

**CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
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DRAFT FACT SHEET

FOR

**DRAFT NPDES GENERAL PERMIT and WASTE DISCHARGE
REQUIREMENTS**

FOR

**STORM WATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE
STORM SEWER SYSTEMS (ORDER)**

ORDER No. XXXX-XXXX-DWQ

This Fact Sheet describes the factual, legal, and methodological basis for the proposed General Permit, provides supporting documentation, and explains the rationale and assumptions used in deriving the limits and requirements.

I. BACKGROUND

History

In 1972, the federal Water Pollution Control Act (also referred to as the Clean Water Act) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the Clean Water Act added § 402(p), which established a framework for regulating storm water discharges under the NPDES Program. Subsequently, in 1990, the U.S. Environmental Protection Agency (U.S. EPA) promulgated regulations for permitting storm water discharges from industrial sites (including construction sites that disturb five acres or more) and from municipal separate storm sewer systems (MS4s) serving a population of 100,000 people or more. These regulations, known as the Phase I regulations, require operators of medium and large MS4s to obtain storm water permits. On December 8, 1999, U.S. EPA promulgated regulations, known as Phase II, requiring permits for storm water discharges from Small MS4s and from construction sites disturbing between one and five acres of land. This Order regulates storm water discharges from Small MS4s.

An MS4 is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) designed or used for collecting or conveying storm water; (ii) which is not a combined sewer; and (iii) which is not part of a Publicly Owned Treatment Works (POTW). [See Title 40, Code of Federal Regulations (40 CFR) §122.26(b)(8).]

A Small MS4 is an MS4 that is not permitted under the municipal Phase I regulations, and which is “owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity....” (40 CFR §122.26(b)(16)). Small MS4s include systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares, but do not include separate storm sewers in very discrete areas, such as individual buildings. This permit refers to MS4s that operate throughout a community as “traditional MS4s” and MS4s that are similar to traditional MS4s but operate at a separate campus or facility as “non-traditional MS4s.”

Federal regulations allow two permitting options for storm water discharges (individual permits and general permits). The State Water Resources Control Board (State Water Board) elected to adopt a statewide general permit for Small MS4s in order to efficiently regulate numerous storm water discharges under a single permit. In certain situations a storm water discharge may be more

appropriately and effectively regulated by an individual permit, a region-specific general permit, or by inclusion in an existing Phase I MS4 permit. In these situations, the Regional Water Quality Control Board (Regional Water Board) Executive Officer will direct the Small MS4 operator to submit the appropriate application, in lieu of a Notice of Intent (NOI) to comply with the terms of this Order. In these situations, the individual or regional permits will govern, rather than this Order.

The existing General Permit (Water Quality Order 2003-0005-DWQ) was adopted by the State Water Board in April 2003 for a 5-year permit term. The existing General Permit expired in May 2008; however, it continues in force and in effect until a new General Permit is issued or the State Water Board rescinds it.

Small MS4s currently authorized to discharge under Water Quality Order 2003-0005-DWQ are automatically covered by this Order. Other Small MS4s must file for coverage under this Order. The Order accompanying this fact sheet regulates storm water runoff from small municipalities including federal and State operated facilities that can include universities, prisons, hospitals, military bases (e.g. State Army National Guard barracks, parks and office building complexes.) Regulating many storm water discharges under one permit will greatly reduce the administrative burden associated with permitting individual storm water discharges. Permittees obtain coverage under this Order by filing an electronic NOI through the State Water Board's Stormwater Multiple Application and Report Tracking System (SMARTS) and by mailing the appropriate permit fee to the State Water Board.

Order Goals

The goals for the Order development process included:

1. Ensure statewide consistency for Regulated Small MS4s.
2. Include more specificity in Order language and requirements to streamline review and approval of storm water programs.
3. Implement and enhance actions to control 303(d) listed pollutants, pollutants of concern, and achieve Waste Load Allocations adopted under Total Maximum Daily Loads.
4. Implement more specific and comprehensive storm water monitoring, including monitoring for 303(d) listed pollutants.
5. Incorporate emerging technologies, especially those that are being increasingly utilized by municipalities (e.g., low impact development).
6. Include program elements that address Program Management, Industrial/Commercial Inspection and Effectiveness Assessments.
7. Implement a step-wise Stakeholder collaborative approach.

Stakeholder Collaborative Process

State Water Board staff conducted a series of stakeholder meetings with Permittees and other interested parties over a three year period, from 2007-2010.

These meetings included the Stormwater Quality Association (CASQA) Phase II Small MS4 Subcommittee, representatives of non-governmental organizations, and Regional Water Board staff. The following is a summary of the lengthy stakeholder process.

Stage I – Stakeholder Analysis

a. Stakeholder Analysis Meetings

State Water Board staff held stakeholder interviews. The purpose of the interviews was to engage interested stakeholders in the re-issuance process and identify General Permit goals.

b. Kick-Off Meeting

The Kick-off Meeting introduced key staff members representing the State Water Board, Regional Water Boards, CASQA, and consultants involved in the General Permit re-issuance process.

c. Developed a “Collaborative Process Plan” to engage stakeholders in the development of the Order and define rules for the collaborative process.

d. Stakeholder Collaborative Meetings

The purpose of the meetings were to discuss and define specific issues, generate options, and work collaboratively to solve problems to meet the Order goals (above).

Stage II – Order Development

a. Synthesize information from stakeholder collaborative meetings.

b. State Water Board staff develop permit language.

II. PERMITTING APPROACH

Existing General Permit Approach

U.S. EPA storm water regulations for Phase II storm water permits envisioned a process in which entities subject to regulation would develop a SWMP. The SWMP contained detailed Best Management Practices (BMPs) and specific level-of-implementation information and is reviewed and approved by the permitting agency before it can obtain coverage under the storm water permit. The existing General Permit followed this approach as suggested by U.S. EPA. The General Permit was very basic and permit language simply identified goals and objectives for each of the six Minimum Control Measures.

The existing General Permit approach provided the flexibility to target an MS4's problem areas while working within the existing organizational structure. However, audits of Permittees and information gained from interviews with Regional Water Board staff revealed that many of these storm water programs lacked a baseline program and specific details in the SWMP to implement an adequate program for protection from the impacts of storm water runoff. Regional Water Board staff found it difficult to determine Permittees' compliance with the existing General Permit, due to the lack of specific requirements. The permit language did not contain specific deadlines for compliance, did not incorporate clear performance standards, and did not include measurable goals or quantifiable targets for implementation.¹

The Regional Water Boards have conducted approximately 36 on-site audits of MS4 programs² in the state that addressed 122 Permittees, including some Phase II Small MS4s. They found that programs with more specific permit requirements generally resulted in more comprehensive and progressive storm water management programs. For example, the more prescriptive permit requirements in the Los Angeles and San Diego MS4 permits require Permittees to be more specific in how they implement their storm water program. Programs with more general storm water permit requirements, where the emphasis is on implementation of a storm water management plan, were generally not as comprehensive as those with more specific permit requirements. The auditors concluded that the specificity of the provisions enabled the permitting authorities to enforce the MS4 permits and improve the quality of MS4 discharges. In addition, over the last ten years, U.S. EPA has conducted on-site audits of MS4s throughout the nation. The audit findings have repeatedly shown the need for clear, measurable requirements in MS4 permits to ensure an effective and enforceable program.

Given this information, State Water Board staff aimed to write permit language that was clear enough to set appropriate standards and establish required outcomes.

Current Order Approach

Minimum measures have been established to simplify assessment of compliance and allow the public to more easily assess each Permittee's compliance. The Order provisions establish the required actions, minimum implementation levels (i.e., minimum percentage of facilities inspected annually, escalating enforcement, reporting requirements for tracking projects, etc.), and specific reporting elements to substantiate that these implementation levels have been addressed. Regional Water Board staff will be able to evaluate each individual Permittee's compliance through an online Annual Report review and the program evaluation (audit) process.

¹ Storm water Phase I MS4 Permitting: Writing more effective, measurable permits, EPA, Kosco

² Assessment Report on Tetra Tech's Support of California's MS4 Storm Water Program, July 2006

Recent court decisions have reiterated that federal regulations and State law require that the implementation specifics of Municipal Stormwater NPDES permits be adopted after adequate public review and comment, and that no significant change in the permit requirements except minor modifications can occur during the permit term without a similar level of public review and comment.³ This Order's approach satisfies the public involvement requirements of both the federal Clean Water Act and the California Water Code. The permit details are known at the time of adoption of the Order, and the public is not left to guess certain program details until review and approval of a SWMP by a Regional Water Board as was the case in the existing General Permit.

This Order specifies the actions necessary to reduce the discharge of pollutants in storm water to the Maximum Extent Practicable (MEP), in a manner designed to achieve compliance with water quality standards and objectives, and effectively prohibit non-storm water discharges into municipal storm drain systems and watercourses within the Permittees' jurisdictions. This set of specific actions is equivalent to the requirements that were included in a separate SWMP for each Permittee in the existing General Permit.

This Order contains compliance tiers to address the diverse class of MS4 Permittees. In California, MS4 Permittees face highly variable conditions both in terms of threats to water quality from their storm water discharges and resources available to manage those discharges. Consequently, making one set of prescriptive requirements work for all of them is inherently difficult. The existing General Permit SWMP provisions allow for appropriate adjustment of requirements, while admittedly burdening Regional Boards with significant procedural requirements. This permit introduces the concept of compliance tiers, which will relieve the Regional Water Board burden of reviewing and approving SWMPs individually, while preserving the ability of the Permittees to tailor requirements that address its unique circumstances. The compliance tiers are described in Section E and identify the specific provisions which all New and Renewal Traditional MS4 Permittees must comply with.

In some cases, a Regional Water Board Executive Officer may determine a Renewal MS4 Permittee's current implementation of their storm water program BMPs meets the MEP standard and is equally or more effective at reducing pollutant discharges than implementation of the requirements of this Order. As a result, the Executive Officer may require continued implementation of the Permittee's current storm water BMPs and reporting requirements in lieu of implementation of the requirements of this Order.

³ On January 14, 2003, the U.S. Ninth Circuit Court issued a decision in *Environmental Defense Center v. EPA*. This ruling upheld the Phase II regulations on all but three of the 20 issues contested. The court determined that applications for general permit coverage (including the NOI and any Storm Water Management Program [SWMP]) must be made available to the public, the applications must be reviewed and determined to meet the Maximum Extent Practicable (MEP) standard by the permitting authority before coverage commences, and there must be a process to accommodate public hearings.

On February 28, 2005, the Second Circuit Court of Appeals held that USEPA's confined animal feeding operation (CAFO) rule violated the Clean Water Act because it allowed dischargers to write their own nutrient management plans without public review. (*Waterkeeper Alliance v. USEPA* (2d Cir. 2005) 399 F.3d 486.)

This Order also distinguishes between very small Traditional MS4 Permittees with a population of 5,000 or less. These very small Traditional MS4 Permittees must comply with Table 1 of the Order because they resemble that of a Non-traditional MS4. However, an important factor that must be considered is whether these very small Traditional MS4 Permittees are incorporated or with a population of 5,000 or less. A very small Traditional MS4 Permittee in an unincorporated area would likely rely on the outlying county storm water program to provide municipal services. In this case, these very small Traditional MS4 Permittees should be a co-permittee of the surrounding county-wide storm water program. However, if the Traditional MS4 is incorporated and with a population greater than 5,000, these Permittees shall comply with the over 5,000 population New Traditional MS4 Permittee provisions as specified in Section E.

*Non-traditional MS4 and Traditional MS4s with a population of 5,000 or less
Categories and Provisions*

The provisions identified in Section E of the Order are not entirely applicable to Non-traditional MS4 Permittees. Therefore, this Order identifies which specific provisions Non-traditional MS4 Permittees must comply with. This Order divides Non-traditional MS4s into several different categories as follows:

- Fairgrounds
- Flood Control Management Agencies
- Higher Education Institutions (Community Colleges and Universities)
- Military Bases
- State Parks/Beaches/Historical Areas
- Ports
- School Districts K-12, including Charter Schools
- State and Federal Prisons/Health Institutions
- State Vehicle Recreation Areas
- Transit Agencies (Heavy Rail)

Establishing these categories acknowledges the diversity among Non-traditional MS4 Permittees. To account for their diversity, the Order identifies specific provisions from Section E that Non-traditional MS4 Permittees must comply with in Table 1 of the Order.

Summary of Significant Changes in this Order

This Order significantly differs from the previous order (Order 2003-0005-DWQ) by including the following:

- Specific BMP and Management Measure Requirements
- Eliminate submission of a SWMP for review and approval by the Regional Water Boards

- Electronic filing of NOIs and Annual Reports
- Waiver Certification
- New automatic designation criteria
- Compliance tiers identifying specific provisions
- New program management requirements and Industrial/Commercial Inspection Program
- Watershed-based approach to post-construction storm water management
- TMDL implementation requirements
- Water quality monitoring and BMP assessment
- Program effectiveness assessment
- Trash reduction program

III. ECONOMIC CONSIDERATIONS

Cost of Compliance

In establishing the regulations for the Phase II small MS4 storm water program (64 Federal Register 68732, December 8, 1999), USEPA clarified that the MEP standard should be applied in a site-specific, flexible manner, taking into account cost considerations as well as water quality effects. Permittees are expected to incur incremental costs in implementing the BMPs required by this Order, such as the cost of complying with the Standard Urban Stormwater Mitigation Plans (SUSMP) [State Water Board Order WQ 2000-11, October 5, 2000], post-construction, hydromodification, and Low Impact Development requirements. Permittees will also incur additional costs in bringing non-compliant discharges into compliance through the iterative process. The cost of complying with TMDL waste load allocations is not considered since TMDLs are not subject to the MEP standard.

In adopting Order WQ 2000-11, the State Water Board found that costs should be considered in determining MEP, but that a cost-benefit analysis is not required. The State Water Board has considered the costs to Dischargers of compliance with this Order and made every attempt to leverage and give credit for other required actions that are expected to yield storm water benefits.

The State Water Board further found in adopting Order WQ 2000-11 that in considering the cost of compliance, it is also important to consider the costs of impairment; that is, the negative impact of pollution on the economy and the positive impact of improved water quality. So, while it is appropriate and necessary to consider the cost of compliance, it is also important to consider the larger economic impacts of implementation of the storm water management program. For example, economic benefits may result through program implementation, and alternative costs (as well as environmental impacts) may be incurred by not fully implementing the program.

It is very difficult to precisely determine the true cost of implementation of the Permittees' storm water management program as affected by this Order. A study

by the Los Angeles Regional Water Board reported wide variability in the cost of compliance among municipal permit holders, which was not easily explained.⁴ Due to the wide diversity among the Permittees, Traditional and Non-traditional MS4s, the uncertainty of the extent of needed improvements, and the difficulty in isolating program costs attributable to permit compliance, the true cost of implementation can only be discussed in a general way.

Many studies have been undertaken to assess the cost of compliance with storm water permits. In 1999, U.S. EPA reported on multiple studies it conducted to determine the cost of urban runoff management programs. A study of Phase II municipalities determined that the annual cost of the Phase II program was estimated to be \$9.16 per household.⁵ The same reference also included a study of 35 Phase I municipalities, finding costs to be similar to those anticipated for Phase II municipalities, at \$9.08 per household annually.

A program cost study was also conducted by the Los Angeles Water Board, where program costs reported in the municipalities' annual reports were assessed. The Los Angeles Water Board estimated the average per household cost to implement the MS4 program in Los Angeles County was \$12.50⁶.

The State Water Board also commissioned a study by California State University, Sacramento to assess costs of the Phase I MS4 program. This study found annual cost per household ranged from \$18-46, with the City of Encinitas representing the upper end of the range.⁷ The cost of the City of Encinitas' program is understandable, given the city's coastal location, reliance on tourism, and additional costs resulting from a consent decree with environmental groups regarding its program. For these reasons, as well as the general recognition the city receives for implementing a superior program, the city's program cost can be considered as the high end of the spectrum for municipal storm water management program costs.

It is important to note that storm water program costs are not all attributable to compliance with MS4 permits. Many program components and their associated costs existed before any MS4 permits were issued. For example, storm drain maintenance, street sweeping and trash/litter collection costs cannot be solely or even principally attributable to MS4 permit compliance since these practices have long been implemented before the MS4 permit was issued. Even many structural BMPs (erosion protection, energy dissipation devices, detention basins etc.) are standard engineering practice for many projects and are not implemented solely to comply with permit provisions. Therefore, the true cost resulting from MS4 permit requirements is some fraction of the total storm water program costs.

The California State University, Sacramento study found that only 38% of program costs are new costs fully attributable to MS4 permits. The remainder of program

⁴ LARWQCB, 2003. Review and Analysis of Budget Data Submitted by the Permittees for Fiscal Years 2000-2003. p.2

⁵ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791-68792.

⁶ Review and Analysis of Budget Data Submitted by the Permittees for Fiscal Years 2000 – 2003, LA Co. MS4 Permit, LA Water Board, January 2003

⁷ State Water Board, 2005. NPDES Storm water Cost Survey. P. ii

costs were either pre-existing or resulted from enhancement of pre-existing programs.⁸ The County of Orange found that even lesser amounts of program costs are solely attributable to MS4 permit compliance, reporting that the amount attributable to implement its Drainage Area Management Plan is less than 20% of the total budget. The remaining 80% is attributable to pre-existing programs.⁹ Any increase in cost to the Permittees by the requirements of this Order will be incremental in nature.

Storm water management programs cannot be considered solely in terms of their costs. The programs must also be viewed in terms of their value to the public. For example, household willingness to pay for improvements in fresh water quality for fishing and boating has been estimated by USEPA to be \$158-210.¹⁰ This estimate can be considered conservative, since it does not include important considerations such as marine waters benefits, wildlife benefits, or flood control benefits. The California State University, Sacramento study corroborates USEPA's estimates, reporting annual household willingness to pay for statewide clean water to be \$180.¹¹ Though these costs may be assessed differently at the state level than at the municipal level, the results indicate that there is public support for storm water management programs and that costs incurred by the Permittees to implement its storm water management program remain reasonable.

It is also important to consider the cost of not implementing a storm water management program. Urban runoff in southern California has been found to cause illness in people bathing near storm drains.¹² A study of south Huntington Beach and north Newport Beach found that an illness rate of about 0.8% among bathers at those beaches resulted in about \$3 million annually in health-related expenses.¹³ Extrapolation of such numbers to the beaches and other water contact recreation areas in the state would increase these numbers significantly.

Storm water runoff and its impact on receiving waters also negatively affects the tourism industry. The California Travel and Tourism Commission estimated that out-of-state visitors spent \$168 per person per day (including transportation) in California in 2007. The Commission estimated total direct travel spending in California was \$97.6 billion, directly supporting 924,000 jobs, with earnings of \$30.6 billion. Effects on tourism from storm water runoff (e.g. beach closures) can have a significant impact on the economy. The experience of Huntington Beach provides an example of the potential economic impact of poor water quality. Approximately eight miles of Huntington Beach were closed for two months in the middle of summer of 1999, impacting beach visitation and the local economy.

⁸ Ibid. P. 58.

⁹ County of Orange, 2000. A NPDES Annual Progress Report. P. 60. More current data from the County of Orange is not used in this discussion because the County of Orange no longer reports such information.

¹⁰ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68793.

¹¹ State Water Board, 2005. NPDES Storm water Cost Survey. P. iv.

¹² Haile, R.W., et al, 1996. An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay. Santa Monica Bay Restoration Project.

¹³ Los Angeles Times, May 2, 2005. Here's What Ocean Germs Cost You: A UC Irvine Study Tallies the Cost of Treatment and Lost Wages for Beachgoers Who Get Sick.

Finally, it is important to consider the benefits of storm water management programs in conjunction with their costs. A study conducted by USC/UCLA assessed the costs and benefits of implementing various approaches for achieving compliance with the MS4 permits in the Los Angeles Region. The study found that non-structural systems would cost \$2.8 billion but provide \$5.6 billion in benefit. If structural systems were determined to be needed, the study found that total costs would be \$5.7 to \$7.4 billion, while benefits could reach \$18 billion.¹⁴ Costs are anticipated to be borne over many years – probably ten years at least. As can be seen, the benefits of the programs are expected to considerably exceed their costs. Such findings are corroborated by USEPA, which found that the benefits of implementation of its Phase II storm water rule would also outweigh the costs.¹⁵

IV. ROLE OF THE REGIONAL WATER BOARDS

Regional Water Board staff will continue to have the authority to evaluate each individual Permittee's compliance through online Annual Report review and the program evaluations (audits). These evaluations can either be targeted or comprehensive evaluations. Regional Water Board staff are also responsible for oversight of implementation and compliance with this Order. As appropriate, they can require modification to programs and other submissions, impose region-specific monitoring requirements, conduct inspections, take enforcement actions, and make additional designations of Regulated Small MS4s. They may also issue individual permits to Regulated Small MS4s, and alternative general permits to categories of Regulated Small MS4s. Upon issuance of such permits by a Regional Water Board, this Order shall no longer regulate the affected MS4s.

The Permittees and Regional Water Boards are encouraged to work together to accomplish the goals of the storm water program. Specifically, they can coordinate the oversight of construction and industrial sites. For example, certain Permittees are required to implement a construction program that must include procedures for construction site inspection and enforcement. Construction sites disturbing an acre of land or more are also subject to inspections by the Regional Water Board under the State Water Board's Construction General Permit for Storm Water Discharges associated with Construction and Land Disturbance Activities (CGP). USEPA intended to provide a structure that requires permitting through the federal Clean Water Act while at the same time achieving local oversight of construction projects. A structured plan review process and field enforcement at the local level, which is also required by this Order, were cited in the preamble to the Phase II regulations as the most effective components of a construction program.

Similarly, as part of the Illicit Discharge Detection and Elimination program, the Permittee may inspect facilities that are permitted by the Statewide General Permit for Discharges of Storm Water Associated with Industrial Activity (IGP) and subject to Regional Water Board inspections.

¹⁴ LARWQCB, 2004. Alternative Approaches to Storm water Control.

¹⁵ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791.

The Permittees and Regional Water Boards are encouraged to coordinate efforts and use each of their enforcement tools in the most effective manner. However, in order to further ensure coordination, this Order requires Permittees to include procedures for referring non-filers and violations of the storm water general permits to the Regional Water Board when observed.

V. ENTITIES SUBJECT TO THIS ORDER

This Order regulates discharges of storm water from Regulated Small MS4s. A Regulated Small MS4 is a Small MS4 that has been designated as regulated in accordance with criteria described in 40 CFR 122.32.

a. Renewal Permittee - Traditional and Non-traditional MS4s

All Traditional and Non-traditional MS4s currently covered under the existing General Permit are covered under this Order as identified in Attachment A.

b. New Traditional MS4 Permittee or New Urbanized Areas

In some cases, the urbanized boundaries and/or infrastructure of previously permitted Traditional MS4 Permittees may expand to include new areas designated as urbanized under the 2010 U.S. Decennial Census (e.g., when new areas are annexed within the urbanized area). Permittees must identify and include these new urbanized area as part of their existing storm water program. Any new urbanized areas must be indicated on Permittees storm drain system map.

In addition, based on the 2010 U.S. Decennial Census and the addition of new areas meeting the definition of an Urbanized Area based on that Census, New Traditional MS4s will be subject to the Order as identified in Attachment B.

New Traditional MS4 Permittees that are outside of Urbanized Areas have been designated as Regulated Small MS4s based on one or more of the following criteria developed by the Board:

- 1) High Population Density – High population density means an urbanized area with greater than 1,000 residents per square mile. This includes high densities created by a non-residential population, such as tourists or commuters.
- 2) High growth or growth potential – If an area grew by more than 25 percent between 2000 and 2010 it is a high growth area. If an area anticipates a growth rate of more than 25 percent over a 10-year period ending prior to the end of the second permit term, it has high growth potential.

- 3) Significant contributor of pollutants to waters of the U.S. – Specific local conditions in the MS4 may lead to significant contributions of pollutants to waters of the U.S. An example may be the presence of a large transportation industry.
- 4) Discharge to sensitive water bodies – Sensitive water bodies are receiving waters, which are a priority to protect. They include the following:
 - a) Areas of Special Biological Significance (as identified in Attachment D).
 - b) Those located within the habitat areas of the following (as identified Attachment E):
 - Chinook Salmon
 - Coho Salmon
 - Steelhead Trout
 - c) Beaches that serve more than 50,000 people between April 1 and October 31 and are adjacent to flowing storm drains or creeks as identified in Attachment F.

Additional criteria to qualify as a sensitive water body may exist and may be determined by the State or Regional Water Boards on a case-by-case basis at any time during the General Permit term.

All the above factors were considered when evaluating whether an MS4 outside an Urbanized Area should be regulated pursuant to this Order. An MS4 and the population that it serves need not meet all of the factors to be designated. The criteria selected to designate MS4s to be regulated are based on the potential to impact water quality due to conditions influencing discharges into their system or due to their discharge location(s).

Specifically, the high growth factor uses 25 percent growth over ten years using the latest U.S. Decennial Census data. Other various data sources from EPA, Department of Fish and Game, and National Oceanic and Atmospheric Administration – National Marine and Fisheries Service were used to determine designation criteria in this Order.

Finally, Traditional MS4s that are significant contributors of pollutants to an interconnected permitted MS4 are Regulated Small MS4s. An MS4 is interconnected with a separately permitted MS4 if storm water that has entered the MS4 is discharged to another permitted MS4. In general, if the

MS4 discharges more than 10 percent of its storm water to the permitted MS4, or its discharge makes up more than 10 percent of the other permitted MS4's total storm water volume, it is a significant contributor of pollutants to the permitted MS4. In specific cases, the MS4s involved or third parties may show that the 10 percent threshold is inappropriate for the MS4 in question.

The definition for significant contributor of pollutants to an interconnected permitted MS4 uses a volume of 10 percent, with the assumption that storm water contains pollutants. This is meant to capture flows that may affect water quality or the permit compliance status of another MS4, but exclude incidental flows between communities.

c. New Non-traditional MS4 Permittees

Non-traditional MS4s include universities, prisons, hospitals, military bases (e.g., State Army National Guard barracks), and State parks.

The existing General Permit, Water Quality Order 2003-0005-DWQ, Attachment 3 listed Non-traditional MS4s anticipated to be designated by the end of the permit term, either by the State or Regional Water Boards. However, some Non-traditional MS4s were not designated. All Non-traditional MS4s, except K-12 School Districts, not yet designated are now subject to this Order. These entities are listed in Attachment C.

K-12 School Districts, including Charter schools are listed on Attachment E and are not automatically designated. A Regional Water Board can designate a School District at their discretion any time during the term of the permit.

Additional Non-traditional MS4 Permittees have been designated as Regulated Small MS4s in accordance with the same criteria described in b above.

VI. APPLICATION REQUIREMENTS

All Regulated Small MS4s listed in Attachments A, B, and C are automatically designated upon adoption of this Order. To file for coverage, Permittees must electronically file an NOI on the State Water Board's SMARTS website and mail the appropriate permit fee to the State Water Board:

<https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>

The NOI will include a statement that the discharger intends to comply with the BMP requirements of the Order in lieu of proposing BMP practices. Permittees must file within two months of effective date (100 days after adoption by the State Water Board.)

Co-Permittees or Permittees relying on Separate Implementing Entities must also electronically file an NOI via SMARTS and mail the appropriate fee to the State Water Board.

For fee purposes, in determining the total population served by the MS4, both resident and commuter populations are to be included. For example, publicly operated school complexes including universities and colleges, the total population served would include the sum of the average annual student enrollment plus staff.

For flood control or community services districts, the total population served would include the resident population and any non-residents regularly employed in the areas served by the district.

Regulated Small MS4s that fail to obtain coverage under this Order or other NPDES permit for storm water discharges will be in violation of the Clean Water Act and the California Water Code.

The Order includes State and Regional Water Board contact information for questions and submittals.

Waiver Certification

This Order allows Regulated Small MS4s to waive requirements. Regulated Small MS4 must certify (1) their discharges do not cause or contribute to, or have the potential to cause or contribute to, a water quality impairment, and (2) they meet one of the following waiver options:

a. Traditional MS4s

(1) Option 1

- (a) the jurisdiction served by the system is less than 1,000 people;
- (b) the system is not contributing substantially to the pollutant loadings of a physically interconnected Regulated Small MS4; and
- (c) if the small MS4 discharges any pollutants identified as a cause of impairment of any water body to which it discharges, storm water BMPs are not needed based on waste load allocations that are part of an EPA approved or established TMDL that addresses the pollutant(s) of concern.

(2) Option 2

- (a) the jurisdiction served by the system is less than 10,000 people;
- (b) an evaluation of all waters of the U.S. that receive a discharge from the system shows that storm water BMPs are not needed based on wasteload allocations that are part of an EPA approved or established

TMDL that addresses the pollutant(s) of concern or an equivalent analysis; and

- (c) it is determined that future discharges from the Regulated Small MS4 do not have the potential to result in exceedances of water quality standards.

(3) Option 3

- (a) Small Disadvantaged Community – a community with a population of 20,000 or less with an annual median household income (MHI) that is less than 80 percent of the statewide annual MHI (CWC § 79505.5 (a)).

b. Non-traditional MS4s -

- (1) Parks with an average of 5,000 visitors per day or less.

VII. PROJECT PLANNING AND DESIGN REQUIREMENTS FOR NEW AND REDEVELOPMENT PROJECTS

This Order incorporates the post-construction requirements of the CGP and the new and re-development requirements in existing Phase I MS4 permits. It also creates the framework for emerging approaches to managing storm water on a watershed basis (e.g., Central Coast Joint Effort¹⁶).

VIII. DISCHARGE PROHIBITIONS

Storm Water Discharges

This Order authorizes storm water and conditionally exempt non-storm water discharges¹⁷ from the Permittees' MS4s subject to effluent and receiving water limitations. This Order prohibits the discharge of material other than storm water, unless specifically authorized in this Order.

Non-Storm Water Discharges

§ 402(p)(3)(B)(ii) of the Clean Water Act requires that MS4 permits include a requirement to effectively prohibit non-storm water discharges into the storm sewers.

Non-storm water discharges that are not specifically exempted by this Order are subject to the existing regulations for point source discharges. Conditionally exempt non-storm water discharges that are found to be significant sources of pollution are prohibited.

¹⁶ The Central Coast Joint Effort is a collaborative, region-wide, watershed-based approach municipalities are using to implement Low Impact Development and Hydromodification Control.

See: http://www.swrcb.ca.gov/rwqcb3/water_issues/programs/stormwater/docs/lid/lid_hydromod_charette_index.shtml

¹⁷ Conditionally exempt non-storm water also refers to authorized non-storm water.

Areas of Special Biological Significance

State Water Board adopted the California Ocean Plan (Ocean Plan) on July 6, 1972 and revised the Ocean Plan in 1978, 1983, 1988, 1990, 1997, 2000, 2005 and 2009. The Ocean Plan prohibits the discharge of waste to designated Areas of Special Biological Significance (ASBS). ASBS are areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.

The Ocean Plan states that the State Water Board may grant an exception to Ocean Plan provisions where the State Water Board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

On October 18, 2004, the State Water Board directed several dischargers to cease the discharge of storm water and nonpoint source waste into ASBS, or request an exception to the Ocean Plan. Several of these dischargers are designated as Regulated Small MS4s.

On (insert date), the State Water Board adopted Resolution (insert resolution) granting an exception from the Ocean Plan prohibition to 13 parties (Attachment H) designated as Regulated Small MS4s. In order to legally discharge into an ASBS, the parties must comply with the terms of the exception and have an appropriate authorization to discharge. Authorization for point source discharges to ASBS consists of coverage under this NPDES General Permit.

The parties authorized to discharge under the general exception are listed in Attachment H. The general exception contains "Special Protections" to protect the beneficial uses of and maintain natural water quality in ASBS. As a result, parties listed in Attachment H can legally discharge waste, limited by the special conditions in the resolution, into ASBS as long as the discharges are also regulated under the Order.

VIII. EFFLUENT LIMITATIONS

In 2004, The State Water Board assembled a blue ribbon panel to address the feasibility of including numeric effluent limits as part of NPDES municipal, industrial, and construction storm water permits. The panel issued a report dated June 19, 2006, which included recommendations as to the feasibility of including numeric limits in storm water permits, how such limits should be established, and what data should be required.

The report concluded that "It is not feasible at this time to set enforceable numeric effluent criteria for municipal BMPs and in particular urban discharges. However, it is possible to select and design them much more rigorously with respect to the physical, chemical and/or biological processes that take place within them, providing more confidence that the estimated mean concentrations of constituents

in the effluents will be close to the design target.” Therefore, this Order requires Permittees to implement BMPs in order to reduce pollutant in storm water to MEP.

X. RECEIVING WATER LIMITATIONS

In Order WQ 98-01, the State Water Board prescribed specific precedent setting Receiving Water Limitations language to be included in all future MS4 permits. This language specifically requires that MS4 dischargers meet water quality standards or water quality objectives (collectively, WQS) and allows for the use of BMPs (increasing in stringency and implemented in an iterative process) as the mechanism by which water quality standards can be met.

In Order WQ 99-05, the State Water Board modified the receiving water limitations language in Order WQ-98-01 to meet specific objections by the U.S. EPA (the modifications resulted in stricter compliance with water quality standards). Storm water discharges shall not cause or contribute to a violation of an applicable water quality standard.

This Order’s Receiving Water Limitations language is consistent with State Water Board Order WQ-99-05. Receiving Water Limitations apply to all Permittees subject to this Order.

XI. STORM WATER MANAGEMENT PROGRAM FOR TRADITIONAL MS4s

PROGRAM ELEMENTS

Adequate Legal Authority

Legal Authority: Clean Water Act § 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B).

Adequate legal authority is required to implement and enforce the Permittees’ storm water programs. Without adequate legal authority, Permittees would be unable to perform many vital program elements such as performing inspections and requiring installation of control measures. In addition, Permittees would not be able to conduct enforcement activities, assess penalties and/or recover costs of remediation.

Program Management

This component is essential to ensure that all elements of the storm water program are implemented on schedule and are consistent with the Order requirements. Lessons learned in California from Phase I MS4s and various municipal audits are that a Program Management element can:

- a. Identify departments that assist with the implementation of the program as well as their roles and responsibilities;

- b. Maintain and enforce adequate legal authority to control pollutant discharges; and
- c. Identify the expenditures necessary to implement the program.

Enforcement Response Plan

Legal Authority: Clean Water Act § 40 CFR 122.26(d)(2)(i).

Permittees are required to include in their ordinance, or other regulatory mechanism, penalty provisions to ensure compliance with construction and industrial requirements, to require the removal of illicit discharges, and to address noncompliance with post-construction requirements. To meet these requirements, this Order requires enforcement responses that vary with the type of permit violation, and escalate it if violations are repeated or not corrected. The Permittee must develop and implement an Enforcement Response Plan (ERP), which clearly describes the action to be taken for common violations associated with the construction program, industrial and commercial program, or other program elements. A well-written ERP provides guidance to inspectors on the different enforcement responses available, actions to address general permit non-filers, when and how to refer violators to the State, and how to track enforcement actions.

Secure Adequate Resources

Legal Authority: Clean Water Act § 40 CFR 122.26(d)(2)(vi).

To assess whether adequate resources have been allocated to carry out the requirements of this Order, Permittees must submit an accounting of storm water-related budgets, costs, and staffing resources. The fiscal analysis should document and explain changes to budgets from year to year and describe how each type of funding can and cannot be used for storm water program activities. The online Annual Report will help the Regional Water Boards understand the resources that are dedicated for compliance with this Order, to implement and enforcement the program elements, and to track how this changes over time.

Public Education and Outreach on Storm Water Impacts

Legal Authority: Clean Water Act § 40 CFR 122.34(b)(1),(2)).

Without a focused and comprehensive program, outreach and education efforts will likely be poorly coordinated and possibly ineffective. This Order requires Permittees to develop a public education and outreach program that is tailored and targeted to specific water quality issues of concern in the community. These community-wide and targeted issues should then guide the development of the comprehensive outreach program, including the creation of appropriate messages and educational materials.

This Order requires the implementation of Community-Based Social Marketing (CBSM). CBSM is a systematic way to change the behavior of communities to reduce their impact on the environment. Simply providing information is usually not

sufficient to initiate behavior change. CBSM uses tools and findings from social psychology to discover the perceived barriers to behavior change and ways of overcoming these barriers.¹⁸

This Order also includes a list of potential residential and commercial sources, but the Permittee may also identify other sources that contribute significant pollutant loads to the MS4. The Order identifies specific pollutant generating activities that must be addressed, including charity car washes, mobile cleaning and power washing operations, and landscape over-irrigation.

The Permittee is encouraged to use existing public educational materials in its program. The Permittee is also encouraged to leverage resources with other agencies and municipalities with similar public education goals.

In addition, this Order requires storm water education for school-age children. The Permittee is encouraged to use California's Education and Environment Initiative Curriculum (EEI)¹⁹ or equivalent. California's landmark EEI Curriculum is a national model designed to help prepare today's students to become future scientists, economists, and green technology leaders.

The K-12th grade curriculum is comprised of 85 units teaching select Science and History-Social Science academic standards. Each EEI Curriculum unit teaches these standards to mastery using a unique set of California Environmental Principles and Concepts. The EEI curriculum was created to bring education about the environment into the primary and secondary classrooms of more than 1,000 school districts serving over 6 million students throughout California. Classroom education plays an integral role in any storm water pollution outreach program. Providing storm water education through schools conveys the message not only to students but to their parents. Permittees should partner with educators and experts to develop storm water-related programs for the classroom. These lessons need not be elaborate or expensive to be effective.

The Permittees' role is to support a school district's storm water education efforts, not to dictate what programs and materials the school should use. Permittees should work with school officials to identify their needs. For example, if the schools request storm water outreach materials, Permittees can provide a range of educational aids, from simple photocopied handouts, overheads, posters and slide shows, to more costly and elaborate working models and displays.

The principal goal of any public education and outreach effort is to change behavior. The Permittee should develop a process to assess how well its public education and outreach programs is changing public awareness and behavior and to determine what changes are necessary to make its public education program more effective. The Permittee is encouraged to use a variety of assessment methods to evaluate the effectiveness of different public education activities. The

¹⁸ A variation of social marketing, referred to as CBSM by Canadian environmental psychologist Doug McKenzie-Mohr.

¹⁹ <http://www.californiaeei.org/>

first evaluation assessment must be conducted before the final year of the Permittee's coverage under this permit, before the next permit is issued. Permittees should coordinate their evaluation assessment with other Permittees on a regional level to determine how best to get the regional message out and how to facilitate behavior changes.

Public Involvement/Participation

Legal Authority: Clean Water Act § 40 CFR 122.34(b)(1),(2).

Storm water management programs can be greatly improved by involving the community throughout the entire process of developing and implementing the program. Involving the public benefits both the Permittee as well as the community. By listening to the public's concerns and coming up with solutions together, the Permittee stands to gain the public's support and the community should become invested in the program. The Permittees will likewise gain more insight into the most effective ways to communicate their messages.

This Order requires the development of a public involvement plan, which includes a citizen advisory group or process to solicit feedback on the storm water program, and opportunities for citizens to participate in implementation of the storm water program. The citizen advisory group should meet with the local land use planners and provide input on land use code or ordinance updates so that land use requirements incorporate provisions for better management of storm water runoff and watershed protection. Public participation in implementation of the storm water program can include many different activities such as stream clean-ups, storm drain markings, and volunteer monitoring.

Permittees are encouraged to work together with other entities that have an impact on storm water (for example, schools, homeowner associations, Department of Transportation agencies, other MS4s). Permittees are also encouraged to work through existing advisory groups, community groups or processes in order to implement these public involvement requirements.

Illicit Discharge Detection and Elimination

Legal Authority: Clean Water Act § 40 CFR 122.26(d)(2)(iv)(B)).

Studies have shown that dry weather flows from the storm drain system may contribute a larger amount of some pollutants than wet weather storm water flows.²⁰ Detecting and eliminating these illicit discharges involves complex detective work, which makes it hard to establish a rigid prescription to identify and correct all illicit connections. There is no single approach to take, but rather a variety of ways to get from detection to elimination. Local knowledge and available resources can play significant roles in determining which path to take. At the very least, communities need to systematically understand and characterize their

²⁰ Evaluation of Non-Storm water Discharges to California Storm Drains and Potential Policies for Effective Prohibition. California Regional Water Quality Control Board. Los Angeles, CA., Duke, L.R. 1997., Results of the Nationwide Urban Runoff Program. Water Planning Division, PB 84-185552, Washington, D.C. U.S. EPA. 1983.

stream, conveyance, and storm sewer infrastructure systems. When illicit discharges are identified, they need to be eliminated. The process is ongoing and the effectiveness of a program should improve with time. A well-coordinated IDDE programs can benefit from and contribute to other community-wide water resources-based programs such as public education, storm water management, stream restoration, and pollution prevention.²¹

This Order requires the Permittees to address illicit discharges into the MS4. An illicit discharge is defined as any discharge to a municipal separate storm sewer system that is not composed entirely of storm water, except allowable discharges pursuant to an NPDES permit (40 CFR 122.26(b)(2)). This Order includes requirements that the Permittee have the legal authority to prohibit non-storm water discharges from entering storm sewers as well as provisions requiring the development of a comprehensive, proactive IDDE program.

An effective IDDE program is more than just a program to respond to complaints about illicit discharges or spills. Permittees must proactively seek out illicit discharges, or activities that could result in discharges, such as illegal connections to the storm sewer system, improper disposal of wastes, or dumping of used motor oil or other chemicals.

To trace the origin of a suspected illicit discharge or connection, the Permittee must have an updated map of the storm drain system and a formal plan to locate and correct them. The Permittee should provide a mechanism for public reporting of illicit discharges and spills. Regular field screening of outfalls for non-storm water discharges needs to occur in areas determined to have a higher likelihood for illicit discharges and illegal connections.

Construction Site Storm Water Runoff Control

Legal Authority: Clean Water Act § 40 CFR 122.34(b)(4).

Permittees must implement a storm water management program that requires erosion and sediment controls on construction sites disturbing at least one acre or disturb less than one acre as part of a common plan of larger development or sale.

Permittees must enact an ordinance or other regulatory mechanism as part of the construction program that controls runoff from construction sites with a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. As part of the ordinance or other regulatory mechanism, the Permittee should provide commonly understood and legally binding definitions. These terms should be defined consistently across other related guidance and regulatory documents.

²¹ Illicit Discharge Detection and Elimination A Guidance Manual for Program Development and Technical Assessments, CWP and Pitt, 2006

The Permittee must ensure that construction site operators select and implement appropriate erosion and sediment control measures to reduce or eliminate the impacts to receiving waters. The Permittee is required to utilize California Stormwater Quality Association's (CASQA) Construction BMP handbook or equivalent to help guide their Construction Program.

The Permittee must establish review procedures for construction site plans to determine potential water quality impacts and ensure the proposed controls are adequate. These procedures should include a review of individual pre-construction site plans to ensure consistency with local sediment and erosion control requirements. In addition, the Permittee conducts inspection and enforcement of erosion and sediment control measures once construction begins. The Permittees' Municipal Inspectors must be trained and qualified pursuant to the State Water Board sponsored Qualified Storm Water Pollution Prevention Plan (SWPPP) Practitioner (QSP) certification program.

Finally, the Permittee must develop educational materials and training for construction site operators. To ensure that the construction program is followed, construction operators must be educated about site requirements for control measures, local storm water requirements, enforcement activities, and penalties for non-compliance.

Pollution Prevention/Good Housekeeping for Permittee Operations

Legal Authority: Clean Water Act § 40 CFR 122.34(b)(6)

Permittees are required to develop a program to:

- a. Prevent or reduce the amount of storm water pollution generated by permittee operations.
- b. Train employees on how to incorporate pollution prevention/good housekeeping techniques into permittee operations.
- c. Identify appropriate control measures and measurable goals for preventing or reducing the amount of storm water pollution generated by permittee operations.

The first step for the Permittee is to evaluate and assess the areas and municipal facilities that it controls in order to determine which activities may currently have a negative impact on water quality and to find solutions for any problems. The simplest solution is to limit the number of activities that are conducted outside and exposed to storm water.

Storm Drain System Maintenance

Storm drain systems need maintenance to ensure that structures within the storm drain system that are meant to reduce pollutants do not become sources of

pollution. Maintenance of catch basins and storm sewers will prevent the accumulation of pollutants that are later released during rain events as well as blockages, backups, and flooding. Most Permittees have an existing program to maintain the storm sewer infrastructure. Some of these programs have tended to focus on flood control and complaint response rather than reducing water quality impacts from storm water discharges.

This Order requires that the system be maintained to prevent the discharge of pollutants into receiving waters. To achieve this, the storm sewer system must be mapped and a program of regular maintenance established. The Permittee must establish a tiered maintenance schedule for the entire storm sewer system area, with the highest priority areas being maintained at the greatest frequency. Priorities are driven by water quality concerns and can be based on the land use within the watershed, the condition of the receiving water, the amount and type of material that typically accumulates in an area, or other location-specific factors. The Permittee also must use spill and illicit discharge data to track areas that may require immediate sewer infrastructure maintenance. Any waste that is collected must be disposed of in a responsible manner.

All storm sewer system maintenance procedures should be documented in the Permittee's standard operating procedures (SOPs) or similar type of documents. All staff should be trained on these SOPs. Maintenance activities should be documented and, where possible, quantified (e.g., number and location of inspections and clean-outs, type and quantity of materials removed). Characterization of the quantity, location, and composition of pollutants removed from catch basins can be used to assess the program's overall effectiveness, identify illicit discharges, and help the Permittee better prioritize implementation activities in the future.

Pollutant Generating Activities

This Order contains specific requirements related to pollutant-generating activities such as discouraging conventional landscaping practices (including the application of pesticides, herbicides, and fertilizer) and operating and maintaining public streets.

Resource-sensitive landscaping practices such as integrated pest management (IPM), climate appropriate plant selection and irrigation, and mechanical (non-chemical) removal of unwanted plants are required under this General Permit. The use of other landscaping practices, such as mulch and compost, minimizing chemical inputs (pesticides, herbicides, and fertilizer), emphasis on maintaining and enhancing soil quality, and erosion control is required. The Order recognizes the storm water quality benefits that will likely result from implementation of the Water Efficient Landscape Ordinance required under AB 1881.

Training and Education

Training and educating municipal and contracted staff is also required and an important component of the storm water management program to ensure that

everyone is knowledgeable and proficient in the newest and most effective approaches to minimizing pollutant discharges from municipal facilities and activities.

Flood Management Projects

The Order requires that water quality be considered when designing flood management projects, and that existing structural flood control devices are evaluated to determine if retrofitting the device to remove/reduce pollutants from storm water is necessary and practicable.

Municipally-owned or operated facilities

Municipally-owned or operated facilities often serve as the focal point of activity for municipal staff from different departments. Some municipalities have one facility at which all activities take place (e.g., the municipal maintenance yard), while others may have several specialized facilities. A comprehensive inventory and map of facilities will help staff responsible for storm water compliance build a better awareness of their locations within the MS4 and their potential to contribute storm water pollutants. The facility inventory will also serve as a basis for scheduling periodic facility assessments and developing, where necessary, facility storm water pollution prevention plans.

The best way to avoid pollutant discharges is to keep precipitation and runoff from coming into contact with potential pollutants. For example, the Permittee should cover or build berms around stockpiles, create dedicated structures for stored materials, and maintain a minimum distance between stockpiles and storm water infrastructure and receiving waters.

Inspections

Comprehensive quarterly site inspections are required which is an appropriate frequency to ensure that material stockpiles that might be moved or utilized on a seasonal basis are protected from precipitation and runoff. Also, quarterly inspections will allow inspectors to observe different types of operations that occur at different times of the year (e.g., landscape maintenance crews are less active in the winter). Quarterly visual observations are required so that inspectors can see in real time the qualitative nature of the storm water discharge and so that corrective action can be taken where necessary to improve on-site storm water controls.

This Order also specifies that inspection results and inspection procedures, including inspection logs for each facility be documented to ensure that the site inspections are consistent and that maintenance of storm water controls remains part of the municipality's standard operating procedures. The requirement for an inspection log will allow the Regional Water Boards to verify that periodic site inspections have been performed.

Storm Sewer System Maintenance

Fine particles and pollutants from run-off, run-on, atmospheric deposition, vehicle emissions, breakup of street surface materials, littering, and sanding (for improving

traction in snow and ice) can accumulate in the gutters between rainfall events. Storm drain maintenance is often the last opportunity to remove pollutants before they enter the environment. Because storm drain systems effectively trap solids, they need to be cleaned periodically to prevent those materials from being picked up during high flow storm events.

Some catch basins will accumulate pollutants faster than others due to the nature of the drainage area and whether controls are present upstream of the catch basin. A priority ranking system is required for catch basins so that municipal resources are directed to the areas and structures that generate the most pollutants. Catch basins with the highest accumulations will need to be cleaned more frequently than those with low accumulations. The Order also includes a requirement that triggers catch basin cleaning when a catch basin is one-third full.

Proper storm drain system cleanout includes vacuuming or manually removing debris from catch basins; vacuuming or flushing pipes to increase capacity and remove clogs; removing sediment, debris, and overgrown vegetation from open channels; and repairing structures to ensure the integrity of the drainage system. It is important to conduct regular inspections of all storm sewer infrastructure and perform maintenance as necessary. Though these activities are intended to ensure that the storm drain system is properly maintained and that any accumulated pollutants are removed prior to discharge, if not properly executed, cleanout activities can result in pollutant discharges. The Permittee should carefully evaluate maintenance practices to minimize unintended pollutant discharges, such as flushing storm drains without capturing the discharge.

Materials removed from catch basins must not be allowed to reenter the MS4. If necessary, the material can be dewatered in a contained area and the water treated with an appropriate and approved control measure or discharged to the sanitary sewer. The solid material must be disposed of properly to avoid discharge during a storm event. Some materials removed from storm drains and open channels may require special handling and disposal, and may not be suitable for disposal in a landfill.

Green waste on the streets

For some Traditional MS4 Permittees, residents are allowed to deposit non-containerized green waste (lawn and garden clippings) onto the street for weekly collection by the municipal staff. Permittees instruct residents to put the green waste out right before collection and to avoid putting it in gutters or near storm drains. However, green waste on the street is a potential illicit discharge and maintenance concern.²² This Order prohibits green waste on the streets. Permittees must find additional ways to educate residents on the potential problems this practice can cause or to find alternatives to the current practice.

Street Sweeping and Cleaning Streets

²² Program Evaluation Report, Sacramento Area Stormwater Program, NPDES Permit No. CA0082597, May 21, 2002, USEPA and Tetra Tech Inc.

Street sweeping and cleaning streets and parking lots is a practice that most municipalities initially conducted for aesthetic purposes or air quality benefit. However, the water quality benefits are now widely recognized. As a result, many California MS4 permits require some sort of street sweeping provision that require the MS4 to prioritize streets as high, medium, and low pollutant-generators and base the cleaning schedule appropriately.

This Order does not include street sweeping and cleaning streets as a permit requirement because MS4s already conduct these activities for aesthetics and air quality benefit. Permittees should count street sweeping not as a storm water compliance cost, but an aesthetic and air quality cost.

Third-party contractors

Third-party contractors conducting municipal maintenance activities must be held to the same standards as the Permittee. These expectations are required to be defined in contracts between the Permittee and its contractors, but the Permittee should be responsible for ensuring, through contractually-required documentation or periodic site visits, that contractors are using storm water controls and following standard operating procedures.

Industrial/Commercial Inspection Program

This Order requires that Permittees develop and implement an inspection and oversight program to ensure that industrial/commercial facilities in their jurisdiction do not contribute pollutants to storm water.

This program component typically applies only to Phase I MS4s as the Phase II federal regulations (40 CFR 122.34(b)) do not specifically address storm water discharges from industrial facilities and commercial businesses (other than as part of the education and outreach program). However, EPA recommends that Phase II permitting authorities include industrial permit requirements to further reduce storm water pollutants from these facilities.²³

Furthermore, beginning July 2001 Tetra Tech under contract from EPA performed more than 500 industrial storm water inspections per year for various Regional Water Boards. In 2006, Tetra Tech released an assessment report on California's Industrial Storm Water Program. The report identified lessons learned and made recommendations for oversight of industrial facilities in the state. The principal lesson being that compliance improves with field inspector presence. Facility compliance improves with awareness of the program and a regular presence of compliance inspectors at the facility or at other facilities in the same industry group or neighborhood. Regulatory presence shows the facility operators that the Water Boards take the program seriously, and it keeps storm water compliance in the minds of the operators.²⁴

²³ MS4 Improvement Permit Guide, U.S. EPA, April 2010, EPA 833-R-10-001

²⁴ Evaluation of California MS4 Program, 2006, Tetra Tech, Kosco

This Order requires inspection of sites, inspection of priority industrial and commercial facilities, establishing control measures for facilities that may pose a threat to water quality, and enforcing storm water requirements. To implement these requirements, this Order requires the development of an inventory of facilities, prioritization protocol, and adequate staff training to ensure proper inspection and enforcement of requirements by the end of year four of this Order term. The State Water Board recognizes the substantial effort required to launch an Industrial/Commercial Inspection Program. Therefore, Permittees are not required to physically inspect facilities until the beginning of year five of this Order term. The Permittees initial efforts are focused specifically on outreach and education to the industrial and commercial facilities located within their jurisdiction.

In some cases, Regional Water Boards have already required implementation of Industrial/Commercial Inspection Programs. These Permittees must continue to implement these inspections as directed by their appropriate Regional Water Board.

Stage 1 – Inventory

The first stage of program implementation requires Permittees to develop an inventory of all potential commercial and industrial sites/sources that could contribute pollutant loads to the MS4. A list of specific commercial and industrial sites/sources is included in the General Permit, and additional sites/sources can be added if they are likely to discharge a pollutant of concern to an impaired water body or they are contributing a significant pollutant load to the MS4.

The inventory will provide the Permittee with information on potential pollutant sources that drain to the MS4, and at what locations in the system into which they discharge. This information will also allow the Permittee to prioritize inspections and tailor education and outreach efforts. In addition, the inventory data will allow the Permittee to determine whether the facilities may discharge pollutants of concern into impaired waters. Finally, the information will enable Permittees to characterize these facilities and prioritize them based on their potential impact on storm water quality. By prioritizing facilities in such a manner, the Permittee may then establish a targeted approach towards conducting inspections.

In addition, data from pretreatment programs (40 CFR 403.8) within the Permittee's jurisdiction could be used to prioritize the industrial sites.

This Order identifies specific commercial and industrial sources to be included in the inventory; however, Regional Water Boards have discretion to modify this list to address specific issues in the region. For example, some MS4s may have large industrial areas with few commercial businesses, while others may have a large number of restaurants and retail businesses but no industrial facilities. Other MS4s may have had past water quality problems at certain types of commercial or industrial sites, in which case such facilities should be included in their inventories.

Stage 2 – Minimum Control Measure

During the second stage, the Permittee is required to ensure that minimum control measures are developed, as applicable, at every industrial/commercial facility included in its inventory. The minimum measures, when properly selected, designed and implemented, promote prevention and source control before treatment.

The control measures in this Order are consistent with the requirements found in the IGP. The control measures describe specific activities that the Permittee should require industrial facilities and commercial sites to implement to minimize storm water pollution. Another control measure is simply preventing pollutants from coming into contact with precipitation in the first place since this will ensure they are not carried into nearby waterways. General good housekeeping and maintenance procedures are also required. Additional control measures address spill prevention and response, erosion and sediment controls, managing runoff, and controlling discharges from stored materials and stockpiles (e.g., salt storage piles, roadway materials, soil amendments).

The control measures must also include employee training, controlling non-storm water discharges, addressing waste, garbage and floatable debris, and addressing dust generation and vehicle tracking.

The Permittee is required to notify industrial and commercial sites of the control measure requirements and their responsibility to implement and comply with the requirements.

Facilities that discharge into impaired water bodies may be required to implement additional controls as necessary to prevent the discharge of the associated pollutants of concern.

Stage 3 - Inspections

The third stage includes the design of an inspection plan that facilitates more frequent inspections of the highest priority facilities. This will help maximize the Permittee's existing inspection resources and ensure that the Permittee's inspectors are familiar with the facilities with the highest potential for water quality impacts.

The Permittee must develop a process for prioritizing inspections and designating all facilities in the industrial and commercial inventory as either a high, medium or low priority. The designation could occur by individual facility or by facility type. The prioritization for individual facilities may be adjusted after the first or any subsequent inspection (for example, if a facility is a high priority facility and the inspection reveals it has little potential for storm water pollution, then the facility could be reprioritized as a low priority facility).

The documentation of inspections is also very important, not only when tracking noncompliance, but also to facilitate effective enforcement when needed. A timeline of noncompliance and subsequent enforcement action is critical when escalating measures to gain compliance. Typically, the use of inspection forms facilitates complete and consistent documentation among inspectors and over time.

Municipal inspectors responsible for conducting inspections at industrial/commercial facilities must be trained on the applicable storm water requirements for the different types of facilities (i.e., industrial, commercial, other). Training must include a summary of federal, state, and local storm water regulations that may apply to industrial/commercial facilities. Inspectors should be familiar with various types of storm water control measures commonly used at the types of facilities typically found in the MS4 service area and should be able to educate facility operators about such storm water control measures. In addition, inspectors should understand and use the Permittees's established enforcement response to gain compliance as necessary. Inspection staff should be proficient in the enforcement escalation procedure and should properly document all enforcement actions accordingly.

Given the current economic conditions in the state, the State Water Board recognizes that many Permittees currently have limited staff and resources to fully implement this program element. Therefore, this Order allows for the phased implementation of this program element. Permittees are encouraged to look for opportunities to utilize existing resources and maximize efficiencies by building upon their established institutional framework for conducting education, inspection, enforcement and cost-recovery on a county-wide basis as a result of implementing other federal/State-delegated regulatory programs.

Post Construction Storm Water Management for New Development and Re-development

Legal Authority: Clean Water Act § 40 CFR 122.34(b)(5).

The Problem

In California, urban storm water is listed as the primary source of impairment for ten percent of all rivers, ten percent of all lakes and reservoirs, and 17 percent of all estuaries (2010 Integrated Report). Although these numbers may seem low, urban areas cover just six percent of the land mass of California²⁵, and so their influence is disproportionately large. Urbanization causes a number of changes in the landscape, including increased loads of chemical pollutants; increased toxicity; changes to flow magnitude, frequency, and seasonality of various discharges; physical changes to stream, lake, or wetland habitats; changes in the energy dynamics of food webs, sunlight, and temperature; and biotic interactions between native and exotic species.²⁶ These impacts are also referred to as "urban stream

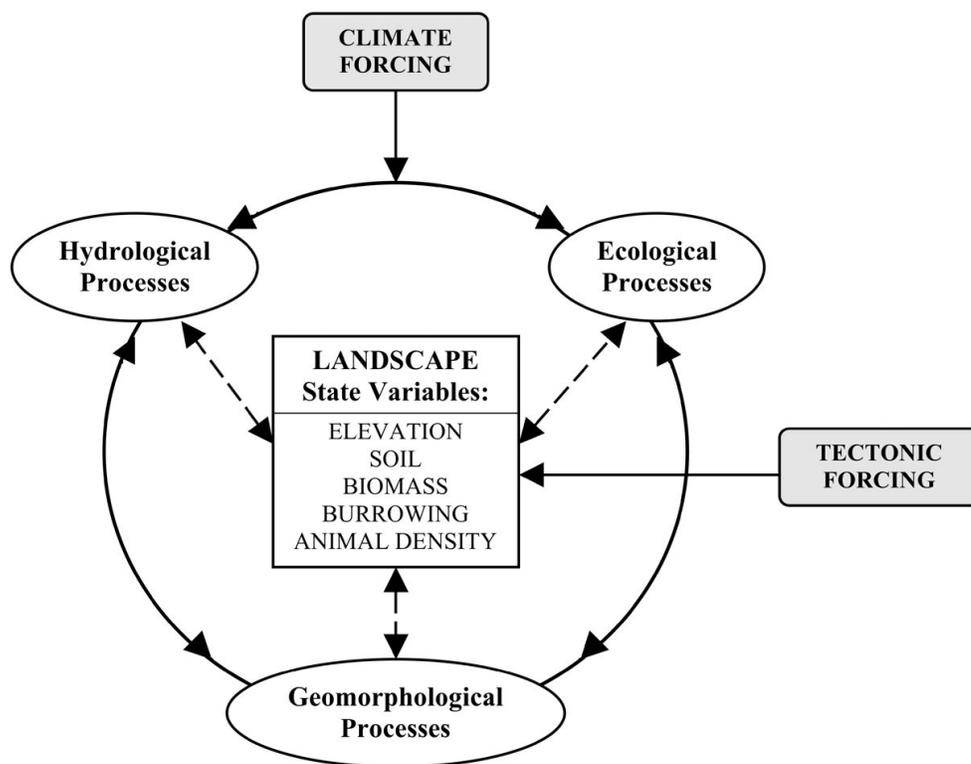
²⁵ U.S. Department of Agriculture, 2009

²⁶ Urban Storm Water Management in the United States, National Research Council, 2008.

syndrome²⁷. In addition to surface water impacts, urbanization can alter the amount and quality of storm water that infiltrates and recharges groundwater aquifers. Figure 1 shows the complex and often interrelated relationship between physical and ecological processes and landscape response.

In California and the rest of the United States, the challenge to storm water managers and regulators has been to establish goals and performance standards that account for the highly variable nature of urban flow and pollutant inputs while ensuring that the ultimate biological response is within “acceptable” limits. The Surface Water Ambient Monitoring Program (SWAMP) is attempting to define biological responses through their Biological Objectives Development Process. Although preliminary results from this effort are not yet available, making the linkage between urbanization drivers and biological response represents the next phase in storm water management and cannot be delayed.²⁸

Figure 1 – Conceptual Model of physical and ecological processes and landscape evolution²⁹



Existing General Permit Approach

The existing General Permit requires post-construction controls for areas of high growth or areas with a population greater than 50,000. These requirements are

²⁷ Walsh, C.J., A.H.Roy, J.W. Feminella, P.D. Cottingham, P.M. Groffman, and R.P. Morgan. 2005. The urban stream syndrome: current knowledge and the search for a cure. J. N. Am. Benthol. Soc. 24(3):706–723.

²⁸ Urban Storm Water Management in the United States, National Research Council, 2008.

²⁹ Istanbuluoglu, E. 2009. An Eco-hydro-geomorphic Perspective to Modeling the Role of Climate in Catchment Evolution. Geography Compass 3/3: 1151-1175

contained in Attachment 4 of Order 2003-0005-DWQ and include matching pre-development peak discharge rates, conserving natural areas, minimizing storm water pollutants of concern, protecting slopes and channels, and designing volumetric and flow through treatment measures to handle a specific volume or flow rate. These requirements represented an initial attempt at establishing performance standards that account for hydrological and geomorphological processes (Figure 1). Recent research has yielded new information on complex watershed process interactions. For example, storm water management techniques that are intended to mimic natural hydrologic functions (e.g., low impact development) can protect key hydrologic processes such as surface and base flow, and groundwater recharge. Additionally, there is increasing awareness that, while site-based requirements are important to reduce impacts from urbanization, a site-based approach alone is unable to achieve a broader set of watershed goals, especially given the State Water Board's interest in regional issues such as water reuse, groundwater management, and maintaining instream flows. Consequently, a better understanding of watershed conditions and processes has become increasingly important in the development of MS4 permits. A watershed-based approach is being used in the Central Coast Joint Effort. A similar approach has been used in the development of this Order.

Proposed Order Approach

To initiate an understanding of the Permittee's existing and future growth impacts on a watershed scale, the Order requires a compilation of relevant watershed information. The Hydrologic Unit Code 12 subwatershed (as delineated in the federal Watershed Boundary Dataset) is the proposed watershed scale. Performing analyses at the subwatershed scale is appropriate given the likelihood an MS4 is more likely to have an influence and can devote resources at this scale, as opposed to performing analyses on larger watersheds. Traditional MS4 Permittees with a population of greater than 25,000 and Non-Traditional MS4 Permittees that have greater than 10% Urban Land Uses within a HUC 12 subwatershed assess subwatershed condition, land use activities, dominant subwatershed processes, and potential impact to beneficial uses. Identifying subwatershed processes and condition provides a basis for the appropriate type, level of effort, and temporal phasing of municipal actions that will best protect receiving waters. This approach will assist in allocating resources and will facilitate partnerships within subwatersheds to achieve common receiving water goals. As part of the initial effort, the State Water Board proposes to provide Permittees with geographical information system (GIS) data for subwatersheds and guidance that will enable a determination of receiving water condition and subwatershed condition. Permittees will be required to verify subwatershed boundaries, map current and future development, and compile/create other data (e.g. precipitation records) needed to characterize their landscape and receiving water conditions. Derivation of sediment budgets will yield information on coarse sediment supply for aquatic habitat and maintenance of stream channel form and function, beach replenishment, and areas where accelerated erosion (both watershed and stream channel) is occurring. At the end of the permit term, Permittees will develop measurable criteria for long-term subwatershed health.

To address site-scale impacts associated with new and redevelopment, staff has included post-construction flow and water quality requirements that are based on sound science and implementation feasibility. These requirements are numeric and designed to be achieved through the use of low impact development measures.

Water Quality Monitoring and Assessment Requirements

The existing General Permit included requirements meant to eliminate or reduce the discharge of pollutants to receiving waters. Improved knowledge of the water quality impacts and management practices, obtained either as part of the permit requirements or, from outside sources (e.g., scientific literature, studies, and expert panels) is intended to be used in an adaptive management fashion to inform requirements in subsequent permits. As such, monitoring and assessment represents a critical component in understanding the link between permit requirements, the benefits achieved due to those requirements, and the condition of receiving waters. Aside from general knowledge that storm water discharges from urbanized watersheds contribute pollutants to receiving waters, little is known about the specific conditions in such receiving waters outside of major metropolitan areas. The effectiveness of almost a decade of storm water management in Phase II MS4s has not been systematically evaluated through receiving water monitoring. Nationwide, there are few of analyses of available data and guidance on how Permittees should be using the data to inform their storm water management decisions³⁰.

The water quality monitoring proposed in this permit initiates characterization of receiving waters potentially impacted by smaller Phase II urban areas with a population greater than 25,000. The monitoring will provide a baseline and include subsequent monitoring to begin the trend analysis needed to verify the effectiveness of storm water management strategies over time. Data gathered under this Order will also augment the bioassessment data gathering efforts for reference sites that form the basis for the State Water Board's Biological Indicators Project.

The proposed single sampling station within a HUC 12-level subwatershed is not intended to provide a robust characterization of receiving water conditions, but rather to gage the condition of these waters in watersheds with less extensive urbanization than that of larger metropolitan areas. The permit will provide Phase II municipalities with the option to further characterize receiving waters with additional locations and frequencies. Follow up actions will be required if water quality standards are exceeded. Integration into existing monitoring programs will be encouraged. Additionally, where Phase II communities are contiguous with Phase I communities, the Permit requires Phase II Permittees to coordinate with the Phase I monitoring program. TMDL monitoring for specific parameters may satisfy portions of the RWM requirements in this Permit as well. Lastly, Regional Water

³⁰ Urban Storm Water in the United States, National Research Council, 2008

Boards will retain authority to approve alternative receiving water monitoring programs where Permittees want to develop them.

The extent of urbanization of watersheds is the basis for determining where receiving water monitoring is required under this permit. Permittees will conduct receiving water monitoring in receiving waters of HUC 12 sub-watersheds where urbanization exceeds certain thresholds. Watershed delineation and compilation of land use information by HUC 12 subwatershed is required under the Post-Construction Management Measure in Watershed Characterization.

A population threshold of 25,000 applies initially. However, permittees with a population of 50,000 or less, and not associated with a larger urbanized area, may discontinue receiving water monitoring if results of the first year of sampling indicate lower risk of significant urban pollutant loading.

1. Where a permittee with a population greater than 25,000 occupies a single HUC 12 sub-watershed, the permittee shall conduct receiving water monitoring.
2. Where a permittee with a population greater than 25,000 occupies multiple HUC 12 sub-watersheds, the permittee shall conduct monitoring in any watershed containing 25 percent or more of the permittee's total urbanized land use area.
3. Where multiple permittees have urban land uses in an urbanized area,³¹ all permittees must conduct, contribute to, or otherwise participate in, receiving water monitoring.
4. Where the urbanized area spans five or more HUC 12 sub-watersheds, receiving water monitoring shall be rotated on an annual basis among those watersheds with more than 10 percent urban land use.

Receiving water monitoring includes sampling and analysis of general water quality parameters, nutrients, pathogens, biological communities, sediment chemistry and sediment toxicity. Monitoring will be conducted initially to provide a baseline status of conditions, and annually thereafter to evaluate trends for these parameters.

Total Maximum Daily Load (TMDL)

Section 303(d) of the Clean Water Act requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits ("impaired" waterbodies). States are required to compile this information in a list and submit the list to the USEPA for review and approval. This list is known as the Section 303(d) list of impaired waters, which is incorporated into the Integrated Report.

As part of this listing process, States are required to prioritize waters/watersheds for future development of TMDLs. A TMDL is defined as the sum of the individual waste load allocations for point sources of pollution, plus the load allocations for

³¹ Census Designated Place with 2010 Population > 50 thousand.

nonpoint sources of pollution, plus the contribution from background sources of pollution. The Water Boards have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to subsequently develop TMDLs. The 2010 California 303(d) List identifies impaired receiving water bodies and their watersheds within the state.

TMDLs are first developed by either the Regional Water Boards or U.S. EPA in response to Section 303(d) listings. TMDLs developed by Regional Water Boards are incorporated as Basin Plan amendments and include implementation provisions. TMDLs developed by U.S. EPA typically contain the total load and waste load allocations required by Section 303(d), but do not contain comprehensive implementation provisions. Subsequent steps after development are: adoption by the Regional Water Board, approval by the State Water Board, approval by the Office of Administrative Law, and ultimately approval by U.S. EPA.

TMDLs are not self-implementing but rely on other regulatory mechanisms for implementation and enforcement. Municipal storm water permits are typically used in urbanized areas as the implementation tool. Incorporation of TMDL implementation requirements into general permits (as opposed to individual MS4 permits) is difficult. First, there are hundreds of Traditional MS4s (municipalities) and thousands of Non-traditional MS4s such as military bases, public campuses, prison and hospital complexes covered under the General Permit. Second, the waste load allocations for many TMDLs are shared among several dischargers; that is, a single waste load allocation may be assigned to multiple dischargers, making it difficult to assign responsibility. Further, individual dischargers may not be explicitly identified. For example, "urban runoff" may be listed as a source of impairment, but the individual municipalities responsible for the impairment may not be identified. Third, the implementation plans adopted by the Regional Water Boards often provide for phased compliance with multiple milestones and deliverables, with optional and alternative means of compliance depending on the results of monitoring and special studies.

To address these difficulties, the Order includes Attachment G, which identifies only those approved TMDLs in which storm water or urban run-off is listed as a source. In addition, Attachment G identifies municipalities subject to TMDLs or assigned waste load allocation and includes specific TMDL permit requirements developed by Regional Boards for compliance with the TMDL, making the requirements directly enforceable through the permit.

Permittees will report compliance with the specific TMDL permit requirements in the online Annual Report via SMARTS.

Central Valley Water Board TMDLs

Delta Methylmercury TMDL

On April 22, 2010, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted Resolution No. R5-2010-0043 to amend the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins

(Basin Plan) to include a methylmercury TMDL and an implementation plan for the control of methylmercury and total mercury in the Sacramento-San Joaquin Delta Estuary (Delta Mercury Control Program). The Basin Plan amendment includes the addition of: (1) site-specific numeric fish tissue objectives for methylmercury; (2) the commercial and sport fishing (COMM) beneficial use designation for the Delta and Yolo Bypass; (3) methylmercury load allocations for non-point sources and waste load allocations for for point sources; and (4) an implementation plan that includes adaptive management to address mercury and methylmercury in the Delta and Yolo Bypass.

The Delta TMDL covers the Counties of Alameda, Contra Costa, Sacramento, San Joaquin, Solano and Yolo both within legal Delta boundary defined by California Water Code Section 12220 and the Yolo Bypass, a 73,300-acre floodplain on the west side of the lower Sacramento River.

The Delta is on the Clean Water Act Section 303(d) List of Impaired Water Bodies because of elevated levels of mercury in fish. Beneficial uses of the Delta that are impaired due to the elevated methylmercury levels in fish are wildlife habitat (WILD) and human consumption of aquatic organisms. The Delta provides habitat for warm and cold-water species of fish and their associated aquatic communities. Additionally, the Delta and its riparian areas provide valuable wildlife habitat. There is significant use of the Delta for fishing and collection of aquatic organisms for human consumption. Further, water is diverted from the Delta for statewide municipal (MUN) and agricultural (AGR) use.

Mercury in the Central Valley comes primarily from historic mercury and gold mines and from resuspension of contaminated material in stream beds and banks downstream of the mines, as well as from modern sources such as atmospheric deposition from local and global sources, waste water treatment plants, and urban runoff. Methylmercury, the most toxic form of mercury, forms primarily by sulfate reducing bacteria methylating inorganic mercury. Sources of methylmercury include methylmercury flux from sediment in open water and wetland habitats, urban runoff, irrigated agriculture, and waste water treatment plants. Water management activities, including water storage, conveyance, and flood control, can affect the transport of mercury and the production and transport of methylmercury.

The Delta Mercury Control Program assigns massed-based methylmercury TMDL allocations to all sources of methylmercury in the Delta and Yolo Bypass, including urban runoff from Phase 1 and Phase 2 MS4s. were identified for large and small municipal. In the Delta and Yolo Bypass, the TMDL assigns individual methylmercury waste load allocations to the following small urban runoff agencies:

City of Lathrop
City of Lodi
City of Rio Vista
County of San Joaquin

County of San Joaquin
County of Solano
City of West Sacramento
County of Yolo
County of San Joaquin
County of Solano
City of Tracy
County of Yolo
City of West Sacramento

Mercury is often attached to sediment, and the formation of methylmercury is linked in part to the concentration of mercury concentrations in sediment. Reductions in mercury concentrations will result in methylmercury reductions and subsequently methylmercury levels in fish. To comply with the TMDL, the agencies are required to implement best management practices to control erosion and sediment discharges with the goal of reducing mercury discharges.

North Coast Water Board TMDLs
Language not ready at time of release

San Francisco Water Board TMDLs
Language not ready at time of release

Central Coast Water Board TMDLs
Morro Bay Sediment TMDL

The numeric targets approved in the TMDL are expressed in terms of receiving water indicators, e.g. pool residual volume, median diameter of spawning graves, etc. The TMDL also expressed the sediment assimilative capacity and allocations required to achieve the numeric targets. The allocations require a 50% reduction of current loading (estimated in 2003) to achieve the numeric targets. The wasteload allocations assigned to the responsible parties in this permit represent a 50% reduction from 2003 loading estimates.

San Lorenzo River Sediment TMDL

The numeric targets approved in the TMDL are expressed in terms of receiving water indicators, e.g. pool residual volume, median diameter of spawning graves, etc. The TMDL also expressed the sediment assimilative capacity and allocations required to achieve the numeric targets. The allocations require reductions of 24-27 percent of current sediment loading (estimated in 2002) to achieve the numeric targets. The wasteload allocations assigned to the responsible parties in this permit represent a 24-27 percent reduction from the 2003 loading estimates.

Pajaro River Sediment TMDL

The numeric targets approved in the TMDL are expressed in terms of receiving water indicators, e.g. pool residual volume, median diameter of spawning graves, etc. The TMDL also expressed the sediment assimilative capacity and allocations required to achieve the numeric targets. The allocations require reductions of 90%

from current sediment loading (estimated in 2005) to achieve the numeric targets. The wasteload allocations assigned to the responsible parties in this permit represent a 90% reduction of the 2005 loading estimate.

For All TMDLs Requiring Wasteload Allocation Attainment Programs

In situations where MS4s must reduce their wasteload discharges in accordance with TMDLs, we have required the MS4s to develop Wasteload Allocation Attainment Programs. Since these MS4s have been documented as sources of impairment, they must be held to a high standard to ensure they ultimately achieve their wasteload allocations and no longer contribute to the water body impairments addressed by the TMDLs. Indeed, the TMDLs set forth the expectation that the MS4s achieve their wasteload allocations within specified timeframes. This approach stands in contrast to the typical regulatory approach applied to municipal stormwater, which calls for implementation of BMPs according to an iterative process of continual improvement, with no associated timelines for achieving water quality standards. The MS4s' contribution to the impairment of water bodies, combined with the expectation that they achieve their wasteload allocations within specified timeframes, necessitates a systematic approach to program implementation as it relates to the discharge of pollutants associated with impairments.

The federal regulations indicate that such an approach is appropriate. The Preamble to the Phase II federal storm water regulations states: "Small MS4 permittees should modify their programs if and when available information indicates that water quality considerations warrant greater attention or prescriptiveness in specific components of the municipal program."³²

Water Board staff developed the Wasteload Allocation Attainment Programs as a means to systematically guide municipalities towards attainment of their wasteload allocations. Without a systematic approach of this type, Water Board staff believes that attainment of wasteload allocations is unlikely. This belief is supported by many MS4s' stormwater management programs. For example, programs typically include basic or minimum BMPs to be implemented to attain wasteload allocations. While some of these BMPs are likely to be beneficial, the connection between others and wasteload reductions is unclear. In addition, it appears that most of these BMPs are currently implemented, yet impairments continue, indicating that greater efforts are warranted. Moreover, BMPs implemented by MS4s often do not address all of the issues identified in TMDLs. This insufficient approach to BMP implementation in light of documented impairments and approved TMDLs indicates that a more systematic approach, as represented by the Wasteload Allocation Attainment Programs, is warranted.

On a broader scale, stormwater programs often do not exhibit the rationale used for BMP selection, or draw connections between those BMPs selected and eventual wasteload allocation attainment. Without this level of planning, the significant

³² 64 FR 68753

challenge of achieving wasteload allocations within specified timeframes is not likely to be met. The Wasteload Allocation Attainment Program requirements are expressly designed to ensure adequate planning is conducted so that MS4s' TMDL implementation efforts are effective. The main steps to be followed for Wasteload Allocation Attainment Program development and implementation are activities that are basic to successfully correcting water quality problems. The Wasteload Allocation Attainment Program requirements specify that MS4s address the following items as they apply to TMDLs: (1) An implementation and assessment strategy; (2) source identification and prioritization; (3) BMP identification, prioritization, implementation (including schedule), analysis, and assessment; (4) monitoring program development and implementation (including schedule); (5) reporting and evaluation of progress towards achieving wasteload allocations; and (6) coordination with stakeholders. The United States Environmental Protection Agency (USEPA) forwards similar approaches for TMDL implementation in its *Draft TMDLs to Stormwater Permits Handbook*, which discusses BMP review and selection, establishing linkages between BMP implementation and load reductions, effectiveness assessment, and BMP/outfall/receiving water monitoring.³³

Ultimately, the Wasteload Allocation Attainment Programs place the responsibility for program development, assessment, improvement, and success on the municipalities. Placement of responsibility on the municipalities is appropriate, since the municipalities are the parties contributing to the water quality impairment. This approach is also consistent with the Water Board's approach of requiring plans for control of pollutants from other sources identified by TMDLs, such as sanitary sewer collection and treatment systems and domestic animal discharges. The Water Board will collectively assess the progress of the various sources towards achieving receiving water quality standards as part of its triennial review, but each source must be responsible for assessing its own progress towards achieving its wasteload allocation. Without progress by each responsible party, the Water Board will not be able to demonstrate progress towards correcting the impairment. The process of planning, assessment, and refinement outlined by the Wasteload Allocation Attainment Programs helps ensure continual improvement and ultimate attainment of water quality standards at impaired receiving waters. This will be especially important as the complexity of achieving wasteload allocations increases when more and more TMDLs are adopted.

We believe this standardized process of development, implementation, assessment, and review of the Wasteload Allocation Attainment Programs provides the greatest likelihood for the TMDLs' wasteload allocations to be attained.

Lahontan Water Board TMDLs
Language not ready at time of release

Program Effectiveness Assessment
Legal Authority: Clean Water Act § 40 CFR 122.34(g)

³³ USEPA. 2008. *Draft TMDLs to Stormwater Permits Handbook*. Chapters 5 and 6.

This Order requires a quantitative evaluation of the Permittees MS4 programs. Measurable program evaluations are critical to the development, implementation, and adaptation of effective local storm water management programs. To date, only a small number of Phase I MS4s have provided measurable outcomes with regard to aggregate pollutant reduction achieved by their municipal storm water programs. Most Permittees, both Phase I and II, are struggling simply to organize or document their program activities and few have provided a quantitative link between program activities and water quality improvements. The few that have determined whether or not water quality is improving as a result of storm water program implementation took many years. Given these obstacles, however, efforts need to be taken now in order to begin the process of evaluating the storm water program implementation as a whole in order to better understand the relationships between implementation and water quality. Consistent with this interest, this Order implements two new elements: BMP Performance and Municipal Baseline Characterization, which are described below:

BMP Performance

Permittees must understand how their actions, as a whole, are reducing the discharge of pollutants to receiving waters. This is accomplished through an assessment of the performance of the Permittees BMPs, especially structural practices designed for specific pollutant/flow reductions. Estimates of load reduction as well as the collection of empirical data are required, including the performance of existing BMPs and targeted monitoring for emerging BMPs. Some flexibility is needed in the choice of BMPs to monitor so that each Permittee can focus on prioritized information needs that in turn, can inform local actions.

Municipal Baseline Characterization

Additional information is needed to support water quality management decisions, prioritization, and program development. This may include catchment and storm system delineations, future growth areas, riparian habitat condition, MS4 storm water hydrology (e.g. volumes, rate, durations), and pollutant loading estimates.

Therefore, Permittees are required to develop an Effectiveness Assessment Plan that not only assess individual program elements, but also assess the effectiveness of program implementation as a whole. The Order requirements in this section were derived from CASQA's Municipal Storm Water Program Effectiveness Assessment Guidance (2007) and from the State Water Board's Effectiveness Assessment Guidance (2010, final adoption expected 2011). Permittees are strongly encouraged to use both documents as a reference guide.

Each Permittee will be required to report annually on the development, progress and implementation of the Effectiveness Assessment Plan via SMARTS.

Online Annual Reporting

This Order requires the submittal of an online Annual Report via SMARTS. Lessons learned from Phase I MS4 annual reports is that many Permittees tend to send too much information, and, as a result, Regional Water Boards receive large binders full of hard copy forms and outreach materials that do not provide useful information to assess compliance. The filing of online Annual Reports via SMARTS will not only standardize annual reporting, but it will also provide for the efficient management and review of the annual reports by Water Board staff and reduce the administrative burden on the Permittees in preparing them.

The SMARTS online annual reporting system will contain specific reporting questions that align with the Order requirements and summarize the status of the Permittees program. Regional Water Board staff will be able to generate summary reports of the Permittees' program implementation during the previous year and evaluate program results. The online Annual Report also can serve as a "state of the program" report for the general public or other stakeholders.

The online Annual Reports are the only official communication from year to year between the Permittee and the Regional Water Boards, so it is important that the report be informative and relevant. The online Annual Reports are useful to review before an MS4 audit and should be used to spot compliance "red flags."

Online annual Reports will efficiently track information required in the Order such as illicit discharges and construction site inventories.

The online Annual Report is an important tool for both Regional Water Board staff and Permittees to document implementation, evaluate effectiveness, and target program resources. For example, tracking the location of illicit discharges may indicate that a specific area has a high incidence of motor oil being dumped into storm drains. Investigations may reveal that homeowners are changing the motor oil in their cars and dumping it in the storm drains. Therefore, the Permittee will need to educate the homeowners in that area regarding proper disposal.

Tracking via online Annual Reports will assist Permittees' internal management with planning and funding decisions. Ideally, a storm water program will have at least one person in charge of overall coordination, including tracking. While many departments or agencies might implement the various storm water program components, it is helpful for a single person or department to gather and analyze applicable data. Lacking this, the Permittee will need to coordinate all departments or agencies. The Permittees will need to ensure that other departments or agencies gather all data necessary to complete the online Annual Report, and specify adequate internal reporting deadlines to ensure that the data are available in a timely manner for program planning, effectiveness assessments, and General Permit reporting. Some Permittees create reporting forms for program component managers to complete and submit by internal deadlines.

Finally, a consistent electronic reporting format will allow the Water Boards to track and compare information on a statewide basis, and will allow USEPA to do the same on a nationwide basis.

XII. STORM WATER MANAGEMENT PROGRAM FOR NON-TRADITIONAL MS4s

Differences between Traditional and Non-traditional MS4s

Non-traditional MS4s differ from cities and counties, because most potential sources of illicit discharges and storm water pollution are associated with activities under their direct operational control.

Some Non-traditional MS4s may also lack the legal authority or employ a different type of enforcement mechanism than a city/county government to implement their storm water program. Another difference is the Public Education and Public Participation program elements. The overall focus of these programs is to educate the general public that uses their facilities on potential sources of pollution to the MS4.

Traditional MS4s with a population of 5,000 or less

This Order distinguishes the uniqueness of very small Traditional MS4 Permittees whose population is 5,000 or less. These Permittees must comply with different standards than a larger Traditional MS4 Permittees. These very small MS4s resemble that of Non-traditional MS4s, therefore, these Permittees also comply with Table 1. However, an important factor that must be considered is whether the Traditional MS4 Permittee with a population of 5,000 or less is incorporated. A Traditional MS4 Permittee in an unincorporated area would likely rely on the outlying county storm water program to provide municipal services. In this case, these Traditional MS4 Permittees should be a co-permittee of the surrounding county-wide storm water program. However, if the Traditional MS4 is incorporated and with a population greater than 5,000, these Permittees shall comply with the over 5,000 population New Traditional MS4 Permittee provisions as specified in Section E.

Non-traditional MS4 Categories

In addition to fundamental differences between Traditional and Non-traditional MS4s, there is diversity among Non-traditional MS4 Permittees. As a result, the Order divides Non-traditional MS4 Permittees into several different categories. The categories are as follows:

- Fairgrounds
- Flood Management Agencies
- Higher Education Institutions (Community Colleges and Universities)
- Military Bases
- State Parks/Beaches/Historical Areas

- Ports
- K-12 School Districts, including Charter Schools
- State and Federal Prisons/Health Institutions
- State Vehicle Recreation Areas
- Transit Agencies (Heavy Rail)

Recognition of the differences between the types of Non-traditional MS4 Permittees allows them to implement storm water programs that address their differences. For example, a school district is not required to comply with the Industrial/Commercial Inspection program provision because school districts K-12 do not have commercial business or industrial facilities on campus. However, a Port that often houses industrial tenants must implement the Industrial/Commercial Inspection program.

To address this diversity, Table 1 of this Order lists the different categories of Non-traditional MS4 Permittees and their required provisions.

Program Management – Applicable to all Non-traditional MS4 Categories

Legal Authority: Clean Water Act § 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B).

Program Management

Program Management is essential to ensure that all elements of the storm water program are implemented on schedule and are consistent with the Order requirements. See Online Annual Reporting for further discussion later in this section.

Legal Authority

Legal authority to control discharges into a Permittee’s storm sewer system is critical for compliance. Most Non-traditional MS4s lack the legal authority or employ a different type of enforcement mechanism than a city or county government to implement its storm water program. To the extent allowable under State and federal law, this Order requires each Non-traditional MS4 to operate with sufficient legal authority to control discharges into and from its MS4. The legal authority may be demonstrated by a combination of statutes, permits, contracts, orders, and interagency agreements. Non-traditional MS4 Permittees also do not generally have the authority to impose a monetary penalty. Although these differences exist, just like Traditional MS4s, Non-traditional MS4s must have the legal authority to develop, implement, and enforce the program.

Coordination

This Order allows Non-traditional MS4s to coordinate their storm water programs with other entities within or adjacent to their MS4 and allows the concept of a Separate Implementing Entity. A Separate Implementing Entity allows Permittees to leverage resources and skills. Additional information regarding SIEs is discussed later in this section.

Public Education and Outreach Program – Not applicable to State and Federal Prisons/Health Institutions

Legal Authority: Clean Water Act § 40 CFR 122.34(b)(1).

Because the population served by most Non-traditional MS4s will generally be served by the public education and outreach efforts of the local jurisdiction, the most useful supplement to those education and outreach efforts would be to label the Non-traditional MS4 catch basins. However, some Non-traditional MS4s such as ports and universities have tenants and residents that may not be as effectively served by the local jurisdiction’s public education and outreach program, therefore a separate public outreach and education program may be needed. Where the local jurisdiction’s public education and outreach efforts do effectively target and reach these tenant and resident populations, the Non-traditional MS4s are not expected to duplicate those efforts.

Some Non-traditional MS4s are well suited for regional outreach and education. For example, school districts often have several schools located with a watershed or regional boundary. This General Draft allows Non-traditional MS4s to comply with the Public Education and Outreach provisions through a regional collaborative effort.

Regional outreach and collaboration requires the Permittees to define a uniform and consistent message, deciding how best to communicate the message, and how to facilitate behavioral changes.

Public Involvement and Participation - Not applicable to State and Federal Prisons/Health Institutions/Fairgrounds

Legal Authority: Clean Water Act § 40 CFR 122.34(b)(2)).

Non-traditional MS4s have the same responsibilities as Traditional MS4s to ensure the storm water program is publicized and must involve the population they serve in the development of the program. The public must be included in developing, implementing, and reviewing the storm water management program, and the public participation process must comply with State, Tribal and local public notice requirements. Up-to-date information about the storm water program must be made available online if the Non-traditional MS4 maintains a website, or the Non-traditional MS4 Permittee may choose to post information about their program on the local jurisdiction’s website.

Illicit Discharge Detection and Elimination Program - Not applicable to State Vehicle Recreation Areas

Legal Authority: Clean Water Act § 40 CFR 122.26(d)(2)(iv)(B)

The federal Phase II regulations require all MS4s to develop a process to trace the source of illicit discharges and eliminate them. The regulations also state that appropriate enforcement procedures and actions must be included in this process.

Unlike Traditional MS4s, Non-traditional MS4s have direct control of their own staff and contractors. Therefore, the enforcement provisions identified in the Illicit Discharge Detection and Elimination program are often not applicable to Non-traditional MS4 Permittees. Non-traditional MS4 Permittees should address illicit non-storm water discharges through the implementation of a Spill Response Plan provision (Section E.7.e.). The Spill Response Plan identifies notification procedures for other operators or local agencies. Under the Spill Response Plan, Permittees may conduct remediation activities on its own, in which case the Permittee must require compensation for any and all costs related to eliminating the non-storm water discharge.

Construction Site Storm Water Runoff Control and Outreach Program - Not applicable to State and Federal Prisons/Fairgrounds/State Parks/Beaches/Historical Areas/Health Institutions and State Vehicle Recreation Areas

Legal Authority: Clean Water Act § 40 CFR 122.34(b)(4).

The purpose of this program component is to prevent sediment and other pollutants from entering the Non-traditional MS4 during the construction phase of development projects. In general, Non-traditional MS4 Permittees will obtain coverage under, and comply with, the CGP for their own construction projects. To the extent that they have the legal authority, Non-traditional MS4s must also require other entities discharging to their MS4 to obtain coverage under and comply with the CGP during the construction phase of their projects.

This Order recognizes the management structure of Non-traditional MS4s is different from municipal governments and that certain provisions applicable to Traditional MS4s may not be applicable to Non-traditional MS4s. However, it does not relieve the Non-traditional MS4s from development and implementation of a fully compliant construction storm water runoff control program. For example, municipal governments must review and approve erosion and sediment control plans prior to the issuance of grading permits. Certain Non-traditional MS4s such as school districts do not require approval from local municipalities prior to construction activity. Therefore, Non-traditional MS4 Permittees must have “bullet proof” contracts ensuring construction operators or contractors comply with the CGP and implement appropriate BMPs.

This Order also requires outreach and education to construction site operators and contractors. In addition, Permittees must conduct outreach and educate their own staff on controlling construction storm water runoff.

Non-traditional MS4s may have very little construction site inventory. However, in some cases, large Non-traditional MS4s such as universities may have several construction projects occurring simultaneously within their jurisdiction. These Permittees must ensure regular inspections as identified in this program element.

Pollution Prevention and Good Housekeeping Program - Applicable to all Non-traditional MS4 Categories

Legal Authority: Clean Water Act § 40 CFR 122.34(b)(6)

Non-traditional MS4s have the same responsibilities as Traditional MS4s to prevent or reduce storm water pollution generated by their own operations, to train employees about pollution prevention/good housekeeping practices, and to identify appropriate measures to prevent or reduce the amount of storm water generated by their operations.

It is highly likely that some of the facilities listed in Section E.9.a, Inventory of Permittee-owned and operated facilities, of the Order will not apply to most Non-traditional MS4 Permittees. However, all other provisions of Section E of the Order are applicable. For example, assessing “hot spots,” implementing SWPPPs, inspections, storm sewer system maintenance, and pesticide, herbicide, and fertilizer application management.

Industrial Commercial/Commercial Inspection and Outreach Program – Applicable to Fairgrounds/Military Bases/Ports

This Order requires only certain Non-traditional MS4 Permittees that are known to contain industrial/commercial facilities to implement the Industrial/Commercial Inspection Program. For example School Districts normally do not contain industrial/commercial tenants, but some privatized military bases contain commercial businesses and Fairgrounds contain many commercial food facilities while hosting festivals and county fairs.

Total Maximum Daily Load (TMDL)

The Order includes Attachment G, which identifies only those approved TMDLs in which storm water or urban run-off is listed as a source. In addition, Attachment G identifies Permittees subject to TMDLs or assigned waste load allocation. If Non-traditional MS4 Permittees have been identified in Attachment G, they must implement the specific TMDL permit requirements.

Program Effectiveness Assessment - Applicable to all Non-traditional MS4 Categories

Non-traditional MS4s have the same responsibilities as Traditional MS4s to conduct quantitative evaluation of their storm water program.

Online Annual Reporting - Applicable to all Non-traditional MS4 Categories

Non-traditional MS4s have the same responsibilities as Traditional MS4s to submit online Annual Reports via SMARTS.

Separate Implementing Entity

Legal Authority: Clean Water Act § 40 CFR 122.35

This Order allows a Non-traditional MS4 to rely on a Separate Implementing Entity to meet permit requirements, as allowed by USEPA in the Phase II regulations. An example is a community service district that is charged with creating an implementing a municipal storm water program.

Co-application and cooperative implementation of the storm water program by any Permittee with another Permittee can maximize efficiency and reduce overall costs. Non-traditional MS4s are encouraged to co-apply with local jurisdictions and utilize shared resources to implement the storm water program.

A Permittee may rely on a Separate Implementing Entity to implement one or more program elements, if the Separate Implementing Entity can appropriately and adequately address the storm water issues of the Permittee. To do this, both entities must agree to the arrangement, and the Permittee must comply with the applicable parts of the Separate Implementing Entity's program.

In accordance with section 122.35(a)(3), the Permittee remains responsible for compliance with its permit obligations if the Separate Implementing Entity fails to implement the control measure(s) or any component thereof. Therefore, the entities are encouraged to enter into a legally binding agreement to minimize any uncertainty about compliance with the permit.

If the Non-traditional MS4 Permittee relies on a Separate Implementing Entity to implement all program elements and the Separate Implementing Entity also has a storm water permit, the Permittee relying on Separate Implementing Entity must still file an NOI via SMARTS, submit the appropriate fee and file online Annual Reports. Both parties must also submit to the appropriate Regional Water Board a certification of the arrangement. The arrangement is subject to the approval of the Regional Water Board Executive Officer prior to filing an electronic NOI via SMARTS.

School districts present an example of where a Separate Implementing Entity arrangement may be appropriate, either by forming an agreement with a city or with an umbrella agency, such as the County Office of Education. Because schools provide a large audience for storm water education the two entities may coordinate an education program. An individual school or a school district may agree to provide a one-hour slot for all second and fifth grade classes during which the city would make its own storm water presentation. Alternatively, the school could agree to teach a lesson in conjunction with an outdoor education science project, which may also incorporate a public involvement component. Additionally, the school and the city or Office of Education may arrange to have the school's maintenance staff attend the other entity's training sessions.

XIII. RELATIONSHIP BETWEEN THE ORDER AND THE STATEWIDE GENERAL PERMIT FOR DISCHARGES OF STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY

In some cases, certain Non-traditional MS4s will be subject to both this General Permit and the IGP.

The intent of both of these permits is to reduce pollutants in storm water, but neither permit's requirements totally encompass the other. This Order requires that Non-traditional MS4 operators address storm water program elements, while the IGP requires the development and implementation of a SWPPP for certain "industrial" activities as well as requiring specific visual and chemical monitoring.

In the Preamble to the Phase II regulations, U.S. EPA notes that for a combination permit to be acceptable, it must contain all of the requirements for each permit. Further, "when viewed in its entirety, a combination permit, which by necessity would need to contain all elements of otherwise separate industrial and MS4 permit requirements, and require NOI information for each separate industrial activity, may have few advantages when compared to obtaining separate MS4 and industrial general permit coverage." Where the permits do overlap, one program may reference the other. More specifically, the Good Housekeeping for Permittee Operations program element requires evaluation of permittee operations, some of which may be covered under the IGP. The development and implementation of the SWPPP under the IGP will likely satisfy the Good Housekeeping requirements for those industrial activities. The Non-traditional MS4 storm water program may incorporate by reference the appropriate SWPPP.

There may be instances where a Non-traditional MS4 has, under the IGP, obtained coverage for the entire facility (rather than only those areas where industrial activities occur) and has developed a SWPPP that addresses all the program elements required by this General Permit. In these instances, the Non-traditional MS4 is not required to obtain coverage under this General Permit. The entity should, in such cases, provide to the appropriate Regional Water Board documentation that its SWPPP addresses all program elements.

XIV. USE OF PARTNERSHIPS IN MS4 PERMITS

Since the Phase II Rule applies to all small MS4s within an urbanized area regardless of political boundaries it is very likely that multiple governments and agencies within a single geographic area are subject to NPDES permitting requirements. For example, a city government that operates a small MS4 within an urbanized area may obtain permit coverage under the General Permit while other MS4s in the same vicinity (such as a County, other cities, public university, or military facility) may also be covered under the General Permit. All MS4s are responsible for permit compliance within their jurisdiction.

Given the potential for overlapping activities in close proximity, the State Water Board encourages MS4s in a geographic area to establish cooperative agreements in implementing their storm water programs, especially with receiving water monitoring. Partnerships and agreements between Permittees and/or other agencies can minimize unnecessary duplication of effort and result in efficient use

of available resources. Sharing resources can allow MS4s to focus their efforts on high priority program components. In addition by forming partnerships, water quality can be examined and improved on a larger, consolidated scale rather than on a piece-meal, site-by-site basis.