and conclude enforcement activities in a timely manner;
- To penalize violators, as appropriate, and to deprive violators of any significant benefit gained from violations;
- To prevent any business from having an unfair business advantage through non-compliance; and
- To treat similar facility owners and operators equally and consistently with regard to the same types of violations.

B. PROCEDURES FOR CORRECTIVE AND ENFORCEMENT ACTIONS

Copermittee inspectors will conduct follow-up inspections to determine if corrective actions have been taken in accordance with the Copermittee's ordinances and minimum BMP requirements. Escalating enforcement steps, providing flexibility for the inspectors to establish appropriate compliance time frames on a case-by-case basis, should be used as needed to ensure compliance.

If a significant and/or immediate threat to water quality is observed by a Copermittee's inspector, action should be taken to require the facility owner and/or operator to immediately cease the discharge. The threat to water quality shall be assessed by inspectors for runoff from an industrial site that will not be reasonably controlled by the protective measures in place or if a failure of BMPs is resulting in the release of pollutants to a degree that may be substantially degrading water quality. The typical progressive enforcement steps that each Copermittee should apply to the inspection enforcement program are as follows:

- a) Verbal warnings;
- b) Written warnings;
- c) Suspension, revocation, or denial of permits, if applicable; and
- d) Civil and/or criminal court actions.

A discussion of these measures is provided below. These measures are just some of the tools a Copermittee may use to enforce its permit and ordinance requirements.

1. Verbal Warnings

A common initial method of requesting corrective action and enforcing compliance is a verbal warning from the Copermittee's inspector to the industrial facility owner and/or operator. Verbal warnings are often sufficient to achieve correction of the violation, often while the inspector is present at the facility. After notifying the owner or operator of the violation, the inspector should document the violation and notification in the inspection file. A specific time frame for correcting the problem and a follow-up inspection date should be documented by the inspector. In judging the degree of severity, the Copermittee inspector may also take into account any history of similar or repeated violations at this facility.

2. Written Warnings

If the deficiency noted in a verbal warning is not corrected by the follow-up inspection or if the severity of the violation is such that a verbal warning is not strong enough, a written notice of violation should be issued describing the infraction that is to be corrected and the time frames for correction and a follow-up inspection. A copy of the notice should be given to the operator and placed in the active inspection file. If the violation has been corrected to the satisfaction of the inspector, the inspector will document compliance in the inspection file.

3. Suspension, Revocation, or Denial of Permits

For those Copermittees implementing a stormwater permit program or its equivalent, it may be appropriate to suspend or revoke such permits in severe cases of non-compliance or significant discharges. Copermittees and their legal counsel should consider developing criteria and procedures in their respective permit-issuing program to implement this enforcement tool.

4. Civil and/or Criminal Court Actions

As a final resort, the Copermittee may use civil and or criminal court actions under the State Porter Cologne Water Quality Act or the Federal Clean Water Act, which may result in significant fines levied upon the non-compliant responsible parties.

Section VIII. Program Effectiveness

Assessing the performance of Copermittee program elements and the specific BMPs that comprise them is crucial to the successful implementation of a comprehensive receiving water pollution reduction program. This concept is addressed in Permit Section F.7.a., which requires that each Copermittee develop a long-term strategy for assessing the effectiveness of its individual Jurisdictional URMP. The effectiveness of each of the Copermittee's individual program elements, including the Existing Industrial Facilities Component Element, must accordingly be measured, assessed, and reported as part of each Jurisdictional URMP Annual Report. Permit Section J.2.i. further requires that Copermittees collaboratively develop measures for, and track the long-term effectiveness of, the Watershed URMPs in which they participate.

The effectiveness of BMPs whether considered individually or collectively is ultimately measured over time by changes in the pollutant levels found in downstream receiving waters. Information collected through the Copermittees' wet and dry weather monitoring programs will be useful in identifying trends and assessing the effectiveness of their programs. However, Copermittees will likely not be able to rely on these data to assess the effectiveness of individual program elements or of BMPs that comprise their overall program. The basis for measuring the overall effectiveness of Copermittee programs must therefore be a collective assessment of the effectiveness of the BMPs implemented within that program. As such, specific measures should be developed and tracked at both the programmatic and specific BMP level. A suite of measures, which allows for assessment on a variety of levels and time frames, should therefore be developed. These measures are generally divided into two types, direct and indirect.

Whether using direct or indirect measures of effectiveness, baseline conditions must be defined. All future comparisons showing improvements will be made relative to these baseline conditions. In addition, the largest incremental improvements in receiving water quality are often realized at the beginning of an implementation program. In the absence of a well-defined baseline, these improvements cannot be adequately measured.

A. DIRECT MEASURES

Direct measures are those that focus on characterizing the quality of water bodies receiving discharges from Copermittee MS4s or on assessing other parameters with an immediate or well-established nexus to changes in the quality of those waters. Examples of direct measurement include receiving waters monitoring, estimation of pollutant loadings from specified areas (catchments, municipalities, watersheds, etc.), and focused evaluations of structural BMPs. Direct measures generally include actual measurement or quantification of pollutants (e.g., reductions in concentrations of chemicals of concern) or of the amount of materials extracted or diverted by a BMP (e.g., through media filtration). Direct measures can generally be described according to the following categories.

1. Water Quality Measurement

The direct measurement of water quality, both with respect to receiving waters and discharges from Copermittee MS4s, is addressed through the Copermittees' Receiving

Waters Monitoring Program (Permit Attachment B) and Dry Weather Analytical and Field Screening Monitoring Program (Permit Attachment E). Results of these programs, as well as other relevant data collected by Copermitees or other parties, should be integrated into effectiveness assessment strategies. Permit Section F.7.a requires that the role of monitoring data in substantiating or refining the Copermitees' Jurisdictional URMP Effectiveness Component be addressed.

2. Waste Diversion (Non-Structural BMPs)

A number of program activities focus on removing or diverting pollutants or materials that might otherwise be introduced to receiving waters via the Copermitee's MS4. Examples include recycling of by-products, parking lot sweeping, and conveyance facility cleaning. Such activities can be directly assessed by estimating or quantifying the contents of wastes collected, but, to be meaningful, evaluations should also consider the level of activity expended or other factors which may be relevant to the interpretation of results. For example, rather than quantifying only the amount of material collected through lot sweeping, Copermitees should also report the amount per mile swept, the amount of staff hours spent on the activity, and any other quantifiable measure of effort.

3. Pollutant Reduction / Removal (Structural BMPs)

Copermitees may employ or require the use of a variety of structural controls (e.g., detention ponds or storm drain filters) to minimize or to reduce the concentration of pollutants in discharges to their MS4. Evaluating structural controls may require the collection and analysis of materials collected or diverted from an MS4. For example, a direct measurement technique to assess the performance of a structural treatment BMP such as a detention pond downstream of an industrial site would be the collection and analysis of samples for pollutants of concern. Given the expense of collecting and analyzing water samples, most Copermitees will not have sufficient resources to measure directly the performance of all BMPs that are employed. Therefore, Copermitees should endeavor to develop statistically valid sampling protocols that will provide representative data for each of the BMP types (e.g., retention ponds) they utilize. In some instances, photographs may also be valuable in documenting the functionality of structural source control BMPs (e.g., overhead covering and berms for outdoor storage of significant materials).

B. INDIRECT MEASURES

Because direct measures can be difficult and expensive to obtain and because they often require long periods of time to fully assess, a variety of indirect measures are generally used to evaluate stormwater program effectiveness. Indirect measures are based on the assumption that the use of specific program activities is effective in decreasing stormwater pollution and therefore in protecting water quality. They are typically used to assess the performance of non-structural source control BMPs such as employee training and good housekeeping. As stated above, tracking the level of effort expended during BMP implementation may often be required. Level of effort can be measured by quantifying the hours spent on a pollution prevention activity, the number of employees trained, the number of times a maintenance activity is conducted, or other similar measures.

Indirect measures typically focus on degrees of implementation or comparison to standards or goals rather than actual water quality assessment or measures of pollutant loading. By measuring the degree or success of implementation of BMPs, it may therefore be possible to make inferences about water quality benefits. Indirect measures should be pursued in combination with more broadly focused direct measures, thus allowing Copermittees to prioritize limited resources, to conduct meaningful assessments on intermediate time frames, and to focus their efforts on particular BMPs and program elements.

I. Appendix A. Existing industrial Facilities Permit Sections

F.3.b. Industrial (Existing Development)

Each Copermittee shall implement an Industrial (Existing Development) Component to reduce pollutants in runoff from all industrial sites. At a minimum the industrial component shall address:

- F.3.b.(1) Pollution Prevention
- F.3.b.(2) Source Identification
- F.3.b.(3) Threat to Water Quality Prioritization
- F.3.b.(4) BMP Implementation
- F.3.b.(5) Monitoring of Industrial Sites
- F.3.b.(6) Inspection of Industrial Sites
- F.3.b.(7) Enforcement Measures for Industrial Sites
- F.3.b.(8) Reporting of Non-compliant Sites

F.3.b.(1) Pollution Prevention (Industrial)

Each Copermittee shall implement pollution prevention methods in its Industrial (Existing Development) Component and shall require its use by industry, where appropriate.

F.3.b.(2) Source Identification (Industrial)

Each Copermittee shall develop and update annually a watershed-based inventory of all industrial sites within its jurisdiction regardless of site ownership. This requirement is applicable to all industrial sites regardless of whether the industrial site is subject the California statewide General NPDES Permit for Storm Water Discharges Associated With Industrial Activities, Except Construction (hereinafter General Industrial Permit) or other individual NPDES permit.

The inventory shall include the following minimum information for each industrial site: name; address; and a narrative description including SIC codes which best reflects the principal products or services provided by each facility. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended, but not required.

F.3.b.(3) Threat to Water Quality Prioritization (Industrial)

- (a) To establish priorities for industrial oversight activities under this Order, the Copermittee shall prioritize each watershed-based inventory in F.3.b.(2) above by threat to water quality and update annually. Each industrial site shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality each Copermittee shall consider (1) type of industrial activity (SIC Code); (2) materials used in industrial processes; (3) wastes generated; (4) pollutant discharge potential; (5) non-storm water discharges; (6) size of facility; (7) proximity to receiving water bodies; (8) sensitivity of receiving water bodies; (9) whether the industrial site is subject to the statewide General Industrial Permit; and (10) any other relevant factors.
- (b) At a minimum the high priority industrial sites shall include industrial facilities that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA); industrial facilities tributary to a Clean Water Act section 303(d) impaired water body, where a facility generates pollutants for which the water body is impaired; industrial facilities within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vii of this Order); facilities subject to the statewide General Industrial Permit; and all other industrial facilities that the Copermittee determines are contributing significant pollutant loading to its MS4, regardless of whether such facilities are covered under the statewide General Industrial Permit or other NPDES permit.

F.3.b.(4) BMP Implementation (Industrial)

- (a) Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality industrial sites (as determined under section F.3.b.(3)). The designated minimum BMPs for high threat to water quality industrial sites shall be industry and site specific as appropriate.
- (b) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the site's threat to water quality rating) at each industrial site within its jurisdiction. If particular minimum BMPs are infeasible at any specific site, each Copermittee shall implement, or require implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order including BMPs which are more stringent than those required under the statewide General Industrial Permit.
- (c) Each Copermittee shall implement, or require implementation of, additional controls for industrial sites tributary to Clean Water Act section 303(d) impaired water bodies (where a site generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for industrial sites within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)(vii) of this Order) as necessary to comply with this Order.

F.3.b.(5) Monitoring of Industrial Sites (Industrial)

- (a) Each Copermittee shall conduct, or require industry to conduct, a monitoring program for runoff from each high threat to water quality industrial site (identified in F.3.b.(3) above). Group monitoring by multiple industrial sites conducted under group monitoring programs approved by the State Water Resources Control Board is acceptable.
- (b) At a minimum, the monitoring program shall provide quantitative data from two storm events per year on the following constituents:
 - i. Any pollutant listed in effluent guidelines subcategories where applicable;
 - ii. Any pollutant for which an effluent limit has been established in an existing NPDES permit for the facility;
 - iii. Oil and grease or Total Organic Carbon (TOC);
 - iv. pH;
 - v. Total suspended solids (TSS);
 - vi. Specific conductance; and
 - vii. Toxic chemicals and other pollutants that are likely to be present in storm water discharges.

F.3.b.(6) Inspection of Industrial Sites (Industrial)

- (a) Each Copermittee shall conduct industrial site inspections for compliance with its ordinances, permits, and this Order. Inspections shall include review of BMP implementation plans.
- (b) Each Copermittee shall establish inspection frequencies and priorities as determined by the threat to water quality prioritization described in F.3.b.(3) above. Each Copermittee shall inspect high priority industrial sites, at a minimum:
 - i. Annually
 - OR**
 - ii. Bi-annually for any site that the responsible Copermittee certifies in a written statement to the SDRWQCB all of the following (certified statements may be submitted to the SDRWQCB at any time for one or more sites):
 - Copermittee has record of industrial site's Waste Discharge

Identification Number (WDID#) documenting industrial site's coverage under the statewide General Industrial Permit;

- Copermittee has reviewed the industrial site's Storm Water Pollution Prevention Plan (SWPPP);
- Copermittee finds SWPPP to be in compliance with all local ordinances, permits, and plans; and
- Copermittee finds that the SWPPP is being properly implemented on site.

Each Copermittee shall inspect medium and low threat to water quality industrial sites as needed.

- (c) Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.
- (c) To the extent that the SDRWQCB has conducted an inspection of a high priority industrial site during a particular year, the requirement for the responsible Copermittee to inspect this site during the same year will be satisfied.

F.3.b.(7) Enforcement of Industrial Sites (Industrial)

Each Copermittee shall enforce its storm water ordinance at all industrial sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

F.3.b.(8) Reporting of Non-compliant Sites (Industrial)

Each Copermittee shall provide oral notification to the SDRWQCB of non-compliant sites that are determined to pose a threat to human or environmental health within its jurisdiction within 24 hours of the discovery of noncompliance, as required under section R.1 (and B.6 of Attachment C) of this Order.

Each Copermittee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review.

Such oral notification shall be followed up by a written report to be submitted to the SDRWQCB within 5 days of the incidence of non-compliance as required under section R.1 (and B.6 of Attachment C) of this Order. Sites are considered non-compliant when one or more violations of local ordinances, permits, plans, or this Order exist on the site.

Appendix B: 1998 CALIFORNIA CWA SECTION 303(d) LIST AND PRIORITY SCHEDULE (REGION 9)

| Hydrologic Unit | Watershed | Major Water Bodies | Water Body Type | Pollutant / Stressor | Sources | Impaired Beneficial Uses | TMDL Priority |
|-----------------|---------------|--|-----------------|--|------------------|---------------------------------|---------------|
| 900.00 | San Diego Bay | San Diego Bay; Shelter Island Yacht Basin (900.00) | B | Copper | Point / Nonpoint | Aquatic life | High |
| | | San Diego Bay; Near Sub Base (900.00) | B | Benthic Comm. Effects, Sediment Toxicity | Point / Nonpoint | Aquatic life | High |
| | | San Diego Bay; Near Grape Street (900.00) | B | Benthic Comm. Effects, Sediment Toxicity | Point / Nonpoint | Aquatic life | High |
| | | San Diego Bay; Downtown Piers (900.00) | B | Benthic Comm. Effects, Sediment Toxicity | Point / Nonpoint | Aquatic life | High |
| | | San Diego Bay; Near Switzer Creek (900.00) | B | Benthic Comm. Effects, Sediment Toxicity | Point / Nonpoint | Aquatic life | High |
| | | San Diego Bay; Near Coronado Bridge (900.00) | B | Benthic Comm. Effects, Sediment Toxicity | Point / Nonpoint | Aquatic life | High |
| | | San Diego Bay; Near Chollas Creek (900.00) | B | Benthic Comm. Effects, Sediment Toxicity | Point/ Nonpoint | Aquatic life | High |
| | | San Diego Bay; San Diego Naval Station (900.00) | B | Benthic Comm. Effects, Sediment Toxicity | Point/ Nonpoint | Aquatic life | High |
| | | San Diego Bay; Seventh Street Channel (900.00) | B | Benthic Comm. Effects, Sediment Toxicity | Point/ Nonpoint | Aquatic life | High |
| | | San Diego Bay; North of 24th Street Marine Terminal (900.00) | B | Benthic Comm. Effects, Sediment Toxicity | Point/ Nonpoint | Aquatic life | High |
| 901.00 | San Juan | Aliso Creek, Mouth of (901.13) | E | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2 | Medium |
| | | Aliso Creek (901.13) | R | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2 | Medium |
| | | Pacific Ocean, Laguna Beach HSA (901.12) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Medium |
| | | Pacific Ocean, Aliso HSA (901.13) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2 | Low |
| | | Pacific Ocean, Dana Point HSA (901.14) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2 | Low |
| | | San Juan Creek (Mouth) (901.200) | E | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| | | Pacific Ocean, Lower San Juan HSA (901.270) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |

Appendix B: 1998 CALIFORNIA CWA SECTION 303(d) LIST AND PRIORITY SCHEDULE (REGION 9 Continued)

| Hydrologic Unit | Watershed | Major Water Bodies | Water Body Type | Pollutant / Stressor | Sources | Impaired Beneficial Uses | TMDL Priority |
|--|-----------------|---|-----------------|---|-----------------|---------------------------------|---------------|
| 901.00 (cont.) | | Lower San Juan Creek (901.270) | R | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| | | Pacific Ocean, San Clemente HA (901.30) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| 902.00 | Santa Margarita | Santa Margarita Lagoon (901.110) | E | Eutrophic | Point/ Nonpoint | Rec-1, Rec-2, Aquatic life | High |
| | | Rainbow Creek (902.200) | R | Eutrophic | Point/ Nonpoint | Aquatic life | High |
| 903.00 | San Luis Rey | Pacific Ocean, San Luis Rey HU (903.00) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| | | Guajome Lake (903.110) | L | Eutrophic | Point/ Nonpoint | Aquatic life | Medium |
| 904.00 | Carlsbad | Pacific Ocean, Loma Alta HAS (904.10) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| | | Loma Alta Slough (904.100) | E | Eutrophic | Nonpoint | Aquatic life | Low |
| | | | | High Coliform Count | | Rec-1, Rec-2 | |
| | | Pacific ocean, Buena Vista HA (904.20) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| | | Buena Vista Lagoon (904.210) | E | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2 | Low |
| | | | | Nutrients | | Aquatic life | |
| | | | | Sedimentation/Siltation | | Medium | |
| | | Agua Hedionda Lagoon (904.310) | E | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| | | | | Sedimentation/Siltation | | Aquatic life | Medium |
| | | Pacific Ocean, San Marcos HA (904.50) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| Pacific Ocean, Escondido Creek HA (904.60) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low | | |
| San Elijo Lagoon (904.610) | E | Eutrophic | Point/ Nonpoint | Aquatic life | Low | | |
| | | High Coliform Count | | Rec-1, Rec-2, Shellfish harvest, Fish consumption | | | |
| | | Sedimentation/Siltation | | Aquatic life | | Medium | |

Appendix B: 1998 CALIFORNIA CWA SECTION 303(d) LIST AND PRIORITY SCHEDULE (REGION 9 Continued)

| Hydrologic Unit | Watershed | Major Water Bodies | Water Body Type | Pollutant / Stressor | Sources | Impaired Beneficial Uses | TMDL Priority |
|---------------------|----------------------------------|---|-----------------|-------------------------|---------------------------------|---------------------------------|---------------|
| 905.00 | San Dieguito | Pacific Ocean, San Dieguito HU (905.00) | C | High Coliform Count | Rec-1, Rec-2, Shellfish harvest | Rec-1, Rec-2, Shellfish harvest | Low |
| 906.00 | Mission Bay | Los Penasquitos Lagoon (906.100) | E | Sedimentation/Siltation | Point/ Nonpoint | Aquatic life | Medium |
| | | Pacific Ocean, Scripps HA (906.30) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| | | Mission Bay (906.400) | B | Eutrophic | Point/ Nonpoint | Aquatic life | Medium |
| | | | | High Coliform Count | | Rec-1, Rec-2, Shellfish harvest | Low |
| | | | | Lead | | Aquatic life | Medium |
| | | Famosa Slough & Channel (906.400) | E | Eutrophic | Nonpoint | Aquatic life | Medium |
| | | Tecolote Creek (906.500) | R | Cadmium | Point/ Nonpoint | Aquatic life | Medium |
| | | | | Copper | | | |
| Lead | | | | | | | |
| Zinc | | | | | | | |
| Toxicity | | | | | | | |
| High Coliform Count | Rec-1, Rec-2 | Low | | | | | |
| 907.00 | San Diego | Pacific Ocean, San Diego HU (907.00) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| 908.00 | San Diego Bay (Pueblo San Diego) | San Diego Bay, Lindbergh (908.210) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2 | Low |
| | | Chollas Creek (908.220) | R | Cadmium | Point/ Nonpoint | Aquatic life | High |
| | | | | Copper | | | |
| | | | | Lead | | | |
| | | | | Zinc | | | |
| | | | | Toxicity | | | |
| High Coliform Count | Rec-1, Rec-2 | Low | | | | | |

Appendix B: 1998 CALIFORNIA CWA SECTION 303(d) LIST AND PRIORITY SCHEDULE (REGION 9 Continued)

| Hydrologic Unit | Watershed | Major Water Bodies | Water Body Type | Pollutant / Stressor | Sources | Impaired Beneficial Uses | TMDL Priority |
|--------------------------|--------------------------------|---------------------------------------|-----------------|----------------------|-----------------|---------------------------------|---------------|
| 909.00 | San Diego Bay (Sweetwater) | San Diego Bay, Telegraph HAS (909.11) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2 | Low |
| 910.00 | San Diego Bay (Otay) | Pacific ocean, Coronado HA (910.10) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2, Shellfish harvest | Low |
| 911.00 | Tijuana | Pacific Ocean, Tijuana HU (911.00) | C | High Coliform Count | Point/ Nonpoint | Rec-1, Rec-2 | Low |
| | | Tijuana River Estuary (911.110) | E | Eutrophic | Point/ Nonpoint | Aquatic life | Low |
| | | | | Lead | | | |
| | | | | Nickel | | | |
| | | | | Trash | | | |
| | | | | Thallium | | | |
| | | | | Pesticides | | | |
| | | | | High Coliform Count | | | |
| | | Tijuana River (911.110) | R | Eutrophic | Point/ Nonpoint | Aquatic life, Fish Consumption | Low |
| | | | | High Coliform Count | | Rec-1, Rec-2, Fish consumption | |
| Org. Enrichment/Low D.O. | Aquatic life | | | | | | |
| Pesticides | Fish consumption | | | | | | |
| Solids | Aquatic life | | | | | | |
| Synthetic Organics | Aquatic life, Fish Consumption | | | | | | |
| Trace Elements | Aquatic life, Fish Consumption | | | | | | |
| Trash | Fish consumption | | | | | | |

Water Body Types

B=Bays and Harbors
 C=Coastal Shorelines
 E=Estuaries

G=Ground Water
 L=Lakes/Reservoirs
 O=Ocean and Open Bays

R=Rivers/Streams
 S=Saline Lakes
 T=Wetlands, Tidal

W=Wetlands and Freshwater

Appendix C. Minimum Best Management practices: Tables and Sources

Table 1. Hazardous Materials Storage

| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|--|---|---------------------------------------|---|--|
| Outdoor storage of hazardous materials | Storage Stock rotation | Spills Leaks Weathering | Hazardous liquids Petroleum products | <ul style="list-style-type: none"> • Train employees • Segregate & separate waste • Keep drums closed & in good condition • Provide secondary containment • Provide readily accessible spill response equipment • Report spills promptly • Consider overhead coverage • Conduct periodic inspections |
| Outdoor containers Storage of liquids | Aboveground storage tanks Tank loading/unloading | Spills | Diesel Waste oil Motor oil Hydraulic fluid Transmission fluid | <ul style="list-style-type: none"> • Practice good housekeeping • Provide secondary containment • Provide readily accessible spill response equipment • Report spills promptly • Conduct periodic inspections • Consider overhead coverage |

Table 2. Solid Waste Storage

| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|---------------|--------------------------|--|---|--|
| Dumpster area | Trash storage & disposal | Debris Trash Green waste Liquid waste | Total organic carbon Cast-off items Garbage Litter | <ul style="list-style-type: none"> • Practice good housekeeping • Train employees • Keep lids closed • Consider berm or enclosure to prevent run-on or runoff • Consider overhead coverage • Conduct periodic inspections • Provide adequate number of containers in good condition • Increase pick-up frequency • Secure area from after-hours dumping • Dry sweep area routinely |

Table 3. Loading and Unloading of Significant Materials

| Area | Activity | Potential Pollutant Source | Type of Pollutant/Quantity | Best Management Practices |
|---------------|---------------------|---|----------------------------|--|
| Loading docks | Loading & unloading | Spilled raw materials and motor fluids Dust & debris | | <ul style="list-style-type: none"> • Load/unload only at designated loading areas • Regular broom dry-sweeping of area • Train material-control staff to inspect incoming vehicles for leaking fluids • Train personnel to respond to spills of materials • Arrange rooftop drains to prevent drainage directly into loading areas • Pave loading areas with concrete instead of asphalt • Cover the loading dock • Avoid placing storm drains in the area • Install curbs/berms around the loading area • Grade the loading area to be sloped to direct flow toward an inlet with a shut-off valve. Keep the valve closed at all times. Use berms or slopes to prevent run-on so that stormwater is not generally directed to the loading area. • Connect the inlet to the sanitary sewer, if allowed by local wastewater authority, and discharge to established limits |

| | | | | |
|--------------|---|-----------------------------|---|--|
| Loading dock | Breakdown of shipping containers, including disposable ones | Binding & packing materials | Litter: Paper, plastic, metal bands, staples, packing materials (styrofoam), cardboard | <ul style="list-style-type: none"> • Cover loading areas • Grade properly & install berms, • Seal door skirt between trailer and building • Divert storm water away from loading areas |
| | Material delivery & storage | Spills Leaks | Soil, pesticides, fertilizers, detergents, plaster, petroleum products, & hazardous chemicals | <ul style="list-style-type: none"> • Minimize on-site storage of hazardous materials • Store equipment and supplies in specifically designated areas with secondary containment, e.g., berms, pallets, & flow diversion • Conduct regular inspections • Train and educate employees & subcontractors |
| | Misuse or spillage of stored materials | Spills Leaks | Various | <ul style="list-style-type: none"> • Label all containers according to their contents (e.g., solvent, gasoline) • Label hazardous substances regarding the potential hazard (corrosive, radioactive, flammable, explosive, poisonous) • Prominently display required labels on transported hazardous and toxic materials (per US DOT regulations) |

| | | | | |
|--------------|--|--|---|---|
| | Transport of drums, containers and storage boxes carrying potential pollutants | Fractured or ruptured containers | Various | <ul style="list-style-type: none"> • Move drums by using a barrel cart or by placing the drum on a pallet and moving it with a forklift • Provide a minimum of two persons to assist forklift operator in transferring a drum to or from a pallet • Secure stacked drums with metallic strapping |
| Loading dock | | | | <ul style="list-style-type: none"> • Retrofit doorways used for loading with rubber or plastic door skirts to provide a strip barrier enclosing and sealing open end of the trailer with the open loading dock door |
| | Loading & unloading | Spills Leaks Accidents Flooding | Vehicular fluids Raw materials-dry and liquid Metal (brake linings) | <ul style="list-style-type: none"> • Maintain forklifts in good condition • Provide SPCC materials • Check trucks for leaks • Dry sweep routinely & practice good housekeeping • Unclog drains & provide grates, as needed • Train employees • Post written instructions& provide a sign-in log • Block stormwater drains during activities • Maintain log of activities |

Table 4. Vehicle Fueling

| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|---|---|--|---|--|
| Fueling area | Re-fueling of vehicles Re-fueling of equipment Replacement of equipment | Spills Leaks Employee habits | Diesel Gasoline Oil/grease Trash Litter | <ul style="list-style-type: none"> • Cover storm drains in the vicinity during transfer • Provide readily accessible spill response equipment • Report spills promptly • Train employees • Consider overhead coverage • Consider concrete surface separated from other areas • Bag trash from break/lunch room • Post “no littering” signs • Secure illegal dumping after hours • Report leaking vehicles to fleet maintenance |
| | | | | <ul style="list-style-type: none"> • Design fueling area to prevent storm water runoff and spills • Cover area and use a perimeter drain or slope pavement inward with drainage to sump; pave area with concrete rather than asphalt. |
| Intake area of underground or aboveground storage tanks | Refilling of storage tanks | | | <ul style="list-style-type: none"> • Store portable absorbent booms (long flexible shafts or barriers made of absorbent material) in unbermed fueling areas |

| | | | | |
|--|--|--|--|---|
| | | | | <ul style="list-style-type: none"> • Use structural controls such as a low-flow sump, oil/water separator, wet pond or infiltration basin so that spilled material is not discharged into the rest of the storm drain system |
| | | | Petroleum compounds, grease, floatable debris, & settleable solids | <ul style="list-style-type: none"> • Use oil/water separators or underground vaults, such as a three-chamber separators, that allow for sedimentation, removal of oil and grease, and prevention of surcharge pressure |
| | | | Settleable solids | <ul style="list-style-type: none"> • Install inlet catch basin equipped with a small sedimentation basin or grit chamber to remove large particles from storm water in highly impervious areas |

Table 5. Landscaping and Groundskeeping

| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|---------------------|--|----------------------------|---------------------------------------|--|
| Throughout property | Landscape irrigation (daily) | Irrigation run-off | Sediment Fertilizers Herbicides | <ul style="list-style-type: none"> • Minimize use of fertilizers and herbicides • Store chemicals off-site by contracted landscaping firm • Train employees |
| | Pruning | Green waste | Total organic carbon | <ul style="list-style-type: none"> • Sweep (dry) and collect for composting or trash removal |
| | Excavating | | Sediment/rocks/sand | <ul style="list-style-type: none"> • Confine excavated materials to pervious surfaces away from sidewalks, pavement, & ditches • Cover piles during rains |
| | Pest control | | Herbicides/pesticides | <ul style="list-style-type: none"> • Plan & implement an Integrated Pest Management system |
| Garage | Equipment fueling Equipment maintenance | | Oil/grease Gasoline Waste oil | <ul style="list-style-type: none"> • Keep spill response materials readily accessible • Perform repairs indoors or on impervious surfaces • Use proper funnel, drains, & pans |

| | | | | |
|-------------------|--|--|--|--|
| Grounds & medians | | | | <ul style="list-style-type: none">• Utilize water delivery rates that do not exceed the infiltration rate of the soil• Periodically observe areas that are watered to identify and correct damaged sprinkler systems, to adjust sprinkler heads, and to identify areas of excess watering and runoff• Where practical, use automatic timers to minimize runoff• Avoid overspray to minimize runoff and contact with equipment in the areas surrounding the targeted landscape• Use fertilizer/herbicide/pesticide in accordance with manufacturer instructions• Prevent overspray or application of chemicals outside of the targeted landscaped area |
|-------------------|--|--|--|--|

Table 6. Vehicle/Equipment Washing

| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|------------------------|----------|---|---|--|
| Outdoor or indoor area | Washing | Vehicle body or engine Equipment | Oil/grease Antifreeze Spent solvents Heavy metals Toxic chemicals | <ul style="list-style-type: none"> • Mark the area clearly as a wash area • Post signs stating that only washing is allowed in wash area • Provide trash container in wash area • Install sumps or drain lines to collect wash water for treatment • Cover the wash area when not in use to prevent contact with rain water • Grade or berm area to prevent run-on • Wash in designated washing facilities • Use phosphate-free and biodegradable products whenever possible • Train staff on proper maintenance measures for the wash area |

Table 7. Parking Lots

| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|--------------|----------|-------------------------------------|---|---|
| Parking lots | | Automobile fluid leaks Trash | Heavy metals: Zn, Cd, Pb, Cu Vehicular fluids: antifreeze, motor oil, brake fluid, steering fluid, gasoline, transmission fluid Litter/debris: rubber, grease, solids, leaves, grass, trash | <ul style="list-style-type: none"> • Regularly broom (dry) sweep parking lot to minimize cleaning with water • Weekly or monthly cleaning of lot with a street sweeper • Provide trash receptacles in parking lot to discourage litter • Clean up fluid spills immediately with absorbent rags or material • Allow sheet runoff to flow into biofilters (vegetated strip and swale) and infiltration devices • Utilize sand filters or oleophilic collectors for oily waste in low quantities. • Arrange rooftop drains to prevent drainage directly onto paved surfaces • Design lot to include semi-permeable hardscape • Install catch basins |

Table 8. Process Water Pretreatment

| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|-------------------|---------------------|----------------------------------|--|---|
| Pretreatment area | Water pre-treatment | Reverse osmosis De-ionization | Water treatment chemicals Water high in TDS (salts) | <ul style="list-style-type: none"> • Train personnel to clean-up spills • Train personnel to wash equipment indoors or to use designated washdown areas • Cover all outdoor process equipment • Provide berms and other secondary containment to prevent waste water from escaping to surrounding impervious surfaces • Route discharge, blowdown, or fugitive leaks to sanitary sewer |

Table 9. Outdoor Equipment Storage

| Area | Activity | Potential Pollutant Source | Type of Pollutant/ | Best Management Practices |
|---------------------------|--------------------|-------------------------------|--|--|
| Outdoor equipment storage | Storage | | Lubricants and other petrochemicals | <ul style="list-style-type: none"> • Drain all lubricants and other petrochemicals prior to storage and dispose of them properly |
| | | | Heavy metals | <ul style="list-style-type: none"> • Inspect equipment weekly for leaks or spills • Cover equipment storage areas and dispose of rainwater inside the berm as a waste |
| Outdoor storage yard | Long-term storage | Leaks Weathering Debris | Rust Hydraulic fluids Oil/grease | <ul style="list-style-type: none"> • Maintain inventory of usable and salable equipment • Remove, recycle, or sell cast-offs as scrap material • Practice good housekeeping • Drain fluids before storage, where feasible, and dispose of them properly • Train employees |
| | Short-term storage | Spills Leaks Run-on | | <ul style="list-style-type: none"> • Train employees • Practice good housekeeping • Isolate area with berms or curbs to protect against run-on • Maintain inventory and rotate materials • Install overhead coverage |

Table 10. Rooftops

| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|------------|------------------------------|---|---|--|
| Roof-HVAC | Cooling | Condensate | Heavy metals: Cu, Zn | |
| Roof | Rain | Runoff | Asphalt aggregate Particulates Heavy metals | <ul style="list-style-type: none"> • Route to recycler • Clean bird droppings |
| Work areas | Rain, air emissions, control | Runoff, specific systems e.g baghouse filters | Particulates Heavy metals | <ul style="list-style-type: none"> • Route downspouts away from work areas and toward lawns • Conduct periodic inspections • Conduct preventative maintenance |
| | Emergency generators | Leaks | Diesel | <ul style="list-style-type: none"> • Conduct periodic inspections • Conduct preventative maintenance |

Table 11. Wastewater Treatment

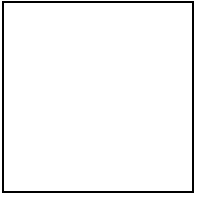
| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|----------|--|----------------------------|---------------------------------------|--|
| Facility | Maintenance activities (pipe/line cleaning) & repair | Overflow events | Bacteria Viruses Fecal coliform | <ul style="list-style-type: none"> • Routinely clean facilities to improve hydraulic capacity • Use vacuum equipment in the case of a spill to divert the sewage from the storm drains • Covering or barricading storm drain inlets and other immediate downstream stormwater conveyance systems • Storing materials away from storm drains • Constructing temporary washout areas • Inspecting equipment for leaks • Collecting and removing waste for proper disposal |

Table 12. Vehicle Maintenance

| Area | Activity | Potential Pollutant Source | Type of Pollutant | Best Management Practices |
|---------------|---------------------------------|----------------------------|---|---|
| Indoor garage | Change oil, routine engine work | engine | Oils, grease, antifreeze, heavy metals, paint | <ul style="list-style-type: none"> • Keep equipment clean; avoid build up of grease and oil • Drain fluids from any retired vehicles stored on site • Inspect equipment in the yard • Maintain the yards storm drain outlets with regular cleanings • Areas are kept clean by “dry” sweeping |
| Outdoor | Change oil, routine engine work | engine | Oils, grease, antifreeze, heavy metals, paint | <ul style="list-style-type: none"> • Keep drip pans or containers under the vehicles at all times • Provide a designated area for vehicle maintenance • Provide berms around storm drains • Cover the work area so as to limit exposure to the rain when not in use |

BMP MANUAL REFERENCE LIST

1. California Stormwater Quality Task Force: *Best Management Practice Handbook—Industrial/Commercial*. March 1993.
2. California State Water Resources Control Board: *Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*, Water Quality Order No. 97-03-DWQ. Sacramento, 1997.
3. City of El Cajon: Community information pamphlets---various.
4. City of Los Angeles Department of Public Works—Bureau of Sanitation Storm Water Program: *Development BMP Handbook, pt. B: Planning Activities*.
5. Cities of Monterey and Santa Cruz: *Model Urban Runoff Program: A How-to Guide for Developing Urban Runoff Programs for Small Municipalities*. July 1998.
6. California Storm Water Task Force: *Retail Gas Stations BMPs*. 1987.
7. City of Sacramento: *Sacramento Storm Water Report: Investigations of Structural Control Measures (Performance Characteristics)*. 1999.
8. City of Sacramento, County of Sacramento: *Guidance Manual for On-Site Stormwater Quality Control Measures*. January 2000.
9. County of Santa Clara: *Hazardous Waste Survival Guide*. Santa Clara, 1994.
10. Fresno Metropolitan Flood Control District: *Model Storm Water Pollution Prevention Plan for Industrial Activities*. Fresno, January 1996.
11. Alameda Countywide Clean Water Program: *California Industrial/Commercial Stormwater Inspection Program Handbook*. Eisenberg, Olivieri, & Associates, Oakland, March 1996.



Appendix E. Sample Inspection Report Form

-SAMPLE-

CITY OF RAVENSWOOD

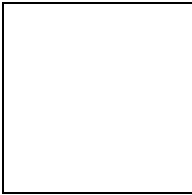
City Inventory No. _____

Watershed _____

**Municipal NPDES Storm Water
Inspection Report**

SIC Code(s) _____

Date _____



I. General Information

Business name _____

Address _____

Responsible person(s) _____

Business telephone _____

After hours telephone _____

Principal industrial activity _____

**Approximate area covered by
industrial activities** _____ **sq. ft.**

% Impervious surfaces in this area _____ **%**

General Industrial Permit? No () Yes () No. _____

No Exposure Certification? No () Yes () No. _____

Other NPDES permit? No () Yes () No. _____

Authorized non-stormwater discharges _____

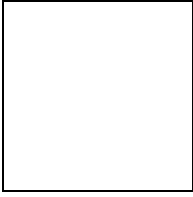
Nearest water body _____

Approximate distance from facility perimeter _____ ft.

-SAMPLE-

II. SWPPP Review

| | Provided? | Accurate? | Revisions Needed |
|---|------------------|------------------|-----------------------------|
| Site Map | | | |
| Materials List | | | |
| Significant Spills & Leaks | | | |
| Pollution Prevention | | | |
| Industrial Activities | | | |
| Pollutant Sources/Risks | | | |
| Compliance Activity Schedule | | | |
| Employee Training | | | |
| SWPPP Accessible to Shop Staff | | | |
| BMPs | | | |



ARE BMPs EFFECTIVE?

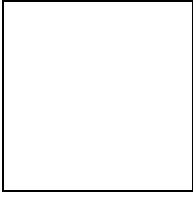
Yes () Go to section V

No () Go to section III

-SAMPLE-

III. BMP Implementation Assessment

| Area | Activity | Observations |
|-------------|-----------------|---------------------|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |
| 8. | | |
| 9. | | |
| 10. | | |



IV. Violations

**The following items are violations of the Ravenswood
Municipal Stormwater Management Ordinance (No. 3333):**

-SAMPLE-

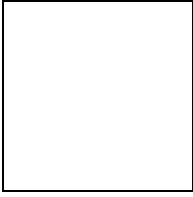
Within _____ consecutive days of the date of this report:

_____ **Complete and sign the enclosed Corrective Action Form, attach
photographic or digital documentation of corrections, and return
these supportive materials to the following office:**

**Ravenswood Stormwater Management Program
3333 Wicker Park Avenue, Suite 3333
Ravenswood, Euphoria 33333**

_____ **Follow-up Visit: Arrange for all responsible parties to be available on
site for the re-inspection scheduled for**

_____.



V. Receipt and Signature

I have received a copy of the Ravenswood Municipal Stormwater Inspection Report:

Representative _____
Name (Print) _____

Date _____
Title _____

Inspector _____
Name (Print) _____

Date _____
Phone _____