FACT SHEET/TECHNICAL REPORT

FOR

SDRWQCB ORDER NO. R9-2004-001
MUNICIPAL STORM WATER PERMIT

FOR

THE COUNTY OF RIVERSIDE, THE CITY OF MURRIETA, THE CITY OF TEMECULA, AND THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
WITHIN THE SANTA MARGARTIA WATERSHED
IN THE SAN DIEGO REGION
(UPPER SANTA MARGARITA WATERSHED)

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I. LIST OF ACRONYMS

ADT – Average Daily Traffic

BAT – Best Available Technology

BMP – Best Management Practice

CEQA – California Environmental Quality Act

CWA – Clean Water Act

CWC – California Water Code

DAMP – Santa Margarita Regional Drainage Area Management Plan

EPA – United States Environmental Protection Agency

GIS – Geographic Information System

MEP – Maximum Extent Practicable

MS4 – Municipal Separate Storm Sewer System

NOI – Notice of Intent

NPDES – National Pollutant Discharge Elimination System

NURP – Nationwide Urban Runoff Program

RWQCB – Regional Water Quality Control Board

SDRWQCB – San Diego Regional Water Quality Control Board

SIC – Standard Industrial Classification Code

SUSMP – Standard Urban Storm Water Mitigation Plan

SWMP – Storm Water Management Plan

SWRCB – State Water Resources Control Board

SWPPP – Storm Water Pollution Prevention Plan

TAC - State Water Resources Control Board Urban Runoff Technical Advisory Committee

TMDL – Total Maximum Daily Load

II. FACT SHEET FORMAT

This Fact Sheet briefly sets forth the principle facts and the significant factual, legal, methodological, and policy questions that the San Diego Regional Water Quality Control Board (SDRWQCB) considered in preparing Order No. R9-2004-001. 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:

- **Contact information (Section III);**
- **Public process and notification procedures (Section IV);**
- **A brief description of the type of facility or activity that is being regulated by the Order (Section V);**
- **The type and quantity of pollutants discharged (Section VI);**
- **A brief summary of the basis for the requirements in the Order, including references to the applicable statutory or regulatory provisions (Section VII); and**
- **A discussion of the requirements in the Order (Sections VIII and IX).**

Findings contained in the Order are discussed throughout this Fact Sheet. The findings that broadly apply to the entire Order are discussed in Sections V, VI and VII. Findings that justify specific requirements in the Order are discussed in the applicable subsections of Section VIII.

III. CONTACT INFORMATION

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The Order and other related documents can be downloaded from the SDRWQCB website at: http://www.swrcb.ca.gov/rwqcb9/programs/rsd_stormwater.html

All documents referenced in this Fact Sheet and in Order No. R9-2004-001 are available for public review at the SDRWQCB 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 Megan Quigley at 858-268-5363, or DiAnne Broussard at 858-492-1763.

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IV. PUBLIC PROCESS AND NOTIFICATION PROCEDURES

The SDRWQCB followed the schedule listed below for the preparation of Order No. R9-2004-001:

- The SDRWQCB received the Report of Waste Discharge (ROWD) on May 30, 2003
- On December 15, 2003, the SDRWQCB released the Order and supporting Fact Sheet, beginning the public comment period. The documents were available on the SDRWQCB web page at http://www.swrcb.ca.gov/rwqcb9/programs/rsd_stormwater.html and mailed to the Permittees and all other parties who requested a copy.
- A public notice was published in the Riverside Press-Enterprise on December 20, 2003 notifying the public of the opportunity to submit written comments and to present verbal comments to the San Diego Regional Board at the February 11, 2004 meeting.
- The SDRWQCB held a public workshop on January 23, 2004 at the Temecula City Hall. The purpose of the workshop was to answer questions regarding the Order and to discuss the affect of potential new requirements on the business community.
- A public hearing to receive testimony at the San Diego Regional Board meeting was conducted on February 11, 2004.
- The public comment period closed at 5:00 pm on March 10, 2004.
- A response to written comments received during the public comment period and the revised Order were issued on May 7, 2004.
- After deliberation, the San Diego Regional Board adopted the Order at the July 14, 2004 meeting.

In addition to the public process described above, various informal meetings have been conducted with SDRWQCB staff and the Permittees. The meetings served as workshops for the Permittees to express their concerns and questions regarding the permit.

V. DESCRIPTION OF THE TYPE OF FACILITY OR ACTIVITY THAT IS BEING REGULATED BY THE NPDES PERMIT

A. Permit History (Finding Nos. 1 and 2)

The Riverside County Flood Control and Water Conservation District (District), the County of Riverside, and the Cities of Murrieta and Temecula (hereinafter called Permittees), own or operate municipal separate storm sewer systems (MS4s) through which urban runoff is discharged into waters of the United States (U.S.) within the portion of the Santa Margarita watershed located in Riverside County in the San Diego Region (hereinafter referred to as the Upper Santa Margarita Watershed) (**Finding No. 1**). Pursuant to the 1987 Water Quality Act (WQA) and the U. S. Environmental Protection Agency's (EPA) final storm water regulations (the "Phase I rule" at 55 Fed. Reg. 47990), the Permittees obtained a National Pollutant Discharge Elimination System (NPDES) permit for discharges from their MS4(s) to waters of the U.S. in the Upper Santa Margarita Watershed.

In July of 1990, the District, the County, and the City of Temecula obtained a first-round NPDES permit (Order No. R9-90-46). Following its incorporation, the City of Murrieta was added to that permit on May 18, 1992. Then, on May 13, 1998, the SDRWQCB adopted Order No. R9-98-02 as a second-round MS4 permit for the Upper Santa Margarita Watershed. The EPA objected to the order due to the Receiving Water Limitations (RWL) language, which EPA determined did not comply with the federal Clean Water Act (CWA) and its implementing regulations. EPA assumed responsibility and reissued the permit on April 27, 1999. Subsequently on November 8, 2000, the SDRWQCB issued Addendum No. 1 to Order R9-98-02, which incorporated EPA's permit by reference. On May 30, 2003, the District, as the Principal Permittee, submitted a Report of Waste Discharge (ROWD) for renewal of their NPDES MS4 permit (**Finding No. 2**). Order No. R9-2004-001 is the third-round Phase I NPDES MS4 permit for the Upper Santa Margarita Watershed.

B. Permit Coverage (Finding Nos. 19 and 20)

The Order regulates discharges of urban runoff from MS4s owned or operated by the Permittees, and discharges into MS4s from areas within the Permittees' jurisdiction. In the Order, urban runoff is defined as "all flows in a storm water conveyance system and consists of the following components: (1) storm water (wet weather flows) and (2) non-storm water illicit discharges (dry weather flows)."

A 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 Permittee, and designed or used for collecting or conveying urban runoff (EPA, 2000a). In addition, natural drainage patterns and urban streams are frequently used by municipalities to convey urban runoff away from development within their jurisdiction. Therefore, as stated in **Finding No.19**, the SDRWQCB 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 Permittee 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 (SDRWQCB, 2001c). Whereas, a natural channel which receives sheet flow from a property in a rural area is not part of the MS4.

Federal, state, regional, or local entities within the Permittees' boundaries, and which are not named in the Order, may operate storm drain facilities and/or discharge urban runoff to storm drains and water courses covered by the Order. In addition, discharges into the Permittees' MS4s from agricultural and other activities identified in 40 CFR 122.3 are excluded from federal NPDES regulations. However, the Permittees are responsible for all discharges from their MS4s to receiving waters, and discharges from entities and activities not specifically regulated by the Order may cause or contribute to a condition of contamination or exceedances of water quality objectives. Therefore, Permittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to a MS4 that conveys discharges to waters of the U.S., the operator of the MS4 that does not prohibit or control discharges into its own system essentially accepts responsibility for those discharges (**Finding No. 20**).

In their comments on the Order, the Permittees proposed a procedure to address discharges from third parties outside of their jurisdictions (Permittees, 2004a). The proposed procedure includes documenting and sampling discharges, utilizing the Hazardous Materials Emergency Response Team in emergency situations, verbally notifying the discharger, notifying the appropriate enforcement agency and/or the SDRWQCB, and notifying the discharger of available assistance to address the discharge. The proposed procedure meets the SDRWQCB's expectations for addressing discharges from third parties.

C. Description of Permitted Area (Finding No. 3)

The Upper Santa Margarita Watershed is approximately 548 square miles and includes unincorporated portions of Riverside County, the Cities of Murrieta and Temecula, as well as portions of the Cleveland and San Bernardino National Forests, and the Cahuilla, Ramona, Pauma, and Pechanga Indian Reservations. Approximately 168,400 people reside within the permitted area (Permittees, 2003). Approximately 36,400 people reside in the unincorporated area while approximately 132,000 people reside within the Cities of Murrieta and Temecula (Permittees, 2003).

Temecula Creek, which drains the Palomar Mountains, and Murrieta Creek, which drains the Santa Ana Mountains, are the main drainages in the permitted area. They join to form the Santa Margarita River near the City of Temecula. Main tributaries to Murrieta Creek include Warm Springs Creek and Santa Gertrudis Creek. Main tributaries to Temecula Creek include Pechanga Creek and Arroyo Seco Creek. Vail Lake, Skinner Reservoir, and Diamond Valley Reservoir are major impoundments in the permitted area. For more information about watershed characteristics, see the ROWD (Permittees, 2003).

The Water Quality Control Plan for the San Diego Basin (SDRWQCB, 1994) identifies the following beneficial uses for water bodies in the Santa Margarita Watershed: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1) (potential use), Non-contact Water Recreation (REC2), Warm Freshwater Habitat

WARM, Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), and Rare, Threatened, or Endangered Species (RARE) (**Finding No. 3**).[1]

In addition to providing habitat and recreation opportunities, residents and businesses in the permitted area rely heavily on local water for drinking, agriculture, and industrial supply. Over 40% of water used in the watershed is locally produced (Jenks, 2002). In 2001, local water production in the watershed was 41,765 acre-feet. Imported supplies totaled 66,369 acre-feet. Of the total water supply, 49,212 acre-feet were used for agriculture, 5,390 acre-feet were used for commercial purposes, and 41,802 acre feet were used for domestic purposes (Jenks, 2002). In addition, portions of Fallbrook in San Diego County and the U.S. Marine Corps Base Camp Pendleton, depend on surface and ground water that originates form the Upper Santa Margarita Watershed.

The Santa Margarita River is one of the few remaining natural gorge rivers in Southern California, with approximately 70 species of special concern (rare, threatened, or endangered, regularly inhabiting the watershed, including 30 that are currently protected under the Federal Endangered Species Act (Stein, 1998). Although the majority of the river is not within the jurisdiction of the Permittees, the riparian systems in the upper watershed play an integral role in the maintenance of sensitive downstream ecological functions (Stein, 1998). The upper watershed riparian habitats are in direct hydrologic contact with downstream systems and are associated with freshwater recharge to a series of downstream aquifers (Shapiro, 1991). In addition, these riparian systems in the Upper Santa Margarita Watershed often provide breeding, migratory, or escape habitat for many animal species that reside in the lower watershed (Stein, 1998).

VI. TYPE AND QUANTITY OF POLLUTANTS DISCHARGED

A. Background

Pollutants in Urban Runoff (Finding Nos. 4, 5 and 6)

Urban runoff contains waste, as defined in the California Water Code (CWC), and pollutants that adversely affect the quality of waters of the State. The discharge of urban runoff from an

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[1] **MUN** – Municipal and Domestic Supply – Uses of water for community, military, or individual water supply systems (i.e., drinking water).
AGR – Agricultural Supply – Uses of water for farming, horticulture, or ranching.
IND – Industrial Service Supply – Uses of water for industrial activities that do not depend primarily on water quality (i.e., mining, cooling water supply, gravel washing, fire protection).
PROC – Industrial Process Supply – Uses of water for industrial activities that depend primarily on water quality.
GWR – Ground Water Recharge – Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.
REC1 – Contact Water Recreation – Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible (i.e., swimming, wading, fishing, and white water activities). * Means this is a potential use.
REC2 – Non-contact Water Recreation – Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water (i.e., picnicking, hiking, camping, boating, and sightseeing).
WARM – Warm Freshwater Habitat – Uses of water that support warm water ecosystems.
COLD – Cold Freshwater Habitat – Uses of water that support cold water ecosystems including.
WILD – Wildlife Habitat – Uses of water that support terrestrial ecosystems.
RARE – Rare, Threatened, or Endangered Species – Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant and animal species established under state or federal law as rare, threatened, or endangered.

MS4 is a "discharge of pollutants from a point source" into waters of the United States as defined in the CWA (**Finding No. 4**). 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 Californian waters can be found at CWC section 13260(a)(1), and State Water Resource Control Board (SWRCB) Order WQ 2001-15 verifies that urban runoff contains waste (SWRCB, 2001).

The quality of urban runoff is fundamentally important to the health of the environment and the quality of life in Southern California. 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 (**Finding No. 6**). The 1992, 1994, and 1996 National Water Quality Inventory Reports to Congress prepared by the EPA showed a trend of impairment in the Nation's waters from contaminated storm water and urban runoff (EPA, 2000b). The 1998 National Water Quality Inventory Report showed that urban runoff discharges affect 11% of rivers, 12% of lakes, and 28% of estuaries (EPA, 2000b). The report states that ocean shoreline impairment due to urban runoff increased from 55% in 1996 to 63% 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 (EPA, 2000b).

Furthermore, the National Urban Runoff Program (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 (EPA, 1993b).

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), and trash (**Finding No. 5**). The 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 (EPA, 1993b). 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 (SDRWQCB, 1994). In addition, the SWRCB 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 (SWRCB, 1994). Water 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 Upper Santa Margarita Watershed.

According to the Center for Watershed Protection, the quality of both surface and ground water in urbanizing areas of arid and semi-arid regions of the southwest is strongly shaped by urbanization. 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 (Center for Watershed Protection, Article 66).

Impacts From Urbanization (Finding No. 12)

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 (NRDC, 1999). 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.

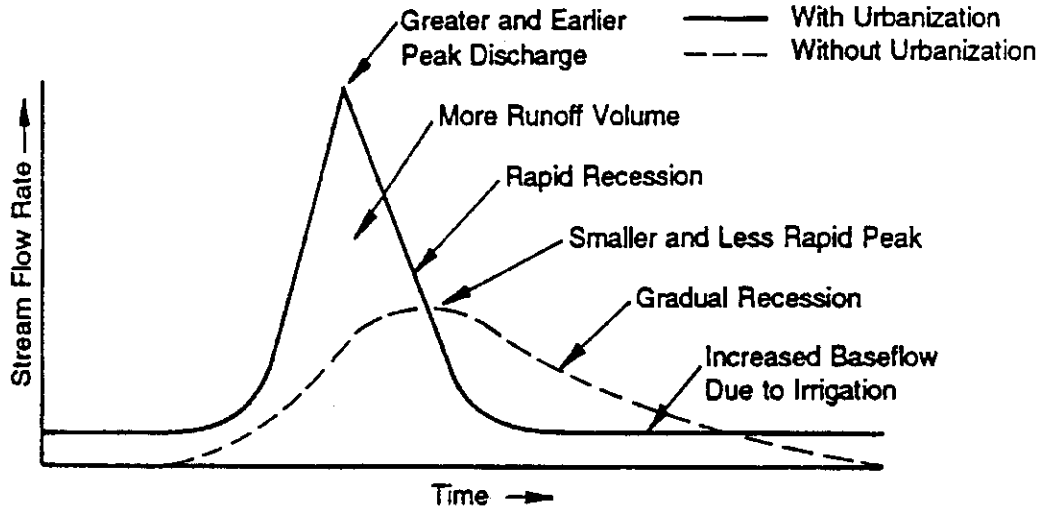
2. The concentration of pollutants in the runoff. As discussed above, certain industrial, commercial, residential and construction activities are large contributors of pollutant concentrations in urban runoff. As human population density increases, it brings with it proportionately higher levels of car 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 (**Finding No. 12**). The Permittees have demonstrated their support for this finding in the DAMP (Permittees, 1993), which states:

> "Many storm water runoff problems are primarily a consequence of urbanization. Water that previously soaked into the ground, removing pollutants by filtering through soil, and eventually replenishing groundwater supplies, now must flow overland and therefore enters local streams more rapidly. The rapid transport of water increases the erosion of stream banks and hillsides and does not permit filtering of pollutants. Sediment carried by storm water runoff can build up in streambeds, harming fish and aquatic habitat. The sediment acts as a transport mechanism for pollutants which adhere to soil particles. Typical urban runoff pollutants found in surface waters include heavy metals, nutrients, petroleum products, sediment, bacteria, chemicals, and litter."

Studies have shown that the level of imperviousness in an area strongly correlates with the quality of nearby receiving waters (EPA, 1999b). 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% (EPA, 1999b). 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% (EPA, 1999b). To provide some perspective, a medium density, single-family home area can be from 25% to 60% impervious (variation due to street and parking design) (Schueler, 1994).

To demonstrate the principle of increased volume and velocity of runoff from urbanization, the following figure 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.



Source: Adapted from Schueler, 1997

Increased volume and velocity of runoff adversely impacts receiving waters and their beneficial uses in many ways. According to the TAC report (SWRCB, 1994), increases in population density and imperviousness result in changes to stream hydrology including:

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 (Center for Watershed Protection, Article 66). A study conducted in arid watersheds around Riverside, CA showed that, over two decades, impervious cover increased from 9% to 22%, which resulted in an increase of more than 100% 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% to 130% over the same time span (Center for Watershed Protection, Article 66).

Flooding caused by the increased volume and velocity of runoff from urbanization in the Upper Santa Margarita Watershed are clear examples of the effects described above. Disastrous flooding has occurred more frequently in recent years. In the last century, major flood events occurred in 1938, 1969, 1980, 1993, 1995, and 1998 (U.S. Army Corps of Engineers, 2000). In the 1993 flood event, the Cities of Murrieta and Temecula sustained $12 million dollars in damage, and Camp Pendleton sustained $88 million in damage (U.S. Army Corps of Engineers, 2000). Future flooding is expected to occur more frequently because of continued urban development within the watershed, and flood damages are expected to continue accruing at an estimated annual rate of $1,780,300 (U.S. Army Corps of Engineers, 2000).

Impacts to Aquatic Life (Finding No. 9)

In addition to chemical and physical impacts, urban runoff often contains 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 (**Finding No. 9**). A study of urban runoff samples from Chollas Creek in San Diego County, revealed toxic concentrations of organophospate pesticides and metals (Bay, 2001). In Los Angeles County, storm water samples were found to be toxic to various aquatic organisms in the Los Angeles River, the San Gabriel River, Ballona Creek, and the Santa Monica Bay (LARWQCB, 2001). Also, a water quality data assessment conducted in Aliso Creek in Orange County showed that storm events caused varying degrees of mortality to test organisms (SDRWQCB, 2002a). To date, there has not been sufficient monitoring to determine if toxicity from urban runoff exists in the Upper Santa Margarita Watershed, however, the land uses causing toxicity in other urbanized areas of Southern California are little different than urbanized areas in Murrieta and Temecula.

Impacts to Human Health (Finding No. 7)

In addition to impairing receiving water quality and aquatic life, pollutants in urban runoff can also threaten human health. According to the EPA, spilled fuel, solvents, waste oil, paints, and other maintenance fluids pose a risk to the environment but may be especially harmful if they enter someone's drinking water supply (EPA, 2004b). "The percolation of

contaminated runoff can cause unacceptable consequences to ground water resources." Urban runoff discharges were identified in a California Department of Health Services assessment as one of the most prevalent possible contaminating activities for drinking water sources (EPA, 2004b). This issue of potential source water contamination is of fundamental importance, because of the dependence on local water for domestic use in the Santa Margarita Watershed. Rancho California Water District and Eastern Municipal Water District, which serve the Upper Santa Margarita Watershed, the Fallbrook Public Utilities District, which serves the community of Fallbrook, and Camp Pendleton are among those agencies in the watershed who are directly dependent on surface and ground water for domestic use.

Human health is also a concern related to body contact recreation. Human illnesses have been clearly linked to recreating near storm drains flowing to coastal waters (**Finding No. 7**). 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 (Haile, 1996). Although the Upper Santa Margarita Watershed is inland, the watershed drains to the Pacific Ocean, and pollutants generated in the permitted area may impact coastal waters. For example, the Santa Margarita River system provides the main source of beach sand for the beaches of northern San Diego County (Shapiro, 1991). Also, residents in the permitted area who recreate at Southern California beaches benefit from clean water.

Furthermore, urban runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may eventually be consumed by humans (**Finding No. 7**). 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 (Abel, 1996). Since many aquatic species are utilized for human consumption, toxic substances accumulated in species' tissues can pose a significant threat to public health. The EPA 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 and 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" (EPA, 2000c).

Environmentally Sensitive Areas (Finding No. 8)

Development and urbanization especially threaten environmentally sensitive areas (ESAs), such as water bodies designated as supporting a RARE beneficial use and CWA section 303(d) impaired water bodies. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. 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 environmentally sensitive area (**Finding No. 8**). ESAs are defined in the Order as "areas in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would easily be disturbed or degraded by human activities and developments (California Public Resources Code section 30107.5). ESAs subject to urban runoff requirements include but are not limited to

all CWA section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the SWRCB (Basin Plan); water bodies designated with the RARE beneficial use by the SWRCB (Basin Plan); areas within the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) plan area that contain rare or especially valuable plant or animal life or their habitat; and any other equivalent environmentally sensitive areas which the Permittees have identified." 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.

The EPA 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" (EPA, 1992a). 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 (LARWQCB, 2001b).

B. Water Quality Concerns in the Upper Santa Margarita Watershed

In addition to the general information about typical urban runoff-related pollutants discussed above in Section VI.A, various sources document water quality concerns in the Upper Santa Margarita Watershed. **Tables 1 and 2** below summarize existing and potential problems. **Table 3** summarizes exceedances of urban runoff-related pollutants reported in the Permittees water quality monitoring reports, and **Table 4** lists potential sources of the reported exceedances.

Table 1. Water Quality Concerns in the Santa Margarita Watershed

Source	Existing or Potential Problem
SWRCB 303(d) List[2]	**Listings:** Phosphorus (entire 12 miles of Murrieta Creek and upper 18 miles of Santa Margarita River) Eutrophication (estuary) **Constituents of concern:** sedimentation/siltation, iron, manganese, TDS
Riverside County General Plan[3]	Sediment from construction-related erosion; Pollution due to urban storm water runoff
San Diego County WURMP[4]	Eutrophication, nitrogen, phosphorus, diazinon, TDS, other toxic substances, trash
SDRWQCB	Degraded biological and physical integrity

[2] SDRWQCB. 2003. Final 2002 Clean Water Act Section 303(d) List of Water Quality Limited Segments.

[3] County of Riverside. October 2003. County of Riverside General Plan: Multipurpose Open Space Element. Chapter 5, OS-10.

[4] County of San Diego. January 2003. Watershed Urban Runoff Management Program for the Santa Margarita Watershed. Table 4-5.

Bioassessment Data[5]	
SDRWQCB, EPA Draft Operational Guidebook for reference based assessment[6]	Severe physical impacts (Excessive erosion, down cutting, sedimentation, etc.) from rapid and high volumes of urban runoff and a lack of effective runoff management practices
Santa Margarita Regional DAMP[7]	Oxygen demanding substances, heavy metals, pesticides, herbicides, oil and grease, nutrients, settleable solids, TDS, TSS Volatile organic carbon, pathogens, and debris

Impairments and Pollutants of Concern (Finding Nos. 10 and 11)

According to the *Final 2002 CWA Section 303(d) List of Water Quality Limited Segments* (SDRWQCB, 2003a), the entire length of Murrieta Creek (12 miles) and the upper 18 miles of the Santa Margarita River are impaired for phosphorus. Potential sources of the phosphorus impairment include urban runoff and unknown point and nonpoint sources. The Santa Margarita Lagoon is listed as impaired for eutrophication. (**Finding No. 10**). In addition to the impairments, the SDRWQCB has identified various constituents of potential concern (SWRCB, 2003b). These constituents, listed above in Table 1, were not included on the 2002 303(d) list as impairments because available data was not adequate and more information is needed to determine whether water quality objectives and beneficial uses are being met. The impairments and constituents of concern were based on quarterly data collected and analyzed by Camp Pendleton from 1997-2000, data collected and analyzed by the Department of Water Resources from May 1998-November 2000, Rancho California Water District's receiving water monitoring, and grab sampling conducted by the SDRWQCB in June 1998.

The San Diego County's *Watershed Urban Runoff Management Program (WURMP) for the Santa Margarita Watershed* (San Diego County, 2003) states that eutrophication (associated with low dissolved oxygen, and the presence of solids and excessive nutrients), toxic substances (trace elements and synthetic organics), diazinon contamination, and high levels of TDS are potential water quality issues in the watershed, and that these constituents of concern may have detrimental impacts to the beneficial uses. The WURMP prioritizes the problems based on potential beneficial use impairment (Table 2 below). The WURMP states that data is limited and further data collection and assessment should be made to substantiate concerns.

Table 2. WURMP Prioritization of Water Quality Problems[8]

[5] California Department of Fish and Game. 2002. SDRWQCB 2002 Biological Assessment Report: Results of May 2001 Reference Site Study and Preliminary Index of Biotic Integrity.

[6] EPA. November 2003. Draft Operational Guidebook for reference based assessment of the functions of riverine waters/wetlands in the Santa Margarita Watershed, Riverside County. Chapter 4.

[7] Permittees, 1993

[8] Table 2 was modified from Table 4-5 of the WURMP (San Diego County, 2003)

Constituents of Concern	Potential Beneficial Use Impairment	Priority
Eutrophication, nitrogen, phosphorus	MUN, REC1, REC2, WARM, COLD, WILD, and RARE	High
Toxic substances – diazinon	WARM, COLD, WILD and RARE	Medium
TDS	MUN and AGR	Medium
Toxic substances – other	WARM, COLD, WILD and RARE	Low
Trash	REC1, REC2, WARM, COLD, WILD and RARE	Low

In addition to the sources discussed above, the Permittees have been conducting water quality monitoring pursuant to the MS4 permit since 1993. Although the program has many deficiencies (SDRWQCB, 2002b), the data shows various persistent exceedances of water quality objectives for urban runoff-related pollutants. Table 3 below lists the monitoring stations and the constituents for which multiple or persistent exceedances of water quality objectives have been reported (Permittees, 2002a, 2002b, and 2003b). Due to inadequate monitoring and reporting, it was not possible to conduct a detailed analysis.

Table 3. MS4 Monitoring Results[9]

Stn #	Station Name	Multiple or Persistent Exceedances of Water Quality Objectives[10] (from 1993 – 2003)
188	Cole Creek	Color, Total Nitrogen, Total Phosphorus, Iron, Manganese
404	Wildomar outlet	MBAS, Color, Total Nitrogen, Total Phosphorus, Fecal Coliform, Chromium, Iron, Manganese, Nitrogen-Nitrate, Ammonia, Odor, Thallium, Turbidity, pH, Antimony, Beryllium, Chlorpyrifos, Diazinon
768	Redhawk Channel	Boron, MBAS, Color, Total Nitrogen, Total Phosphorus, Fecal Coliform, Fluoride, Iron, Manganese, Nitrogen-Nitrate, Ammonia, Odor, DO, TDS, Sulfate, Turbidity, pH, Antimony, Beryllium, Chlorpyrifos, Diazinon
769	Empire Creek	Boron, MBAS, Color, Total Nitrogen, Total Phosphorus, Fecal Coliform, Chromium, Iron, Manganese, Nitrogen-Nitrate, Odor, DO (increasing trend), TDS, Thallium, Turbidity, pH, Antimony, Beryllium, Chlorpyrifos, Diazinon
776	Cal Oaks Channel (Line F)	MBAS, Color, Total Nitrogen, Total Phosphorus, Fecal Coliform, Chromium, Iron, Manganese, Nitrogen-Nitrate, Ammonia, Odor, TDS, Turbidity, pH, Antimony, Chlorpyrifos, Diazinon
777	Temecula Creek	Color, Total Nitrogen, Total Phosphorus, Fecal Coliform, Iron, Manganese, Nitrogen-Nitrate, DO, TDS, Sulfate, Turbidity, Antimony
778	Lower Murrieta	Color, Total Nitrogen, Total Phosphorus, Fecal Coliform,

[9] Information obtained from Permittee Annual Program Reports (Permittees, 2002a, 2002b, and 2003b).

[10] Does not include California Toxics Rule

	Creek	Iron, Manganese, Nitrogen-Nitrate, Odor, DO, TDS, Sulfate, Turbidity, Antimony, Chlorpyrifos, Diazinon
779	Upper Murrieta Creek	Color, Total Nitrogen, Total Phosphorus, Fecal Coliform, Iron, Manganese, Nitrogen-Nitrate, Ammonia, TDS, Turbidity, pH, Antimony
828	Santa Margarita River near Temecula	Color, Total Nitrogen, Total Phosphorus, Fecal Coliform, Chromium, Iron, Manganese, Nitrogen-Nitrate, Odor, DO, TDS, Turbidity, Antimony, Chlorpyrifos, Diazinon

Table 4 below identifies potential sources of the pollutants that exceeded water quality objectives at the majority of the MS4 monitoring stations. This information indicates that urban runoff from construction, residential, industrial, commercial and municipal activities is contributing to the degradation of water quality. Specifically, the data indicate potential illicit discharges from industrial and commercial activities, over-application of pesticides and fertilizers by residents and/or businesses, and sediment discharges from construction sites and/or eroding channels.

Table 4. Potential Sources of Pollutants[11]

Pollutant	Potential Sources
Antimony	Industrial activity
Chlorpyrifos	Organophosphate pesticide commonly used in residential areas
Chromium	Industrial activity (plating operations, manufacture of paints, dyes, explosives, ceramics, and paper)
Diazinon	Organophosphate pesticide commonly used in residential areas
Dissolved oxygen	Biodegradable organics, increased temperatures and salinity decrease dissolved oxygen
Fecal coliform	Bacteria originating from humans, animals, amphibians and birds
Iron	Industrial activity, acid mine drainage, corrosion from iron pipes and other material
Manganese	Industrial sources (manufacture of steel alloys, dry-cell batteries, glass and ceramics, paints and varnishes, inks and dyes, matches and fireworks and agriculture
MBAS	Detergents typically associated with dry cleaners
Nitrogen	Excessive application of fertilizer in agriculture and urban areas, septic tank leachate
Phosphorus	Excessive application of fertilizer in agriculture and urban areas
PH	Industrial wastes can be strongly acidic, and laundry waste, and soda and sulfate-pump rinse water are alkaline wastes
Sulfate	Agricultural runoff, mining, tanneries, sulfate-pump mills, and other plants that use sulfates or sulfuric acid

[11] Potential source information from Permittees, 2003b and San Diego County, 2003.

Turbidity	Microorganisms, detritus, mineral substances, manganese compounds, industrial wastes, and eroded soil and silt.
TDS	Urban runoff, imported water, irrigation practices

Biological and Physical Concerns

In addition to the chemical water quality data described above, biological and physical monitoring in the Upper Santa Margarita Watershed also indicates impacts to receiving waters from urbanization.

According to the *San Diego Regional Water Quality Control Board: 2002 Biological Assessment Report*, based on data collected from 1998 – 2001, the bioassessment stations located in lower Murrieta Creek, lower Temecula Creek, and upper Santa Margarita River exhibited degraded biological and physical integrity (Index of Biotic Integrity (IBI) ranged from "Very Poor" to "Good"). As a comparison, the reference stations in the watershed, located in Sandia Creek and DeLuz Creek, were characterized by a high degree of biological and physical integrity (IBI was consistently "Very Good"). This data indicates that urbanization, not agriculture, is contributing to the impairment of the biological and physical integrity of the receiving waters.

The *Draft Operational Guidebook for reference based assessment of the functions of riverine waters/wetlands in the Santa Margarita Watershed, Riverside and San Diego Counties, California* (EPA, 2003) documents the physical impacts that have resulted from urbanization, including but not limited to:

- Temecula and Murrieta Creeks have been moderately to severely impacted by development and degradation of their watersheds. No hydrogeomorphic reference standard conditions were observed. Local effects are caused by **(a) massive earthwork associated with flood control projects, (b) channelization, (c) hardening of the channel bed and banks with concrete, rip-rap, etc., (d) rapid and high volume inputs of storm water runoff from impervious surfaces associated with urbanizing areas, (e) rapid and concentrated inputs of urban pollutants associated with untreated storm water, and (f) large accumulations of trash/debris**. "Currently, development pressures along the Temecula, Murrieta and Wilson Creeks are severe and apparently irreversible in the context of current land use practices and rates of urbanization."
- **Storm water inputs from roads, yards, and parking areas tend to be direct, without benefit of oil-water separators, grit removal, or retention/detention of storm flows**. "The consequences of poor watershed, riparian, and channel management practices in agricultural and developing areas are clear."
- **It is clear that Murrieta and Temecula Creeks are not performing hydrologic functions to their potential.** Specifically, given the urban setting of these creeks, the degree of development taking place within and near their floodplains, and **the current lack of effective stormwater management practices**, improvements in ecosystem functioning within these systems are likely to occur very slowly, if at all. **"Functional improvements in Murrieta and Temecula Creeks depend not only on changes in stream management techniques, but also upon BMPs throughout the upper watershed."**

- "As a result of urban/suburban development, infiltration rates have decreased, peak flows have increased, and base flows have been diminished in both durations and volume"
- "Significant impacts from erosion resulted from poor sediment and erosion control practices and/or development of impervious and smoothed surfaces in the contributing area."
- **"Landscape-scale development in the Santa Margarita watershed appears to be causing main stem hydrologic and biogeochemical functions to degrade at unprecedented rates."**

A recent environmental assessment of Murrieta Creek (USFWS, 2000) further describes some of the physical impacts that have occurred as a result of urbanization in the Upper Santa Margarita Watershed:

> "Since the 1980's, rapid development and urbanization in Murrieta Creek's watershed, including its floodplain and riparian corridor, has severely altered the watershed's drainage. The urbanization has simultaneously introduced artificial flows from activities such as landscape irrigation, washing down of parking lots, and washing of personal vehicles, and has increased impervious surface, which reduces groundwater recharge. Consequently, the volumes and velocities of the discharges from the surface flows and flows through the storm water conveyance systems into Murrieta Creek have increased dramatically. The changes in the hydrology and the hydraulics of Murrieta Creek and its watershed caused by development, flood control activities, ground water dewatering, and a reduction in groundwater recharge, have upset the natural fluvial processes and greatly diminished the ecological value of Murrieta Creek and its riparian corridor. The increased volumes and velocities have intensified the erosion along the stream bed and banks of Murrieta Creek, its tributaries, and downstream of Murrieta Creek. This erosion has exacerbated the sediment loading into Murrieta Creek and the Santa Margarita River."

The assessment goes on to say that, without appropriate controls, water quality is expected to continue to decline. "Advancing erosion and downcutting of stream channels will continue to feed larger amounts of sediment into the system. [...] Increasing development of the watershed is expected to continue to impact available habitat. In addition, an elimination of infiltration zones, increase in peak discharges with associated impacts on downstream riparian area, and the replacement of native plants with non-native species would likely occur." (USFWS, 2000)

Overall, the chemical, biological, and physical data and information described above indicate that urban runoff is causing degradation of the quality and the biological and physical integrity of the receiving waters in the Santa Margarita Watershed.

VII. BASIS FOR PERMIT REQUIREMENTS

This section discusses the broad legal authority that supports the requirements contained in Order No. R9-2004-001. It also discusses the intent of the federal NPDES storm water regulations and several findings that broadly support all requirements in the Order.

A. Broad Legal Authority (Finding No. 22)

Order No. R9-2004-001 implements the CWA, the Porter-Cologne Water Quality Control Act (Division 7 of the CWC, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the SWRCB, and the Basin Plan adopted by the SDRWQCB (**Finding No. 22**).

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 SWRCB and each Regional Water Quality Control Board (RWQCB) have primary responsibility for the coordination and control of water quality, including the authority to implement the CWA. Porter Cologne (section 13240) directs the RWQCBs 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 RWQCBs to establish waste discharge requirements (WDRs) to prohibit waste discharges in certain conditions or areas. Since 1990 the SDRWQCB has issued area-wide MS4 NPDES permits. The Order will renew Order No. R9-98-02 as a means to attain water quality objectives in the Basin Plan by limiting the contributions of pollutants conveyed by urban runoff and to comply with CWA. Further discussions of the broad and specific legal authority associated with the prohibitions and directives of the Order are provided throughout this document.

Specific federal regulations include 40 CFR parts 122, 123, 124 (NPDES Permit Application Regulations for Storm Water Discharges, Final Rule), Part II of 40 CFR Parts 9, 122, 123, and 124 (NPDES – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule), and 40 CFR 131 Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule (California Toxics Rule).

The following broad legal authority citations generally apply to all requirements in Order No. R9-2004-001, and provide the SDRWQCB with ample underlying authority to require each of the directives.

CWA 402(p)(3)(B)(ii) – The CWA requires in section 402(p)(3)(B)(ii) that permits for discharges from MS4s "shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers."

CWA 402(p)(3)(B)(iii) – The CWA requires in section 402(p)(3)(B)(iii) that permits for discharges from MS4s "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 Permittee'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 Permittee 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 systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. [...] Proposed management programs shall describe priorities for implementing controls."

CWC section 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 Federal Water Pollution Control Act (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."

In addition to the broad legal authority items cited above, which underlie all of the directives in Order No. R9-2004-001, additional specific legal authority citations applicable to particular directives of the Order are provided in this Fact Sheet as necessary.

Order No. R9-2004-001 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 Santa Margarita Watershed. 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.

B. Maximum Extent Practicable (Finding No. 14)

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 in order to comply with their MS4 permits. The MEP standard establishes the level of pollutant reductions the municipality must achieve. The MEP standard can be achieved by means of implementing pollution prevention and source control BMPs (as the first line of defense) in combination with treatment control BMPs serving as a backup (additional line of defense).

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 Permittees to conduct and document evaluation and assessment of each program component and revise activities, control measures, best management practices (BMPs), and measurable goals, as necessary to meet MEP. Because MEP is a dynamic performance standard, it is necessary to describe in greater detail, necessary and effective measures that are essential for compliance. **(Finding No. 14)**

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 base 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 lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented. (SWRCB, 1993)

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 SDRWQCB or the SWRCB, and not by the municipal discharger. While the SDRWQCB or the SWRCB ultimately define MEP, it is the responsibility of the Permittees to initially propose actions that implement BMPs to reduce pollution to the MEP. In other words, the Permittees' Individual and Watershed SWMPs to be developed under the Order are the Permittees' proposals of MEP. Their total collective and individual activities

conducted pursuant to their SWMPs become their proposal for MEP as it applies both to their overall effort, as well as to specific activities.

It is the SDRWQCB'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 permittee 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 SDRWQCB, the SDRWQCB will define MEP by requiring implementation of additional measures by the Permittees.

The Order represents the SDRWQCB's definition of MEP. The Order provides a minimum framework that allows Permittees the flexibility to develop and implement their own unique programs and BMP requirements and to improve and modify them as necessary to achieve and maintain compliance with the Order, and therefore, the MEP standard. The EPA supports the SDRWQCB's finding that the Order is consistent with the MEP standard when it states, "Overall, we believe that the permit [Order No. R9-2004-001] is fully consistent with the Clean Water Act (CWA), EPA regulations, and is appropriate for the Santa Margarita Watershed..." (EPA, 2004).

C. BMP Implementation (Finding Nos. 15, 16 and 17)

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. (**Finding No. 15**)

The SWRCB finds in its Order 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." The 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."

Pollution prevention, the reduction or elimination of pollutant generation at its source, is an essential aspect of BMP implementation. By limiting the generation of pollutants by urban activities, less pollutants are available to be washed from urban areas, resulting in reduced

pollutant loads in storm water discharges from these areas. In addition, there is no need to control or treat pollutants that are not initially generated. Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media (Schueler, 2000).

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" (SDRWQCB, 1994).

Controlling urban runoff pollution by using a combination of onsite source control 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 (**Finding No. 17**).

The EPA also supports the utilization of a combination of BMPs to address pollutants in urban runoff. For example, the EPA 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 (EPA, 1999b). Structural BMP performance data has also been compiled and summarized by the EPA (EPA, 1999e). 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 in general the pollutants of most concern in storm water in the San Diego Region. For suspended solids, the least effective structural BMP type was found to remove 30-65% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For nutrients, the least effective structural BMP type was found to remove 15-45% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For pathogens, the least effective structural BMP type was found to remove <30% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For metals, the least effective structural BMP type was found to remove 15-45% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load.

As discussed above, developing minimum BMPs and implementing or requiring their implementation at industrial and commercial facilities, construction sites, and residential areas is necessary for the Permittees to ensure that, ultimately, discharges of pollutants into and from its MS4 are reduced to the MEP (**Finding No. 16**). Therefore, **Sections F through H of the Order** require Permittees to develop and require the implementation of minimum BMPs, including pollution prevention as a first line of defense, to reduce the discharge of pollutants in urban runoff to the MEP from all areas and activities with their jurisdictions.

D. Permittee Responsibility for Requiring BMPs (Finding No. 28)

Through its permitting processes, each Permittee authorizes the three major phases of urban development within its jurisdiction. Therefore, each Permittee must assume responsibility for its urban development decisions. The federal regulations clearly require municipalities to address urban runoff during each stage of development. Regarding BMP implementation during each stage of urban development, the EPA recommends that Permittees ensure the appropriate implementation of the structural BMPs by considering some or all of the following: pre-construction review of BMP designs; inspections during construction to verify BMPs are built as designed; post-construction inspection and maintenance of BMPs; and penalty provisions for noncompliance with design, construction or operation and maintenance (EPA, 1999b).

Since municipalities approve and permit construction and land use within their jurisdiction, they must assume responsibility for urban runoff discharges from these activities and land uses. 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 (EPA, 2000a). 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. As stated in **Finding No. 28**, each Permittee is responsible for adoption and enforcement of ordinances and/or policies, implementation of identified BMPs, and for the allocation of funds for the capital, operation, and maintenance, and enforcement expenditures necessary to implement and enforce such BMPs within its jurisdiction. Therefore, when a Permittee determines 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. The EPA 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" (EPA, 1992a).

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 Permittees 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.

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

Order No. R9-2004-001 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. Developing minimum BMPs and implementing or requiring their implementation at industrial and commercial facilities, construction sites, and residential areas is necessary for the Permittees to ensure that, ultimately, discharges of pollutants into and from its MS4 are reduced to the MEP (**Finding No. 16**). As discussed in **Finding No. 20**, Permittees cannot passively receive and discharge pollutants from third parties (within or outside of their jurisdiction). In the absence of BMPs, these discharges may cause or contribute to a condition of contamination or exceedances of receiving water quality objectives. Accordingly, the Order requires the local government to implement, or require others to implement, appropriate BMPs to reduce pollutant discharges and increased flow during each of the three stages of urbanization.

E. Dual Regulation of Industrial and Construction Sites (Finding No. 21)

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, the SDRWQCB is responsible for enforcing the statewide General Construction Activities Storm Water Permit, SWRCB Order 97-03 DWQ, NPDES No. CAS000001 (General Construction Permit) and the statewide General Industrial Activities Storm Water Permit, SWRCB Order 99-08 DWQ, NPDES No. CAS000002 (General Industrial Permit), and each municipal Permittee is responsible for enforcing its local permits, plans, and ordinances, which may require the implementation of additional BMPs than required under the statewide general permits. (**Finding No. 21**)

According to the EPA, the storm water regulations envision that NPDES permitting authorities [SDRWQCB] and municipal operators [the Permittees] will cooperate to develop programs to monitor and control pollutants in storm water discharges from industrial facilities (EPA, 1992a).

The EPA discusses the "dual regulation" of construction sites in its Storm Water Phase II Compliance Assistance Guide (EPA, 2000c), 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." While the Storm Water Phase II Compliance Assistance Guide applies to small municipalities, it is applicable to the Permittees, because they are similar in size and have the potential to discharge similar pollutant types as Phase II municipalities.

Municipalities assume initial responsibility for enforcement against illegal discharges from land uses and activities within their jurisdiction because of their land use authority. Since the municipality approves and permits development and land use, it must ensure that its development or land use decisions do not result in receiving water quality degradation. The SDRWQCB will assist municipalities in enforcement against non-compliant sites after the municipality has exhibited a good faith effort to bring the site into compliance.

VIII. DISCUSSION OF PERMIT REQUIREMENTS

This section discusses each component of Order No. R9-2004-001. Each discussion includes the specific legal authority in addition to the broad legal authority discussed in section VII.A of this Fact Sheet, a discussion of the requirements, and comments on the Permittees' existing and proposed programs related to each component.

A. PROHIBITIONS (Order Section A)

1. Specific Legal Authority for Prohibitions

- CWA section 402(p)(3)(B)(ii) states that municipalities shall "effectively prohibit non-stormwater discharges **into** the storm sewers."
- CWA section 402(p)(3)(B)(iii) requires that permits for discharges from MS4s "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."
- 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 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 122.44(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."

- The 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."
- CWC 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'."
- CWC 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."
- CWC 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."
- CWC section 13241 requires each RWQCB 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 [...]."
- CWC 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."
- CWC section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

2. Discussion of Prohibitions

The entire thrust of Order No. R9-2004-001 is to prevent discharges from MS4s from causing, or threatening to cause, a condition of pollution, contamination, or nuisance. In fact, **Prohibition A.1** exhibits a major component of the SDRWQCB's mission, and is included in its Basin Plan. The SDRWQCB seeks to preserve and enhance the quality of the region's waters, and one primary method to achieve this is by preventing conditions of pollution, contamination, or nuisance in the region's waters.

Because discharges that enter the MS4 are generally discharged unimpeded directly into receiving waters, **Prohibition A.1** applies to both discharges into and from MS4s. Federal NPDES regulations clearly provide the SDRWQCB with the legal authority to require municipalities to control discharges from third parties into their MS4. 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. This concept is further supported in the Preamble to the Phase II Final Rule NPDES storm water regulations, which states "The operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties" (EPA, 1999b). As discussed in section VII.E of this Fact Sheet, Phase II Final Rule findings are applicable to the Permittees. Finally, underlying the Federal NPDES storm water regulations is the CWA, which states in Section 402(p)(3)(B)(ii) that municipalities shall "effectively prohibit non-stormwater discharges into the storm sewers."

As with Prohibition A.1, **Prohibition A.2** also characterizes a primary goal of Order No. R9-2004-001 and the SDRWQCB. This goal is to protect the beneficial uses of the region's waters and achieve the water quality objectives necessary to protect those uses. The overarching intent of the CWA embodies **Prohibition A.2** as well; the CWA's objective is to "restore and maintain all chemical, physical and biological integrity of the Nation's waters [to make all surface waters] fishable [and] swimmable."

Prohibition A.3 is consistent with the direction provided in SWRCB Order WQ 2001-15 (SWRCB, 2001). The CWA and Federal NPDES regulations clearly require operators of MS4s to reduce pollutants in discharges from MS4s to the MEP. Therefore, the SDRWQCB has prohibited discharges that do not meet this requirement.

Prohibition A.4 pertains to the Basin Plan Prohibitions, which were established by the SDRWQCB pursuant to CWC section 13243. The SDRWQCB is required to implement Basin Plan Prohibitions in Order No. R9-2004-001 pursuant to CWC section 13263(a).

3. Comments on Existing and Proposed Programs Related to Prohibitions

The Permittees report in Section 2.5 of the ROWD states "The Permittees shall continue to maintain adequate legal authority to control the contribution of pollutants to the MS4s by urban runoff and enforce those authorities." The Permittees further report that they are taking "the necessary steps... to ensure that non-storm water discharges to their MS4s do not cause or contribute to violations of water quality objectives or discharge pollutants to waters of the U.S." In addition, Section 3.1 of the ROWD states "The Permittees shall prohibit illicit discharges from entering into the MS4 and require controls to reduce the discharge of pollutants to the [MEP]." The Permittees should determine if they need to revise their existing ordinances to provide the authority to specifically prohibit discharges from their MS4s that have not been reduced to the MEP.

Discharge Prohibition A.4 is not specifically addressed in the ROWD. Again the Permittees should determine if they need to revise their existing ordinances to provide the authority to specifically prohibit discharges in violation of Basin Plan prohibitions cited in Attachment A to Order No. R9-2004-001.

B. NON-STORM WATER DISCHARGES (Order Section B)

1. Specific Legal Authority for Non-Storm Water Discharge Requirements

- 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 Permittees shall prevent all types of illicit discharges into the MS4 except for the non-storm water discharges listed in Prohibition B.2, provided that these discharges are not found to be a significant source of pollutants to waters of the U.S.
- CWA section 402(p)(3)(B)(ii) requires each Permittee to prohibit non-storm water discharges into its MS4.
- Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) requires that Permittees shall provide "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 Permittees shall "investigate portions of the separate storm sewer system that, based on the results of a field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources on non-storm water."
- 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."

2. Discussion of Non-Storm Water Discharge Requirements

The discharges listed in Non-Storm Water Discharges **Requirement B.2** are referred to as "de minimis" discharges in the Federal NPDES regulations. However, if a municipality identifies any of these discharges as a source of pollutants to waters of the U.S., they must be addressed in the municipalities storm water management plan (40 CFR 122.26(d)(2)(iv)(B)(1)).

The list of "de minimis" discharges in **Requirement B.2** is essentially the same as the current list prescribed by EPA in NPDES Permit No. CAS0108766 and identical to the list in State Board Order No. 2003-0005-DWQ, the General Storm Water Permit for small MS4s (SWRCB, 2003).

3. Comments on Existing and Proposed Programs Related to Non-Storm Water Discharge Requirements

The Permittees currently have the legal authority to prohibit non-storm water discharges to the MS4, and their existing ordinance contains a list of non-prohibited non-storm water discharges that is consistent with the Order.

In Section 3.1 of the ROWD, the Permittees proposed to add street wash water, fire hydrant testing and flushing, and other types of discharges identified and recommended by the Permittees to their list of allowable non-storm water discharges. Fire hydrant testing and flushing is a category of discharge that is considered by the SDRWQCB as a Non-emergency fire fighting flow (**Requirement B.2.q.**). Order No. R9-2004-001 requires that Permittees address discharges from non-emergency fire fighting activities when those discharges are identified as a significant source of pollutants. However, the EPA determined street wash water to be contaminated and deleted it as a non-prohibited discharge when it issued NPDES Permit CAS0108766 in April 1999 (EPA, 1999d). The Permittees have not provided

monitoring data to document that street wash water does not contain pollutants that pose a threat to water quality. In addition, SWRCB Order No. 99-06-DWQ, the Statewide Storm Water permit for Caltrans and State Board Order No. 2003-0005-DWQ, the General Storm Water Permit for small MS4s do not include street wash water as a non-prohibited discharge. Therefore, the SDRWQCB did not include street wash water on the list in **Requirement B.2** of the Order.

The discharge categories in 40 CFR 122.26(d)(2)(iv)(B)(1) comprise an inclusive and not exemplary list. Consequently, the SDRWQCB does not have the authority to add other discharge categories to the list. Pursuant to **Requirement B.1**, discharges other than those listed in Requirement B.2. are allowed if authorized by a separate NPDES permit.

Although Section 3.1 of the ROWD states that Permittees will prohibit any of the listed discharges if they are identified by the Permittees or the SDRWQCB as a source of pollutants, **Requirement B.2** of the Order allows the Permittees the option to implement BMPs to reduce pollutants to the MEP.

Pursuant to Order No. R9-98-02, the Permittees developed BMPs to address fire fighting activities (Permittees, 2000). These BMPs should be incorporated into the Permittees' SWMPs.

C. RECEIVING WATER LIMITATIONS (Order Section C)

1. Specific Legal Authority for Receiving Water Limitations (RWL) Requirements

- CWC section 13241 provides that the "SDRWQCB shall 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."
- CWC section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

2. Discussion of RWL Requirements

As stated in **Finding No. 23**, the RWL language specified in the Order is consistent with language recommended by the EPA and established in SWRCB Order WQ-99-05 (SWRCB, 1999a). The RWL 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 objectives. 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.

On October 14, 1999, the SWRCB issued a legal opinion on the federal appellate decision and provided advice to the RWQCBs on how to proceed in the future (SWRCB, 1999b). In the memorandum, the SWRCB concludes that the recent Ninth Circuit opinion upholds the

discretion of the EPA and the State to (continue to) issue permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states, "[...] 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 total maximum daily loads (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 SWRCB concludes that the RWQCBs should continue to include the RWL language established in SWRCB Order WQ 99-05 in all future permits.

It should be noted that 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 objectives. Consistent with EPA guidance (EPA, 1998a and 1998b) regardless of whether or not an iterative process is being implemented, discharges that cause or contribute to an exceedance of water quality objectives are in violation of Order No. R9-2004-001.

3. Comments on Existing and Proposed Programs Related to RWL Requirements

The RWL requirements were not discussed in the ROWD.

D. LEGAL AUTHORITY (Order Section D)

1. Specific Legal Authority for Legal Authority Requirements

- Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that the Permittees 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 Permittees 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 regulation 40 CFR 122.26(b)(14) provides that "The following categories of facilities are considered to be engaging in 'industrial activity' for purposes of this subsection: [...] Construction activity including clearing, grading and excavation activities [...]."
- Federal NPDES regulation 40 CFR 122.26(d)(1)(ii) requires from the Permittee "A description of existing legal authority to control discharges to the municipal separate storm sewer system."

- 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.
- CWC section 13243 also 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."

2. Discussion of Legal Authority Requirements

An important means for a municipality to control the discharge of pollutants in urban runoff is through development of municipal legal authority. The EPA 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" (EPA, 1992a).

Since discharges that enter the MS4 are generally discharged unimpeded directly into receiving waters, the Permittees' legal authority is to apply to both discharges **into** and **from** MS4s. Federal NPDES regulations clearly provide the SDRWQCB with the legal authority to require municipalities to control discharges from third parties into their MS4. 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. This concept is further supported in the Preamble to the Phase II NPDES storm water regulations, which states "The operators of regulated small MS4s cannot passively receive and discharge pollutants **from** third parties" (EPA, 1999b). As discussed in section VII.E of this Fact Sheet, Phase II findings for small municipalities are applicable to the Permittees. Finally, underlying the Federal NPDES storm water regulations is the CWA, which states in section 402(p)(3)(B)(ii) that municipalities shall "effectively prohibit non-stormwater discharges **into** the storm sewers."

In order to effectively prohibit illicit or non-storm water discharges, legal authority addressing the discharges must be developed and implemented by each Permittee (see discussion of **Finding No. 28** in Section VII.D of this Fact Sheet). An illicit connection is a connection to the MS4 that carries an illicit discharge. Because illicit discharges to the MS4 are prohibited, illicit connections are also prohibited and must be eliminated. In order to effectively prohibit and eliminate illicit connections, legal authority addressing the discharges must be developed and implemented by each Permittee.

In order for the ordinances to be effective, each Permittee must be able to require compliance with the ordinances. Lack of ordinance enforcement by a Permittee allows third parties to violate a municipality's ordinances with little fear of retribution, leading to receiving water quality degradation. The EPA recommends that a municipality in its urban runoff management program "identify the administrative and legal procedures available to mandate compliance with appropriate ordinances, and therefore, with permit conditions. [Programs] should contain descriptions of how ordinances are implemented and appealed. In particular,

a municipality should indicate if it can issue administrative orders and injunctions or if it must go through the court system for enforcement actions" (EPA, 1992a).

Discharges from Permittees that share an MS4 eventually reach the same receiving water body. Each Permittee that discharges to the shared MS4 is therefore responsible for discharges from the shared MS4, and the impacts of those discharges on receiving waters. The Permittees of a shared MS4 must demonstrate that together they can control the contribution of pollutants over the whole shared MS4. To this effect, the EPA states "When two or more municipalities submit a joint application, each coapplicant must demonstrate that it individually possesses adequate legal authority over the entire municipal system it operates and owns. A coapplicant need not fulfill every component of legal authority specified in the regulations, as long as the combined legal authority of all coapplicants satisfies the regulatory criteria for every segment of the MS4 (including authority over all sources that discharge to the MS4). [...] Coapplicants also may use interjurisdictional agreements to show legal authority and to ensure planning, coordination, and the sharing of the resource burden of permit compliance" (EPA, 1992a).

The Permittees' ability to determine compliance and noncompliance with permit conditions is critical to control pollutant discharges to and from MS4s. Determination of compliance and noncompliance allows for significant sources of pollutants to be identified and addressed, thereby minimizing the discharge of pollutants from the MS4 and the resulting receiving water quality degradation. For this reason each Permittee must have legal authority to carry out the inspections, surveillance, and monitoring necessary to assess compliance. Regarding compliance determination, the EPA 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" (EPA, 1992a).

Permittees must demonstrate that they can operate pursuant to legal authority to meet the requirements of Federal NPDES regulations 40 CFR 122.26(d)(2)(A-F). For the Permittee to demonstrate this legal authority, the EPA suggests that "One acceptable way to support a declaration of adequate legal authority, including the ability to enforce appropriate ordinances, is for the municipality to provide a certification from the Municipal General Counsel or equivalent. The certification should state that the applicant has the legal authority to apply and enforce the requirements of 40 CFR 122.26(d)(2)(i)(A-F) in State or local courts. The certification would, therefore, cite specific ordinances and the reasons why they are enforceable. The statement should discuss what the municipality can do to ensure full compliance with 40 CFR 122.26(d)(2)(i)" (EPA, 1992a).

3. Comments on Existing and Proposed Programs Related to Legal Authority

Section 2.4.1 of the ROWD states that the Permittees have adopted a comprehensive storm water ordinance and have previously provided a certification of adequate legal authority to the SDRWQCB. The Permittees may have had adequate legal authority to implement Order No. R9-98-02, but the existing ordinances may need to be updated to reflect requirements contained in Order No. R9-2004-001 (i.e. the required implementation of designated minimum BMPs that each Permittee develops for industrial and commercial sites, residential areas and activities, and construction sites), and a new certification will need to be submitted. The Permittees report in Section 2.4 of the ROWD that the Permittees have the legal authority

to prohibit the disposal of pollutants onto public or private land, to prohibit illicit connections and discharges and to prohibit non-storm water discharges (except for those specifically listed).

Section 2.4.1 of the ROWD states that Permittees have the authority to require construction activity to comply with local erosion and sediment control ordinances. Industrial sites are not specifically addressed in the ROWD. However, the ordinances that are currently in place in Riverside County and the City of Temecula state that any industrial discharger, discharger associated with construction activity, or other discharger subject to an NPDES permit shall comply with all requirements of such permit. Compliance with the General Industrial Permit and the General Construction Permit is specifically required.

Section 2.4.1 of the ROWD states that the Permittees have the authority to prohibit illicit connections and discharges to the MS4 and to prohibit the disposal of pollutants on public or private land.

Section 2.4.2.2 of the ROWD lists various enforcement/compliance mechanisms, but is vague about how they will be used. The ROWD states that the SDRWQCB will take the lead in initiating enforcement actions related to high priority incidents. This is incorrect and must be revised in the SWMP. Permittees are responsible for enforcing compliance with all aspects of Order No. R9-2004-001.

Although specific **Requirements D.1.g., D.1.h. and D.1.i**. are not addressed in the ROWD, the model urban runoff ordinance adopted by the Permittees (Riverside County, 1995), requires compliance with existing and future MS4 permits. This general statement may provide adequate legal authority to comply with these requirements of Order No. R9-2004-001.

It should be noted that the ROWD states that the SDRWQCB will take the lead in initiating enforcement actions related to high priority incidents. This is incorrect and must be revised in the SWMP. Permittees are responsible for enforcing compliance with all aspects of Order No. R9-2004-001.

It should also be noted that the District does not have an ordinance to prohibit illicit discharges to its MS4(s) or to require implementation of MS4 permits. The District relies on the legal authority of the municipalities that have jurisdiction over the land uses within the District.

E. STORM WATER MANAGEMENT PLAN (SWMP) (Order Section E)

1. Specific Legal Authority for SWMP Requirements

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A) – (D) require that permittees develop a management program that covers the duration of the permit. The regulations require that permittee plans include descriptions of each required program component to demonstrate how they will reduce pollutants to the MEP using management practices, control techniques and systems, design and engineering methods.

2. Discussion of SWMP Requirements

To meet the above-referenced federal requirements, Section E of the Order requires the development of **Individual and Watershed SWMPs**, and Attachment D provides specific

information that, where applicable, must be included in each Permittee's SWMP. The framework provided in Attachment D allows the Permittees to develop the programs, activities, and measures that will satisfy or exceed the requirements of the federal regulations, and therefore, the Order. It provides the Permittees with the flexibility and discretion to build upon existing programs and develop BMP requirements most appropriate for their jurisdiction.

The Order requires each Permittee to develop its own **Individual SWMP**. This is necessary for each Permittee to describe their own specific programs and activities that will be implemented to reduce pollutants in discharges of urban runoff within their jurisdiction to the MEP. For example, Permittees may have different enforcement protocol or development project review procedures, while another Permittee may lack a program component altogether (i.e., the District has no jurisdiction over residential, commercial, or industrial areas). Therefore, individual plans specific to each Permittee are necessary.

Section E of the Order also requires the development of a **Watershed SWMP**. This is necessary because watershed-wide issues should be addressed collectively (see Section VIII.K of this Fact Sheet for a discussion of the watershed management approach). Also, some programs are conducted collectively by the Permittees, or solely by the Principal Permittee on behalf of the Permittees. For example, the Permittees collaborate to develop materials and implement the public education program. These area-wide programs and activities should be described in an area-wide plan.

The Order requires the Permittees to develop, submit, and implement the SWMP within one year from the date of adoption (**Finding No. 13**). The one-year time schedule is both necessary and feasible for the following reasons:

- In accordance with 40 CFR 122.26(d)(2)(iv)(A) – (D), the Permittees should have developed a comprehensive SWMP as part of their application for permit renewal. In various correspondence, beginning in July of 2002, the SDRWQCB provided the Permittees with specific information that should have been addressed in the management plan to be submitted as an application. The Permittees have disregarded these requests for a detailed SWMP and submitted an application that stated that the DAMP would be revised within 18 months of permit adoption. Providing the Permittees 365 days from the date of permit adoption, is essentially providing them with an additional year. Further additional time is not justified.
- The requirements are based on federal NPDES regulations that have been in place for 13 years. Therefore, the Permittees should have an existing plan that can feasibly be improved to meet the current expectation of the MEP standard within one year.
- 34 other permittees in the San Diego Region were given 365 days to develop and implement similar requirements. All of these permittees met the requirements in a timely fashion. The City of Escondido said the one-year schedule was reasonable, including the inter-departmental planning and review, public meetings, Planning Commission review and approval, and City Counsel approval. The Permittees have not proven that they are significantly different procedurally from the 34 other permittees to warrant additional time.

- The SDRWQB has provided the Permittees with several acceptable models that can be used as examples.
- In order to reduce pollutants in runoff to the MEP, the Permittees, in the rapidly-developing Upper Santa Margarita Watershed, must implement improved urban runoff management programs as soon as possible.

3. Comments on Existing and Proposed Programs Related to SWMP Requirements

As part of the ROWD, the Permittees proposed to update and modify their existing DAMP, dated March 1993, to incorporate new programs and commitments. Section E and Attachment D of the Order provide direction to the Permittees in revising the DAMP, which serves the purpose of, and should be referred to as, a SWMP. It is not required or necessary for the Permittees to abandon existing programs and management measures. The SWMP is just a framework for each Permittee to describe existing and improved programs that will be implemented during the permit term.

The Permittees proposed to improve the DAMP within 18 months from the adoption of the Order. For the reasons described above, and considering that Permittees will be building on existing programs, one year is ample time to develop a SWMP (consisting of the Individual and Watershed SWMPs).

F. DEVELOPMENT PLANNING (Order Section F)

1. Specific Legal Authority for Development Planning Requirements

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Permittees' proposed SWMPs must 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 storm sewers which receive discharges from areas of new development and significant redevelopment. Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed." This regulation generally applies to all directives contained in Requirements F.1-F.4 of Order No. R9-2004-001.

2. Discussion of Development Planning Requirements

As discussed in section VI of this Fact Sheet, urban development can negatively impact water quality by increasing the pollutant load, volume, and velocity of urban runoff. An effective means for minimizing these impacts is to address water quality concerns during the planning phase of urban development. The EPA supports this, stating "Post-construction storm water management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly effect receiving water bodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management" (EPA, 2000c). The Preamble to the Phase I Final Rule emphasizes that municipalities with large areas of new development have a greater opportunity to focus controls to reduce pollutants in storm water generated by new developments during the planning phase (55 Fed. Reg. 48053). For these reasons, section F

of the Order No. R9-2004-001 includes requirements for the development and implementation of BMPs to reduce the discharge of pollutants in urban runoff from development projects to the MEP.

The EPA finds that the Permittee "must thoroughly describe how the municipality's comprehensive plan is compatible with the storm water regulations" (EPA, 1992a). To achieve this, in accordance with **Requirement F.1**, the Permittee shall incorporate water quality and watershed protection principles and policies into its general plan (or equivalent plan). The EPA supports addressing urban runoff problems in general plans (or equivalent plans) when it states "Runoff problems can be addressed efficiently with sound planning procedures. Master plans, comprehensive plans, and zoning ordinances can promote improved water quality by guiding the growth of a community away from sensitive areas and by restricting certain types of growth (industrial, for example) to areas that can support it without compromising water quality" (EPA, 2000c).

In the Santa Margarita Watershed, there is concern among resource managers that the cumulative impacts associated with rapid development of the upper watershed will degrade the ecological integrity of the entire watershed (Stein and Ambrose, 1998). Controls on new development are critical for the protection of the sensitive ecological functions and downstream aquifers in the Santa Margarita Watershed.

The principles and policies included in **Requirement F.1** are based on TAC findings (SWRCB, 1994). They incorporate basic measures that have been found to minimize pollutants in urban runoff from new development and redevelopment.

Requirement F.2 directs Permittees to incorporate post-construction BMPs into all new development and redevelopment projects during the planning and approval. The EPA finds that review of development plans during the project approval process is necessary, stating:

> "Proposed storm water management programs should include planning procedures for both during and after construction to implement control measures to ensure that pollution is reduced to the maximum extent practicable in areas of new development and redevelopment. Design criteria and performance standards may be used to assist in meeting this objective. Further, storm water management program goals should be reviewed during planning processes that guide development to appropriate locations and steer intensive land uses away from sensitive environmental areas. [...] A municipality should describe how it plans to implement the proposed standards (e.g., through an ordinance requiring approval of storm water management programs, a review and approval process, and adequate enforcement)" (EPA, 1992a).

Regarding conditions of approval in storm water permits, the EPA finds that "Proposed storm water management programs should include planning procedures for both during and after construction to implement control measures to ensure that pollution is reduced to the maximum extent practicable in areas of new development and redevelopment. Design criteria and performance standards may be used to assist in meeting this objective" (EPA, 1992a). The EPA further finds that "The municipality should consider storm water controls and structural controls in planning, zoning, and site or subdivision plan approval" (EPA, 1992a). In addition, the EPA states each Permittee should "have an ordinance or other

regulatory mechanism requiring the implementation of post-construction runoff controls [...]" (EPA 2000c).

Furthermore, in its Phase II Final Rule, EPA requires small municipalities to "Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects [...]" (EPA, 1999b). As discussed in section VII.E of this Fact Sheet, Phase II findings and guidance are applicable to the Permittees.

Standard Urban Storm Water Mitigation Plan (SUSMP) - (Requirement F.2.b):

As part of the SWMP, Permittees must also develop SUSMPs for Priority Development Projects. The SUSMPs include requirements for implementation of minimum source control and treatment control BMPs. The treatment control BMPs also have numeric sizing criteria that must be met based on volume or flow (of runoff). By developing and implementing the SUSMPs, the Permittees are reducing the potential negative impacts of urban runoff on receiving waters.

SUSMP requirements are necessary due to the potential for new development to increase the volume, flow velocity, and pollutant load of urban runoff. As the TAC states, "Urban development often results in impacts to the land and consequently the water bodies adjacent to the land. The two major changes that result from urbanization are changes in stream hydrology and an increase in pollutant loading" (SWRCB, 1994). To alleviate these potential negative impacts on receiving waters, each Permittee must develop and implement a SUSMP for various categories of development. This is consistent with EPA guidance, which states "Through ordinances, permits, or contracts, municipalities may mandate storm water controls for new residential, commercial, or industrial developments in order to improve or assure maintenance of the quality of receiving water at or near pre-development levels (EPA, 1992a)". Also, EPA recommends design criteria (such as numeric sizing criteria) and performance standards for post construction BMPs at development sites (EPA, 1992a).

The post-construction requirements and design standards contained in **Section F** of Order No. R9-2004-001 are consistent SWRCB guidance, Superior Court decision, and RWQCB requirements. The SWRCB and RWQCBs have made several recent decisions in regards to inclusion of SUSMP in MS4 permits. In a precendential decision, SWRCB WQ Order No. 2000-11 (SWRCB, 2000b), SWRCB found that the SUSMP provisions constitute MEP for addressing pollutant discharges resulting from Priority Development Projects (**Finding No. 24**). The provisions of Section F of the Order are consistent with those previously issued by the SDRWQCB for Orange County (Order No. R9-2002-0001) and San Diego County (Order No. R9-2001-001), as well as requirements in the Los Angeles County MS4 permit (Order No. R4-2001-182). In SWRCB Order WQ 2001-15, the SWRCB reaffirmed the inclusion of SUSMP requirements as meeting MEP (SWRCB, 2001). On February 13, 2003, the State Superior Court dismissed an appeal of the San Diego County MS4 permit (Order No. R9-2001-001) that includes the SUSMP requirements (Superior Court of CA, 2003).

Requirement F.2.b. gives the Permittees 365 days to develop, adopt, and implement local SUSMPs. This requirement is reasonable because the SUSMPs have been implemented by various neighboring municipalities and several examples of documents and programs exist for the Permittees to use in the development of their own local SUSMPs. For example, on June 12, 2002, the SDRWQCB approved a Final Model SUSMP as meeting the new development and redevelopment controls and SUSMP requirements of the San Diego County

Permit (San Diego Co-Permittees, 2002). The Orange County permittees developed a Model Water Quality Management Plan that can also be used for guidance (County of Orange, 2003). The 640 days for SUSMP implementation requested by the Permittees has not been incorporated into the Order. In addition to the multiple SUSMP examples already available for the Permittees, the City of Murrieta and Riverside County will have developed SUSMP-type requirements pursuant to the Santa Ana RWQCB MS4 permit (Order No. R8-2002-0011) by January 2005, well before the 365-day schedule contained in the Order. Furthermore, the Permittees already have the authority to require BMPs for new development through their existing storm water ordinances. Overall, the 365-day time schedule is practicable for the Permittees.

Priority Development Project Categories

Priority Development Projects include: a) all new development projects; and b) those redevelopment projects that create, add or replace at least 5,000 square feet of impervious surfaces on an already developed site[12], that are listed under the project categories or locations in **Requirement F.2.b.(1)**. The project categories generally result in the large increases in impervious surfaces, are potential significant sources of pollutants, or have a history of storm water mismanagement. SWRCB Order WQ Order 2000-11 addressed the majority of the categories included in **Requirement F.2.b.(1)** and gave RWQCBs discretion to include additional categories or locations in SUSMP requirements in future MS4 permits (SWRCB, 2000b). Those categories that were not included in the precedential outcome of the SWRCB Order are discussed below.

Requirement F.2.b.1.(h) includes streets, roads, highways, and freeways as a SUSMP Priority Development Project category. This is due to their potential to be a significant contributor of pollutants in urban runoff. A Federal Highway Administration (FHA) report finds that concentrations of total suspended solids, nitrate + nitrite nitrogen, and zinc exceed EPA benchmark values for concentrations of these pollutants in urban runoff (FHA, 1990). Another study found that, "Water quality impacts due to highway runoff could be significant particularly in environmentally sensitive areas, such as wetlands, ground-water recharge zones, and drinking water supply watershed" (CTE, 1998). Streets, roads, highways, and freeways also consist of extensive impervious surfaces, which alter flow regimes and increase potential for downstream erosion.

Requirement F.2.b.1.(i) includes retail gasoline outlets (RGOs) as a Priority Development Project category because RGOs are points of confluence for motor vehicles for automotive related surfaces such as repair, refueling, tire inflation, and radiator fill-up and consequently 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) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day. These are

[12] Redevelopment includes, but is not limited to: the expansion of a building footprint or addition or replacement of a structure; structural development including an increase in gross floor area and/or exterior construction or remodeling; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities related with structural or impervious surfaces. Where redevelopment results in an increase of less then fifty percent of the impervious surfaces of a previously existing development, and the existing development was not subject to SUSMP requirements, the numeric sizing criteria discussed in Requirement F.2.b.(3) applies only to the addition, and not to the entire development.

appropriate thresholds since vehicular development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters. (**Finding No. 25**)

In SWRCB WQ Order No. 2000-11, the SWRCB removed RGOs as a SUSMP category because they were already heavily regulated, and limited on 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 (SWRCB, 2000b). The SWRCB removed the RGO category from the San Diego County MS4 permit (Order No. R9-2001-01) because the SDRWCB did not specifically address the issues raised in WQ Order No. 2000-11. As discussed below, the LARWQCB and the SDRWQCB have adequately addressed the issues, and RGOs have been included as a SUSMP category in the Los Angeles County MS4 permit (Order No. R4-01-182), and the statewide general Phase II MS4 permit (WQ Order No. 2003-0005-DWQ). Additional detailed supporting information can found in the technical Report, *Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts* (LA and SDRWQCB, 2001b).

- Heavily Regulated - The heavily regulated distinction does not remove RGOs as significant source of pollutants in urban runoff and therefore should not be a basis for exempting them. Other regulation of RGOs is separate from regulation under the CWA and does not necessarily relate to water quality from urban runoff. Other municipalities already require that RGOs implement structural BMPs even though they are regulated under other programs.

- Treatment Limitations - Structural treatment BMPs are available for RGOs to reduce pollutants and control peak flow rates and velocities that that are both inexpensive and effective. Studies have shown that catch basin inserts can remove hydrocarbons and heavy metals that are the pollutants of concern. Sand or media filters have also been found to be effective and available for use at RGOs. Cisterns are examples of established BMPs to control flow, but RGOs could also use site design measures such as small weirs, baffles, and redirecting roof runoff to pervious areas.

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

- Threshold - Studies indicate that runoff from RGOs contains similar pollutants to runoff from commercial parking lots. In precedential WQ Order 2000-11, the SWRCB determined that parking lots with a size threshold of 5,000 square feet or more is an appropriate SUSMP category (SWRCB, 2000b). 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 to require design standards to mitigate storm water runoff. To provide additional flexibility for the Permitees, another threshold of 100 or more motor vehicles ADT has been added to the Order. This threshold is based on requirements from Washington and Oregon for what is

considered a "high use" site. This is an appropriate threshold since vehicular traffic is a good indicator of the amount of pollutants generated at a site.

The SDRWQCB followed the SWRCB's direction for the inclusion of RGOs as a Priority Development Project category by including the above discussion in this Fact Sheet, as well as a specific finding (Finding No. 25) that justifies the regulation of urban runoff from RGOs that meet certain criteria. The SWRCB also addressed the inclusion of RGOs through the appeals of MS4 permits issued by the Los Angeles and San Francisco RWQCBs that included RGOs as a priority development category. The SWRCB held a workshop that identified RGOs as significant sources of pollutants and dismissed the petitions for removal of RGOs from the SUSMP requirements in the permits. The Western States Petroleum Association, who filed the petitions to the inclusion of RGOs, did not appeal the SWRCB's dismissal of the petitions and did not comment on the Order. Finally, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ), which includes RGOs as a priority development category.

Considering all of the supporting documentation discussed above, it is appropriate to include RGOs as a Priority Development Project category.

ESAs are also included as a Priority Development Project location for the reasons discussed in section VI of this Fact Sheet. For further information regarding the inclusion of ESAs is contained in the technical report, *Mitigation of Storm Water Impacts from New Development in Environmentally Sensitive Areas* (LARWQCB, 2000c).

Requirement F.2.b.2 specifies that SUSMPs include a list of recommended source control and treatment control BMPs for all projects falling under the Priority Development Project categories. This requirement also establishes criteria that these BMPs must meet. The intent of the requirement is to allow the Permittees and developers flexibility in choosing which combination of source control and treatment control BMPs are to be implemented at a site and to define what minimum performance standards must be met by these selected BMPs.

As described in **Finding No. 18**, urban runoff treatment and/or mitigation in accordance with any of the requirements in Order No. R9-2004-001 must occur prior to the discharge of storm water or urban runoff into receiving waters. Allowing polluted runoff to enter a receiving water 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 EPA guidance. According to the EPA, "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" (EPA, 1992a).

The numeric sizing criteria is included to ensure that structural BMPs are sized effectively to remove the pollutants of concern. The sizing criteria are based on capture of runoff from a

24-hour 85th percentile rainfall depth. The 24-hour 85th percentile storm represents the "knee" of a precipitation probability curve from which it is no longer cost effective to treat runoff. The precipitation curve is calculated by using local historical rainfall data on the number and intensity of storm events. SDRWQCB staff has calculated the average 24-hour 85th percentile rainfall depth for area covered by the permit to be 0.6 inch (See Table 2 below). The San Diego SUSMP Staff Report developed for the San Diego MS4 Permit is available for example calculations on how staff determined the average 85th percentile rainfall depth t (SDRWQCB, 2001b). However, the requirements allow needed flexibility for the Permittees and developers to mitigate runoff based on either volume or flow. In addition, the requirements allow for several different options to calculate the amount of runoff to ensure that projects are not required to capture runoff from storm events beyond the point of diminishing returns. For example, a project proponent may demonstrate that the 24-hour 85th rainfall depth may be less than the average 0.6 inch by using local precipitation data.

Table 5. Calculation of 85th Percentile Rainfall Depth for the Upper Santa Margarita Watershed

Wildomar

Total Range (Inches)	Number of Storms	Cumulative	Cumulative Percent
0.01 - 0.09	917	917	29.80
0.10 - 0.49	1344	2261	73.46
0.50 - 0.99	467	2728	88.63
1.00 - 1.99	246	2974	96.62
2.00 - 2.99	78	3052	99.16
3.00 - 3.99	14	3066	99.61
4.00 - 4.99	8	3074	99.87
5.00 - 5.99	2	3076	99.93
6.00 – 6.99	2	3078	100.00

Temecula

Total Range (Inches)	Number of Storms	Cumulative	Cumulative Percent
0.01 - 0.09	652	652	33.94
0.10 - 0.49	758	1410	73.40
0.50 - 0.99	281	1691	88.03
1.00 - 1.99	171	1862	96.93
2.00 - 2.99	44	1906	99.22
3.00 - 3.99	10	1916	99.74
4.00 – 4.99	5	1921	100.00

Winchester

Total Range (Inches)	Number of Storms	Cumulative	Cumulative Percent
0.01 - 0.09	725	725	36.47
0.10 - 0.49	826	1551	78.02
0.50 - 0.99	281	1832	92.15
1.00 - 1.99	126	1958	98.49
2.00 - 2.99	26	1984	99.80
3.00 - 3.99	3	1987	99.95
5.00 – 5.99	1	1988	100.00

Average 85th Percentile Rainfall Depth For Area=(Wildomar + Temecula + Winchester)/3 (0.4 + 0.8 + 0.6)/3= 0.6 inch 85th Percentile Rainfall Depth for Southern Riverside County

Requirement F.2.b.4 allows Permittees the opportunity to develop an equivalent method for calculating the volume or flow to be mitigated. The intent of the requirement is to provide necessary flexibility to Permittees to develop equivalent methods in calculating the volume or flow that must be mitigated from the 24-hour 85th percentile rainfall depth.

As part of the SUSMP (**Requirement F.2.b.5**), the Permittees are required to develop a procedure to identify pollutants or conditions or concern for each Priority Development Project. Identifying the pollutants or conditions or concern for a project is crucial to selecting the appropriate BMPs.

Requirement F.2.b.7 allows Permittees to waive treatment control BMPs when all available BMPs have been considered and rejected as infeasible. The requirement also allows the Permittees 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 Permittees necessary flexibility to waive treatment control BMPs when it can be established that the implementation of treatment control BMPs that meet numeric sizing criteria is not feasible at a given site. This provision also allows Permittees discretion to transfer the costs saving from such a waiver to a fund for water quality projects within the watershed.

Requirement F.2.b.8 defines what restrictions to protect groundwater quality are placed on treatment control BMPs that are designed to primarily function as infiltration devices, but allows Permittees to develop alternative restrictions. Applying large amounts of runoff water in a small area has the potential to adversely impact groundwater quality. The intent of these requirements is to provide necessary restrictions for use of these structural BMPs to protect the beneficial uses (municipal, agricultural, industrial) of groundwater in the Santa Margarita watershed. The intent of the requirements is also to provide the Permittees needed flexibility to develop alternative restrictions for projects or locations.

Requirement F.2.b.9 directs Permittees to develop numeric criteria to ensure discharges from Priority Development Projects maintain or reduce pre-development downstream erosion and protect stream habitat. Development can cause increases in runoff amount and velocity causing down erosion problems. Simply maintaining the peak flow rate may not be adequate to prevent increased downstream erosion because of the increase in duration of erosive flows. According to several studies, this approach is an oversimplification of geomorphological processes (Brown, 2001). Simply controlling the post-development peak discharge rate

causes the duration of erosive flows to increase, which may actually exacerbate channel erosion since bank are exposed to a longer duration of erosive events (Brown, 2001). Development of numeric criteria over the permit cycle is needed to establish a design storm type and level of discharge that is appropriate to protect downstream habitat from increased erosion. Due to urbanization, there is a substantial increase in volume and rates of runoff during smaller storm events. The intent of the requirements in the Order to control peak rates, velocities, volumes, and durations from these smaller storms (typically 1 or 2 year storm events) to maintain downstream erosion and not the larger storm events (Brown, 2001). Section II.A of Monitoring and Reporting Program No. R9-2004-001 requires the Permittees to conduct a study to help develop the numeric criteria.

The Ventura County Flood Control District and the Southern California Coastal Water Research Project are currently conducting studies to evaluate the erosive effects on urbanization in part, to quantitatively predict downstream impacts due to development. The development of numeric criteria by the Permittees should build upon these efforts and not duplicate them. The intent of these requirements is to mitigate these potential increases and prevent downstream erosion problems like the severe bank erosion and channel degradation that has occurred in Murrieta Creek (USFWS, 2000 and EPA, 2003).

The Permittees are encouraged to use any existing programs to meet these requirements and should provide detail on how these programs are implemented in the SUSMPs. It is expected that the Permittees will utilize information from any studies that are conducted on numeric criteria to protect downstream erosion and incorporate them into their development of their own numeric criteria by 2009.

Requirement F.3 requires the Permittees to consider the effects of development projects on water quality during project approval processes. This measure will help ensure that potential water quality problems resulting from the development are identified and addressed. The EPA finds that "Proposed storm water management programs should include planning procedures for both during and after construction to implement control measures to ensure that pollution is reduced to the maximum extent practicable in areas of new development and redevelopment. Design criteria and performance standards may be used to assist in meeting this objective" (EPA, 1992a). The EPA further finds that "The municipality should consider storm water controls and structural controls in planning, zoning, and site or subdivision plan approval" (EPA, 1992a). The TAC advises that the Permittees' CEQA initial study checklists be revised to include consideration of water quality effects from new development or redevelopment. The questions included in Requirement F.3. are based on questions recommended by the TAC (SWRCB, 1994).

Requirement F.4 requires Permittees to educate staff (on an annual basis) and the development community on the impacts from development and the requirements of the Order. Training of municipal planning and development review staff is a critical aspect of an urban runoff management program. With adequate training, municipal planning and development review staff can require implementation of BMPs early in the project planning process, thereby minimizing the urban runoff impacts of development in a cost effective manner. The EPA supports training of municipal staff when it identifies "training for

appropriate employees" as a measurable goal of an urban runoff management program (EPA, 2000c).

Education on urban runoff planning issues for the public sector involved with development is equally critical. When the public sector has knowledge of urban runoff issues and regulations, it is more likely to incorporate storm water planning in the development and redevelopment process. In this manner, implementation of measures to address these issues will be included in development plans, saving time and money for the developer and the municipality. The TAC finds that Permittees should "Establish an education/information dissemination program that includes such things as: brochures to distribute to developers and contractors at permit counters and by mail; reference and training manuals for planners, engineers, inspectors, developers, contractors; and training and information exchange workshops" (SWRCB, 1994).

Furthermore, in its Phase II Final Rule, EPA requires small municipalities to "...implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities [...]" (EPA, 1999b). As discussed in section VII.E oft his Fact Sheet, Phase II findings are applicable to the Permittees.

3. Comments on Existing and Proposed Programs Related to Development Planning

Section 6.3 of the ROWD states that, "Within 10 months of permit adoption, each Co-Permittee will review its general plan and land use ordinances to assess whether the following principles and policies are properly considered:

1. Limit disturbance of natural water bodies and drainage systems; conserve natural areas; protect slopes and channels; minimize impacts from urban runoff on the biological integrity of natural drainage systems and water bodies;
2. Minimize changes in hydrology and pollutant loading; require incorporation of source control and structural BMPs to mitigate the projected increases in pollutant loads and flows; ensure that post-construction runoff rates and velocities from a site do not result in significant adverse impact on downstream erosion and stream habitat; limit the quantity of Urban Runoff directed to impermeable surfaces and the MS4s; and maximize the percentage of permeable surfaces to allow more percolation of Urban Runoff in to the ground;
3. Preserve wetlands, riparian corridors, and buffer zones, establish reasonable limits on the clearing of vegetation from the project site;
4. Encourage the use of BMPs to manage Urban Runoff quality and quantity;
5. Provide for appropriate permanent measures to reduce pollutant loads in Urban Runoff from the development site; and
6. Establish development guidelines for areas particularly susceptible to erosion and sediment loss.

In addition each Co-Permittee shall provide a summary of the review and assessment in that year's Annual Progress Report and within 24 months the Co-Permittees shall revise their general plans and land use ordinances as determined necessary during review and assessment."

This proposal is basically consistent with **Requirement F.1**.

Section 6.3 of the ROWD proposes that Permittees will reduce pollutants and runoff flows form new developments and significant redevelopment to the MEP by:

1. Reviewing and revising their respective land use approval and CEQA review processes to ensure that they address urban runoff issues.
2. Developing and implementing a public/business education program.

To be consistent with the **Requirement F.2.a**. the Permittees' proposal must also provide that BMPs will be required and that new developments will not cause or contribute to an exceedance of water quality standards.

Section 6.3 of the ROWD states that Permittees will continue to implement the New Development Guidelines and will continue to address the maintenance, operation and funding of structural BMPs that ensure management of Urban Runoff quality from new development. The Permittees' current processes, including the New Development Guidelines, do not contain specific requirements consistent with those in **Requirement F.2.b.(1)**.

Section 6.3 of the ROWD proposes that, within 9 months of permit adoption, the Permittees will develop a Model Water Quality Management Plan (WQMP) identifying BMPs, including design standards for source control and structural BMPs to be applied when discretionary approval is sought. The WQMP is intended to address regional and sub-regional BMPs and to provide guidelines for site-specific, post-construction BMPs to address management of urban runoff quantity and quality in new development and significant redevelopment projects. The ROWD does not specify priority development categories, numeric criteria, or any other specific provisions required in **Requirement F.b**, which must be included in the WQMP. It should also be noted that the SDRWQCB requires the use of site-specific source and treatment control BMPs and does not encourage the use of regional or sub-regional BMPs. Regional and sub-regional BMPs are sometimes necessary in an area that has already been developed without urban runoff management measures, but it is not justified for a developing area that has the opportunity to incorporate low-impact designs and management measures into new developments during the planning process.

Also, if the Permittees choose to develop a model document, this should be completed within 6 months of the permit adoption date, so that Permittees have sufficient time to begin implementation of SUSMP requirements within 1 year. Permittees are encouraged to use existing model SUSMP documents (County of Orange, 2003; San Diego Co-Permittees, 2002), which the SDRWQCB has previously approved, so that resources can be focused on program implementation instead of developing another similar model.

Section 6.3 of the ROWD proposes that, within 10 months of permit adoption, Permittees shall review their land use approval and CEQA processes to ensure that urban runoff issues are properly considered, and revise if necessary to mitigate impacts to water quality. The ROWD states that the following six factors will be considered in each Permittee's environmental assessment:

- Potential impact that construction of the project may have on urban runoff;
- Potential impact that operation of the project may have on urban runoff;

- Potential for discharge of pollutant in urban runoff from areas identified within the project site to be used for material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas or loading docks, or other outdoor work areas;
- Potential for pollutants in urban runoff discharged from a project site to affect the beneficial uses of receiving waters;
- Potential for significant changes in the flow velocity or volume of urban runoff from a project site to result in environmental harm; and
- Potential for significant increases in erosion of a project site or surrounding areas.

These factors are similar to the examples listed in **Requirement F.3**, therefore, this proposal is sufficient to comply with the **Requirement F.3**.

No specific internal or external training regarding development planning is proposed in the ROWD. It states that the New Development Guidelines, which contains the information needed to acquaint developers and contractors with the requirements for post-construction BMPs, will be made available during the review process for project planning and permitting. This proposal does not meet the MEP standard and, therefore, is insufficient to meet the requirements in **Requirement F.4**.

G. CONSTRUCTION (Order Section G)

1. Specific Legal Authority for Construction Requirements

- 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)(i)(A) provides that each Permittee 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: [...] Construction activity including clearing, grading and excavation activities [...]."
- 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."

2. Discussion of Construction Requirements

CWA sections 402(p)(3)(B)(ii-iii) requires each Permittee to prohibit non-storm water discharges into its MS4 and to reduce the discharge of pollutants to the MEP for all urban land uses. The purpose of these two broad requirements is to minimize the short and long-term impacts of urban runoff on receiving water quality. Land used for construction activities is clearly identified in the federal regulations as one of several high priority land uses from which pollutants in urban runoff discharges must be reduced to the MEP by each Permittee.

Requirements G.2 and G.3 are consistent with the EPA statement that "A description of the local erosion and sediment control law or ordinance is needed to satisfy this requirement [i.e., Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2)]" (EPA, 1992a). Regarding Permittee approval of construction activities, the EPA further states, "applicants must propose site review and approval procedures that address sediment and erosion controls, storm water management, and other appropriate measures. Approvals should be clearly tied to commitments to implement structural and nonstructural BMPs during the construction process" (EPA, 1992a).

Furthermore, the EPA requires small municipalities to develop and implement for construction sites "An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance [...]" (EPA, 2000c).

Requirement G.2 provides the Permittees with 365 days to update their grading ordinances and not the 640 days requested the Permittees. The Permittees will have adequate authority to require and enforce minimum BMPs at construction sites prior to the next rainy season and 365 days is adequate to allow for the only minor changes needed in the grading ordinances.

An effective means for reducing pollutants discharges from construction and grading activities is specified under **Requirement G.3** for the Permittees to develop conditions of approval for grading and construction permits that require measures to minimize pollutant discharges. The EPA recommends approval processes which consider water quality impacts, stating that approval process requirements should "include phasing development to coincide with seasonal dry periods, minimizing areas that are cleared and graded to only the portion of the site that is necessary for construction, exposing areas for the briefest period possible, and stabilizing and reseeding disturbed areas rapidly after construction activity is completed (EPA, 1992a)". Other suggested construction and grading conditions of approval listed in this item are based on TAC recommendations (SWRCB, 1994).

During approval and issuance of grading and construction permits, each Permittee must review construction and grading plans to ensure that the conditions of approval are met. The EPA states that to determine if a construction site is in compliance with construction and

grading ordinances and permits, the "MS4 operator should review the site plans submitted by the construction site operator before ground is broken" (EPA, 2000c). Furthermore, the EPA requires small municipalities to develop and implement for construction sites "Procedures for site plan review which incorporate consideration of potential water quality impacts" (EPA, 1999b).

Development of an inventory of construction sites as specified by **Requirement G.4**. will help identify potential sources of pollutants in storm water. By assessing information provided in the inventory (such as site topography and site proximity to receiving waters), sites can be prioritized by threat to water quality. Those sites that pose the greatest threat can then be targeted for inspection and monitoring. This will allow for limited inspection and monitoring time to be most effective. The EPA requires that all construction sites be addressed (and therefore inventoried), stating: "All construction sites, regardless of size, must be addressed by the municipality. To begin to identify these sites, the applicant should obtain lists of construction site operators that are covered by general or individual storm water NPDES permits from the NPDES permitting authority. However, construction sites not covered by a storm water discharge permit also need to be addressed by the municipality. The best way to identify these construction sites and implement an effective BMP program to reduce pollutants in their runoff is through the site planning process" (EPA, 1992a).

Designation of a set of minimum BMPs for construction sites as specified by **Requirement G.5** will help ensure that appropriate, consistent controls are implemented and that discharges of pollutants from construction sites are reduced to the MEP. **Requirement G.5.c.** provides the Permittees with the flexibility to allow different BMPs for the wet and dry seasons. See the discussions regarding BMP Implementation and Permittee Responsibility for Requiring BMPs in Sections VII.C. and VII.D of this Fact Sheet.

Regarding designation of BMPs to be implemented, the EPA states, "the proposed management program should describe requirements for nonstructural and structural BMPs that operators of construction activities that discharge to MS4s must meet" (EPA, 1992a). While minimum BMPs will be required at all construction sites, implementation of particular BMPs will be site specific in order to address various conditions at different sites. Regarding site specific BMPs, the EPA states, "Appropriate structural and nonstructural control requirements will vary by project. Project type, size, and duration, as well as soil composition, site slope, and proximity to sensitive receiving waters will determine the appropriate structural and nonstructural BMPs" (EPA, 1992a).

In order to comply with Order No. R9-2004-001 requirements, implemented BMPs may need to be more stringent than those required under the General Construction Permit. The EPA implies that local sediment and erosion control requirements may be more stringent than General Construction Permit requirements when it states that "construction sites covered under NPDES permit regulations must indicate whether they are in compliance with State and local sediment and erosion control plans" (EPA, 1992a).

Requirement G.6. specifies requirements for inspecting construction sites. Inspections provide a necessary means by which Permittees can evaluate compliance with their municipal ordinances. Inspections are especially important at high-risk areas for pollutant discharges, such as industrial and construction sites. The Order (Attachment C - Definitions) defines the wet season as Oct 1 through April 30, which is consistent with Order No. R9-

2001-001, Order No. R9-2001-0001, Order No. R8-2002-0011, and the SDRWQCB implementation of the General Construction Permit. To ensure that BMPs are properly installed and maintained, the EPA states MS4 operators should "develop procedures for site inspection and enforcement of control measures to deter infractions" (EPA, 1992a).

The EPA further states that "Site inspections are expected to be the primary enforcement mechanism by which erosion and sediment controls are maintained" (EPA, 1992a). When inspections result in findings of noncompliance, follow-up by the Permittee to ensure compliance is necessary. The EPA states "Effective inspection and enforcement requires [...] intervention by the municipal authority to correct violations" (EPA, 1992a). This is supported by the North Carolina Study that provided empirical support for the importance of inspections in increasing construction site compliance with local and state ordinances. Both the frequency and duration of project inspections were positively associated with the level of installation and maintenance compliance at the construction sites (Malcom, 1990). The EPA further finds "inspections give the MS4 operator an opportunity to provide additional guidance and education, issue warnings or assess penalties" (EPA, 2000c). Frequent inspections by Permittees of high priority construction sites will keep compliance a priority, and allow opportunities for inspectors to enhance problem-solving skills among site personnel.

Construction site inspection frequencies are to be based on threat to water quality. The EPA supports this, stating that site inspection procedures should "identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, topography, and the characteristics of soils and receiving water quality" (EPA, 2000c). For example, construction sites that are considered a high threat to water quality are to be given a high priority for inspection. This will allow for limited inspection and monitoring time to be most effective. Bi-weekly to monthly inspection of high threat sites is necessary due to the dynamic nature of construction activities. Medium and low threat construction sites can be inspected less frequently, due to their reduced risk of negatively impacting receiving waters. The minimum inspection schedule in the Permit is reasonable for the Permittees to ensure that construction sites are implementing adequate BMPs. More frequent inspections may be necessary due to site conditions. Review of storm water pollution prevention plans (SWPPPs) can be one effective tool for determining frequency of site inspections. Construction sites that effectively implement the measures of a comprehensive SWPPP may not need to be inspected as frequently as less diligent sites.

Each Permittee must develop grading and storm water ordinances under its Individual SWMP. When a Permittee determines a violation of its grading or storm water ordinance, it must pursue correction of the violation. A critical aspect of the correction of violations is enforcement of ordinances. Enforcement increases the probability of correction of a violation. The EPA supports development of enforceable ordinances and permits when it states "applicants must describe proposed regulatory programs to reduce pollutants in storm water runoff from construction sites to the MS4" (EPA, 1992a). The EPA supports enforcement of these ordinances and permits at construction sites 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" (EPA, 1992a).

Furthermore, the EPA requires small municipalities to develop and implement "An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance [...]" (EPA, 1999b).

Implementation of an education program is an important best management practice for construction sites and activities. The TAC "recognizes that education with an emphasis on pollution prevention is the fundamental basis for solving nonpoint source pollution problems." The TAC points out several target communities for education efforts, including "Government: Educate agencies and officials to achieve better communication, consistency, collaboration, and coordination at the federal, state and local levels" and "Development Community: Educate the development community, including developers, contractors, architects, and local government planners, engineers, and inspectors, on nonpoint source pollution problems associated with development and redevelopment and construction activities and involve them in problem definitions and solutions" (SWRCB, 1994).

The EPA also supports education efforts for parties involved in construction, stating "technical information on how to incorporate storm water management with erosion and sediment control and other BMP training courses are recommended for municipal employees and construction site operators" (EPA, 1992a).

3. Comments on Existing and Proposed Programs Related to Construction

Pollution Prevention as required in **Requirement G.1** is not specifically mentioned in the ROWD.

Section 2.5 of the ROWD proposes that Permittees will, within 18 months of permit adoption, review and revise grading/erosion control ordinances in order to reduce erosion caused by new development and significant redevelopment. The ROWD proposal does not include the specific provisions required in **Requirement G.2**, and ordinances must be revised and adopted no later than 6 months following permit adoption (SWMPs must be implemented in full within 1 year).

The ROWD does not indicate that the Permittees' construction approval processes will be modified to include the requirements in **Requirement G.3**, except that the requirement for evidence of coverage under the General Construction Permit prior to issuance of grading permits.

Section 5.2 of the ROWD states that, within 10 months of permit adoption, "each Permittee will develop an inventory (database) of active construction sites within its jurisdiction for projects for which a building or grading permit has been issued for a site that is 1 acre or larger." This proposal is not consistent with **Requirement G.4** of the Order, since all construction sites, regardless of size, must be included in the inventory.

Section 5.2 of the ROWD proposed that, within 6 months of permit adoption, Permittees shall develop a list of erosion control BMPs appropriate for use during construction. The proposed time frame is adequate, but the list must also include minimum erosion prevention and sediment control BMPs that address **Requirement G.5**. Also, the ROWD does not state that the BMPs will be required, which is necessary to comply with Order No. R9-2004-001. The ROWD does not require additional controls for construction sites that are tributary to

CWA section 303(d) water bodies or within/adjacent to or discharging directly to receiving waters within environmentally sensitive areas, which is necessary to comply with the Order.

The ROWD proposes to initiate inspections of all inventoried sites within 11 months of permit adoption. The ROWD proposal is not sufficient to meet the requirements in Order No. R9-2004-001 because it does not include inspection frequencies. Also, construction inspections should be ongoing, as they were required in Order No. R9-98-02, until new programs begin. Stating that inspections will be "initiated" 11 months after permit adoption would cause Permittees to be in violation of the requirement to continue implementation of Order No. R9-98-02 until the SWMP is fully implemented.

Section 2.4.2.2. of the ROWD, which describes enforcement and compliance responses, states that Permittees will emphasize and encourage voluntary compliance and will initiate enforcement/compliance actions within 60 days form the date a violation was identified. It also says that the SDRWQCB will take all enforcement actions related to compliance with the General Construction Permit and that the SDRWQCB will take the lead in initiating enforcement actions related to high-priority incidents. The Permittees are responsible for enforcing their ordinances and permits related to all violations, especially those of high priority. The SDRWQCB is responsible for enforcement of the General Construction Permit, however, if Permittee ordinances are also violated, Permittees must address these violations. Furthermore, 60 days is an inappropriately long amount of time to allow a violation to occur. The ROWD does not include adequate sanctions to ensure that BMPs are implemented at construction sites. The authority to issue sanctions (including the authority to stop work) at construction sites for lack of adequate BMPs is necessary to proactively prevent discharges. The Enforcement/Compliance Strategy, as described in the ROWD, is insufficient to maintain compliance with Order No. R9-2004-001.

Section 5.2 of the ROWD proposes that, within 10 months of permit adoption, each Permittee will have arranged for training of its current inspection staff and on an annual basis thereafter, and new hires and transfers will be trained within 6 months of starting inspection duties. This proposal to train municipal staff on an annual basis is adequate to meet permit requirements. However, the ROWD does not address external training.

H. EXISTING DEVELOPMENT (Order Section H)

The Existing Development section contains the following three sections:

H.1 Municipal Program

H.2 Industrial/Commercial Facilities Program

H.3 Residential Program

H.1 MUNICIPAL PROGRAM (Order Section H.1)

1. Specific Legal Authority for Municipal Program Requirements

- 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 deicing 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 122.26(d)(1)(iii) requires source identification, including the location of MS4 outfalls, the location and description of the activities of each currently operating or closed municipal land fill or other treatment, storage or disposal facility for municipal waste, the location of major structural controls for storm water discharge, and the identification of publicly owned parks, recreational areas, and other open lands.

2. Discussion of Municipal Program Requirements

Municipal facilities and activities are clearly identified in the federal regulations as one of several high priority land uses from which pollutants in urban runoff discharges must be reduced to the MEP. The EPA targets municipal areas and activities "to help ensure a reduction in the amount and type of pollution that (1) collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and (2) results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems" (EPA, 2000c).

As specified by **Requirement H.1.b**, Permittees must first identify all of the municipal areas and activities that generate pollutants within their jurisdiction. The areas and activities listed in **Requirement H.1.b** are either specifically addressed in the federal NPDES regulations

referenced above, or have been determined by the Permittees (Permittees, 2003), the SDRWQCB (SDRWQCB, 2002a), or the EPA (EPA, 1992a) to contribute pollutants to the MS4. Source identification is necessary to characterize the nature and extent of pollutants in discharges and to develop appropriate control measures. It is the first step in developing a targeted approach to urban runoff management.

Regarding **Requirement H.1.d**, MS4 Maintenance is critical to the successful implementation of every SWMP. The requirement to conduct a maintenance program is specifically directed in both the Phase I and Phase II storm water regulations. The EPA 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" (EPA, 1992a). Regarding catch basin cleaning, the EPA 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" (EPA, 1999c). 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. The requirement (Requirement H.1.d.(d)) is necessary to identify problem areas and sources of debris in catch basins.

Requirement H.1.e, Management of Pesticides, Herbicides and Fertilizers, is supported by the EPA finding that "The proposed program should include educational measures for the public and commercial applicators, and should include integrated pest management measures that rely on non-chemical solutions to pest control. The program should also describe how educational materials will be developed and distributed. Applicants are encouraged to consider providing information for the collection and proper disposal of unused pesticides, herbicides, and fertilizers, or to establish their own program. [...] In addition, applicants must include a discussion of controls for the application of pesticides, herbicides, and fertilizers in public rights-of-way and at municipal facilities. Planting low-maintenance vegetation, such as perennial ground covers, reduces pesticide and herbicide use. Native vegetation is often preferable because there is less need to apply fertilizers and herbicides, and to perform other forms of maintenance, such as mowing" (EPA, 1992a).

Requirement No. H.1.f, Inspections of Municipal Facilities and Activities, is specified to insure that proper measures are being undertaken to reduce pollutant discharges to the MEP. The EPA supports inspections of municipal areas and activities, stating "Applicants must describe programs that identify measures to monitor and reduce pollutants in storm water discharges from facilities that handle municipal waste, including sewage sludge. [...] The types of facilities that should be included are: active or closed municipal waste landfills; publicly owned treatment works, including water and wastewater treatment plants; incinerators; municipal solid waste transfer facilities; land application sites; uncontrolled sanitary landfills; maintenance and storage yards for waste transportation fleets and equipment; sites for disposing or treating sludge from municipal treatment works; and other treatment, storage, or disposal facilities for municipal waste" (EPA, 1992a). The EPA further states, "Procedures to evaluate, inspect, monitor, and establish control measures for

municipal waste sites over the term of the NPDES permit should be described" (EPA, 1992a)."

3. Comments on Existing and Proposed Municipal Programs

Section 4.1 of the ROWD describes the Municipal Facilities Strategy, which the Permittees developed pursuant to Order No. R9-98-02 to identify BMPs for activities conducted at municipal facilities. This section of the ROWD identifies the types of municipal facilities and the activities conducted at those facilities that have the potential to contribute pollutants to urban runoff (ROWD Table 4-1). The Permittees identified maintenance yards, vehicle and equipment maintenance areas, waste transfer stations, corporation and storage yards, and parks and recreational facilities as "facilities of concern". The number of each type of facility operated by each Permittee is listed in Table 4-2 of the ROWD. All other facilities that may be sources of pollutants, including parking areas, hazardous material collection facilities, and other facilities covered under the General Industrial Permit were not identified as "facilities of concern", and were not included in Table 4-2. As discussed above, all facilities and activities listed in **Requirement H.1.b** of the Order must be identified in the inventory. Also, Table 4-2 only lists the number of each type of facility in each Permittee's jurisdiction. The inventory must include, at a minimum, the name, address, and description of activities conducted at each facility.

The ROWD also identifies potential pollutants of concern from municipal facilities and activities (Table 4-3) and "potential" source control BMPs to address the pollutant-generating activities (Table 4-4). The Permittees propose to "maintain up-to-date site-specific Urban Runoff pollution prevention plans for public agency facilities and activities." If the "potential" BMPs listed in Table 4-4 include pollution prevention methods, and are required to be implemented (as applicable) these programs are adequate to comply with **Requirements H.1.a and c** of the Order.

It is important to note that the ROWD claims that brake pad wear, the operation of internal combustion engines, and tire wear, among other thing, are beyond the ability of the Permittees to control. The EPA and the SDRWQCB do not concur with this claim. The EPA states, "proposed management programs must include a description of practices for operation and maintenance of public streets, roads, and highways, and procedures for reducing the impact of runoff from these areas on receiving waters. [...] Pollutants from traffic can be minimized by using nonstructural controls (e.g., traffic reduction and improved traffic management), structural controls (e.g., traditional and innovative BMPs), and changing maintenance activities" (EPA, 1992a).

Regarding MS4 maintenance, Section 4.2 of the ROWD proposes that, within 12 months of permit adoption, Permittees will develop "Model Maintenance Procedures" for public agency activities and drainage facilities. However, in December 1999, the Permittees submitted proposed "Storm Drain System Inspection and Maintenance" programs, pursuant to Order No. R9-98-02 (Permittees, 1999). Each Permittee's proposed program would satisfy the requirements in **Requirement H.1.d** of the Order. Because such plans have already been submitted, the Permittees do not need 12 months to develop another program, and they do not need additional time to implement maintenance activities. Considering that this is a third-round permit, the Permittees should already be conducting the proposed MS4

maintenance activities and continued implementation would be adequate for compliance with Order No. R9-2004-001 without requiring additional resources.

Regarding the management of pesticides, herbicides, and fertilizers, Section 4.2 of the ROWD proposes that "Permittees shall continue to provide training to municipal staff and to contract field operations staff on fertilizer and pesticide management, maintenance procedures, and other pollution control measures. Permittee staff shall attend at least 3 out of 5 annual training sessions." This proposal satisfies **Requirement H.1.e** of the Order, but it does not address the requirements to include integrated pest management measures that rely on non-chemical solutions.

Section 4.2 of the ROWD proposes to "review municipal activities and facilities annually to identify needed revisions of the Municipal Facilities Strategy". In order to identify needed revisions to BMP requirements and municipal programs, inspections are necessary. Therefore, it is assumed that the Permittees proposal includes inspections of municipal facilities and activities. Considering the small number of municipal facilities that each Permittee operates, with the exception of parks (ROWD Table 4-2), inspecting each facility annually is feasible.

Regarding parks and recreation facilities, the Permittees identified these areas as facilities of concern in the ROWD due to their potential to generate pollutants. Therefore, parks and recreation facilities, or the municipal activity conducted at the facilities must be inspected annually. If the same municipal maintenance staff perform similar landscaping or other activities at all parks, the inspection process could be streamlined to focus on the activities. For example, the Permittees could possibly develop one pollution prevention plan for all parks that includes all activities conducted at municipal parks, and conduct annual inspections of the activities performed to ensure that effective BMPs are being implemented (not necessarily inspecting all parks annually).

Enforcement of municipal areas and activities is not specifically addressed in the ROWD. This program will need to be developed as part of each Permittee's Individual SWMP.

Overall, with minor refinement, the existing and proposed municipal programs are adequate to meet the requirements of **Requirement H.1** of the Order.

H.2 INDUSTRIAL/COMMERCIAL FACILITIES PROGRAM (Order Section H.2)

1. Specific Legal Authority for Industrial/Commercial Facilities Requirements

- 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 permittee 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)(A) provides that the permittee 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 122.26(d)(2)(ii) provides that the permittee "Provide an inventory, organized by watershed of the name and address, and a description (such as 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."

2. Discussion of Industrial/Commercial Facilities Requirements

The requirements contained in Section H.2 provide a framework for developing management programs to reduce pollutants in urban runoff discharges from industrial and commercial facilities to the MEP.

The EPA supports the industrial/commercial facility requirements when it states, "NPDES permits for MS4s will establish responsibilities for municipal system operators to control pollutants from industrial storm water discharged through their system" (EPA, 1992a). The guidance further states that Permittees are ultimately responsible for discharges to their MS4. Therefore, storm water management programs should do the following:

- Identify priority industries discharging to their systems;
- Review and evaluate SWPPPs and other procedures that industrial facilities must develop under general or individual permits;
- Establish and implement BMPs to reduce pollutants from these industrial facilities (or require industry to implement them); and
- Inspect and monitor industrial facilities to verify that the industries discharging storm water to the MS4 are in compliance with their NPDES storm water permit, if required.

Source identification is necessary to characterize the nature and extent of pollutants in discharges and to develop appropriate BMPs. The industrial and commercial facilities listed in **Requirement H.2.b** are either specifically addressed in the federal NPDES regulations referenced above, or have been determined by the Permittees, or the SDRWQCB (SDRWQCB, 2002a) to contribute pollutants to the MS4. The Permittees have not provided data, or other information, documenting that any of the facilities should be removed from the list because they are not a source of pollutants in the Upper Santa Margarita Watershed.

The EPA supports the list of facilities in the Order when it states the following (EPA, 2004):

> "EPA regulations at 40 CFR 122.26(d)(2)(iv)(A) provide for a broad program of 'source control and structural control measures to reduce pollutants from runoff from commercial and residential areas...' We believe that this regulation provides a firm basis for the permit's [Order] requirements related to commercial facilities. The requirements for outreach to commercial facilities, inspections, and the follow-up enforcement would all be consistent with a program of 'source control' measures to be included in a storm water management program..."

Regarding the list of industrial facilities, EPA goes on to say:

> "The issue of industrial inspections also arose for the Los Angeles County MS4 permit. The State Board, in a memo dated November 9, 2001, from Michael Lauffer of the State Board to Dennis Dickerson, Executive Officer of the Los Angeles Regional Board, noted that under Section 402 (p)(3)(B)(iii) of the CWA, the Board has broad authority to require 'such other provisions...as the State determines appropriate...' and that this would provide a basis for requirements that go beyond specific provisions of the EPA regulations. We would agree with the State Board on this matter, and that the Regional Board would have the authority to require inspections of all the industrial facilities listed in the permit [Order], notwithstanding the specific provisions of the EPA regulations."

Regarding **Requirement H.2.c**, BMP Implementation, guidance from the EPA makes it clear that Permittees are required to designate BMPs for industrial and commercial facilities when it states that permittees should, "Establish and implement BMPs to reduce pollutants from these facilities (or require industry to implement them)" (EPA, 1992a). The EPA goes on to say that BMPs more stringent than those required under the General Industrial Permit may be necessary. The EPA finds that "nothing in the Federal regulations would prohibit the municipality from requiring additional controls beyond the permit requirements for industrial activities. For this reason, the EPA recommends that municipal applicants incorporate a provision in the proposed storm water management program that allows the municipality to require priority industrial facilities to implement the controls necessary for the municipality to meet its permit responsibilities" (EPA, 1992a). These statements from the EPA support the requirement for dual regulation of facilities covered by the General Industrial Permit (see discussion in support of **Finding No. 21** in Section VII.E of this Fact Sheet).

In support of **Requirement H.2.c.(3)**, the EPA recommends that Permittees provide BMP guidance to industrial facilities, stating, "The applicant should suggest procedures for requiring pollutant control measures in runoff from priority industrial facilities. Applicants should provide information to the industrial facilities that discharge to the MS4s and industry-specific guidance on appropriate control measures that industries discharging to the systems should follow" (EPA, 1992a). The EPA goes on to say, "Applicants should provide information to the industrial facilities that discharge to the MS4s and industry-specific guidance on appropriate control measures that industries discharging to their systems should follow" (EPA, 1992a).

Furthermore, inspections are necessary to verify that industries are in compliance with the MS4 permit and local ordinances (EPA, 1992a). According to the EPA, "The proposed management program should describe the inspection procedures that will be followed. [...]

Proposed management programs should address minimum frequency for routine inspections. For example, how often, how much of the site, and how long an inspection may take are appropriate to explain in this proposed management program component. Applicants should also describe procedures for conducting inspections and provide an inspector's checklist" (EPA, 1992a). In further support of inspections and dual regulation of industrial facilities, the EPA states "Municipalities are urged to evaluate pollution prevention plans and discharge monitoring data collected by the industrial facility to ensure that the facility is in compliance with its NPDES storm water permit. 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" (EPA, 1992a).

The EPA also finds that follow-up actions are to be implemented based upon site inspection findings: "The results of inspection may be used as a basis for requiring storm water management controls and enhanced pollution prevention measures" (EPA, 1992a).

Industrial site inspection frequencies specific in **Requirement H.2.d** are based on threat to water quality prioritization in order to allow for limited inspection resources to be most effective. Annual or bi-annual inspection of high threat sites is necessary to ensure that changes to the site that may be detrimental to water quality are identified and addressed.

Requirement H.2.f, Reporting of Non-Filers, is necessary to ensure effective oversight of industrial facilities.

3. Comments on Existing and Proposed Industrial/Commercial Programs

Pursuant to Order No. R9-98-02, the Permittees have developed and implemented an industrial/commercial facilities program that meets or exceeds several of the requirements in Section H.2 of the Order. Each Permittee has already developed a prioritized list of facilities, including industrial facilities as defined at 40 CFR 122.26(b)(14), food facilities, and all other facilities that store, generate, or handle hazardous waste. The method of prioritization used in developing the current lists is consistent with what the SDRWQCB considers to be "high", "medium", and "low". Section 7.3 of the ROWD proposes that, within 9 months of permit adoption, each Permittee will update its existing inventories of industrial and commercial facilities within its jurisdiction that have the potential to discharge pollutants to the MS4. The ROWD says that the industrial and commercial facilities databases will include the name, address, location reference, facility contact and phone number, SIC code, WDID number, assessor's parcel number, and site size.

Also pursuant to Order No. R9-98-02, the Permittees developed the Commercial/Industrial Compliance Assistance Program (CAP) as a mechanism to conduct the required inspections of inventoried facilities. The CAP was formed as an agreement between the District and the County's Department of Environmental Health and involves the completion of a "storm water compliance survey" in addition to the routine inspections that the Department Environmental Health conducts pursuant to other regulations. Through the CAP, the County currently inspects sites with underground storage tanks once per year, sites that handle and generate hazardous waste every two years (began in May 2002), and retail food facilities 1-3 times annually (began in January 2002). Section 7.3 of the ROWD proposes that, within 12

months of permit adoption, each Permittee will implement an inspection frequency for industrial and commercial facilities of no less than:

- Once a year for industrial facilities designated as high priority;
- Once biannually for commercial facilities designated as medium priority; and
- Once during the permit term for facilities designated as low priority.

Except for the facilities that are not captured under the CAP, which must be addressed by each Permittee, the Permittees existing and proposed programs are adequate to comply with the requirements in **Requirement H.2.b and H.2.d.**

Section 7.2 of the ROWD states that, "In conducting a commercial/industrial facility inspection, if it appears that the facility may be required to have coverage under the General Permit for Stormwater Discharges Associated with Industrial Activities and the facility operator has indicated that an NOI has not been filed, the inspector will provide the operator with an informational sheet on the requirements of the General Permit for Stormwater Discharges Associated with Industrial Activities. The inspector also documents the name, address, and SIC code of the facility. Subsequently, a listing of such facilities is compiled and forwarded to the San Diego Regional Board staff on a frequency to be determined by the Permittees." This proposal meets **Requirement H.2.f.**

It is important to note that there are approximately 25 industrial facilities currently covered by the General Industrial Permit within the Upper Santa Margarita Watershed. Most of these facilities are already included in the Permittees' inventories and covered under the CAP. The remaining few that will require inspections and oversight will not constitute a significant burden on the Permittees. Therefore, dual regulation of these sites should not be an issue. In the Permittees comments on the Order, they proposed BMP requirements to comply with Requirement H.2.c.1. The proposed BMPs may be adequate minimum requirements for food facilities and for facilities that store hazardous waste. However, broadly applying these few BMPs to all types of inventoried industrial and commercial facilities may not be adequate or appropriate. Adequate minimum BMPs should address all facility types and activities that could potentially contribute pollutants to the MS4.

Regarding enforcement, Section 2.4.2.2. of the ROWD states that Permittees will emphasize and encourage voluntary compliance and will initiate enforcement/compliance actions within 60 days form the date a violation was identified. It also says that the SDRWQCB will take all enforcement actions related to compliance with the General Industrial Permit and that the SDRWQCB will take the lead in initiating enforcement actions related to high-priority incidents. These statements are incorrect and do not meet the requirements of **Requirement H.2.e**. As discussed in Sections VII.D and VII.E of this Fact Sheet, the Permittees are responsible for enforcing their ordinances and permits related to ALL violations, especially those of high priority. The SDRWQCB is responsible for enforcement of the General Industrial Permit, however, if Permittee ordinances are also violated, Permittees must address these violations. Furthermore, 60 days is an inappropriately long amount of time to allow a violation to occur. The Permittees' Enforcement/Compliance Strategy, as described in the ROWD, is insufficient to meet the enforcement requirements contained in Order No. R9-2004-001.

Section 7.3 of the ROWD proposes that, within 1 year of permit adoption, each Permittee will have arranged for adequate training of all staff inspectors and on an annual basis thereafter. New hires that will be performing inspections will be trained within 6 months of starting field duties. This proposed training schedule meets **Requirement H.2.g** of the Order.

H.3 RESIDENTIAL PROGRAM (Order Section H.3)

1. Specific Legal Authority for Residential Requirements

- Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Permittee 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."

2. Discussion of Residential Requirements

Land used for residential activities is clearly identified in the federal regulations as one of several high priority land uses from which pollutants in urban runoff discharges must be reduced to the MEP by each Permittee (40 CFR 122.26(d)(2)(iv)). Residential activities have the potential to be significant sources of pollutants in urban runoff. In residential areas, pollution sources conveyed by the MS4 include activities related to automobile maintenance, landscaping/gardening, home-improvement, pets, and others, including those listed in **Requirement H.3.b.** The requirements contained in Section H.3 will provide a program for the development and implementation of BMPs to reduce pollutants in urban runoff discharges from residential activities to the MEP (see discussion of **BMP Implementation** in Section VII.C of this Fact Sheet).

Pursuant to Order No. R9-98-02 and pre-existing programs, the Permittees have instituted or promoted residential pollution prevention BMPs, including street sweeping, household hazardous waste collections, and education. Nationally, education is increasingly being used as a tool for pollution prevention in residential areas, where the use of regulatory enforcement actions has traditionally been less than in other land use areas. Pollution prevention can encourage responsible residential nutrient management, such as proper fertilization rates and proper pet waste disposal, when a connection is established between such practices and local or regional water quality needs (Nonpoint Source News Notes, 2000). Similarly, source control is vital to protect urban watersheds from pesticides that are applied in residential areas and are transported to streams via the MS4. For example in a

review, "Diazinon Sources in Runoff from the San Francisco Region," the Center for Watershed Protection concluded that, "the only real tool to control diazinon in urban watersheds is source control to either reduce the use of diazinon or to apply it in a safer manner." In addition, where structural BMPs or MS4 facilities are owned or operated by the residential community, pollution prevention activities taken by local governments can include maintenance guidance.

3. Comments on Existing And Proposed Residential Programs

Section 8.0 of the ROWD states that pollution prevention is a major focus of the Permittees' existing StormWater/CleanWater Protection Program, and the following pollution prevention themes are emphasized in public outreach activities and materials:

- Proper disposal of household hazardous waste;
- Proper disposal of used motor oil;
- Pesticide and fertilizer use guidelines;
- Good housekeeping BMPs; and
- Proper disposal of pet waste.

Section 8.2 of the ROWD proposes to educate the public regarding pollutants in urban runoff. Education and outreach may be sufficient to reduce the discharge of pollutants to the MEP from residential areas, however, additional BMPs may be necessary in some cases. These minimum BMP requirements should be identified in each Permittee's Individual SWMP.

I. EDUCATION (Order Section I)

1. Specific Legal Authority for Education Requirements

- 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 122.26(d)(2)(iv)(B)(6) provides that the proposed management program include "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 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."

2. Discussion of Education Requirements

Education is a critical BMP and an important aspect of the SWMP. The EPA 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. [...]
>
> 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". (EPA, 2000c)

Regarding target audiences, EPA 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" (EPA, 2000c). The target communities included in Requirement I. are based on recommendations of the TAC (SWRCB, 1994).

3. Comments on Existing and Proposed Education Programs

Public education was strongly emphasized in the Permittees' 1993 DAMP implemented under the first and second term permits. Consequently, the Permittees already have well-developed education programs that may be readily reviewed and revised, as necessary, to satisfy the requirements of Order No. R9-2004-001.

Section 8.2 of the ROWD includes several good program commitments, such as conducting a survey to measure changes in awareness, which should be incorporated into the SWMP.

J. ILLICIT DISCHARGE DETECTION AND ELIMINATION (Order Section J)

1. Specific Legal Authority for Illicit Discharge Detection and Elimination Requirements

- Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Section J. Illicit Discharge Detection and Elimination of Order No. R9-2004-0001.
- Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) provides that the permittee 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 permittee 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)(5) provides that the permittee 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 permittee 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."

2. Discussion of Illicit Discharge Detection and Elimination Requirements

In accordance with 40 CFR 122.26(d)(2)(iv)(B) and 122.26(d)(2)(iv)(B)(1), **Requirement J.1** requires each Permittee to actively seek and eliminate illicit discharges and illicit connections. As guidance for detecting and eliminating illicit discharges and connections, the EPA suggests "The proposed management program must include a description of inspection procedures, orders, ordinances, and other legal authorities necessary to prevent illicit discharges to the MS4" (EPA, 1992a).

In order to detect illicit discharges and connections, **Requirement J.2** requires each Permittee to develop and maintain an accurate, up-to-date map of its MS4. An accurate map of the MS4 will enable the Permittees to monitor the system for illicit discharges and connections and to be aware of the entire MS4 within its jurisdiction.

Requirement J.3 requires Permittees to develop and implement an Illicit Discharge Monitoring Program as specified in **section II.B of Monitoring and Reporting Program No. R9-2004-001 (hereafter referred to as the MRP)**. If results indicate that an illicit discharge or connection may be present, **Requirement J.4** specifies that the Permittees shall conduct follow-up procedures to pinpoint the source of the illicit discharge or connection. Once the illicit discharge or connection source is identified, steps may be taken to eliminate the discharge or connection. In this manner, monitoring of dry weather urban runoff can lead to the elimination of illicit discharges and connections and the reduction of pollutants in urban runoff.

Requirement J.5 requires the elimination of illicit discharges and illicit connections as soon as possible. The time needed to eliminate the discharge/connection will depend on the nature and circumstance of the problem including conditions that are not under the control of the Permittees. However, discharges that the Permittees have the ability to eliminate immediately must be eliminated immediately. The EPA supports elimination as soon as possible when it states, "Once the source is identified, the offending discharger should be notified and directed to correct the problem. Education efforts and working with the discharger can be effective in resolving the problem before taking legal action" (EPA, 1992a).

The EPA states that the "proposed management program component should describe how the prohibition on illicit discharges will be implemented and enforced. The description could include a schedule and allocation of staff and resources. A direct linkage should exist between this program component and the adequate legal authority requirements for the ordinances and orders to effectively implement the prohibition of illicit discharges" (EPA, 1992a). Consistent with this statement, **Requirement J.6** requires Permittees to implement and enforce its ordinance, orders, or other legal authority over illicit discharges and connections.

Requirement J.7 pertains to sewage spill prevention and response. Such spills into and from the MS4 can severely impair receiving water quality and pose a significant threat to public health. To avoid these negative impacts, the Order requires Permittees to implement appropriate procedures to prevent, contain, and respond to spills that may discharge into the MS4. The Order contains suggestions of possible appropriate actions. The EPA states, "The goal of a spill prevention program is to reduce the frequency and extent of spills of hazardous materials which can cause water quality impairment" (EPA, 1992a).

Requirement J.8 pertains to public reporting of illicit discharges or water quality impacts associated with discharges from MS4s. Regarding this issue, the EPA states "Timely reporting by the public of improper disposal and illicit discharges are critical components of programs to control such sources. To enhance public awareness, programs may include setting up a public information hotline number, educating school students, community and volunteer watchdog groups, using inserts into utility bills, and newspaper, radio, and television announcements to inform the public about what to look for and how to report incidents" (EPA, 1992a).

The EPA states "If private individuals find the proper disposal of used oil or toxic materials difficult, incidents of improper disposal (such as into the MS4) increase" (EPA, 1992a). Therefore **Requirement J.9** directs the Permittees to propose a program component that will facilitate the proper disposal of used oil and toxics from households by establishing municipally operated collection sites, or ensuring that privately operated collections sites are available. The EPA suggests this program component "should describe outreach plans to handlers of used oil and to the public, and operating plans for oil and household waste collection programs" (EPA, 1992a).

3. Comments on Existing and Proposed Illicit Discharge Detection and Elimination Programs

The ROWD references a reconnaissance survey that the Permittees conducted pursuant to their first-round MS4 permit (Order No. R9-90-46), which identified and removed any illicit connections. According to the 2001-2002 Annual Progress Report, the Reconnaissance survey showed that illicit connections were almost non-existent within the Upper Santa Margarita Watershed, whereas illegal discharges were more commonplace (Permittees, 2001). Based on these results, the Permittees concluded that focusing on inspections of open channels and the curtailment of illicit discharges is a more effective use of resources than inspections of underground storm drains. The EPA concurs with this conclusion when it says, "Permits for older municipalities may emphasize control of cross-connections, while permits for municipalities with large areas of new development may emphasize the installation of permanent structural controls during construction" (EPA, 1992a). **Requirement J.1** of the Order gives the Permittees the flexibility to focus their programs on priority areas, so long as they are actively seeking and eliminating illegal discharges. It should be noted that the reconnaissance survey was conducted 10 years ago and the length of the MS4 has increased significantly. The survey, dated September 30, 1993, covered approximately 25.2 miles of underground storm drains and over 8.9 miles of open channels. According to the ROWD, the District's MS4 currently consists of about 71 miles of open and closed storm drains, and the City of Murrieta's MS4 currently consists of about 18 miles of open and closed storm drains. The total length of Temecula's MS4 is unknown. Therefore, the survey covered less than half

of the current MS4 and cannot serve as evidence that illicit connections are currently non-existent.

Section 3.2 of the ROWD states that the Permittees have programs in place to identify and eliminate illicit connections. According to the 2001-2002 Annual Progress Report, the City of Murrieta conducts annual video inspections of portions of its MS4 and investigates any illicit connections identified, and District and County staff perform visual inspections of open storm drains to check for discharges. The City of Temecula seems to have a reactive program that relies on reports of illegal discharges.

Regarding **Requirement J.2**, the District and the City of Murrieta submitted a map of their MS4s with the ROWD. The City of Temecula has not yet submitted a map.

Section 3.5 of the ROWD proposes that Permittees shall continue to implement and improve routine inspection and monitoring and reporting programs for their MS4s. In order to satisfy **Requirement J.3** of the Order, each Permittee shall describe their inspection and monitoring programs to meet the requirements of Section II.B of the MRP in their Individual SWMPs.

Section 3.5 of the ROWD proposes that, "If routine inspections or dry weather monitoring indicate illicit connections or illegal discharges, they shall be investigated and eliminated or permitted within sixty (60) calendar days of receipt of notice." Sixty days is an unreasonably long time frame for the investigation and elimination of illicit discharges and connections. As stated above, these discharges can cause or contribute to receiving water degradation and are prohibited. Also, illicit discharges are often a discrete event that must be investigated immediately to identify the source. Therefore, the proposed timeframe for investigation and elimination must be decreased to represent the most immediate response time as is possible for the Permittees. In accordance with **Requirement J.5**, illicit discharges that pose a serious threat to public health or the environment must be eliminated immediately, and all others must be eliminated as soon as possible.

Section 3.2 of the ROWD states that the Permittees have programs in place to identify, eliminate, and respond to illicit connections and discharges. However, these programs are not described. According to the 2001-2002 Annual Progress Report, the District manages a toll-free reporting hotline, which satisfies **Requirement J.8** of the Order (Permittees, 2002a). The reports do not mention hotlines for the Cities of Murrieta and Temecula and it is not clear if the countywide hotline is coordinate with the other Permittees. In order for the Cities to satisfy this requirement, Individual SWMPs must either discuss individual public reporting hotlines or describe how the countywide hotline is coordinated.

As indicated in Section 3.3 of the ROWD, the Permittees already have mechanisms in place to facilitate the proper management and disposal of used oil and toxic materials that meet or exceed **Requirement J.8**.

K. WATERSHED-BASED ACTIVITIES (Order Section K)

1. Discussion of Watershed Requirements

Management of urban runoff on a watershed basis is recommended by the SWRCB and the SDRWQCB. The TAC defines watershed-based water quality protection as "the prevention/control of pollution and management of human activities in a geographically or other defined drainage area to protect, restore, and/or enhance the natural resources and

beneficial uses within the watershed" (SWRCB, 1994). The TAC recommends that "All NPDES permits and Waste Discharge Requirements should be considered for reissuance on a watershed basis" (SWRCB, 1994). The SDRWQCB also recommends watershed-based water quality protection, stating in the Basin Plan 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" (SDRWQCB, 1994).

The requirements in Section K of the Order are necessary for the Permittees to identify and mitigate sources of pollutants in urban runoff from the entire watershed that impact common downstream receiving waters. This is the key to addressing the impacts from areas and activities within the Permittees' jurisdiction on downstream receiving waters and their beneficial uses (i.e. Camp Pendleton's drinking water supply) as well as addressing pollutant sources in the watershed which are outside the Permittees' jurisdiction. **Finding No. 20** emphasizes the need for watershed-based activities and collaboration among dischargers in a common watershed. It states, "As operators of the MS4s, the Permittees 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 exceedances of receiving water quality objectives." Permittees could be held responsible for discharges of pollutants from sources outside of their jurisdiction if they cause or contribute to exceedances of water quality objectives, therefore, it is necessary for Permittees to make efforts to address all sources of pollutants in the watershed.

2. Comments on Existing and Proposed Watershed Programs

The Permittees already collaborate with each other through monthly meetings. However, these meetings, as well as many aspects of the existing DAMP, are countywide. In order to address watershed-specific issues, the Permittees should meet separately to focus on the Upper Santa Margarita Watershed. The Permittees also already participate in San Diego County's current effort to develop a Santa Margarita Watershed Management Plan, the Southern California Stormwater Monitoring Coalition, and the Santa Margarita River Executive Management Team. At this time, this level of participation is appropriate to meet the objectives of Requirement K.3. of the Order.

L. MONITORING AND REPORTING PROGRAM (Order Section L)

See discussion in Section IX of this Fact Sheet.

M. PRINCIPAL PERMITTEE RESPONSIBILITIES (Order Section M)

1. Specific Legal Authority for Principal Permittee Responsibility Requirements

- Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Permittee 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."

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

2. Discussion of Principal Permittee Responsibility Requirements

The Principal Permittee responsibilities required in Section M are necessary to facilitate intergovernmental coordination and for the standardization and compilation of required reports. Standardized documents provide for easier assessment and application of report data, making reports more useful for the SDRWQCB and the Permittees, which can result in more effective urban runoff management. The EPA recommends intergovernmental coordination, such as a memorandum of understanding, to define specific municipal roles, responsibilities and points of coordination (EPA, 1992a).

3. Comments on Existing and Proposed Principal Permittee Responsibilities

The Permittees currently operate under an Implementation Agreement, which was executed in November 1998. The Implementation Agreement sets forth the responsibilities of the Principal Permittee and the Permittees and provides for funding of "umbrella" activities. In Section 2.1 of the ROWD, the Permittees propose to amend the implementation agreement to set forth the responsibilities of the Permittees in accordance with the Order.

N. STANDARD PROVISIONS (Order Section O and Attachment B)

The standard provisions included in **Attachment B** of Order No. R9-2004-001 are consistent to all NPDES permits and are generally found in federal NPDES regulation 40 CFR sections 122.22, 122.41, 122.42 and the CWC (specific citations are provided in **Attachment B** of Order No. R9-2004-001).

IX. MONITORING AND REPORTING PROGRAM

The MRP consists of requirements for receiving waters monitoring, monitoring of dry weather flows/illicit discharges, and annual reporting.

A. RECEVING WATERS MONITORING

1. Specific Legal Authority for Receiving Waters Monitoring Requirements

Federal NPDES regulations at 40 CFR 122.26(d)(2)(iii)(D) require municipal permittees to propose a monitoring program for representative data collection for the term of the permit that describes the location of outfalls, field screening points, instream stations, why the location is representative, the frequency of sampling, parameters to be sampled, and a description of sampling equipment.

2. Discussion of Monitoring Requirements

According to the EPA, the benefits of sampling data include, but are not limited to (EPA, 1992b):

- Providing a means for evaluating the environmental risk of storm water discharges by identifying types and amounts of pollutants present;

- Determining the relative potential for storm water discharges to contribute to water quality impacts or water quality standard violations;
- Identifying potential sources of pollutants; and
- Eliminating or controlling identified sources more specifically through permit conditions.

Most importantly, monitoring programs are an essential link in 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 is not effective, an improved BMP can be selected. 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 urban runoff management and specific education efforts.

Considering the benefits described above, the 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 SWMP for the reduction of pollutant loadings to the MEP. The primary goals of the MRP include:

1. Assess compliance with Order No. R9-2004-001;
2. Measure and improve the effectiveness of the SWMPs;
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 Receiving Waters and Illicit Discharge Monitoring Programs is necessary to meet the objectives listed above. The justifications for each component are discussed below.

Framework

The SDRWQCB typically uses the following framework in NPDES MRPs:

1. Core monitoring to address ongoing, site-specific needs, such as estimating pollutant loads and assessing trends;
2. Regional monitoring to address large spatial scales at infrequent (i.e. every five years) intervals. Regional monitoring is useful to put localized site-specific results into context of the larger ecosystem; and
3. Special studies to address directed needs or to answer specific questions. This monitoring is useful to address unique issues, oftentimes triggered by routine monitoring

to help understand results or identify efficient management measures. Special studies are short-term studies with a predefined beginning, middle and end.

Core Monitoring

Section II.A.1 of the MRP requires mass loading monitoring at three triad[13] and four tributary stations. The mass loading monitoring will provide data representing the total pollutant loadings from specific drainage and sub-drainage areas. This data can be used to help achieve the MRP goals listed above and answer the following management questions:

- Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
- What is the extent and magnitude of the current or potential receiving water problems?
- What is the relative urban runoff contribution to the receiving water problem(s)?
- What are the sources of urban runoff that contribute t receiving water problem(s)?
- Are conditions in receiving waters getting better or worse?

The number and locations of triad and tributary stations are consistent with the Permitees' proposal (Permittees, 2004b). In addition to one reference station, the triad stations are existing Permittee monitoring stations located in lower Murrieta Creek and lower Temecula Creek. These stations are located at the downstream end of the Upper Santa Margarita Watershed and should be representative of discharges from the entire permitted area. The tributary station locations were proposed by the Permittees and are representative of urbanized sub-drainage areas. Data from these locations will allow the Permittees to better identify sources of pollutants, prioritize drainage areas for management actions, and determine the conditions of the tributary streams (MRP Goals 4,5,6 and 8).

Federal NPDES regulations at 40 CFR 122.21(g)(7)(ii) require the sampling protocols specified in **section II.A.1 of the MRP.** These protocols are necessary to ensure consistent sampling, adequate representation of storm events, and accurate, comparable data.

Section II.A.2 of the MRP requires the Permittees to conduct toxicity monitoring to evaluate the extent and causes of toxicity in receiving waters. Toxicity testing is used to assess the impact of urban runoff on the overall quality of aquatic systems (Center for Watershed Protection, 1996). Evidence of toxicity indicates that pollutants are bioavailable and have the potential to cause degradation to aquatic systems. When combined with chemical data, which by itself does not necessarily reveal the impacts of urban runoff to aquatic life or the beneficial uses of receiving waters, toxicity monitoring data can be used to better determine the extent and causes of impacts to aquatic systems (MRP Goals 3 and 8).

Toxicity testing can also be used to evaluate the effectiveness of urban runoff BMPs and other management measures (MRP Goal No. 2). The Center for Watershed Protection rated it as a "very useful" indicator for assessing municipal storm water programs. Permittees can use the results of toxicity testing to identify areas of high concern and to establish priority locations for BMPs (MRP Goal No. 6).

[13] Triad means a station where chemical, toxicity, and bioassessment monitoring occur.

Section II.A.2.a specifies three freshwater test species for use, because multiple species are needed to provide a more complete assessment of the causes of toxicity in urban runoff (Bay, 2001). Different species vary in their sensitivity to contaminants and, therefore, multiple species can reveal when varying contaminants are present at toxic levels (Bay, 2001). Reliance on single species tests may not provide an accurate assessment of toxicity (Center for Watershed Protection, 1996). The rationale for the specified test species is as follows:

- *Ceriodaphnia dubia* (water flea): represents the invertebrates that live in the water column and serve as a food source for larger invertebrates and small fish. This species is known to be sensitive to metals and pesticides in water, as well as other contaminants. (San Diego County, 2004)
- *Hyalella azteca* (freshwater amphipod): an invertebrate associated with the sediment at the bottom of streams and lakes. It serves as a food source for larger invertebrates as well as fish. This species is generally sensitive to metals and pesticides, as well as nitrogen compounds such as ammonia. (San Diego County, 2004)
- *Pseudokirchneriella subcapitata*, formally known as *Selenastrum capricornutum*: unicellular algae present in the water column of streams and lakes. It is the base of the food chain in freshwater systems. It is sensitive to herbicides and metals and its growth is greatly affected by nutrient loads. (San Diego County, 2004)

An additional reason to use the species listed above, is for consistency with other monitoring in the Santa Margarita Watershed. Pursuant to the County of San Diego's MS4 permit (Order No. R9-2001-01), toxicity testing using these three species occurs at the mass loading station near the mouth of the Santa Margarita River. Using the same species throughout the watershed will allow the results to be comparable and potential sources of toxicity to be better identified.

For cost purposes, toxicity testing is only required on wet weather samples.

Section II.A.3 of the MRP requires the Permittees to conduct bioassessment monitoring. Bioassessment data is a cost-effective tool that measures the effects of water quality over time (CDFG, 2002). It is an important indicator of stream health and impacts from urban runoff. It can detect impacts that chemical and toxicity monitoring cannot. The EPA encourages permitting authorities to consider requiring biological monitoring methods to fully characterize the nature and extent of impacts from urban runoff (EPA, 1996c). Therefore, the SDRWQCB and other RWQCBs commonly require bioassessment monitoring in MS4 and other types of discharge permits.

Bioassessment is the direct measurement of the biological and physical condition, and the attainment of beneficial uses (COLD, WARM, WILD, and RARE) of receiving water, using benthic macroinvertebrates. 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).

From 1998 through 2001, the SDRWQCB implemented the Ambient Bioassessment Monitoring Program, which monitored rivers and streams in the San Diego region. The monitoring concluded that waters in the Upper Santa Margarita Watershed, including Murrieta Creek, Temecula Creek, and the upper Santa Margarita River, exhibited degraded biological and physical integrity (Index of Biotic Integrity (IBI) ranged from "Very Poor" to "Good"). As a comparison, the reference stations in the watershed, located in Sandia Creek and De Luz Creek, were characterized by a high degree of biological and physical integrity (IBI was consistently "Very Good") (CDFG, 2002). These conclusions support the need for continued bioassessment monitoring to determine the long-term health of the receiving waters and impacts from MS4 discharges.

Through a CWC section 13225 directive, issued in March 2003, the Permittees were required to begin implementing a bioassessment monitoring program. The bioassessment required in the MRP replaces that required under the directive. The program consists of sampling, monitoring, and analysis of data at the three triad stations. The Permittees began bioassessment monitoring four stations in November 2003, pursuant to the directive. For cost purposes, the number of stations was reduced to three.

Section II.A.4 of the MRP requires the Permittees 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 in Table 6 below shall be used to determine conclusions from the data and appropriate follow-up actions. The framework in Table 6 was derived from the *Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California* (SMC, 2004).

When, based on the framework in Table 6, data indicates the presence of toxic pollutants in runoff, Permittees 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 Permittees 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 a toxicity reduction evaluation (TRE). A TRE is a study conducted in a step-wise process 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. A TRE should include an analysis and discussion of all potential

source(s) causing toxicity, proposed BMPs to eliminate or reduce the pollutants causing toxicity, and suggested follow-up monitoring to demonstrate that toxicity has been removed.

Table 6. Triad Approach to Determining Follow-Up Actions

	Chemistry	Toxicity	Bioassessment	Possible Conclusion Determining Action	Action
1.	Persistent[14] exceedance of water quality objectives	Evidence of toxicity[15]	Indications of benthic alteration[16]	Strong evidence of pollution-induced degradation	Conduct TIE to identify contaminants of concern, based on TIE metric, initiate TRE
2.	No persistent exceedances of water quality objectives	No evidence of toxicity	No indications of benthic alteration	No evidence of pollutant-induced degradation	No action necessary
3.	Persistent exceedance of water quality objectives	No evidence of toxicity	No indications of benthic alteration	Contaminants are present but not bioavailable	Assess possible upstream sources of pollutants causing exceedances
4.	No persistent exceedances of water quality objectives	Evidence of toxicity	No indications of benthic alteration	Unmeasured contaminants exist with the potential to cause degradation to aquatic life	Conduct TIE to identify contaminants of concern, based on TIE metric, initiate TRE
5.	No persistent exceedances of water quality objectives	No evidence of toxicity	Indications of benthic alteration	Alteration probably not due to toxic pollutants	No action necessary due to toxic chemicals Initiate TRE for physical sources of benthic alteration
6.	Persistent exceedance of water quality objective	Evidence of toxicity	No indications of benthic alteration	Toxic contaminants are bioavailable, but in situ effects are not demonstrable	If chemical and toxicity tests indicate persistent degradation, conduct TIE to identify

[14] Persistent exceedance shall mean the exceedance of relevant Basin Plan or CTR objectives by 20% for three sampling events.

[15] Evidence of toxicity shall mean a high score, in relation to other stations, on metric that combines magnitude and persistence of toxicity over an entire year.

[16] Indications of benthic alteration shall mean an IBI score of Fair, Poor, or Very Poor.

					contaminants of concern, based on TIE metric, initiate TRE
7.	No persistent exceedances of water quality objectives	Evidence of toxicity	Indications of benthic alteration	Unmeasured toxic contaminants are causing degradation	Conduct TIE to identify contaminants of concern, based on TIE metric, initiate TRE
8.	Persistent exceedance of water quality objectives	No evidence of toxicity	Indications of benthic alteration	Inconclusive	Initiate upstream source identification (TIE cannot be conducted when toxicity is not present)

Regional Monitoring

Section II.A.II of the MRP requires that the Permittees participate and coordinate with federal, state, and local agencies and other dischargers in the Santa Margarita Watershed in development and implementation of a regional monitoring program as directed by the Executive Officer. The purpose of regional monitoring is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled resources of the watershed. If a coordinated watershed sampling effort is approved or directed by the Executive Officer, the Permittees' sampling and analytical efforts may be reallocated.

Special Studies

Special studies are intended to address specific research or management issues that are not addressed by the routine core monitoring program. The MRP requires the Permittees to develop and implement a study to determine appropriate numeric criteria for controlling the volume, velocity, duration, and peak discharge rate of runoff to minimize erosion of natural channels and impacts to in-stream habitat. The study is necessary to comply with section F.2.b.9 of the Order.

Various similar studies and other efforts have occurred in southern California to address the issue of downstream erosion caused by increased runoff rates, volumes, velocities and durations. MS4 permits in San Diego, Orange, Los Angeles, and Ventura Counties have similar requirements, and the Southern California Stormwater Monitoring Coalition (SMC) is in the process of conducting a study (funded by Los Angeles County) to assess the connection between stream erosion and urbanization in natural drainage systems in southern California (SCCWRP, 2004). Ventura County has also conducted a similar study. It is expected that the Permittees will build on existing work and utilize the results and

conclusions of previous studies. The Permittees are encouraged to continue the SMC study in an area in the Santa Margarita Watershed.

3. Comments on Existing and Proposed Monitoring Program

The current monitoring program, the *Consolidated Program for Water Quality Monitoring* (District, 1994), was submitted as an element of the NPDES Municipal Storm Water Application for Permit Renewal, Santa Margarita Watershed, dated January 17, 1995. The objectives and components of the program are listed below (the program does not contain sampling frequencies):

1. Program Objectives:
   - Assessment of mass loadings from storm drains
   - Assess influence of land use on water quality
   - Verification and control of illicit discharges
   - Compliance monitoring of water quality
   - Assess effectiveness of various urban practices designed to control pollution
   - Identify problem areas and/or trends
   - Establish database for future reference
   - Identify baseline conditions
   - Identify pollutants of concern

2. Dry weather sampling stations:
   - Wildomar Channel
   - Cal Oaks Drain (permanent station)
   - Empire Creek Channel
   - Redhawk Parkway Drain

3. Wet weather stations:
   - Wildomar Channel
   - Cal Oaks Drain
   - Empire Creek Channel

4. Sediment sampling at the above stations plus the I-15 basin

5. Receiving water stations
   - Upper Murrieta
   - Lower Murrieta
   - Temecula Creek

6. Toxicity testing

The *Consolidated Program for Water Quality Monitoring* contains many of the same program objectives and components as the Monitoring Program. However, as determined and discussed in several documents (SDRWQCB, 2002b, 2002d, 2003b; Permittees, 2002b), the current program has been inadequate to meet its objectives and needs to be improved.

For details regarding previous monitoring, see the documents referenced herein. The Permittees did not propose a monitoring program as part of the ROWD.

B. ILLICIT DISCHARGE MONITORING PROGRAM

1. Specific Legal Authority for Illicit Discharge Monitoring Requirements

- Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) provides that the permittee 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."

2. Discussion of Illicit Discharge Monitoring Requirements

Section II.B of the MRP describes the Illicit Discharge Monitoring Program. The requirements are consistent with the specifications for developing a field screening program contained at 40 CFR 122.26 (d)(1)(iv)(D). Although the minimum number of inspections is set at twice during the period of May 1st to September 30th of each year, it is expected that more frequent inspections may be necessary. An emphasis is placed on designing a program with clear criteria and rationale. The programs designed should be flexible and implemented in a manner that will enable the Permittees to identify illicit discharges and illegal connections, respond to citizen complaints, and follow-up on ongoing investigations to identify and eliminate sources.

3. Discussion of Existing and Proposed Dry Weather Monitoring

The Permittees' current water quality monitoring program identifies four dry weather monitoring stations, but no sampling frequencies, sampling protocol, or specific screening program are specified. In order to comply with **Requirement J.3** of the Order, Permittees will need to develop an Illicit Discharge Monitoring Program that meets the requirements in **section II.B of the MRP**.

C. MONITORING COSTS

The cost of the Receiving Waters and Illicit Discharge Monitoring Programs is reasonable, considering the need for the data in the Upper Santa Margarita Watershed. All of the monitoring requirements are necessary to meet the goals of the MRP, stated in Section IX.A above, and are consistent with other MS4 monitoring programs in southern California.

As part of their written comments on the Order (Permittees, 2004b), the Permittees provided cost estimates for the MRP, dated December 15, 2003, and for their proposed revised MRP. The Permittees estimated that the annual cost of the original Receiving Waters and Dry Weather Monitoring Programs would be $468,353. They estimated the annual cost of their proposed revised program to be $255,873. Due to variability of necessary overtime, parameters to be analyzed, necessary TIEs, etc., it is difficult to estimate a total cost of the monitoring program. Therefore, the SDRWQCB is assuming that the Permittees' estimate is representative.

In response to the cost information the Permittees submitted, the SDRWQCB revised and reduced the Receiving Waters and Illicit Discharge Monitoring Program requirements to the essential equivalent of the Permittees' proposal. Therefore, the cost should be equivalent to the Permittees' estimate and is reasonable for an MS4 monitoring program in southern California.

D. REPORTING REQUIREMENTS

1. Specific Legal Authority for Reporting Requirements

- Standard provisions and reporting requirements are consistent to all NPDES permits and are generally found in federal NPDES regulation 40 CFR 122.41.
- Federal NPDES regulation 40 CFR 122.42(c) requires that "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 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."

2. Discussion of Annual Reporting Requirements

SWMP Reporting Requirements (Section III.A of the MRP)

All of the SWMP reporting requirements are necessary to meet the above-referenced federal requirements and to measure the effectiveness of programs and BMPs. According to the EPA, measurable goals are necessary to evaluate the effectiveness of individual BMPs and the storm water management program as a whole (EPA, 2000d). The EPA strongly recommends that measurable goals include: (1) The activity, or BMP, to be implemented; (2) A schedule or date of implementation; and (3) A quantifiable target to measure progress toward achieving the activity or BMP (EPA, 2002d). The Order is structured so that the descriptions of programs and BMPs are included in the SWMP, and the quantifiable measurements are reported in each annual report.

The current permit, Order No. R9-98-02 requires the annual report to be submitted on September 15 of each year. However, the District submitted a request, dated November 3, 2003, to change the annual report date to October 31. The District's request was based on the difficulty of obtaining necessary materials with sufficient time to prepare a report. The SDRWQCB concurs with the request.

Monitoring Provisions and Reporting Requirements (Sections II.C and III.B of the MRP)

The majority of the monitoring provisions and reporting requirements contained in sections II.C and III.B of the MRP are specified in 40 CFR 122.41. Those that are not are standard provisions in SDRWQCB NPDES permits, or are necessary to meet the objectives of the MRP.

Section II.C.h of the MRP specifies that the Minimum Levels (MLs) listed in Appendix 4 of the State Board Policy for Implementation of Toxics Standards for Inland Surface Water, Enclosed

Bays, and Estuaries of California, 2000 (SIP) shall be used for analyses of priority toxic pollutants identified in the CTR (65 Fed. Reg. 31682). The MLs from the SIP represent the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences (SWRCB, 2000a). The SIP's MLs therefore represent the best available science for determining the presence of toxic pollutants at concentrations of concern. If MLs are not used, concentrations of concern of priority toxic pollutants may not be detected. Detection and control of toxic pollutants in surface waters is necessary to achieve the CWA's goals and objectives (65 Fed. Reg. 31683). Using MLs will also provide quantifiable data that is necessary to better assess water quality and BMP effectiveness. Non-detects cannot be used to accurately determine mass loadings. Therefore, the method detection limits (MDLs) used for analysis of priority toxic pollutants must be equivalent to or lower than the MLs in Appendix 4 of the SIP.

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