

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

FACT SHEET / TECHNICAL REPORT

FOR

**TENTATIVE ORDER NO. R9-~~2007-0002~~2008-0001
NPDES NO. CAS0108740**

WASTE DISCHARGE REQUIREMENTS

FOR

**DISCHARGES OF URBAN RUNOFF FROM
THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4S)
DRAINING THE WATERSHEDS OF THE
COUNTY OF ORANGE,
THE INCORPORATED CITIES OF ORANGE COUNTY,
AND THE ORANGE COUNTY FLOOD CONTROL DISTRICT
WITHIN THE SAN DIEGO REGION**

December 12, 2007

TABLE OF CONTENTS

	<u>LIST OF ACRONYMS AND ABBREVIATIONS</u>	<u>3</u>
I.	<u>FACT SHEET FORMAT</u>	<u>5</u>
II.	<u>CONTACT INFORMATION</u>	<u>6</u>
III.	<u>PUBLIC PROCESS AND NOTIFICATION PROCEDURES</u>	<u>6</u>
IV.	<u>BACKGROUND</u>	<u>7</u>
V.	<u>PERMITTING APPROACH</u>	<u>11</u>
VI.	<u>ECONOMIC ISSUES</u>	<u>13</u>
VII.	<u>LEGAL AUTHORITY</u>	<u>19</u>
VIII.	<u>FINDINGS</u>	<u>21</u>
	<u>A. Basis For the Order</u>	<u>21</u>
	<u>B. Regulated Parties</u>	<u>23</u>
	<u>C. Discharge Characteristics</u>	<u>23</u>
	<u>D. Urban Runoff Management Programs</u>	<u>37</u>
	<u>E. Statute and Regulatory Considerations</u>	<u>64</u>
	<u>F. Public Process</u>	<u>80</u>
IX.	<u>DIRECTIVES</u>	<u>81</u>
	<u>A. Prohibitions and Receiving Water Limitations</u>	<u>81</u>
	<u>B. Non-Storm Water Discharges</u>	<u>83</u>
	<u>C. Legal Authority</u>	<u>84</u>
	<u>D. Jurisdictional Urban Runoff Management Program</u>	<u>86</u>
	<u>D.1. Development Planning</u>	<u>86</u>
	<u>D.2. Construction</u>	<u>101</u>
	<u>D.3 Existing Development</u>	<u>105</u>
	<u>D.4. Illicit Discharge Detection and Elimination</u>	<u>115</u>
	<u>E. Watershed Urban Runoff Management Programs</u>	<u>117</u>
	<u>F. Fiscal Analysis</u>	<u>122</u>
	<u>G. Program Effectiveness Component</u>	<u>125</u>
	<u>H. Reporting</u>	<u>126</u>
	<u>I. Modification of Programs</u>	<u>129</u>
	<u>J. Principal Permittee Responsibilities</u>	<u>130</u>
	<u>K. Receiving Waters Monitoring and Reporting</u>	<u>131</u>
	<u>L. Standard Provisions, Reporting Requirements, And Notifications</u>	<u>131</u>
	<u>M. Attachment A – Basin Plan Prohibitions</u>	<u>132</u>
	<u>N. Attachment B – Standard Provisions</u>	<u>132</u>
	<u>O. Attachment C – Definitions</u>	<u>133</u>
	<u>P. Attachment D – Summary of Submittals</u>	<u>133</u>
	<u>Q. Attachment E - Receiving Waters and Urban Runoff Monitoring and Reporting Program</u>	<u>134</u>
X.	<u>RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2008-0001</u>	<u>147</u>

LIST OF ACRONYMS AND ABBREVIATIONS

ADT - Average Daily Traffic
BAT - Best Available Technology
BIA - Building Industry Association of San Diego County
BMP - Best Management Practice
Basin Plan - Water Quality Control Plan for the San Diego Basin
CASQA - California Stormwater Quality Association
CCC - California Coastal Commission
CDFG - California Department of Fish and Game
CEQA - California Environmental Quality Act
CFR - Code of Federal Regulations
Copermittees - County of Orange, the 11 incorporated cities within the County of Orange in the San Diego Region, and the Orange County Flood Control District
CWA - Clean Water Act
CWC - California Water Code
CZARA - Coastal Zone Act Reauthorization Amendments of 1990
DAMP – Drainage Area Management Plan
ESAs - Environmentally Sensitive Areas
FETD – Facilities That Extract, Treat, and Discharge from and to Waters of the U.S.
FR - Federal Register
GIS - Geographic Information System
IC/ID - Illicit Connections and Illicit Discharges
JURMP - Jurisdictional Urban Runoff Management Plan
LARWQCB – California Regional Water Quality Control Board, Los Angeles Region
MEP - Maximum Extent Practicable
MRP - Receiving Waters Monitoring and Reporting Program
MS4 - Municipal Separate Storm Sewer System
NOI - Notice of Intent
NPDES - National Pollutant Discharge Elimination System
NRDC - Natural Resources Defense Council
NURP - Nationwide Urban Runoff Program
OCVCD – Orange County Vector Control District
Regional Board – California Regional Water Quality Control Board, San Diego Region
RGOs - Retail Gasoline Outlets
ROWD - Orange County Copermittees' Report of Waste Discharge (application for NPDES reissuance)
RTC 1 and RTC 2 – Response to Comments Documents No. 1 and No. 2
RWLs - Receiving Water Limitations
SIC - Standard Industrial Classification Code
SUSMP - Standard Urban Storm Water Mitigation Plan
SWMP - Storm Water Management Plan
State Board - State Water Resources Control Board
SWPPP - Storm Water Pollution Prevention Plan
TAC - State Water Resources Control Board Urban Runoff Technical Advisory Committee
TIE - Toxicity Identification Evaluation
TMDL - Total Maximum Daily Load
USEPA - United States Environmental Protection Agency
USACE – United States Army Corps of Engineers
WDRs - Waste Discharge Requirements
WLA - Waste Load Allocation
WQC - Water Quality Criteria
WQBEL - Water Quality Based Effluent Limits
WQMP – Water Quality Management Plan

Fact Sheet / Technical Report for 4
Revised Tentative Order No. R9-~~2007-0002~~2008-0001

December 12, 2007

WSPA - Western States Petroleum Association
WURMP - Watershed Urban Runoff Management Plan

I. FACT SHEET FORMAT

This Fact Sheet briefly sets forth the principle facts and the significant factual, legal, methodological, and policy questions that the California Regional Water Quality Control Board, San Diego Region (Regional Board) considered in preparing Order No. R9-200~~87~~-000~~12~~. In accordance with the Code of Federal Regulations (CFR) title 40 parts 124.8 and 124.56, this Fact Sheet includes, but is not limited to, the following information:

- A. Contact information
- B. Public process and notification procedures
- C. Background information
- D. Permitting approach
- E. Economic issues
- F. Legal authority
- G. Findings
- H. Directives

Tentative Order No. R9-2008-0001 (Order) was distributed for review on February 9, 2007 as Tentative Order No. R9-2008-0001. A public hearing was subsequently held on April 11, 2007 in the City of Mission Viejo to receive oral comments from interested persons, and the Regional Board accepted written comments on the Tentative Order until April 25, 2007. Following review of the comments, a Revised Tentative Order was distributed on July 6, 2007 with a Response to Comments document (RTC 1). A second set of written comments were received on the revisions until August 23, 2007. Following review of the second round of written comments, the Regional Board further revised specific sections of the Order and distributed a second Response to Comments document (RTC 2). The two Response to Comments documents distributed by the Regional Board summarize all substantial comments received and discuss the resolution of each comment. They are included in Section X to this Fact Sheet / Technical Report. References to RTC 1 and RTC 2 have been included in the Fact Sheet where the comment or relevant response addressed that section.

The Regional Board's files applicable to the issuance of Order No. R9-200~~87~~-000~~12~~ are incorporated into the administrative record in support of the findings and requirements of Order No. R9-~~2007~~2008-000~~12~~.

II. CONTACT INFORMATION

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The Order and other related documents can be downloaded from the Regional Board website at http://www.waterboards.ca.gov/sandiego/programs/oc_stormwater.html.

All documents referenced in this Fact Sheet and in Order No. R9-~~2007-0002~~2008-0001 are available for public review at the Regional Board office, located at the address listed above. Public records are available for inspection during regular business hours, from 8:00 am to 5:00 pm Monday through Friday. To schedule an appointment to inspect public records, contact Sylvia Wellnitz at 858-637-5593 or DiAnne Broussard at 858-492-1763.

Copermittees

County of Orange	City of Laguna Woods
Orange County Flood Control District	City of Lake Forest
City of Aliso Viejo	City of Mission Viejo
City of Dana Point	City of Rancho Santa Margarita
City of Laguna Beach	City of San Clemente
City of Laguna Hills	City of San Juan Capistrano
City of Laguna Niguel	

III. PUBLIC PROCESS AND NOTIFICATION PROCEDURES

The Regional Board followed the schedule listed below for the preparation of Order No. R9-~~2007-0002~~2008-0001:

- A. In April 2006 and July 2006, the Northern Watershed Unit of the Regional Board met with the Copermittees to discuss the Report of Waste Discharge (ROWD) and potential changes to the permit based on the annual reports and the tentative permit for San Diego County.

- B. On August 18, 2006, the Regional Board received the ROWD for the permit renewal.
- C. On October 20, 2006 the Regional Board provided written comments on the ROWD to the Copermitees.
- D. On November 15, 2006, the Regional Board received the 2005-06 annual reports from the Copermitees for the existing permit.
- E. On January 11, 2007, the Regional Board notified all known interested parties that an electronic email listserv had been established to provide information and notices on the reissuance of the municipal storm water NPDES permit for southern Orange County.
- F. On February 9, 2007, the Regional Board released the tentative Order and notified interested parties of a planned workshop. Written comments were accepted until April 25, 2007.
- G. A public workshop was held on March 12, 2007.
- H. A public hearing of the tentative Order was conducted on April 11, 2007.
- I. A revised tentative Order was released on July 6, 2007. Written comments were accepted until August 23, 2007.
- J. A second revised tentative Order was released on December 12, 2007.
- K. A public hearing was conducted on (DATE).

IV. BACKGROUND

Tentative Order No. R9-~~2007-0002~~2008-0001 is the ~~third reissuance~~fourth iteration of the storm water permit for the municipal separate storm sewer systems (MS4s) in the Orange County portion of the San Diego region. The first permit was adopted in 1990, and the permit was reissued in 1996 and 2002.

Municipal Storm Water Permits are required by the Federal Clean Water Act 1987 Amendments. The federal Clean Water Act (CWA) was amended in 1987 to address urban runoff. One requirement of the amendment was that many municipalities throughout the United States were obligated for the first time to obtain National Pollutant Discharge Elimination System (NPDES) permits for discharges of urban runoff from their MS4s. In response to the CWA amendment (and the pending federal NPDES regulations which would implement the amendment), the Regional Board issued a municipal storm water permit, Order No. 90-38, in July 1990 to the Copermitees for their urban runoff discharges.¹

¹ The 1990 permit was issued to the County of Orange, the Orange County Flood Control District, and six incorporated cities. Additional municipalities have been added to the MS4 NPDES permit as they have incorporated.

The First and Second Term Permits, Order Nos. 90-38 and 96-03, provided maximum flexibility. Order No. 90-38 contained the “essentials” of the 1990 regulations, but the requirements were written in very broad, generic terms. This was done in order to provide the maximum amount of flexibility to the Copermittees in implementing the new requirements (flexibility was, in fact, the stated reason for issuing the permit in advance of the final regulations). This lack of specificity was reflected in the Drainage Area Management Plan (DAMP) implemented under this First Term Permit in 1993 and renewed under the Second Term Permit in 1996. From staff’s perspective however, this same lack of specificity, combined with the lack of funding and political will, also provided the Copermittees with ample reasons to take few substantive steps towards permit compliance. The situation was exacerbated by the Regional Board’s own lack of storm water resources.

By 2000 the Regional Board and Copermittees recognized the importance of an improved storm water program. Although renewed in 1996 as Order No. 96-03, the 1993 DAMP implemented by the Copermittees was not significantly updated until 2000. The 2000 DAMP submitted to the Regional Board for the Third-Term Permit renewal was improved over the earlier DAMP. Regional Board staff concluded, however, that it reflected only the basic requirements of the 1990 Federal Regulations and in most cases did not represent significant improvement over the 1993 DAMP. Continued implementation of the DAMP without amendment would not have adequately addressed the impacts to receiving waters resulting from the discharge of urban runoff and would not have achieved the maximum extent practicable standard (MEP) as defined in the Order.

In order to provide the Copermittees with the minimum requirements to meet the MEP standard of the Regional Board, a more detailed Order was adopted (Order No. R9-2002-01) that emphasized the strong jurisdictional level programs developed by the Copermittees during the First and Second Term Permits as well as the watershed-level approach embodied in the proposed DAMP.

The Third-Term Permit introduced specific requirements. The regulatory approach incorporated into Order No. R9-2002-01 was a significant departure from the regulatory approach of the First and Second-Term Permits. Where Order Nos. 90-38 and 96-03 included broad, nonspecific requirements in order to provide the Copermittees with the maximum amount of flexibility in implementing-developing their programs, Order No. R9-2002-01 used detailed, specific requirements which outlined the minimum level of implementation required for the Copermittees’ programs. The shift in permitting approaches resulted from the Regional Board’s conclusion that the lack of specificity in earlier Orders resulted in frequently unenforceable permit requirements, which in turn allowed some Copermittees to only make limited progress in implementing their programs.

The Third-Term Permit followed the San Diego County permit template. The shift in regulatory approaches for MS4 permits was first manifested in the 2001 MS4 permit to the owners and operators of San Diego County MS4s (Order No. R9-2001-01). The Third-Term Orange County Permit included similar requirements as the 2001 San Diego County Permit. Both the San Diego and Orange County Permits were appealed to the State Water Resources Control Board (State Board).² Minor modifications of each were made by the State Board, but the vast majority of the requirements were upheld. The San Diego County permit was also challenged in the Superior Court of the State of California and the Court of Appeal, Fourth Appellate District. Further litigation on the Orange County permit was held pending the precedential decisions on the San Diego Permit. The San Diego Permit was largely upheld in the Superior and Appellate Courts. The State of California Supreme Court declined to hear a final appeal from the Building Industry Association in March 2005. Thus, the Third-Term Orange County permit requirements remained as slightly modified by the State Board.

The Third-Term Permit was adopted following substantial public participation. Public participation was extensive during the adoption process of the Third-Term Permit. The draft permit was released for public review and comment on July 2, 2001, and revised in response to comments and State Board Order WQ 2001-15 on the petition to review the San Diego Municipal Storm Water Permit. Because the proposed requirements for Orange County were similar to those that had recently been adopted and contested in San Diego County, much of the public participation dialogue echoed the discussions held during the San Diego renewal. Approximately 684 comments were received and responded to during two public workshops and a written comment period on the Tentative Order for the Third-Term Orange County permit. Following the extensive public participation process, the Regional Board adopted Order No. R9-2002-01 on February 13, 2002.

Storm water programs have improved under the Third-Term Permit. Since adoption of Order No. R9-2002-01, the Copermittees' storm water programs have expanded dramatically. Audits of the Copermittees' programs and reviews of annual reports exhibit that the Copermittees' jurisdictional programs are largely in compliance with the Order. Some of the efforts currently being conducted on a regular basis by the Copermittees that were not conducted on a widespread basis prior to adoption of Order No. R9-2002-01, include: construction site storm water inspections, industrial and commercial facility storm water inspections, municipal facility storm water inspections, management of storm water quality from new development, development of BMP requirements for existing development, interdepartmental coordination, comprehensive water quality monitoring, and assessment of storm water program effectiveness.

² Seven petitions were filed with the State Board over the Third-Term Orange County Permit. Six were placed in abeyance. Three of the petitioners sought stays. One stay request was dismissed and one was withdrawn. The active petition and stays were addressed by the State Board in Order No. WQO 2002-0014. That Order stayed provision F.5.f regarding sewage spills and modified Finding No. 26 regarding chronic toxicity.

Significant urban runoff challenges remain. When viewed relative to the magnitude of the urban runoff problem, enormous challenges remain, particularly regarding the management of urban runoff on a watershed scale. Today, urban runoff continues to be the leading cause of water quality impairment in the San Diego Region.³ The Copermitees' monitoring data exhibits persistent exceedances of water quality objectives in most watersheds.⁴ Many watersheds also have urban runoff conditions that are frequently toxic to aquatic life. Bioassessment data from the watersheds further reflects these conditions, finding that macroinvertebrate communities in creeks have widespread Poor to Very Poor Index of Biotic Integrity ratings. Finally, the now too familiar "health advisory" or "beach closure" signs, which often result from high levels of bacteria in urban runoff, exhibit the continued threat to public health by urban runoff.

³ The potential sources of impairments are identified on the CWA section 303(d) list of impaired water bodies for the San Diego Region.

⁴ Data is provided in annual reports to the Regional Board. A summary of data collected during the third-term permit is provided in the Copermitees' application for permit reissuance. That summary is available on-line at: http://www.ocwatersheds.com/StormWater/documents_ROWd.asp

V. PERMITTING APPROACH (PROGRAM INTEGRATION, FLEXIBILITY, AND DETAIL)

The Order contains an increased emphasis on urban runoff management on a watershed basis. This shift towards increased watershed urban runoff management is consistent with planning efforts conducted by the Regional Board regarding reissuance of the San Diego Permit (Order No. R9-2007-0001), and it is also consistent with the Copermittees' most recent Report of Waste Discharge (ROWD).⁵ This shift reflects recognition of the maturity of the urban runoff programs since they began implementing the Third-Term Permit. Addressing urban runoff management on a watershed basis is only possible if effective jurisdictional programs have been established, and maintaining effective jurisdictional programs is crucial to the success of watershed-focused management.

There are several reasons for this shift in emphasis. First, the Copermittees are generally doing an effective job at implementing their jurisdictional programs; while on the other hand, an emphasis on watersheds is necessary to shift the focus of the Copermittees from program development and implementation to water quality results. After over 15 years of Copermittee program implementation, it is critical that the Copermittees link their efforts with positive impacts on water quality. Addressing urban runoff management on a watershed scale focuses on water quality results by emphasizing the receiving waters within the watershed. The conditions of the receiving waters drive management actions, which in turn focus on the water quality problems in each watershed.

Focusing on watershed implementation does not mean that the Copermittees must expend funds outside of their jurisdictions. Rather, the Copermittees within each watershed are expected to collaborate to develop a watershed strategy to address the high priority water quality problems within each watershed. They ~~then~~ have the option of implementing the strategy in the manner they find to be most effective. Each Copermittee can implement the strategy individually within its jurisdiction, or the Copermittees can group together to implement the strategy throughout the watershed ~~as a group~~.

While the Order includes a new emphasis on addressing urban runoff on a watershed basis, the Order includes recognition of the importance of continued program implementation on jurisdictional and countywide levels. The Order also acknowledges that jurisdictional, watershed, and countywide efforts are not always mutually exclusive. For this reason, an attempt has been made to allow for the Copermittees' jurisdictional, watershed, and countywide programs to integrate.

⁵ The Report of Waste Discharge (ROWD) was submitted to the Regional Board on August 18, 2006 by the Principal Permittee (County of Orange) on behalf of all Copermittees.

In the Order, the watershed requirements serve as the mechanism for this program integration. Since jurisdictional and countywide activities can also serve watershed purposes, such activities can be integrated into the Copermittees' watershed programs, provided the activities meet certain criteria. In this manner, the Copermittees' activities do not always need to distinguish between jurisdictional, watershed, and countywide levels of implementation. Instead, they can be integrated on multiple levels.

Such opportunities for program integration inherently provide flexibility to the Copermittees in implementing their programs. Program integration can be expanded or minimized as the Copermittees see fit. For example, there is flexibility provided in determining the activities to be integrated and implemented in the watershed programs – watershed-based efforts, countywide efforts, enhanced jurisdictional efforts, or a mixture of the three. Significant flexibility is also provided throughout other portions of the Order.

Copermittees can choose the best management practices (BMPs) to be implemented, or required to be implemented, for development, construction, and existing development areas. Flexibility to determine which industrial or commercial sites are to be inspected is also provided to the Copermittees. Educational approaches are also to be determined by the Copermittees under the Order. Implementation of certain efforts on a countywide basis is largely optional for the Copermittees as well. Significant leeway is also provided to the Copermittees in using methods to assess the effectiveness of their various urban runoff management programs. This flexibility is further extended to the monitoring program requirements, which allow the Copermittees to develop monitoring approaches to several aspects of the monitoring program.

The challenge in drafting the Order is to provide the flexibility described above while ensuring that the Order is still enforceable. To achieve this, the Order frequently prescribes minimum measurable outcomes, while providing the Copermittees with flexibility in the approaches they use to meet those outcomes. Enforceability has been found to be a critical aspect of the Order. For example, the watershed requirements of Order No. R9-2002-01 were some of the Order's most flexible requirements. This lack of specificity in the watershed requirements resulted in inefficient watershed compliance efforts. This situation reflects a common outcome of flexible permit language. Such language can be unclear and unenforceable, and it can lead to implementation of inadequate programs.

To avoid these types of situations, a balance between flexibility and enforceability has been crafted into the Order. Minimum measurable outcomes are utilized to ensure the Order is enforceable, while the Copermittees are provided flexibility in deciding how they will implement their programs to meet the minimum measurable outcomes.

VI. ECONOMIC ISSUES

Economic discussions of urban runoff management programs tend to focus on the significant costs incurred by municipalities in developing and implementing the programs. However, when considering the cost of implementing the urban runoff programs, it is also important to consider the alternative costs incurred by not fully implementing the programs, as well as the benefits which result from program implementation. For instance, unhealthful coastal water quality conditions negatively affect residents, tourists, and related portions of the Orange County economy.⁶

It is very difficult to ascertain the true cost of implementation of the Copermittees' urban runoff management programs because of inconsistencies in reporting by the Copermittees. Reported costs of compliance for the same program element can vary widely from city to city, often by a very wide margin that is not easily explained.⁷ Despite these problems, efforts have been made to identify urban runoff management program costs, which can be helpful in understanding the costs of program implementation. The Orange County Municipalities plan to prepare a common fiscal reporting strategy to better define the expenditure and budget line items included in annual reports.⁸

Estimates of Phase I Storm Water Program Costs.

The United States Environmental Protection Agency (USEPA), the California Regional Water Quality Control Boards, and the State Board have attempted to evaluate the costs of implementing municipal storm water programs. The assessments demonstrate that true costs are difficult to ascertain and reported costs vary widely. Nonetheless, they provide a useful context for considering the costs of requirements within Tentative Order No. R9-~~2007-0002~~2008-0001. In addition, reported fiscal analyses tend to neglect the costs incurred to municipalities when urban runoff is not effectively managed. Such costs result from pollution, contamination, nuisance, and damage to ecosystems, property, and human health.

In 1999 USEPA 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 expected to be \$9.16 per household. USEPA also studied 35 Phase I municipalities, finding costs to be \$9.08 per household annually, similar to those anticipated for Phase II municipalities.⁹ The USEPA cost estimate for Phase I municipalities is valuable because it considers municipalities in Orange County.

⁶ Orange County 2006 Community Indicators Project. 2006. Sponsored by the County of Orange, the Orange County Business Council, and the Children and Families Commission of Orange County. Available on-line at www.oc.ca.gov/ceocommunity.asp

⁷ LARWQCB, 2003. Review and Analysis of Budget Data Submitted by the Permittees for Fiscal Years 2000-2003. P. 2.

⁸ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region)

⁹ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791-68792.

A study on program cost was also conducted by the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB), where program costs reported in the municipalities' annual reports were assessed. The LARWQCB estimated that average per household cost to implement the MS4 program in Los Angeles County was \$12.50.¹⁰ Since the Los Angeles County permit is very similar to Order No. R9-2002-01, this estimate is also useful in assessing general program costs in Orange County.

The State Board also recently commissioned a study by the California State University, Sacramento to assess costs of the Phase I MS4 program. This study includes an assessment of costs incurred by Phase I MS4s throughout the State to implement their programs. Annual cost per household in the study ranged from \$18-46, with the City of Encinitas in San Diego County representing the upper end of the range.¹¹ Although no Orange County municipalities were assessed, the cost of the City of Encinitas' program may be somewhat representative of the upper range of Orange County MS4 programs. Encinitas shares similarities with southern Orange County, including the similarity of the San Diego MS4 permit to the Orange County MS4 permit, the city's coastal location, and its reliance on tourism. However, the City's program cost can be considered as the high end of the spectrum for urban runoff management program costs because the City has a consent decree with environmental groups regarding its program, and City of Encinitas has received recognition for implementing a superior program.

It is important to note that reported program costs are not all attributable to compliance with MS4 permits. Many program components, and their associated costs, existed before any MS4 permits were ever issued. For example, street sweeping and trash collection costs cannot be solely or even principally attributable to MS4 permit compliance, since these practices have long been implemented by municipalities. Therefore, true program cost resulting from MS4 permit requirements is some fraction of reported costs. The California State University, Sacramento study found that only 38 percent of program costs are new costs fully attributable to MS4 permits. The remainder of the program costs were either pre-existing or resulted from enhancement of pre-existing programs.¹² In 2000, 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 the Drainage Area Management Plan (DAMP), was less than 20 percent of the total budget. The remaining 80 percent was attributable to pre-existing programs.¹³

Estimating Costs of Reissued Storm Water Permits

¹⁰ LARWQCB, 2003. Review and Analysis of Budget Data Submitted by the Permittees for Fiscal Years 2000-2003. P. 2.

¹¹ State Water Board, 2005. NPDES Stormwater Cost Survey. P. ii.

¹² Ibid. P. 58.

¹³ 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.

The vast majority of costs that will be incurred as a result of implementing Order No. R9-~~2007-0002~~2008-0001 are not new. Urban runoff management programs have been in place in Orange County for over 15 years. Any increase in cost to the Copermittees will be incremental in nature. Moreover, since Order No. R9-~~2007-0002~~2008-0001 “fine tunes” the requirements of Order No. R9-2002-01, these cost increases are expected to be modest.

The anticipated costs of program changes are difficult to estimate because of the flexibility inherent within the Permit and the recognition that program modifications will vary among the municipalities in response to the specific needs of the local and watershed programs. In other words, the Permit is intended to allow each Permittee to de-emphasize some program components and strengthen others based on the experience of the jurisdictional programs.

The changes in Order No. R9-~~2007-0002~~2008-0001 reflect the iterative process of BMP implementation and the necessarily adaptive nature of storm water management that is expected by the USEPA. In 1996, USEPA recognized that changes to MS4 programs would occur during the reapplication period based on new information on the relative magnitude of a problem, new data on water quality impacts of the storm water discharges, and experience gained under the prior permit.¹⁴ Some program changes have been proposed by the Copermittees in the permit reapplication package, and others have been included because the Regional Board considers those measures necessary and feasible to protect water quality from the effects of MS4 discharges.

Other Economic Considerations.

Economic considerations of urban runoff management programs cannot be limited only to program costs. Evaluation of programs requires information on the implementation costs and information on the benefits derived from environmental protection and improvement.¹⁵ Attention is often focused on program costs, but the programs must also be viewed in terms of their value to the public.

¹⁴ Federal Register / Vol. 61, No. 155 / Friday, August 9, 1996 / Rules and Regulations. Interpretive policy memorandum on reapplication requirements for MS4s.

¹⁵ Ribaudo M.O. and D. Heelerstein. 1992, *Estimating Water Quality Benefits: Theoretical and Methodological Issues*. U.S. Department of Agriculture. Technical Bulletin No. 1808.

For example, household willingness to pay for improvements in fresh water quality for fishing and boating has been estimated by USEPA to be \$158-210.¹⁶ 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 \$180.¹⁷ When viewed in comparison to household costs of existing urban runoff management programs, household willingness to pay estimates exhibit that per household costs incurred by Copermitees to implement their urban runoff management programs remain reasonable.

The effect of urban runoff on receiving waters can also influence the value of real estate in southern Orange County. For instance, recent marketing of new developments in the region prominently features access or proximity to the ocean.¹⁸ This demonstrates the added value of healthy aquatic environments to property values. The real estate industry recognizes that home buyers are willing to pay for access to clean water environments. The ability to market water-based recreational activities is dependent on healthy water quality conditions.

Municipalities and business groups in Orange County recognize the value of programs to prevent and treat urban runoff pollution in Orange County. For instance, both coastal and inland Orange County cities positively promote their access to the Pacific Ocean as a valuable quality of life feature.¹⁹ In addition, the South Orange County Regional Chamber of Commerce's legislative policy for infrastructure includes the support of programs and solutions for non-point source urban water runoff. This demonstrates that the business community realizes the negative economic effects that result from polluted urban runoff.

¹⁶ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68793.

¹⁷ State Board, 2005. NPDES Stormwater Cost Survey. P. iv.

¹⁸ Examples include the "Marblehead Coastal" project in San Clemente (<http://www.marbleheadonthecoast.com>), the "Pacifica San Juan" project in San Juan Capistrano (<http://pacificasanjuan.com>), and "The Strand at Headlands" in Dana Point (<http://strandoc.com>).

¹⁹ For a coastal city, see Laguna Beach Overview at <http://www.lagunabeachcity.net/about/overview>. For an inland city, see the Lake Forest 2005 Economic Profile at <http://www.thearbor.info/pdf/2005%20Economic%20Profile.pdf>.

Another important way to consider urban runoff management program costs is to consider ~~the~~ implementation ~~cost~~ in terms of costs incurred by not improving the programs. Urban runoff in southern California has been found to cause illness in people bathing near storm drains.²⁰ A study of south Huntington Beach and north Newport Beach (both located in northern Orange County) found that an illness rate of about 0.8 percent among bathers at those beaches resulted in about \$3 million annually in health-related expenses.²¹ Extrapolation of such numbers to the wide range of beaches of Orange County could result in huge public expenses.

Urban runoff and its impact on receiving waters also affect tourism. In past years, Orange County was featured in the national press for its water quality problems. Such news is likely to have a negative impact on tourism, since polluted beaches are generally not attractive to tourists. According to the Orange County Community Indicators Project, the County's visitors spent an average of \$107.70 per day in 2004.²² 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, severely impacting beach visitation. When considered with the number of visitors and their average expenditure, the negative effects to the local economy are obvious.

Coastal tourism is an important industry in Orange County and is dependent upon effective management of urban runoff pollution. The following examples reflect that relationship.

DANA POINT: In response to a Grand Jury finding (1999-2000 Rainy Season's First Flush Hits the Harbors of Orange County), the city of Dana Point notes the interrelationship between the clean coastal water and the economic health of the city. Dana Point reports receiving \$5.2 million in transit occupancy tax funds in FY 1999-2000 "due in large part because of proximity to the beach. Without clean beaches, Dana Point risks losing its major revenue source."²³ More recently, the City budget report estimates that transit occupancy taxes comprise 35 percent of general fund revenues for the 2006 fiscal year.

²⁰ 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.

²¹ Dwight, R.H., et al., 2005. Estimating the Economic Burden From Illnesses Associated With Recreational Coastal Water Pollution – A Case Study in Orange County, California. *Journal of Enviro. Management* Vol.76. No.2 p.95-103. Also reported in: 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.

²² Orange County 2006 Community Indicators Project. 2006. Sponsored by the County of Orange, the Orange County Business Council, and the Children and Families Commission of Orange County. Available on-line at www.oc.ca.gov/ceocommunity.asp

²³ Orange County Grand Jury. 1999-2000 Rainy Season's First Flush Hits the Harbors of Orange County.

LAGUNA BEACH: Tourism is one of the primary components of the Laguna Beach economy, and the beach is one of the main tourist attractions in the city. In 1999, hotel/motel bed tax revenue was approximately \$3 million, representing 13%percent of the City's general fund revenue.²⁴ In 2006, the City expects transit occupancy taxes to represent about 11%percent of general fund revenue.²⁵ The proportional decrease is due to an increase in property taxes, which is also affected in part by the quality of coastal waters. The City Council recognizes the value of the beaches to tourists, and the local population and has funded several low-flow diversion systems in an attempt to decrease beach pollution and beach closures.

DOHENY STATE BEACH: In 1997, the U.S. Army Corps of Engineers (USACE) prepared an economic analysis as part of the San Juan Creek and Aliso Creek Watershed Study. Recreational value for Doheny State Beach, based on annual visitation of 670,545 people in 1995, was calculated at \$2,850,000. Furthermore, the USACE notes that lifeguards reported that beach attendance falls dramatically when there are unhealthy conditions in the ocean. In 1999, the USACE prepared an updated economic study as part of the Feasibility Phase of the San Juan Creek Watershed Management Study. The 1999 study reports that average beach attendance from 1996 to 1998 increased to 918,735. The USACE places a recreation value per visitor at \$5.76, which implies the annual recreational value of Doheny State Beach for 1996 to 1998 was \$5,291,914.

ALISO BEACH: In 1997, the USACE prepared an economic analysis as part of the San Juan Creek and Aliso Creek Watershed Study. Recreational value for Aliso Beach, based on annual visitation of 3,477,369 people in 1995, was calculated at \$14,779,000. In the 1999 Draft Feasibility Report for the Aliso Creek Watershed Management Study, the USACE noted that the average beach attendance from 1996 to 1998 decreased to 1,148,374. The recreation value per visitor was calculated at \$4.50 and the average annual impact from water quality-related beach closures at Aliso Beach Park was estimated to be \$468,392. This number is comparable to an economic analysis conducted as part of the Aliso Creek Watershed 205(j) study that estimated the annual average recreational value impact of beach closures at Aliso Beach Park to be \$468,400.

²⁴ Laguna Beach at a Glance. May 2000. Prepared by Moore Iacofano Goltsman, Inc.

²⁵ City of Laguna Beach, adopted budget 2006-2007. Available on-line at:
<http://www.lagunabeachcity.net/government/reference/budget07>

Finally, it is important to consider the benefits of urban runoff management programs in conjunction with their costs. A recent study conducted by the University of Southern California and University of California, Los Angeles 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.²⁶ 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.²⁷

Additional discussion of economic issues can be found at section 3 of the Fact Sheet/Technical Report for Regional Board Order No. R9-2002-01, available at:

http://www.waterboards.ca.gov/sandiego/programs/oc_stormwater.html.

VII. LEGAL AUTHORITY

The following statutes, regulations, and Water Quality Control Plans provide the basis for the requirements of Order No. R9-2006-0011: Clean Water Act (CWA), California Water Code (CWC), 40 CFR Parts 122, 123, 124 (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, Final Rule), Part II of 40 CFR Parts 9, 122, 123, and 124 (National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule), Water Quality Control Plan – Ocean Waters of California (California Ocean Plan), Water Quality Control Plan for the San Diego Basin (Basin Plan), 40 CFR 131 Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule (California Toxics Rule), and the California Toxics Rule Implementation Plan.

The legal authority citations below generally apply to directives in Order No. R9-~~2007-0002~~2008-0001, and provide the Regional Board with ample underlying authority to require each of the directives of Order No. R9-~~2007-0002~~2008-0001. Legal authority citations are also provided with each permit section discussion in section IX of this Fact Sheet/Technical Report.

CWA 402(p)(3)(B)(ii) – The CWA requires in section 402(p)(3)(B)(ii) that permits for discharges from municipal storm sewers “shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers.”

²⁶ LARWQCB, 2004. Alternative Approaches to Stormwater Control.

²⁷ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791.

CWA 402(p)(3)(B)(iii) – The CWA requires in section 402(p)(3)(B)(iii) that permits for discharges from municipal storm sewers “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.”

40 CFR 122.26(d)(2)(i)(B,C,E, and F) – Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) provide that each Copermittee’s permit application “shall consist of: (i) Adequate legal authority. A demonstration that the applicant can operate pursuant to legal authority established by statute, ordinance or series of contracts which authorizes or enables the applicant at a minimum to: [...] (B) Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer; (C) Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water; [...] (E) Require compliance with condition in ordinances, permits, contracts or orders; and (F) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.”

40 CFR 122.26(d)(2)(iv) – Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) provides that the Copermittee shall develop and implement a proposed management program which “shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. [...] Proposed programs may impose controls on a system wide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. [...] Proposed management programs shall describe priorities for implementing controls.”

40 CFR 122.26(d)(2)(iv)(A - D) – Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from new development and significant redevelopment, construction, and commercial, residential, industrial, and municipal land uses or activities. Control of illicit discharges is also required.

CWC 13377 – CWC section 13377 provides that “Notwithstanding any other provision of this division, the State Board or the regional boards shall, as required or authorized by the CWA, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with anymore stringent effluent standards or limitation necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.”

Order No. R9-~~2007-0002~~2008-0001 is an essential mechanism for achieving the water quality objectives that have been established for protecting the beneficial uses of the water resources in the San Diego Regional Board's portion of Orange County. Federal NPDES regulation 40 CFR 122.44(d)(1) requires MS4 permits to include any requirements necessary to "achieve water quality standards established under CWA section 303, including State narrative criteria for water quality." The term "water quality standards" in this context refers to a water body's beneficial uses and the water quality objectives necessary to protect those beneficial uses as established in the Basin Plan and antidegradation policies.

VIII. FINDINGS

The findings of the Order have been modified to reduce repetition in their discussions and address new requirements. Each finding of the Order is provided and discussed below. Additional discussion relative to the findings can be found in section IX of the Fact Sheet, which provides discussions of the Order's directives.

A. Basis For the Order

Finding A.1. This Order is based on the federal Clean Water Act (CWA), the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board (State Board), the Water Quality Control Plan for the San Diego Basin adopted by the Regional Board, the California Toxics Rule, and the California Toxics Rule Implementation Plan.

Discussion of Finding A.1. In 1987, Congress established CWA Amendments to create requirements for storm water discharges under the NPDES program, which provides for permit systems to regulate the discharge of pollutants. Under the Porter-Cologne Water Quality Control Act, the State Board and the nine Regional Water Quality Control Boards have primary responsibility for the coordination and control of water quality, including the authority to implement the CWA. Porter-Cologne (section 13240) directs the Regional Water Quality Control Boards to set water quality objectives via adoption of Basin Plans that conform to all State policies for water quality control.

As a means for achieving those water quality objectives, Porter-Cologne (section 13243) further authorizes the Regional Water Quality Control Boards to establish waste discharge requirements (WDRs) to prohibit waste discharges in certain conditions or areas. Since 1990, the San Diego Regional Board has issued area-wide MS4 NPDES permits. The Order will renew Order No. R9-2002-01 to comply with the CWA and attain water quality objectives in the Basin Plan by limiting the contributions of pollutants conveyed by urban runoff. Further discussions of the legal authority associated with the prohibitions and directives of the Order are provided in section VII this document.

Finding A.2. This Order renews National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740, which was first issued on July 16, 1990 (Order No. 90-38), and then renewed on August 8, 1996 (Order No. 96-03) and February 13, 2002 (Order No. R9-2002-01). On August 21, 2006, in accordance with Order No. R9-2002-01, the County of Orange, as the Principal Permittee, submitted a Report of Waste Discharge (ROWD) for renewal of the MS4 Permit.

Discussion of Finding A.2. This Order renews National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740, which was first issued on July 16, 1990 (Order No. 90-38), and then renewed on August 8, 1996 (Order No. 96-03) and February 13, 2002 (Order No. R9-2002-01). On August 21, 2006, in accordance with Order No. R9-2002-01, the County of Orange, as the Principal Permittee, submitted a Report of Waste Discharge (ROWD) for renewal of the MS4 Permit. Supporting information discussing the topic of this finding can be found in section V of this document.

Finding A.3. This Order is consistent with the following precedential Orders adopted by the State Water Resources Control Board (State Board) addressing municipal storm water NPDES Permits: Order 99-05, Order WQ-2000-11, Order WQ 2001-15, and Order WQO 2002-0014.

Discussion of Finding A.3. In recent years the State Board has considered several appeals of MS4 permits issued by the Regional Boards. In Order 99-05, the State Board established language for Receiving Water Limitation Language for MS4 permits. In Order No. WQ-2000-11, the State Board addressed design standards for Standard Urban Storm Water Mitigation Plan (SUSMP) requirements. Order WQ 2001-15 addressed Petitions of the San Diego County MS4 Permit issued by the Regional Board in 2001 (Order No. R9-2001-01). Order WQO 2002-0014 addresses Petitions of the Orange County MS4 Permit issued by the Regional Board in 2002 (Order No. R9-2002-01).

B. Regulated Parties

Finding B.1. Each of the persons in Table 1 of the Order, hereinafter called Copermitees or dischargers, owns or operates a municipal separate storm sewer system (MS4), through which it discharges urban runoff into waters of the United States within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is “interrelated” to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the United States.

Discussion of Finding B.1. Section 402 of the CWA prohibits the discharge of any pollutant to waters of the United States from a point source, unless that discharge is authorized by a NPDES permit. Though urban runoff comes from a diffuse source, it is discharged through MS4s, which are point sources under the CWA. Federal NPDES regulation 40 CFR 122.26(a) (iii) and (iv) provide that discharges from MS4s, which service medium or large populations greater than 100,000 or 250,000 respectively, shall be required to obtain a NPDES permit. Federal NPDES regulation 40 CFR 122.26(a)(v) also provides that a NPDES permit is required for “A [storm water] discharge which the Director, or in states with approved NPDES programs, either the Director or the USEPA Regional Administrator, determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.” Such sources are then designated into the program.

Other small MS4s, such as those serving universities and military installations, also exist within the watersheds of Orange County in the San Diego Region. While these MS4s are not subject to this Order, they are subject to the Phase II NPDES storm water regulations. Over time, these MS4s will be designated for coverage under the State Board’s statewide general storm water permit for small MS4s.

C. Discharge Characteristics

Finding C.1. Urban runoff contains waste, as defined in the California Water Code (CWC), and pollutants that adversely affect the quality of the waters of the State. The discharge of urban runoff from an MS4 is a “discharge of pollutants from a point source” into waters of the U.S. as defined in the CWA.

Discussion of Finding C.1. Section 13050(d) of the CWC defines “waste” as “sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.” 40 CFR 122.2 defines “point source” as “any discernable, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.” 40 CFR 122.2 defines “discharge of a pollutant” as “Any addition of any pollutant or combination of pollutants to waters of the U.S. from any point source.” Also, the justification for control of pollution into waters of the state can be found at CWC section 13260(a)(1). State Board Order WQ 2001-15 verifies that urban runoff contains waste.²⁸

Finding C.1 is also discussed in RTC 1 (Section X.1) in comment number 12.

Finding C.2. The most common categories of pollutants in urban runoff include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers), oxygen-demanding substances (decaying vegetation, animal waste), detergents, and trash.

²⁸ State Board, 2001. Order WQ 2001-15. In the Matter of Petitions of Building Industry Association of San Diego County and Western States Petroleum Association: For Review of Waster Discharge Requirements Order No. 2001-01 for Urban Runoff from San Diego County [NPDES No. CAS0108758] Issued by the Regional Board.

Discussion of Finding C.2. The National Urban Runoff Program (NURP) study showed that heavy metals, organics, coliform bacteria, nutrients, oxygen demanding substances (e.g., decaying vegetation), and total suspended solids are found at relatively high levels in urban runoff.²⁹ It also found that MS4 discharges draining residential, commercial, and light industrial areas contain significant loadings of total suspended solids and other pollutants. The Basin Plan goes on to identify urban runoff pollutants to include lawn and garden chemicals, household and automotive care products dumped or drained on streets, and sediment that erodes from construction sites.³⁰ In addition, the State Board Urban Runoff Technical Advisory Committee (TAC) finds that urban runoff pollutants include sediments, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogenic bacteria, viruses, and pesticides.³¹ Runoff that flows over streets, parking lots, construction sites, and industrial, commercial, residential, and municipal areas carries these untreated pollutants through storm drain networks directly to the receiving waters of the San Diego Region.

Finding C.2 is also discussed in RTC 1 (Section X.1) in comment number 13 and RTC 2 (Section X.2) in comment number 12.

Finding C.3. The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses resulting in a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance.

Discussion of Finding C.3. The 1992, 1994, and 1996 National Water Quality Inventory Reports to Congress prepared by USEPA showed a trend of impairment in the nation's waters from contaminated storm water and urban runoff.³² The 1998 National Water Quality Inventory Report showed that urban runoff discharges affect 11%percent of rivers, 12%percent of lakes, and 28%percent of estuaries. The report states that ocean shoreline impairment due to urban runoff increased from 55%percent in 1996 to 63%percent in 1998. The report notes that urban runoff discharges are the leading source of pollution and the main factor in the degradation of surface water quality in California's coastal waters, rivers, and streams. Furthermore, the NURP study found that pollutant levels from illicit discharges were high enough to significantly degrade receiving water quality, and threaten aquatic life, wildlife, and human health.³³

²⁹ Ibid.

³⁰ Regional Board, 1994. Water Quality Control Plan, San Diego Basin, Region 9. San Diego.

³¹ State Board, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

³² USEPA, 2000. Quality of Our Nation's Waters: Summary of the National Water Quality Inventory 1998 Report to Congress – USEPA 841-S-00-001; Water Quality Conditions in the United States: Profile from the 1998 National Water Quality Inventory Report to Congress – USEPA 841-F-00-006.

³³ USEPA, 1993. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.

In addition, the Region's CWA section 303(d) list, which identifies water bodies with impaired beneficial uses within the region, also indicates that the impacts of urban runoff on receiving waters are significant. Many of the impaired water bodies on the 303(d) list are impaired by constituents that have been found at high levels within urban runoff by the County of Orange storm water monitoring program.³⁴ Examples of constituents frequently responsible for beneficial use impairment include indicator fecal bacteria, heavy metals, and sediment; these constituents have been found at high levels in urban runoff both regionally and nationwide.^{35,36} In addition, impairments may be caused by synergistic effects of multiple contaminants or by pollutants not currently monitored by storm water programs³⁷.

Finding C.3 is also discussed in RTC 1 (Section X.1) in comment number 12.

Finding C.4. Pollutants in urban runoff can threaten and adversely affect human health. Human illnesses have been clearly linked to recreating near storm drains flowing to coastal waters. Also, urban runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may be eventually consumed by humans.

Discussion of Finding C.4. A landmark study, conducted by the Santa Monica Bay Restoration Project, found that there was an increased occurrence of illness in people that swam in proximity to a flowing storm drain.³⁸ A study of south Huntington Beach and north Newport Beach (both located in northern Orange County) found that an illness rate of about 0.8%~~percent~~ among bathers at those beaches resulted in about \$3 million annually in health-related expenses.³⁹ Furthermore, urban runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may eventually be consumed by humans. Pollutants such as heavy metals and pesticides, which are commonly found in urban runoff, have been found to bioaccumulate and biomagnify in long-lived organisms at the higher trophic levels.⁴⁰ Since many aquatic species are utilized for human consumption, toxic substances accumulated in species' tissues can pose a significant threat to public health. USEPA supports this finding when it states, "As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans."⁴¹

³⁴ County of Orange, 2006. Orange County Municipal Copermittees 2005-2006 Annual Storm Water Program Report, Section 11.

³⁵ Ibid.

³⁶ USEPA, 1983. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.

³⁷ County of Orange, 2006. Orange County Municipal Copermittees 2005-2006 Annual Storm Water Program Report, Section 11.

³⁸ 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.

³⁹ Dwight, R.H., et al., 2005. Estimating the Economic Burden From Illnesses Associated With Recreational Coastal Water Pollution – A Case Study in Orange County, California. Journal of

Finding C.4 is also discussed in RTC 1 (Section X.1) in comment number 14.

Finding C.5. Urban runoff discharges from MS4s often contain pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters.

Discussion of Finding C.5. The Copermittees' monitoring data exhibits frequent toxic conditions in urban runoff during storm events and dry weather. Toxicity is observed in both fresh and marine receiving waters, but varies significantly within and among sites and over time. However, according to the County of Orange, toxicity in both dry and wet weather appears concentrated along the coast. This supports the conclusion that toxicity is associated with urban activities and is caused by pollutants that flow downstream and become concentrated near the bottom of urbanized watersheds. Physical channel modification and hydromodification are also greatest near the coast and likely contribute to findings of toxicity. The cause of toxicity may vary between locations, dates, and indicator organisms. The actual cause may be influenced by various factors such as urbanization, urban runoff management, habitat modification, hydromodification, and native aquatic environment. Toxicity identification evaluations (TIEs) have failed to confirm initial findings of toxicity. Follow-up studies by the County of Orange implicate both pollutants and physical stream habitat degradation (e.g. channel modification and hydromodification) as factors related to toxicity findings.⁴²

Finding C.6. The Copermittees discharge urban runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within one of the eleven hydrologic units (San Juan Hydrologic Unit) comprising the San Diego Region as shown in Tables 2a and 2b. Some of the receiving water bodies have been designated as impaired by the Regional Board and the United States Environmental Protection Agency (USEPA) in 2006 pursuant to CWA section 303(d). Also shown in the Tables are the watershed management areas (WMAs) as defined in the Regional Board report, Watershed Management Approach, January 2002.

Enviro. Management Vol.76. No.2 p.95-103. Also reported in: 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.

⁴⁰ Abel, P.D, 1996. Water Pollution Biology.

⁴¹ USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. Washington D.C. EPA 833-R-00-002.

⁴² County of Orange, 2006. Orange County Municipal Copermittees 2005-2006 Annual Storm Water Program Report, Section 11.

Discussion of Finding C.6. This finding identifies the Copermitees responsible for MS4 discharges in each watershed management area. The list is identical to Order No. R9-2002-01. The CWA Section 303(d) List of Impaired Waters, 2006 Update has been approved by the Regional Board, State Board, and USEPA.⁴³ This 303(d) list identifies waters that do not meet water quality standards after applying certain required technology-based effluent limits (“impaired” water bodies). As part of this listing process, states are required to prioritize waters/watersheds for future development of Total Maximum Daily Loads (TMDLs). The listed 303(d) pollutant(s) of concern do not necessarily reflect impairment of the entire corresponding WMA or all corresponding major surface water bodies. The specific impaired portions of each WMA are listed in the State Board’s 2006 Section 303(d) List of Water Quality Limited Segments.

Finding C.6 is also discussed in RTC 1 (Section X.1) in comment number 15.

Finding C.7. The Copermitees’ water quality monitoring data submitted to date documents persistent violations of Basin Plan water quality objectives for various urban runoff-related pollutants (fecal coliform bacteria, total suspended solids, turbidity, metals, etc.) at various watershed monitoring stations. Persistent toxicity has also been observed at some watershed monitoring stations. In addition, bioassessment data indicates that the majority of urbanized receiving waters have Poor to Very Poor Index of Biotic Integrity ratings. In sum, the above findings indicate that urban runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in Orange County.

Discussion of Finding C.7. The Copermitees have produced data that demonstrates water quality objectives are frequently not met during dry and wet weather. The 2006 Report of Waste Discharge and the 2005-06 Annual Reports document that receiving water monitoring stations often fail to meet water quality objectives established in the Basin Plan. Similar conclusions are found in monitoring reported to the Regional Board pursuant to Investigative Orders issued between 2001 and 2006 for Aliso Creek, Salt Creek⁴⁴, Prima Deshecha⁴⁵, and North Creek at Doheny Beach⁴⁶. Monitoring reported to the State Board pursuant to funding grant agreements also demonstrates that discharges from MS4s routinely exceed water quality objectives.^{47,48, 49, 50, 51}

⁴³ The approved 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments is on-line at: http://www.waterboards.ca.gov/tmdl/303d_lists2006.html

⁴⁴ An Investigative Order was issued on March 6, 2003 to the City of Dana Point for water quality conditions of Salt Creek near Monarch Beach.

⁴⁵ An Investigative Order was issued on July 3, 2002 to the City of San Clemente and the County of Orange for water quality conditions of Prima Deshecha Canada (including Poche Beach).

⁴⁶ Investigative Order No. R9-2006-0039 was issued on April 4, 2006 to the City of Dana Point and Quantum Ozone, Inc. for an assessment of water quality conditions at North Creek, Doheny Beach.

⁴⁷ City of Dana Point. 2005. *Final Report for the Del Obispo Storm Drain Project*. Prepared for the State Water Resources Control Board Agreement No. 02-216-550-0.

⁴⁸ City of Dana Point. 2004. *Final Report For The Alipaz Storm Drain Treatment And Low Flow Diversion Project” by the City of Dana Point*. Prepared for State Water Resources Control Board Agreement Number: 01-068-550-0.

Water quality in receiving waters downstream of MS4 discharges fail to meet Ocean Plan standards⁵², California Toxics Rule standards⁵³, and Basin Plan objectives. Data submitted in the MS4 Annual Reports indicate that at various times chemical, bacteria, pesticide, and metal concentrations may exceed water quality objectives in marine and fresh water receiving waters in both wet and dry weather conditions. Although wet weather MS4 effluent data is not generally reported, dry-weather MS4 effluent data demonstrates that the effluent contains concentrations of pollutants that would exceed receiving water quality objectives.

In most of these watersheds, there are no other significant NPDES permits discharging to the creeks. For instance, there are no live-stream discharges of treated waste water in south Orange County. The few NPDES permits in the watersheds are mainly for recycled water which only discharges occasionally during the rainy season. Because the water quality monitoring indicates exceedances of water quality standards and urban runoff is the main source of pollutants in the watersheds, it can be inferred that the urban runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in Orange County.

Finding C.7 is also discussed in the RTC 1 (Section X) in comment number 16 and in RTC 2 (Section X.2) in comment number 4.

⁴⁹ James Volz. 2005. *Final Report for Poche Beach Urban Runoff Ultraviolet Light Bacteria Disinfection Project*. Prepared by the County of Orange for State Water Resources Control Board Agreement No. 01-236-550-1.

⁵⁰ Max Anderson. 2005. *Final Report: Aliso Beach Clean Beach Initiatives, J01P28 Interim Water Quality Improvement Package Plant Best Management Practices*. Prepared by the County of Orange for State Water Resources Control Board Agreement No. 01-227-550-0.

⁵¹ City of Laguna Niguel and CH2MHILL. 2004. *Final Report: Wetland Capture and Treatment (WetCAT) Network*. Prepared for State Water Resources Control Board Agreement No. 01-122-259-0.

⁵² The Basin Plan incorporates terms and conditions of the State Board's *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) as a water quality objective for Ocean Waters in the San Diego Region.

⁵³ The California Toxics Rule criteria promulgated by the U.S.-EPAUSEPA are directly applicable water quality standards for certain priority toxic pollutants in inland surface waters and enclosed bays and estuaries in California.

Finding C.8. When natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed urban area is significantly greater in runoff volume, velocity, and peak flow rate than pre-development runoff from the same area. Runoff durations can also increase as a result of flood control and other efforts to control peak flow rates. Increased volume, velocity, rate, and duration of runoff greatly accelerate the erosion of downstream natural channels. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 3-5%percent conversion from natural to impervious surfaces. The increased runoff characteristics from new development must be controlled to protect against increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

Finding C.9. Urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4. As a result, the runoff leaving the developed urban area is significantly greater in pollutant load than the pre-development runoff from the same area. These increased pollutant loads must be controlled to protect downstream receiving water quality.

Discussion of Findings C.8 and C.9.

The Natural Resources Defense Council (NRDC) 1999 Report, "*Stormwater Strategies, Community Responses to Runoff Pollution*" identifies two main causes of the storm water pollution problem in urban areas. Both causes are directly related to development in urban and urbanizing areas:

1. Increased volume and velocity of surface runoff. There are three types of human-made impervious covers that increase the volume and velocity of runoff: (i) rooftop, (ii) transportation imperviousness, and (iii) non-porous (impervious) surfaces. As these impervious surfaces increase, infiltration will decrease, forcing more water to run off the surface, picking up speed and pollutants.
2. The concentration of pollutants in the runoff. Certain industrial, commercial, residential and construction activities are large contributors of pollutant concentrations in urban runoff. As human population density increases, it brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc.

As a result of these two causes, runoff leaving developed urban areas is significantly greater in volume, velocity, and pollutant load than pre-development runoff from the same area.

By accommodating the traditional approach to storm water management, urbanization has also altered the flow regime (rate, magnitude, frequency, timing, and flashiness of runoff) that supports aquatic and riparian habitats. These hydrologic changes are driven by the loss of water storage capacity in the watersheds,⁵⁴ and exacerbated by physical alterations of the stream channel network.⁵⁵ This relationship between urbanization and stream channel integrity has been documented nationally and in southern California.

Hydrologic changes from urban development also directly and indirectly adversely affect wetlands. Natural wetlands support many beneficial uses and provide important water-quality related ecological services, including pollutant removal, flood attenuation, and groundwater recharge.⁵⁶ The Center for Watershed Protection recently provided USEPA with a synthesis of more than 100 scientific studies on the direct and indirect impacts of urbanization on wetlands and the role wetlands play in watershed quality. The report found that the three changes from land development with the most potential to impact wetlands include: Increased storm water runoff; decreased groundwater recharge; and flow constriction.⁵⁷ Each of these changes can often be avoided or minimized by implementing site design and hydromodification BMPs.

When Order No. R9-2002-01 was adopted, studies had shown that the level of imperviousness in an area strongly correlates with the quality of nearby receiving waters.⁵⁸ One comprehensive study, which looked at numerous areas, variables, and methods, revealed that stream degradation occurs at levels of imperviousness as low as 10 – 20%percent.⁵⁹ Stream degradation is a decline in the biological integrity and physical habitat conditions that are necessary to support natural biological diversity. For instance, few urban streams can support diverse benthic communities with imperviousness greater than or equal to 25%percent.⁶⁰ To provide some perspective, a medium density, single-family home area can be from 25%percent to 60%percent impervious (variation due to street and parking design).⁶¹

⁵⁴ Konrad, Christopher P. and Derek K. Booth, 2005. *Hydrologic Changes in Urban Streams and Their Ecological Significance*. American Fisheries Society Symposium Vol.47 pp.157-177.

⁵⁵ Poff, N.L. et al. 1997. The Natural Flow Regime: A paradigm for river conservation and restoration. *Bioscience* Vol. 47, No. 11, pp.769-784.

⁵⁶ Wright, Tiffany, et al. 2006. "Direct and Indirect Impacts of Urbanization on Wetland Quality." Prepared by the Center for Watershed Protection. Available at: <http://www.cwp.org>. 81p.

⁵⁷ *Ibid* p.26

⁵⁸ USEPA, 1999. Part II. 40 CFR Parts 9, 122, 123, and 124. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. Federal Register.

⁵⁹ *Ibid*.

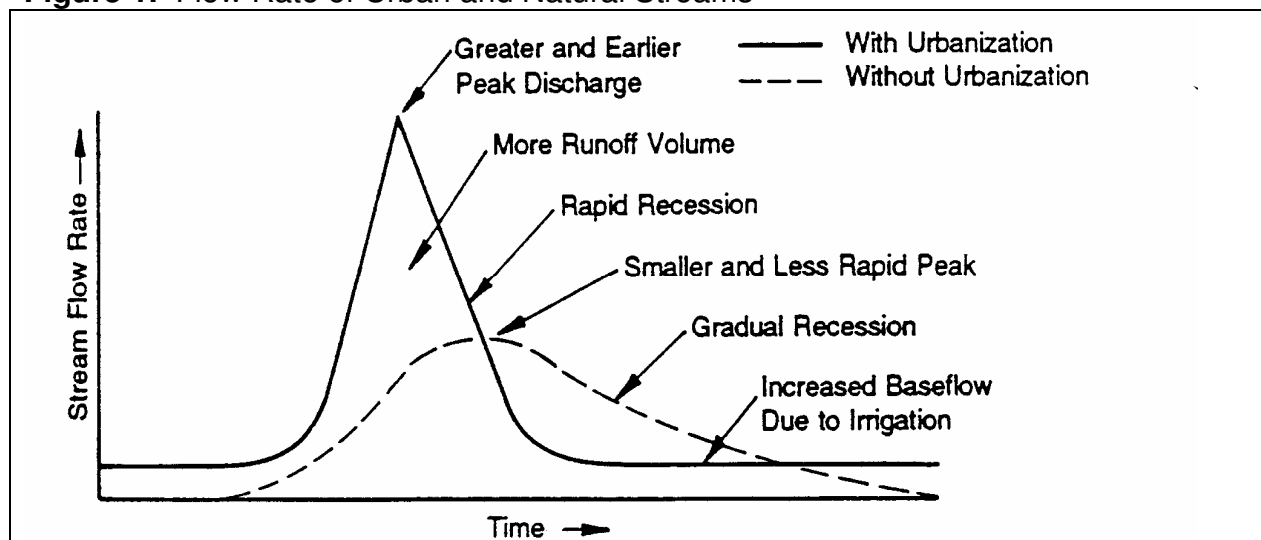
⁶⁰ *Ibid*.

⁶¹ Schueler, T.R., 1994. The Importance of Imperviousness. *Watershed Protection Techniques*. As cited in 64 Fed. Reg. 68725.

More recently, a report on the effects of impervious in southern California streams found that local ephemeral and intermittent streams are more sensitive to such effects than streams in other parts of the country. This study, by the Southern California Coastal Water Research Program, estimated a threshold of response at a two to three percent change in percent of impervious cover in a watershed.⁶² This threshold is lower than the previously reported estimates by the USEPA that were cited in the Fact Sheet for Order No. R9-2002-01.

To demonstrate the principle of increased volume and velocity of runoff from urbanization, Figure 1 shows the flow rate of an urban vs. a natural stream. What the figure demonstrates is that urban stream flows have greater peaks and volumes, as well as shorter retention times than natural stream flows. The greater peak flows and volumes result in stream degradation through increased erosion of stream banks and damage to aquatic habitat. The shorter retention times result in less time for sediments and other pollutants to settle before being carried out to the ocean. This sediment, and the associated pollutants it carries, can be a significant cause of water quality degradation.

Figure 1. Flow Rate of Urban and Natural Streams⁶³



Increased volume and velocity of runoff adversely impacts receiving waters and their beneficial uses in many ways. According to the Urban Runoff TAC report,⁶⁴ increases in population density and imperviousness result in changes to stream hydrology including:

⁶² Coleman, Derrick, et al. 2005. *Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams*. Technical Report No. 450 of the Southern California Coastal Water Research Project.

⁶³ Adapted from Schueler, T.R., 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs*. Metropolitan Washington Council of Governments.

⁶⁴ State Board, 1994. *Urban Runoff Technical Advisory Committee Report and Recommendations*. Nonpoint Source Management Program.

1. Increased peak discharges compared to pre-development levels;
2. Increased volume of storm water runoff with each storm compared to pre-development levels;
3. Decreased travel time to reach receiving water; increased frequency and severity of floods;
4. Reduced stream flow during prolonged periods of dry weather due to reduced levels of infiltration;
5. Increased runoff velocity during storms due to a combination of effects of higher discharge peaks, rapid time of concentration, and smoother hydraulic surfaces from channelization; and
6. Decreased infiltration and diminished ground water recharge.

Even though the rainfall depths in arid watersheds are lower, watershed development can greatly increase peak discharge rates during rare flood events.⁶⁵ A study conducted in arid watersheds around Riverside, CA showed that, over two decades, impervious cover increased from 9%percent to 22%percent, which resulted in an increase of more than 100%percent in the peak flow rate for the two-year storm event. The study also showed that the average annual storm water runoff volume had increased by 115%percent to 130%percent over the same time span.⁶⁶

Regarding the impact of urban development on urban runoff pollutant loads, the Regional Board's Basin Plan states:

Nonpoint source pollution is primarily the result of man's uses of land such as urbanization, roads and highways, vehicles, agriculture, construction, industry, mineral extraction, physical habitat alteration (dredging/filling), hydromodification (diversion, impoundment, channelization), silviculture (logging), and other activities which disturb land.⁶⁷ As a result, when rain falls on and drains through urban freeways, industries, construction sites, and neighborhoods it picks up a multitude of pollutants. The pollutants can be dissolved in the runoff and quickly transported by gravity flow through a vast network of concrete channels and underground pipes referred to as storm water conveyance systems. Such systems ultimately discharge the polluted runoff, without treatment, into the nation's creeks, rivers, estuaries, bays, and oceans.⁶⁸

⁶⁵ Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection. P. 695-706.

⁶⁶ Ibid.

⁶⁷ Regional Board, 1994. Water Quality Control Plan for the San Diego Basin. P. 4-66.

⁶⁸ Ibid. P. 4-69 - 4-70.

According to the Center for Watershed Protection, urbanization strongly shapes the quality of both surface and ground water in arid and semi-arid regions of the southwest. Since rain events are so rare, pollutants have more time to build up on impervious surfaces compared to humid regions. Therefore, the pollutant concentrations of storm water runoff from arid watersheds tends to be higher than that of humid watersheds.⁶⁹ The effect of antecedent rainfall events is demonstrated in a recent report from the California Department of Transportation (Caltrans) that found the concept of a seasonal first flush is applicable to the southern California climate.⁷⁰

Findings C.8 and C.9 are also discussed in RTC 1 (Section X.1) in comment numbers 17 and 34.

Finding C.10. Development and urbanization especially threaten environmentally sensitive areas (ESAs), such as water bodies designated as supporting a RARE beneficial use (supporting rare, threatened or endangered species) and CWA 303(d)-impaired water bodies. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in other areas. In essence, development that is ordinarily insignificant in its impact on the environment may become significant in a particularly sensitive environment. Therefore, additional control to reduce pollutants from new and existing development may be necessary for areas adjacent to or discharging directly to an ESA.

Discussion of Finding C.10. ESAs are defined in the Order as “Areas that include but are not limited to all CWA Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the Basin Plan ; water bodies designated with the RARE beneficial use by the Basin Plan; areas designated as preserves or their equivalent under the Natural Communities Conservation Program within the Cities and County of Orange; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees.”

⁶⁹ Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection. P. 695-706.

⁷⁰ Stenstrom, Michael and Masoud Kayhanian, 2005. *First Flush Phenomenon Characterization*. Prepared for Caltrans. Report No. CTSW-RT-05-73-02.6 Study jointly performed by UCLA and UCD. Most of the data presented was collected from three highly urbanized highway sites in west Los Angeles. Much effort went into developing a quantitative way of defining the mass first flush. Other aspects include: variability of water quality during storm events, litter characteristics, correlation among constituents, first flush of organics and particle size distribution, new methods for measuring oil and grease, and grab and composite sampling strategies. The report is available on-line at: <http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/>

Areas that meet this definition are inherently sensitive habitats containing unique, rare, threatened, or endangered species, or are not achieving their designated beneficial uses. As discussed above, urban runoff is known to contain a wide range of pollutants and have demonstrated toxicity to plants and animals. Therefore, it is necessary to apply additional controls for developments within, adjacent to, or directly discharging to ESAs. This need for additional controls is addressed within each component of the Order. USEPA supports the requirement for additional controls, stating “For construction sites that discharge to receiving waters that do not support their designated use or other waters of special concern, additional construction site controls are probably warranted and should be strongly considered.”⁷¹ Further support for requiring additional controls to reduce pollutants in discharges to ESAs can be found in *Mitigation of Storm Water Impacts From New Developments in Environmentally Sensitive Areas*, a technical report written by the LARWQCB.⁷²

ESAs within the area subject to this Order are expected to be substantially similar to the previous Order. Additions may be necessary once the South County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) is formally adopted. Other modifications may reflect updated descriptions or findings of threatened or endangered aquatic species.

Finding C.10 is also discussed in RTC 1 (Section X.1) in comment number 18.

Finding C.11. Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not “inject” runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; (3) protecting footings and foundations; ~~and~~ (4) ensuring that each drainage feature is adequately maintained in perpetuity; and (5) pretreatment.

⁷¹ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. Washington D.C. EPA/833-B-92-002.

⁷² LARWQCB, 2001. *Mitigation of Storm Water Impacts From New Developments In Environmentally Sensitive Areas.*

Discussion of Finding C.11. Infiltration is an effective means for managing urban runoff. However, measures must be taken to protect groundwater quality when infiltration of urban runoff is implemented. USEPA supports urban runoff infiltration and provides guidance for protection of groundwater: “With a reasonable degree of site-specific design considerations to compensate for soil characteristics, infiltration may be very effective in controlling both urban runoff quality and quantity problems. This strategy encourages infiltration of urban runoff to replace the natural infiltration capacity lost through urbanization and to use the natural filtering and sorption capacity of soils to remove pollutants; however, the potential for some types of urban runoff to contaminate groundwater through infiltration requires some restrictions.”⁷³ The restrictions placed on urban runoff infiltration in this Order are based on recommendations provided by the USEPA Risk Reduction Engineering Laboratory. The State Board found in Order WQ 2000-11 on the appeal of the LARWQCB’s Standard Urban Storm Water Mitigation Plan (SUSMP) requirements that the guidance provided in the above referenced document by the USEPA Risk Reduction Engineering Laboratory is sufficient for the protection of groundwater quality from urban runoff infiltration. To further protect groundwater quality, the Order also includes guidance from the LARWQCB,⁷⁴ the State of Washington,⁷⁵ and the State of Maryland.⁷⁶ Subsequently, the California Storm Water Quality Association (CASQA) has produced technical guidance for post-construction treatment BMPs to protect ground water quality⁷⁷.

[Finding C.11 is also discussed in RTC 1 \(Section X.1\) in comment number 24.](#)

⁷³ USEPA, 1994. Potential Groundwater Contamination from Intentional and Nonintentional Stormwater Infiltration. EPA 600 SR-94 051.

⁷⁴ LARWQCB, 2000. Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County.

⁷⁵ Washington State Department of Ecology, 1999. Draft Stormwater Management in Washington State. Volume V – Runoff Treatment BMPs. Pub. No. 99-15.

⁷⁶ Maryland Department of the Environment, 1999. 2000 Maryland Stormwater Design Manual. Volume I.

⁷⁷ CASQA. The New Development and Redevelopment Handbook, 2003. Available on-line at <http://www.cabmphandbooks.org/Development.asp>

D. Urban Runoff Management Programs

Finding D.1.a. This Order specifies requirements necessary for the Copermittees to reduce the discharge of pollutants in urban runoff to the maximum extent practicable (MEP). However, since MEP is a dynamic performance standard which evolves over time as urban runoff management knowledge increases, the Copermittees' urban runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices (BMPs), etc. in order to achieve the evolving MEP standard. Absent evidence to the contrary, this continual assessment, revision, and improvement of urban runoff management program implementation is expected to ultimately achieve compliance with water quality standards.

Discussion of Finding D.1.a. Under CWA section 402(p), municipalities are required to reduce the discharge of pollutants from their MS4s to the maximum extent practicable (MEP). MEP is the critical technology-based performance standard that municipalities must attain. The MEP standard is an ever-evolving, flexible, and advancing concept, which considers technical and economic feasibility. As knowledge about controlling urban runoff continues to evolve, so does that which constitutes MEP. Reducing the discharge of storm water pollutants to the MEP requires Copermittees to assess each program component and revise activities, control measures, best management practices (BMPs), and measurable goals, as necessary to meet MEP.

To achieve the MEP standard, municipalities must employ whatever BMPs are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:

1. Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?
2. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?
3. Public Acceptance: Does the BMP have public support?
4. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?
5. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?

If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive BMPs, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost is prohibitive, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP based solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be easily dismissed. In any case, the burden is on the municipal discharger to show compliance with its permit. After selecting BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented.⁷⁸

A definition of MEP is not provided in either the federal statute or in the federal regulations. The final determination regarding whether a municipality has reduced pollutants to the MEP can only be made by the Regional Board or the State Board, and not by the municipal discharger. While the Regional Board or the State Board ultimately define MEP, it is the responsibility of the Copermittees to initially propose actions that implement BMPs to reduce pollution to the MEP. In other words, the Copermittees' urban runoff management programs to be developed under the Order are the Copermittees' proposals of MEP. Their total collective and individual activities conducted pursuant to their urban runoff management programs become their proposal for MEP as it applies both to their overall effort, as well as to specific activities. The Order provides a minimum framework to guide the Copermittees in meeting the MEP standard.

It is the Regional Board's responsibility to evaluate the proposed programs and specific BMPs to determine what constitutes MEP, using the above guidance and the court's 1994 decision in NRDC v. California Department of Transportation, Federal District Court, Central District of California. The federal court stated that a Copermittee must evaluate and implement BMPs except where (1) other effective BMPs will achieve greater or substantially similar pollution control benefits; (2) the BMP is not technically feasible; or (3) the cost of BMP implementation greatly outweighs the pollution control benefits. In the absence of a proposal acceptable to the Regional Board, the Regional Board will define MEP by requiring implementation of additional measures by the Copermittees.

⁷⁸ State Water Resources Control Board, 1993. Memo Entitled Definition of Maximum Extent Practicable.

The Copermittees' continual evolution in meeting the MEP standard is expected to achieve compliance with water quality standards. USEPA has consistently supported this expectation. In its Interim Permitting Approach for Water Quality-Based Effluent Limitations (WQBELs) in Storm Water Permits, USEPA states "the interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for attainment of water quality standards."⁷⁹ USEPA reiterated its position in 1999, when it stated regarding the Phase II municipal storm water regulations that "successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards" and "EPA anticipates that a permit for a regulated small MS4 operator implementing BMPs to satisfy the six minimum control measures will be sufficiently stringent to protect water quality, including water quality standards [...]."⁸⁰

The requirements of the Order are expected to achieve compliance with receiving water quality standards. The approach to be used is the continual assessment, revision, and improvement of Copermittee best management practice implementation. This approach is consistent with the Clean Water Act and State Board guidance. In *Defenders of Wildlife v. Browner* (1999, 197 F. 3d 1035), the United States Court of Appeals for the Ninth Circuit states: "Under 33 U.S.C. section 1342 (p)(3)(B)(iii), the EPA's choice to include either management practices or numeric limitations in the permits was within its discretion." In addition, the approach is consistent with State Board Order WQ 99-05, which outlines an iterative approach for achieving compliance with water quality standards.

Finding D.1.b. The Copermittees have generally been implementing the jurisdictional urban runoff management programs required pursuant to Order No. R9-2002-01 since February 13, 2003. However, urban runoff discharges continue to cause or contribute to violations of water quality standards.⁸¹

Discussion of Finding D.1.b. In response to Order No. R9-2002-01, the Copermittees have improved their urban runoff management programs. For instance, comprehensive urban runoff management plans have been developed. In order to implement the plans, the Copermittees have, among other things, developed BMP requirements, improved inter- and intra-governmental coordination, improved training programs, improved illicit discharge detection procedures, and improved their monitoring efforts. Although the programmatic improvements have led to better implementation of BMPs, the Copermittees' monitoring data demonstrate that additional or revised BMPs are necessary to prevent discharges from MS4s from causing and contributing to violations of water quality standards. A discussion of data collected by the Copermittees is included in the discussion for Finding C.7.

⁷⁹ Federal Register / Vol. 61, No. 166 / August 26, 1996 / P. 43761.

⁸⁰ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68753-68754.

⁸¹ Orange County Storm Water Program, 2006. Unified Annual Progress Report, Program Effectiveness Assessment (San Diego Region).

Finding D.1.c. This Order contains new or modified requirements that are necessary to improve Copermittees' efforts to reduce the discharge of pollutants in urban runoff to the MEP and achieve water quality standards. Some of the new or modified requirements, such as the expanded Watershed Urban Runoff Management Program section, are designed to specifically address these high priority water quality problems. Other new or modified requirements address program deficiencies that have been noted during audits, report reviews, and other Regional Board compliance assessment activities.

Discussion of Finding D.1.c. The Copermittees are required to update and expand their urban runoff management programs on jurisdictional and watershed levels in order to improve their efforts to reduce the contribution of pollutants in urban runoff to the MEP and meet water quality standards. Changes to Order No. R9-2002-01's requirements have been made to help ensure these two standards are achieved by the Copermittees.

The jurisdictional requirements of the Order have been changed based on findings by the Regional Board during typical compliance assurance activities. The Regional Board performed full jurisdictional program audits of 8 of the 13 Copermittees during the Order No. R9-2002-01 permit term. Where the audits found common implementation problems, requirements have been altered to better ensure compliance. In addition, the Regional Board conducted detailed reviews of every jurisdictional annual report submitted by the Copermittees, including provision of specific comments to the Copermittees where improvements were found to be needed. Again, where common reporting issues were found, the Order's requirements have been changed to rectify the issues. Other changes to jurisdictional requirements were based on Regional Board inspection findings or receipt of complaints.⁸²

Finally, many of the required updates to the Copermittees' programs are based on recommendations found in the Copermittees' ROWD.⁸³ In many instances, the Copermittees and the Regional Board have identified similar issues that merit program modifications.

To better focus on attainment of water quality standards, the Order's watershed requirements have been improved. Addressing urban runoff management on a watershed scale focuses on water quality results by emphasizing the receiving waters within the watershed. The conditions of the receiving waters drive management actions, which in turn focus on the water quality problems of the receiving waters each watershed. Improvements to watershed requirements were also made to facilitate better understanding of the requirements between the Regional Board and Copermittees.

⁸² Audit reports, report reviews, and inspection reports are available for review at the Regional Board office.

⁸³ All significant changes made to the Order's requirements are described and explained in detail in Fact Sheet section X.

Finding D.1.c is also discussed in RTC 1 (Section X.1) in comment number 19.

Finding D.1.d. Updated Jurisdictional Urban Runoff Management Plans (JURMPs) and Watershed Urban Runoff Management Plans (WURMPs), which describe the Copermitees' urban runoff management programs in their entirety, are needed to guide the Copermitees' urban runoff management efforts and aid the Copermitees in tracking urban runoff management program implementation. It is practicable for the Copermitees to update the JURMPs and WURMPs within one year, since significant efforts to develop these programs have already occurred.

Discussion of Finding D.1.d. Development of urban runoff management plans is a crucial urban runoff management measure and should be considered a BMP. The plans help organize and focus the Copermitees' programs and guide their implementation. In its statewide assessment report to USEPA Region IX and the State Board, Tetra Tech, Inc. concluded that the lack of a master storm water planning document must be considered a serious program deficiency⁸⁴. When submitted to the Regional Board, the plans provide useful correspondence between the Copermitees and the Regional Board. The Plans also become available for review by the public, and thus facilitate public participation in urban runoff management decisions. Finally, while development and submittal of urban runoff management plans are not necessary to ensure compliance of the Copermitees' urban runoff management programs with the Order, the Regional Board is provided with a means to track Copermitee implementation.

The focus of the Order is on development and implementation of programs which meet MEP, rather than creation of Copermitee plans which exhibit MEP. While the Order does not rely upon the plans to ensure MEP and other standards are achieved, the plans still serve a useful purpose. As stated above, the plans serve to organize the Copermitees' efforts to address urban runoff. As a practical matter, any program of the size required by the Order should be documented in writing. This serves to guide implementation of the program by the numerous individuals responsible for program implementation.

⁸⁴ Tetra Tech, Inc. 2006. *Assessment Report on Tetra Tech's Support of California's MS4 Stormwater Program*. Produced for U.S.-EPAUSEPA Region IX and the California State and Regional Water Quality Control Boards.

Urban runoff management plans are not necessary for ensuring compliance with the Order because the Order itself contains sufficient detailed requirements to ensure that compliance with discharge prohibitions, receiving water limits, and the narrative standard of MEP are achieved. Implementation by the Copermittees of programs in compliance with the Order's requirements, prohibitions, and receiving water limits is the pertinent compliance standard to be used under the Order, as opposed to assessing compliance by reviewing the Copermittees' implementation of their plans alone. The Regional Board ensures compliance with the Order by reviewing annual reports, conducting inspections, performing audits, and through other general program oversight.

Urban runoff management plans are particularly important and useful for municipalities when program implementation is spread across several departments and/or when municipalities experience staff turnover.⁸⁵ Each Copermittee relies on multiple employees or contractors for program implementation, but the spread of responsibility varies among Copermittees.⁸⁶ Written jurisdictional plans ensure appropriate coordination within each municipality.

Copermittees' urban runoff management plans are simply descriptions of their urban runoff management programs required under the Order. These plans serve as procedural correspondence which guides program implementation and aids the Copermittees and Regional Board in tracking implementation of the programs. In this manner, the plans are not functional equivalents of the Order. For these reasons, the Copermittees' urban runoff management plans need not be an enforceable part of the Order.

The Copermittees' plans and programs can be updated within one year because much of their plans and programs are already in existence. In fact, many parts of their plans and programs have been in place for 15 years. Moreover, the adoption of Order No. R9-2002-01 required a larger scale reorganization of the Copermittees' programs than Tentative Order No. R9-~~2007-0002~~2008-0001, but also allowed one year for program updates. The Copermittees were generally able to meet the time schedule required under Order No. R9-2002-01.

Finding D.1.e. Pollutants can be effectively reduced in urban runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first line of defense". Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control BMPs remove pollutants from urban runoff.

⁸⁵ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

⁸⁶ Responsible departments and employees are described in the 2005-06 Annual Reports for the MS4 programs.

Discussion of Finding D.1.e. The State Board finds in its Order No. WQ 98-01 that BMPs are effective in reducing pollutants in urban runoff, stating that “implementation of BMPs [is] generally the most appropriate form of effluent limitations when designed to satisfy technology requirements, including reduction of pollutants to the maximum extent practicable.” A State Board TAC further supports this finding by recommending “that nonpoint source pollution control can be accomplished most effectively by giving priority to [BMPs] in the following order:

1. Pollution Prevention – implementation of practices that use or promote pollution free alternatives;
2. Source Control – implementation of control measures that focus on preventing or minimizing urban runoff from contacting pollution sources;
3. Treatment Control – implementation of practices that require treatment of polluted runoff either onsite or offsite.”⁸⁷

Pollution prevention, the reduction or elimination of pollutant generation at its source, is an essential aspect of BMP implementation. Fewer pollutants are available to be washed from urban areas when the generation of pollutants by urban activities is limited. Thus, pollutant loads in storm water discharges are reduced from these areas. In addition, there is no need to control or treat pollutants that are never generated.⁸⁸ Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media.^{89,90}

In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. CWC section 13263.3(a) also supports pollution prevention, stating “The Legislature finds and declares that pollution prevention should be the first step in a hierarchy for reducing pollution and managing wastes, and to achieve environmental stewardship for society. The Legislature also finds and declares that pollution prevention is necessary to support the federal goal of zero discharge of pollutants into navigable waters.” Finally, the Basin Plan also supports this finding by stating “To eliminate pollutants in storm water, one can either clean it up by removing pollutants or prevent it from becoming polluted in the first place. Because of the overwhelming volume of storm water and the enormous costs associated with pollutant removal, pollution prevention is the only approach that makes sense.”⁹¹

⁸⁷ State Board, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

⁸⁸ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region).

⁸⁹ Devinnny, J.S. et al. 2004. *Alternative Approaches to Stormwater Quality Control*. Prepared for the Los Angeles Regional Water Quality Control Board. Found as Appendix H to *NPDES Stormwater Cost Survey*. Prepared for the California State Water Resources Control Board by the Office of Water Programs California State University, Sacramento. Available on-line at: <http://www.owp.csus.edu/research/npdes/>

⁹⁰ Schueler, T.R., 2000. Center for Watershed Protection. Assessing the Potential for Urban Watershed Restoration, Article 142.

⁹¹ Regional Board, 1994. Water Quality Control Plan, San Diego Basin, Region 9.

USEPA also supports the utilization of a combination of BMPs to address pollutants in urban runoff. For example, USEPA has found there has been success in addressing illicit discharge related problems through BMP initiatives like storm drain stenciling and recycling programs, including household hazardous waste special collection days.⁹² Structural BMP performance data has also been compiled and summarized by USEPA.⁹³ This data indicates that structural BMPs can be effective in reducing pollutants in urban runoff discharges.

The summary provides the performance ranges of various types of structural BMPs for removing suspended solids, nutrients, pathogens, and metals from storm water flows. These pollutants are generally a concern in storm water in the San Diego Region and Orange County.⁹⁴ For suspended solids, the least effective structural BMP type was found to remove 30-65%percent of the pollutant load, while the most effective was found to remove 65-100%percent of the pollutant load. For nutrients, the least effective structural BMP type was found to remove 15-45%percent of the pollutant load, while the most effective was found to remove 65-100%percent of the pollutant load. For pathogens, the least effective structural BMP type was found to remove <30%percent of the pollutant load, while the most effective was found to remove 65-100%percent of the pollutant load. For metals, the least effective structural BMP type was found to remove 15-45%percent of the pollutant load, while the most effective was found to remove 65-100%percent of the pollutant load.

Several studies conducted in the last few years have measured the effectiveness of urban runoff treatment BMPs in southern Orange County. Studies have been conducted on both dry weather and wet weather flows. Each demonstrates that treatment control BMPs can, to varying degrees, remove pollutants from urban runoff, but that pollution prevention and source control BMPs are necessary to reduce pollutant discharges to the point of supporting water quality objectives in the receiving waters. A partial list of such studies includes:

1. "Assessment of Best Management Practice (BMP) Effectiveness" by the Southern California Coastal Water Research Project (SCCWRP).⁹⁵ This project assesses the effectiveness of BMPs in southern California for improving water quality related to toxicity.

⁹² USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. 64 FR 68728.

⁹³ USEPA, 1999. Preliminary Data Summary of Urban Storm Water Best Management Practices. EPA 821-R-99-012.

⁹⁴ Orange County Stormwater Program, Appendix E1 BMP Effectiveness and Applicability for Orange County (updated June 2005).

⁹⁵ Jeffrey S. Brown and Steven M. Bay 2005. *Assessment of Best Management Practice (BMP) Effectiveness*. SCCWRP Technical Report 461.

2. "Final Report for the Del Obispo Storm Drain Project" by the City of Dana Point.⁹⁶ This report assesses the implementation of a solids removal unit and low-flow diversion project.
3. "Final Report for the Alipaz Storm Drain Treatment and Low Flow Diversion Project" by the City of Dana Point.⁹⁷ This report assesses the implementation of a solids removal unit and low-flow diversion project.
4. "Final Report for Poche Beach Urban Runoff Ultraviolet Light Bacteria Disinfection Project" by the County of Orange.⁹⁸ This report assesses the implementation of an ultraviolet system within a box culvert.
5. Final Report for J01P28 Interim Water Quality Improvement Package Plant Best Management Practices.⁹⁹ This report assesses the implementation of an ultraviolet treatment system at an inland waters storm drain outfall.
6. "Final Report for Wetland Capture and Treatment (WetCAT) Network" by the City of Laguna Niguel.¹⁰⁰ This report assesses the implementation of constructed wetlands.

Results of these recent studies demonstrate that treatment at the MS4 outfalls for pollutants that have already been discharged *into* the MS4 is generally unlikely to reduce pollutant concentrations to levels that would support water quality objectives.

It is important to note that the Clean Water Act and NPDES federal regulations clearly require control of discharges into the MS4. Section 402(p)(3)(B)(ii) of the Clean Water Act states that MS4 permits must "prohibit non-storm water discharges into the storm sewers." 40 CFR 122.26(d)(2)(iv)(B) requires Copermittees to "detect and remove [...] illicit discharges and improper disposal into the storm sewer." 40 CFR 122.26(d)(2)(iv)(D) requires the Copermittees to "reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system."

⁹⁶ City of Dana Point. 2005. *Final Report for the Del Obispo Storm Drain Project*. Prepared for the State Water Resources Control Board Agreement No. 02-216-550-0.

⁹⁷ City of Dana Point. 2004. *Final Report For The Alipaz Storm Drain Treatment And Low Flow Diversion Project" by the City of Dana Point*. Prepared for State Water Resources Control Board Agreement Number: 01-068-550-0.

⁹⁸ Volz, James. 2005. *Final Report for Poche Beach Urban Runoff Ultraviolet Light Bacteria Disinfection Project*. Prepared by the County of Orange for State Water Resources Control Board Agreement No. 01-236-550-1.

⁹⁹ Anderson, Max. 2005. *Final Report: Aliso Beach Clean Beach Initiatives, J01P28 Interim Water Quality Improvement Package Plant Best Management Practices*. Prepared by the County of Orange for State Water Resources Control Board Agreement No. 01-227-550-0.

¹⁰⁰ City of Laguna Niguel and CH2MHILL. 2004. *Final Report: Wetland Capture and Treatment (WetCAT) Network*. Prepared for State Water Resources Control Board Agreement No. 01-122-259-0.

The Order's approach to regulating discharges into and from the MS4 is in accordance with State Board Order WQ 2001-15. In that order, the State Board reviewed the San Diego County permit (Order No. 2001-01) requirements and made one change to one prohibition.¹⁰¹ The Order upheld all other requirements of the current permit. Order No. R9-~~2007-0002~~2008-0001 incorporates the one change made by the State Board, and continues the approach of Order No. 2001-01 (the basis for the current permit), as it was upheld by the State Board in Order WQ 2001-15. State Board Order WQ 2001-15 supports such requirements, stating: "It is important to emphasize that dischargers into MS4s continue to be required to implement a full range of BMPs, including source control."

The Court of Appeals, Fourth Appellate District, found that the current permit's approach to regulation of discharges into the MS4 was appropriate. Since the Tentative Order utilizes the same approach, the court decision supports the Tentative Order's requirements.

[Finding D.1.e is also discussed in RTC 1 \(Section X.1\) in comment number 20.](#)

Finding D.1.f. Urban runoff needs to be addressed during the three major phases of urban development (planning, construction, and use) in order to reduce the discharge of pollutants to the MEP and protect receiving waters. Urban development which is not guided by water quality planning policies and principles can unnecessarily result in increased pollutant load discharges, flow rates, and flow durations which can impact receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing urban development generates substantial pollutant loads which are discharged in urban runoff to receiving waters.

Discussion of Finding D.1.f. MS4 permits are issued to municipalities because of their land use authority. The ultimate responsibility for the pollutant discharges, increased runoff, and inevitable long-term water quality degradation that results from urbanization lies with local governments. This responsibility is based on the fact that it is the local governments that have authorized the urbanization (i.e., conversion of natural pervious ground cover to impervious urban surfaces) and the land uses that generate the pollutants and runoff. Furthermore, the MS4 through which the pollutants and increased flows are conveyed, and ultimately discharged into natural receiving waters, are owned and operated by the same local governments. In summary, the Copermitees under the Order are responsible for discharges into and out of their MS4s because (1) they own and operate the MS4; and (2) they have the legal authority that authorizes the very development and land uses with generate the pollutants and increased flows in the first place.

¹⁰¹ The State Board removed the prohibition of discharges *into* the MS4 that cause or contribute to exceedances of water quality objectives. The revision allows for treatment of storm water flows once the pollutants have entered the MS4. It does not affect the effective prohibition on certain dry-weather flows into the MS4 that is required by the Clean Water Act.

For example, since grading cannot commence prior to the issuance of a local grading permit, the Copermittees have a built-in mechanism to ensure that all grading activities are protective of receiving water quality. The Copermittee has the authority to withhold issuance of the grading permit until the project proponent has demonstrated to the satisfaction of the Copermittee that the project will not violate their ordinances or cause the Copermittee to be in violation of its MS4 permit. Since the Copermittee will ultimately be held responsible for any discharges from the grading project by the Regional Board, the Copermittee will want to use its own permitting authority to ensure that whatever measures the Copermittee deems necessary to protect discharges into its MS4 are in fact taken by the project proponent.

The Order holds the local government accountable for this direct link between its land use decisions and water quality degradation. The Order recognizes that each of the three major stages in the urbanization process (development planning, construction, and the use or operational stage) are controlled by and must be authorized by the local government. Accordingly, this permit requires the local government to implement, or require others to implement, appropriate best management practices to reduce pollutant discharges and increased flow during each of the three stages of urbanization.

Including plans for BMP implementation during the design phase of new development and redevelopment offers the most cost effective strategy to reduce urban runoff pollutant loads to surface waters.¹⁰² The Phase II regulations for small municipalities reflect the necessity of addressing urban runoff during the early planning phase. Due to the greater water quality concerns generally experienced by larger municipalities, Phase II requirements for small municipalities are also applicable to larger municipalities such as the Copermittees. The Phase II regulations direct municipalities to develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb 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. The program must ensure that controls are in place that would prevent or minimize water quality impacts. This includes developing and implementing strategies which include a combination of structural and/or non-structural BMPs appropriate to the locality. The program must also ensure the adequate long-term operation and maintenance of BMPs.¹⁰³ USEPA expands on the Phase II regulations for urban development when it recommends that Copermittees:

¹⁰² USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

¹⁰³ USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. 64 FR 68845.

“Adopt a planning process that identifies the municipality’s program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs), operation and maintenance policies and procedures, and enforcement procedures. In developing your program, you should consider assessing existing ordinances, policies, programs and studies that address storm water runoff quality.”

Management of urban runoff during the construction phase is also essential. USEPA explains in the preamble to the Phase II regulations that storm water discharges generated during construction activities can cause an array of physical, chemical, and biological water quality impacts. Specifically, the biological, chemical and physical integrity of the waters may become severely compromised due to runoff from construction sites. Fine sediment from construction sites can adversely affect aquatic ecosystems by reducing light penetration, impeding sight-feeding, smothering benthic organisms, abrading gills and other sensitive structures, reducing habitat by clogging interstitial spaces within the streambed, and reducing intergravel dissolved oxygen by reducing the permeability of the bed material. Water quality impairment also results, in part, because a number of pollutants are preferentially absorbed onto mineral or organic particles found in fine sediment. The interconnected process of erosion (detachment of the soil particles), sediment transport, and delivery is the primary pathway for introducing key pollutants, such as nutrients, metals, and organic compounds into aquatic systems.¹⁰⁴

Finally, urban runoff from existing development must be addressed. The Copermitees’ monitoring data exhibits that significant water quality problems exist in receiving waters which receive urban runoff from areas with extensive existing development, such as Aliso Creek. Source identification, BMP requirements, inspections, and enforcement are all important measures which can be implemented to address urban runoff from existing development. USEPA supports inspections and enforcement by municipalities when it states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described.”¹⁰⁵

Finding D.1.f is also discussed in RTC 1 (Section X.1) in comment number 20.

Finding D.1.g. Annual reporting requirements included in this Order are necessary to meet federal requirements and to evaluate the effectiveness and compliance of the Copermitees’ programs.

Discussion of Finding D.1.g. The annual reporting requirements are consistent with federal NPDES regulation 40 CFR 122.41, which states:

¹⁰⁴ Ibid., 64 FR 68728.

¹⁰⁵ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

“The operator of a large or medium municipal separate storm sewer system of a municipal separate storm sewer system that has been designated by the Director under section 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such a system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition, Such proposed changes shall be consistent with § 122.26(d)(2)iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)iv) and (d)(2)v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; and (7) Identification of water quality improvements or degradation.”

CWC section 13267 provides that “the regional board may require that any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

The Regional Board must assess the reports to ensure that the Copermittees’ programs are adequate to assess and address water quality. The reporting requirements can also be useful tools for the Copermittees to review, update, or revise their programs. Areas or issues which have received insufficient efforts can also be identified and improved.

Finding D.2.a. The Standard Urban Storm Water Mitigation Plan (SUSMP) requirements contained in this Order are consistent with Order WQ-2000-11 adopted by the State Water Resources Control Board (State Board) on October 5, 2000. In the precedential order, the State Board found that the design standards, which essentially require that urban runoff generated by 85 percent of storm events from specific development categories be infiltrated or treated, reflect the MEP standard. The order also found that the SUSMP requirements are appropriately applied to the majority of the Priority Development Project categories contained in Section D.1 of this Order. The State Board also gave Regional Water Quality Control Boards the needed discretion to include additional categories and locations, such as retail gasoline outlets (RGOs), in SUSMPs.

Discussion of Finding D.2.a. The post-construction requirements and design standards contained in the SUSMP section of Order No. R9-~~2007-0002~~2008-0001 constitute MEP consistent with State Board guidance, court decisions, and Regional Board requirements. The State Board and Regional Boards have made several recent decisions in regards to inclusion of SUSMP requirements in MS4 permits. In a precedential decision, State Board WQ Order No. 2000-11, the State Board found that the SUSMP provisions constitute MEP for addressing pollutant discharges resulting from Priority Development Projects. The provisions of the SUSMP section of the Order are also consistent with those previously issued by the Regional Board for Orange County (Order No. R9-2002-0001) and San Diego County (Order Nos. R9-2001-01 and R9-2007-0001), as well as requirements in the Los Angeles County MS4 permit (Order No. R4-2001-182). In State Board Order WQ 2001-15, the State Board reaffirmed that SUSMP requirements constitute MEP. Moreover, the SUSMP requirements of the San Diego County MS4 permit (Order No. R9-2001-01) were upheld when the California State Supreme Court declined to hear the matter on appeal.

Finding D.2.b. Controlling urban runoff pollution by using a combination of onsite source control and Low Impact Development (LID) site design BMPs augmented with treatment control BMPs before the runoff enters the MS4 is important for the following reasons: (1) Many end-of-pipe BMPs (such as diversion to the sanitary sewer) are typically ineffective during significant storm events. Whereas, onsite source control BMPs can be applied during all runoff conditions; (2) End-of-pipe BMPs are often incapable of capturing and treating the wide range of pollutants which can be generated on a sub-watershed scale; (3) End-of-pipe BMPs are more effective when used as polishing BMPs, rather than the sole BMP to be implemented; (4) End-of-pipe BMPs do not protect the quality or beneficial uses of receiving waters between the source and the BMP; and (5) Offsite end-of-pipe BMPs do not aid in the effort to educate the public regarding sources of pollution and their prevention.

Discussion of Finding D.2.b. Many end-of-pipe BMPs are designed for low flow conditions because their end-of-pipe location prevents them from being designed for large storm events. This results in the end-of-pipe BMPs being overwhelmed, bypassed, or ineffective during larger storm events more frequently than onsite BMPs designed for larger storms. BMPs are also frequently most effective for a particular type of pollutant (such as sediment). Such BMPs may be appropriate for small sites with a limited suite of pollutants generated; however, end-of-pipe BMPs must typically be able to address a wide range of pollutants generated by a sub-watershed, limiting their effectiveness and/or increasing costs. Moreover, the location of some end-of-pipe BMPs allow for untreated pollutants to be discharged to and degrade receiving waters prior to their reaching the BMPs. This fails to protect receiving waters, which is the purpose of BMP implementation. In addition, opportunities to educate the public regarding urban runoff pollution can be lost when end-of-pipe BMPs are located away from pollutant sources and out of sight. Onsite BMPs can lead to a better public understanding of urban runoff issues since their presence can provide a visible and/or tangible lesson in pollution prevention.

Finding D.2.c. Use of Low-Impact Development (LID) site design BMPs at new development projects can be an effective means for minimizing the impact of urban runoff discharges from the development projects on receiving waters. LID is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques. LID site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of urban runoff.

Discussion of Finding D.2.c. The use of LID site design BMPs helps reduce the amount of impervious area associated with urbanization and allows storm water to infiltrate into the soil. Natural vegetation and soil filters urban runoff and reduces the volume and pollutant loads of storm water. Studies have revealed that the level of imperviousness resulting from urbanization is strongly correlated with the water quality impairment of nearby receiving waters.¹⁰⁶ In many cases, the impacts on receiving waters due to changes in hydrology can be more significant than those attributable to the contaminants found in storm water discharges.¹⁰⁷ These impacts include stream bank erosion (increased sediment load and subsequent deposition), benthic habitat degradation, and decreased diversity of macroinvertebrates. Although conventional BMPs do reduce pollutant loads, they may not effectively control adverse effects from changes in the discharge hydrologic conditions.¹⁰⁸

The Order includes requirements for developments to include site design BMPs that mimic or replicate the natural hydrologic cycle. Open space designs which maximize pervious surfaces and retention of “natural” drainages have been found to reduce both the costs of development and pollutant export.¹⁰⁹ Moreover, USEPA finds including plans for a “natural” site design and BMP implementation during the design phase of new development and redevelopment offers the most cost effective strategy to reduce pollutant loads to surface waters.¹¹⁰ In addition, a recent U.S. Department of Housing and Urban Development guidance document on low-impact development notes that the use of LID-based storm water management design allows land to be developed, but in a cost-effective manner that helps mitigate potential environmental impacts.¹¹¹

[Finding D.2.c is also discussed in RTC 1 \(Section X.1\) in comment number 30.](#)

¹⁰⁶ USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.

¹⁰⁷ Ibid.

¹⁰⁸ USEPA, 2000. Low-Impact Development: A literature review. EPA-841-B-00-005. 35p.

¹⁰⁹ Center for Watershed Protection, 2000. “The Benefits of Better Site Design in Residential Subdivisions.” Watershed Protection Techniques. Vol. 3. No. 2.

¹¹⁰ USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.

¹¹¹ U.S. Department of Housing and Urban Development, Office of Policy Development and Research, 2003. “The Practice of Low Impact Development.” Prepared by: NAHB Research Center, Inc. Upper Marlboro, Maryland. Contract No. H-21314CA. 131p.

Finding D.2.d. Retail Gasoline Outlets (RGOs) are significant sources of pollutants in urban runoff. RGOs are points of convergence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up and consequently produce significantly higher loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas.

Discussion of Finding D.2.d. RGOs are included in the Order as a Priority Development Project category because RGOs produce significantly greater loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and structural treatment BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) an ADT of 100 or more vehicles per day. These are appropriate thresholds since vehicular development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters.

This finding has been added to satisfy State Board WQ Order No. 2000-11's requirements for including RGOs as a Priority Development Category. Order No. 2000-11 acknowledged that a threshold (size, average daily traffic, etc.) appropriate to trigger SUSMP requirements should be developed for RGOs and that specific findings regarding RGOs should be included in MS4 permits to justify the requirement.¹¹²

Additional detail to support the inclusion of RGOs can be found in the Fact Sheet discussion of Section ~~X~~-D.1.d.2.j.

Finding D.2.d is also discussed in the Response to Comments document (Section X) in comment number 29.

Finding D.2.e. Heavy industrial sites are significant sources of pollutants in urban runoff. Pollutant concentrations and loads in runoff from industrial sites are similar or exceed pollutant concentrations and loads in runoff from other land uses, such as commercial or residential land uses. As with other land uses, LID site design, source control, and treatment control BMPs are needed at heavy industrial sites in order to meet the MEP standard. These BMPs are necessary where the heavy industrial site is larger than one acre. The one acre threshold is appropriate, since it is consistent with requirements in the Phase II NPDES storm water regulations that apply to small municipalities.

¹¹² State Board, 2000. Order WQ 2000-11. In the Matter of the Petitions of The Cities Of Bellflower, Et Al., The City Of Arcadia, And Western States Petroleum Association Review of January 26, 2000 Action of the Regional Board And Actions and Failures to Act by both the California Regional Water Quality Control Board, Los Angeles Region and Its Executive Officer Pursuant to Order No. 96-054, Permit for Municipal Storm Water and Urban Run-Off Discharges Within Los Angeles County [NPDES NO. CAS614001] SWRCB/OCC FILES A-1280, A-1280(a) and A-1280(b)

Discussion of Finding D.2.e. Heavy industrial sites can be a significant source of pollutants in urban runoff. In an extensive review of storm water literature, the LARWQCB found widespread support for the finding that "industrial and commercial activities can also be considered hot spots as sources of pollutants." It also found that "industrial and commercial areas were likely to be the most significant pollutant source areas" of heavy metals.¹¹³ Likewise, runoff from heavy industry in the Santa Clara Valley has been found to be extremely toxic.¹¹⁴ These findings are corroborated by USEPA, which states in the preamble to the 1990 Phase I NPDES storm water regulations that "Because storm water from industrial facilities may be a major contributor of pollutants to municipal separate storm sewer systems, municipalities are obligated to develop controls for storm water discharges associated with industrial activity through their system in their storm water management program." Since heavy industrial sites can be a significant source of pollutants in urban runoff in a manner similar to other SUSMP project categories such as commercial development or automotive repair shops, it is appropriate to include heavy industrial sites as a SUSMP category in the Order.

The Phase I NPDES storm water regulations require the Copermittees to "control through ordinance, permit, contract, order, or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity" (40 CFR 122.26(d)(2)(i)). In addition, it has been established that the MEP standard for the control of urban runoff from new development projects includes incorporation of the SUSMP requirements. Since the Copermittees must both control pollutants from industrial sites and meet the MEP standard for new development, it is appropriate to apply the SUSMP requirements to heavy industrial sites.

The State Board's Order WQ 2000-11 indicates that it is appropriate to apply SUSMP requirements to categories of development where evidence shows the category of development can be a significant source of pollutants. As evidenced above, heavy industrial sites can be a significant source of pollutants. Therefore, the Order includes heavy industrial sites as a SUSMP Priority Development Project category.

[Finding D.2.e is also discussed in the Response to Comments document \(Section X\) in comment number 28.](#)

¹¹³ Los Angeles Regional Water Quality Control Board. 2001.

¹¹⁴ Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection.

Finding D.2.f. If not properly designed or maintained, certain BMPs implemented or required by municipalities for urban runoff management may create a habitat for vectors (e.g. mosquitoes and rodents). However, proper BMP design to avoid standing water can prevent the creation of vector habitat. Nuisances and public health impacts resulting from vector breeding can be prevented with close collaboration and cooperative effort between municipalities ~~and local vector control agencies, the Orange County Vector Control District,~~ and the ~~State-California~~ Department of Public Health Services during the development and implementation of urban runoff management programs.

Discussion of Finding D.2.f. The implementation of certain structural BMPs or other urban runoff treatment systems can result in significant vector problems in the form of increased breeding or harborage habitat for mosquitoes, rodents or other potentially disease transmitting organisms. The implementation of BMPs that retain water may provide breeding habitat for a variety of mosquito species, some of which have the potential to transmit diseases such as Western Equine Encephalitis, St. Louis Encephalomyelitis, and malaria. Recent BMP implementation studies by Caltrans¹¹⁵ in District 7 and District 11 have demonstrated mosquito breeding associated with some types of BMPs. The Caltrans BMP Retrofit Pilot study cited lack of maintenance and improper design as factors contributing to mosquito production. However, a Watershed Protection Techniques article describes management techniques for selecting, designing, and maintaining structural treatment BMPs to minimize mosquito production.¹¹⁶ State and local urban runoff management programs that include structural BMPs with the potential to retain water have been implemented in Florida and the Chesapeake Bay region without resulting in significant public health threats from mosquitoes or other vectors.¹¹⁷

Finding D.3.a. In accordance with federal NPDES regulations and to ensure the most effective oversight of industrial and construction site discharges, discharges of runoff from industrial and construction sites are subject to dual (state and local) storm water regulation. Under this dual system, each Copermitttee is responsible for enforcing its local permits, plans, and ordinances, and the Regional Board is responsible for enforcing the General Construction Activities Storm Water Permit, State Board Order 99-08 DWQ, NPDES No. CAS000002 (General Construction Permit) and the General Industrial Activities Storm Water Permit, State Board Order 97-03 DWQ, NPDES No. CAS000001 (General Industrial Permit). NPDES municipal regulations require that municipalities develop and implement measures to address runoff from industrial and construction activities. Those measures may require the implementation of additional BMPs than are required under the statewide general permits for activities subject to both state and local regulation.

¹¹⁵ Caltrans, 2000. BMP Retrofit Pilot Studies: A Preliminary Assessment of Vector Production.

¹¹⁶ Watershed Protection Techniques, 1995. Mosquitoes in Constructed Wetlands: A Management Bugaboo? 1(4):203-207.

¹¹⁷ Shaver, E. and R. Baldwin, 1995. Sand Filter Design for Water Quality Treatment in Herricks, E., Ed. Stormwater Runoff and Receiving Systems: Impact, Monitoring, and Assessment, CRC Lewis Publishers, New York, NY.

Discussion of Finding D.3.a. USEPA finds the control of pollutant discharges from industry and construction so important to receiving water quality that it has established a double system of regulation over industrial and construction sites. This double system of regulation consists of two parallel regulatory systems with the same common objective: to keep pollutants from industrial and construction sites out of the MS4. In this double system of regulation for runoff from industrial and construction sites, local governments must enforce their legal authorities (i.e., local ordinances and permits) while the Regional Board must enforce its legal authority (i.e., statewide general industrial and construction storm water permits). These two regulatory systems are designed to complement and support each other. Municipalities are not required to enforce Regional Board and State Board permits; however, they are required to enforce their ordinances and permits. The Federal regulations are clear that municipalities have responsibility to address runoff from industrial and construction sites which enters their MS4s.

Municipalities have this responsibility because they have the authority to issue land use and development permits. Since municipalities are the lead permitting authority for industrial land use and construction activities, they are also the lead for enforcement regarding runoff discharges from these sites. For sites where the municipality is the lead permitting authority, the Regional Board will work with the municipality and provide support where needed. The Regional Board will assist municipalities in enforcement against non-compliant sites after the municipality has exhibited a good faith effort to bring the site into compliance.

According to USEPA, the storm water regulations envision that NPDES permitting authorities and municipal operators will cooperate to develop programs to monitor and control pollutants in storm water discharges from industrial facilities.¹¹⁸ USEPA discusses the “dual regulation” of construction sites in its Storm Water Phase II Compliance Assistance Guide, which states “Even though all construction sites that disturb more than one acre are covered nationally by an NPDES storm water permit, the construction site runoff control minimum measure [...] is needed to induce more localized site regulation and enforcement efforts, and to enable operators [...] to more effectively control construction site discharges into their MS4s.”¹¹⁹ While the Storm Water Phase II Compliance Assistance Guide applies to small municipalities, it is applicable to the Copermittees, because they are similar in size and have the potential to discharge similar pollutant types as Phase II municipalities.

[Finding D.3.a is also discussed in RTC 1 \(Section X.1\) in comment number 2.](#)

¹¹⁸ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

¹¹⁹ USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

Finding D.3.b. Identification of sources of pollutants in urban runoff (such as municipal areas and activities, industrial and commercial sites/sources, construction sites, and residential areas), development and implementation of BMPs to address those sources, and updating ordinances and approval processes are necessary for the Copermittees to ensure that discharges of pollutants ~~into and~~ from its MS4 are reduced to the MEP. Inspections and other compliance verification methods are needed to ensure minimum BMPs are implemented. Inspections are especially important at high risk areas for pollutant discharges.

Discussion of Finding D.3.b. Source identification is necessary to characterize the nature and extent of pollutants in discharges and to develop appropriate BMPs. It is the first step in a targeted approach to urban runoff management. Source identification helps identify the location of potential sources of pollutants in urban runoff. Pollutants found to be present in receiving waters can then be traced to the sites which frequently generate such pollutants. In this manner source inventories can help to target inspections, monitoring, and potential enforcement. This allows for limited inspection, monitoring, and enforcement time to be most effective. USEPA supports source identification as a concept when it recommends construction, municipal, and industrial source identification in guidance and the federal regulations.^{120,121}

The development of BMPs for identified sources will help ensure that appropriate, consistent controls are implemented at all types of urban development and areas. Copermittees must reduce the discharge of pollutants in urban runoff to the maximum extent practicable. To achieve this level of pollutant reduction, BMPs must be implemented. Designation of minimum BMPs helps ensure that appropriate BMPs are implemented for various sources. These minimum BMPs also serve as guidance as to the level of water quality protection required. USEPA requires development and implementation of BMPs for construction, municipal, commercial, industrial, and residential sources at 40 CFR 122.26(d)(2)(iv)(A-D).

Updating ordinances and approval processes is necessary in order for the Copermittees to control discharges to their MS4s. USEPA supports updating ordinances and approval processes when it states “A crucial requirement of the NPDES storm water regulation is that a municipality must demonstrate that it has adequate legal authority to control the contribution of pollutants in storm water discharged to its MS4. [...] In order to have an effective municipal storm water management program, a municipality must have adequate legal authority to control the contribution of pollutants to the MS4. [...] ‘Control,’ in this context, means not only to require disclosure of information, but also to limit, discourage, or terminate a storm water discharge to the MS4.”¹²²

¹²⁰ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

¹²¹ 40 CFR 122.26(d)(2)(ii)

¹²² USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

Inspections provide a necessary means for the Copermittees to evaluate compliance of pollutant sources with their municipal ordinances and minimum BMP requirements. USEPA supports inspections when it recommends inspections of construction, municipal, and industrial sources.¹²³ Inspection of high risk sources are especially important because of the ability of frequent inspections to help ensure compliance, thereby reducing the risk associated with such sources. USEPA suggests that inspections can improve compliance when it states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations.”¹²⁴

Finding D.3.b is also discussed in RTC 1 (Section X.1) in comment number 2.

Finding D.3.c. Historic and current development makes use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, man-made, or partially modified features. In these cases, the urban stream is both an MS4 and a receiving water.

Discussion of Finding D.3.c. An MS4 is defined in the federal regulations as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), owned or operated by a Copermittee, and designed or used for collecting or conveying urban runoff.¹²⁵ Natural drainage patterns and urban streams are frequently used by municipalities to collect and convey urban runoff away from development within their jurisdiction. Therefore, the Regional Board considers natural drainages that are used for conveyances of urban runoff, regardless of whether or not they’ve been altered by the municipality, as both part of the MS4s and as receiving waters. To clarify, an unaltered natural drainage, which receives runoff from a point source (channeled by a Copermittee to drain an area within their jurisdiction), which then conveys the runoff to an altered natural drainage or a man-made MS4, is both an MS4 and a receiving water.¹²⁶

Finding D.3.c is also discussed in RTC 1 (Section X.1) in comment number 3 and RTC 2 (Section X.2) in comment number 13.

¹²³ Ibid.

¹²⁴ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

¹²⁵ USEPA, 2000. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System. Code of Federal Regulations, Vol. 40, Part 122.

¹²⁶ Regional Board, 2001. Response in Opposition to Petitions for Review of California Regional Water Quality Control Board San Diego Region Order No. 2001-01 – NPDES Permit No. CAS0108758 (San Diego Municipal Storm Water Permit).

Finding D.3.d. As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.

Discussion of Finding D.3.d. CWA section 402(p) requires operators of MS4s to prohibit non-storm water discharges into their MS4s. This is necessary because pollutants which enter the MS4 generally are conveyed through the MS4 to be eventually discharged into receiving waters. If a municipality does not prohibit non-storm water discharges, it is providing the pathway (its MS4) which enables pollutants to reach receiving waters. Since the municipality's storm water management service can result in pollutant discharges to receiving waters, the municipality must accept responsibility for the water quality consequences resulting from this service. Furthermore, third party discharges can cause a municipality to be out of compliance with its permit. Since pollutants from third parties which enter the MS4 will eventually be discharged from the MS4 to receiving waters, the third party discharges can result in a situation of municipality non-compliance if the discharges lead to an exceedance of water quality standards. For these reasons, each Copermittee must prohibit and/or control discharges from third parties to its MS4. USEPA supports this concept when it states "the operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties" and "the operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts 'title' for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties."¹²⁷

[Finding D.3.d is also discussed in RTC 1 \(Section X\) in comment number 2 and RTC 2 \(Section X.2\) in comment number 5.](#)

Finding D.3.e. Waste and pollutants which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the U.S. unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutant discharges into MS4s must be reduced to the MEP using a combination of management measures, including source control, and an effective MS4 maintenance program must be implemented by each Copermittee.

¹²⁷ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68765-68766.

Discussion of Finding D.3.e. When rain falls and drains urban freeways, industries, construction sites, and neighborhoods, it picks up a multitude of pollutants. Gravity flow transports the pollutants to the MS4. Illicit discharges and connections also contribute a significant amount of pollutants to MS4s. MS4s are commonly designed to convey their contents as quickly as possible. Due to the resulting typically high flow rates within the concrete conveyance systems of MS4s, pollutants which enter or are deposited in the MS4 and not removed are generally flushed unimpeded through the MS4 to waters of the United States. Since treatment generally does not occur within the MS4, in such cases reduction of pollutants to the MEP must occur prior to discharges entering the MS4.

The importance of this concept is supported by the tons of wastes/pollutants that have been removed from the Copermittees' MS4s as reported in their ROWD.¹²⁸ Moreover, these pollutants will be discharged into receiving waters unless an effective MS4 and structural treatment BMP maintenance program is implemented by the Copermittees. The requirement for Copermittees to conduct a MS4 maintenance program is specifically directed in both the Phase I and Phase II storm water regulations. Regarding MS4 cleaning, USEPA states "The removal of sediment, decaying debris, and highly polluted water from catch basins has aesthetic and water quality benefits, including reducing foul odors, reducing suspended solids, and reducing the load of oxygen-demanding substances that reach receiving waters."¹²⁹ It goes on to say, "Catch basin cleaning is an efficient and cost-effective method for preventing the transport of sediment and pollutants to receiving water bodies." USEPA also finds that "Lack of maintenance often limits the effectiveness of storm water structural controls such as detention/retention basins and infiltration devices. [...] The proposed program should provide for maintenance logs and identify specific maintenance activities for each class of control, such as removing sediment from retention ponds every five years, cleaning catch basins annually, and removing litter from channels twice a year."¹³⁰

[Finding D.3.e is also discussed in RTC 1 \(Section X.1\) in comment number 2.](#)

Finding D.3.f. Enforcement of local urban runoff related ordinances, permits, and plans is an essential component of every urban runoff management program and is specifically required in the federal storm water regulations and this Order. Each Copermittee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary to implement and enforce such control measures/BMPs under its jurisdiction.

¹²⁸ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region).

¹²⁹ USEPA, 1999. Storm Water O&M Fact Sheet, Catch Basin Cleaning. EPA 832-F-99-011.

¹³⁰ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

Discussion of Finding D.3.f. The Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A – D) are clear in placing responsibility on municipalities for control of urban runoff from third party activities and land uses to their MS4.¹³¹ In order for municipalities to assume this responsibility, they must implement ordinances, permits, and plans addressing urban runoff from third parties. Assessments for compliance with their ordinances, permits, and plans are essential for a municipality to ensure that third parties are not causing the municipality to be in violation of its municipal storm water permit. When conditions of non-compliance are determined, enforcement is necessary to ensure that violations of municipality ordinances and permits are corrected. When the Copermittees determine a violation of its storm water ordinance, it must pursue correction of the violation. Without enforcement, third parties do not have incentive to correct violations. USEPA supports enforcement by municipalities when it states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described.”¹³²

[Finding D.3.f is also discussed in RTC 1 \(Section X.1\) in comment number 7.](#)

Finding D.3.g. Education is an important aspect of every effective urban runoff management program and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions affect receiving water quality and how adverse effects can be minimized.

Discussion of Finding D.3.g. Education is a critical BMP and an important aspect of the urban runoff management programs. USEPA finds that “An informed and knowledgeable community is critical to the success of a storm water management program since it helps ensure the following: Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important, [and] greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.”¹³³

Regarding target audiences, USEPA also states “The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children.”

¹³¹ USEPA, 2000. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System. Code of Federal Regulations, Vol. 40, Part 122.

¹³² USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA/833-B-92-002.

¹³³ USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

Finding D.3.h. Public participation during the development of urban runoff management programs is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.

Discussion of Finding D.3.h.

This finding is supported by the Phase II Storm Water Regulations, which state “early and frequent public involvement can shorten implementation schedules and broaden public support for a program.” USEPA goes on to explain, “Public participation is likely to ensure a more successful storm water program by providing valuable expertise and a conduit to other programs and governments.”¹³⁴

Finding D.4.a. Since urban runoff does not recognize political boundaries, watershed-based urban runoff management can greatly enhance the protection of receiving waters within a watershed. Such management provides a means to focus on the most important water quality problems in each watershed. By focusing on the most important water quality problems, watershed efforts can maximize protection of beneficial use in an efficient manner. Effective watershed-based urban runoff management actively reduces pollutant discharges and abates pollutant sources causing or contributing to watershed water quality problems. Watershed-based urban runoff management that does not actively reduce pollutant discharges and abate pollutant sources causing or contributing to watershed water quality problems can necessitate implementation of the iterative process outlined in section A.3 of the Tentative Order. Watershed management of urban runoff does not require Copermittees to expend resources outside of their jurisdictions. Watershed management requires the Copermittees within a watershed to develop a watershed-based management strategy, which can then be implemented on a jurisdictional basis.

Discussion of Finding D.4.a. In recent years, addressing water quality issues from a watershed perspective has increasingly gained attention. Regarding watershed-based permitting, the USEPA *Watershed-Based NPDES Permitting Policy Statement* issued on Jan. 7, 2004 states the following:

USEPA continues to support a holistic watershed approach to water quality management. The process for developing and issuing NPDES permits on a watershed basis is an important tool in water quality management. USEPA believes that developing and issuing NPDES permits on a watershed basis can benefit all watershed stakeholders, from the NPDES permitting authority to local community members. A watershed-based approach to point source permitting under the NPDES program may serve as one innovative tool for achieving new efficiencies and environmental results. USEPA believes that watershed-based permitting can:

- Lead to more environmentally effective results;
- Emphasize measuring the effectiveness of targeted actions on improvements in water quality;

¹³⁴ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68755.

- Provide greater opportunities for trading and other market based approaches;
- Reduce the cost of improving the quality of the nation's waters;
- Foster more effective implementation of watershed plans, including total maximum daily loads (TMDLs); and
- Realize other ancillary benefits beyond those that have been achieved under the CWA (e.g., facilitate program integration including integration of clean water act and safe drinking water act programs).

Watershed-based permitting is a process that ultimately produces NPDES permits that are issued to point sources on a geographic or watershed basis. In establishing point source controls in a watershed-based permit, the permitting authority may focus on watershed goals, and consider multiple pollutant sources and stressors, including the level of nonpoint source control that is practicable. In general, there are numerous permitting mechanisms that may be used to develop and issue permits within a watershed approach.

This USEPA guidance is in line with State Board and Regional Board watershed management goals. For example, the State Board's TAC recommends watershed-based water quality protection, stating "Municipal permits should have watershed specific components." The TAC further recommends that "All NPDES permits and Waste Discharge Requirements should be considered for reissuance on a watershed basis."

In addition, the Basin Plan states that "public agencies and private organizations concerned with water resources have come to recognize that a comprehensive evaluation of pollutant contributions on a watershed scale is the only way to realistically assess cumulative impacts and formulate workable strategies to truly protect our water resources. Both water pollution and habitat degradation problems can best be solved by following a basin-wide approach."

In light of USEPA's policy statement and the State Board's and Regional Board's watershed management goals, the Regional Board seeks to expand watershed management in the regulation of urban runoff. Watershed-based MS4 permits can provide for more effective receiving water quality protection by focusing on specific water quality problems. The entire watershed for the receiving water can be assessed, allowing for critical areas and practices to be targeted for corrective actions. Known sources of pollutants of concern can be investigated for potential water quality impacts. Problem areas can then be addressed, leading to eventual improvements in receiving water quality. Management of urban runoff on a watershed basis allows for specific water quality problems to be targeted so that efforts result in maximized water quality improvements.¹³⁵

¹³⁵ Regional Board, 2004. San Diego County Municipal Storm Water Permit Reissuance Analysis Summary. P. 1.

Finding D.4.b. Some urban runoff issues, such as general education and training, can be effectively addressed on a regional basis. Regional approaches to urban runoff management can improve program consistency and promote sharing of resources, which can result in implementation of more efficient programs.

Discussion of Finding D.4.b. Copermittees in Orange County participate in several urban runoff-related activities whose scope extends beyond the area subject to this Order. These include countywide activities (e.g., portions of Orange County fall under the jurisdiction of the Santa Ana Regional Board), southern California, and statewide activities. Copermittees' participation in these regional activities is generally directed at improving management capability, taking advantage of economies of scale. For instance, Copermittees seek to develop consistency between watershed and/or jurisdictional programs (e.g., through standards development), and to collaborate on certain program activities such as education, training, and monitoring. The Copermittees report agreeing that jurisdictional, watershed, and regional programs cannot be effectively developed and implemented in isolation. In addition, the Copermittees, through WURMP implementation efforts, have learned that many watershed activities can be more effectively implemented (e.g., achieve more water quality benefits) at the regional level due to economies of scale and agree watershed protection should be increasingly emphasized as a focal point of Copermittee efforts under the re-issued Permit.¹³⁶

Finding D.4.c. It is important for the Copermittees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittee coordination with other watershed stakeholders, especially Caltrans, the Department of Defense, and water and sewer districts, is also important.

Discussion of Finding D.4.c. Conventional planning and zoning can be limited in their ability to protect the environmental quality of creeks, rivers, and other waterbodies. Watershed-based planning is often ignored, despite the fact that receiving waters unite land by collecting runoff from throughout the watershed. Since watersheds unite land, they can be used as an effective basis for planning. Watershed-based planning enables local and regional areas to realize economic, social, and other benefits associated with growth, while conserving the resources needed to sustain such growth, including water quality.

¹³⁶ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region).

This type of planning can involve four steps: (1) Identify the watersheds shared by the participating jurisdictions; (2) Identify, assess, and prioritize the natural, social, and other resources in the watersheds; (3) Prioritize areas for growth, protection, and conservation, based on prioritized resources; and (4) Develop plans and regulations to guide growth and protect resources. Local governments have started with simple, yet effective, steps toward watershed planning, such as adopting a watershed-based planning approach, articulating the basic strategy in their General Plans, and beginning to pursue the basic strategy in collaboration with neighboring local governments who share the watersheds. Examples of new mechanisms created to facilitate watershed-based planning and zoning include the San Francisquito Creek Watershed Coordinated Resource Management Process and the Santa Clara Basin Watershed Management Initiative.¹³⁷

E. Statute and Regulatory Considerations

Finding E.1. The Receiving Water Limitations (RWL) language specified in this Order is consistent with language recommended by the USEPA and established in State Board Water Quality Order 99-05, *Own Motion Review of the Petition of Environmental Health Coalition to Review Waste Discharge Requirements Order No. 96-03, NPDES Permit No. CAS0108740*, adopted by the State Board on June 17, 1999.¹³⁸ The RWL in this Order require compliance with water quality standards, which is to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Compliance with receiving water limits based on applicable water quality standards is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality standards and the creation of conditions of pollution.

¹³⁷ Bay Area Stormwater Management Agencies Association., 1999. Start at the Source. Forbes Custom Publishing. Available on-line at: http://www.scvurppp-w2k.com/basmaa_satism.htm

¹³⁸ State Water Resources Control Board Order: WQ 99 - 05 Own Motion Review of the Petition of Environmental Health Coalition to Review Waste Discharge Requirements Order No. 96-03, NPDES Permit No. CAS0108740 for Storm Water and Urban Runoff from the Orange County Flood Control District and the Incorporated Cities of Orange County Within the San Diego Region, Issued by the California Regional Water Quality Control Board, San Diego Region. SWRCB/OCC File A-1041. In response to objections from USEPA, Order WQ 99-05 revised Receiving Water Limitations language that had been established in State Board Order 98-01.

Discussion of Finding E.1. The RWLs in the Order require compliance with water quality standards through an iterative approach for implementing improved and better-tailored BMPs over time. The iterative BMP process requires the implementation of increasingly stringent BMPs until receiving water standards are achieved. This is necessary because implementation of BMPs alone cannot ensure attainment of receiving water quality standards. For example, a BMP that is effective in one situation may not be applicable in another. An iterative process of BMP development, implementation, and assessment is needed to promote consistent compliance with receiving water quality objectives. If assessment of a given BMP confirms that the BMP is ineffective, the iterative process should be restarted, with redevelopment of a new BMP that is anticipated to result in compliance with receiving water quality objectives.

The issue of whether storm water discharges from MS4s must meet water quality standards has been intensely debated in past years. The argument arises because CWA section 402(p) fails to clearly state that municipal dischargers of storm water must meet water quality standards. On the issue of industrial discharges of storm water, the statute clearly indicates that industrial dischargers must meet both (1) the technology-based standard of “best available technology economically achievable (BAT)” and (2) applicable water quality standards. On the issue of municipal discharges however, the statute states that municipal dischargers must meet (1) the technology-based standard of “MEP” and (2) “such other provisions that the Administrator or the State determines appropriate for the control of such pollutants.” The statute fails, however, to specifically state that municipal dischargers must meet water quality standards.

As a result, the municipal storm water dischargers have argued that they do not have to meet water quality standards; and that they only are required to meet MEP. Environmental interest groups maintain that not only do MS4 discharges have to meet water quality standards, but that MS4 permits must also comply with numeric effluent limitations for the purpose of meeting water quality standards. On the issue of water quality standards, USEPA, the State Board, and the Regional Board have consistently maintained that MS4s must indeed comply with water quality standards. On the issue of whether water quality standards must be met by numeric effluent limits, USEPA, the State Board (in Orders WQ 91-03 and WQ 91-04), and the Regional Board have maintained that MS4 permits can contain narrative requirements for the implementation of BMPs in place of numeric effluent limits.¹³⁹

¹³⁹ For the most recent assessment, see Storm Water Panel Recommendations to the California State Water Resources Control Board, 2006. *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial, and Construction Activities.*

In addition to relying on USEPA's legal opinion concluding that MS4s must meet MEP and water quality standards, the State Board also relied on the CWA's explicit authority for States to require "such other provisions that the Administrator or the State determines appropriate for the control of such pollutants" in addition to the technology-based standard of MEP. To further support its conclusions that MS4 permit dischargers must meet water quality standards, the State Board relied on provisions of the CWC that specify that all waste discharge requirements must implement applicable Basin Plans and take into consideration the appropriate water quality objectives for the protection of beneficial uses.

The State Board first formally concluded that permits for MS4s must contain effluent limitations based on water quality standards in its Order WQ 91-03. In that Order, the State Board also concluded that it was appropriate for Regional Boards to achieve this result by requiring best management practices, rather than by inserting numeric effluent limitations into MS4 permits. Later, in Order WQ 98-01, the State 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 and allows for the use of narrative 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 Board modified its receiving water limitations language in Order WQ 98-01 to meet specific objections by USEPA (the modifications resulted in stricter compliance with water quality standards). State Board Order WQ 99-05 states:

"In Order WQ 98-01, the State Board ordered that certain receiving water limitation language be included in future municipal storm water permits. Following inclusion of that language in permits issued by the San Francisco Bay and San Diego Regional Boards for Vallejo and Riverside respectively, the USEPA objected to the permits. The USEPA objection was based on the receiving water limitation language. The USEPA has now issued those permits itself and has included receiving water limitation language it deems appropriate.

In light of USEPA's objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language, the State Board is revising its instructions regarding receiving water limitation language for municipal storm water permits. It is hereby ordered that Order WQ 98-01 will be amended to remove the receiving water limitation language contained therein and to substitute the USEPA language. Based on the reasons stated here, and as a precedent decision, the following receiving water limitation language shall be included in future municipal storm water permits."

In the 1999 case involving MS4 permits issued by USEPA to several Arizona cities (*Defenders of Wildlife v. Browner*, 1999, 197 F. 3d 1035), the United States Court of Appeals for the Ninth Circuit upheld USEPA's requirement for MS4 dischargers to meet water quality standards, but it did so on the basis of USEPA's discretion rather than on the basis of strict compliance with the Clean Water Act. In other words, while holding that the Clean Water Act does not require all MS4 discharges to comply strictly with state water quality standards, the Court also held that USEPA has the authority to determine that ensuring strict compliance with state water quality standards is necessary to control pollutants. On the question of whether MS4 permits must contain numeric effluent limitations, the court upheld USEPA's use of iterative BMPs in place of numeric effluent limits.

On October 14, 1999, the State Board issued a legal opinion on the federal appellate decision and provided advice to the Regional Boards on how to proceed in the future. In the memorandum, the State Board concludes that the recent Ninth Circuit opinion upholds the discretion of USEPA and the State to (continue to) issue permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states that "[...] because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies. As TMDLs are developed, it is likely that MS4s will have to participate in pollutant load reductions, and the MS4 permits are the most effective vehicles for those reductions." In summary, the State Board found that the Regional Boards should continue to include the RWL established in State Board Order WQ 99-05 in all future permits.

The issue of the RWLs language was also central to BIA's (and others') appeal of Order No. 2001-01 (San Diego MS4 permit), which was used as a template for Order No. R9-2002-01. BIA contended that the MEP standard was a ceiling on what could be required of the Copermitees in implementing their urban runoff management programs, and that Order No. 2001-01's receiving water limitations requirements exceeded that ceiling. In other words, BIA argued that the Copermitees could not be required to comply with receiving water limitations if they necessitated efforts which went beyond the MEP standard. Again, the courts upheld the Regional Board's discretion to require compliance with water quality standards in municipal storm water permits, without limitation. The Court of Appeal, Fourth Appellate District found that the Regional Board has "the authority to include a permit provision requiring compliance with water quality standards."¹⁴⁰ On further appeal by BIA, the California State Supreme Court declined to hear the matter.

¹⁴⁰ Building Industry Association et al., v. State Water Resources Control Board, et al. 2004.

While implementation of the iterative BMP process is a means to achieve compliance with water quality objectives, it does not shield the discharger from enforcement actions for continued non-compliance with water quality standards. Consistent with USEPA guidance,¹⁴¹ regardless of whether or not an iterative process is being implemented, discharges that cause or contribute to a violation of water quality standards are in violation of Order No. R9-~~2007-0002~~2008-0001.

Finding E.2. The Water Quality Control Plan for the San Diego Basin (Basin Plan), identifies the following beneficial uses for surface waters in Orange County: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1) Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional beneficial uses are identified for coastal waters of Orange County: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).

Discussion of Finding E.2. The southern portion of Orange County is within the San Diego Region. The Orange County portion of the San Diego Region falls within and comprises the majority of the San Juan Hydrologic Unit. Major streams within the Orange County watersheds include San Juan Creek, Trabuco Creek, and San Mateo Creek. Other surface water bodies include Aliso Creek, Prima Deshecha Canada, Segunda Deshecha Canada, Oso Creek, Salt Creek, Laguna Canyon Channel, Canada Gobernadora, and Bell Canyon. Several small canyon streams drain directly to the Ocean. Major inland waterbodies include Oso Reservoir, El Toro Reservoir, and Sulphur Creek Reservoir.

The Orange County watersheds include unincorporated portions of Orange County, the Cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano. The uppermost portions of the San Mateo, San Juan, Trabuco, and Aliso Creek watersheds are within the Cleveland National Forests.

¹⁴¹ USEPA, 1998. Jan. 21, 1998 correspondence, "State Board/OCC File A-1041 for Orange County," from Alexis Strauss to Walt Petit, and March 17, 1998 correspondence from Alexis Strauss to Walt Petit.

Approximately 500,000 people reside within the permitted area. This estimate is based on the 2000 census, which does not represent exact numbers because three municipalities (County of Orange and the Cities of Laguna Hills and Lake Forest) lie within both the San Diego Region and the Santa Region. In addition, new developments have increased the housing stock of the area since the 2000 census. This includes the master planned developments of Ladera Ranch in the San Juan Creek watershed and Talega in the San Clemente Coastal and San Mateo Creek watersheds.

Finding E.3. This Order is in conformance with State Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California*, and the federal Antidegradation Policy described in 40 CFR 131.12.

Discussion of Finding E.3. Urban runoff management programs are required to be designed to reduce pollutants in urban runoff to the maximum extent practicable and achieve compliance with water quality standards. Therefore, implementation of urban runoff management programs, which satisfy the requirements of Order No.

R9-~~2007-0002~~2008-0001, will prevent violations of receiving water quality standards. The Basin Plan states that “Water quality objectives must [...] conform to US EPA regulations covering antidegradation (40 CFR 131.12) and State Board Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*.” As a result, when water quality standards are met through the implementation of urban runoff management programs, USEPA and State Board antidegradation policy requirements are also met.

Finding E.4. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The adoption and implementation of this NPDES permit relieves the Permittee from developing a non-point source plan, for the urban category, under CZARA. The Regional Board addresses septic systems through the administration of other programs.

Discussion of Finding E.4. Coastal states are required to develop programs to protect coastal waters from nonpoint source pollution, as mandated by the federal CZARA. CZARA Section 6217 identifies polluted runoff as a significant factor in coastal water degradation, and requires implementation of management measures and enforceable policies to restore and protect coastal waters. In lieu of developing a separate NPS program for the coastal zone, California's NPS Pollution Control Program was updated in 2000 to address the requirements of both the CWA section 319 and the CZARA section 6217 on a statewide basis. The California Coastal Commission (CCC), the State Board, and the nine Regional Water Quality Control Boards are the lead State agencies for upgrading the program, although 20 other State agencies also participate. Pursuant to the CZARA (6217(g) Guidance Document the development of urban runoff management programs pursuant to this NPDES permit fulfills the need for coastal cities to develop an urban runoff non-point source plan identified in the State's Non-point Source Program Strategy and Implementation Plan.¹⁴²

Finding E.5. Section 303(d)(1)(A) of the CWA requires that "Each state shall identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard (WQS) applicable to such waters." The CWA also requires states to establish a priority ranking of impaired waterbodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired waterbodies is called the Section 303(d) List. The current Section 303(d) List was approved by the State Board on February 4, 2003 and on July 25, 2003 by USEPA. The List was recently updated by the State Board on October 25, 2006. Before the 2006 List goes into effect, it must be approved by the USEPA.

Discussion of Finding E.5. Section 303(d) of the federal CWA (CWA, 33 USC 1250, et seq., at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits ("impaired" water bodies). States are required to compile this information in a list and submit the list to USEPA for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, States are required to prioritize waters/watersheds for future development of TMDLs. The State Board and Regional Boards have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to subsequently develop TMDLs. The 2006 California 303(d) List identifies impaired receiving water bodies and their watersheds within the State of California. Urban runoff that is discharged from the Copermittee's MS4s is a leading cause of receiving water quality impairment in the San Diego Region.¹⁴³

¹⁴² State Board/CCC, 2000. Nonpoint Source Program Strategy and Implementation Plan, 1998-2013 (PROSIP).

¹⁴³ The approved 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments is online at: http://www.waterboards.ca.gov/tmdl/303d_lists2006.html.

Finding E.6. ~~Requirements in this Order that are more explicit than the federal storm water regulations in 40 CFR 122.26 are prescribed in accordance with the CWA section 402(p)(3)(B)(iii) and are necessary to meet the MEP standard.~~

This Order does not constitute an unfunded local government mandate subject to subvention under Article XIII B, Section (6) of the California Constitution for several reasons, including, but not limited to, the following. First, this Order implements federally mandated requirements under federal Clean Water Act section 402, subdivision (p)(3)(B). (33 U.S.C. § 1342(p)(3)(B).) Second, the local agency Copermittees' obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental dischargers who are issued NPDES permits for storm water discharges. Third, the local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order. Fourth, the Copermittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311(a)) and in lieu of numeric restrictions on their discharges. Fifth, the local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under state law predates the enactment of Article XIII B, Section (6) of the California Constitution.

Discussion of Finding E.6.

This Order does not constitute an unfunded local government mandate subject to subvention under Article XIII B, Section (6) of the California Constitution for several reasons, including, but not limited to, the following. First, this Order implements federally mandated requirements under federal Clean Water Act section 402, subdivision (p)(3)(B). (33 U.S.C. § 1342(p)(3)(B).) This includes federal requirements to effectively prohibit non-storm water discharges, to reduce the discharge of pollutants to the maximum extent practicable, and to include such other provisions as the Administrator or the State determines appropriate for the control of such pollutants. Federal cases have held these provisions require the development of permits and permit provisions on a case-by-case basis to satisfy federal requirements. (Natural Resources Defense Council, Inc. v. U.S. E.P.A. (9th Cir. 1992) 966 F.2d 1292, 1308, fn. 17.)

The authority exercised under this Order is not reserved state authority under the Clean Water Act's savings clause (cf. Burbank v. State Water Resources Control Bd. (2005) 35 Cal.4th 613, 627-628 [relying on 33 U.S.C. § 1370, which allows a state to develop requirements which are not "less stringent" than federal requirements]), but instead, is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, it is entirely federal authority that forms the legal basis to establish the permit provisions. (See, City of Rancho Cucamonga v. Regional Water Quality Control Bd.-Santa Ana Region (2006) 135 Cal.App.4th 1377, 1389; Building Industry Ass'n of San Diego County v. State Water Resources Control Bd. (2004) 124 Cal.App.4th 866, 882-883.)

Second, the local agency Copermittees' obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental dischargers who are issued NPDES permits for storm water discharges. With a few inapplicable exceptions, the Clean Water Act regulates the discharge of pollutants from point sources (33 U.S.C. § 1342) and the Porter-Cologne regulates the discharge of waste (Wat. Code, § 13263), both without regard to the source of the pollutant or waste. As a result, the "costs incurred by local agencies" to protect water quality reflect an overarching regulatory scheme that places similar requirements on governmental and nongovernmental dischargers. (See County of Los Angeles v. State of California (1987) 43 Cal.3d 46, 57-58 [finding comprehensive workers compensation scheme did not create a cost for local agencies that was subject to state subvention].)

The Clean Water Act and the Porter-Cologne Water Quality Control Act largely regulate storm water with an even hand, but to the extent there is any relaxation of this even-handed regulation, it is in favor of the local agencies. Except for municipal separate storm sewer systems, the Clean Water Act requires point source dischargers, including discharges of storm water associated with industrial or construction activity, to comply strictly with water quality standards. (33 U.S.C. § 1311(b)(1)(C), Defenders of Wildlife v. Browner (1999) 191 F.3d 1159, 1164-1165 [noting that industrial storm water discharges must strictly comply with water quality standards].) As discussed in prior State Water Resources Control Board decisions, this Order does not require strict compliance with water quality standards. (SWRCB Order No. WQ 2001-15, p. 7.) The Order, therefore, regulates the discharge of waste in municipal storm water more leniently than the discharge of waste from non-governmental sources.

Third, the local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order. The fact sheet demonstrates that numerous activities contribute to the pollutant loading in the municipal separate storm sewer system. Local agencies can levy service charges, fees, or assessments on these activities, independent of real property ownership. (See, e.g., Apartment Ass'n of Los Angeles County, Inc. v. City of Los Angeles (2001) 24 Cal.4th 830, 842 [upholding inspection fees associated with renting property].) The ability of a local agency to defray the cost of a program without raising taxes indicates that a program does not entail a cost subject to subvention. (County of Fresno v. State of California (1991) 53 Cal.3d 482, 487-488.)

Fourth, the Copermittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311(a)) and in lieu of numeric restrictions on their discharges. To the extent, the local agencies have voluntarily availed themselves of the permit, the program is not a state mandate. (Accord County of San Diego v. State of California (1997) 15 Cal.4th 68, 107-108.) Likewise, the Copermittees have voluntarily sought a program-based municipal storm water permit in lieu of a numeric limits approach. (See City of Abilene v. U.S. E.P.A. (5th Cir. 2003) 325 F.3d 657, 662-663 [noting that municipalities can choose between a management permit or a permit with numeric limits].) The local agencies' voluntary decision to file a report of waste discharge proposing a program-based permit is a voluntary decision not subject to subvention. (See Environmental Defense Center v. USEPA (9th Cir. 2003) 344 F.3d 832, 845-848.)

Fifth, the local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under state law predates the enactment of Article XIII B, Section (6) of the California Constitution.

~~The CWA explicitly preserves independent state authority to enact and implement its own standards and requirements, provided that such standards and requirements are at least as stringent as those that would be mandated by the CWA and the federal regulations. For example, as one general overriding principle, CWA section 510 states "nothing in this chapter shall (1) preclude or deny the right of any State or political subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution [...]." When relating specifically to storm water, CWA section 402(p)(3)(B)(iii) clearly provides states with wide-ranging discretion, stating that municipal storm water permits "[s]hall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants"~~

~~Therefore, where the Order contains requirements more specific than those included in the federal NPDES regulations 40 CFR 122.26(d), it is seeking to meet the above CWA requirements, as well as other particular federal NPDES regulations such as 40 CFR 122.44(d)(1)(i). This federal NPDES regulation requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” Given the continued impact of urban runoff on receiving waters within the San Diego Region, increased specificity in municipal storm water permits is necessary to meet the above CWA and federal regulation requirements.~~

~~In a 1992 decision, the U.S. Court of Appeals for the Ninth Circuit (NRDC v. USEPA, 966 F.2d 1292) interpreted the language in Clean Water Act section 402(p)(3)(B)(iii) as providing the State with substantial discretion and authority: “[t]he language in (iii), above, requires the Administrator or the State to design controls. Congress did not mandate a minimum standards approach or specify that USEPA develop minimal performance requirements [...] we must defer to USEPA on matters such as this, where USEPA has supplied a reasoned explanation of its choices.” The decision in essence holds that USEPA and the States are authorized to require implementation of storm water control programs that, upon “reasoned explanation,” accomplish the goals of CWA section 402(p). The Ninth Circuit Court of Appeals further reinforced the State’s authority in this area more recently in 1999. In Defenders of Wildlife v. Browner (1999) Case No. 98-71080, the Court cited the language of CWA section 402(p)(3)(B)(iii) and stated “[t]hat provision gives the USEPA discretion to determine what pollution controls are appropriate. As this court stated in NRDC v. USEPA, ‘Congress gave the administrator discretion to determine what controls are necessary [...].’”~~

~~Furthermore, the increased specificity included in the Order is in line with USEPA guidance included in its Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems¹⁴⁴ and its Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits.¹⁴⁵ Where the tentative permit is more specific than the federal regulations, it is frequently based on the recommendations of the Guidance Manual. The Interim Permitting Approach also supports increased specificity in storm water permits, recommending that municipal storm water permits use BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate.” It is important to note that the State Board cited USEPA’s Interim Permitting Approach as support for its decision which upheld the increased specificity of numeric sizing criteria requirements for post-construction BMPs as appropriate requirements in municipal storm water permits.~~

Finding E.6 is also discussed in RTC 1 (Section X.1) in comment number 5 and in RTC 2 (Section X.2) in comment number 1.

Finding E.7. Urban runoff treatment and/or mitigation must occur prior to the discharge of urban runoff into a receiving water. Treatment BMPs must not be constructed in a waters of the U.S. or State unless the urban runoff flows are sufficiently pretreated to protect the values and functions of the water body. Federal regulations at 40 CFR 131.10(a) state that in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of an urban runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. This is consistent with USEPA guidance to avoid locating structural controls in natural wetlands. Without federal authorization (e.g., pursuant to Clean Water Act Section 404), waters of the U.S. may not be converted into, or used as, waste treatment or conveyance facilities. Similarly waste discharge requirements pursuant to California Water Code Section 13260 are required for the conversion or use of waters of the State as waste treatment or conveyance facilities.

¹⁴⁴ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

¹⁴⁵ USEPA, 1996. Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits. 61 FR 43761.

Discussion of Finding E.7. Urban runoff treatment and/or mitigation in accordance with any of the requirements in the Order must occur prior to the discharge of storm water or urban runoff into receiving waters. Allowing polluted runoff to enter receiving waters prior to treatment to the MEP will result in degradation of the water body and potential exceedances of water quality standards, from the discharge point to the point of dissipation, infiltration, or treatment. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. This requirement is supported by federal regulation 40 CFR 131.10(a) and USEPA guidance. According to USEPA,¹⁴⁶ "To the extent possible, municipalities should avoid locating structural controls in natural wetlands. Before considering siting of controls in a natural wetland, the municipality should demonstrate that it is not possible or practicable to construct them in sites that do not contain natural wetlands... Practices should be used that settle solids, regulate flow, and remove contaminants prior to discharging storm water into a wetland."

Additional Federal guidance discusses the implementation of wetlands to treat municipal storm water discharges (U.S. EPAUSEPA, 2000. Guiding Principles for Constructed Treatment Wetlands: Providing for Water Quality and Wildlife Habitat). It states:

*"..treatment wetlands should not be constructed in a waters of the U.S. unless you can sufficiently pretreat the stormwater flows to protect the values and functions of the waters of the U.S. Because storm water is an unpredictable effluent source and can contain high levels of toxic substances, nutrients, and pathogens, we strongly encourage that you construct the treatment wetland in uplands and use best management practices in these projects."*¹⁴⁷

Consistent with U.S. EPAUSEPA guidance, the conversion or use of waters of the U.S./State into urban runoff treatment facilities or conveyance facilities for untreated urban runoff discharges must be appropriately reviewed by both Federal and State resource agencies. Such projects may be subject to federal permitting pursuant to Clean Water Act Section 404 if discharges of dredged or fill material is involved.

The placement of hydromodification controls within waters of the U.S./State may also be subject to federal and/or state permitting, but would not necessarily be considered a pollutant treatment BMP. Provided the grade control structures are designed to re-establish a natural channel gradient and correct excessive changes to the sediment transport regime caused by urbanization, rather than to create a series of artificial hydrological impoundments for the purpose of treating pollution, this type of project is not considered an in-stream treatment BMP.

¹⁴⁶ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

¹⁴⁷ U.S. EPAUSEPA, 2000. Guiding Principles for Constructed Treatment Wetlands: Providing for Water Quality and Wildlife Habitat, (EPA 843-B-00-003).

Finding E.7 is also discussed in RTC 1 (Section X) in comment numbers 11 and 42 and RTC 2 (Section X.2) in comment number 11.

Finding E.8. The issuance of waste discharge requirements and an NPDES permit for the discharge of urban runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 et seq.) in accordance with the CWC section 13389.

Discussion of Finding E.8. CWC Section 13389 exempts the adoption of waste discharge requirements (such as NPDES permits) from CEQA requirements: “Neither the State Board nor the regional boards shall be required to comply with the provisions of Chapter 3 (commencing with section 21100) of Division 13 of the Public Resources Code prior to the adoption of any waste discharge requirement, except requirements for new sources as defined in the Federal Water Pollution Control Act or acts amendatory thereof or supplementary thereto.”

This CEQA exemption was challenged during BIA’s (and others’) appeal of Order No. 2001-01. BIA contended that the CEQA exemption did not apply to permit requirements where the Regional Board utilized its discretion to craft permit requirements which were more prescriptive than required by federal law. The Court of Appeal, Fourth Appellate District disagreed with this argument, stating “we also reject Building Industry’s argument to the extent it contends the statutory CEQA exemption in Water Code section 13389 is inapplicable to a particular NPDES permit provision that is discretionary, rather than mandatory, under the CWA.”¹⁴⁸ On further appeal by BIA, the California State Supreme Court declined to hear the matter.

In a recent decision, the Court of Appeal of the State of California, Second Appellate District, upheld the CEQA exemption for municipal storm water NPDES permits (County of Los Angeles, et al. v. California State Water Resources Control Board, et al.).¹⁴⁹

Finding E.9. Copermitttees have implemented operated and have proposed to continue implementing developing and operating facilities that extract water from waters of the U.S., subject such extracted water to treatment, then discharge the treated water back to waters of the U.S. Without sufficient treatment processes, facilities that extract, treat, and discharge (FETDs) to waters of the U.S. may discharge effluent that does not support all designated beneficial uses. Use of the MS4 NPDES Permit to regulate discharges from FETDs is an interim approach until individual or general NPDES requirements for such discharges are developed. At that time, the FETD discharges will be expected to meet all applicable water quality standards. At this time, monitoring of FETDs is necessary to characterize their effectiveness, and ensure that facilities do not add or concentrate pollutants, create conditions of erosion, or unreasonably affect the quality of receiving waters.

¹⁴⁸ Building Industry Association et al., v. State Water Resources Control Board, et al. 2004.

¹⁴⁹ Los Angeles County Super. Ct. No. BS080792. Partial publication dated November 6, 2006.

Discussion of Finding E.9. The Regional Board has received a significant number of proposals regarding NPDES permitting requirements for facilities that extract water from waters of the U.S., subject that water to treatment, then discharge the effluent to waters of the U.S. The discharge points have been proposed near the influent location, further downstream, or into another water body. Extraction is generally limited to periods of dry weather, rather than storm events. Treatment is by mechanical, chemical, or other means, or a combination thereof. Additional proposals are expected as municipalities and other dischargers seek to comply with pending TMDLs.

The installation of FETDs does not reduce the discharge of pollutants into waters of the U.S., but rather is an attempt to reduce the effect of those pollutants downstream of the treatment location. FETDs do not reduce the effect of those pollutants on waters upstream of the treatment location. In addition, FETDs generally are sized to process dry-weather flows and bypass storm water runoff flows. They are intended to remove pollutants from dry-weather urban runoff that has already been discharged into receiving waters from MS4 systems.

Much of the water extracted by FETD projects may have been urban runoff that was already discharged to waters of the U.S. from the MS4 system. As a result, the initial discharge to waters of the U.S. is subject to all applicable MS4 permit requirements. Often the source or conveyance of the pollutants of concern includes non-storm water discharges (e.g., landscape irrigation) that are not prohibited unless they are identified as a significant source of pollutants (Permit Section B.2).

Since those dry-weather discharges are causing conditions of pollution, municipalities in the watershed are responsible for prohibiting the dry-weather discharge sources or implementing a BMP plan to prevent the condition of pollution.¹⁵⁰ Municipalities have selected to implement BMPs in the watershed, but expect success to be achieved in the long term. They, therefore, seek to implement these treatment plants in the interim period.

¹⁵⁰ See Section B.2 of this Order. Certain non-storm water (dry-weather) discharges are exempted from the federal requirement that prohibits non-storm water discharges *into* the MS4 [40 CFR 122.26(d)(2)(iv)(B)(1)]. If those sources are found to be causing or contributing to water quality problems, then MS4 permittees must prohibit the discharges or implement a plan to reduce those non-storm water discharges to the MEP.

The Copermittees have implemented, and plan to implement, facilities that extract water from waters of the U.S., subject that water to treatment, then discharge the effluent to waters of the U.S. Examples of existing or planned FETD facilities in southern Orange County include the Salt Creek Ozone Treatment Facility in the City of Dana Point and the Poche Beach Ultraviolet Treatment Facility in the City of San Clemente. Municipalities have implemented these projects to address violations of recreational water quality objectives at beaches. The Regional Board has issued investigative orders pursuant to CWC Sections 13225 and 13267 and CWA Section 401 water quality certifications to collect information regarding the expected and actual quality of the discharged effluent from these facilities.

These FETDs are intended to reduce concentrations of indicator fecal bacteria. In doing so, they have the potential of removing some other pollutants (e.g., via media filtration), but they do not necessarily reduce other pollutants to levels that meet water quality objectives.¹⁵¹ For instance, the concentrations of metals, pesticides, or other dissolved pollutants in discharges of treated effluent may exceed California Toxics Rule or Ocean Plan criteria.

As a result, the discharges of treated stream water ~~may threaten~~ are not expected to support all beneficial uses associated with aquatic habitats. For instance, the County of Orange reports that the expected quality of effluent from the planned Poche Beach Ultraviolet Treatment System will not meet CTR or Ocean Plan numeric standards for a suite of metals and may contain toxic substances in concentrations that are toxic.¹⁵²

Since 2001, the Regional Board has maintained that discharges from FETDs are subject to regulation by the NPDES Permit program. FETD discharges to waters of the U.S., however, have been regulated under municipal NPDES requirements as BMPs. The Regional Board considers that current use of the MS4 NPDES Permit is an interim regulatory approach.

At this time, monitoring of FETDs is necessary to characterize their effectiveness, and ensure that facilities do not add or concentrate pollutants, create conditions of erosion, or unreasonably affect receiving waters.

Finding E.9 is also discussed in RTC 2 (Section X.2) in comments number 11 and number 14.

¹⁵¹ For instance, see Tetra Tech, Inc. 2007. "Water Quality Summary for Prima Deshecha Channel at Poche Beach." March 17, 2007 Memorandum to the County of Orange and the Quarterly Monitoring Reports for the Salt Creek Treatment Plant, prepared by the City of Dana Point through April 2007.

¹⁵² Based on a review of data in the 2005-06 Municipal NPDES annual report and "Water Quality Summary for Prima Deshecha Channel at Poche Beach." March 17, 2007 Memorandum from Tetra Tech, Inc., to the County of Orange.

F. Public Process

Finding F.1. The Regional Board has notified the Copermitttees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of urban runoff.

Discussion of Finding F.1. Public notification of development of a draft permit is required under Federal regulation 40 CFR 124.10(a)(1)(ii). This regulation states “(a) Scope. (1) The Director shall give public notice that the following actions have occurred: (ii) A draft permit has been prepared under Sec. 124.6(d).” Public notifications “shall allow at least 30 days for public comment,” as required under Federal regulation 40 CFR 124.10(b)(1).

Finding F.2. The Regional Board has, at public meetings on April 11, 2007, held public hearings and heard and considered all comments pertaining to the terms and conditions of this Order.

Discussion of Finding F.2. Public hearings are required under CWC Section 13378, which states “Waste discharge requirements and dredged or fill material permits shall be adopted only after notice and any necessary hearing.” Federal regulation 40 CFR 124.12(a)(1) also requires public hearings for draft permits, stating “The Director shall hold a public hearing whenever he or she finds, on the basis or requests, a significant degree of public interest in a draft permit(s).” Regarding public notice of a public hearing, Federal regulation 40 CFR 124.10(b)(2) states that “Public notice of a public hearing shall be given at least 30 days before the hearing.”

IX. DIRECTIVES

This section discusses significant changes which have been made to the requirements of the Order from the requirements which were previously included in Order No. R9-2002-01. For each section of the Order that has been changed there is a discussion which describes the change that was made and provides the rationale for the change. In addition, comments on the Copermittees' ROWD recommendations, as they pertain to each changed requirement of the Order, are provided.

Requirements of the Order that are not discussed in this section have not been significantly changed from those requirements previously included in Order No. 2002-01. For such requirements, discussions and rationale for the requirements can be found in section VII of the Fact Sheet/Technical Report for Regional Board Order No. R9-2002-01, dated February 13, 2002. Section VII also provides additional background information for those requirements that have undergone significant change which are described in detail in this report. The Fact Sheet/Technical Report is available for download at:

http://www.waterboards.ca.gov/sandiego/programs/oc_stormwater.html

Legal authority citations are provided for each major section of the Tentative Order. These citations apply to all applicable requirements within the section for which they are provided.

A. Prohibitions and Receiving Water Limitations

The following legal authority applies to section A:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: The Regional Board Water Quality Control Plan for the San Diego Basin (Basin Plan) contains the following waste discharge prohibition: "The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination, or nuisance as defined in California Water Code Section 13050, is prohibited."

California Water Code section 13050(l) states "(1) 'Pollution' means an alteration of the quality of waters of the state by waste to a degree which unreasonably affects either of the following: (A) The water for beneficial uses. (B) Facilities which serve beneficial uses. (2) 'Pollution' may include "contamination."

California Water Code section 13050(k) states “Contamination’ means an impairment of the quality of waters of the state by waste to a degree which creates a hazard to public health through poisoning or through the spread of disease. ‘Contamination’ includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.”

California Water Code section 13050(m) states “Nuisance’ means anything which meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of wastes.”

California Water Code section 13241 requires each regional board to “establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance [...]”

California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the Regional Board implement the Basin Plan.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities.

Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) require municipalities to have legal authority to control various discharges to their MS4.

Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “[a]chieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Section A of the Order combines two previously distinct requirement sections – Prohibitions and RWLs. These sections have been combined into one section for organization purposes and to reduce redundancy, since both sections address the same issue. These changes have no net effect on the implementation and enforcement of the Order.

[Section A is also discussed in RTC 1 \(Section X.1\) in comment number 2.](#)

Section A.3 describes the “iterative process.” The Copermitees must reduce the discharge of pollutants to the MEP and ensure that their MS4 discharges do not cause or contribute to violations of water quality standards. If the Copermitees have reduced pollutant discharges to the MEP, but their discharges are still causing or contributing to violations of water quality standards, the Order provides a clear and detailed process for the Copermitees to follow. This process is often referred to as the “iterative process” and can be found at section A.3. The language of section A.3 is prescribed by the State Board and is included in MS4 permits statewide. Section A.3 essentially requires additional BMPs to be implemented until MS4 discharges no longer cause or contribute to a violation of water quality standards.

[Section A.3 is also discussed in RTC 1 \(Section X.1\) in comment numbers 8 and 21.](#)

B. Non-Storm Water Discharges

The following legal authority applies to section B:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires MS4 operators “to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermitees shall prevent all types of illicit discharges into the MS4 except for certain non-storm water discharges.

Section B of the Order has been reworded to simplify and clarify the requirements for addressing non-storm water discharges that are not prohibited. This rewording has no net effect on the implementation and enforcement of the Order.

Section B.5. Facilities that Extract, Treat, and Discharge (FETD). This section and the associated monitoring requirements (Attachment E, Section C.4) are necessary to address discharges from such facilities. Discharges from FETDs are discharges of non-storm water. Existing facilities have been implemented by Copermittees with the intent of protecting recreational beneficial uses at beaches by reducing or eliminating indicator fecal bacteria. The FETDs are generally not designed to address other beneficial uses and pollutants in the source and receiving waters. Therefore, discharges from FETDs might not support all designated beneficial uses. The requirements in this section will ensure that the discharges from FETDs do not have unexpected consequences of decreasing the quality of water and beneficial uses in the receiving waters. Further discussion is provided in the discussion of Finding E.9.

Section B.5 is also discussed in RTC 2 (Section X.2) in comment number 14.

C. Legal Authority

The following legal authority applies to section C:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that the Copermittees shall develop and implement legal authority to “Control through ordinance, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that the Copermittees shall develop and implement legal authority to “Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.”

Illicit discharge is defined under Federal NPDES regulation 40 CFR 122.26(b)(2) as “any discharge to a municipal separate storm sewer system that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities.

Federal NPDES regulation 40 CFR 122.26(d)(1)(ii) requires from the Copermittee “A description of existing legal authority to control discharges to the municipal separate storm sewer system.”

Section C.1.j has been added to the Order to ensure that BMPs implemented by third parties are effective. Since the Copermittees cannot passively receive and discharge pollutants from third parties, the Copermittees must ensure discharges of pollutants to the MS4 are reduced to the MEP. In order to achieve this, the Copermittees must be able to ensure that effective BMPs are being implemented by requiring the third parties to document BMP effectiveness. Regarding the Copermittees’ ability to require documentation and reporting from third parties, USEPA states “municipalities should provide documentation of their authority to enter, sample, inspect, review, and copy records, etc., as well as demonstrate their authority to require regular reports.”¹⁵³

Section C is also discussed in RTC 1 (Section X.1) in comment number 2 and RTC 2 (Section X.2) in comment number 15.

¹⁵³ USEPA, 1992. Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

D. Jurisdictional Urban Runoff Management Program

D.1. Development Planning

The following legal authority applies to section D.1:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWA section 402(a), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F), 40 CFR 131.12, and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermittees develop and implement a management program which is to include “A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plans shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed.”

Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “[a]chieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.”

Section D.1 is also discussed in RTC 1 (Section X.1) in comment number 22 and in RTC 2 in comments number 16 - 21.

Sections D.1.a and D.1.b (General Plan and Environmental Review Process) require the Copermittees to update and revise their General Plan (or equivalent plan) and environmental review processes to ensure water quality and watershed protection principles are included. The Copermittees are required to detail any changes to the General Plan or environmental review process in their Jurisdictional Urban Runoff Management Program Annual Reports.

The change made to these sections requires updating the General Plan and Environmental Review Process on an as-needed basis, is supported by information provided in the Copermittees’ Report of Waste Discharge (ROWD) and Annual Reports. Each Copermittee has either updated, is in the process of updating, or has assessed its General Plan to ensure the General Plans include the required principles and are in compliance with Order No. R9-2002-01. The ROWD also states that although all the Copermittees have reviewed their environmental review processes, a number of Copermittees want the overall planning approval process to more effectively ensure that water quality protection is considered in the earliest phases of project consideration.

Section D.1.c (Approval Process Criteria and Requirements) requires that all development projects (regardless of size) implement BMPs to reduce pollutant discharges to the MEP. Source control and site design BMP requirements were not clearly described in this section of Order No. R9-2002-01. Additional detail has been added to this section to better describe the source control and site design BMPs needed for implementation. This additional detail is consistent with the requirements of the SUSMP, known in Orange County as the Water Quality Management Plan (WQMP). However, only source control and site design BMPs that apply to all types of development projects are required (i.e., properly designed trash storage areas).

The requirements are consistent with Order No. R9-2002-01, section F.1.b.1. However, some elements are not contained in the current or proposed DAMP¹⁵⁴ (e.g., buffer zones). One exception is that Order No. R9-2002-01's requirement that applicants must provide evidence of coverage under the General Industrial Permit has been removed, since industrial tenants for a development project are usually not known during the planning stage.

Section D.1.c is also discussed in RTC 1 (Section X.1) in comment numbers 23 and 24 and RTC 2 (Section X.2) in comment number 17.

Sections D.1.d and D.1.d.(1) (Standard Urban Storm Water Mitigation Plans) require the Copermittees to review and update their local SUSMPs (also known in Orange County as Water Quality Management Plans – WQMPs) for compliance with the Order. The sections also require all Priority Development Projects falling under certain categories to meet SUSMP requirements. The update is necessary to ensure that the Copermittees' local SUSMPs are consistent with the changes that have been made to the Order's SUSMP requirements. The requirement for the development/adoption of a Model SUSMP has been removed since a model was completed and adopted in 2003.

The SUSMP section of the Order has been reformatted for clarity. There are also some significant changes. Changes have been made in response to experience gained by the Orange County Storm Water program, USEPA program evaluations, recent BMP development and effectiveness studies, recent reports on the magnitude of problems caused by hydromodification, and reviews of annual reports and the ROWD submitted by the Copermittees.

In addition, the Order requires that a one-acre threshold be phased in over three years for the priority development category. This threshold was selected to be consistent with the Phase II NPDES regulations for small municipalities. The one-acre determination applies to the amount of ground area disturbed, not the total size of the parcel or project. Each Copermittee may also lower this threshold if desired.

¹⁵⁴ Orange County Storm Water Copermittees. *Drainage Area Management Plan (DAMP) 2007*. July 21, 2006. The 2007 DAMP was submitted to the Regional Board with the Report of Waste Discharge as part of the application for NPDES Permit reissuance.

Sections D.1.d and D.1.d.1 are also discussed in RTC 1 (Section X.1) in comment numbers 25, 26, 27, and 32.

Section D.1.d.(2) (Priority Development Project Categories) includes several changes to improve, simplify, and clarify the Priority Development Project categories.

The most significant change is that where a new Development Project feature, such as a parking lot, falls into a Priority Development Project Category, the entire project footprint is subject to SUSMP requirements. This criterion was not included in Order No. R9-2002-01. It is included, however, in the Model San Diego SUSMP that was approved by the Regional Board in 2002. It is included in this Order because existing development inspections by Orange County municipalities show that facilities included in the Priority Development Project Categories routinely pose threats to water quality. This permit requirement will improve water quality and program efficiency by preventing future problems associated with partly treated runoff from redevelopment sites. This approach to improving urban runoff from existing developments is practicable because municipalities have a better ability to regulate new developments than existing developments.

Industrial sites and retail gasoline outlets have been added to the priority development categories. This heavy industrial category was not included in Order No. R9-2002-01 because industrial NPDES requirements already establish storm water criteria. This category is included in the Order to be consistent with Phase II rules and to close loopholes. A discussion of retail gasoline outlets is below.

The criterion for commercial developments has been lowered to one acre from 100,000 square feet (2.3 acres). It is modified in order to be consistent with USEPA Phase II guidance, and to reflect the findings from Permittees that smaller commercial developments pose high threats to storm water discharges.

Housing and restaurant criteria have been clarified. The two housing development categories are now combined into one category that includes 10 or more housing units. In addition, requirements which specifically apply to restaurants have been combined in this section. The section has been modified to clarify that restaurants with less than 5,000 square feet of development are subject to SUSMP requirements, except for the treatment control BMP and hydromodification control requirements. This is consistent with Order No. R9-2002-01's approach for applying SUSMP requirements to restaurants.

Section D.1.d.2 is also discussed in RTC 1 (Section X.1) in comment number 28 and RTC 2 (Section X.2) in comment number 18.

Section D.1.d.(2)(j) includes Retail Gasoline Outlets (RGOs) as a Priority Development Project category because RGOs are points of confluence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up. RGOs consequently produce significantly greater pollutant loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and structural treatment BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more of developed area, or (b) a projected average daily traffic of 100 or more vehicles per day. These are appropriate thresholds since development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters. RGOs were proposed, but not included in Order No. R9-2002-01 pending guidance from the State Board in its review of the San Diego MS4 Permit, Order No. 2001-01.

In State Board WQ Order No. 2000-11, the State Board removed RGOs as a SUSMP category because the State Board found that RGOs were already heavily regulated and limited in their ability to construct infiltration devices or perform treatment. Order No. 2000-11 also acknowledged that a threshold (size, average daily traffic, etc.) appropriate to trigger SUSMP requirements should be developed, and that specific findings regarding RGOs should be included in MS4 permits to justify the requirement.¹⁵⁵ The State Board also removed the RGO category from the San Diego County MS4 permit (Order No. 2001-01) because the Regional Board did not specifically address the issues raised in WQ Order No. 2000-11.

As discussed further below, the LARWQCB and the Regional Board have adequately addressed these issues. RGOs have been included as a SUSMP category in the Los Angeles County MS4 permit (Order No. R4-01-182), the statewide general Phase II MS4 permit (WQ Order No. 2003-0005-DWQ), and the Regional Board Southern Riverside County MS4 permit (Order No. R9-2004-001). The State Board also addressed the inclusion of RGOs through the appeals of MS4 permits issued by the Los Angeles and San Francisco Bay Area Regional Boards. The State Board held a workshop addressing RGOs and identified RGOs as significant sources of pollutants. The State Board then dismissed the petitions for removal of RGOs from the SUSMP requirements in the Los Angeles and San Francisco Bay Area MS4 permits.

Inexpensive and effective structural treatment BMPs which reduce pollutants and control peak flow rates and velocities are available for use at RGOs. Studies have shown that some catch basin inserts can remove hydrocarbons and heavy metals, which are typical pollutants of concern at RGOs. Sand or media filters have also been found to be effective and available for use at RGOs. Site design measures to control flow include cisterns, small weirs, baffles, and redirecting roof runoff to pervious areas.

No evidence has been provided to indicate that use of these structural BMPs at RGOs will pose a safety risk. In fact, filter BMPs have been installed at RGOs in some municipalities without apparent adverse safety effects. In addition, similar BMPs such as oil/water separators have been used for years by RGOs without safety problems.

¹⁵⁵ State Board, 2000. Order WQ 2000-11.

Threshold - Studies indicate that runoff from RGOs contains similar pollutants to runoff from commercial parking lots. In precedential WQ Order 2000-11, the State Board determined that parking lots with a size threshold of 5,000 square feet or more is an appropriate SUSMP category. Based in part on the similarity of pollutants, the 5,000 square feet size threshold was also included for RGOs in the Order. In addition, other municipalities currently use similar size thresholds for RGOs when requiring design standards to mitigate storm water runoff. To provide additional flexibility for the Copermittees, another threshold of 100 or more motor vehicles ADT has been added to the Order. This threshold is based on requirements used in Washington and Oregon for what are considered "high use" sites. This is an appropriate threshold since vehicular traffic is a good indicator of the amount of pollutants generated at a site.

The Regional Board followed the State Board's direction regarding RGOs by including the above discussion in this Fact Sheet, as well as a specific finding that justifies the regulation of urban runoff from RGOs that meet certain criteria. Considering all of the supporting documentation discussed above, it is appropriate to include RGOs as a Priority Development Project category.

Additional detailed supporting information can be found in the 2001 technical report titled *Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts* by the LARWQCB and the Regional Board.

Section D.1.d.2.j is also discussed in RTC 1 (Section X.1) in comment number 29.

Section D.1.d.(3) (Pollutants of Concern) requires Copermittees to update their procedures for identifying pollutants of concern for each Priority Development Project. This is important to do periodically because of changing water quality conditions and designations of impairments or areas of concern. Furthermore Copermittees continually learn more about pollutant-generating activities as they conduct inspections and investigations, and that information must be incorporated into the SUSMP process.

Section D.1.d.(4) (Site Design BMP Requirements) requires Copermittees to require or implement site design BMPs at Priority Development Projects in order to reduce the amount of polluted runoff from those sites. The primary approach in site design BMPs is to limit the permanent loss of existing infiltration capacity because loss of infiltration is a major contributor to both wet and dry weather pollution discharges. General means to accomplish that goal include retaining natural infiltration areas of a site and limiting the amount of impervious surfaces. The Order does not require a specific or relative amount of pervious surfaces be added to a project. The Order seeks to reduce the effective impervious surface of a project, which is the impervious surface that is directly connected to the storm water drainage system.

The site design BMP options listed in these sections are consistent with the site design BMPs currently required by the Copermitees in the Model WQMP. In the ROWD, the Copermitees propose to improve the process of selecting site design BMPs. Specifically, they propose to develop recommendations for incorporating low-impact design (LID) techniques and site design BMPs. However, the Model WQMP employs an open-ended approach to requirements for site design BMPs, requiring implementation of site design BMPs “where applicable and feasible” and “where appropriate.” Unfortunately, this approach has proven to be ineffective in integrating site design BMPs in project designs. Audits conducted in 2005 of four Copermitees found that municipalities need to work with project applicants to improve the quality of site design BMPs.¹⁵⁶ As a result, the Order establishes two sets of site design BMP criteria.

First, section D.1.d.(4)(b) of the Order directs the Copermitees to require, rather than consider, new development projects to employ certain classes of site design BMPs. The required site design BMPs take advantage of features that are incorporated into the Priority Development Project, such as landscaping or walkways. It also requires that projects seek to maintain natural water drainage features rather than instinctively convey water in buried pipes and engineered ditches that eliminate natural water quality treatment functions. These types of site design BMPs are both effective and achievable. These requirements are consistent with the guidelines of Order No. R9-2002-01 and both the 2003 and 2007 DAMPs.¹⁵⁷

Next, section D.1.d.(4)(c) of the Order identifies classes of site design BMPs that must be used when applicable and feasible. This approach is similar to Order No. R9-2002-01 and the DAMPs. This list includes requirements from Order No. R9-2002-01, items identified in the DAMPs, and recommended measures from CASQA guidance. These site design BMPs are commonly cited in project proponents’ WQMP reports as the site design BMPs that have been incorporated into Priority Development Projects.

¹⁵⁶ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

¹⁵⁷ The 2003 and 2007 DAMPs include preserving natural drainage features as a recommended site design BMP requirement that was to be reviewed and used where applicable and feasible. The DAMPs note this as a way to mimic a site’s natural hydrologic regime.

The retention of natural drainage features, such as ephemeral streams, wetlands, and depressions, can be particularly important because small tributaries are essential to the maintenance of the chemical, biological, and physical integrity of larger waterbodies.¹⁵⁸ The loss and modification of such natural water resources to accommodate post-development storm water management leads to direct and indirect adverse effects on water quality that are felt both on the project site and off the site within the watershed.^{159,160,161} Effects to aquatic beneficial uses from altered drainage features can occur downstream and upstream. The length of upstream or downstream effect of channel modifications is dependant on the specific structure type and channel slope.¹⁶² For instance, road culverts can act as partial barriers to upstream distribution of native aquatic macroinvertebrates in urban streams, while bridges can provide adequate passage.¹⁶³ As a result of the adverse effects to water quality and beneficial uses, the State of California nonpoint source pollution program management measures for urban areas includes limiting the destruction of natural drainage features and natural conveyance areas.¹⁶⁴

Through its process of conditioning development projects under the CWA section 401 Water Quality Certification program, the Regional Board finds that the level of site design BMP implementation in the Order is feasible for all projects. This site design BMP requirement will help ensure that site design BMPs are implemented for new development projects. Site design BMPs are a critical component of urban runoff management at new development projects, since the BMPs provide multiple benefits including preservation of hydrologic conditions, reduction of pollutant discharges, cost effectiveness, and green space.

¹⁵⁸ Aquatic scientists comment letter (April 10, 2003) on the Advanced Notice of Proposed Rulemaking (ANPRM) on the Clean Water Act Regulatory Definition of "Waters of the United States." (Docket ID No. OW-2002-0050). This letter is a synthesis of scientific information regarding ephemeral, intermittent, and headwater streams. It was written to USEPA by 85 leading aquatic scientists.

¹⁵⁹ Wright, Tiffany, et al. 2006. *Direct and Indirect Impacts of Urbanization on Wetland Quality*. Prepared by the Center for Watershed Protection for the USEPA Office of Wetlands, Oceans, and Watersheds. 81p. Available on-line at <http://www.cwp.org>

¹⁶⁰ Konrad, Christopher P. and Derek K. Booth, 2005. *Hydrologic Changes in Urban Streams and Their Ecological Significance*. American Fisheries Society Symposium. Vol. 45 pp.157-177.

¹⁶¹ Coleman, Derrick, et al. 2005. *Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams*. Technical Report No. 450 of the Southern California Coastal Water Research Project.

¹⁶² Fischenich, J.C. 2001. "*Impacts of stabilization measures*," EMRRP Technical Notes Collection (ERDC TNEMRRP- SR-32), U.S. Army Engineer Research and Development Center, Vicksburg, MS. <http://www.wes.army.mil/el/emrrp>

¹⁶³ Blakely, Tanya J., et al. 2006. *Barriers To The Recovery Of Aquatic Insect Communities In Urban Streams* Freshwater Biology Vol. 51(9), 1634–1645.

¹⁶⁴ California Nonpoint Source Encyclopedia, Management Measure 3.1.b. Runoff from Developing Areas, Site Development and Management Measure 3.3.a. Runoff from Existing Development, Existing Development.

The site design BMP options listed do not need to be costly.¹⁶⁵ Some design options, such as concave vegetated surfaces or routing rooftop or walkway runoff to landscaped areas, are cost neutral.¹⁶⁶ Other site design BMPs, such as minimizing parking stall widths or use of efficient irrigation devices, are oftentimes already required. In addition, use of site design BMPs reduces runoff quantity, allowing for treatment control BMPs and other storm water infrastructure on site to be smaller, therefore savings costs for both developers and municipalities.^{167,168}

Because of the potential economic and environmental benefits of using low-impact development site design, the U.S. Department of Housing and Urban Development, Office of Policy Development and Research, developed “*The Practice of Low Impact Development (LID)*” to assist the housing industry during the land development process.¹⁶⁹ This document focuses specifically on technologies that affect both the cost impacts and environmental issues associated with land development. Much of the report focuses on storm water management because low-impact development storm water management systems can save capital costs for developers and maintenance costs for municipalities.¹⁷⁰ The executive summary of the HUD report notes:

This approach to land development, called Low Impact Development (LID), uses various land planning and design practices and technologies to simultaneously conserve and protect natural resource systems and reduce infrastructure costs. LID still allows land to be developed, but in a cost-effective manner that helps mitigate potential environmental impacts. LID is best suited for new, suburban development.

Developers can use site and structure designs that reduce building footprints, decrease the amount of paved infrastructure, and provide for dispersed drainage and infiltration of runoff from impervious surfaces to reduce the effective impervious surface.¹⁷¹ The concept of effective impervious surface is important, because when runoff from these surfaces is directed to pervious areas rather to an impervious drainage system (i.e., curbs, gutters, street surfaces, storm drain pipes), it can infiltrate, evaporate, or be taken up by vegetation, thereby reducing the total volume of runoff leaving a site.

¹⁶⁵ USEPA, 2000. Low-Impact Development: A literature review. EPA-841-B-00-005. 35p.

¹⁶⁶ Bay Area Stormwater Management Agencies Association., 1999. Start at the Source. Forbes Custom Publishing. Available on-line at: http://www.scvurppp-w2k.com/basmaa_satism.htm. pp. 149.

¹⁶⁷ National Association of Home Builders Research Center. *Builders Guide to Low Impact Development*. Available on-line at <http://www.toolbase.org>

¹⁶⁸ National Association of Home Builders Research Center. *Municipal Guide to Low Impact Development*. Available on-line at <http://www.toolbase.org>

¹⁶⁹ U.S. Department of Housing and Urban Development, Office of Policy Development and Research, 2003. *The Practice of Low Impact Development*.” Prepared by: NAHB Research Center, Inc. Upper Marlboro, Maryland. Contract No. H-21314CA.

¹⁷⁰ Ibid. Executive Summary, p.x.

¹⁷¹ Bay Area Stormwater Management Agencies Association. 2003. *Using Site Design Techniques to Meet Development Standards for Stormwater Quality*. Available on-line at: <http://www.basmaa.org/>

The Order continues to provide the Copermitttees with flexibility in implementing site design BMP requirements by providing lists from which site design BMP approaches can be chosen. Moreover, flexibility is inherently included in the site design options listed - each option provides the opportunity for numerous implementation approaches that can be used to achieve compliance.

Section D.1.d.4 is also discussed in RTC 1 (Section X.1) in comment number 30.

Section D.1.d.(5) (Source Control BMP Requirements) requires that Priority Development Projects implement minimum source control BMPs. This section has been added to provide more detail and clarify the Order's requirements for source control BMPs. The minimum source control BMPs listed in the section are consistent with the Model WQMP.

Section D.1.d.(6) (Treatment Control BMP Requirements) is consistent with Order No. R9-2002-01, with two exceptions. First, the Order limits the selections of methods used to determine the appropriate volume of runoff to be treated. The modification ensures that priority development project proponents utilize the most accurate information to determine the volume or flow of runoff which must be treated. Using detailed local rainfall data, the County of Orange has developed the 85th Percentile Precipitation Isopluvial Map, which exhibits the size of the 85th percentile storm event throughout Orange County.¹⁷² Since this map uses detailed local rainfall data, it is more accurate for calculating the 85th percentile storm event than other methods which were included in Order No. R9-2002-01. The other methods found in Order No. R9-2002-01 were included as options to be used in the event that detailed accurate rainfall data did not exist for various locations within Orange County. The development of the 85th Percentile Precipitation Isopluvial Map makes these other less accurate methods superfluous. Therefore, these other methods for calculating the 85th percentile storm event have been removed from the current Order.

¹⁷² The isopluvial map can be found as Exhibit 7.II in the Model WQMP.

Second, the Order requires that treatment control BMPs selected for implementation at Priority Development Projects have a removal efficiency rating that is higher than the “low removal efficiency,” as presented in the Model SUSMP/WQMP. The requirement allows exceptions for those projects that, with a feasibility analysis, can justify the use of a treatment control BMP with a low removal efficiency for a Priority Development Project. This requirement is needed because to date, the Copermittees have generally approved low removal efficiency treatment control BMPs without justification or evidence that use of higher efficiency treatment BMPs was considered and found to be infeasible. Specifically, it has been found during audits of the Copermittees’ SUSMP programs that many SUSMP reports do not adequately describe the selection of treatment control BMPs.¹⁷³ Moreover, USEPA’s contractor Tetra Tech, Inc. recommends that “project proponents should begin with the treatment control that is most effective at removing the pollutants of concern [...] and provide justification if that treatment control BMP is not selected.”¹⁷⁴

In the ROWD, the Copermittees acknowledge the need for further attention to the selection and implementation of effective treatment BMPs. They propose to revise the model WQMP table of BMP effectiveness. The requirement is needed to provide clarification that selection of low efficiency treatment control BMPs over high efficiency BMPs without justification does not meet permit requirements and is not in compliance with the MEP standard.

In addition, treatment control BMPs must be designed and implemented with measures to avoid the creation of nuisance or pollution associated with vectors, such as mosquitoes, rodents, and flies. Related guidelines are identified in guidance from CASQA.¹⁷⁵ Additional considerations are outlined in publications from the California Department of Health Services and University of California Division of Agriculture and Natural Resources.¹⁷⁶

Section D.1.d.6 is also discussed in RTC 1 (Section X.1) in comment numbers 10 and 31.

¹⁷³ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

¹⁷⁴ Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 5.

¹⁷⁵ For example, see the California Stormwater BMP Handbook guidelines for Extended Detention Basins (TC-22) at <http://www.cabmphandbooks.org>.

¹⁷⁶ Marco Metzger. “Managing Mosquitos in Stormwater Treatment Devices.” University of California Division of Agriculture and Natural Resources Publication No. 8125. Available at <http://anrcatalog.ucdavis.edu>.

Section D.1.d.(7) (Treatment BMP Waiver Provision) allows Copermittees to waive treatment BMPs when all available BMPs have been considered and rejected as infeasible. This requirement was included in Order No. R9-2002-01. The requirement also allows the Copermittees to develop a program to require projects that receive waivers, to transfer the cost savings to a fund. The intent of the requirements is to allow Copermittees the necessary flexibility to waive treatment BMPs when it can be established that the implementation of treatment BMPs that meet numeric sizing criteria is not feasible at a given site. This provision also allows Copermittees discretion to transfer the cost savings from such a waiver to a fund for water quality projects within the watershed.

Section D.1.d.(8). (Low-Impact Design BMP Substitution Program) allows Copermittees to develop a site design BMP credit program, under which projects that implement a high level of site design BMPs could receive credit towards compliance with treatment control BMP requirements. The program would provide the opportunity for development projects to avoid partial or full treatment control BMP implementation in exchange for implementation of a high level of site design BMPs. This type of program is proposed in the Model WQMP. The Regional Board agrees that such a program could be beneficial. The program could achieve equal or greater water quality benefits while also (1) providing greater assurance of adequate operation and maintenance; (2) improved review processes of site design BMP proposals; (3) increased acceptance of site design BMPs; and (4) greater usage of site design BMPs. For this reason, the Regional Board has added to the Order an option for the Copermittees to develop such a program.

The Model WQMP does not provide details for a site design credit program, instead leaving that up to the individual municipality. The Order includes specific minimum requirements so that the program will be consistent with the treatment BMP provisions. In precedent setting Order No. 2000-11, the State Board determined that implementation of treatment control BMPs is appropriate for development projects falling under the priority development project categories. Therefore, any program which allows development projects to forgo treatment control BMP implementation must include provisions which will achieve similar water quality benefits. To ensure that this is the case for the site design BMP credit program, minimum provisions for the program have been added to the Order. Due to the addition of the minimum provisions in the Order, the program will not need to undergo a lengthy Regional Board approval process at a later date.

[Section D.1.d.8 is also discussed in RTC 1 \(Section X\) in comment number 30 and RTC 2 \(Section X.2\) in comment number 19.](#)

Section D.1.d.(9). (BMP Design Standards) addresses a need for the Copermittees to develop and apply consistent criteria for the design and maintenance of structural treatment BMPs. Correct BMP design is critical to ensure that BMPs are effective and perform as intended. Without design criteria, there is no assurance that this will occur, since there is no standard for design or review. As an example, Ventura County has developed a BMP manual that includes standard design procedure forms for BMPs. Ventura County's *Technical Guidance Manual for Storm Water Quality Control Measures* is available at <http://www.vcstormwater.org/publications.htm>.¹⁷⁷ California Stormwater Quality Association (CASQA) also confirms the necessity of design criteria when it includes such criteria in its New Development and Redevelopment BMP Handbook.¹⁷⁸ This issue is noted in the ROWD, and the Copermittees propose to develop standard design checklist/plans/details for selected source control and treatment BMPs.

Section D.1.d.9 is also discussed in RTC 1 (Section X.1) in comment number 10.

Section D.1.d.(12) (Annual Review of Treatment BMPs) requires Copermittees to keep their SUSMPs up to date with BMP effectiveness studies for low-impact design and treatment control BMPs. The ROWD includes commitments to develop a library of BMP performance reports and to revise the model WQMP table for the latest information on BMPs. This requirement will ensure that two important types of information be included in those efforts: Site design BMPs and treatment BMPs that are assessed as part of contracts with the State Board and Regional Board. The later types of projects include those funded with Clean Beach Initiative grants and other grants. Projects funded with such state grants must include effectiveness assessments using a quality assurance plan. As a result, such studies generally provide reliable sources of local data and should be included in local SUSMPs.

¹⁷⁷ Ibid.

¹⁷⁸ California Stormwater Quality Association, 2003. Stormwater Best Management Practice Handbook – New Development and Redevelopment.

Sections D.1.E and D.1.F. (BMP Verification and Treatment BMP Maintenance Tracking) are included in the Order to improve the effectiveness of the BMP requirements. They are included in response to findings from the Audits¹⁷⁹ and recommendations from USEPA.¹⁸⁰ The Copermittees recognize a need to improve the verification of post-construction BMPs. The 2007 DAMP proposes to verify 90%percent of WQMPs (including structural and non-structural BMPs) by inspection, self-certifications, surveys or other means. The Regional Board finds that 90%percent is a reasonable annual target, but considers inspections to be essential to achieve optimal results. Therefore, the Order requires high priority sites to be inspected annually, and allows other measures to be used for lower priority treatment control BMPs.

Section D.1.e and D.1.f are also discussed in RTC 1 (Section X.1) in comment number 33.

Section D.1.H. (Hydromodification) expands and clarifies current requirements for control of MS4 discharges to limit hydromodification effects caused by changes in runoff resulting from development and urbanization. The requirements are based on findings and recommendations of the Orange County Storm Water Program, the Stormwater Monitoring Coalition (SMC),^{181,182} and the Storm Water Panel on Numeric Effluent Limits (Numeric Effluent Panel).¹⁸³ Added specificity is needed due to the current lack of a clear standard for controlling hydromodification resulting from development. More specific requirements are also warranted because hydromodification is increasingly recognized as a major factor affecting water quality and beneficial uses, and the Copermittees have proposed only vague and voluntary modifications to the Model WQMP. The Order is intended to ensure the intent of the proposed modifications is incorporated into each Copermittees' SUSMP.

¹⁷⁹ The 2005 audits performed by Tetra Tech, Inc. found that cities are not tracking post-construction BMPs. The final audit report recommended (Section 2.1.2) that each city should develop a system to verify implementation and track post-construction BMPs to ensure that they are adequately maintained.

¹⁸⁰ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68845. USEPA recommends such practices in the Phase II storm water regulations, promoting "inspections during construction to verify BMPs are built as designed."

¹⁸¹ Coleman, Derrick, et al. 2005. *Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams*. Technical Report No. 450 of the Southern California Coastal Water Research Project.

¹⁸² Stein, Eric and Susan Zaleski. 2005. *Managing Runoff to Protect Natural Streams: The Latest Developments on Investigation and Management of Hydromodification in California*. Proceedings of a special technical workshop co-sponsored by California Stormwater Quality Association (CASQA), Stormwater Monitoring Coalition (SMC), and University of Southern California Sea Grant (USC Sea Grant). Technical Report No. 475 of the Southern California Coastal Water Research Project.

¹⁸³ Storm Water Panel Recommendations to the California State Water Resources Control Board. 2006. *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial, and Construction Activities*.

Hydromodification is the change in a watershed's runoff characteristics resulting from development, together with associated morphological changes to channels receiving the runoff. As the total area of impervious surfaces increases, infiltration of rainfall decreases, causing more water to run off the surface and at a higher velocity. Runoff from developed areas can produce erosive flows in channels under rainfall conditions which were not previously problematic. Moreover, runoff from developed areas increases the duration of time that channels are exposed to erosive flows. The increase in the volume of runoff and the length of time that erosive flows occur ultimately intensify sediment transport, causing changes in sediment transport characteristics and the hydraulic geometry (width, depth, and slope) of channels.¹⁸⁴

These types of changes have been documented in southern California. It has been reported that researchers studying flood frequencies in Riverside County have found that increases in watershed imperviousness of only 9-22%percent can result in increases in peak flow rates for the two-year storm event of up to 100%percent.¹⁸⁵ Such changes in runoff have significant impacts on channel morphology. It has recently been found that ephemeral/intermittent channels in southern California appear to be more sensitive to changes in imperviousness than channels in other areas. Morphology of small channels in southern California was found to change with only 2-3%percent watershed imperviousness, as opposed to 7-10%percent watershed imperviousness in other parts of the nation.¹⁸⁶

Effects of hydromodification are evident in southern Orange County and recognized by the Copermittees. Analyses of bioassessment data, for example, indicate that physical changes to stream channels caused by hydromodification are likely responsible, in part, for the low bioassessment scores in urbanized settings.¹⁸⁷ It is important to recognize that the physical changes are a direct result of MS4 discharges, but that two separate mechanisms are involved. First, is a change in the flow regime caused by the increase in impervious surfaces and loss of natural conveyance systems. Discharges to receiving waters from the MS4 outfalls do not mimic the natural discharges from former tributaries to that receiving water, and the change results in erosion. Second, the physical stream habitat in many places has been severely modified in order to efficiently convey those increased storm water discharges to the ocean. Where streams are hardened and/or buried to convey storm water, they cannot provide adequate water quality and other necessary conditions to support beneficial uses. Both of these issues are addressed in the Order.

¹⁸⁴ Santa Clara Valley Urban Runoff Pollution Prevention Program, 2005. Hydromodification Management Plan.

P. 1-1.

¹⁸⁵ Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection.

¹⁸⁶ Coleman, et. al., 2005. Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams. P. iv.

¹⁸⁷ See Chapter 11 of the ROWD and the 2005-06 Unified Annual Report for the analyses.

The Copermittees' recognize the need to improve management of hydromodification. The ROWD proposes to revise the Model WQMP to incorporate additional information from ongoing hydromodification studies conducted by the SMC. It is unclear when findings would be incorporated. The Order allows the Copermittees to adopt criteria consistent with future SMC findings. Because new development activity in most municipalities is not expected to be substantial, the Regional Board considers the preliminary conclusions from existing SMC reports to be sufficiently descriptive for the Copermittees to make appropriate modifications. However, the Order provides a ~~two~~three-year schedule for adoption of specific SMC recommendations.

Until numeric criteria are recommended by the SMC, the Order specifies factors that must be considered by the Copermittees for Priority Development Projects. These factors (downstream erosion and discharge hydrology) are generally consistent with the Model WQMP. The specificity of factors to consider in the Order is more prescriptive in order to be consistent with recent recommendations from the SMC and Numeric Effluent Panel and scientific literature.¹⁸⁸ For instance, the Copermittees have generally been neglecting to address the changes to flow durations caused by MS4 discharges. The 2006 Model WQMP directs priority projects to submit drainage studies if the Permittee determines a potential for downstream erosion or habitat alteration. The drainage study required by the Permittees must address peak flows and volumes, but not the duration of those flows and volumes. As a result it is inadequate to assess the potential for downstream erosion. The requirement for assessing duration of runoff is not a new requirement. It was included in the 3rd term permit as a factor to evaluate when identifying conditions of concern in SUSMP projects.

Section D.1.h is also discussed in RTC 1 (Section X.1) in comment number 34 and RTC 2 (Section X.2) in comment number 20.

Section D.1.h.3.c. (Hydromodification Control Waivers) allows the Copermittees to waive on-site hydromodification controls in certain situations when downstream water quality and beneficial uses are not likely to be negatively affected by changes in the flow regime caused by MS4 discharges. The Order specifies determinations that must be made by the Copermittee before a waiver may be granted. The waiver provision is intended to provide Copermittees with the ability to require that a development restore degraded downstream stream channel conditions if that would produce better results than on-site hydromodification controls.

Section D.1.h.3.c is also discussed in RTC 1 (Section X.1) in comment number 34 and RTC 2 (Section X.2) in comment number 20.

¹⁸⁸ Poff, N.L. et al. 1997. The Natural Flow Regime: A paradigm for river conservation and restoration. Bioscience Vol. 47, No. 11, pp.769-784.

D.2. Construction

The following legal authority applies to section D.2:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) provides that the proposed management program include “A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(1) provides that the proposed management program include “A description of procedures for site planning which incorporate consideration of potential water quality impacts.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2) provides that the proposed management program include “A description of requirements for nonstructural and structural best management practices.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include “A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(4) provides that the proposed management program include “A description of appropriate educational and training measures for construction site operators.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermitee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(b)(14) provides that “The following categories of facilities are considered to be engaging in ‘industrial activity’ for the purposes of this subsection: [...] (x) Construction activity including cleaning, grading and excavation activities [...].”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Section D.2 is also discussed in RTC 1 (Section X.1) in comment numbers 35, 36, and 40 and in RTC 2 (Section X.2) in comment number 22.

Section D.2.a. (Ordinance Update) requires each Copermittee to review and update its grading and storm water ordinances as necessary to comply with the MS4 permit. By updating the grading and storm water ordinances, the Copermittees will have the necessary legal authority to require construction sites to implement effective BMPs that will reduce pollutant discharges to the maximum extent practicable. The Order allows the Copermittees 365 days to review and update their ordinances. The 365 days should be adequate to allow for the relatively minor changes that might be needed since their ordinances were last updated under Order No. R9-2002-01.

Section D.2.b. (Source Identification) requires the Copermittees to develop and update a watershed based inventory of all construction sites regardless of size or ownership. This section has been modified to require the inventory be updated regularly, rather than annually. More frequent updates will ensure the Copermittees have a more accurate inventory of construction sites within their jurisdiction. A regularly updated inventory of active construction sites will assist the Copermittees in ensuring that all sites are inspected per Order requirements. The Order does not specify the frequency of updates, and instead relies on each Copermittee to develop updates appropriate to local construction activity. The 2007 DAMP proposes that the inventory be updated “at a minimum” prior to the start of the rainy season. Such a minimum standard may not be appropriate for each Copermittee. Failure to maintain a useful inventory would be a violation of the Order.

Section D.2.c. (Site Planning and Project Approval Process) requires Copermittees to incorporate consideration of potential water quality impacts prior to approval and issuance of construction and grading permits. The Copermittees¹⁸⁹ and our program evaluations in 2005¹⁹⁰ recommend that storm water requirements need to be better incorporated into the pre-construction process.

¹⁸⁹ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), Section 7, New Development.

¹⁹⁰ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

This section now requires the Copermittees to review project proponents' storm water management plans for compliance with local regulations, policies, and procedures. USEPA recommends that it is often easier and more effective to incorporate storm water quality controls during the site plan review process or earlier.¹⁹¹ In the Phase I storm water regulations, USEPA states that a primary control technique is good site planning.¹⁹² USEPA goes on to say that the most efficient controls result when a comprehensive storm water management system is in place.¹⁹³ To determine if a construction site is in compliance with construction and grading ordinances and permits, USEPA states that the "MS4 operator should review the site plans submitted by the construction site operator before ground is broken."¹⁹⁴ Site plan review aids in compliance and enforcement efforts since it alerts the "MS4 operator early in the process to the planned use or non-use of proper BMPs and provides a way to track new construction activities."¹⁹⁵ During audits of Orange County Copermittee storm water programs, it was found that site plan and SWPPP review were inadequate and inconsistent.¹⁹⁶

Section D.2.c is also discussed in RTC 1 (Section X.1) in comment numbers 37 and 38.

Section D.2.d. (BMP Implementation) includes modifications to the requirements for each Copermittee to designate and ensure implementation of a set of minimum BMPs at construction sites. These modifications are based on Regional Board findings and experience during implementation of Order No. R9-2002-01.

Unlike Order No. R9-2002-01, this Order does not require the Copermittee to designate a set of minimum BMPs for high, medium, and low threat to water quality construction sites. This change was made in recognition of most Copermittees' application of one consistent set of BMPs throughout their jurisdictions. The Copermittees also desire to move toward a risk-based approach to BMP requirements.¹⁹⁷ As a result, the Order requires a minimum set of BMPs to be designated for all sites and that enhanced BMPs be designated for sites upstream of 303(d) impairments and ESAs.

¹⁹¹ USEPA, 1992. Guidance 833-8-92-002. Section 6.3.2.1.

¹⁹² Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48034.

¹⁹³ Ibid.

¹⁹⁴ USEPA, 2000. Guidance 833-R-00-002. Section 4.6.2.4, P. 4-30.

¹⁹⁵ Ibid., P. 4-31.

¹⁹⁶ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

¹⁹⁷ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), Section 8, Construction

The Order's requirements for seasonal restrictions on grading have also been changed. Seasonal restrictions on grading for storm water are difficult to implement due to the conflict between seasonal grading restrictions and endangered birds' breeding seasons; therefore the seasonal grading restrictions have not been included with the other BMPs in the Order. Found in southern California, the Least Bell's Vireo and the Coastal California Gnatcatcher are listed as federally endangered and threatened, respectively.¹⁹⁸ Permits issued by the California Department of Fish and Game (CDFG) restrict grading during these birds' breeding seasons, which is from April 10 to August 31 for the Least Bell's Vireo¹⁹⁹ and from February 15 to August 31 for the Coastal California Gnatcatcher.²⁰⁰ Ideally storm water restrictions on grading would be during the wet season from October 1 through April 30.²⁰¹ Combined, these restrictions would limit construction grading to be during the month of September, which is infeasible. Section D.2.d of the Order still requires project proponents to minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible.

Section D.2.d is also discussed in RTC 1 (Section X.1) in comment number 39 and RTC 2 (Section X.2) in comments number 23, 24 (active sediment treatment), and 25.

Section D.2.e. (Inspections) establishes criteria for inspections based on risk factors including size, season, and location of the construction site. Modifications have been made to requirements of Order No. R9-2002-01 based on the experience of the Copermitees and Regional Board construction programs.

The Order requires sites in active grading during the wet season that are over 30 acres be inspected every two weeks, rather than sites over 50 acres being inspected weekly. In south Orange County approximately 15%percent (34 sites) of construction sites over one acre are larger than 30 acres, whereas about 9%percent (21 sites) of sites are over 50 acres.²⁰² This may result in a net decrease of inspections of large sites, although more sites will be covered. The reduction in inspection frequency for sites greater than 50 acres is justified because the sites have generally improved their erosion and sediment control measures since adoption of Order No. R9-2002-01. Biweekly inspections of these sites in the future should be sufficient to ensure compliance with local regulations.

¹⁹⁸ State of California, Department of Fish and Game, 2005. State and Federally Listed Endangered and Threatened Animals of California.

¹⁹⁹ United States Department of the Interior, Fish and Wildlife Service, 2001. Least Bell's Vireo Survey Guidelines.

²⁰⁰ United States Department of the Interior, Fish and Wildlife Service, 1997. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Guidelines.

²⁰¹ Regional Board, 2001. Order No. 2001-01, San Diego County MS4 Permit. Directive F.2.g.(2).

²⁰² Based on the State Board's database of sites covered by the Construction Storm Water General NPDES Permit, Order No. 99-08-DWQ. That general permit requires sites disturbing over one acre to file for coverage, so it provides a good basis for assessment.

The Order lowers the size of construction sites adjacent to or discharging directly to ESAs that receive scrutiny. Order No. R9-2002-01 requires such sites five acres and more to be inspected weekly during the wet season. This Order requires such sites one acre and above to be inspected every two weeks during the wet season and once during August or September. The lower size threshold is consistent with Phase II storm water permits.

The Order omits Order No. R9-2002-01's provision allowing a Copermittee to decrease the inspection frequency for high priority sites if the Copermittee certifies in writing to the Regional Board that they have recorded the site's Waste Discharge Identification Number, reviewed the site's Storm Water Pollution Prevention Plan (SWPPP), assured the site's SWPPP is in compliance, and assured the SWPPP is properly implemented at the site. Under Order No. R9-2002-01, the Regional Board never received from any of the Copermittees a certification to decrease the inspection frequency at high priority sites. Since the certification process was never used, the language has been deleted from the Order.

This section also requires the Copermittees to track the number of inspections for each inventoried construction site. This requirement has been added to ensure that the Copermittees can demonstrate that construction sites are inspected at the minimum frequencies.

D.3 Existing Development

D.3.a. Municipal

The following legal authority applies to section D.3.a:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(1) provides that the proposed management program include "A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(3) provides that the proposed management program include "A description for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems, including pollutants discharged as a result of de-icing activities."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(4) provides that the proposed management program include “A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(5) provides that the proposed management program include “A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(6) provides that the proposed management program include “A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides, and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications, and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Section D.3 is also discussed in RTC 1 (Section X.1) in comment numbers 10 and 41.

Section D.3.a.2. (General BMP Implementation) requires the Copermittees to designate minimum BMPs for general municipal areas and activities, regardless of their threat to water quality. The requirement that different types of BMPs be designated for different threats to water quality categories of municipal areas and activities has been removed from the Order. This was done to help simplify and clarify the Order’s requirements. BMPs required to be implemented at a site can now be based on the sources or activities present at the site. This is closer to the approach taken by the Copermittees in their JURMPs. Threat to water quality is used to determine inspection frequencies in section D.3.a.(7).

Section D.3.a.3, D.3.a.4, and D.3.a.5. (Specific BMP Implementation Categories) establishes requirements for specific categories of activities and areas. These are selected based on the CWA and findings of the Permittees in annual reports and ROWD that identify these activities as warranting special attention.

Pesticides, Herbicides, and Fertilizers. 40 CFR 122.26(d)(2)(iv)(A)(6) requires a description of a program for pesticides, herbicides, and fertilizers. In addition, water quality data demonstrates widespread presence of such pollutants in receiving waters and MS4 discharges. In response to similar requirements of Order No. R9-2002-01, the Copermittees have developed a specific model Integrated Pest Management, Pesticides, and Fertilizer guidelines.

Flood Control Structures. In order to more closely meet the intent of the federal regulations and guidance, the requirement has been modified. 40 CFR 122.26(d)(2)(iv)(A)(4) requires "A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible." Retrofitting flood control devices can reduce pollutants and improve water quality. Copermittees have conducted many flood control retrofit projects, many of which have been partially funded with State grant awards.

USEPA expands on the federal provision with the following information: "Storm water management devices and structures that focus solely on water quantity are usually not designed to remove pollutants, and may sometimes harm aquatic habitat and aesthetic values" (1992). As flood control structures and other elements of the MS4 age and retrofitting becomes necessary, opportunities for water quality improvements arise.

Conveyance systems which take water quality consideration into account (such as grassed swales, vegetated detention ponds, etc.) can often cost less to construct than traditional concrete systems. Evaluation of the applicability of such systems during retrofitting must occur to ensure that pollutants in urban runoff are reduced to the maximum extent practicable. USEPA supports utilizing BMPs for pollution reduction in flood management projects, stating that "The proposed management program must demonstrate that flood management projects take into account the effects on the water quality of receiving water bodies. [...] Opportunities for pollutant reduction should be considered".²⁰³

²⁰³ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. Washington D.C. EPA/833-B-92-002.

Existing Copermittee projects include two types of retrofits. The first type involves adding an engineered device to an existing structure in order to treat or divert urban runoff. Examples include catch basin inlet filters/screens, ultraviolet disinfection facilities, hydrodynamic separators, and diversions to the sanitary sewer. The second type involves re-installing pervious or natural treatment features to facilities. Examples include removing concrete portions of conveyances to create pervious conveyances; and creating treatment wetlands within flood detention facilities. The later type of retrofit is preferred by the Regional Board. They are likely more sustainable over the long-term because they may require less rigorous operation and maintenance than the former. They may also provide the additional benefit of providing significant or incidental opportunities for beneficial uses (e.g., recreation, wildlife, water supply).^{204,205}

Sweeping of Municipal Areas. Sweeping municipal areas would likely be done in the absence of the Order. However, in certain cases it is an important component of a jurisdictional urban runoff management program. The Order contains requirements to ensure that the use of street sweeping is optimized for urban runoff applications if it is to be used and reported as a BMP. The criteria in the Order are taken from industry guidance as reported by the Permittees in the Aliso Creek watershed.²⁰⁶

Sections D.3.a.4 and D.3.a.5 are also discussed in RTC 1 (Section X.1) in comment numbers 42 and 43.

Section D.3.a.4 is also discussed in RTC 2 (Section X.2) in comment number 26.

Section D.3.a.(6). (Operation and Maintenance of MS4 and Structural Controls) requires the Copermittees to inspect and remove waste from their MS4s prior to the rainy season.

Maintenance is critical to the successful implementation of every urban runoff management program. USEPA finds that “Lack of maintenance often limits the effectiveness of storm water structural controls such as detention/retention basins and infiltration devices. [...] The proposed program should provide for maintenance logs and identify specific maintenance activities for each class of control, such as removing sediment from retention ponds every five years, cleaning catch basins annually, and removing litter from channels twice a year.

²⁰⁴ Burton, Carmen et al. 2005. Assessing Water Source and Channel Type as Factors Affecting Benthic Macroinvertebrate and Periphyton Assemblages in the Highly Urbanized Santa Ana River Basin, California. American Fisheries Society Symposium. Vol.47 pp.239-262.

²⁰⁵ Stromberg, Juliet C. 2001. Restoration of Riparian Vegetation in the South-Western United States: the importance of flow regimes and fluvial dynamism. Journal of Arid Environments. Vol49, pp.17-34.

²⁰⁶ See 20th and 21st quarterly reports for the Aliso Creek watershed bacteria investigation, prepared by the Orange County Copermittees within the Aliso Creek watershed.

If maintenance activities are scheduled infrequently, inspections must be scheduled to ensure that the control is operating adequately. In cases where scheduled maintenance is not appropriate, maintenance should be based on inspections of the control structure or frequency of storm events. If maintenance depends on the results of inspections or if it occurs infrequently, the applicant must provide an inspection schedule. The applicant should also identify the municipal department(s) responsible for the maintenance program".²⁰⁷ The MS4 maintenance requirements are based on the above USEPA recommendations. This maintenance will help ensure that structural controls are in adequate condition to be effective year round but especially at the beginning of and throughout the rainy season.

Two requirements have been added to the Order that were not within Order No. 2002-01. Subsection (3) allows a decreased inspection frequency for facilities that are routinely clean, and Subsection (4) requires trash to be removed from channels in a timely manner. Typically, Copermittees have reported annual or semi-annual creek cleanups as significant BMPs. The large volumes of trash reported to be removed during these events demonstrates the significant amount of trash that accumulates in the channels. In addition, urban runoff is a leading contributor to the accumulation of trash and debris along the beaches of Orange County.²⁰⁸ In order to reduce the effect of the trash, the Order requires that trash be removed more frequently.

Section D.3.a.(7). (Limit Sewage Infiltration) requires the Copermittees to implement controls and measures to limit infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. This requirement is in Order No. R9-2002-01 in the section on Illicit Discharge Detection and Elimination (section F.5.i).

[Section D.3.a.7 is also discussed in RTC 1 \(Section X.1\) in comment number 44.](#)

Sections D.3.a.(8) and D.3.a.(9). (Inspections and Enforcement) establishes a minimum set of municipal areas and activities for oversight and inspection by the Copermittees and requires that Copermittees properly enforce urban runoff requirements at municipal areas and activities.

²⁰⁷ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. Washington D.C. EPA/833-B-92-002.

²⁰⁸ Moore, S.L., D. Gregorio, M. Carreon, S B. Weisberg, and M. K. Leecaster. 2001. *Composition and distribution of beach debris in Orange County, California*. Marine Pollution Bulletin 42(3): 241-245..

D.3.b. Industrial and Commercial

The following legal authority applies to section D.3.b:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C) provides that the proposed management program include “A description of a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(1) provides that the Copermittee must “identify priorities and procedures for inspections and establishing and implementing control measures for such discharges.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(2) provides that the proposed management program shall “Describe a monitoring program for storm water discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD5 , TSS, total phosphorus, total Kjeldhal nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv).”

Federal NPDES regulation 40 CFR 122.26(d)(2)(ii) provides that the Copermittee “Provide an inventory, organized by watershed of the name and address, and a description (such as Standard Industrial Classification [SIC] codes) which best reflects the principal products or services provided by each facility which may discharge, to the municipal separate storm sewer, storm water associated with industrial activity.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermitee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermitee develop a proposed management program which includes “A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”

Section D.3.b. (Industrial and Commercial) requires the Copermitees to implement an industrial and commercial program to reduce pollutants in runoff from all industrial and commercial sites/sources. The industrial and commercial sections of Order No. 2002-01 have been combined into one section in this Order. This change will streamline and simplify the Order, without negatively impacting water quality. This change is not unprecedented because industrial and commercial facilities are commonly addressed together. For example, the Southern Riverside County MS4 Permit²⁰⁹ combined industrial and commercial programs into one section. In addition, in their Annual Reports and ROWD,²¹⁰ the Copermitees jointly address industrial and commercial components. USEPA contractor Tetra Tech also evaluated and reported on the industrial and commercial programs jointly during their program evaluations.²¹¹

Section D.3.b.(1)(a) (Source Identification) requires that building material retailers and storage, animal facilities, and power washing services be included in the Copermitees' inventory of commercial sites/sources. These activities have been identified annual MS4 program reports and quarterly Aliso Creek watershed reports as potentially significant sources of pollutants. This is not a significant change because Order No. R9-2002-01 requires that any commercial site or source determined by a Copermitee to contribute a significant pollutant load to the MS4 be added to its inventory of commercial sites. Furthermore, the commercial BMP fact sheets developed by the Copermitees generally address the types of activities occurring at these facilities and practices.

²⁰⁹ Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2; P. 24.

²¹⁰ Orange County Storm Water Copermitees. 2006. Report of Waste Discharge (San Diego Region). Section 9.

²¹¹ Tetra Tech, Inc., 2005. Program Evaluation Reports Orange County Storm Water Programs: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

The Order has revised requirements for identifying industrial sites/sources. The revised requirements are identical to those found in the Southern Riverside County MS4 permit.²¹² USEPA requires the same identification: “Measures to reduce pollutants in storm water discharges to municipal separate storm sewers from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA).”²¹³ USEPA “also requires the municipal storm sewer permittee to describe a program to address industrial dischargers that are covered under the municipal storm sewer permit.”²¹⁴ In order to more closely follow USEPA’s guidance, this Order also includes operating and closed landfills, and hazardous waste treatment, disposal, storage and recovery facilities.

Section D.3.b.3. (Mobile Businesses) requires each Copermittee to develop and implement a program to reduce the discharge of pollutants from mobile businesses to the MEP. Mobile businesses are service industries that travel to the customer to perform the service rather than the customer traveling to the business to receive the service. Examples of mobile businesses are power washing, mobile vehicle washers, carpet cleaners, port-a-potty servicing, pool and fountain cleaning, mobile pet groomers, and landscapers. These mobile services produce waste streams that could potentially impact water quality if appropriate BMPs are not implemented.

Order No. R9-2002-01 also requires BMP implementation for certain mobile businesses (e.g., mobile vehicle washing and mobile carpet cleaning). These requirements of Order No. R9-~~2007-0002~~2008-0001 are not significantly different from the existing requirements. The Order specifies mobile businesses for special attention based on reports from the Copermittees that mobile businesses have been difficult to control with existing programs.

Mobile businesses present a unique difficulty in storm water regulation. Due to the transient nature of the business, the regular, effective practice of unannounced inspections is difficult to implement. Also, tracking these mobile businesses is difficult because they are often not permitted or licensed and their services cross Copermittee jurisdictions. Mobile businesses that operate within a municipality may be based in another municipality or even outside the Region. The Order takes into account the difficulties in regulating mobile businesses.

Because BMPs have been developed already, but communication with mobile businesses may be difficult, the Order provides broad flexibility to the Copermittees for developing a targeted program within the Commercial portion of each JURMP.

[Section D.3.b.3 is also discussed in RTC 1 \(Section X.1\) in comment number 45 and RTC 2 \(Section X.2\) in comment number 27.](#)

²¹² Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.b)(2); P. 25.

²¹³ Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48056.

²¹⁴ Ibid.

Section D.3.b.4. (Inspections) includes requirements for inspections of industrial and commercial sites/sources. The Order is similar to the Southern Riverside County MS4 permit²¹⁵ in requiring that inspections check for coverage under the General Industrial Permit; assessment of compliance with Copermittee ordinances and permits related to urban runoff; assessment of BMP implementation, maintenance, and effectiveness; visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff; and education and outreach on storm water pollution prevention. The Order also requires that inspections include review of BMP implementation plans if the site uses or is required to use such a plan, and the review of facility monitoring data if the site monitors its runoff. Order No. 2002-01 did not contain requirements for inspection procedures.

Changes in the Order's requirements for inspection procedures mimic USEPA's guidance: "Site inspections should include (1) an evaluation of the pollution prevention plan and any other pertinent documents, and (2) an onsite visual inspection of the facility to evaluate the potential for discharges of contaminated storm water from the site and to assess the effectiveness of the pollution prevention plan."²¹⁶ In 1999, USEPA "recognized visual inspection as a baseline BMP for over 10 years," and "visual inspections are an effective way to identify a variety of problems. Correcting these problems can improve the water quality of the receiving water."²¹⁷ Most, if not all, of the Order's procedures are being conducted by the Copermittees that follow the Model Existing Development Program of the DAMP.

With the exception of restaurants, the Order allows Copermittees to establish inspection frequencies, as long as at least 20 percent of the sites are inspected annually. Restaurants are now required to be inspected annually. Inspection frequencies in the Order have been modified from Order No. R9-2002-01. Order No. R9-2002-01 specifies frequencies for inspecting industrial sites based on threat to water quality and requires high priority commercial sites to be inspected as needed. Copermittees have been inspecting industrial sites according to Order No. R9-2002-01. The Copermittees have been inspecting restaurants annually as part of the County Health Department inspections. For other commercial sites, the Copermittees have been focusing annual activities on certain commercial sectors, such as automobiles, with the goal of inspecting every high priority site at least once during the permit term. This change is not considered significant because it should allow the Copermittees to continue existing programs.

Reports from the Aliso Creek watershed Copermittees demonstrate that as-needed inspections for restaurants means at least annually. Restaurants have been found to present many threats to water quality and standard educational efforts are not effective because restaurants are subject to frequent management changes. For these reasons, the Order requires restaurants to be inspected annually.

²¹⁵ Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.d)(3);

²¹⁶ USEPA, 1992. Guidance 833-8-92-002, section 6.3.3.4 "Inspection and Monitoring".

²¹⁷ USEPA, 1999. 832-F-99-046, "Storm Water Management Fact Sheet – Visual Inspection".

Section D.3.b.4 is also discussed in RTC 1 (Section X.1) in comment number 46.

Section D.3.b.(6). (Training and Education) requires training and education measures generally consistent with the existing storm water programs. One distinction is that the Order requires each Copermittee to notify the owner/operator of each inventoried industrial and commercial site/source of the BMP requirements applicable to the site/source. This requirement is necessary to ensure that the owners and operators of commercial sites stay informed of appropriate BMPs. This is especially important because sites may be inspected as little as once every five years.

Section D.3.c. (Residential Component)

The following legal authority applies to section D.3.c:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermittee develop a proposed management program which includes “A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Section D.3.c (Residential Component) moves the common interest areas / homeowners’ association component and the requirement for proper management of used oil, toxic materials, and other household hazardous wastes to the residential section of the Order, since these requirements generally apply to residential areas. These changes improve the organization of the Order and have no net effect on its implementation and enforcement. Other requirements for prioritization, BMP implementation, and enforcement are consistent with Order No. R9-2002-01.

Section D.3.c is also discussed in RTC 1 (Section X.1) in comment numbers 10 and 47.

D.4. Illicit Discharge Detection and Elimination

The following legal authority applies to section D.4:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) provides that the proposed management program “shall be based on a description of a program, including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittee include in its proposed management program “a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal storm sewer system.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) provides that the Copermittee include in its proposed management program “a description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(3) provides that the Copermittee include in its proposed management program “procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(4) provides that the Copermittee include in its proposed management program “a description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(5) provides that the Copermittee include in its proposed management program “a description of a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges from municipal separate storm sewers.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(6) provides that the Copermittee include in its proposed management program “a description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(7) provides that the Copermittee include in its proposed management program “a description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary.”

Section D.4.a. (Prevent and Detect Illicit Discharges) requires the Copermittees to implement a program to actively seek and eliminate illicit connections and discharges (IC/ID). Additional wording has been added to this section to clarify and ensure that all appropriate (i.e., field personnel) municipal personnel are utilized in the program to observe and report these illicit discharges and connections.

Section D.4.e (Investigations) requires the Copermittees to conduct follow up investigations and inspect portions of the MS4 for illicit discharges and connections, based on dry weather field screening and analytical monitoring results. The section also requires the Copermittees to establish criteria for triggering follow up investigations. Additional language has been added to this section to clarify the minimum level of effort and timeframes for follow up investigations when dry weather action levels are exceeded. Timely investigation and follow up when action levels are exceeded is necessary to identify sources of illicit discharges, especially since many of the discharges are transitory. The requirements for a 48-hour minimum response time when action levels are exceeded and for immediate response to obvious illicit discharges is necessary to ensure timely response by the Copermittees.

The Copermittees currently use action levels to facilitate the determination of when source investigation studies are warranted based on data from the dry-weather monitoring program. One set of criteria is based on regional averages of constituent concentrations that were developed based on randomly selected storm drains. Another set of criteria is based on trends at a particular station. These are reasonable criteria if decision-makers are properly trained. The ability of the local managers to interpret dry-weather monitoring data collected by the County has greatly improved in the last two years, and continued training is required in section D.4.i.

[Section D.4.e is also discussed in RTC 1 \(Section X.1\) in comment number 48 and RTC 2 \(Section X.2\) in comment number 28.](#)

Section D.4.h. (Spill Response) requires each Copermittee to implement measures to prevent and respond to spills into its MS4. These requirements are similar to Order No. R9-2002-01 and based on federal regulations at 40 CFR 122.26(d)(2)(iv)(B)(4). Those federal NPDES regulations clearly require that owners and operators of MS4s have procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer.

This same requirement was adopted by the Regional Board in Order No, 2002-01, but was subsequently stayed by the State Board in Order WQO 2002-0014. The City of Mission Viejo challenged the requirement to prevent and respond to sewage spills on the grounds that since the sanitary sewer systems in the City are operated by three water districts already regulated by a NPDES permit from the Regional Board, this requirement would cause delayed spill responses as the City and agencies try to determine jurisdiction and responsibilities. The State Board found that the costs of this requirement did not constitute harm, but agreed that harm could ensue from potential response delay and confusion. Although the entire permit requirement was stayed, neither the State Board, nor the Petitioner discussed spills other than sewage.

Subsequently, the Copermittees have developed and implemented procedures for spill response and sewage spill response.²¹⁸ Only three Permittees (Laguna Beach, San Clemente, and San Juan Capistrano) own or operate their own sewage collection systems, yet all Copermittees implement the programs for spill response. For the Copermittees that do not own or operate sewage systems, the Regional Board expects that they will continue to respond appropriately to reported or identified spills to the MS4 system.

Section D.4.h is also discussed in RTC 1 (Section X.1) in comment number 50 and RTC 2 (Section X.2) in comment number 28.

E. Watershed Urban Runoff Management Programs

The following legal authority applies to section E:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(a)(3)(ii) states: “The Director may [...] issue distinct permits for appropriate categories of discharges [...] including, but not limited to [...] all discharges within a system that discharge to the same watershed [...]”

Federal NPDES regulations 40 CFR 122.26(a)(3)(v) states: “Permits for all or a portion of all discharges from large or medium municipal separate storm sewer systems that are issued on a system-wide, jurisdiction-wide, watershed, or other basis may specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas [watersheds] which contribute storm water to the system.”

²¹⁸ Sections 10.2.4 and 10.2.5 in the 2007 DAMP.

Federal NPDES regulation 40 CFR 122.26(a)(5) states: “The Director may issue permits for municipal separate storm sewers that are designated under paragraph (a)(91)(v) of this section on a system-wide basis, a jurisdiction-wide basis, watershed basis, or other appropriate basis.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) states: “Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls.”

Section E. (Watershed Urban Runoff Management Programs) requires Copermittees to update and continue implementation of existing-certain watershed urban runoff management programs (WURMPs). ~~The watershed management areas are the same as in Order No. R9-2002-01.~~ The general approach to the watershed program is similar as in Order No. R9-2002-01, with some exceptions. First, the Order requires a minimum number of watershed program activities to occur in each year. Order No. R9-2002-01 allowed the Watershed Copermittees to develop implementation time schedules for activities conducted during the permit term. That approach was useful because the Copermittees needed to develop the background information to support the watershed programs. Now that assessments, prioritization efforts, and collaboration steps have been completed, it is reasonable for the Copermittees to implement activities each year of this permit term.

WURMPs must be implemented for the highest-priority watersheds in the region, Aliso Creek and San Juan Creek, rather than continuing the six watershed management area delineations from Order No. R9-2002-01. One Copermittee, the City of San Clemente, would not be required to be involved in any watershed urban runoff management program activities.

Though seemingly a significant revision, this will not likely result in any significant decrease in water quality protection. The watersheds eliminated are the coastal streams watersheds, in which the vast majority of each urbanized drainage area lies within the jurisdiction of a single Copermittee. As a result, the potential benefits gained by developing and implementing a WURMP in those watersheds are much less than in the Aliso Creek and San Juan Creek watersheds.

Section E is also discussed in RTC 1 (Section X.1) in comment numbers 51 and 52 and RTC 2 (Section X.2) in comment number 29.

Section E.1.b. (Watershed Map) of the Order requires the Copermittees to develop watershed maps. The section has been slightly modified from Order No. R9-2002-01 in that it no longer requires mapping of inventoried construction sites. The reason for this change is the temporary nature of construction sites. The location of construction sites is constantly changing, making the mapping of construction sites not useful.

Section E.1.c. (Water Quality Assessment) of the Order requires assessment and analysis of water quality data to prioritize each watershed's water quality problems, together with identification of the sources of the high priority water quality problems. These requirements are essentially the same as the requirements of Order No. 2002-01; they have simply been reorganized to more clearly convey the process required. For instance, Order No. R9-2002-01 required an initial assessment and then annual reports that then identified water quality improvements or degradation and proposed program modifications. However, the annual determinations could only be accomplished with an annual assessment of conditions.

Section E.1.d. (Watershed Strategy) requires Copermittees within a watershed to develop a collective watershed strategy to abate the sources and reduce the discharges causing the high priority water quality problems of the WMA. An articulated strategy is necessary to guide Watershed Copermittee selection and implementation of Watershed URMP Activities. Order No. R9-2002-01 required watershed URMPs to identify recommended activities and a strategy for short and long-term effectiveness assessments. This Order clarifies the expectations of the Regional Board for municipalities to follow the process of assessing conditions, evaluating options, implementing measures, and then re-assessing conditions, etc.

Section E.1.e. (BMP Implementation and Assessment) requires the watershed Copermittees to implement the measures identified within their watershed URMP strategies. It also clarifies expectations of the Regional Board that activities to reduce pollutant loads will be implemented each year. This is necessary because most of the reported activities within the Watershed URMPs have been planning or assessment activities, rather than "on-the-ground" management measures. This requirement provides measurable outcomes for WURMP implementation. In crafting this section of the Order and the Watershed Water Quality Activity definition, the Regional Board sought to obtain a balance between the enforceability of the Order and Copermittee flexibility in implementing the Order.

This section of the Order also requires the Copermittees to evaluate the effectiveness of activities. This will help the Copermittees determine additional measures and also enable other Copermittees to choose the most effective activities for implementation. Implementation of effective activities is critical to ensure an effective Watershed Urban Runoff Management Program.

The intent of specifying requirements for Watershed “Water Quality Activities” is to make sure that management measures are implemented to reduce pollutant discharges causing high priority water quality problems within a watershed and exceed the baseline jurisdictional requirements. Beyond these bottom line requirements, the Copermittees have ample implementation flexibility. For example, both jurisdictional and regional activities in some circumstances can be considered Watershed Water Quality Activities. In addition, Copermittees can implement Watershed Water Quality Activities within their jurisdictions or outside of their jurisdictions; whichever they prefer. Moreover, Copermittees within a watershed can implement different Watershed Water Quality Activities, provided they are part of the watershed Copermittees’ larger watershed strategy.

Details regarding what constitutes a Watershed Water Quality Activity include:

- A Watershed Water Quality Activity must abate the sources and/or reduce the discharge of pollutants causing high priority water quality problems in the watershed. Activities that do not specifically abate sources and/or reduce pollutant discharges causing high priority water quality problems in a watershed are not Watershed Water Quality Activities.
- Watershed Water Quality Activities must implement an overall watershed strategy collaboratively developed by the Copermittees within a watershed.
- Jurisdictional activities which exceed the baseline jurisdictional requirements may constitute Watershed Water Quality Activities, if they are more protective of water quality than baseline jurisdictional activities. Such activities must specifically abate sources and/or reduce the discharge of pollutants causing high priority water quality problems within a watershed. The jurisdictional activities must be organized and implemented as part of a larger watershed strategy.
- Specific Watershed Water Quality Activities do not need to be implemented watershed-wide, but all Copermittees within a watershed must implement well-coordinated Watershed Water Quality Activities.
- Watershed Water Quality Activities must be new activities; activities that have been conducted for many years without regard for watershed concerns are not Watershed Water Quality Activities. Moreover, as high priority water quality problems within watersheds continue, efforts to implement new and more effective activities are needed.
- Education, public participation, and planning efforts are not Watershed Water Quality Activities.

- Activities that only consist of monitoring are not Watershed Water Quality Activities. There must also be an element of the monitoring program that directly results in the abatement of sources and/or reduction of pollutant discharges causing high priority water quality problems.

Section E.1.f. (Information Exchange) requires that the watershed Copermittees exchange information among themselves and with the public. The Copermittees have established mechanisms for doing both.²¹⁹ The Regional Board considers the quarterly Copermittee meetings held for the Aliso Creek watershed bacteria investigation to be very important in developing and implementing a coordinated timely approach to urban runoff management. For instance, the meetings have greatly facilitated the exchange of information regarding the potential use of and the effectiveness of BMPs. In addition, public participation will facilitate better communication among the interested parties in the watershed, which will ultimately help to expedite water quality improvements.

Section E.1.f is also discussed in RTC 1 (Section X.1) in comment number 10.

Section E.4. (Aliso Creek Watershed Provisions) transfers requirements of an Investigative Order issued on October 18, 2005 into the MS4 Permit. The requirements pertain to an Order first issued in 2001 for investigations into bacteria concentrations in the watershed caused by urban runoff. In October 2005 the requirements for monitoring and reporting were modified in response to a request from the Copermittees. The revised plan includes long-term monitoring and near term action plans based on prioritized storm drains within each watershed municipality. The action plan represents a more mature version of the watershed URMPs.²²⁰ At the time, the Regional Board noted that the revised program would serve as an effective interim program until a planned TMDL was adopted.²²¹ Including the requirements within the Order is done for organizational purposes. It has no net effect on the requirements or the Watershed URMP.

²¹⁹ Copermittees hold two types of watershed-based meetings; one for public agencies and one open to all other interested parties. In addition, the County of Orange makes its watershed reports available on-line at <http://www.ocwatersheds.com>

²²⁰ The 2005-06 annual Aliso Creek Watershed Action Plan (a.k.a. WURMP) is crafted in large part on the activities and monitoring conducted pursuant to the bacteria investigation orders issued by the Regional Board.

²²¹ Letter dated October 18, 2005 from the Regional Board Executive Officer, John Robertus, to the Copermittees in the watershed.

F. Fiscal Analysis

The following legal authority applies to section F:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(vi) provides that “[The Copermittee must submit] for each fiscal year to be covered by the permit, a fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the programs under paragraphs (d)(2)(iii) and (iv) of this section. Such analysis shall include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.”

Section F has been expanded in order to develop more useful and meaningful fiscal reporting. The Copermittees have identified a need to assess the current fiscal reporting process and have proposed to prepare a fiscal reporting strategy to better define the expenditure and budget line items included in the fiscal reports.²²² The Regional Board agrees that the process should be improved. A revamped fiscal reporting strategy will provide the Regional Board and the Copermittees with better capability to manage performance of the programs.

The Copermittees’ effort is expected to provide standardization of reporting so that figures between Copermittees are comparable, which is one of many types of information which can be used by the Regional Board to better understand Copermittee program implementation. Standardization and comparison of fiscal analysis reporting is supported by the State Board funded NPDES Stormwater Cost Survey, which finds that “standards for reporting costs and stormwater activities are needed to allow accurate cost comparisons to be made between stormwater activities.”²²³ This document also provides guidance regarding categorization of expenditures for tracking and reporting.

The Order establishes criterion for when Copermittees must add narrative evaluations to the tables. This will address some of the variability in reporting and will provide the public and Regional Board with improved understanding of how resources are shifted in response to annual assessments. This will also help ensure that projected annual costs adequately reflect planned program modifications described in the annual reports.

²²² Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), section 2.3.4.

²²³ Currier, et al., 2005. *NPDES Storm Water Cost Survey Final Report*. Prepared for California State Water Resources Control Board by Office of Water Programs, California State University, Sacramento. P. 63.

~~Another new requirement in the Order is for the Copermittees~~The Regional Board has chosen not to include-require a qualitative or quantitative description of fiscal benefits realized from implementation of the storm water protection program. This is a recommendation from the National Association of Flood and Stormwater Management Agencies.²²⁴ For instance, the current fiscal assessment does not address city-wide fiscal benefits of protection (e.g., public health, tourism, property values, economic activity, beneficial uses, etc.), even though many costs currently reported to the Regional Board are for related activities. This type of assessment may help Copermittees improve the allocation of resources and it may help the Copermittees secure adequate funding for the program. Finally, it will provide a clearer picture of the urban runoff program to the public and Regional Board. However, qualitative assessments could be overly subjective and most Copermittees likely lack the ability to provide accurate quantitative assessments. The Regional Board encourages Copermittees to consider means for conducting assessments of fiscal benefits derived from the programs. Such assessments could be conducted on a regional scale similar to studies of program costs conducted by the State Water Board²²⁵ or community indicators by the Community Indicators Project.²²⁶

The Order also requires that each Copermittee develop a financial business plan. This is a new requirement intended to improve the long-term viability of the urban runoff management programs. The requirement is based on guidance from the National Association of Flood and Stormwater Management Agencies.²²⁷ The required elements of the business plan are also intended to provide guidance to the Copermittees as they develop a new model fiscal reporting strategy.

The development of a financial business plan for the urban runoff management programs is a management measure that will improve the long-term viability of the programs. Many of the program commitments required by federal regulations that are made by the Copermittees and also required by the MS4 Permit necessitate that funds be available beyond the next fiscal year. Without a clear plan for providing such funds, the Regional Board cannot be certain the management measures will provide the benefits expected from them.

²²⁴ National Association of Flood and Stormwater Management Agencies. 2006. *Guidance for Municipal Stormwater Funding*. Prepared under a grant provided by the U.S. EPA/USEPA.

²²⁵ State Water Board, 2005. NPDES Stormwater Cost Survey.

²²⁶ Orange County 2006 Community Indicators Project. 2006. Sponsored by the County of Orange, the Orange County Business Council, and the Children and Families Commission of Orange County. Available on-line at www.oc.ca.gov/ceocommunity.asp

²²⁷ National Association of Flood and Stormwater Management Agencies. 2006. *Guidance for Municipal Stormwater Funding*. Prepared under a grant provided by the U.S. EPA/USEPA.

Currently, each Orange County municipality's annual report includes a table based on a template developed by the principal Permittee. The template was meant to facilitate reporting consistency among the 13 Copermittees. The annual report table contains estimates of spending during the reported period and estimates of the next year's spending. The tables separate capital costs from operations and maintenance costs and are arranged by program element. In addition to the tables, each municipality reports on the sources of the funds, (e.g., general fund, special fee, grants, etc.) to demonstrate that resources have been secured. There is very heavy reliance on general funds.

Review of the fiscal analysis tables included in the annual reports has not been as straightforward as expected, and the value of the information is moderate. Generally, questions regarding the financial reporting process of individual Permittees have been adequately resolved during meetings to discuss the annual reports. Based on those meetings, the Regional Board staff has found that cities do not use consistent methods to fill in the tables because they use different accounting and budgeting processes, and certain stormwater program expenditures are not easily categorized into the table formats. Furthermore, stormwater permit-related activities involve several departments, which makes it difficult for the storm water manager to gather and decipher actual costs.

These issues also make it difficult for the Permittees to accurately compartmentalize expenditures within the format. The Permittees are aware of the reporting discrepancies and have planned to modify the reporting template and guidelines. As a result, the current financial reporting provides estimates at best and cannot be reliably used to compare program implementation among most municipalities.

The Federal requirements for a fiscal analysis provide flexibility to the municipality on how and what to report, but also provide wide latitude for the Regional Board to solicit the type of information it seeks to evaluate the relative costs and value of the permit's activities. The modifications to this requirement will improve the long-term protection of water quality.

Section F is also discussed in RTC 1 (Section X.1) in comment numbers 54 and 55 and RTC 2 (Section X.2) in comment number 30.

G. Program Effectiveness Component

The following legal authority applies to section G:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(v) provides that the Copermittees must include “Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water.” Under Federal NPDES regulation 40 CFR 122.42(c) applicants must provide annual reports on the progress of their storm water management programs.

Section G is also discussed in RTC 1 (Section X.1) in comment number 56.

Section G.1 (jurisdictional program effectiveness assessments) of the Order requires the Copermittees to assess the effectiveness of the implementation of their jurisdictional programs and activities. The section requires that the effectiveness strategy of the programs be designed around ~~three~~four classes of objectives and that the results are used to direct program modifications. The section does not specify the assessments to be conducted, but does require that assessment measures conform to the guidance developed by the California Storm Water Quality Association (CASQA). The Orange County Storm Water Program is supportive of the CASQA effort, and use of CASQA assessment techniques is consistent with the methodology proposed in the ROWD.²²⁸ ²²⁹

The section is also consistent with the plan of the Copermittees to improve the efficacy of the assessment process.²³⁰ The Copermittees currently report a series of metrics for spatial and temporal assessments across the County. The Program Effectiveness requirements of the Order provide the Copermittees with the framework for improving their standard assessment metrics.

²²⁸ The structure of planned program effectiveness is proposed in section 1.2.2 of the 2007 ROWD. The ROWD then identifies current and potential assessment outcome levels within each major program chapter (e.g., new development, construction, etc.).

²²⁹ CASQA 2007. Municipal Stormwater Program Effectiveness Assessment Guidance. p.2-5.

²³⁰ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), section 3.3.2.

The Order provides focus to the assessment methodology by requiring that impaired waterbodies and environmentally-sensitive areas are specifically addressed. In this way, the high priority water quality issues will receive a high level of attention, consistent with USEPA and CASQA guidance for prioritization. The Order provides flexibility to establish the actual metrics for each assessment outcome level. The Order also provides the Copermittees flexibility to develop objectives for the general program components based on the CASQA guidance, as is proposed in the ROWD and DAMP.

In addition, Section G.1 requires that an effectiveness assessment strategy is developed and implemented in response to actions taken by a Copermittee to comply with Section A.3 (Prohibitions and Receiving Water Limitations) of the Order. Section A.3 outlines the procedure for addressing instances when jurisdictional programs implement control actions in response to determinations that discharges from the MS4 are causing or contributing to violations of water quality standards.

Section G.2 (~~assessment review and program~~ modification) of the Order requires the Copermittees to improve jurisdictional activities or BMPs when they are found to be ineffective or when water quality impairments are continuing. This requirement fulfills the purpose of conducting effectiveness assessments – to improve and refine the Copermittees’ programs. The requirement is consistent with USEPA’s Phase II regulations, which state: “If the permittee determines that its original combination of BMPs are not adequate to achieve the objectives of the municipal program, the MS4 should revise its program to implement BMPs that are adequate [...]”²³¹

Section G.3 (reporting) of the Order describes the information required to be submitted in jurisdictional annual reports pertaining to program effectiveness assessments, review, and response. The reporting will demonstrate whether Copermittees have appropriately responded to the effectiveness assessments.

H. Reporting

The following legal authority applies to section H:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

²³¹ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68762.

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the Regional Board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Section H.1 (Jurisdictional and Watershed Urban Runoff Management Plans) outlines the process and due dates for submitting plans. It utilizes an approach similar to the approach used in Order No. R9-2002-01. The information to be included in the Jurisdictional and Watershed plans must be sufficient to demonstrate the capacity to implement the requirements of Section D and Section E, respectively, of the Order.

Two general modifications from Order No. R9-2002-01 result in reduced reporting effort by the Copermittees. First, in many cases, the requirements of the Order should not necessitate a complete rewrite of the plans, as was basically done in 2003. Only sections of the Order which are new or have been significantly changed should warrant rewriting of plans' sections. Second, the WURMP annual reports due in January 2009 can serve as the updated watershed plans, rather than rewriting each watershed plan. The Regional Board plans to work with the Copermittees and provide guidance regarding where JURMPs must be updated in accordance with the Order. This will help ensure that rewriting, reporting, and review efforts are minimized.

Section H.2 (Other Required Reports) include requirements for information to be included in the SUSMP update and the Report of Waste Discharge for the next permit reissuance. The Order requires submittal of a ROWD prior to the expiration of the Order. The section identifies the minimum information to be included in the ROWD, based on USEPA's May 17, 1996 guidance “Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems.”

Section H.3 (Annual Reports) outlines the process and roles of the Copermittees for developing and submitting the JURMP and WURMP annual reports. Information to be included in the annual reports is described in Section H.3.a.3. found in the JURMP and WURMP sections of the Permit (Sections D and E, respectively). The due dates have been changed. The JURMP is due approximately six weeks earlier than under Order No. R9-2002-01. This change is necessary because the existing timelines prevented efficient response by the Copermittees to comments from the Regional Board and the Copermittees' own review. The WURMP annual report due date has been extended by approximately ten weeks. This will spread the JURMP and WURMP reporting and review times, which will enable more focused attention on each type of annual report.

Each Copermittee is required to maintain records demonstrating that Permit activity requirements have been met, which allows the Regional Board to confirm compliance as needed, such as via inspections, program audits, or requests for information per California Water Code Sections 13225 and 13267.

Reporting requirements in the Order focus on results and responses to the effectiveness assessments conducted by the Copermittees. This will allow the Regional Board to determine how appropriately municipalities adapt and tailor their programs to findings from activities and monitoring results. Assessment of progress toward meeting the objectives is possible because the data collected by the Copermittees under Order No. R9-2002-01 can be used to establish baseline conditions. Compared to activity-based reporting, this will greatly enhance the ability of the Regional Board, Copermittees, and the public to determine whether the programs are successful.

The Order reduces the amount of program activity-based reporting from Order No. R9-2002-01. Under the CASQA assessment model, activity-based reporting includes primarily outcomes that document compliance with permit requirements (Level 1 outcomes), rather than being indicators of the impact of activity implementation.²³² This approach is consistent with guidance from the USEPA, which notes that annual reports should highlight program effectiveness as well as describing activities.²³³ This emphasis is also consistent with recommendations from the National Academy of Public Administration in its report to USEPA on Evaluating Environmental Progress, which suggest that reviewing activities data provides limited value when evaluating the effectiveness of programs and resulting environmental conditions.²³⁴

²³² Level 1 outcomes under the CASQA guidance include documentation that required activities have been implemented.

²³³ USEPA 2007. *MS4 Program Evaluation Guidance*. USEPA Office of Wastewater Management EPA-833-R-07-003. January 2007 field test version.

²³⁴ National Academy of Public Administration 2001. *Evaluating Environmental Progress: How EPA and the States Can Improve the Quality of Enforcement and Compliance Information* (June 2001). <http://www.napawash.org>

The Order maintains some reporting requirements for certain activity-based outcomes. These are mostly focused on activities that establish or revise municipal processes related to urban runoff and storm water management. The processes required by the Order are especially important in situations where sustaining water quality improvements may require activities that extend beyond the five-year period of the NPDES permit.

In addition, the Order maintains many activity-based reporting requirements related to enforcement of local requirements, with an emphasis on the results from such activities. This is intended to facilitate review of the contributions that inspection and enforcement activities have made toward meeting the goals of the Order. Reporting of these types of activities is supported by recommendations from the National Academy of Public Administration in its report to the USEPA: *Evaluating Environmental Progress: How EPA and the States Can Improve the Quality of Enforcement and Compliance Information* (June 2001).²³⁵ Other activity-based reporting has been reduced to selected items based on consideration of program priorities.

Another source of prioritization for activity-based reporting is the *Storm Water Panel Recommendations to the California State Water Resources Control Board The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities* (June 19, 2006). In particular, the panel highlighted needs to improve the design, maintenance, and inspections of best management practices.

I. Modification of Programs

The following legal authority applies to section I:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

²³⁵ The National Academy of Public Administration report is available on-line at <http://www.napawash.org>

Section I of the Order provides a process for the Copermitees to modify their urban runoff management programs. This process will be useful so that the Copermitees can continue to refine and improve their programs based on the findings of their annual program effectiveness assessments. The process allows for minor modifications to the Copermitees' programs where the Copermitees can exhibit that the modifications meet or exceed existing legal requirements under the Order. Such a process avoids lengthy and time consuming formal approvals of proposed modifications before the Regional Board, while still ensuring compliance with applicable legal standards and the Order. The process included in the Order is based on a process utilized by the San Francisco Bay Area Regional Water Quality Control Board in their MS4 permit for Alameda County.²³⁶

J. Principal Permittee Responsibilities

The following legal authority applies to section J:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(a)(3)(iii)(C) provides that "A regional authority may be responsible for submitting a permit application."

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Copermitee must demonstrate that it can control] through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

No significant changes were made to this section.

²³⁶ San Francisco Bay Area Regional Water Quality Control Board, 2003. Order No. R2-2003-0021. P. 45.

K. Receiving Waters Monitoring and Reporting

The following legal authority applies to section K:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Copermittees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii).

See section Q of this Fact Sheet/Technical Report for a discussion of changes to the Receiving Waters Monitoring and Reporting Program.

L. Standard Provisions, Reporting Requirements, And Notifications

The following legal authority applies to section L:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Standard provisions, reporting requirements, and notifications are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41.

Section L.2 of the Order has been changed to remove the statement that all plans and reports submitted in compliance with the Order are an enforceable part of the Order. This statement has been removed because it is unnecessary. The Order itself contains sufficient detailed requirements to ensure that compliance with discharge prohibitions, receiving water limits, and the narrative standard of MEP are achieved. Implementation by the Copermittees of programs in compliance with the Order's requirements, prohibitions, and receiving water limits is the pertinent compliance standard to be used under the Order, as opposed to assessing compliance by reviewing the Copermittees' implementation of their plans alone.

Rather than being substantive components of the Order itself, the Copermittees' urban runoff management plans are simply descriptions of their urban runoff management programs required under the Order. These plans serve as procedural correspondence which guides program implementation and aids the Copermittees and Regional Board in tracking implementation of the programs. In this manner, the plans are not functional equivalents of the Order. For these reasons, the Copermittees' urban runoff management plans need not be an enforceable part of the Order.

M. Attachment A – Basin Plan Prohibitions

The following legal authority applies to Attachment A:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

No significant changes were made to this attachment.

N. Attachment B – Standard Provisions

The following legal authority applies to Attachment B:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Standard provisions, reporting requirements, and notifications are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41.

Attachment B includes Standard Provisions which have been developed by the State Board. These Standard Provisions ensure that NPDES permits are consistent and compatible with USEPA’s federal regulations. Some Standard Provisions sections specific to publicly owned sewage treatment works are not included in Attachment B.

O. Attachment C – Definitions

The following legal authority applies to Attachment C:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Attachment C contains definitions for terms found in the Order. In addition, definitions for terms previously defined in Order No. R9-2002-01 Attachment D, but which are not found in the current Order, have been deleted.

P. Attachment D – Summary of Submittals

The following legal authority applies to Attachment D:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Attachment D to the Order provides a table summary of scheduled submittals required by the Order. Unscheduled submittals are no longer added to the table, since there is no proper due date for such submittals. A task summary has not been created for the Order, since the previous task summary was found to be redundant, repeating information found in the submittal summary and elsewhere in the Order.

Q. Attachment E - Receiving Waters and Urban Runoff Monitoring and Reporting Program

The following legal authority applies to the Receiving Waters and Urban Runoff Monitoring and Reporting Program:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Copermittees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii).

Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

1. Purpose

According to USEPA, the benefits of sampling data include, but are not limited to:

1. Providing a means for evaluating the environmental risk of storm water discharges by identifying types and amounts of pollutants present;
2. Determining the relative potential for storm water discharges to contribute to water quality impacts or water quality standard violations;
3. Identifying potential sources of pollutants; and

4. Eliminating or controlling identified sources more specifically through permit conditions.²³⁷

Equally important, monitoring programs are an essential link in the improvement of urban runoff management efforts. Data collected from monitoring programs can be assessed to determine the effectiveness of management programs and practices, which is vital for the success of the iterative approach used to meet the MEP standard. Specifically, when data indicates that a particular BMP or program component is not effective, improved efforts can be selected and implemented. Also, when water quality data indicate that water quality standards or objectives are being exceeded, particular pollutants, sources, and drainage areas can be identified and targeted for specific urban runoff management efforts.

Considering the benefits described above, the Receiving Waters Monitoring and Reporting Program (MRP) has been designed to determine impacts to receiving water quality and beneficial uses from urban runoff and to use the results to refine the Copermittees' urban runoff management programs for the reduction of pollutant loadings to the MEP. The primary goals of the MRP include:

1. Assess compliance with Order No. R9-~~2007-0002~~2008-0001;
2. Measure and improve the effectiveness of the Copermittees' urban runoff management programs;
3. Assess the chemical, physical, and biological impacts of receiving waters from urban runoff;
4. Characterize urban runoff discharges;
5. Identify sources of specific pollutants;
6. Prioritize drainage and sub-drainage areas that need management actions;
7. Detect and eliminate illicit discharges and illicit connections to the MS4; and
8. Assess the overall health of receiving waters.

Each of the components of the MRP is necessary to meet the objectives listed above. In addition, the MRP has been designed in accordance with the guidance provided by the Southern California Stormwater Monitoring Coalition's Model Monitoring Technical Committee in its August 2004 "Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California." This guidance document was developed in response to Senate Bill 72 (Kuehl), which addressed the standardization of sampling and analysis protocols in municipal stormwater monitoring programs. The technical committee which developed the guidance included representatives from Southern California Regional Water Quality Control Boards (including San Diego), municipal storm water Permittees (including the County of Orange), Heal the Bay, and the Southern California Coastal Water Research Project.

²³⁷ USEPA, 1992. NPDES Storm Water Sampling Guidance Document. EPA/833-B-92-001.

As its title suggests, the guidance essentially developed a model municipal storm water monitoring program for use in Southern California. The model program is structured around five fundamental management questions, outlined below. The MRP is designed as an iterative step towards ensuring that the Copermittees' monitoring program can fully answer each of the five management questions.

1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
2. What is the extent and magnitude of the current or potential receiving water problems?
3. What is the relative urban runoff contribution to the receiving water problem(s)?
4. What are the sources of urban runoff that contribute to receiving water problem(s)?
5. Are conditions in receiving waters getting better or worse?

The justifications for each component of the monitoring program are discussed below.

2. Monitoring Program

Attachment E is also discussed in RTC 1 (Section X.1) in comment number 57.

Mass Loading Station Monitoring

The intent of current mass loading monitoring as conducted by the Copermittees is to use water chemistry data from three storm events to calculate pollutant loads and to assess water quality with respect to applicable acute and chronic toxicity criteria from the California Toxics Rule (CTR).²³⁸

Section II.A.1 of the MRP requires mass loading and toxicity monitoring at monitoring stations located at the bottom of major watersheds within Orange County. The mass loading monitoring will provide data representing event mean concentrations of pollutants, total pollutant loadings, and toxicity conditions from specific drainage areas. Mass loading monitoring stations are recommended by the Model Monitoring Technical Committee in order to answer management questions 1, 2, and 5.²³⁹ The stations are also expected to contribute towards meeting MRP goals 1, 2, 3, 4, 6, and 8. The locations of the mass loading monitoring stations are not changed from Order No. R9-2002-01. However, the frequency of monitoring has been changed, and some revisions to the constituents have been made.

²³⁸ Orange County Storm Water Permittees. 2006. Report of Waste Discharge, section C-11.3.2.

²³⁹ Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. Chapter 5.

The frequency of mass loading monitoring in Order No. ~~2007-0002~~2008-0001 has been modified to include two wet and two dry weather events. Currently three wet events have been targeted (though usually two or less have been sampled). This modification is not expected to affect long-term trend analyses for storm events since the monitoring to date has been sporadic.²⁴⁰ Dry weather monitoring is necessary because dry-weather flows in these watersheds are now perennial and may be significant contributors to chronic pollution. The addition of dry weather monitoring provides a more comprehensive temporal view of the watershed, which will improve the Copermittees' ability to understand the dynamics of annual pollutant loading.

In addition, the required constituents include some revisions to Order No. R9-2002-01. The changes are made to be compatible with the federal NPDES regulations and in response to data collected during the current permit term. The changes include:

1. All events must now include Biological Oxygen Demand, 5-day Chemical Oxygen Demand, Total Organic Carbon, Dissolved Organic Carbon. These are specifically identified in 40 CFR 122.26(d)(2)(iii)(B), but were omitted from Order No. R9-2002-01.
2. Carbamate and Pyrethroid pesticides must initially be monitored in Prima Deshecha and Segunda Deshecha watersheds. If carbamate and/or pyrethroid pesticides are found to correlate with observed acute or chronic toxicity, then sampling and analysis for that pesticide must be added to all stations displaying toxicity. The Copermittees suggest adding these pesticides to Prima and Segunda Deshecha watersheds in an attempt to find a cause for observed persistent toxicity at those stations.²⁴¹ If these pesticides are found in these watersheds, then they will likely be present in the other urban watersheds of the Region.
3. Impaired water body pollutants. Specific pollutants have been added in response to the U.S. Environmental Protection Agency approval of California's 2004-2006 Section 303(d) Water Quality Limited Waters List. Monitoring for these pollutants is specific to the watershed in which the impairment is located.
4. Dimethoate monitoring has been eliminated because data collected to date has not observed any significant levels at the mass emissions stations.

[Attachment E, Section II.A.1 is also discussed in RTC 1 \(Section X.1\) in comment numbers 59 and 60.](#)

²⁴⁰ Mass loading monitoring has been hampered by technical difficulties. For instance, only four of six stations were operational during the 2004-05 season, and only three stations were operational during 2002-04 season.

²⁴¹ Orange County Storm Water Permittees. 2006. Report of Waste Discharge, section C-11.4.1.

Bioassessment

Section II.A.2 of the MRP requires the Copermitttees to conduct bioassessment monitoring. Bioassessment monitoring is a cost-effective tool that measures the effects of water quality over time.²⁴² It is an important indicator of stream health and impacts from urban runoff. It can detect impacts that chemical and toxicity monitoring cannot. USEPA encourages permitting authorities to consider requiring biological monitoring methods to fully characterize the nature and extent of impacts from urban runoff.²⁴³ Therefore, the Regional Board commonly requires bioassessment monitoring in MS4 and other types of discharge permits.

Bioassessment is the direct measurement of the biological condition, physical condition, and attainment of beneficial uses of receiving waters (typically using benthic macroinvertebrates, periphyton, and fish). Bioassessment monitoring integrates the effects of both water chemistry and physical habitat impacts (e.g., sedimentation or erosion) of various discharges on the biological community native to the receiving waters. Moreover, bioassessment is a direct measurement of the impact of cumulative, sub-lethal doses of pollutants that may be below reasonable water chemistry detection limits, but that still have biological affects.

Because bioassessment focuses on communities of living organisms as integrators of cumulative impacts resulting from water quality or habitat degradation, it defines the ecological risks resulting from urban runoff. Bioassessment not only identifies that an impact has occurred, but also measures the effect of the impact and tracks recovery when control or restoration measures have been taken. These features make bioassessment a powerful tool to assess compliance, evaluate the effectiveness of BMPs, and to track both short and long-term trends (MRP goals 1,2,3, and 8). Bioassessment can also help answer management questions 1, 2, and 5.

The Order also identifies the most current established protocol to be used in identifying bioassessment reference stations. The protocol referenced in the Order is specified because it provides a qualitative and repeatable method for identifying reference sites. Moreover, the protocol is well established, since it has been peer reviewed and published.

The Order includes ~~two~~four modifications to the bioassessment monitoring required under Order 2002-01. These changes include:

²⁴² California Department of Fish and Game, 2002. California Regional Water Quality Control Board, San Diego Region 2002 Biological Assessment Report: Results of May 2001 Reference Site Study and Preliminary Index of Biotic Integrity.

²⁴³ USEPA, 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. EPA 841-B-99-002. P. 2-5.

1. Bioassessment monitoring must utilize the targeted riffle composite approach, which is consistent with the State Board's Surface Water Ambient Monitoring Program (SWAMP) Quality Assurance Management Plan (QAMP), as amended. Through SWAMP, various bioassessment methods were evaluated and it was found that the targeted riffle composite approach was a particularly efficient method, providing accurate data in a cost efficient manner.
2. Bioassessment monitoring to include assessment of periphyton (algae). Advantages of bioassessment using periphyton include: (1) they have rapid reproduction rates and very short life cycles, making them valuable indicators of short-term impacts; (2) as primary producers, they are most directly affected by physical and chemical factors; (3) sampling is easy and inexpensive; and (4) algal assemblages are sensitive to some pollutants which may not visibly affect other aquatic assemblages.²⁴⁴
3. One of the two required annual monitoring events may be eliminated so that Copermittees can conduct special studies on the effect of physical habitat modifications. This modification is consistent with the adaptive monitoring approach outlined by the Storm Water Monitoring Coalition,²⁴⁵ and is consistent with the bioassessment procedures for southern California.²⁴⁶ The Copermittees suggest this approach in response to analyses that indicate that the physical habitat conditions are better correlated than aquatic chemistry data with IBI scores.²⁴⁷ The Copermittees analyses indicate that although biological communities are different in the Fall and Spring, both seasonal communities indicate the same common relationships to spatial biological patterns and potential variables that explain the differences. For instance, downstream urbanized locations display lower IBI scores than reference sites regardless of the season, even if the biological community at a downstream site differs between the Fall and Spring. Because the Copermittees have not proposed exact studies or experiments in place of a sampling event, the Order contains a requirement that the Executive Officer must approve the alternative sampling plan.

²⁴⁴ USEPA, 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. EPA 841-B-99-002. P. 3-3.

²⁴⁵ Stormwater Monitoring Coalition 2004. "Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California: A report from the Stormwater Monitoring Coalition's Model Monitoring Technical Committee." Southern California Coastal Water Research Program, Technical Report No. 419.

²⁴⁶ Ode, et al. 2005. "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams." Environmental Management. Vol. 35, No. 1, pp. 1-13.

²⁴⁷ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), section 11 and 2005-06 Annual Report section 11.3

4. The number of bioassessment stations has been reduced from 12 to six. This will allow resources to be available to implement the Stormwater Monitoring Coalition's program for Regional Monitoring of Southern California's Coastal Watersheds (Section II.C.5). The Regional Monitoring program calls for six sites to be sampled each year and includes each of the basic elements within the Copermittees' bioassessment monitoring program. Although the amount of toxicity tests are reduced, wetland status analyses will also be analyzed. The Regional Monitoring program is discussed in Section II.C.5 below.

Follow-up Analyses and Actions

Section II.A.3 of the MRP requires the Copermittees to use the results of the chemistry, toxicity, and bioassessment monitoring to determine if impacts from urban runoff are occurring and when follow-up actions are necessary. The triad approach allows a wide range of measurements to be combined to more efficiently identify pollutants, their sources, and appropriate follow-up actions. Results from the three types of monitoring shall be assessed to evaluate the extent and causes of pollution in receiving waters and to prioritize management actions to eliminate or reduce the sources. The framework provided is to be used to determine conclusions from the data and appropriate follow-up actions. The framework is proposed by the Copermittees and derived from the Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California.²⁴⁸ These follow-up actions are expected to primarily help answer management questions 2 and 4, as well as address MRP goals 2, 4, 5, 6 and 7.

When, based on the framework in Table 2 of the M&R Program, data indicates the presence of toxic pollutants in runoff, the Copermittees are required to conduct a Toxicity Identification Evaluation (TIE). A TIE is a set of procedures used to identify the specific chemical(s) responsible for toxicity to aquatic organisms. When discharges are toxic to a test organism, a TIE must be conducted to confirm potential constituents of concern and rule out others, therefore allowing Copermittees to determine and prioritize appropriate management actions. If a sample is toxic to more than one species, it is necessary to determine the toxicant(s) affecting each species. If the type and source of pollutants can be identified based on the data alone and an analysis of potential sources in the drainage area, a TIE is not necessary.

When a TIE identifies a pollutant associated with urban runoff as a cause of toxicity, it is then necessary to conduct follow-up actions to identify the causative agents of toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. Follow-up actions should analyze all potential source(s) causing toxicity, potential BMPs to eliminate or reduce the pollutants causing toxicity, and suggested monitoring to demonstrate that toxicity has been removed.

²⁴⁸ Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. P. 5-61.

Ambient Coastal Receiving Waters Monitoring

The Copermittees have been implementing a phased Ambient Coastal Monitoring Program that initially involved monitoring chemistry and aquatic toxicity of dry and storm water discharges to ecologically sensitive areas along the coastline. Later, aerial photographs of storm water plumes were taken to estimate the spatial extent of the impact of urban runoff. The results were used to identify storm drains for source and toxicity identification studies, including sampling of storm water plumes.

Section II.A.4 of the MRP allows the Copermittees to continue the existing program, while requiring that the special studies be consistent with the MRP goals and that stations be located within Areas of Special Biological Significance.

Coastal Storm Drain Monitoring

Section II.A.5 of the MRP includes some modifications to the Copermittees' coastal storm drain monitoring program as it was conducted under Order No. R9-2002-01. Coastal storm drain monitoring is critical because one of the primary impacts to coastal receiving waters is the loss of recreational beneficial uses resulting from high levels of bacteria in urban runoff. The coastal storm drain monitoring program is expected to help answer management questions 1, 2, 3, 4 and 5, as well as address MRP goals 1, 2, 3, 4, 5, 6, 7, and 8.

The changes to the coastal storm drain monitoring program have been made in response to proposals outlined in the Copermittees' ROWD²⁴⁹ and in response to the increasing trend of diverting some urban runoff flows to the sanitary sewer infrastructure. The Copermittees recommend reducing the monitoring effort at storm drains that rarely have elevated levels of bacteria and putting more effort toward intensive investigations of problematic storm drains.²⁵⁰ An adaptive approach is consistent with the Model Monitoring Technical Committee's recommendations. The MRP allows the Copermittees to modify the coastal outfall program, with a few restrictions:

1. Special studies are required at certain outfalls. These drains were identified by the Copermittees as ones that warrant special investigations based on persistently high elevations of bacterial indicators and a relationship between bacteria levels in the outfalls and receiving waters. Notably, the stations identified by the Copermittees are generally where inland surface waters reach the ocean, rather than isolated buried coastal storm drains.

²⁴⁹ Orange County Storm Water Program. 2006. Report of Waste Discharge, section 11.

²⁵⁰ Ibid

2. Baseline monitoring must be continued at select drains. Although the data supports eliminating some drains from the monitoring effort, these five drains are included by the Regional Board because data from the Copermitees suggest they commonly display elevated bacterial levels.²⁵¹
3. Storm water monitoring must be conducted at some dry-weather diversion points. Sampling of storm water discharges from a subset of coastal storm drains whose flows are diverted to the sanitary sewer during dry weather will provide a clearer picture regarding the utility of dry-weather diversions. The Regional Board is concerned that the presence of a dry-weather diversion may reduce the incentive for storm water BMPs to be implemented and rigorously enforced by municipalities. This monitoring will provide an indication of the effectiveness of storm water BMPs in these watersheds and may provide additional insight regarding the need for special studies.

Attachment E, Section II.A.5 is also discussed in RTC 1 (Section X.1) in comment number 58.

High Priority Inland Aquatic Habitats

Section II.A.6 of the MRP is a new requirement. It requires the development of a new monitoring program component, although storm drains and receiving waters currently monitored under other components of the MRP may also be used to satisfy this requirement.

The purpose is to assess the contribution of MS4 discharges to factors affecting environmentally-sensitive inland surface waters. The existing monitoring program does not adequately address whether MS4 discharges are affecting environmentally-sensitive inland surface waters. This requirement is consistent with the guidance of the Model Monitoring Technical Committee because it focuses attention on specific beneficial uses that are considered a high priority.

Threatened and endangered species are particularly susceptible to negative effects of MS4 discharges because the habitat available to them is restricted. Therefore, short-term or chronic degradation of habitat caused by MS4 discharges results in a proportionally high level of negative impact.

²⁵¹ Orange County Storm Water Program. 2005-06 Annual Report, tables C-11a-d.

Information regarding the extent of environmentally-sensitive habitats is available from sources familiar to the Copermittees. Examples include the Aliso Creek and San Juan Creek watershed assessments conducted by the U.S. Army Corps of Engineers (Corps). In addition, the County participated in the development of master planning level efforts with the California Department of Fish and Game, the Corps, and the U.S. Fish and Wildlife Service for the long-term protection of upland and aquatic species in the San Juan watershed.²⁵² Together these documents represent the majority of the Copermittees' drainage areas. Therefore, a relatively small level of effort will be required to collect information for the relatively small area of the region not covered by these documents. In addition, the Copermittees already have updated inventories of inland MS4 outfall locations. As a result, a monitoring plan can be developed within 12 months to address the new requirement.

MS4 Outfall Monitoring

Section II.B of the MRP requires the Copermittees to develop and implement a program to monitor and characterize pollutant discharges from MS4 outfalls. Such monitoring is critical, since it provides for prioritization of areas for increased management efforts. It also provides the Copermittees the ability to better assess and improve their jurisdictional programs and BMPs. The MRP includes some changes to the existing outfall monitoring program conducted by the Copermittees.

Currently Copermittees have selected a combination of random and targeted storm drains to monitor during dry weather. Randomly selected sites are visited three times per summer in order to estimate general background concentrations of pollutants in the MS4. Statistical evaluations were conducted on these random sites to develop action levels for conducting management response actions at all dry-weather sites. Additional sites were intentionally selected based on professional judgment by the Copermittees that the drainage areas may be sources of pollution. Targeted sites are monitored five times each summer.

The Copermittees report that dry weather monitoring of outfalls has been used to identify storm drains that are discharging pollutants in concentrations that may pose a threat to receiving waters. Source investigations have been conducted as a response to the data. The Copermittees report that in many instances the parties responsible for illicit discharges have been detected quickly.²⁵³ The Copermittees have not proposed any changes for this program. With changes made to the data evaluation procedures in the last two years, this program is providing the Copermittees the ability to identify and respond to potential problems in dry-weather runoff.

The MRP does include some changes to the existing outfall monitoring program requirements. These changes include:

²⁵² San Juan Creek and Western San Mateo Watershed Special Area Management Plan, November 2005. U.S. Army Corps of Engineers, Los Angeles District.

²⁵³ Orange County Storm Water Program. 2006. Report of Waste Discharge, sections 10.3.1 and 11.2.2

1. Wet-weather monitoring. Currently the Copermittees do not monitor the discharge of storm water from the MS4 outfalls. As a result, a substantial amount of information regarding the quality of MS4 effluent is unknown. To date the focus of the dry-weather monitoring program has been on dry-weather detection of illicit discharges. The collection of wet-weather data will enable the Copermittees to assess the effectiveness of existing storm water BMP measures. This data can be used to more effectively target storm water management program efforts.
2. Nickel is added as a dry-weather requirement. Order No. R9-2002-01 did not contain nickel as a required constituent in dry-weather outfall monitoring. The Copermittees have been assessing nickel in the outfall monitoring program. A few stations have exhibited elevations of nickel that exceed CTR criteria.
3. Phenol has been eliminated from the dry-weather monitoring requirements. Phenol has not been detected at significantly high levels.

The requirements for wet-weather monitoring is a significant change in protocol, but may not result in a significant change in monitoring effort. The MRP provides the Copermittees great flexibility in assigning stations for wet-weather monitoring. It is expected that stations exhibiting elevated levels of pollutants in dry weather would be likely candidates for the wet weather monitoring. Further, it is conceivable that the inclusion of wet weather monitoring would result in a decrease in the current effort of dry weather monitoring. The MRP provides the Copermittees ample time to conduct the evaluations necessary to modify the program.

[Attachment E, Section II.B.1 is also discussed in RTC 1 \(Section X.1\) in comment numbers 61.](#)

Section II.B.2 requires the Copermittees to develop and implement a program to identify sources of discharges of pollutants causing the high priority water quality problems within each watershed. This requirement should be easily met because of the foundation already developed by the Copermittees in response to Order No. R9-2002-01. To some extent, the Copermittees do conduct follow-up monitoring in response to dry-weather outfall data. The ROWD and 2007 DAMP describe some guidance that is provided by the County to the Copermittees, but there does not seem to be any consistency to the followup monitoring programs. The ROWD does recommend that additional training be provided for the municipalities with respect to interpreting and using the data collected by the County. In addition, many of the Copermittees have developed procedures and experience in conducting follow-up investigations in response to the bacteria investigations in the Aliso Creek watershed.²⁵⁴

²⁵⁴ Copermittees in the Aliso Creek watershed include the County of Orange and the Cities of Aliso Viejo, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, and Mission Viejo.

Identification of sources causing high priority water quality problems is a central purpose of urban runoff management programs. Monitoring which enables the Copermittees to identify sources of water quality problems aids the Copermittees in focusing their management efforts and improving their programs. In turn, the Copermittees' programs can abate identified sources, which will improve the quality of urban runoff discharges and receiving waters. This monitoring is needed to address management question 4 (What are the sources to urban runoff that contribute to receiving water problems?). Source identification monitoring is a key component of the Model Monitoring Program, which states "once it has been determined [...] that urban runoff is, or is likely to be, a significant source of one or more receiving water problems, then more intensive source identification efforts are called for."²⁵⁵ Moreover, in its review of the San Diego County Copermittees' monitoring proposal, Tetra Tech, Inc. finds that "after some years of assessment monitoring, it is time to look more systematically at determining the relative urban contributions and the sources of urban runoff that contribute to identified receiving water problems."²⁵⁶

Other Special Studies

Section II.C of the MRP describes additional studies to be conducted by the Copermittees.

The MRP absorbs the bacteria monitoring and reporting program currently in place in the Aliso Creek watershed.²⁵⁷ This monitoring effort has been required by the Regional Board pursuant to authorities provided under California Water Code sections 13225 and 13267. The monitoring and reporting is focused solely on the MS4s in the Aliso Creek watershed and has effectively been integrated already into the Copermittees' programs. Inclusion of it into the MRP is done for organizational purposes and will have no other net effect.

²⁵⁵ Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. P. 4-17.

²⁵⁶ Tetra Tech Inc., 2006. Review of San Diego County MS4 Monitoring Program.

²⁵⁷ On October 12, 2005, the Regional Board accepted the revised Aliso Creek watershed bacteria monitoring plan proposal from the MS4 Permittees. The Regional Board concluded that the scope of the current bacteria monitoring in the watershed was no longer warranted and that the proposed changes would constitute an effective interim program until adoption of a Total Maximum Daily Load, requiring a bacteria reduction and assessment program for the watershed. In addition, the Regional Board recognized that as a result of reduced monitoring costs, the municipalities expect to direct additional resources toward implementation of management practices to reduce indicator bacteria and pathogens.

The MRP allows the Copermitees to participate in Bight '08 and be relieved of certain monitoring program requirements for that year. This trade-off will provide the Copermitees and Regional Board with insight on the impact of urban runoff on a regional level in the Southern California Bight. Participation in Bight '08 was recommended by the Copermitees in their ROWD.²⁵⁸ Since participation in Bight '08 is optional for the Copermitees, this section outlines the monitoring which must be conducted if the Copermitees do not participate in the study.

Section II.C.4 includes requirements for monitoring associated with facilities that extract, treat, and discharge (FETDs) waters of the U.S. The requirements are necessary to characterize their effectiveness, and ensure that facilities do not add or concentrate pollutants, create conditions of erosion, or unreasonably affect receiving waters. Constituents to be monitored may vary depending on the local water quality conditions. For instance, metals only need to be monitored if they are a concern in the source or receiving waters. Similarly, toxicity must be evaluated only after metals or pesticides are found to be present in toxic concentrations.

Section II.C.4 is also discussed in RTC 2 (Section X.2) in comment number 14.

Section II.C.5 includes a requirement to participate in the program for Regional Monitoring of Southern California's Coastal Watersheds developed by the Stormwater Monitoring Coalition. That program calls for the sampling of six locations within the Permit area each year. All sampling will be SWAMP comparable. Sampling includes water chemistry, aquatic toxicity (*Ceriodaphnia dubia*), physical habitat, benthic macroinvertebrates, wetland status (based on California Rapid Assessment Method protocols), and periphyton.

Monitoring Provisions

Section II.D of the MRP includes monitoring provisions which are standard requirements for all municipal storm water permits.

2. Reporting Program

Section III of the MRP discusses submittal of the Jurisdictional Urban Runoff Management Program Annual Reports and the Receiving Waters Monitoring Annual Reports. In effect, a description of the monitoring program will be submitted with the Jurisdictional URMPs, and the monitoring data and assessment will be submitted six months later. The MRP continues the reporting approach utilized under the requirements of Order No. R9-2002-01, where Lead Permittees for each watershed submit their annual reports to the Principal Permittee to be unified into one document.

²⁵⁸ Orange County Storm Water Copermitees. 2006. Report of Waste Discharge (San Diego Region).

The section moves forward the due date for these annual reports from mid-November to September 30. This requires jurisdictional annual reports to be submitted closer to the end of the reporting period they address, which will result in earlier review by the Regional Board and the Copermittees. Submittal will also be staggered with submittal of the watershed annual reports, spreading out Regional Board review of annual reports. Earlier review is useful because Regional Board comments and the Copermittees' own assessment be responded to by the Copermittees in a more timely fashion. In this manner, Copermittee programs can be modified and benefit from the jurisdictional annual report review, comment, response process at an earlier date, leading to more effective program over the long-term.

The reporting requirements for the Aliso Creek watershed are also specified in this section. These reporting requirements are identical to the current reporting required by the Regional Board for the bacteria investigation. They are specified in this section because the requirements are more specific than reporting required for other watershed URMPs.

X. RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2008-0001

Section X.1

The Regional Board released Tentative Order No. R9-2008-0001 on February 9, 2007 and accepted written comments through April 25, 2007. Responses to comments received are provided in the Response to Comments document attached as Section X.1 to this Fact Sheet.

Section X.2

A Revised Tentative Order No. R9-2008-0001 was distributed on July 6, 2007. Responses to comments received on the revisions are provided in the Response to Comments document attached as Section X.2 to this Fact Sheet.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD,
SAN DIEGO REGION

Response to Comments

Section X of the Fact Sheet / Technical Report for

Tentative Order No. R9-2007-0002

July 6, 2007

I. Introduction	1
II. Responses to Comments	3
A. General Comments	3
B. Comments on Findings	26
C. Comments on Specific Sections.....	36
SECTION A – Prohibitions and Receiving Water Limitations.....	36
SECTION D.1 – Development Planning.....	37
SECTION D.2 - Construction	54
SECTION D.3 – Existing Development.....	57
SECTION D.4 – Illicit Discharge Detection and Elimination	62
SECTION E – Watershed Urban Runoff Management	65
SECTION F – Fiscal Analysis	67
SECTION G – Program Effectiveness Assessment.....	70
ATTACHMENT E – Monitoring Program.....	71

I. Introduction

Tentative Order No. R9-2007-0002, for discharges from municipal storm drains in southern Orange County, was distributed for review on February 9, 2007. A public hearing was held on April 11, 2007 in the City of Mission Viejo, and the California Regional Water Quality Control Board, San Diego Region (Regional Board), accepted written comments on the Tentative Order until April 25, 2007. Oral comments from interested persons were also received during the public hearing. At the public hearing, a panel representing the Regional Board also provided comments and direction to the Executive Officer regarding the Tentative Order. Responses to written comments and Regional Board direction are provided herein. Adoption of the revised permit is tentatively scheduled to be considered during the Regional Board’s regularly scheduled meeting on September 12, 2007. Public testimony on revisions to the Tentative Order is likely to be allowed by the Regional Board.

Over three hundred written comments were provided by the April 25, 2007 deadline by 23 commenters from members of the public and representatives of the MS4 Copermittees, governmental and non-governmental organizations. In addition, several Copermittees provided letters of support for the comments submitted by the County of Orange. Therefore, the comments of several Copermittees are represented where the County of Orange is listed as a commenter for a particular issue. A list of commenters is provided in Table 1.

In this document, the comments have been summarized and paraphrased. Many of the comments received were similar to other comments received. These comments have been grouped in order to minimize redundancy.

The overall organization of this document follows generally the organization of Tentative Order No. R9-2007-0002. Responses to “General Comments” are presented first, followed by responses to “Comments on Findings”. The remainder of the document contains responses to “Comments on Specific Sections,” presented in the same sequence as the sections in the Tentative Order. To the extent that a revision to the permit language is proposed as a result of a particular comment, that fact is noted in the response to that comment.

Table 1
Organizations providing written comments on Tentative Order
No. R9-2007-0002

Building Industry Association of Orange County (BIAOC)	Construction Industry Coalition on Water Quality (CICWQ)
Capistrano Bay Community Services District (CBCSD)	Contech Stormwater Solutions, Inc.
City of Aliso Viejo	County of Orange
City of Dana Point	Nancy Palmer, City of Laguna Niguel
City of Laguna Beach	National Association of Industrial and Office Properties (NAIOP)
City of Laguna Hills	Natural Resources Defense Council (NRDC)
City of Laguna Niguel	Orange County Coastkeeper
City of Laguna Woods	Orange County Council of Governments (OCCOG)
City of Lake Forest	Orange County Vector Control District
City of Mission Viejo	Rancho Mission Viejo
City of San Clemente	South Laguna Civic Association
City of San Juan Capistrano	

II. Responses to Comments

A. General Comments

1. Flexibility, Prescriptive Requirements, and the Role of the Drainage Area Management Plan (DAMP)

Commenters: OCCOG, City of Mission Viejo, County of Orange, South Laguna Civic Association, City of Lake Forest, City of Laguna Niguel

Comment: Several commenters raised concerns about the role of the Drainage Area Management Plan (DAMP) in the reissuance process. Three commenters specifically cited that the Fact Sheet seemingly dismisses the DAMP as "procedural correspondence" which guides implementation, rather than serving as a substantive component of the Tentative Order. For instance, they felt that the DAMP, rather than the Permit, should include the detail and prioritization to achieve compliance with the Permit. Commenters generally expressed that the Tentative Order is too prescriptive to allow Copermittees to adaptively manage their programs. Where comments focused on specific requirements, they are addressed in the appropriate sections of this document.

Response: While the DAMP may play an important role in aiding the Copermittees in their development of effective local programs, its development is not required in the Tentative Order. It generally serves as a collection of model program components from which the Copermittees have chosen to base their own program components.

The DAMP and Report of Waste Discharge (ROWD) submitted to the Regional Board in August 2006 constitute the application for reissuance of the municipal storm water permit. The Regional Board is not obligated to accept the proposed program as the equivalent of the NPDES requirements. Instead, the Regional Board has the responsibility of requiring measures that are reasonable and necessary to protect water quality objectives in the Permit area. For example, many of the commitments proposed by the Copermittees in the ROWD can serve as guidance to the Copermittees. There are several proposed actions within the ROWD for which commensurate requirements are not included within the Tentative Order.¹

¹ In advance of the March 12, 2007 public workshop, the Regional Board distributed a table to interested parties titled "Commitments Made in the Orange County Storm Water Co-Permittees' Report of Waste Discharge (ROWD)" (March 7, 2007). This table identifies whether the ROWD commitments are included in Tentative Order No. R9-2007-0002 (version dated February 9, 2007). This table is available on the Regional Board website at http://www.waterboards.ca.gov/sandiego/programs/oc_stormwater.html.

Comment: Many comments addressed the issue of flexible or rigid requirements, and several felt it inappropriate to include rigid requirements if they were not proposed in the DAMP. Sometimes requirements within the same section were portrayed as too prescriptive by one commenter and too vague by another. Similarly, recommendations from commenters included adding both prescriptive and vague requirements. One commenter requested the Regional Board react to existing water quality problems by taking concurrent enforcement actions and instilling more detailed requirements to address those problems. Another commenter asserted incorrectly that the Permit is intended to provide maximum flexibility, and, therefore, prescriptive requirements were contrary to the very foundation of the Tentative Order.

Response: As described in the Fact Sheet, the Tentative Order attempts to strike an appropriate balance between setting enforceable criteria and providing Copermittees appropriate flexibility and discretion in how to meet requirements. For instance, the Tentative Order sets numeric criteria regarding commercial inspections, but relies on each Copermittee to select inspection targets based on its local knowledge. Importantly, this level of local knowledge has been attained by implementing the requirements of the existing third-term Permit and was not attained while implementing the relatively vague requirements of the first two permits. The Regional Board recognizes the progress made during the current Permit cycle, but that does not abrogate the need to assess compliance with Permit requirements. Certain requirements must have sufficient specificity to allow uncomplicated determinations of compliance with the Tentative Order.

As a result, the DAMP was reviewed to assess the program changes suggested by the Copermittees for the Permit cycle under the Tentative Order. The DAMP itself does not describe commitments of each Copermittee to revise its jurisdictional program. As such, it would be inappropriate to interpret the DAMP as the equivalent of 12 jurisdictional programs. Instead, where the roadmap provided by the DAMP is appropriate, the related provisions have been included in the Tentative Order. On the other hand, where provisions were either too vague or did not represent an adequate response to current information, more specific requirements were added in the corresponding sections of the Tentative Order. Often, a section within the Permit consists of a mix of such requirements.

While the Copermittees may elect to incorporate elements of the DAMP into their local programs, certain requirements in the Tentative Order must be specific enough to ensure that the local programs will reduce discharges of pollutants from municipal separate storm sewer systems (MS4s) to the maximum extent practicable (MEP).

2. Regulating Discharges Into MS4s, Especially from Third Parties and Phase II Communities

Finding D.3.a, Finding D.3.b, Finding D.3.d, Finding D.3.e, Section A, and Section C

Commenters: Building Industry Association of Orange County,, Construction Industry Coalition on Water Quality, Orange County Council of Governments,, County of Orange, City of Dana Point, City of Aliso Viejo, City of Mission Viejo, City of Lake Forest

Comment: Seven commenters questioned the rationale behind requirements of the Tentative Order to require control of polluted runoff entering the MS4, especially from various third-party dischargers such as entities subject to National Pollutant Discharge Elimination System (NPDES) Phase II Municipal permitting. For instance, Finding D.3.b states that certain types of management measures are necessary to ensure that discharges of pollutants into and from the MS4 are reduced to the MEP. Likewise, Finding D.3.d states that Copermittees cannot receive and discharge pollutants from third parties without accepting responsibility for effects from those discharges. Related requirements are found throughout the Tentative Order (e.g., Section A, Section B, Section C, and Section D).

Also, of particular concern to several commenters was the discussion of Finding D.3.b in the Fact Sheet which cites U.S. Environmental Protection Agency (U.S. EPA) guidance for the types of legal authority necessary to control contributions of pollutants into the MS4.

Response: Since the Copermittees own and operate their MS4s, they cannot passively receive discharges from third parties (Federal Register 68766).

Having the legal authority to terminate a storm water discharge to the MS4 can be a powerful tool for the Copermittees to effectively control discharges and to compel implementation of best management practices (BMPs) from various entities. Commenters cite this discussion as requiring Copermittees to terminate or cut-off access by various third parties to their MS4, which could lead to unintended damage from flooding. The Fact Sheet, however, clearly explains that the development and implementation of a comprehensive BMP-based program is appropriate for controlling the contribution of pollutants into the MS4 system. Preventing or terminating access of pollutants to the MS4 is one of the BMPs that must be available to the Copermittees.

Comment: Some comments suggested that placing requirements on discharges into the MS4 is inconsistent with State Water Resources Control Board (State Water Board) direction in Order No. WQ-2001-15.²

² In the Matter of the Petitions of Building Industry Association of San Diego County and Western States Petroleum Association for Review of Waste Discharge Requirements Order No. R9-2001-01 for Urban Runoff from San Diego County [NPDES No. CA50108758] Issued by the California Water Quality Control Board, San Diego Region SWRCB/OCCFILESA-1362,A-1362(a).

Response: In that Order, the State Water Board established the Receiving Waters Limitations language used in both the current Orange County MS4 permit and the Tentative Order. The State Water Board concluded that the specific prohibition language being challenged in Regional Board Order No. R9-2001-01 too broadly restricted all discharges into an MS4 and did not allow flexibility to use regional solutions in a manner that could fully protect receiving waters.

Importantly, the State Water Board further emphasized that dischargers contributing into MS4s would continue to be required to implement a “full range of BMPs, including source control.” The State Water Board clearly recognized the responsibility of the Copermitees to implement measures to reduce the discharge of pollutants into the MS4. As a result, the State Water Board modified the Receiving Water Limitation language, and that revised language is included in Section A of the Tentative Order.

Finding D.3.b and Finding D.3.e, however, have been revised to reflect State Water Board direction for discharges of pollutants from, as opposed to into, the MS4 to be reduced to the MEP. This does not affect the requirements within the Tentative Order. The Copermitees must implement measures to reduce the discharge of pollutants into the MS4, including source and treatment controls. Instead, the revised Findings recognize that in certain cases a combination of source control measures and treatment measures within the MS4 system may be appropriate to reduce the discharge of pollutants to receiving waters from the MS4 to the MEP.

Comment: Other comments addressed the requirements to control discharges into the MS4 system from certain classes of entities, such as some State and Federal facilities, special districts, or those subject to Statewide NPDES permits and Phase II municipal NPDES permits.

Response: Federal regulations and guidance clearly establish a system of regulation by both the municipalities and the NPDES permitting authority (in this case the State) for industrial and construction sites that are subject to NPDES permits. This is clearly explained in the Fact Sheet discussion of Finding D.3.a. For instance, U.S. EPA discusses the “dual regulation” of construction sites in its Storm Water Phase II Compliance Assistance Guide (U.S. EPA, 2000. EPA 833-R-00-002.), which states “Even though all construction sites that disturb more than one acre are covered nationally by an NPDES storm water permit, the construction site runoff control minimum measure [...] is needed to induce more localized site regulation and enforcement efforts, and to enable operators [...] to more effectively control construction site discharges into their MS4s.”

Similarly, Copermittees must attempt to control discharges of pollutants into their MS4s from other entities because discharges of pollutants from MS4s must be reduced to the maximum extent practicable, including discharges from MS4s originating outside the Copermittees' jurisdiction. In such cases, the MEP standard can be met through implementation of coordination efforts and agreements with the third parties outside of the Copermittees' jurisdictions (see Section C.1.g). The Tentative Order does not require the Copermittees to apply building, zoning, or related land use controls on parties outside of the Copermittees' jurisdiction. However, where the Government Code provides the Copermittees with jurisdiction to apply treatment control BMPs to local agency projects, the Copermittees must require treatment control BMPs as required by section D.1.d. Since the municipality's storm water management service can result in pollutant discharges to receiving waters, the municipality must accept responsibility for the water quality consequences resulting from this service.

3. The Relationship between the MS4 and Waters of the U.S., including Rapanos v. United States

Finding D.3.c

Commenters: City of Mission Viejo, County of Orange

Comment: Commenters raised concerns about how the Tentative Order portrays the relationship between the MS4 and waters of the U.S. First, commenters are concerned that the Regional Board finds that urban streams can be both an MS4 and a receiving water (Finding D.3.c). Second, the commenters assert that the recent Supreme Court decision in Rapanos v. United States and Carabell v. United States [126 S.Ct. 2208 (2006)] excludes all intermittent and ephemeral streams from the definition of waters of the U.S. subject to NPDES regulation under the federal Clean Water Act (CWA), and, therefore, from regulation under state authority implementing the CWA.

The issue of where waters subject to federal jurisdiction begin and end in MS4s has exercised commenters concerns about the ability to manage urban runoff in a manner that will ensure that stormwater runoff in channels that serve as part of the MS4 meets applicable standards. In addition, Copermittees and the development community are concerned about the availability of locations suitable for the deployment of treatment BMPs (see the response to comments on Finding E.7 in this document).

Response: The *Rapanos* decision is not a bright line that relieves Copermittees of obligations to reduce pollutant discharges into the MS4 or into intermittent and ephemeral channels. Watercourses incorporated into the MS4 may be "navigable waters" or tributaries thereto, with beneficial uses and applicable water quality objectives that require protection.

Urban streams as MS4s.

Man-made conveyances and other drainage features can be waters of the U.S., even if they serve functions within the MS4. For example, a creek which has been converted into a (even highly) modified flood control channel is a water of the U.S. Conversely, man-made drainage features which exist in locations where waters of the U.S. did not previously exist are not necessarily waters of the U.S., but may be part of the MS4. However, because of the vast array of drainage conditions, situations may need to be assessed on a case by case basis. It is also important to recall that the CWA places requirements on both discharges into and from an MS4. For example, most non-storm water discharges are prohibited from entering into an MS4, while discharges of pollutants from an MS4 must be reduced to the maximum extent practicable.

Likewise, natural drainage patterns and urban streams are frequently used by municipalities to collect and convey urban runoff away from development within their jurisdiction. Therefore, the Regional Board considers natural drainages that are used for conveyances of urban runoff, regardless of whether or not they have been altered by the municipality, as both part of the MS4s and as receiving waters. As noted in the Fact Sheet, the Regional Board clarified its position in a document titled, "Response in Opposition to Petitions for Review of California Regional Water Quality Control Board San Diego Region Order No. 2001-01 – NPDES Permit No. CAS0108758 (San Diego Municipal Storm Water Permit)." Specifically, an unaltered natural drainage, which receives runoff from a point source (channeled by a Copermittee to drain an area within their jurisdiction), which then conveys the runoff to an altered natural drainage or a man-made MS4, is both an MS4 and a receiving water.

Therefore, urban streams are part of the Copermittees' MS4s where the Copermittees channel urban runoff to the urban stream. This approach has been supported by the State Water Board, which stated in Order WQ 2001-15, "We also agree with the Regional Water Board's concern, stated in its response, that there may be instances where MS4s use 'waters of the United States' as part of their sewer system [...]"³

The *Rapanos* decision further supports the conclusion that urban streams can be both receiving waters and MS4s by confirming that ephemeral and intermittent streams can be waters of the U.S. subject to regulation under CWA Section 404 and also be considered point sources of pollution discharges regulated under CWA Section 402.⁴

³ State Water Resources Control Board Order WQ 2001-15. In the Matter of the Petitions of Building Industry Association of San Diego County and Western States Petroleum Association for Review of Waste Discharge Requirements Order No. 2001-01 for Urban Runoff from San Diego County. SWRCB/OCC Files A-1362, A-1362(a).

⁴ See discussion in Section V of the Opinion of Justice Scalia and Section A (p.14) of the Concurring Opinion of Justice Kennedy. 547 U. S. ____ (2006)

Rapanos Supreme Court Decision.

With respect to the *Rapanos* case, comments were submitted shortly following the Supreme Court's decision for remand of the case to lower courts. Remand was for additional factual analysis of the nexus between the adjacent wetlands and navigable waters at issue in the cases before the Court. Subsequently, on June 5, 2007, the U.S.EPA and Army Corps of Engineers released a memorandum providing guidance on implementing the Supreme Court's decision in the consolidated cases.⁵

The comment echoes certain parties that had incorrectly interpreted the divided U.S. Supreme Court decision in *Rapanos* as narrowing the scope of federal jurisdiction under the CWA over water bodies that are not actually "navigable" under traditional interpretations of Congress' power to regulate interstate commerce. In fact, the ruling does not preclude the extension of federal jurisdiction to intermittent or ephemeral streams if there was a sufficient nexus between the disputed watercourse and navigable waters. Rather, as stated by Chief Justice Roberts, "no opinion commands a majority of the Court on precisely how to read Congress' limits on the reach of the Clean Water Act. Lower courts and regulated entities will now have to feel their way on a case-by-case basis." This resulted because Justice Kennedy joined the dissenting plurality opinion that intermittent flow can constitute a stream.⁶

Most importantly to the discussion of MS4 NPDES requirements, the Supreme Court ruling and subsequent federal agency guidance specifically pertains only to federal jurisdiction regarding the dredge and fill permitting requirements of CWA Section 404. U.S. EPA is considering whether to provide additional guidance regarding the NPDES permitting requirements of CWA Section 402. This is articulated in footnote no. 17 of the guidance memorandum:

"This guidance focuses only on those provisions of the agencies' regulations at issue in Rapanos -- 33 C.F.R. §§ 328.3(a)(1), (a)(5), and (a)(7); 40 C.F.R. §§ 230.3(s)(1), (s)(5), and (s)(7). This guidance does not address or affect other subparts of the agencies' regulations, or response authorities, relevant to the scope of jurisdiction under the CWA. In addition, because this guidance is issued by both the Corps and EPA, which jointly administer CWA § 404, it does not discuss other provisions of the CWA, including §§ 311 and 402, that differ in certain respects from § 404 but share the definition of "waters of the United States." Indeed, the plurality opinion in Rapanos noted that "... there is no reason to suppose that our construction today significantly affects the enforcement of §1342 ... The Act does not forbid the 'addition of any pollutant directly to navigable waters from any point source,' but rather the 'addition of

⁵ U.S. EPA and Department of the Army 2007. "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision In *Rapanos v. United States & Carabell v. United States.*"

⁶ See August 1, 2006 "Statement of Benjamin Grumbles, Assistant for Water, U.S. EPA and John Paul Woodley, Jr., Assistant Secretary of the Army for Civil Works, Department of the Army, Before the Subcommittee on Fisheries, Wildlife, and Water of the Committee on Environment and Public Works, United States Senate." Available on-line at: <http://www.epa.gov/water/speeches>.

any pollutant to navigable waters.” (emphasis in original) 126 S. Ct. 2208, 2227. EPA is considering whether to provide additional guidance on these and other provisions of the CWA that may be affected by the Rapanos decision.”

Justice Scalia’s plurality interpretation of “waters of the U.S.” cited by commenters does not affect federal jurisdiction to require NPDES permits under CWA section 402. In fact, Justice Scalia specifically addressed the federal government’s concern that the decision could complicate the NPDES program. Justice Scalia noted, however, that “the Act does not forbid the “addition of any pollutant directly to navigable waters from any point source,” but rather the “addition of any pollutant to navigable waters.” U.S.C. Section 1362(12)(A); Section 1311(a). Thus, he reiterates that “the discharge into intermittent channels of any pollutant that naturally washes downstream likely violates Section 1311(a), even if the pollutants discharged from a point source do not emit ‘directly into’ covered waters, but pass ‘through conveyances’ in between.”

With respect to CWA Section 404, the Corps must now establish a significant nexus on a case-by-case basis when considering to regulate discharges of fill to intermittent and ephemeral channels. The June 5, 2007 guidance notes that the assertion of jurisdiction over intermittent and ephemeral channels that have a significant nexus to traditional navigable waters is supported by a majority of the Justices.

Following direction from Justice Kennedy, the nexus required must be assessed in terms of the CWA goals and purposes, which is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," 33 U.S.C. Section 1251(a). Thus, the June 5, 2007 CWA Section 404 guidance instructs the federal agencies to consider hydrological and ecological factors when assessing whether a significant nexus exists between the channels and a traditional navigable water.

Additional insight into the consideration of Finding D.3.c regarding urban streams that are both an MS4 and receiving waters is provided in the June 5, 2007 guidance memorandum. In addition to the significant nexus instruction, the guidance notes that for the purposes of CWA Section 404, the agencies will assert jurisdiction over non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally. The guidance defines a non-navigable tributary (in Footnote 21) as “natural, man-altered, or man-made water bodies that carry flow directly or indirectly into a traditional navigable water. Furthermore, a tributary, for the purposes of this guidance, is the entire reach of the stream that is of the same order...”

As previously discussed, Justice Scalia's plurality opinion in *Rapanos* addressed NPDES regulations by stating that there is no reason to suppose that its decision significantly affects the enforcement of NPDES regulations. Specifically, the opinion noted that the decision does not affect previous lower court rulings that discharges into intermittent channels of any pollutant that naturally washes downstream likely violates NPDES requirements even if the pollutants discharged from a point source do not emit "directly into" covered waters, but pass "through conveyances" in between. Further, Justice Scalia's plurality opinion noted that the CWA "does not forbid the 'addition of any pollutant directly to navigable waters from any point source,' but rather the 'addition of any pollutant to navigable waters.'⁷

Thus, in light of the June 5, 2007 *Rapanos* guidance, the discharge of fill into streams that have been modified for the purposes of conveying storm water would be subject to regulation under Section 404. Rather than removing such streams from CWA regulation, as the commenters assert, the *Rapanos* Supreme Court decision and subsequent federal agency guidance confirm the Tentative Order's Finding D.3.c that urban streams can be both part of the MS4 and receiving waters.

4. Public Notice for Comments on the Tentative Order

Commenters: Building Industry Association of Orange County and Building Industry Legal Defense Fund

Comment: One comment suggested that the Regional Board did not provide adequate notice to comment on the Tentative Order. The comment claims that the Regional Board failed to properly identify the nature of the proceedings. Further, the comment suggests that the Regional Board did not allow stakeholders to access the evidence upon which the Tentative Order is based.

Response: The Regional Board has provided adequate notice of its proceedings to reissue the NPDES waste discharge requirements and has provided ample opportunities for affected Copermittes and other interested persons to review and comment on the tentative requirements.

On February 9, 2007 the Regional Board provide interested parties a notice that the Tentative Order was available for review, that a public workshop would be held on March 12, 2007, and that a hearing would be scheduled for April 11, 2007. This notice described the public comment period procedures and identified a Regional Board staff contact for further information. It also stated that further notice of the hearing would be provided to interested persons at least 45 days in advance of the hearing.

⁷ 547 U. S. ____ 126 S.Ct 2208 (2006) Opinion of Scalia, J. p.24

On February 22, 2007 the Regional Board provided interested parties and the general public a notice that a hearing would be held on April 11, 2007. This notice described the hearing purpose, public participation procedures, location, intent of the hearing, and stated that adoption would be considered a later date. This hearing notice was also placed in the local newspaper, the Orange County Register, the following week. On April 2, 2007 interested persons were notified that the item may be conducted as a panel hearing pursuant to Water Code Section 13228.14. This notice reiterated that the hearing would be conducted for the purpose of hearing, discussion, and deliberating public testimony, rather than consideration of adoption of the Tentative Order.

Regional Board adjudicative proceedings are subject to Chapter 4.5 of the California Administrative Procedure Act, including Article 6, Administrative Adjudication Bill of Rights, commencing with Section 11425.10. The Regional Board satisfies its obligations under Section 11425.10 by including the procedures used by the Regional Board in notices, including notices regarding public workshops and hearings for the development and issuance of waste discharge requirements, including the re-issuance of the NPDES requirements for MS4 in southern Orange County. Within public notices it is not necessary to prescribe in detail every step of the process that would be followed. In this case, hearing agenda notices clearly specified what matters would be considered by the Regional Board, when comments and documents must be submitted, that oral comments would also be accepted, and that the Regional Board would not be considering adoption at the April 11, 2007 hearing. Thus, the notices provided the applicable procedures, documented substantial flexibility to accommodate public participation, and promoted transparent Regional Board deliberation.

Attempts to characterize the proceedings in this case as an administrative rulemaking subject to Chapter 3.5 of the California Administrative Procedure Act (Government Code 11340, *et seq.*) reflect a fundamental misapprehension of the nature of the process. Section 402(p) of the CWA [33 U.S.C. 1342(p)] requires municipalities that own or operate MS4s to apply for and have permits regulating their discharges of urban runoff associated with stormwater under the NPDES program. Due to the geographic extent of MS4s, Section 402(p) and the implementing regulations promulgated by the U.S. EPA (40 C.F.R. 122.26) allow NPDES permits for MS4 discharges to be of regional extent. The process for issuance and reissuance of waste discharge requirements implementing the NPDES regulations for discharges subject to the CWA (such as MS4 discharges) has been conducted pursuant to the State Water Board regulations for adjudicative proceedings (California Code of Regulations, Title 23, Water, Division 3, State Water Resources Control Board, Chapter 1.5, Rules of Practice and Procedure, Article 2, Adjudicative Proceedings, commencing with Section 648). In fact, the public participation opportunities offered in the Regional Board's proceeding for the reissuance of the NPDES requirements for Orange County MS4 are substantially similar to those offered for the promulgation of administrative regulations despite differences in detail.

Finally, the documentation relied upon by the Regional Board in the development of the tentative NPDES requirements for Orange County MS4 are, and have been, readily available in published sources and in the files of the Regional Board related to the Orange County MS4 Copermittees and their stormwater management programs under prior iterations of the NPDES requirements for Orange County MS4 contained in Orders Nos. 90-38, 96-32, and 2002-01.

5. Using Federal Law as the Basis for Permit Requirements and Whether Requirements Constitute Unfunded Mandates

Finding E.6

Commenters: County of Orange, City of Mission Viejo, Building Industry Association of Orange County and Building Industry Legal Defense Fund, City of Lake Forest

Comment: Commenters assert that requirements within the Tentative Order exceed federal NPDES requirements and, therefore, are mandates imposed by the Regional Board based solely on its authority as a State agency. As such, commenters argue, because the Regional Board relied on its independent water quality control authority, it must comply with the California Environmental Quality Act (CEQA) and related statutory requirements of the Porter Cologne Water Quality Act (Sections 13263 and 13241) to undertake more economic analyses of the MS4 requirements. Further, that if the Regional Board imposes requirements that exceed federal regulations, then the requirements constitute unfunded mandates for which the municipalities may be reimbursed by the State. The commenters support this position by arguing that the Regional Board has improperly determined what constitutes the maximum extent practicable (MEP) standard.

These comments include related issues. Most importantly is whether the tentative requirements exceed NPDES requirements. Doing so could trigger additional CEQA-related analyses by the Regional Board. Related, but separate, is whether the requirements constitute an unfunded state mandate imposed on local governments.

Response: The requirements of the Tentative Order do not exceed federal law. The commenters misrepresent Finding E.6 when stating that the Finding acknowledges that certain requirements of the Tentative Order exceed federal law. Even if the MS4 requirements did qualify as an unfunded state mandate, this would not preclude the Regional Board from requiring municipalities to comply.

The plain language of Finding E.6 states that the Tentative Order contains requirements more explicit than the federal NPDES storm water regulations, for the purpose of achieving compliance with the CWA provision that MS4 permits “shall require controls to reduce the discharge of pollutants to the maximum extent practicable” (CWA section 402(p)(3)(B)(iii)). As such, the Tentative Order’s requirements are necessary to comply with federal law, rather than exceed it. Therefore, the Regional Board need not consider the factors listed in Water Code section 13241 in adopting the Tentative Order. (*City of Burbank v. State Water Resources Control Board* (2005) 35 Cal.4th 613.) This matter is further discussed in the Fact Sheet discussion for Finding E.6

The Regional Board is not precluded from issuing MS4 requirements that “go beyond” NPDES regulations, either, as in this case by providing more detail to implement performance standards in the CWA or NPDES regulations: NPDES regulations specify terms and conditions that must, at a minimum, be included in NPDES requirements; they do not limit states or U.S EPA from including other provisions that may be necessary to ensure that municipalities with MS4 reduce pollutants to the MEP.

No portion of the proposed MS4 requirements exceed the level of “governmental service” (*i.e.*, performance) necessary to reduce pollutants to the MEP as mandated by Section 402(p)(3)(B)(iii) of the CWA [33 U.S.C. Section 1342(p)(3)(B)(iii)]. While, technically, all NPDES requirements issued by the Regional Boards “fall under the legal authority of the state” because they are promulgated in waste discharge requirements issued pursuant to Sections 13260 and 13263 of the Water Code, requirements issued for discharges of pollutants from point sources to waters of the United States, including requirements for discharges of storm water in MS4s, implement the provisions of the federal CWA and the federal NPDES regulations, as contemplated by Chapter 5.5 of the Porter-Cologne Water Quality Control Act (Section 13370, *et seq.*). Therefore, nothing in the proposed order renewing NPDES requirements for discharges in Orange County MS4 exceeds the scope of regulation necessary to implement NPDES regulations for MS4.

The Tentative Order and its requirements do not constitute an unfunded state mandate. The contention that NPDES permits and their requirements are unfunded state mandates has been repeatedly heard and denied by the State Water Board. (See Order Nos. WQ 90-3 and WQ 91-08). Indeed, the unfunded state mandate argument was recently heard by the State Water Board when it considered the appeal of the Los Angeles Regional Board standard urban stormwater mitigation plan (SUSMP) requirements. The Los Angeles Regional Board SUSMP requirements are municipal storm water permit requirements for new development that are similar or identical to many of the requirements of the Tentative Order. The unfunded state mandate argument was summarily rejected by the State Water Board in that instance (Order WQ 2000-11).

Since that time, nothing has occurred that would change how unfunded state mandates are determined. While Proposition 1A elucidates the process for reimbursement when an unfunded state mandate occurs, it does not alter how unfunded state mandates are identified. As such, notice must be taken of the State Water Board's previous decisions that NPDES requirements do not constitute unfunded state mandates.

For instance, California Constitution, Article XIII B, Section 6 was not intended to address a permit, order, or requirements therein issued by a regulatory agency of state government imposing federal requirements upon parties prohibited from discharging waste into the waters of the State and the United States under both state and federal law. Indeed, the Legislature clarified that the unfunded mandate provision of the California Constitution does not apply to regional board orders. (Gov. Code section 17516). If the commenter's analysis was correct, every Permittee could file a "claim" for reimbursement to comply with any regulatory action, claiming that the regulatory action requires a "new program" or an "increased level of service." The Constitution addresses reimbursement for additional "services" mandated by the State upon local agencies, not regulatory requirements imposed upon all Permittees, including cities and counties. The intent of the constitutional section was not to require reimbursement for expenses incurred by local agencies complying with laws that apply to all state residents and entities. (See City of Sacramento v. State of California, 50 Cal. 3d. 51 (1990) citing County of Los Angeles v. State of California, 43 Cal. 3d. 46).

A central purpose of the principle of state subvention is to prevent the state from shifting the cost of government from itself to local agencies. (Hayes v. Commission on State Mandates, 11 Cal. App. 4th 1564, 1581 (1992)). In this instance, no such shifting of the cost of government has occurred. The responsibility and cost of complying with the CWA and Phase I NPDES municipal storm water regulations lies squarely with the local agencies which own and operate MS4s, not with the State. The State cannot shift responsibilities and costs to local agencies when the responsibilities and costs lie with the local agencies in the first place.

Second, even if the Tentative Order could be characterized as requiring a mandate for an increased level of governmental services, it is not an unfunded state mandate because it implements a federal program, rather than a state program. State subvention is not required when the federal government imposes the costs of a new program or a higher level of service. (Cal. Const. Art XIII B; Id).

Citing case law, the County of Orange (and those Copermittees who incorporated the County's comments by reference) attempts to assert that any use of discretion on the part of the Regional Board in implementing a federal program reflects "a matter of true choice," and is therefore a state mandate. This is a misrepresentation of the case law. In *Hayes v. Commission on State Mandates*, above, the Court only contemplates whether participation itself in a federal program is "a matter of true choice" in order to determine if an unfunded state mandate has occurred. It does not contemplate whether any use of discretion on the part of a regulatory agency in implementing the necessary details of a federal program constitutes an unfunded state mandate. Therefore, the case does not support the commenters' claims.

Any discretion exercised by the Regional Board in implementing federal law in the Tentative Order is in accordance with federal law and guidance. For example, use of permit writer discretion and the inclusion of more detailed requirements in the Tentative Order is consistent with USEPA guidance. The preamble to the Phase I NPDES storm water regulations states "this rule sets out permit application requirements that are sufficiently flexible to allow the development of site-specific permit conditions" (FR 48038). In addition, in its review of a City of Irving Texas NPDES municipal storm water permit, the USEPA Environmental Appeals Board stated that Congress "created the 'maximum extent practicable' ('MEP') standard and the requirement to 'effectively prohibit non-storm water discharges' into the MS4 in an effort to allow permit writers the flexibility necessary to tailor permits to the site-specific nature of MS4 discharges" (2001). The Tentative Order, to be issued to implement a federal program, does not become an unfunded state mandate simply because the Regional Board appropriately exercised its discretion in defining the particulars. The Regional Board's implementation of a federal program according to federal law and guidance does not constitute an unfunded state mandate.

Third, the Tentative Order is not an unfunded state mandate because its requirements do not exceed the requirements of federal law. As we have previously noted, all of the Tentative Order's requirements are necessary to comply with federal law mandates. The CWA requires that MS4s reduce the discharge of pollutants to the MEP. All requirements of the Tentative Order are necessary to achieve the MEP standard, and therefore do not exceed federal law.

In its review of the previous San Diego County Municipal Storm Water Permit (Order No. 2001-01), the State of California Court of Appeal, Fourth Appellate District reached the same conclusion. The Court "determined that none of the challenged Permit requirements violate or exceed federal law." (*Building Industry Association of San Diego County, et al., v. State Water Resources Control Board et al.*, 2004). This finding applies to a wide range of requirements, since the Building Industry of San Diego County used an across the board approach to the challenges it raised in its lawsuit. This is significant, since the Tentative Order's requirements mirror the requirements of Order No. 2001-01.

The current Orange County MS4 Permit is substantially similar to the San Diego MS4 Permit subject to the Appellate Court decision. The Tentative Order is also substantially the same as the current Orange County MS4 Permit. Where the Tentative Order contains modified requirements not specifically found in Order No. 2001-01, the requirements only provide additional detail to similar requirements and to implement the MEP performance standard. Any new requirements in the Tentative Order simply elaborate on existing requirements. For example, the Tentative Order's requirements addressing hydromodification expand on the pre-existing Order No. 2002-01 requirement that Copermitees develop criteria "to control peak storm water discharge rates and velocities in order to maintain or reduce pre-development downstream erosion and protect stream habitat" (Order No. 2002-01 section F.1.b.2.b). Since the requirements of the Tentative Order and Order No. 2001-01 are comparable, the Court's finding that requirements of that Order do not exceed federal law is also applicable to requirements of the Tentative Order.

Fourth, the Tentative Order and its requirements are not an unfunded state mandate because they do not constitute a new program or higher level of service. The performance standard applicable to MS4s has remained the same since subdivision (p), extending "point source" regulation to storm water discharges was added to CWA Section 402 (33 U.S.C. 1342) in 1987. The Regional Board has issued three prior iterations of requirements implementing this performance standard, each with incrementally greater detail to provide municipalities with guidance regarding elements of municipal storm water management programs that are practicable, and therefore, appropriate components for compliance with the performance standard. However, despite the incrementally increasing levels of detail, the fundamental requirement that municipalities reduce pollutants in MS4 discharges to the MEP remains the cornerstone of the mandate imposed upon municipalities by the federal CWA and the implementing NPDES regulations for storm water.

Fifth, the Tentative Order and its requirements are not an unfunded state mandate because the Copermitees have the authority to levy service charges, fees, or assessments to fund their efforts to comply with the Tentative Order. Government Code section 17556(d) provides that an unfunded state mandate will not be considered in such instances. Municipalities have ample governmental authority to levy service charges, fees, or assessments to pay for storm water management programs that reduce pollutants to the MEP. Municipalities also have the authority to levy taxes to provide adequate funding for storm water management programs; lack of political determination to impose taxes or fees for storm water management does not constitute lack of authority.

As exhibited, the commenters' claim that the Tentative Order is an unfunded state mandate fails on many fronts. Federal regulations that implement the storm water provisions of the CWA require municipalities to ensure appropriate funding for compliance with requirements for discharges of storm water in MS4s. Municipalities' applications for waste discharge requirements that implement the NPDES regulations for storm water must include assurances that the municipalities can provide adequate funding to reduce pollutants in MS4 in accordance with the MEP performance standard. (40 C.F.R. 122.26, implementing subdivision (p) of CWA Section 402; 33 U.S.C. 1342(p)).

In conclusion, the Regional Board does not propose to impose requirements that exceed the CWA and NPDES regulations. Therefore, the Regional Board does not have to undertake additional economic analyses and comply with CEQA requirements because the Tentative Order's requirements do not exceed the level of regulation necessary to implement performance standards for MS4 discharges.

6. Prescribing the Manner of Compliance

Commenters: County of Orange, City of Mission Viejo, Building Industry Association of Orange County and Building Industry Legal Defense Fund

Comment: Commenters suggest that the Tentative Order improperly dictates the methods of compliance in contrast to Section 13360 of the Porter-Cologne Water Quality Control Act. They contend that the Tentative Order contains prescriptive requirements without appropriate Findings and supporting documentation in the Fact Sheet. Continuing, one commenter suggests that such action is in violation of the Tenth Amendment of the U.S. Constitution and Article XI, Section 7 of the California Constitution because the requirements dictate how the municipality must exercise its police power.

Another related comment from two commenters suggests that the Tentative Order amounts to an unwarranted exercise of land-use authority by the Regional Board because it seeks to prescribe land use and project design requirements. The commenters are worried that prescriptive requirements expand the liability of Copermitees for land use decisions. This comment specifically recommends that water quality and hydromodification control should be addressed at a programmatic level by providing a menu of options, rather than specific requirements. The suggestion that water quality be addressed at a programmatic level is founded on a contention that Finding D.1.f of the Tentative Order be modified to remove statements regarding land use power as the basis for water quality responsibility.

Response: The Regional Board contends that requirements of the Tentative Order provide the Copermitees with sufficient flexibility to choose how they will achieve compliance. The requirements provide the Copermitees with numerous compliance options. As such, the requirements do not specify design, location, type of construction, or particular manner in which compliance may be had.

Where the Tentative Order includes detailed requirements, it is to be in compliance with CWA section 402(p)(3)(B)(iii), which mandates that MS4 permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." Clearly, the CWA provides the Regional Board with the discretion to include specific requirements in the Tentative Order. This discretion is supported in the preamble to the Phase I NPDES storm water regulations, which states "this rule sets out permit application requirements that are sufficiently flexible to allow the development of site-specific permit conditions" (FR 48038).

Hydromodification requirements in the Tentative Order (Section D.1.h) provide substantial discretion to the Copermitees. The requirements establish a broad strategy to be followed (Section D.1.h.3), including the ability to waive controls under certain conditions. Additional options are provided in the Revised Tentative Order for developing interim hydromodification criteria for large projects (Section D.1.h.5). While some specificity is necessary to ensure minimum measures are implemented, the Tentative Order allows Copermitees the flexibility to craft and implement a hydromodification control strategy based on local conditions.

In addition, the Fact Sheet discussion of Finding D.1.f is appropriately worded. The Copermitees are able to implement effective runoff management programs because they possess land use authority. Municipal NPDES requirements compel Copermitees to exercise that authority in a manner that protects water quality from adverse effects of MS4 discharges.

Waste discharge requirements for discharges subject to the CWA and NPDES are enforceable by individuals under the citizen suit provisions in section 505 of the CWA [33 U.S.C. 1365]. The Tentative Order includes requirements for the development and implementation of various runoff management programs (e.g., Jurisdictional Urban Runoff Management Programs, etc.), including requirements that the programs include certain elements and components; failure of a municipality subject to the requirements to develop and implement required programs with the requisite components to reduce discharges of pollutants to MS4s would be a violation of the Tentative NPDES requirements and would subject the deficient municipality to enforcement by the Regional Board or, by individual citizens in the absence of "diligent prosecution" of "a civil or criminal action in a court of the United States, or a State to require compliance with the [NPDES requirements]". [33 U.S.C. 1365, see subdivisions (a) and (b)(1)(B).]

Failure of a municipal discharger to develop and implement appropriate and effective runoff management programs that comply with the NPDES requirements for MS4s would subject the municipal discharger to enforcement by the Regional Board, and potentially by citizens. The burden of proving the deficiency of the runoff management programs would be defined by the provisions describing the necessary elements of the program, and by the extent to which the program reduces pollutants in the MS4.

7. Regulation of Discharges from Third Parties

Commenters: County of Orange, City of Mission Viejo, Building Industry Association of Orange County and Building Industry Legal Defense Fund

Comment: Commenters object to requirements regarding discharges from third parties that either (1) are not subject to municipal legal jurisdiction; or (2) are subject to regulation by the State Water Board or Regional Board. Examples of such discharges include sewage, construction/industrial storm water, and urban runoff from entities subject to Phase II NPDES permits. One commenter claims that the Regional Board is requiring Copermittees to duplicate the responsibilities of the State to implement statewide general NPDES permits for industrial and construction storm water.

Response: The Regional Board has followed federal guidance regarding third party discharges into the Copermittees' MS4s. The Regional Board recognizes the difficulties, expressed by commenters, with respect to working with Phase II entities that have often times claimed independence from the Copermittees. This is acknowledged in the manner in which the Tentative Order requires Copermittees to address discharges from Phase II entities compared with industrial and construction storm water activities. Again, these differences are based directly on federal guidance.

Since the Copermittees own and operate their MS4s, they cannot passively receive discharges from third parties (FR 68766). Discharges of pollutants from MS4s must be reduced to the maximum extent practicable, including discharges from MS4s originating outside the Copermittees' jurisdiction. In such cases, the MEP standard can be met through implementation of coordination efforts and agreements with the third parties outside of the Copermittees' jurisdictions. The Tentative Order does not require the Copermittees to apply building, zoning, or related land use controls on parties outside of the Copermittees' jurisdiction. This is further discussed in the Fact Sheet.

Finding D.3.f states "Each Copermittee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary to implement and enforce such control measures/BMPs under its jurisdiction." In addition, where the Government Code provides the Copermittees with jurisdiction to apply treatment control BMPs to local agency projects, the Copermittees must mandate treatment control BMPs as required by Section D.1.d.

The Tentative Order does not shift responsibility for Phase II MS4 discharges to the Copermittees. As required by the Phase II NPDES storm water regulations and the General Phase II Storm Water Permit, Phase II MS4s are responsible for reducing their pollutant discharges to the MEP and ensuring that their discharges do not cause or contribute to violations of water quality standards. This responsibility exists regardless of whether the Phase II MS4 discharges into a Phase I MS4 or not. The Tentative Order does not alter this condition, since the Tentative Order only applies to Phase I Copermittees and not to Phase II MS4s.

Phase II MS4s which discharge to Phase I MS4s have the primary responsibility for their discharges. However, once Phase II MS4 discharges enter Phase I MS4s, the Phase I MS4 accepts secondary responsibility for the discharges. The reason Phase I MS4s have secondary responsibility for Phase II MS4 discharges entering their MS4s is because their MS4s enable the discharges to reach receiving waters unimpeded. The Preamble to the Phase II NPDES storm water regulations agrees with this approach, stating that MS4s "cannot passively receive and discharge pollutants from third parties" (Fed. Reg. 68766).

Since primary responsibility in such instances lies with the Phase II MS4, the Regional Board will first look to the Phase II MS4 in situations where compliance is an issue. However, involvement from the applicable Phase I MS4 will also be expected because it is also a discharger. The Phase I MS4 will be expected to ensure pollutant discharges from its MS4 are reduced to the MEP. Since the Phase I MS4 will likely not have direct jurisdiction over the Phase II MS4, approaches for achieving MEP may include interagency agreements, memoranda of understanding, shared resources, etc.

The Tentative Order does not shift general statewide NPDES enforcement obligations from the Regional Board to the Copermittees. The NPDES federal regulations clearly hold the Copermittees responsible for discharges into and from their MS4s from industrial and commercial sites (40 CFR 122.26(d)(iv)(2)(A) and (C)). The Copermittees are required to reduce pollutant discharges to the MEP; assessing coverage under the General Industrial Storm Water Permit during inspections conducted for other purposes falls within this scope. Moreover, the Copermittees have conducted this practice under the current permit and do not object to continuing this practice. It has proven beneficial to both the Regional Board and the Copermittees in the past by compelling non-filers to obtain coverage under the permit. The Copermittees are only required to assess compliance with their own ordinances and permit requirements. They are not required to assess compliance with the General Industrial Storm Water Permit's requirements (see Finding D.3.a). The Copermittees are also clearly held responsible for illicit discharges into their MS4s. The CWA prohibits non-storm water discharges from entering the MS4 (section 402(p)(3)(B)(ii)). 40 CFR 122.26(d)(2)(iv)(B) requires the Copermittees to detect and remove illicit discharges into the storm sewer.

8. *Due Process without Prescriptive Requirements*

Commenters: Building Industry Association of Orange County and Building Industry Legal Defense Fund

Comment: One comment from building industry representatives claimed that some requirements of the Tentative Order are so vaguely stated that the regulated community lacks adequate notice of what is required to comply. The contention is based on several arguments. One argument is that the iterative process of Section A.3 creates a "moving target" that will discourage water quality control activities because Copermittees may be in violation of water quality standards even if they are in the midst of the iterative process. The commenters request that the Tentative Order be revised to state that achievement of the MEP standard equates to full compliance with the MS4 Permit, regardless of the effect that MS4 discharges have on receiving waters. Another argument is that the requirements are not supported by evidence in the Fact Sheet. To support that argument, the commenters state that the hydromodification (Section D.1.h) and advanced sediment requirements (Section D.2.d.1.c.i) lack supporting evidence.

Response: The Copermittees must reduce the discharge of pollutants to the MEP and ensure that their MS4 discharges do not cause or contribute to violations of water quality standards. If the Copermittees have reduced pollutant discharges to the MEP, but their discharges are still causing or contributing to violations of water quality standards, the Tentative Order provides a clear and detailed process for the Copermittees to follow. This process is often referred to as the "iterative process" and can be found in Section A.3. The language of Section A.3 is prescribed by the State Water Board and is included in MS4 permits statewide. Section A.3 essentially requires additional BMPs to be implemented until MS4 discharges no longer cause or contribute to a violation of water quality standards.

The commenter's assertion that achievement of MEP serves as compliance with the Tentative Order, to the exclusion of the requirement that receiving water quality standards be met, is incorrect. This point was directly addressed by the Court of Appeal, Fourth Appellate District in its decision on the current permit, Order No. 2001-01 (Building Industry Association of San Diego County, et al., v. State Water Resources Control Board, et al). The court states: "If the maximum extent practicable standard is generally "less stringent" than another CWA standard that relies on available technologies, it would be unreasonable to conclude that anything more stringent than the maximum extent practicable standard is necessarily impossible." As such, achievement of MEP does not serve as a ceiling for Copermittee urban runoff management efforts. Copermittees must also ensure that MS4 discharges are not causing or contributing to violations of water quality standards.

Requirements regarding hydromodification (Section D.1.h) and advanced sediment requirements (Section D.2. d.1.c.i) are properly supported in the Fact Sheet. Responses to other comments on those Permit sections can be found in Section C of this document.

9. Consideration of Local Water Quality Conditions

Commenters: Building Industry Association of Orange County and Building Industry Legal Defense Fund

Comment: One comment from building industry representatives suggested that the Regional Board did not consider local monitoring and scientific evidence. The comment suggests that only federal urban runoff reports are cited as support for the requirements, and as such, the Findings regarding the condition of local runoff and receiving waters are flawed.

Response: The assertion that local conditions were ignored is without merit. Local water quality conditions based on Copermittee monitoring reports and other sources are widely referenced in the Fact Sheet to support the Tentative Order Findings and requirements. Examples in the Fact Sheet include the discussions of Section D.1.h and Findings C.4, C.7, C.8, C.9, D.1.e, and E.5.

In addition, the Tentative Order stresses certain issues specifically in response to the local conditions. This is consistent with U.S. EPA guidance on permit reissuance. Examples in the Tentative Order include the requirements regarding hydromodification controls and flood control device retrofits. Finally, the Tentative Order specifically requires the local programs to focus on local water quality conditions. This allows each Copermittee to tailor its approach to the local receiving water conditions and local land-use activities, rather than simply the most common countywide issues.

10. Vector Control Issues

Sections: D.1.d.6.i; D.1.d.9; D.1.f.1; D.1.f.2.c.ix; D.1.i.1.c.viii;

Sections D.3.c.6.b.v; D.3.a.10.a.i.g;

Section E.1.f.2;

Commenters: Orange County Vector Control District

Comment: The Orange County Vector Control District (OCVCD) provided comments underscoring the relationship between urban runoff, storm water management, and disease vector control concerns. The Regional Board sought and received comments from the OCVCD to supplement its initial comment letter. The OCVCD emphasized the difficulty it faces carrying out its responsibilities when storm water management devices, such as treatment control BMPs, are not properly designed or maintained. In addition, the OCVCD recommended the Regional Board improve efforts to address dry-weather nuisance flows, pointing out that such flows tend to promote mosquito production by creating persistent sources of water and concentrated pollutants. The OCVCD also stressed the need for improved information exchange between the public, Copermittees, the Regional Board, and the OCVCD.

Response: The Regional Board agrees that there is room for improvement in the way storm water and urban runoff are managed with respect to vector control issues. In particular, involving vector control agencies early in the project planning process would help ensure that the most effective options are ultimately implemented. The revised Tentative Order also includes a provision (Section D.1.f.1.c.ix) for the OCVCD to be notified when Copermittee inspections of post-construction treatment BMPs identify conditions contributing to mosquito production.

The revised Tentative Order does not, however, include the majority of the specific recommendations from the OCVCD. Instead, the Tentative Order has been revised to more universally require consideration of vector control issues in the design, implementation, inspection, and evaluation of management measures. Many of the recommendations are more appropriately directed at the Copermittees, which are all members of the OCVCD. Such recommendations generally included requiring increased collaboration between the Copermittees and the OCVCD. For instance, the OCVCD is interested in information about the location and responsible parties for new and existing structural BMPs. The Regional Board encourages the Copermittees to actively seek guidance and recommendations from the OCVCD and is willing to participate in discussions when necessary.

B. Comments on Findings

In certain cases, comments related to a Finding and the associated requirements in the Tentative Order have been grouped within the response to comments on those specific sections, rather than discussed separately.

11. Finding E.7: In-Stream Best Management Practices

Commenters: County of Orange, Dana Point, Laguna Beach, Mission Viejo, Laguna Niguel, Nancy Palmer, Building Industry Association of Orange County, Orange County Council of Governments, Rancho Mission Viejo

Comment: Eight interested parties submitted written comments expressing concern for Finding E.7 of the Tentative Order. This Finding was also subject to much discussion from the public and members of the Regional Board during the April 11, 2007 public hearing. The Finding states, in part, that “Urban runoff treatment and/or mitigation must occur prior to the discharge of urban runoff into a receiving water... Authorizing the construction of an urban runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body.”

Response: Finding E.7 has been revised for clarity. The intent of the Finding, and related requirements, is to prevent the conversion of waters of the U.S. and State into waste treatment facilities consistent with Federal guidance. It in no way prevents restoration of natural hydrological, biochemical, and habitat functions. Similarly, providing treatment of urban runoff after it has been discharged from the MS4 to waters of the U.S. does not relieve the Copermitttees of their responsibility to implement source control, pollution prevention, and treatment BMPs before the water is discharged from the MS4. If diverted water is treated, then discharged back to waters of the U.S., it is likely to need an individual NPDES Permit. Diversion to the sanitary sewer for treatment is allowable, provided the effluent from the sewage treatment facility can meet its NPDES requirements.

Claims that the Finding violates California Water Code (CWC) section 13360(a) and misinterprets U.S. EPA guidance are unfounded. CWC section 13360(a) prohibits the Regional Board from specifying the design, location, type of construction, or particular manner in which compliance may be had. The Finding and related requirements appropriately restrict the location of urban runoff treatment facilities, but do not dictate how compliance with the Tentative Order must be achieved.

In addition, the Finding is consistent with federal guidance. The Fact Sheet specifically cites the U.S. EPA guidance manual for municipal NPDES permitting. One commenter cites U.S. EPA guidance for using constructed wetlands for waste water treatment (1993, EPA 832-R-93-005) as justification for creating wetlands as BMPs within receiving waters. A more recent and appropriate federal agency reference would be *Guiding Principles for Constructed Treatment Wetlands: Providing for Water Quality and Wildlife Habitat*, (2000, EPA 843-B-00-003). That guidance document was developed by the Interagency Workgroup On Constructed Wetlands, which included the U.S. EPA, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, National Marine Fisheries Service, and U.S. Bureau of Reclamation. This guidance states “*Constructed treatment wetlands should generally be constructed on uplands (outside waters of the U.S.) and outside floodplains or floodways (unless the next section, II.B, applies) in order to avoid damage to natural wetlands and other aquatic resources consistent with Federal guidance.*”

The section for the exception describes opportunities to use pretreated effluent, or other source waters, to restore degraded wetland systems. The guidance goes on to state:

“In general, you should only locate constructed treatment wetlands in existing wetlands, or other waters of the U.S., if
(1) the source water meets all applicable water quality standards and criteria,
(2) its use would result in a net environmental benefit to the aquatic system's natural functions and values, and (3) it would help restore the aquatic system to its historic, natural condition. Prime candidates for restoration may include wetlands that were degraded or destroyed through the diversion of water supplies, a common occurrence in the arid western U.S., and in heavily farmed or developed regions. You should avoid siting in degraded wetlands if the functions and values of the existing wetland will be adversely affected or water quality standards will be violated. The appropriate Regional/District or State authorities will make these determinations on a case-by-case basis.”

With respect to municipal storm water, the guidance document includes the following question and answer:

Question: I am considering using constructed treatment wetlands to treat my municipality's stormwater flows. What general issues must I consider?

Answer: First of all, the treatment wetland should not be constructed in a waters of the U.S. unless you can sufficiently pretreat the stormwater flows to protect the values and functions of the waters of the U.S. Because storm water is an unpredictable effluent source and can contain high levels of toxic substances, nutrients, and pathogens, we strongly encourage that you construct the treatment wetland in uplands and use best management practices in these projects (see EPA's Protecting Natural Wetlands: A Guide to Stormwater Best Management Practices, EPA/843-B-96-001). Depending on the size of your municipality and other factors, you may need to get a CWA Section 402 (NPDES) permit. Be sure to contact all the appropriate wastewater authorities in your area during the early planning stages of this type of project."

The Finding and related requirements in the Tentative Order are intended to be consistent with this guidance.

Comment: Several commenters suggested changes to allay concerns that the Finding and related requirements restrict the ability of municipalities to improve water quality and in-stream beneficial uses. Some commenters cited specific projects planned in the Aliso Creek watershed. Other commenters cited classes of projects, and another commenter recommended limiting in-stream controls to the extent practicable. In addition, one commenter suggested that placement of hydromodification control and/or treatment control BMPs in drainages within the boundaries of a development project should be allowed if authorized pursuant to a CWA Section 404 permit from the U.S. Army Corps of Engineers.

Response: The following discussion provides an overview of how the Finding and related requirements would affect the seven specific projects or types of projects cited by commenters. Note, these are necessarily generalizations intended to provide guidance. In addition, many activities that disturb waters of the U.S. will be considered on a case-by-case basis because they are subject to federal permitting under Clean Water Act (CWA) Section 404 and may be reviewed by the Regional Board under CWA Section 401.

1. Type of project: Construction of a series of low-grade control structures and reestablishment of aquatic habitat connectivity. Response: Provided the grade control structures are designed to re-establish a natural channel gradient and correct excessive changes to the sediment transport regime caused by urbanization, rather than to create a series of artificial hydrological impoundments for the purpose of treating pollution, this type of project is not considered an in-stream treatment BMP.

2. Type of project: Shaving of side slopes to reduce vertical banks. Response: Presumably, this is a project intended to restore hydrological connections between the creek and its floodplain or to restore riparian habitat, rather than modifying the stream to maximize treatment of pollutants. In such cases, this is not considered an in-stream treatment BMP.

3. Type of project: Invasive species removal and riparian revegetation and restoration of floodplain moisture. Response: These are habitat restoration measures and not considered in-stream treatment BMPs.

4. Type of project: Treatments or mitigations in receiving water channels or urban streams that protect and restore beneficial use. Response: The distinction in this case between “treatments or mitigations” and the protection or restoration of beneficial uses should be made on a case-by-case basis. Municipalities should generally be cautious of activities that could restore certain beneficial uses at the detriment to others.

5. Type of project: The removal of anthropogenically-induced excess flows for treatment and/or beneficial re-use. Divert excess flows from creeks or modified channels to treatment at strategic and technically feasible locations. Response: Extraction of water from a creek is not necessarily considered a treatment BMP. A key consideration in this case is the type and extent of modification of the existing waters of the U.S. to accommodate the extraction process. In addition, Copermittees must recognize when water has been extracted from a creek and processed, the discharge of the treated effluent back to receiving waters is subject to individual NPDES permit requirements, rather than the municipal NPDES permit. Finally, the extraction of water from waters of the State may be subject to water rights permitting from the State Water Board. The Tentative Order does not prohibit extraction of waters of the U.S.

6. Type of project: Construct multipurpose stream- and wetland-restoration and stabilization projects that have pollutant control or reduction capacities. Response: The assessment in this case should be made on a case-by-case basis. Projects to restore wetlands or stabilize stream channels will generally be subject to CWA section 404 permitting and associated review by the Regional Board under CWA Section 401. Provided the primary design is targeted at re-establishment of natural hydrological, biochemical, and habitat conditions, rather than an urban runoff pollutant treatment facility, the project would not be considered a treatment BMP subject to the findings and requirements of the Tentative Order.

7. Type of project: Exempt “structural BMPs” such as natural wetlands, which are created in receiving waters as well as in MS4s with natural bottoms, etc. Response: The assessment in this case should be made on a case-by-case basis. The establishment of a “natural” bottom (which generally means a channel bed of sediment, rather than some impervious surface) is not itself a sufficient descriptor of the characteristics of the project.

8. Type of project: Placement of hydromodification control and/or treatment control BMPs in drainages within the boundaries of a new development project should be allowed if authorized pursuant to a 401 certification of a CWA 404 permit and/or WDR issued for discharge into non-federal waters. Response: Where a CWA section 404 permit has been issued by the U.S. Army Corps of Engineers for the conversion of a water body into a non-jurisdictional water, then the placement of a treatment BMP in that area would be consistent with the Tentative Order. However, the placement of fill and other material into the water body may be subject to waste discharge requirements from the Regional Board. Generally, the Copermitees cannot assume that such conversion would be allowed. The Tentative Order requirements for priority projects (Section D.1.d.4) acknowledge that some conversion is likely to be permitted. However, the Copermitees must recognize that limiting such conversions can be a practical site design BMP.

Comment: Additionally, some commenters considered Finding E.7 to contradict other requirements of the Tentative Order. Specifically, they felt the requirement related to retrofitting an existing flood control device (section D.3.a.4) and requirements that allow for in-stream hydromodification controls (section D.1.h) would violate the prohibition on located treatment BMPs in receiving waters.

Response: The Tentative Order requirements for modifying flood control structures call for reducing the negative effects on water quality caused by those structures. Permittees must evaluate flood control structures to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible. In cases where the flood control facility falls within waters of the U.S., the discussion above pertaining to modifying streams to serve as BMPs applies. In cases where the structure falls outside of waters of the U.S., then the discussion regarding in-stream BMPs does not apply.

The Narco Channel Restoration Project in the City of Laguna Niguel is an example of a retrofitted flood control structure that was located within a water of the U.S. Narco Channel is an urban stream that was highly modified during urbanization. Retrofitting the channel was necessary because poor sediment transport in the modified flood control channel resulted in a decrease flood conveyance capacity and nuisance conditions from excessive ponding. This project includes the restoration and enhancement of approximately 1,000 linear feet of the channel where it emerges as a trapezoidal channel downstream from a 4,000-foot long concrete box culvert. The project was designed to improve hydrological conditions and restore native habitat conditions by grading back a portion of the upper trapezoidal channel. The project will improve water quality conditions, but was not designed to turn the channel into an urban runoff treatment BMP.

Similarly, the Tentative Order requirements related to in-stream hydromodification controls are for situations where urban streams have already been adversely affected by the effects of hydromodification. In these cases, hydromodification controls located within channels are intended to restore natural hydrological and sediment transport conditions of the channel, which in turn would improve water quality conditions. This is in contrast to situations in which a structural hydromodification control would be located within a stream in order to accommodate flow regime changes caused by new developments or to create a pollution treatment zone within the channel. For example, the proposed series of low-grade control structures in Aliso Creek (described above) is an in-stream hydromodification control that is intended to address significant water quality and habitat problems currently caused by hydromodification. Provided the grade control structures are designed to re-establish a natural channel gradient and correct excessive changes to the sediment transport regime caused by urbanization, rather than to create a series of artificial hydrological impoundments for the purpose of treating pollution, this type of project is not considered an in-stream treatment BMPs. No changes have been made to the Tentative Order regarding the association between hydromodification controls and in-stream treatment BMPs.

**12. *Finding C.1: Urban Runoff Contains Waste; and
Finding C.3: Discharges from MS4s May Result in Pollution***

Commenters: Building Industry Association of Orange County and Building Industry Legal Defense Fund

Comment: Commenters suggest that Findings C.1 and C.3 should be revised to clearly acknowledge that not all MS4 discharges contain waste or pollutants. They note that storm water discharges may contain pollutants and that discharges may also contain non-anthropogenic loads of pollutants, such as sediment. They contend that as written, the Tentative Order improperly attempts to regulate storm water more broadly than necessary to address adverse effects on receiving waters.

Response: The Findings are appropriately supported and have not been revised. Finding C.1 states that “urban runoff contains waste.” This was supported in State Water Board Order WQ 2001-15, which reviewed the previous San Diego County MS4 Permit (Regional Board Order No. R9-2001-01). Discharges from MS4s to receiving waters are considered point source discharges to be regulated by NPDES requirements. Finding C.3 notes that discharges from MS4s may cause or threaten to cause conditions of pollution, contamination, or nuisance. The Fact Sheet relies on national and local water quality studies to support this conclusion.

Clearly, not all storm water discharged from MS4s is waste. Much of it is precipitation. That storm water, however, can pick up waste and pollutants along its path to and through the MS4. The Copermittees must ensure implementation of storm water BMPs to limit the amount of pollution that is discharged with the precipitation from the MS4s. Limited storm water monitoring conducted by the Copermittees demonstrates this, and the Tentative Order includes requirements to conduct storm water monitoring at storm drains to better assess the conditions (Attachment E). Urban runoff also includes dry-weather discharges. In southern Orange County, dry-weather urban runoff has been increasingly monitored under the existing MS4 Permit. The data demonstrates significant amounts of pollution that cannot be attributed to non-anthropogenic sources.

13. Finding C.2: Categories of Pollutants

Commenters: County of Orange

Comment: One comment indicated that this Finding should be modified to identify the pollutants commonly found in urban runoff without specifying sources unless a more thorough discussion of sources is provided.

Response: The requested modifications are considered unnecessary. The Finding cites three technical reports that discuss the common pollutants and sources in greater detail.

14. Finding C.4 – Effects of Pollution on Human Health

Commenters: Building Industry Association of Orange County

Comment: One comment received stated that Finding C.4 is contrary to a proper and complete summary of available scientific evidence as a whole. The commenter cited reports that found indicator bacteria concentrations in receiving waters downstream from the developed/urban watersheds were not significantly different than concentrations in receiving waters downstream from undeveloped watersheds. This would imply that bacteria in surface water cannot be directly correlated with incidences of human illness. Further, they note other studies that demonstrate no link between concentrations of indicator bacteria and either an increased risk of human illness or the presence of human pathogens.

Response: The studies cited by the commenter address only the possible effects of indicator bacteria on human illness rates relative to the degree of urbanization and not on the effects of urban runoff and storm water pollution in general. The evidence in the record supporting Finding C.4 is cited in the Fact Sheet. The study linking recreation near storm drains and occurrence of illness was conducted by R.W. Haile in 1996, titled "An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay." The study found that swimmers near storm drains had a 57 percent greater incidence of fever than those swimming farther away. This study also confirmed the increased risk of illness associated with swimming in areas with high densities of indicator bacteria. Illnesses were reported more often on days when water samples tested positive for enteric viruses.

In addition, a recent study by Ryan Dwight found that of the more than 5 million people who swam at the two beaches from 1998 to 2000, there were about 36,000 cases of stomach ailment and 38,000 cases of respiratory, eye and ear infections caused by exposure to waters polluted by urban runoff and other sources (Dwight, et al., 2005). Dwight also found that surfers in urban North Orange County reported nearly twice as many illnesses as surfers in rural areas of Santa Cruz in 1998 (Dwight, et al., 2004). These studies support the finding that "pollutants in urban runoff can threaten human health" (Finding C.4). The Finding has not been revised.

15. Finding C.6: Clean Water Act 303(d) Impaired Water Bodies

Commenters: County of Orange, City of Lake Forest

Comment: Two comments stated that representation of the 303(d) list, as presented in Table 2a, incorrectly connotes systemic water quality issues that are actually limited to specific segments and incorrectly attributes benzo[b]fluoranthene, dieldrin, and sediment toxicity for Aliso Creek.

Response: Footnote 1 on page 4 of the Tentative Order, however, correctly notes that the pollutants of concern indicated in Table 2a do not reflect an impairment of the entire waterbody. The Table simply lists the impairments that occur within the respective watershed management areas.

16. Finding C.7: Water Quality Monitoring Data

Commenters: County of Orange

Comment: One comment proposes that the term "violation" be changed to "exceedances" and that the last sentence of the Finding be modified to indicate that "exceedances may be due to urban runoff" and "warrant special attention" to account for inadequate data and uncertainty within many of the studies that have been conducted.

Response: The word “violation” is appropriately used in Finding C.7 as a violation is an exceedance of a Basin Plan water quality objective and such violations have persistently been documented with sufficient, reliable data for a number of urban runoff-related pollutants in water bodies in Orange County, as discussed and cited in the Fact Sheet (Finding C.7). The Finding has not been revised.

17. Finding C.9: Urban Development Creates Pollution

Commenters: Building Industry Association of Orange County

Comment: One comment indicated that Finding C.9 did not consider the complex relationship between urban development land uses and pollutant loading, the effect that treatment control has on the quality of urban runoff, or the conversion of agricultural lands to urban land uses that for many pollutants (e.g., nutrients) will reduce pollutant concentrations in runoff. Another comment proposed that there is no evidence in the record to suggest that the Finding generally applies to urbanization in Orange County.

Response: Finding C.9, however, describes the general circumstances that occur with new development. The Fact Sheet supports the Finding by citing a variety of technical studies, including ones from the southern California region. While it is likely that exceptions may exist, Finding C.9 is accurate and appropriate to support the tentative requirements.

18. Finding C.10: Environmentally-Sensitive Areas

Commenters: Building Industry Association of Orange County

Comment: One commenter suggested that the Fact Sheet lacks sufficient evidence to support the statement within Finding C.10 that development and urbanization threaten environmentally-sensitive areas (ESAs) and impaired water bodies.

Response: The Fact Sheet appropriately describes why such areas require additional controls and focused attention. Furthermore, a summary of impaired waters is provided in Table 2a of the Tentative Order. Although the Tentative Order does not include a map, as seemingly requested by the commenter, maps of ESAs are provided within the JURMPs and WURMPs developed by the Copermitees. In addition, the vast majority of listed water bodies are impaired because of urban runoff. This Finding has not been revised.

19. Finding D.1.c: New or Modified Requirements

Commenters: County of Orange

Comment: One comment asserted that in many cases the new or modified requirements do not have adequate findings of fact and technical justification, partly because it does not address the program analysis conducted by the Copermittees as a part of their preparation of the ROWD. The commenter suggests that the Tentative Order should rely on the deficiencies and program modifications that Copermittees themselves identified as necessary for the program.

Response: As discussed in the Fact Sheet, new and modified requirements in the Tentative Order generally address program improvements necessary to meet the MEP standard, address high priority water quality problems, and target program deficiencies noted during audits, report reviews, other compliance activities and the Copermittees' ROWD. Where appropriate, modifications are discussed in related sections of the Tentative Order.

20. Finding D.1.e: Best Management Practices (BMPs)

Commenters: Construction Industry Coalition on Water Quality

Comment: One comment noted that the studies cited in the Fact Sheet discussion of Finding D.1.e primarily focused on dry weather flow treatment systems and wet weather hydrodynamic devices, which would not be expected to be effective on a number of pollutants. The commenter suggests that Finding D.1.e should be based upon a more comprehensive look at treatment control BMP effectiveness.

Response: The Regional Board agrees that some BMPs may be more effective than others. The Fact Sheet specifically lists studies conducted on treatment BMPs within the Copermittees' jurisdictions during the current Permit cycle. The conclusion from the synthesis of these studies is that source control and pollution prevention BMPs are necessary to complement end-of-pipe treatment approaches. Thus, Finding D.1.e appropriately notes that a combination of such BMPs is necessary. The Finding has not been revised.

C. Comments on Specific Sections

SECTION A – Prohibitions and Receiving Water Limitations

21. Section A.3.c: Regional Board Enforcement of Water Quality Standards
Commenters: Building Industry Association of Orange County and Building Industry Legal Defense Fund

Comment: Commenters suggest that Section A.3.c of the Tentative Order should be revised or deleted. Specifically, the commenters claim that implementing an iterative process) of urban runoff management (adaptive BMP management) is equivalent to complying with the MS4 Permit. The commenters argue that State Water Board Order 2001-11 dictates that the iterative process is the only appropriate recourse for violations of discharge prohibitions.

Response: This comment is misguided and no changes have been made to this section of the Tentative Order. Section A.3.c prohibits discharges from MS4s that cause or contribute to the violation of water quality standards. The Tentative Order (section A) describes the process each Copermitttee must implement in response to situations where MS4 discharges are causing or contributing to an exceedance of an applicable water quality standard. Preparation and implementation of an iterative process report alone does not constitute compliance with this section, since the effectiveness of the report implementation is not assured. The preparation and implementation of the iterative process report is not a "safe harbor" from enforcement as violations of water quality standards continue. The preparation and implementation of the report is a means to achieve compliance with section A.3, but does not constitute compliance. This issue was raised during the Building Industry Association of San Diego County appeal of the current permit, Order No. 2001-01. In its review of the issue, the State Water Board stated: "Compliance is to be achieved over time, through an iterative approach requiring improved BMPs." In other words, the iterative approach of report preparation and implementation does not constitute compliance with water quality standards, but rather leads to achieving receiving water quality standards over time.

Section A.3.c of the Tentative Order makes clear that the Copermitttees are responsible for discharges causing or contributing to violations of water quality standards until the situation is rectified. The Regional Board will require the process be followed and pursue enforcement consistent with the Water Quality Enforcement Policy (State Water Board, 2002).

SECTION D.1 – Development Planning

22. Section D.1: General Comments

Commenters: Construction Industry Coalition on Water Quality, Contech Stormwater Solutions, Inc., County of Orange, Rancho Mission Viejo

Comment: Several commenters recommended that the Tentative Order provide for BMP design and implementation at various development scales. For instance, treatment control and site-design BMPs should be considered at a broader context than an individual project. Specifically, some commenters want the ability to share treatment BMPs, and others want to have priority project requirements (SUSMP) satisfied by implementation of large-scale watershed-development plans. Four commenters are concerned that the Tentative Order prohibits or unreasonably restricts the use of regional treatment facilities.

Response: The Regional Board agrees with the commenter who suggested regional treatment facilities should be allowed as long as regional treatment is provided without using waters of the U.S./State to convey the untreated, polluted storm water. (A discussion of comments concerning in-stream regional treatment BMPs is provided in the response to comments on Finding E.7.)

Comment: One commenter suggested that the requirement to treat runoff prior to being discharged means that regional treatment facilities are prohibited and mandates a lot-by-lot approach for treatment BMPs in new developments. Another commenter suggested that end-of-pipe or shared treatment BMPs implemented at a sub-watershed scale can be more effective than relying on smaller, distributed treatment control BMPs.

Response: These concerns are addressed within the Tentative Order, which provides for shared treatment BMPs as long as the treatment occurs prior to discharges from the MS4 to receiving waters. However, the implementation of shared, end-of-pipe treatment BMPs does not eliminate the need to implement source control and pollution prevention BMPs at the particular pollutant-generating facilities within the drainage area.

Comment: Other comments recommended that the Tentative Order should also allow for a regional approach to site design BMPs. One commenter suggested that the site design BMP requirements directed toward maximizing infiltration, slowing runoff, and minimizing impervious footprint could be more valuable if applied at a broader scale than project-by-project considerations. In this approach, a watershed-based plan would concentrate development on soils with naturally impervious characteristics and restrict development on soils with naturally high infiltration capabilities. A similar argument was offered for waiving site design BMPs requirements related to riparian buffer protection if a watershed-based plan has been established to protect high-value riparian habitats.

Response: Several issues are particularly relevant in the discussion of whether regional development plans provide an adequate level of protection from MS4 discharges.

First, regional development and conservation plans provide a framework for development that may extend far beyond the five-year NPDES permit term. The Tentative Order acknowledges that certain projects may have a vested status that legally precludes the municipality from applying requirements in the reissued permit. However, reissued permits appropriately include requirements based on new information, and municipalities must ensure that they use their legal authority to ensure the updated requirements are met by new developments. “Grandfathering” projects subject to regional habitat conservation plans, for example, could preclude the implementation of important storm water management measures that may either be included in future reissuances of the MS4 permit or desired by Copermittees.

Second, regional development or habitat conservation plans might not include specific provisions for meeting water quality standards in all waters of the U.S. In the case of south Orange County, the Special Area Management Plan (SAMP) cited by a commenter is being created by the U.S. Army Corps of Engineers for its CWA Section 404 permitting program. The purpose of the SAMP is to provide for reasonable economic development and the protection and long term management of sensitive aquatic resources. It provides for streamlined section 404 permitting in certain areas. The SAMP seeks to ensure that degradation of beneficial uses caused by MS4 discharges is avoided or minimized only within the designated Aquatic Resources Conservation Area, which was established to protect sensitive species. The SAMP recognizes the need for section 404 applicants to comply with municipal storm water regulations adopted to implement the MS4 Permit.

Third, the scale and context of particular regional plans varies; some plans are watershed-based, others may be broader or narrower. But, federal regulations and guidance state that municipalities must ensure appropriate BMPs are implemented by new developments based on the land use and receiving water conditions. For example, a project cannot be allowed to forgo adequate BMP implementation for discharges to one water body just because it promises to avoid discharging into a higher-valued water body.

The Tentative Order is intended to provide some discretion to the Copermittees for evaluating multi-phase development projects as a whole, provided that each phase includes an appropriate mix of site design, source control, and treatment BMPs. The site design requirements are flexible enough to be met by all phases of a development. The requirements acknowledge site constraints, and only require site design BMPs to the extent that the project has capacity for them. For example, a multi-phase project that cumulatively minimizes the loss of existing infiltration capacity could include one phase that lacks pervious soils. The Tentative Order requirements (Section D.1.d.4.b and c) allow for municipalities to consider the lack of pervious soils when determining whether certain site design BMPs can be implemented. However, that would not preclude the need for other types of site design, source control, and treatment BMPs to be implemented within that phase. The Regional Board recognizes that such discretion could be subject to abuse and intends to assess such implementation during program evaluations and audits during the permit term.

23. Section D.1.c.5: Long-term Maintenance of Structural BMPs

Commenters: Rancho Mission Viejo

Comment: One comment suggested that Copermittees should require submittal of proof of a mechanism to ensure long-term maintenance of all structural post-construction BMPs prior to issuance of final permit approval rather than during the planning process.

Response: This revision is unnecessary because language in the Tentative Order already affords Copermittees the flexibility to allow submittal of this mechanism at any point during the planning and permitting process prior to approval and issuance of local permits.

**24. Section D.1.c.6: Infiltration and groundwater protection, and
Finding C.11: Groundwater Protection**

Commenters: Building Industry Association of Orange County, Contech Stormwater Solutions, Inc., City of Dana Point, Construction Industry Coalition on Water Quality, County of Orange, Rancho Mission Viejo

Comment: One comment suggested that pretreatment be added as a management technique for reducing the risk of groundwater contamination by infiltration BMPs on sites with moderate to high pollutant loading, particularly for sites with high average traffic volume or a high potential for spills. Another comment requested that the Tentative Order be revised to discuss mixed land use. Specifically, the recommendation was made to allow areas of mixed land uses to use infiltration for treatment and/or hydromodification control and to clarify the applicability of restrictions placed on water supply wells used for domestic consumption versus those used for agricultural consumption.

Several comments were received regarding the design restrictions that must be applied to centralized infiltration devices to protect the quality of groundwater. One comment also requested clarification of “centralized” as it is used in this section. The technical comments were concerned with restrictions being applied relative to project size rather than pollutant loading, justification for pretreatment, depth to groundwater and soil type. Procedural comments were concerned with the restrictions being so conservative as to impede the use of infiltration as a treatment BMP and possible inconsistencies with site design and hydromodification requirements.

Response: The restrictions in Section D.1.c.6 are intended to protect groundwater quality and are to be applied to any application that is designed to primarily function as a centralized infiltration device, regardless of land use type. A centralized infiltration device refers to applications such as large infiltration trenches and infiltration basins that collect water from various locations for the purpose of infiltration and does not refer to small infiltration systems dispersed throughout a development. The language proposed in Section D.1.c.6 is consistent with the language used in Section F.1.b.2.h of Order No. R9-2002-0001 (the current Permit). As discussed in the Fact Sheet for Order No. R9-2002-0001, the restrictions placed on urban runoff infiltration are based on recommendations provided by the U.S. EPA Risk Reduction Engineering Laboratory and supported by the State Water Board. The language contained in the Tentative Order also allows the Copermittees to develop alternative criteria to replace the suggested restrictions.

Pre-treatment has been added as a potential management technique in Finding C.11. The Regional Board, however, recognizes that pre-treatment may not be an effective management technique in all situations. Copermittees must properly evaluate proposals involving pre-treatment as a measure to protect groundwater quality.

**25. Section D.1.d: Standard Urban Storm Water Mitigation Plans (SUSMPs)
“Grandfathering”**

Commenters: Building Industry Association of Orange County

Comment: One comment recommended that footnote 4 on page 23 of the Tentative Order be revised to make it a standalone provision and to clarify the scope of the clause. Specific language was recommended to account for approved tentative tract maps, commencement of construction/grading activities, and legality. The comment also requested further clarification regarding whether or not the Copermittee has the authority to determine “illegal” as used in this provision.

Response: Footnote 4 on page 23 of the Tentative Order has been revised. The language, however, regarding final tentative tract maps was omitted because such maps may be approved years in advance of construction. Construction activities should comply with water quality regulations in place at the time of construction. The permit language allows the Copermittee sufficient latitude to determine “illegal” as used in this provision.

26. Section D.1.d: Timeframe to Update SUSMPs

Commenters: Building Industry Association of Orange County, City of Laguna Hills, City of Aliso Viejo, City of Dana Point, County of Orange, City of Lake Forest

Comment: Several commenters requested that the timeframe for updating locals SUSMPs be extended. They stated that 24 months is necessary due to the time required to develop standards, coordinate with other Copermittees and provide for public participation. One comment also recommended that the Copermittees collaboratively update the Model SUSMP to include site design BMPs instead individual efforts.

Response: The requested changes were not included in the revised Tentative Order. First, the Copermittees may collaboratively update the Model SUSMP, but that does not itself ensure that each Copermittee would adopt the model at that time. Thus, the Tentative Order requires that each Copermittee implement an updated SUSMP, but does not specify the process used to develop the updates. Second, while the Tentative Order requires a number of changes to the existing SUSMPs, few of the changes require a significant time investment for developing policy. Many of the improvements can be taken directly from the permit language, the DAMP or by reference from existing resources such as the California Association of Stormwater Quality Agencies (CASQA) or County of Ventura. The annual treatment control BMP review is intended to ensure data sharing between Copermittees and should be reflected annually in the ranking matrix and/or Model SUSMP language. The LID Substitution Program is an optional program that may be incorporated at any time during the permit cycle. Time intensive programs, such as the development of hydromodification requirements and incorporation of a one-acre threshold for Priority Project categories, have already been granted extended timeframes.

27. Section D.1.d.1: Acreage Thresholds for SUSMP Projects

Commenters: County of Orange

Comment: One comment requested clarification of the applicability of Section D.1.d.1.b. Another comment requested clarification for a scenario where a “right turn pocket” is added to a roadway and triggers a SUSMP classification. The commenter suggested that only the sub-drainage area where the roadway improvements are occurring is subject to SUSMP requirements for BMPs, not the entire roadway.

Response: Section D.1.d.1.b has been revised for clarity. The concern regarding the right-turn pocket scenario is not warranted. As stated in Section D.1.d.1.b, “where redevelopment [e.g., the right pocket turn lane] results in an increase of less than 50% of the impervious surfaces of a previously existing development (the road)...the numeric sizing criteria...applies only to the addition, and not the entire development.”

**28. Section D.1.d.2: Priority Project Categories for SUSMPs; and
Finding D.2.e**

Commenters: County of Orange

Comment: Two comments were received regarding the applicability of Municipal Storm Water NPDES Phase II rules for Phase I communities, specifically relative to Finding D.2.e and the one-acre threshold for heavy industrial sites and commercial developments in Section D.1.d.2. Another comment noted that "single-family homes" should be exempted from SUSMP requirements because SUSMP development poses an unnecessary burden on homeowners and could result in minimal water quality benefit.

Finally, another comment asserted that it is unreasonable and costly to expect that runoff from an entire project be subject to SUSMP requirements when just one feature of the project triggers the requirements. The comment gives the example of a 100,000 square-foot development, that itself may not be considered a Priority Project, with a 5,000 square-foot parking lot that is considered a Priority Project. The comment further expresses that the Fact Sheet does not adequately address the risk of water quality pollution associated with specific land uses.

Response: State Water Board Order No. WQ 2000-11 indicates that it is appropriate to apply SUSMP requirements to categories of development where evidence shows the category of development can be a significant source of pollutants. As discussed in the Fact Sheet (Finding D.2.e), heavy industrial sites can be a significant source of pollutants. Therefore, section D.1.d.2.b of the Tentative Order was modified from the existing Permit to add heavy industrial sites as a SUSMP Priority Development Project category.

Additionally, the Tentative Order is a Phase I NPDES municipal storm water permit, reflecting a program that has been in place for over 15 years. The Tentative Order, therefore, should be at least as stringent as the Phase II NPDES storm water regulations, which have been in place approximately five years. The Phase II NPDES storm water regulations require development, implementation, and enforcement of a "program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre" (40 CFR 122.34(b)(5)). In order to be consistent and as protective of water quality as the Phase II NPDES storm water regulations, the commercial development Priority Development Project category threshold was reduced from 100,000 square feet to one acre (43,560 square feet).

A single family home project would only need to prepare a SUSMP in the event that the project meets specific sizing criteria and drains directly to an ESA or results in development of a hillside comprised of erosive soils. Because both circumstances require additional planning and pollution prevention measures to protect surface water quality, regardless of the type of development, it would not be appropriate to exclude single family homes from SUSMP requirements.

The language in the introduction of Section D.1.d.2 of the Tentative Order regarding the inclusion of the entire project when at least one aspect of the project is categorized as a Priority Project is consistent with the Regional Board's 2002 approval of the San Diego SUSMP. This is a particularly important requirement since municipalities have greater latitude during development to require pollution prevention than they have with existing development. Moreover, this is a reasonable requirement in that it limits confusion for property owners and ensures consistent implementation of SUSMP requirements. This section and related Finding have not been revised.

29. Section D.1.d.2.j: Retail Gasoline Outlets as SUSMP Category; and Finding D.2.d: Retail Gasoline Outlets (RGOs)

Commenters: County of Orange, City of Dana Point

Comment: One comment requested that the Fact Sheet provide justification to support Finding D.2.d, which discusses retail gasoline outlets (RGOs). Another comment suggested that RGOs do not need to be included as SUSMP projects because the DAMP already prescribes a suite of BMPs specific to RGOs. This commenter further cited State Water Board WQ Order No. 2000-11 guidance stating that "...treatment may not always be feasible or safe" at RGOs.

Response: Section D.1.d.2.j of the Fact Sheet discusses the inclusion of RGOs in the Tentative Order at length, specifically addressing the issue of applicability, feasibility and safety. Additionally, the Fact Sheet discusses State Water Board WQ Order No. 2000-11 and subsequent State Water Board actions regarding RGOs. This section and related Finding have not been revised.

30. Section D.1.d.4: Site-Design BMP Requirements; Section D.1.d.8: ID Site-Design BMP Substitution Program; and Finding D.2.c: Low Impact Development (LID)

Commenters: Building Industry Association of Orange County, Contech Stormwater Solutions, Inc., City of Dana Point, Rancho Mission Viejo, Orange County Coastkeeper, County of Orange,

Comment: Several comments were received regarding the applicability of site-design BMPs on various sites dependent upon soil, slope stability, potential contamination of vegetation/groundwater and aesthetics. Recommendations included modifying language in this section to address feasibility concerns, to allow treatment controls in lieu of site-design BMPs, and to substitute watershed and subwatershed based planning rather than project-by-project site design. One comment also noted that lot-by-lot placement of site design or LID BMPs may not be as effective or practical as locating BMPs with the entire development in mind. Other comments stated that site-design and LID BMPs are not adequately regulated by the Tentative Order as the Order lacks pretreatment, performance, inspection and maintenance requirements.

Comments regarding the LID Substitution Program indicated that Section D.1.d.8 does not provide sufficient flexibility for innovativeness, that retrofit projects should be encouraged to include LID, and that it is not clear how one would distinguish between an LID practice that is a treatment control BMP and one that is not. Additionally, one commenter recommended removing “freeways” from D.1.d.8.e because the Copermitees do not design, construct or operate freeways.

Response: The Tentative Order has not been revised. It clearly states that site-design BMPs must be considered and should be based on soil, slope, and other pertinent site conditions and should be placed where applicable and feasible, considering the entire development. This section does not preclude pretreatment of runoff or the design of aesthetically pleasing and safe site-design BMPs, nor does this section prohibit the incorporation of site design BMPs on a watershed or subwatershed basis as applicable. The Regional Board intends to evaluate information generated during this permit cycle when considering whether to incorporate additional standards regarding site design BMPs in the next reissuance. Comments regarding site design BMPs and the LID Substitution Program are addressed at greater length in Fact Sheet Sections D.1.d.6 and D.1.d.8.

31. Section D.1.d.6: Treatment Control BMP Requirements for SUSMPs

Commenters: Contech Stormwater Solutions, Inc., Rancho Mission Viejo

Comment: One commenter requested that the Tentative Order allow additional methods for use in determining volume-based sizing criteria for treatment control BMPs (Section D.1.d.6.a.i).

Response: As discussed in the Fact Sheet for this section, the Order intentionally limits the selection of methods used to determine the appropriate volume of runoff to be treated. This is done to ensure the greatest degree of accuracy and consistency. The Fact Sheet had referred readers to the County’s Model WQMP for the isopluvial maps. As requested, the Tentative Order has been revised to include a reference to the Orange County 85th Percentile Isopluvial Maps.

Comment: Two comments also requested that the language in Section D.1.d.6.b be modified to recognize that filtration is a method of treating water and that infiltration and filtration are both treatment control BMP options.

Response: The Tentative Order has been revised based on these comments.

32. D.1.d.11: Reviews of Treatment BMP in Local SUSMPs

Commenters: City of Dana Point

Comment: One commenter requested that the requirement to review and update the treatment BMPs lists within the local SUSMPs be changed from an annual activity to one conducted twice during the Permit term. The rationale is that the local SUSMPs list categories of BMPs, rather than specific proprietary devices, and significant changes in the expectations of each BMP category would not change on an annual basis.

Response: The Regional Board notes that the Copermittees have failed to adequately integrate findings from their own treatment BMP effectiveness studies into the local SUSMPs. Several examples are listed in the Fact Sheet. The Tentative Order requires that findings from projects conducted by the Copermittees using State funds must be incorporated into the local SUSMPs.

The Regional Board agrees with the premise of the comment that less frequent updates can suffice for keeping the countywide Model SUSMP up to date with the general, nationwide effectiveness reports cited in the Model SUSMP. However, Copermittees need the ability to rapidly incorporate findings from local projects. This is especially important for various types of proprietary products within the broad categories of the Model SUSMPs.

As a result, the Tentative Order has been revised to allow for less frequent updates, provided that Copermittees use their discretion and professional judgment when considering types of BMPs within the categories. That is, if they have reliable information about a particular product that discredits claims purported in an applicant's storm water plan, the Copermittees cannot approve the use of that particular product just because it falls under a certain category on the Model SUSMP chart.

**33. Section D.1.e: BMP Construction Verification; and
Section D.1.f: Treatment Control BMP Tracking**

Commenters: Contech Stormwater Solutions, Inc., City of Laguna Hills, City of Aliso Viejo, City of Dana Point, County of Orange, Rancho Mission Viejo, City of Lake Forest

Comment: One commenter suggested revisions to Section D.1.f so that only structural source control and treatment control BMPs be verified and that such verification should occur during regular construction inspections. Several other comments indicated that compliance with inspection requirements will require a significant commitment from Copermittee staff and may require the addition of staff, an outlay of funds with questionable value. Recommendations were made to allow self-certification by facilities, inspection by a third party and/or verification by the Copermittee on an as-needed basis.

Response: To the extent that site design and non-structural source control BMPs are properly employed, they play a critical role in the prevention of storm water pollution and urban runoff on developments, a tenet of the Tentative Order. For this reason, the proper construction of all BMPs, not just structural BMPs, must be verified. The language proposed in the Tentative Order affords the Copermittee maximum flexibility in determining at what point during the construction process inspections are performed, so long as the BMPs are verified prior to occupancy. The language in Section D.1.f.c.iii of the Tentative Order has been modified to allow the Copermittees more latitude with verifying treatment control BMP operations through self-certification, third party inspection and/or verification by the Copermittee.

**34. Section D.1.h: Hydromodification; and
Finding C.8**

Commenters: County of Orange, City of Laguna Niguel, City of Mission Viejo, City of Lake Forest, Construction Industry Coalition on Water Quality, Building Industry Association of Orange County, Contech Stormwater Solutions, Inc. Rancho Mission Viejo, Natural Resources Defense Council, South Laguna Civic Association

Ten commenters directly or indirectly addressed issues pertaining to Tentative Order requirements for hydromodification and downstream erosion in priority development projects (Section D.1.h). Commenters generally acknowledge that the Tentative Order properly includes more specific requirements for hydromodification, but that certain changes should be made to reflect conditions in the region and the state of technical knowledge regarding the matter.

General Hydromodification Comments

Comment: One commenter suggested the requirements for LID and site design BMPs should be strengthened in order to more effectively address concerns for hydromodification. That commenter asserted that LID approaches can often be used to fully satisfy hydromodification concerns. Another commenter recommended that the Copermittees be directed to restore certain high value water bodies, such as the estuary at the mouth of Aliso Creek, which have been adversely affected by hydromodification. That commenter also suggests that the Regional Board consider hydromodification effects to downstream water bodies from increased dry-weather flows, which has led to ecological and water quality problems as intermittent streams are converted to perennial streams.

Response: The Regional Board agrees that LID approaches can be used to lessen potential hydromodification effects from priority projects and expects many of the measures required by Copermitees to fall under the umbrella of LID. This approach is consistent with the State Water Board's Panel on Numeric Effluent Limits (Numeric Effluent Panel)⁸, which encouraged minimizing the amount of impervious areas to reduce adverse hydromodification effects. In some situations, however, other approaches or a combination of approaches may be suitable.

The Regional Board also acknowledges that changes to the dry-weather flow regime have caused or contributed to conditions of pollution in the region's water bodies. The Annual Reports and ROWD submitted by the Copermitees also reflect this awareness. The Tentative Order includes requirements for addressing dry-weather discharges within the development of each Copermitee's hydromodification management strategy (see Sections D.1.h.1 and D.1.h.2). Other requirements, including Sections A and B of the Tentative Order, properly address the discharge of pollutants in dry-weather discharges.

The Tentative Order does not directly require restoration of water bodies currently affected by hydromodification, but it does provide for measures to be implemented that will improve problematic conditions. For example, consistent with Federal regulations, the Copermitees must address water quality when retrofitting structural flood control devices (Section D.3.a.4). In addition, the Tentative Order requires that Copermitees develop control measures for non-storm water discharges that are determined to be a significant source of pollutants, even if those discharges would otherwise be exempt from the prohibition on non-storm water discharges into the MS4 (Section B).

Implementing a Hydromodification Control Strategy (Section D.1.h.3)

The Tentative Order requires that the local SUSMPs be updated to include adequate considerations of hydromodification effects from proposed projects (Section D.1.h.1 through D.1.h.4) in a phased approach. First, the current assessment of hydrological conditions of concern within local SUSMPs would be refined within one year through the development of a hydromodification control strategy (Section D.1.h.3). Specific criteria would be added within two years based on future reports produced by the Stormwater Monitoring Coalition (SMC) and the Southern California Coastal Water Research Project (SCCWRP), since those reports represent the most locally-appropriate technical investigations into this issue (Section D.1.h.4). Until the SUSMPs are modified to include the specific criteria, certain interim requirements would apply to large projects (Section D.1.h.5).

Comment: Several comments sought additional time to develop the control strategy and specific criteria. Some comments sought exemptions from the requirements for certain types of projects. Other comments focused on the interim requirements.

⁸ Storm Water Panel Recommendations to the California State Water Resources Control Board. 2006. The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial, and Construction Activities.

Response: Reports already produced by SMC and SCCWRP were used to establish requirements for developing the hydromodification control strategy. Because new development activity in most municipalities is not expected to be substantial, the Regional Board considers the preliminary conclusions from existing SMC/SCCWRP reports to be sufficiently descriptive for the Copermittees to make appropriate modifications to their SUSMPs.

Requirements in the Tentative Order for developing appropriate hydromodification controls consists of three parts: (1) Assessment of conditions downstream from a proposed project site; (2) Assessing the proposed discharge characteristics of the project to understand whether the project has the potential to affect the downstream conditions; and (3) Requiring appropriate management measures to prevent adverse downstream effects.

This approach is consistent with the current Permit's requirements to "maintain or reduce pre-development downstream erosion, and to protect stream habitat." (Section F.1.b.2.b of Regional Board Order No. R9-2002-01). The current Permit requires the Permittees to consider both "changes in storm water discharge flow rates, velocities, durations, and volumes resulting from the development project" and the "sensitivity of receiving waters to changes in storm water discharge flow rates, velocities, durations, and volumes." (Section F.1.b.2.e of Order No. R9-2002-01).

Comment: Several comments sought to postpone development of the hydromodification management strategy.

Response: As discussed in the Fact Sheet, the Tentative Order emphasizes the need to develop and implement a hydromodification control strategy based on findings from the Copermittees, the SMC, and the State Water Board's Numeric Effluent Panel. The Copermittees recognize the need to improve their consideration of hydromodification, but the approach proposed in the ROWD and DAMP is to wait and see if the SMC/SCCWRP studies provide specific recommendations that could be included into the model WQMP. Because the Copermittees have indicated elsewhere that two years are needed to revise the model WQMP, that could result in at least four years before any changes are made to the way Copermittees address hydromodification. The Regional Board considers such a delay inappropriate, so the Tentative Order provides a pathway for developing a strategy consistent with the current state of knowledge that also incorporates future findings from the local studies.

Comment: In addition to suggesting postponing the requirement to develop the hydromodification strategy, other comments suggested allowing an alternative approach based on watershed management plans if those plans address hydromodification.

Response: The Regional Board understands that hydromodification is often a problem suitable for watershed-based assessments and recommendations. It is anticipated that the strategy developed by the Copermittees considers the issues within a watershed context. This is recognized in the Tentative Order's requirements for waivers (Section D.1.h.3.c), where implementation of measures may occur at locations within the same watershed as the project, rather than in the area directly affected by the proposed discharge. This type of approach is consistent with practices encouraged by the State Water Board Panel on Numeric Effluent Limits. Copermittees are encouraged to incorporate findings from watershed-based studies into their hydromodification control strategies.

Comment: Other comments recommended exempting two classes of projects from the hydromodification requirements. Exemptions were suggested for projects that discharge into engineered or hardened channels that were built to accept such flows and for high-density urban redevelopment projects because they already provide a more efficient ratio of land-use to imperviousness than other types of projects and may not have area available to allocate to hydromodification controls.

Response: The Regional Board agrees that the potential for adverse effects from hydromodification is a function of the condition of receiving waters and the details of the development project. The Tentative Order includes provisions allowing the Copermittees to consider these factors in their review of proposed priority development projects and their selection of appropriate management measures.

A waiver provision is also included in the Tentative Order (Section D.1.h.3.c, discussed below) that establishes criteria based on the likely effect of the project. Exemptions for additional specific situations are not necessary. A broad exemption for dense urban redevelopment would discount the opportunity to improve hydrological conditions, contrary to the rationale used to require treatment control BMPs within redevelopment projects. A broad exemption for projects that discharge to waters that have been modified to accommodate storm flows similarly discounts potential improvements to water quality and beneficial uses. For instance, a segment of a hardened channel may be able to safely convey increased runoff velocities or flows from a priority development project, but that does not guarantee that reaches downstream of the hardened segment would not be affected by the changed flow regime. In addition, implementing hydromodification controls for sites that discharge to hardened channels provides an opportunity to lessen the need for that hardscape to be maintained when the facility is scheduled for retrofit opportunities. The cumulative effects of limiting the need for hardened channels will result in significant improvement to water quality and associated beneficial uses.

Waivers for On-Site Hydromodification Controls (Section D.1.h.3.c)

Comment: Several commenters discussed the criteria under which waivers of on-site hydromodification controls could be issued (Section D.1.h.3.c). The waiver provision allows the Copermittees to require that a project improve degraded stream channel conditions if that would produce better results than on-site hydromodification controls. Comments generally focused on the appropriateness of the numeric criteria for meeting waiver provisions and the feasibility of implementing in-stream measures to improve beneficial uses in areas affected by hydromodification.

The Tentative Order requires that certain determinations be made before a waiver for on-site controls is granted. One determination is that there is a lack of discharge-caused hydrology changes (as opposed to hydrology changes induced by physical changes to the receiving waters). The determination must be based on the numeric thresholds established in the Tentative Order. One set of commenters objected to the use of total impervious cover as the metric associated with the criteria. Other comments questioned how the numeric criteria for changes to total impervious cover were selected.

Response: The Regional Board agrees with commenters that alternatives to total impervious area (TIA) may provide a better indication of the potential hydrology changes from a project. Three commenters suggest using the amount of directly-connected impervious area (DCIA). A SMC/SCCWRP report "Managing Runoff to Protect Natural Streams," agrees that a more appropriate assessment would be based on "effective impervious cover," the amount of impervious cover that is hydrologically connected to the stream channel. The report notes that previous studies relying on TIA would likely have found observed channel responses at lower levels of imperviousness had the effective cover indicator been used. The Copermittees, however, may not have the ability to feasibly assess the amount of alternatives to total impervious cover, and numeric thresholds have not been established by technical investigations. Nonetheless, the Tentative Order has been revised to allow DCIA or effective impervious cover to be used as indicators provided that numeric criteria are established based on local studies.

As noted in the Fact Sheet discussion of Section D.1.h, the criteria within the Tentative Order for a threshold of five percent increase in impervious cover is based on reports from SMC/SCCWRP. Those reports note that physical degradation of stream channels in this semi-arid region may be detectable when basin impervious cover is between three percent and five percent. And, they note that biological effects are probably occurring at lower levels. The criterion for redevelopment projects is not based on similar technical reports. It is necessary, however, to address hydromodification effects, rather than waive controls, from redevelopment projects. Thus, numeric criteria are proposed in the Tentative Order.

Comment: One commenter suggested redevelopment projects receive waivers if they simply do not increase the impervious area and do not decrease the infiltration capacity of pervious areas. No commenters provided alternative numeric waiver criteria that would improve conditions.

Response: The result of the comment would be no change from current conditions. The intent of hydromodification controls is to maintain or reduce downstream erosion conditions and protect habitat. Rather, Copermitttees must seek to improve water quality conditions in urban environments as redevelopment occurs. To address concerns regarding redevelopment, the Tentative Order has been revised to reduce the related threshold to receive waivers for on-site hydromodification control. This section has also been revised to provide for changes to the criteria in the waiver program based on findings from future SMC/SCCWRP reports.

Comment: Commenters also questioned whether the waiver condition to implement in-stream measures elsewhere within the watershed was feasible. They questioned whether anything could be done to improve the beneficial uses within waters affected by hydromodification.

Response: The requirement, however, is based on the recognition that many control measures can be implemented to improve conditions of a degraded channel. Numerous studies have documented how restoration or enhancement measures can improve degraded channel conditions. This approach is also consistent with an approach to implementing measures based on a watershed assessment of problem areas.

Developing Hydromodification Criteria (Section D.1.h.4)

Comment: Comments were received suggesting that two years is insufficient to develop specific criteria for the updated hydromodification control strategy. A concern was also expressed that reports from the SMC and SCCWRP may not be available within that timeframe.

Response: Section D.1.h.4 of the Tentative Order has been revised to allow three years before numeric criteria must be implemented.

Interim Hydromodification Requirements (Section D.1.h.5)

The Tentative Order contains interim requirements for large projects, which would be developed within six months and apply until the specific criteria are established for all priority development projects (Section D.1.h.4). The requirements include management measures that can be applied to all projects, but the Tentative Order limits the interim requirements to projects 20 acres and larger in order to focus short-term attention on larger projects. Based on a review of the state construction NPDES database in February 2007, this threshold represents approximately 25 percent of construction projects that are over one acre in the south Orange County region.

Comment: Some comments suggested that six months was inadequate to ensure that interim requirements would be implemented. Commenters suggested that up to two years should be allowed in order to develop criteria that would be substantially similar to the criteria required by Section D.1.h.3.

Response: The Tentative Order has been revised to allow 12 months to develop the interim criteria. This will allow for a similar timeframe as the implementation of updated SUSMP treatment control BMP requirements.

Comment: Some comments suggested that the interim requirement to control runoff using a hydrograph matching technique was inappropriate. Commenters were concerned that this would not represent geomorphically-referenced criteria, and alternatives were recommended. One commenter recommended that peak flow rate and runoff volume criteria should be used instead of hydrograph matching. Another commenter suggested using flow-duration control criteria that was developed for the Santa Clara Valley region or developing a local implementation tool based on nomographs derived from hydrological modeling and local rain patterns and soil types.

Response: The Regional Board sought clarification from the commenter (Construction Industry Coalition on Water Quality) and sought comments on the flow-duration recommendation from the County of Orange. The Tentative Order has been revised to allow Copermittees to select from alternatives for assessing hydromodification effects. Hydrograph matching of a range of storm events remains as one option. The two recommendations from the Construction Industry Coalition on Water Quality have also been added.

Hydrograph matching was included in the Tentative Order instead of flow-duration control because it would be somewhat easier to implement. Flow-duration controls would likely provide better protection of water quality, but requires project proponents (or municipalities) to conduct hydrologic modeling that is more sophisticated than traditional techniques. Furthermore, establishing numerical criteria for flow-duration involves calculating an amount of deviation from pre-existing flow-duration curves that ideally should be done based on local hydrogeomorphic conditions. Using the flow-duration criteria developed for the Santa Clara Valley region may be inappropriate for long-term use in Orange County, but is reasonable as interim criteria. Although there is a risk that the 10-percent deviation criteria appropriate for the Santa Clara Valley may overestimate the resiliency of natural channels in southern Orange County, it represents an improvement over the current method used by the Copermittees. It is also widely recognized as the most technically-sound approach to developing hydromodification assessment tools.

The assessment tool based on nomographs has received less peer-review and industry evaluation than either hydrograph matching or flow-duration criteria. It represents a simplified approach to developing flow-duration criteria based on local conditions. Development requires the use of calibrated hydrological models for the region. It is likely that if hydrologic models need to be developed, then the Copermittees would not select this option. If calibrated models are available, then development of the nomograph tool could be a more cost-effective approach than either of the other alternatives.

Comment: Additional comments suggested that the interim requirements regarding on-site controls, including the disconnection of impervious surfaces were inappropriate (Sections D.1.h.5.a.i and ii).

Response: The Regional Board agrees that interim requirements for large projects should allow for off-site areas to be used to manage hydromodification effects of small precipitation events, provided that the controls are implemented prior to the receiving waters. The Regional Board expects that the waiver provision of Section D.1.h.4 would be used to determine when on-site hydromodification controls would appropriately be waived. However, this does not supercede the requirements for site-design treatment BMPs (Section D.1.d). The Regional Board also agrees with the commenter who suggested that the requirement for stream channel buffer zones (Section D.1.h.5.a.iv) be applied where appropriate, but disagrees that the current condition should dictate whether the requirement is appropriate. The Regional Board does agree with the commenters who suggested geomorphically-referenced channel design techniques be applied to in-stream control measures.

Comment: Commenters also offered suggestions for exempting certain types of projects from the interim hydromodification requirements. Similar to the comments on the general hydromodification requirements, commenters suggested exempting projects that discharge to hardened or engineered channels and projects within areas covered by a watershed plan. In addition, one commenter suggested offering exemptions for projects already approved with hydromodification BMPs.

Response: Since development of the interim requirements has been extended to one year to match development of the general hydromodification strategy, the waiver provisions in Section D.1.h.3 will apply to the large projects. Thus, no additional exemptions are necessary.

SECTION D.2 - Construction

35. Section D.2: General Comment

Commenters: Building Industry Association of Orange County, Orange County Coastkeeper

Comment and Response: Comments were received asking the Regional Board to encourage Copermittees to collaborate with the regulated community and to allow Copermittees the use of discretion in the planning process. The Tentative Order already provides for both.

36. Section D.2: General Comment

Commenters: Building Industry Association of Orange County

Comment: One commenter stated that the Tentative Order improperly applies prescriptive requirements to very small construction sites. The commenter suggested a better approach to regulate sites less than one acre is through ordinances that require preparation of an erosion control plan for construction sites of all sizes.

Response: The Tentative Order requires that general site management as well as erosion and sediment control BMPs be applied to all construction sites regardless of size. The Tentative Order, however, does provide the Copermittees the ability to determine the appropriate specific BMPs to be included in local erosion control plans for small sites.

37. Section D.2.c.1.i: Designating advanced treatment BMPs

Commenters: County of Orange, City of Dana Point, Building Industry Association of Orange County, Construction Industry Coalition on Water Quality, Rancho Mission Viejo

Comment: Five commenters discussed the requirement (D.2.c.1.i) for each Copermittee to require implementation of advanced treatment for sediment at construction sites (or portions thereof) that are determined by the Copermittee to be an exceptional threat to water quality. Two commenters suggested the requirement be deleted because of uncertainty for the costs and benefits (or technical feasibility) of the practice. Another commenter suggested requirements for advanced treatment should be addressed within the context of the Statewide General Construction NPDES permit. Another commenter noted that the State Water Board Numeric Effluent Panel expressed concerns with the use of advanced treatment BMPs. Other commenters asked for clarification that advanced treatment is not the only type of "enhanced" measure that is required in Section D.2.c.1, which requires Copermittees to designate enhanced BMPs for construction discharges to water bodies that are impaired for sediments/turbidity or that discharge to environmentally-sensitive areas (ESAs).

Response: The Tentative Order does not limit the scope of “enhanced” measures to advanced treatment. Rather it allows each Permittee to establish the conditions under which it would require the use of advanced treatment (a.k.a. active treatment). This is consistent with the findings of the Numeric Effluent Panel that found advanced treatment is technically feasible, but may be cost-prohibitive for certain sites that are small or short-term. The Numeric Effluent Panel also noted that consideration of potentially toxic or detrimental environmental effects is important. The requirement within the Tentative Order allows each Copermittee to take such important considerations. No revisions have been made to this section.

38. Section D.2.c.2: Construction Storm Water Management Plans and the Statewide General Construction Storm Water Permit

Commenters: Building Industry Association of Orange County, City of Aliso Viejo, City of Dana Point, City of Mission Viejo, County of Orange, City of Lake Forest

Comment: Several commenters discussed the requirement (D.2.c.2) to review a project proponent’s storm water management plan. A few thought the Regional Board intended for the Copermittees to review the project’s *Storm Water Pollution Prevention Plan (SWPPP)* prepared for compliance with the Statewide General Construction NPDES permit (State Board Order No. 99-08-DWQ). Two commenters suggested changes to the language to clarify that the requirement applies to review of local construction storm water plans.

Response: As discussed at the March 2007 workshop, the intent of the requirement is for Copermittees to review the plans required by their local ordinances, not the Construction NPDES permit. Section D.2.c.2 has been revised for clarification.

Comment: One commenter also asked whether the Copermittees must comply with the Statewide General Construction NPDES permit (State Board Order No. 99-08-DWQ) and stated that the Tentative Order places the Copermittees in charge of ensuring compliance with the Construction NPDES permit.

Response: The Copermittees must comply with the Construction NPDES Permit. The Tentative Order does not require the Copermittees to ensure compliance with the conditions of the Construction NPDES Permit. It does require that prior to issuing local grading and construction permits, that each Copermittee verify that project proponents subject to the Construction NPDES Permit have existing coverage under the General Construction Permit. This involves having the project proponent provide a WDID number or a copy of the State Water Board letter acknowledging enrollment.

39. Section D.2.d.1.a and Section D.2.d.1.b: BMP Designation for Site Management and Erosion and Sediment Controls

Commenters: City of Dana Point, City of Mission Viejo, Rancho Mission Viejo

Comment: Three commenters discussed the requirement to designate BMPs for general site management (D.2.d.1.a) and erosion and sediment controls (D.2.d.1.b). One suggested that the preservation of natural hydrologic features and riparian buffers are not construction BMPs. Other commenters addressed slope stabilization. One comment suggested that slope stabilization is unworkable on all active slopes during rain events, and another comment suggested the need to define slope stabilization.

Response: The Tentative Order requires the preservation of natural hydrologic features and riparian buffers where feasible. Those requirements have not changed from the existing Storm Water Permit (Regional Board Order No. R9-2002-01). The preservation of riparian buffers and natural hydrologic features as construction BMPs provide a variety of benefits for water quality and associated beneficial uses of the stream that may be affected by the construction activities. This practice is referenced in the construction BMP fact sheets for Streambank Stabilization (EC-12) and Preservation of Existing Vegetation (EC-2) used by the Copermitees in the County of Orange.

The requirement to stabilize slopes in Section D.2.d.1.b has been clarified from the existing Permit to provide further guidance for meeting the maximum extent practicable standard. The existing Permit requires project proponents to stabilize all slopes, without any reference to when stabilization is necessary. The Tentative Order does not define slope stabilization because it is expected that the Copermitees will rely on standard industry guidance and their own studies of slope stabilization.

40. Section D.2.g: Reporting of Non-Compliant Construction Sites

Commenters: City of Dana Point

Comment: One commenter requested the deletion of the requirement (D.2.g) for Copermitees to notify the Regional Board when the Copermitee issues a stop work order or other high level enforcement to a construction site in its jurisdiction as a result of storm water violations. The commenter stated the notification would be unnecessary since a compilation of such information is already reported in the Annual Reports.

Response: This tentative requirement to notify the Regional Board was clarified from a similar existing requirement that requires oral and written notification of non-compliant sites that are determined to pose a threat to human or environmental health. The existing requirement was established in order to help ensure that compliance has been achieved and to enable the Regional Board to participate in follow-up efforts, if necessary, to assure that the construction site is in compliance. The tentative requirement was modified to clarify understanding of when notification is necessary.

SECTION D.3 – Existing Development

41. Section D.3: Minimum BMPs

Commenters: Contech Stormwater Solutions, Inc.

Comment: One comment was received regarding minimum and enhanced BMPs for existing development asking for clarification about the intent of the section, timelines for BMP implementation and whether or not structural BMPs may be required.

Response: Because existing development retrofits with structural treatment systems are generally more complicated and costly than with new development, it is anticipated that these systems will only be used in situations where non-structural practices are impractical or ineffective.

42. Section D.3.a.4.c: Assessment of Existing Flood Control Devices

Commenters: City of Laguna Hills, City of Aliso Viejo, City of Dana Point, City of Mission Viejo, County of Orange, City of Lake Forest, City of Laguna Niguel

Comment:

Several commenters questioned the rationale behind requirements to address flood control devices (Section D.3.a.4). One point was that flood control devices do not inherently generate pollution. Rather, they simply convey storm water or urban runoff from a facility to a discharge point, and the storm water or urban runoff itself may or may not contain pollutants. Others noted that many flood control devices in this region are owned and operated by the Orange County Flood Control District. Other comments requested a clear definition of “flood control device,” examples of devices that should be replaced, additional justification and rationale for the provision, flexibility with retrofitting devices only as needed over time, and removal of the evaluation deadline from the Tentative Order.

The County of Orange also argued that the provision is unnecessary because it duplicates work that has already been completed under the existing permit. They cite a technical memorandum *Identification of Retrofitting Opportunities – Existing Channel Assessment* (County of Orange, November 2003), which they claim sufficiently identifies locations within the flood control channel system that appear to have potential for modification to enhance beneficial uses or provide a pollution control function.

Other comments suggested this section conflicts with Finding E.7, one asserting that such retrofit efforts are fruitless unless the Regional Board allows structural flood control device retrofits. A discussion of Finding E.7 and the requirements for retrofitting flood control device is provided in the “Comments on Findings” section of this document.

Response: Section D.3.a.4.c has not been revised. As described in the Fact Sheet, the requirements are clearly based on federal regulations at 40 CFR 122.26(d)(2)(iv)(A)(4). The requirements are based on the recognition, articulated by U.S. EPA (cited in the Fact Sheet), that flood management projects can harm aquatic habitat and aesthetic values. The Tentative Order does not establish a time period in which retrofits must be completed, rather development of an implementation schedule is specifically left to each Copermittee in Section D.3.a.4.c. The Fact Sheet also provides examples of retrofit projects. The discussion of comments on Finding E.7 within this document provides another example from southern Orange County.

The Regional Board appreciates the fact that many structural flood control devices are owned and operated by the Orange County Flood Control District, which is also a Copermittee. Each Copermittee must meet the requirements of the Tentative Order for its structural flood control devices. The Regional Board expects that the Flood Control District and other Copermittees will communicate with each other regarding structures owned by the District that serve other municipalities.

Even though the purpose of the County's November 2003 Report was to provide a first step in identifying opportunities for channel modification, it did not provide a complete assessment of structural flood control devices in the region. For instance, the report only evaluated channel segments owned or under easement to the Flood Control District. In addition, the only consideration for hardscaped channels was to install trash/debris removal devices. In doing so, it neglects significant potential improvements for concrete structures as they need repair or replacement. Furthermore, evaluation of retrofit opportunities in unlined channels was severely restricted. As a result, the section on planned retrofit opportunities includes only one project in the Copermittees' area. That project was only included because the Flood Control District had plans to do something. The Report did not include any evaluation of effects on water quality or potential improvements. Similarly, the Report's section on channel segment assessments did not include any projects in the Permit region and states that the field review of channel segments was restricted to the Santa Ana Regional Board's area. As a result, the November 2003 Report cannot be relied upon for a description of retrofit opportunities in the region, and the requirements in the Tentative Order are justified.

43. Section D.3.a.5: Street Sweeping

Commenters: City of Laguna Hills, City of Aliso Viejo, City of Dana Point, County of Orange, City of Lake Forest

Comment: Generally, the Copermittees commented that the language in the Tentative Order should propose objectives rather than criteria and that the objectives should be determined based on local needs and experience. The Copermittees requested additional technical basis for this requirement and for the relationship between traffic counts and frequency of materials deposited on the street, a definition of “toxic automotive byproducts”, and recognition that street sweepers cannot remove liquid byproducts once absorbed into the asphalt.

The County of Orange also noted that the Copermittees are supportive of designing and implementing a street sweeping program that maximizes water quality benefits. They believe that this has already been accomplished in that the Copermittees have observed an 87% increase in the weight of material collected from 2001-2002 to 2004-2005.

Response: Subsection (a) of Section D.3.a.5 has been removed from the Tentative Order. The intent of Section D.3.a.5 is not to require that street sweeping be conducted, but to ensure that its use is optimized for storm water pollution prevention if reported as a storm water BMP. Subsection (a) had called for that optimization to be based on traffic counts. The qualitative criteria in the Section remain. Furthermore, as discussed in the Fact Sheet, Copermittees must evaluate current street sweeping programs to optimize efficiency and effectiveness in order to claim street sweeping as a BMP meeting the MEP standard.

44. Section D.3.a.7: Sanitary Sewer Infiltration

Commenters: County of Orange, City of Lake Forest

Comment: Two comments indicated that this provision is more applicable to sanitary sewer agencies and that it is an unnecessary duplication of other regulatory programs, citing the State Board’s stay on a similar provision, WQ 2002-0014. The comments further requested that other provisions such as plan checking, incident response training, code enforcement, MS4 maintenance, interagency cooperation and staff and public education should be moved to the ID/IC or municipal programs sections or should be deleted from the Order.

Response: Section D.3.a.7 identifies requirements regarding infiltration of sewage into the MS4 and preventive maintenance of the MS4. The requirements in the Tentative Order are specific to maintenance of the storm drain system and other tasks typically performed by the Copermittee and not the sanitary sewer agency, except in circumstances where the Copermittee operates its own sanitary sewer system. The requirements that apply to agencies which also operate sanitary sewers are clearly identified. Other requirements are reasonable functions of MS4 operators. This section has not been revised.

45. Section D.3.b.3: BMP Implementation for Mobile Businesses

Commenters: City of Laguna Hills, City of Aliso Viejo, City of Dana Point, County of Orange, City of Lake Forest, City of Laguna Niguel

Comment: Several comments received indicate that “mobile business” is not well-defined in the permit, the Findings do not address this provision, and Copermittees do not have adequate staff to identify mobile businesses. Four Copermittees also indicate that they do not have a business license program, and one requested that other business codes may be used in lieu of SIC. Because mobile businesses typically operate in multiple jurisdictions, one commenter felt that this is an element of the program that is best addressed regionwide, while the County of Orange indicates that this is a program better handled locally. Additionally, one commenter indicated that although this provision is not a significant change from the existing Permit, it would best be managed first through a pilot program handling those businesses that may be a significant source of pollutants. Several comments supported a pilot program.

The County of Orange, however, indicated that this is significantly different from the existing commercial/ industrial program, which largely focuses on fixed facilities. The County continues that rather than finding a solution for this problem, the Permit directs Copermittees to implement a number of non-descript solutions that will not necessarily make regulation of mobile businesses any easier. It requests the Regional Board revise this section to provide Copermittees with discretion to focus on mobile sources when they feel it is necessary, or if they identify mobile businesses as a significant source of storm water pollution within their jurisdiction.

Response: The use of the term “mobile businesses” is defined in the Fact Sheet as being service industries that travel to the customer to perform the service rather than the customer traveling to the business to receive the service. Examples of such mobile businesses are provided. SICs, other business identification systems and, oftentimes, common sense are appropriate for designating such businesses.

As discussed in the Fact Sheet, the inclusion of mobile businesses in the Tentative Order is not a significant change from the existing Order which also requires BMP implementation for certain mobile businesses. However, because of the unique difficulties associated with regulating mobile businesses, it is appropriate to segregate mobile businesses from fixed location businesses in the reissued Permit.

The language in the Tentative Order is intended to provide broad flexibility to the Copermittees to account for the individual make-up of each municipality and for the difficulties with identifying and communicating with mobile business operators. This section has not been revised.

**46. Section D.3.b.4.c – Food Facility Inspection Protocols; and
Section D.3.b.4.d – Third Party Inspections**

Commenters: City of Laguna Hills, City of Aliso Viejo, County of Orange, City of Lake Forest

Comment: Several comments indicated that the requirement for inspectors to access building roofs is infeasible and poses a safety concern. Comments also noted that grease discharges are already regulated by the countywide Fats, Oils and Grease (FOG) program. Further, they suggest that the current restaurant inspection program, conducted by the Orange County Health Care Agency (OCHCA) on behalf of the Copermittees, has claimed significant success, therefore, any new requirements are unjustified. The County of Orange further indicates that the Findings and the Fact Sheet do not address the need for expanded requirements for third party inspections. They reason that the ability to utilize third-party inspections (the OCHCA) to-date has allowed the Copermittees to maximize their resources.

Response: The requirement to address greasy roof vents (Section D.3.b.4.c.iv) has been removed. This requirement had been included based on findings from inspectors as reported during Aliso Creek Watershed meetings. Non-OCHCA restaurant inspectors have found that greasy roof vents may be a significant source of oil and grease pollution in the drainage. A significant amount of grease may accumulate on the roofs, which is then washed into the MS4 during rain events because most commercial roofs are likely directly connected via impervious surfaces to MS4 inlets. Sewer agency involvement through FOG programs is limited to the oil and grease that drains to the sewer system and not to the storm drain system. Unless roof drains are tied to the sanitary sewer line, which in most cases they will not be, the FOG program will not be helpful in abating oil and grease pollution from improperly maintained roof vents.

If greasy roof vents continue to be a concern through the term of the reissued Order, the Regional Board may consider a similar provision in the future. Alternatively, with proper cause, the Regional Board may require a technical investigation, pursuant to California Water Code Sections 13225 and 13267, to determine the extent or severity of pollutant loading associated with these facilities.

47. Section D.3.c.5: Common Interest Area (CIAs) and Home-owners Association areas (HOAs)

Commenters: Building Industry Association of Orange County, City of Laguna Hills, City of Aliso Viejo, City of Laguna Niguel

Comment: One comment indicated that while the Tentative Order requires Copermittees to regulate HOAs and CIAs, it does not allow Copermittees to collaborate with these groups. Agreements with HOAs, CIAs and similar entities may improve water quality and such collaboration may allow the Copermittees to expand their water quality reach, allowing for greater water quality benefits. Another comment states that Copermittees should be given flexibility to develop and implement a plan to ensure that urban runoff from CIA/HOA activities meets the objectives of the Tentative Order. One commenter felt that the intent and scope of this section is not clear. Another suggested that the limitation on car washing activities in HOAs is contradictory to Section B.2.p and may cause residents to resist all urban runoff regulations.

Response: The Tentative Order and the Fact Sheet document do not preclude Copermittees from collaborating with CIAs/HOAs, nor do they prohibit residential car washing (unless the Copermittee determines such activities to be a significant source of pollution in the watershed). The regulations intentionally afford the Copermittees significant flexibility with program development. No revisions have been made to this section.

SECTION D.4 – Illicit Discharge Detection and Elimination

48. Section D.4.e – Investigation / Inspection and Follow-up

Commenters: City of Aliso Viejo, City of Dana Point, City of Mission Viejo, City of Laguna Hills, County of Orange, Orange County Coastkeeper,

Comment: Six commenters offered suggestions for revising the requirement to implement procedures to investigate and inspect portions of the MS4 when data or other information indicates a reasonable potential of an illicit discharge (Section D.4.e). One commenter requested that the public be involved in establishing the process of updating action levels (Section D.4.e.1). Other commenters requested the timeframes for conducting follow-up activities in response to data or notifications be lengthened in order to pull together adequate resources for a response.

Response: The Tentative Order already requires each Copermittee to incorporate public participation in the updating and implementation of the JURMPs (Section D.5). The Tentative Order requires obvious illicit discharges to be investigated immediately (Section D.4.e.2.a). This is an appropriate response when personnel are collecting information in the field and directly observing incidents of obvious illicit discharges. Several commenters object to the use of “immediately,” instead preferring up to two days to initiate the investigation. The Tentative Order does not define the actions to be included in the investigation because of the varied nature of potential illicit discharges. In some cases, field staff might notify appropriate personnel to perform reconnaissance or may begin a field investigation themselves. In other cases, the field staff may need to initiate consultations with experts or begin collecting resources to aid the field investigation. Regardless, the initial steps of an investigation need not be delayed up to five days as suggested by commenters.

Comment: Two commenters objected to the Tentative Order requirement to conduct an investigation within two days of receiving dry weather field screen or laboratory data that exceed action levels. One commenter suggested changing the language from “conduct an investigation” to “initiate an investigation.”

Response: The requirement was not intended to have a fully-completed investigation within two business days, but rather to begin conducting the investigation procedures. No revisions have been made to this section of the Tentative Order.

49. Section D.4.f – Elimination of Illicit Discharges

Commenters: City of Laguna Hills, City of Mission Viejo, County of Orange

Comment: Three commenters suggested the Regional Board consider changes to the Tentative Order requirement to immediately eliminate illicit discharges that pose a serious threat to the public’s health or the environment (third sentence of Section D.4.f). The commenters suggested changing the language from “immediately” to “as soon as practicable,” or “in a timely manner.”

Response: This requirement has already been relaxed from the current storm water permit requirement to immediately eliminate all detected illicit discharges, discharge sources, and connections (Section F.5.d of Regional Board Order No. R9-2002-01). The Regional Board expects that the Copermittee take action immediately to eliminate detected illicit discharges, but acknowledges that actual elimination may not occur immediately in some cases. No revisions have been made to this section of the Tentative Order.

50. D.4.h – Prevent and Respond to Spills

Commenters: City of Dana Point, City of Mission Viejo, Orange County Council of Governments

Comment: Three commenters took exception to the provision to prevent and respond to sewage spills (contained within Section D.4.h), noting that most Copermitees do not own or operate the sewage collection systems and that the State Water Board stayed this same provision in the existing storm water permit.

Response: Both of those facts are already acknowledged in the Fact Sheet. The Tentative Order includes sewage and non-sewage spills in the requirement for spill prevention and response. Federal regulations clearly define sewage as an illicit discharge that must be addressed by municipalities (see Phase II Final Rule, p.68758). Sewage is an illicit discharge to the MS4 that threatens public health. As such, the Copermitees must implement measures to prevent sewage from entering the MS4 system and must respond to illicit discharges that have entered the system. This section has been revised to clarify that that management measures and procedures must be implemented to prevent, respond to, and cleanup spills.

When the State Water Board stayed the sewage provision from Regional Board Order No. R9-2002-01, it found that the costs of the requirement did not constitute harm, but agreed that harm could ensue from potential response delay and confusion (Order WQO 2002-0014). Subsequently, the Copermitees and the local sewer agencies have developed mature relationships regarding sewage spill response. As a result, the concerns expressed by the State Water Board are no longer warranted. For instance, the Copermitees have developed and implemented procedures for spill response and sewage spill response. The Model Sewage Spill Response Procedure is outlined in the Copermitees' Proposed 2007 Drainage Area Management Plan (DAMP). According to the 2007 DAMP, regardless of where the spill originates, if the spill has entered or may enter the storm drain system, the Permitees respond to assist with the cleanup and remediation of the area.

Section D.3.a.7 of the Tentative Order includes requirements for measures that must be taken to prevent sewage spills. Examples of measures being implemented by Copermitees include inspections of fats, oils, and grease management at restaurants. Other preventative measures can be implemented during routine planning efforts for new development and redevelopment projects. Similarly, building permit inspections should be used to verify the integrity of the sanitary and storm sewer infrastructure and ensure that cross-connections between the two are avoided.

SECTION E – Watershed Urban Runoff Management

51. Section E: General Comments

Commenters: City of Dana Point, County of Orange, Building Industry Association of Orange County

Comment: Three commenters suggested the watershed urban runoff management program (WURMP) requirements are too prescriptive. One commenter suggested the requirements be modified to allow the stakeholders to identify BMPs and the details of implementation. Two commenters suggested that less-prescriptive requirements are warranted since the Copermittees already have watershed-based runoff management programs in-place. One commenter also suggested that the Regional Board should limit revisions in this section to those that fill gaps left by the rest of the requirements.

Response: The Tentative Order includes more detailed requirements to clarify the expectations for the process of BMP selection, implementation, and evaluation. However, the requirements within the Tentative Order do not specify what BMPs must be implemented. That, appropriately, is to be determined by the Copermittees with consideration to other watershed stakeholders. The Tentative Order does include common-sense requirements to ensure accountability to the process used to consider and select BMPs for implementation. For instance, it requires that Copermittees demonstrate that BMPs were considered with respect to the priority pollutant of the watershed and that realistic expectations were considered. Importantly, it also requires that Copermittees annually assess the effectiveness of the BMPs.

52. Section E.1: Update the Watershed Urban Runoff Management Program

Commenters: City of Dana Point

Comment: One commenter suggested changes to the assignments of Copermittees within the watershed urban runoff management programs and pointed out inconsistencies between Table 2b and Table 3 of the Tentative Order. For instance, Dana Point Harbor is included in the Dana Point Coastal Streams watershed management area. It was included in Table 2B, but left out of Table 3.

Response: The Regional Board agrees with the commenter that suggested the watershed urban runoff management programs (WURMPs) be focused on the highest-priority watersheds in the region, rather than continuing the existing watershed management area delineations from the current Permit. As a result, the Tentative Order has been revised to eliminate four of the six watershed management areas. The two remaining ones are the Aliso Creek watershed and the San Juan Creek watershed. Two Copermittees, the Cities of San Clemente and Laguna Beach would not be required to be involved in any watershed urban runoff management program activities.

Though seemingly a significant revision, this will not likely result in any significant decrease in water quality protection. The watersheds eliminated are the coastal streams watersheds, in which the vast majority of each urbanized drainage area lies within the jurisdiction of a single Copermittee. As a result, the potential benefits gained by developing and implementing a WURMP in those watersheds is much less than in the Aliso Creek and San Juan Creek watersheds. For example, BMP consideration, implementation, and assessment activities will be conducted overwhelmingly by a single Copermittee, and that Copermittee would likely be doing similar activities within its local JURMP. Other avenues exist for communication and information exchange between Copermittees of those coastal watersheds, such as general Copermittee meetings and other watershed meetings. And, nothing prevents the Copermittees within a particular watershed management area from electing to continue the current approach. The Regional Board expects that program savings from the revision would be transferred into implementation and assessment of BMPs to address the priority pollutants already identified.

53. Section E.1.a: Lead Watershed Permittee Identification

Commenters: Rancho Mission Viejo, City of Dana Point, City of Lake Forest, County of Orange

Comment: Commenters suggested the Tentative Order either not specify which Copermittees serve as default lead watershed Permittee, or be revised to specify the County of Orange as default lead Permittee (Section E.1.a). Two comments suggested that the Copermittees be allowed to select the lead watershed Permittee via a collaborative process.

Response: The Regional Board agrees a collaborative process should be used to select a lead watershed Permittee. The Tentative Order clearly indicates that any Copermittee may be designated lead watershed Permittee. A default Permittee was included in the unlikely event that one could not be selected by a collaborative process.

SECTION F – Fiscal Analysis

54. Section F.2: Annual Fiscal Analyses

Commenters: County of Orange, City of Aliso Viejo, City of Lake Forest, City of Laguna Hills, City of Dana Point, City of Laguna Niguel

Comment: Six commenters provided written statements generally opposing certain requirements for annual fiscal analyses within Section F.2. This was also a topic of significant discussion at the April 11, 2007 public hearing. Most commenters object to the Tentative Order requirement to include a qualitative or quantitative description of fiscal benefits realized from implementation of the storm water program (Section F.2.c). Reasons cited for the objection to this provision were often vague. Some commenters recognized the value of the exercise, but suggested the requirement be changed to a recommendation.

Response: Because Copermitees are unlikely to conduct quantitative assessments and qualitative assessments could be overly subjective, this requirement has been removed from the revised Tentative Order.

Comment: One commenter also suggested the requirement for a narrative description of budget changes of 25 percent or greater be deleted (Section F.2.b), but failed to provide any justification.

Response: This requirement is intended to demonstrate that significant changes to the municipal programs are based upon appropriate evaluations of the program's effectiveness and are consistent with the jurisdictional urban runoff management plan (JURMP). Previous annual reporting failed to demonstrate that budget changes had any relation to the JURMPs. This requirement has not been revised.

55. Section F.3: Long Term Business Plan for Municipal Storm Water Funding

Commenters: County of Orange, City of Lake Forest, City of Laguna Hills, City of Laguna Beach, City of Aliso Viejo, City of Dana Point, City of Mission Viejo, City of Laguna Niguel, Orange County Council of Governments

Comment: Nine commenters provided written statements generally opposing the requirement to prepare a Municipal Storm Water Funding Business Plan that identifies a long-term funding strategy (Section F.3). This was also a topic of significant discussion at the April 11, 2007 public hearing, where oral comments were similar to the written comments. Some commenters recognized the value of developing the plan, but suggested the requirement be changed to a recommendation. Several commenters noted producing such a plan would be difficult because knowledge of future funding sources may not be available. Others suggested a long-term plan would have no value because it provides no direct water quality improvement and Copermittees have already demonstrated a commitment to adequately funding the programs on an annual basis. One commenter suggested the requirement be deleted, except for the requirement to identify available funding methods and associated legal constraints (Section F.3.g).

Response: The Tentative Order requires each Copermittee to develop a long-term funding plan within five years. The Federal requirements call for municipalities to identify sources of revenue for the costs associated with implementing the proposed management programs (40 CFR §122.26.d.2.vi). As stated in the Fact Sheet, the intent of this requirement is to improve the long-term viability of the urban runoff programs. Currently each Copermittee provides an annual estimate of its budget for the upcoming annual reporting period. This does not demonstrate that each proposed program activity will be fully implemented because many proposed activities either have longer construction periods or require future expenditures for operation and maintenance (O&M). This presents challenges to the Regional Board when reviewing annual reports because, for example, future O&M costs for end-of-pipe treatment BMPs can become significant components of unreported future annual program costs.

For instance, recent estimates for a proposed ultraviolet urban runoff disinfection facility at the mouth of the Prima Deshecha Channel suggest that annual costs for operations and maintenance will be \$250,000. Although the project proponents intend to construct the project in the Summer of 2007 and have committed to at least 20 years of operation, neither has attempted to identify such expenditures in the annual storm water program reports. Such a significant long-term obligation could threaten the viability of sustaining basic requirements of the storm water permit, such as source control, pollution prevention, inspections, and training.

Similarly, many Copermittees report relying on general funds and transient grants, which demonstrates that program components are susceptible to significant changes in availability of funds. This places at risk the future obligations being proposed in the JURMPs and annual reports. Identification of planned funding mechanisms to support the urban runoff programs is a basic step toward ensuring their long-term viability.

Comment: In addition, some commenters expressed misunderstanding about the actual requirements of Section F.3.

Response: Although the requirement is to submit a plan that identifies planned funding methods and mechanisms, it does not commit or restrict the Copermitees to implementing those methods, and the business plan is not subject to approval by the Regional Board. This requirement has not been revised.

SECTION G – Program Effectiveness Assessment

56. Section G: General Comments

Commenters: City of Aliso Viejo, City of Dana Point, County of Orange

Comment: One commenter requested that the Copermittees be given one-year to develop an assessment effectiveness strategy.

Response: The Regional Board intended for such a timeframe to be provided. The Tentative Order has been clarified. The effectiveness assessment requirements in Section G must be included in the 2nd Annual Report (2008/2009) for the reissued Permit.

Comment: Two commenters discussed the requirements for assessing effectiveness. One commenter suggested that the Tentative Order does not provide enough specificity regarding how to assess effectiveness. The other suggested the requirements do not provide enough flexibility for the Copermittees to develop strategies for assessing effectiveness of their programs. That commenter also objected to requirements for developing specific objectives for impaired water bodies and environmentally-sensitive areas.

Response: The requirements in the Tentative Order are intended to set the context for the assessments, while providing flexibility to the Copermittees for developing the metrics and methods within that context.

The Regional Board disagrees with the commenter who suggested that the Tentative Order not require each Copermittee to conduct annual effectiveness assessments. The commenter based its recommendation on the grounds that assessments are more appropriately conducted on a regional basis, rather than jurisdictional basis. The Regional Board considers annual assessments of individual programs crucial to the implementation of effective programs. For instance, without such assessments, the Copermittees would be challenged to properly implement the iterative process of the Receiving Waters Limitation language. Annual assessments should be based on an evaluation of the findings of the individual program's components and water quality data. A regional assessment can help provide some context for the total effort or proportional effort of various components, but it cannot substitute for an assessment of the actual effectiveness of the jurisdictional program.

ATTACHMENT E – Monitoring Program

57. Attachment E: General Monitoring Comments

Commenters: Dana Point, County, LN, Coastkeeper, Mission Viejo

Comment: Several comments focused on changes to the constituents within the monitoring program.

Response: The Regional Board agrees with the two commenters who felt that DDE should not be included in the mass loading program at San Juan Creek. DDE is included on the 2006 section 303(d) list of impaired water bodies, but the source is unknown and the ability to detect DDE at low concentrations is not readily available from local commercial laboratories. The Regional Board also agrees with the commenter who suggested that nitrite and nitrate be analyzed together as in prior monitoring programs. The Regional Board disagrees, however, with the commenter who suggested that E.coli should be added to the mass loading station list of parameters. This is unnecessary since the fecal coliform and enterococcus measurements provide a reasonable evaluation of indicator bacteria.

Comment: One commenter suggested that the Tentative Order be modified to allow third-party organizations, such as universities and non-government organizations, to collect bioassessment samples.

Response: The Tentative Order, however, appropriately requires that a professional environmental laboratory perform all sampling, laboratory, quality assurance, and analytical procedures (Section II.A.2.d).

Comment: One commenter suggested speeding up the implementation of the inland aquatic habitat monitoring program and the periphyton sampling within the bioassessment program.

Response: These requirements are phased in order to provide the Copermittees adequate time to accommodate the changes to the monitoring program. For instance, the Regional Board expects development of the inland aquatic habitat monitoring program to include substantial consultation among Copermittees and between the Copermittees and third parties.

58. Attachment E, Section II.A.5. Coastal Storm Drain Monitoring

Commenter: County of Orange

Comment: One commenter pointed out that urban runoff flows from four of the storm drains listed in Table 3 of the Tentative Order section on Coastal Storm Drain Outfall Monitoring (Section II.A.5.c.1) are diverted to the sanitary sewer during the summer. These stations were selected because they commonly have elevated levels of indicator bacteria (which is probably why they were targeted for sewer diversions). The commenter requested that there should be no requirement to collect samples while the flows are diverted.

Response: This section of the Tentative Order has been revised to require sampling only when the diversions are inoperable. The Tentative Order requires that when drains are not discharging to coastal waters, the weekly sampling program must include the storm drain flows, but can omit collecting samples from the receiving waters. Identification of indicator bacteria concentrations in those drains could be useful to assess the effectiveness of source control and other BMP implementation within the watersheds and to estimate the risk to coastal waters when the diversions are inoperable. However, the Regional Board agrees that weekly sampling of diverted urban runoff flows is not necessary.

Comment: The Copermittees also recommended postponing requirements for special investigations for the stations identified in Table 3 (Section II.A.5.c.ii). The Copermittees felt bacterial source investigations should be stayed pending development of emerging source tracking methodologies.

Response: Postponement of these special investigations is not warranted. The Copermittees are referring to research on analytical methods for identifying the animal sources of fecal bacteria within a particular water sample. Such techniques, however, are not the only methods used in conducting investigations into the sources of bacteria entering the MS4 system. Other approaches have involved identifying which storm drain outfalls are major contributors, determining whether discharges are likely coming from non-prohibited discharge activities, or determining whether physical conditions within the MS4 or receiving water are adversely or positively affecting concentrations.

In addition, the six stations identified for special investigations have been recognized as problem areas for several years, yet there is no certainty when the analytical techniques referred by the Copermittees will be available for use. Some special investigations, pointed out in the comment, are either underway or in development for some of the stations. The Tentative Order does not exclude those investigations from satisfying the requirements of this section.

59. Attachment E, Section II.A.1.d: Mass Loading Composite Sampling Protocols

Commenters: County of Orange, City of Mission Viejo

Comment: The County of Orange requested several changes to the protocols for mass loading sample collection and toxicity testing.

Response: The Regional Board considers the requests for changes to the mass loading protocols for sample collection reasonable, though some of the concerns expressed by the County were unfounded. For wet-weather mass loading sampling, the County requested the ability to continue the protocols it has been using, rather than implement the protocol identified in the Tentative Order that is similar to protocol used in San Diego County. The County also proposed that dry-weather event monitoring protocols at the mass loading stations be consistent with what it uses within watersheds of the Santa Ana Regional Board's municipal storm water program.

Notably, the County's proposal for using a constant time / constant volume approach to composite sampling is not consistent with the U.S.EPA guidance document noted in the Tentative Order. Further review of the U.S. EPA guidance suggests that the Copermittees can, however, propose alternative monitoring programs that collect representative data. This was confirmed via correspondence with the U.S. EPA, Region IX. The County of Orange proposed to conduct an assessment of the two protocols to determine whether any significant deviations occur. The Regional Board will not require such an assessment be made at this time. However, should such an investigation be warranted in the future, the Regional Board may require such an investigation pursuant to California Water Code sections 13225 and 13267.

60. Attachment E, Section II.A.1.i: Toxicity Monitoring

Commenters: County of Orange

Comment: Copermittees also requested changes to the Tentative Order requirements for toxicity testing (Section II.A.1.i). They sought the ability to substitute fresh water indicator organisms where background conductivity levels could affect the interpretation of results. In addition, they suggested that freshwater indicator organisms are unnecessary for wet-weather mass loading events and ambient coastal receiving waters stations.

Response: The Tentative Order has been revised to accommodate most of these requests, but retains the requirement for using a freshwater organism to assess acute toxicity at mass loading stations.

61. Attachment E, Section II.B.1: Wet-weather storm drain monitoring

Commenters: County of Orange, City of Mission Viejo

Comment: Two commenters objected to the requirement to collect storm water samples from MS4 outfalls (Section II.B.1).

Response: The Regional Board disagrees with the commenter who suggested that MS4 outfall monitoring is only useful for detecting illicit discharges. The Regional Board also disagrees with the other commenter, who claimed that wet weather monitoring does not aid in source investigations. As noted in the Fact Sheet, the wet weather MS4 outfall monitoring is useful for assessing the effectiveness of storm water BMPs and for targeting storm water program efforts. Currently, the Copermittees do not monitor the quality of the water being discharged during storm events from their MS4s. This is a significant data gap that must be corrected. Presently the mass loading and ambient coastal monitoring stations are providing information about the quality of storm water, but those locations are inadequate to determine which MS4 outfalls are the likely sources of pollutants. As a result, Copermittees cannot effectively determine where to target storm water BMP measures.