



County of San Diego

SAN DIEGO REGIONAL
WATER QUALITY
CONTROL BOARD

2012 DEC -4 P 5: 18

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December 4, 2012

Regional Water Quality Control Board
9174 Sky Park Court
San Diego, CA 92123

Dear Members of the San Diego Regional Water Quality Control Board:

SAN DIEGO COUNTY COPERMITTEE REPONSES TO QUESTIONS FROM SAN DIEGO WATER BOARD MEMBERS ON TENTATIVE ORDER NO. R9-2013-0001

The San Diego County Copermittees have developed answers to the some of the questions posed by the San Diego Board Members during the November 13, 2012 Public Workshop. These are provided for your consideration below.

Hydromodification

1. *When accounting for the impacts caused by hydromodification at a development or redevelopment site, how far back should the analysis go, pre-project or pre-development? {Grant Destache}*

San Diego County Copermittee Response to Questions 1 and 3

There are two aspects of the question: the policy perspective and the technical perspective. In terms of policy, the Tentative Order proposed requirement to match predevelopment hydrographs (flow rates and duration) is the exception to the current hydromodification requirement found in other parts of the State. Specifically, the following permits/programs require hydromodification controls to match pre-project conditions: Ventura, Sacramento, Caltrans, draft Phase 2 MS4, San Bernardino, and Los Angeles. The Caltrans, draft Phase 2 MS4 and Los Angeles are recent permits and reflect the current position of the State and other Regional Boards. Thus, there is precedent to use pre-project conditions as a reference for hydromodification. Additionally, requiring matching the predevelopment hydrograph may impose mitigation beyond a project's impacts.

Regarding the technical perspective, the San Diego Copermittees have invested considerable time and resources to develop a technically sound and defensible hydromodification management plan (HMP). The San Diego Copermittees determined, during the development of the San Diego HMP, that the flow control design criteria should be based on flow duration matching the pre-project condition and not the pre-development condition. This determination was made based upon the following.

- Prior HMP implementation precedent in the State of California, specifically in Santa Clara and Contra Costa Counties, mandated flow duration matching to the pre-project condition.
- Following consultation with leading geomorphologists in the State of California, the San Diego Copermittees determined that in areas of significant existing urbanization the receiving streams had shown an ability to attain a new channel equilibrium based upon the developed flow conditions.
- Redevelopment practices often decrease the existing site's impervious area, especially with the new Low Impact Development (LID) requirements. In such cases, the post-project runoff rates and durations will decrease rather than increase over time.
- The Copermittees stated a desired goal of encouraging redevelopment projects for multiple planning, economical, and water quality purposes. From a hydromodification perspective, increasing redevelopment project implementation would invariably decrease the conversion of existing open space. The Copermittees were careful to avoid implementing hydromodification requirements on beneficial redevelopment projects if the redevelopment project decreased the site impervious area as compared to existing conditions.

In the case of new development, where open land was to be converted to impervious area, the hydromodification controls were required to match the pre-project condition, which equates to the pre-development condition. In these situations the pre-development conditions were based on Natural Resources Conservation Service soil maps and existing topography and vegetation. In cases where redevelopment projects increase impervious area as compared to the existing condition, hydromodification controls were required to mitigate for the impacts of the added impervious surfaces.

Copermittee Request:

We request to use pre-project conditions as a reference for hydromodification.

2. *How can the San Diego County Hydromodification Plan (HMP) be implemented into the MS4 Permit in a more succinct manner? How can we implement the rules and regulation in the San Diego County HMP, because we really have not had it in place for a very long before we, "throw it down the drain"? {Grant Destache}*

San Diego County Copermittee Response

The SD HMP Plan can be incorporated into the Permit by clearly referencing Resolution No. R9-2010-0066, a *Resolution for Approval of the Hydromodification Management Plan for the San Diego County*, and stating that all provisions of the order continue to be in effect. Chairman Destache correctly stated that the SD HMP has not been in place for that long. The San Diego County Copermittees met all scheduling requirements for HMP development and submittals as outlined in Attachment D of the Municipal Permit Order No. R9-2007-0001.

The San Diego County Copermittees developed a technically sound HMP with a Technical Advisory Committee and input from all stakeholders. This HMP has been in effect for less than two years. In accordance with the adopted resolution, the San Diego County Copermittees have embarked on a monitoring project to validate the HMP parameters and design criteria. The SD Copermittees are not aware of any current scientific data that would suggest the SD HMP is no longer effective or needs improvement prior to the completion of their current monitoring project.

Copermittee Request:

We request that the Regional Board incorporate the approved resolution into the Permit and allow implementation and monitoring according to the approved HMP during this Permit cycle.

3. *How do you document predevelopment or naturally occurring on a map? How is "naturally occurring" defined? How far do you go to document predevelopment? 100 years? 500 years? Before the Indians were picking acorns? {Gary Strawn}*

San Diego County Copermittee Response to Question 3

Please see the response to Question #1 above.

4. *Why was the concrete/hardened channel exemptions removed? {Eric Anderson}*

San Diego County Copermittee Response

A Hydromodification Workshop with a panel of hydromodification management experts was held on August 30, 2012 as part of the Administrative Draft Permit process. The purpose of the workshop was to share ideas on different hydromodification management approaches. Some of the more innovative researchers brought forth philosophical shifts in how stakeholders might think about applying hydromodification management. The Regional Board staff may have assumed that a consensus was reached at the workshop because they subsequently issued a revised administrative draft with the hardened channel exemption stricken. Review of the HMP Workshop Recommendations document dated October 10, 2012 finds the absence of consensus from the panel on this type of exemption. Recommendations emphasized that this is largely a policy decision rather than a technical matter. The focused meetings allowed for policy debate, but this final edit was introduced after the focused meetings were completed.

The exemptions that are currently in the SD HMP are a product of thorough technical analyses and policy debate, and therefore represent the most appropriate rule for the region for the present date. SD Copermittees are in their second year of a 5 year effectiveness monitoring plan, and work has only recently started to establish a state-wide framework for hydromodification management. There will be opportunity to update policies on exemptions as this work progresses, rather than making an abrupt and somewhat arbitrary change immediately.

Copermittee Response:

We request that this exemption be included in the Permit.

5. *Copermittees commented that road projects have unique space limitations and may not be able to meet retention & HMP requirements. Should road projects be treated differently and could requirements in the new CALTRANS Storm Water Permit be used to provide more options? {Grant Destache}*

San Diego County Copermittee Response

Road projects should be treated differently than other types of land development projects because of public safety and their unique characteristics compared to traditional land development. The primary difference is that road projects are linear in nature, with a limited contribution to many receiving waters and right-of-way space constraints. The space constraints are exacerbated by underground utilities and other appurtenances which further limits the area available for Best Management Practices. Many roadway projects are an expansion of existing roadways, constrained within the existing available land area.

Other MS4 permits also provide options beyond retention of the water quality volume for road projects. Below is a list of MS4 Permits in California where the requirements for road projects use the USEPA Guidance, "Managing Wet Weather with Green Infrastructure: Green Streets".

Region	Region/County	Permit Reference	Regional Board
4	Los Angeles	Order No. R4-2012-XXXX NPDES No. CAS004001	LARWQCB
4	Ventura	Order No. R4-2010-0108 NPDES No. CAS004002	LARWQCB
5	Central Valley	Order No. R5-2008-0142 NPDES No. CAS004003	CVRWQCB
5	Sacramento	Order No. R5-2008-0142 NPDES No. CAS082597	CVRWQCB
8	Riverside (SAR)	Order NO. R8-2010-0033 NPDES NO. CAS618033	SARWQCB
8	Orange (SAR)	Order NO. R8-2009-0030 NPDES NO. CAS618030	SARWQCB
8	San Bernardino	Order NO. R8-2010-0036 NPDES NO. CAS618036	SARWQCB

Copermittee Request:

We request that road projects be treated differently than other types of land development projects because of public safety and their unique characteristics compared to traditional land development.

6. *If a project is unable to comply with the HMP requirements at the site, how far away from the site can the project proponent place their retentions basins? What other limitations exist when not placing a BMP on site? There is a concern that low income areas will become targets for placement of retention basins. {Tomas Morales}*

San Diego County Copermittee Response

No response to this question.

Cost

1. *What is the cost of not implementing the provision in the Tentative Order? (e.g. beach closures, ill health that taxpayers have to pay for through their private health plans or public costs, deaths...)* {Henry Abarbanel}

San Diego County Copermittee Response

No response to this question.

2. *Lots of big cost numbers were used during the meeting. (e.g. \$2 to \$4 billion over 20 years) How much do the Copermittees spend now? What is being spent now and on what?* {Henry Abarbanel}

San Diego County Copermittee Response

Please see the response to Question #3 below.

3. *What is the breakdown of costs? What is the timeframe of these costs? How much is already being spent? {Tomas Morales}*

San Diego County Copermittee Response to Questions 2 and 3

Recent Storm Water Program Implementation Costs for Copermittees

As previously stated by the Copermittees during the focused meeting process, current costs already represent over \$150 million annually. As detailed below, Project I Beaches and Creeks Bacteria TMDL (Bacteria TMDL) would add \$144 million to \$272 million per year, in addition to the current programmatic costs.

Current Annual Costs	\$150 million
Bacteria TMDL Costs	\$144 - 272 million
Total Annual Cost	\$294 – 422 million

Bacteria TMDL Costs

Full implementation of the Bacteria TMDL is to be complete within 10 years of the effective date (April 4, 2011) for both wet and dry weather TMDLs, unless an alternative compliance schedule is approved as a part of a Comprehensive Load Reduction Plan (CLRP). If a CLRP is approved by the Regional Board, Copermittees must achieve compliance with the wasteload allocation (WLAs) within 20-years, by 2031.

The Bacteria TMDL addresses 1,738 square miles throughout the region, with implementation efforts spanning multiple city and county jurisdictions. The costs of implementation efforts over the entire compliance schedule are still being determined as CLRPs are being developed. However, preliminary cost estimates have been compiled from various references.

Costs from the Bacteria TMDL Technical Report

Section 12.6 of the Regional Board's Bacteria TMDL Technical Report (2010) includes economic factors, or ranges of cost estimates for various TMDL implementation activities. The following summarizes some of the estimates generated by Board staff (monitoring is not included):

- **Education and Outreach:** up to \$211,000 *per program*
- **Structural BMPs:** \$500,000 to \$9.73 billion *per watershed*
- **Yearly maintenance:** \$10,000 to \$68 million *per watershed*

Costs from the Comprehensive Load Reduction Plans

CLRPs were submitted to the Regional Board for five watersheds in the San Diego Region. The CLRPs include recommendations for various activities to address bacteria and other pollutants in the watersheds, including:

- Nonstructural BMPs (e.g., street sweeping, public education, inspections)
- Decentralized structural BMPs (e.g., bioretention, green streets, porous pavement)
- Centralized structural BMPs (e.g., regional detention facilities)
- Special studies to better understand sources of impairments, appropriate BMPs, etc.
- Monitoring to evaluate BMP effectiveness, compliance to receiving water quality objectives, and overall achievement of the objectives of the CLRPs

Based on the CLRPs submitted for the San Diego Region, costs for the above activities were estimated through a robust modeling process to range from \$2.6 billion to \$4.9 billion over the 20 year compliance schedule. This would more than double current program costs.

Copermittee Request:

Incorporate the recommendation shown in response to TMDL Question #4.

Total Maximum Daily Load (TMDL)

1. *Can the Copermittees meet the bacteria levels that are specified in the Total Maximum Daily Loads (TMDLs)? What sorts of technologies are available to the Copermittees to treat bacteria to the levels specified in the TMDLs? {Grant Destache}*

San Diego County Copermittee Response

Please see the response to Question #5.

2. *Can the Copermittees achieve adequate waste load reductions in MS4 discharges to meet the effluent limitations and compliance dates for bacteria in the Tentative Order? {Grant Destache}*

San Diego County Copermittee Response

Please see the response to Question #5.

3. *What are the benefits of BMP based compliance with the TMDLs for bacteria compared to compliance with Water Quality Based Effluent Limitations (WQBELs)? {Grant Destache}*

San Diego County Copermittee Response

According to USEPA guidance¹, water quality based effluent limitations can either be expressed as numeric limits or as BMPs. As stated by USEPA and NRDC representatives during their comments at the November 13 workshop, BMP-based WQBELs are allowed as long as BMP strategies (as described in the WQIPs) are measurable and have sufficient scientific and engineering rigor. The Copermittees have fully embraced the WQIP approach and are prepared to develop scientifically-based WQIPs that will result in improved water quality.

The proposed approach to WQBELs will have a profound effect on the Copermittees' storm water programs. The draft Tentative Order currently requires compliance with end-of-pipe, numeric, concentration-based WQBELs, which will require a "brute force" approach to TMDL implementation, addressing every single outfall in every watershed. If the WQBELs were expressed as BMPs (as envisioned when the TMDL was originally adopted), Copermittees would have much greater opportunity to implement innovative, watershed-based implementation plans (e.g., WQIPs). The BMP-based WQBELs are trackable and enforceable, and Copermittees would be out of compliance if they did not implement the committed-to BMPs. Overall, BMP-based WQBELs would provide the Copermittees many advantages over numeric WQBELs, as follows:

- **BMP-based WQBELs will improve the ability of Copermittees to secure the funding needed to implement BMPs:** In order for storm water programs to achieve the pollutant reductions needed to attain TMDL wasteload allocations, we must garner broad public support for the needed projects/BMPs. In our experience, this support hinges on whether

¹ Memorandum (Revised) from Denise Keehner, Director of OWOW and James Hanlon, Director of OWM to Regional Water Division Directors: Establishing TMDL Wasteload Allocations (PDF)
http://www.epa.gov/npdes/pubs/establishingtmdlwla_revision.pdf

rate payers and other members of the public perceive projects as likely to be successful (i.e., the projects improve water quality and result in compliance with the permit). Given the overwhelming number of water quality challenges across our jurisdictions and the compounding costs to address those challenges, it is increasingly difficult for water quality projects to receive the acceptance necessary to attain funding. Given the estimated billions of dollars in costs that will be required to implement the Bacteria TMDL (as described above) it will be necessary to seek additional funding from the public. Without the linkage between BMPs/projects and TMDL compliance, major expenditures to comply with TMDLs are perceived as "risky", with the risk being that projects are implemented (based on a scientifically-robust plan) yet the Copermittees may still be deemed to be out of compliance with its MS4 permit. BMP-based WQBELs will increase public support for funding measures to implement storm water quality BMPs/projects.

- **BMP-based WQBELs would promote innovative WQIPs, and lead to an integrated, watershed-based permitting approach:** During the Focused Meetings and Workshop, all stakeholders have expressed support for the watershed-based (WQIP) approach to permitting. The WQIPs could serve as the vehicle for identifying cost-effective, innovative BMP strategies. For development of the Comprehensive Load Reduction Plans (CLRPs), the Copermittees developed watershed-scale BMP modeling systems to create BMP strategies. Application of BMP-based WQBELs (instead of concentration-based WQBELs) would foster continued refinement of these modeling systems and creation of next-generation TMDL implementation approaches. These approaches are most likely to include multi-use BMPs that support open space in the region and sustainable LID practices that would promote infiltration to increase regional groundwater supplies. If the WQBELs are expressed as end-of-pipe concentrations, the type and location of BMPs will be greatly constrained given the need to focus resources on each individual outfall rather than through a watershed approach, and innovative strategies would be stymied.
- **BMP-based WQBELs better reflect the nature of storm water management:** MS4s are faced with highly variable flows and transient pollutant sources, and thus uncertainty is an inherent aspect of our program. Design and implementation of storm water BMPs is challenging due to the nature of storm water and the types of treatment systems that are available. The State Water Board's Blue Ribbon Panel of Experts² concluded the following:

"Even for conventional pollutants, there presently is no protocol that enables an engineer to design with certainty a BMP that will produce a desired outflow concentration..." [page 6]

In other words, the state of the science is in *direct conflict* with the concentration-based, end-of-pipe WQBELs that are currently in the Order. BMP-based WQBELs would allow the Copermittees to focus on the highest impact outfalls (not all outfalls are created equal in terms of their effect on receiving waters) and use green/low impact development (LID) practices to reduce *flows* instead of being "locked in" to concentrations.

To reiterate, BMP-based WQBELs are allowed by USEPA, which was stated by USEPA and NRDC representatives at the November 13 workshop. If these stakeholders acknowledge that BMP-based WQBELs are allowed under certain conditions, and the Copermittees are ready to meet those conditions by developing scientifically-based WQIPs, then why not revise the Order to promote innovative, watershed-based approaches?

² *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial, and Construction Activities*. Storm Water Panel Recommendations to the State Water Board. June 2006. http://www.swrcb.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf

Copermittee Request:

Revise language in Attachment E.6.b and Attachment E.6.e to incorporate BMP based WQBELs through a Regional Board EO approved WQIP as allowed by the TMDL.

4. *Address the issues that Ruth Kolb, City of San Diego raised regarding the Bacteria TMDLs. Clarify how we incorporated the Bacteria TMDLs into the Tentative Order to demonstrate that we incorporated it into the Tentative Order the way it was intended to be implemented. {Eric Anderson}*

San Diego County Copermittee Response

As described above, the Phase I Bacteria TMDL represents an enormous undertaking for the Copermittees. The TMDL went through a significant public process where the technical and policy elements were discussed and ultimately adopted by the Regional Water Board. The Copermittees have already begun implementing the requirements of the TMDL, and the requirements to submit Comprehensive Load Reduction Plans (CLRPs) will be met in all applicable watersheds. These CLRPs will be an important resource for Copermittees as WQIPs are developed in accordance with the Tentative Order. However, the approach by which the TMDL is currently incorporated into the Tentative Order (in Attachment E) can have a profound impact on the Copermittees' TMDL implementation efforts. The current approach of the current Tentative Order has greatly and unnecessarily increased the stringency of the TMDL, in that it requires more BMPs than are needed to meet TMDL wasteload allocations (WLAs) and implementation schedules will be shorter. The current approach of the Tentative Order goes against the intent of the TMDL that was adopted by the Board.

There are four key areas where the Tentative Order could be improved to better reflect the TMDL and allow for consistency with the efforts completed to date, as presented in the table below, and described in the following subsections:

Concern	TMDL	Tentative Order	Copermittee Request
Reopener	TMDL contains an explicit reopener provision	No specific TMDL reopener	Include language in Provision H (Modification of Programs) and Attachment E acknowledging the TMDL reopener and describe how the Permit will be modified to reflect the TMDL reopener.
Revision to Interim Milestone Compliance Dates	TMDL contains specific language allowing for the revision of interim milestones based on CLRPs	No acknowledgement of the ability to revise the interim schedules	Include language in Attachment E 6.c.2.c acknowledging that the interim compliance dates may be revised based on alternative interim compliance dates provided in a BLRP/CLRP (or WQIP) accepted by the San Diego Regional Board Executive Officer.
BMP-Based WQBELs	TMDL states that WLAs will be incorporated as BMP-based WQBELs	No BMP-based WQBELs are incorporated nor is an allowance for a BMP-based approach provided	Revise language in Attachment E.6.b and Attachment E.6.e to incorporate BMP based WQBELs through a Regional Board EO approved WQIP as allowed by the TMDL.
Mass-based WLAs	TMDL assigns mass-based WLAs to MS4 Copermittees	No mass-based WLAs are incorporated into the permit as WQBELs, rather concentration based WQBELs are used.	Replace concentration based effluent WQBELs with mass-based effluent WQBELs.

TMDL Reopener not Acknowledged in the Permit

A TMDL reopener is scheduled to occur during the term of the permit, and Copermittees consider the reopener to be a critical component of the TMDL. During the TMDL adoption process, the Regional Water Board members added the reopener provision *during the adoption hearing* to address Copermittees concerns. The Copermittees have placed much weight on the reopener as an opportunity to add to the knowledge and improve upon a number of the technical aspects of the TMDL through additional data collection efforts. Data is already being collected to address the reopener, including the Reference Watershed Study. Given the significant efforts the Copermittees to improve our understanding of the science, it is imperative the Order recognizes the importance of the TMDL reopener and describe how the Order will reflect the TMDL after it is revised. We would greatly appreciate the inclusion of language into both Provision H (Modification of Programs) and Attachment E to acknowledge the reopener. The language should outline a process by which the Order will be reopened and revised to reflect the revised TMDL after it is adopted.

Ability to Revise Interim Milestone Compliance Dates for Copermittees Submitting CLRPs

As discussed in the TMDL and noted in the TMDL Implementation Milestone schedule (see page A70/71), alternative interim milestone compliance dates may be proposed in BLRPs or CLRPs to reflect the implementation approach selected by Copermittees. The Tentative Order does not currently acknowledge or allow for alternative interim compliance dates. The BLRPs and CLRPs to be submitted by Copermittees will likely propose alternative interim compliance dates, as allowed by the TMDL, to meet the 50% reduction milestone for dry and wet weather. The CLRPs submitted by Copermittees may propose different interim compliance dates for different watersheds, and the Order should acknowledge the flexibility allowed by the TMDL (see page 68 of Attachment A of the Basin Plan Amendment). We would greatly appreciate the inclusion of language into Attachment E 6.c.2.c acknowledging that the interim compliance dates may be revised based on alternative interim compliance dates provided in a BLRPs/CLRPs (or WQIP) that are accepted by the San Diego Regional Board Executive Officer.

BMP-based WQBELs are not Incorporated into the Permit

As stated under the header of "Implementation of TMDLs" on page 12 of the TMDL Resolution:

"WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a best management practice (BMP) program of expanded or better-tailored BMPs³. The WQBELs will likely need to include a BMP program to achieve the load reductions required to attain the TMDLs in the receiving waters. The Phase I MS4s and Caltrans will be required to submit Bacteria or Comprehensive Load Reduction Plans outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving water."

Additionally, in the discussion of the incorporation of the TMDL into the MS4 permit on page A41, the TMDL clearly states the intent to consider the expression of WQBELs as BMPs:

"In addition to the discharge prohibitions and receiving water limitations, WQBELs consistent with the assumptions and requirements of the WLAs of any applicable TMDL must also be incorporated into the NPDES requirements. The San Diego Water Board will revise and re-issue the WDRs and NPDES requirements for Phase I MS4s to incorporate the following:

- WQBELs consistent with the requirements and assumptions of the Municipal MS4 WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a BMP program of expanded or better-tailored BMPs.⁴
- If the WQBELs include a BMP program, periodic reporting requirements on BMP planning, implementation, and effectiveness in improving water quality at impaired beaches and creeks (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired water bodies have been restored and maintained.
- Compliance schedule for Phase I MS4s to attain the MS4 WLAs and TMDLs in the receiving waters."

The concept and stated intent of allowing for the incorporation of BMP-based WQBELs into the MS4 permit is repeated throughout the TMDL. However, the Tentative Order does not incorporate this approach into Attachment E.6. Copermittees believe the WQIPs can and should be used as the

³ Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)

⁴ Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)

basis for establishing BMP-based WQBELs. The TMDL envisioned the CLRPs would satisfy this requirement and the WQIPs required by the Tentative Order could and should be viewed as a natural extension of the CLRP requirement. The WQIPs can outline the BMPs, a corresponding schedule, and provide, through a robust technical analysis, reasonable assurance that BMPs are expected to meet the TMDL requirements consistent with EPA's expectations. We would greatly appreciate the revision of language in Attachment E.6.b and Attachment E.6.e to incorporate BMP-based WQBELs through a Regional Board EO approved WQIP as allowed by the TMDL.

TMDL Expresses MS4 WLAs on a "Mass-Basis", but Order uses Concentrations

To quantify the amount of bacteria that could be discharged from MS4s while the creeks and beaches still attain WQOs, the TMDL used mass-based wasteload allocations (WLAs). As stated in the TMDL:

"Each mass-load based TMDL is allocated to known point sources and nonpoint sources. WLAs are assigned to point sources and load allocations (LAs) are assigned to nonpoint sources. WLAs and LAs are the maximum load a source can discharge and still achieve the TMDL in the receiving water." [emphasis added]

The TMDL presents the assigned mass-based loads in a series of tables that define current loads, allowable loads (i.e., MS4 WLAs), and the percent reduction needed in the current loads to attain the allowable loads. It is clear the TMDL intended these mass-based WLAs and/or percent reductions to be incorporated into the MS4 permit(s).

In contrast, the Tentative Order expresses WQBELs as *concentrations*. Instead of allowing the MS4s to manage their bacteria loading (both flow and concentration) on a watershed-basis, the Order requires that every single outfall meet the WQOs at the end of the pipe (prior to discharge). This approach is extremely stringent, and would greatly increase the cost of TMDL implementation without added environmental benefit. The Copermittees should have the flexibility to address the outfalls in the watershed that have the biggest impact on water quality, rather than be required to address every single outfall. During source investigation analyses for the Los Angeles River Bacteria TMDL, it was estimated the TMDL could be achieved by addressing the loads from the 20% of the outfalls that were highest-ranked in terms of bacteria loading⁵. The current Order does not allow for such a ranking/prioritization; it unnecessarily requires that 100% of outfalls be addressed, which could increase implementation requirements by a factor of five (100% instead of 20%). The concentration-based approach is not a good use of the Copermittees resources, and it will not result in greater environmental benefit to our watersheds.

In summary, the TMDL clearly established mass-based TMDLs, assigned a portion of the TMDLs to the MS4 via mass-based WLAs, and intended for those loads to be incorporated into the MS4 permit(s). However, no mass-based WLAs are incorporated into the Permit as WQBELs or otherwise. The concentration based effluent WQBELs in the Permit should be replaced with the mass-based effluent WLAs consistent with the TMDL. Alternatively, and at a minimum, the Permit should incorporate the mass-based WLAs as effluent WQBELs as an option so that Copermittees who are meeting the TMDL WLAs are in compliance with the Permit.

5. *Throughout the presentation, it was said that it is infeasible to cleanup bacteria. Provide an explanation as to why, it is not the case, that the cleanup of bacteria is infeasible. IN OTHER WORDS... Explain why it is in fact feasible to cleanup bacteria. Is it feasible to cleanup bacteria to the levels in the TMDLs? {Tomas Morales}*

⁵ Los Angeles River Watershed Bacteria TMDL Staff Technical Report. Page 88.
http://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/80_New/LARiverFinal/Staff%20Report%20LAR%20Bact%2015Jul10%20final.pdf

San Diego County Copermitttee Response to Questions 1, 2 and 5

Two main types of technologies are available to potentially treat bacteria to the levels specified in the TMDLs: non-structural and structural BMPs. These technologies and their ability to meet the effluent limits for bacteria specified in the Tentative Order were researched in the development of the Bacteria TMDL CLRPS and are discussed below.

Bacteria Water Quality Standards are Not Consistently Attainable by Non-Structural Source Controls Only

Because of their low cost relative to structural treatment controls, the first emphasis during the development of the Bacteria CLRPs was to exhaustively explore non-structural options to control bacteria at the source. Non-structural BMPs include outreach, inspection, and enforcement-based programs, such as those targeting homeowners to address over-irrigation and car washing as sources of dry weather runoff, pet owners to address pet waste, and food outlets to address sidewalk hose-down and proper trash and grease trap management. Non-structural BMPs also include illicit discharge detection and elimination programs, including efforts to identify sources of human waste into the MS4, such as recreational vehicle discharges and leaking sewer lines (where such flows may re-emerge into nearby stormdrains). Street sweeping and catch basin cleaning are also emphasized and intended to remove sources of sediment, trash and organic litter, all of which may contribute bacteria to the MS4.

Non-structural BMPs are essential components of the CLRPs, and their effectiveness was quantified to the extent possible based on available data. The CLRP analyses found these collective BMPs to achieve MS4 bacteria load reductions of 8 to 43% during dry weather and 5 to 29% during wet weather; wide ranges are necessary due to the significant uncertainty associated with the effectiveness of such programs. However, even with the most optimistic assumptions, a thoroughly exhaustive and comprehensive implementation of non-structural BMPs can simply not achieve compliance with the TMDL WLAs. This is partly because outreach, inspection, and enforcement can never achieve perfect control outcomes (i.e., some target groups will miss outreach, some behaviors won't change, and some activities will miss inspection). This is also partly because some urban bacteria loads are not addressable by such programs (e.g., biofilms in storm drains consistently grow and then mobilize whenever flows are present, such as during one of the many allowed dry weather flow sources like groundwater inflow and infiltration, and fire hydrant testing). Evaluations of the effectiveness of other source controls, such as sweeping and cleaning programs, have indicated that they are not able to capture 100% of sediments and organic debris.

Bacteria Water Quality Standards are Not Attainable by Using Structural BMPs

Because of limitations in the effectiveness and consistent performance of non-structural BMPs, more costly and time-intensive (i.e., longer time to implement), structural BMPs are described in the CLRPs in order to provide additional, more effective and controllable bacteria reduction. Dry weather structural BMPs potentially include localized infiltration, diversions to sewer, and disinfection. During wet weather, however, many of these BMPs are often not feasible because flow rates are substantially greater and more variable, and considerable transient storage would be required. In general, more natural, passive, and sustainable wet weather structural BMPs are preferred and recommended (as opposed to energy-intensive, mechanical systems). The International Stormwater BMP Database was used to help evaluate and predict performance of such BMPs. Statistically evaluated monitoring data from the database, however, indicate that many structural BMPs are not capable of achieving REC WQOs with the consistency, frequency, and predictability required by the TMDL and a corresponding load reduction plan. The CLRPs also describe other structural BMPs for wet weather controls such as subsurface flow wetlands (which have less performance data available but initial datasets suggest a relatively high level of effectiveness) and "zero discharge" types that rely on infiltration (e.g., infiltration trenches and basins) or capture and use (e.g., rainwater harvesting cisterns). These BMPs are effective for bacteria but are subject to local and site-specific constraints,

which must be evaluated before implementation. For instance, infiltration BMPs are not appropriate for areas with relatively impervious soils, shallow groundwater, steep hillsides, subsurface contamination, or close proximity to certain structures. Similarly, capture and use BMPs are not cost effective for areas with little available water demand (such as minimal landscaping irrigation needs) or where water demand is temporally inconsistent with available supply (frequently the case in the arid southwest where rainfall occurs during one season while peak irrigation demands occur during a different period).

Even Combining Structural and Non-Structural BMPs, Consistent and Reliable Attainment of Bacteria Standards is not Possible

In order to reduce existing wet weather MS4 bacteria concentrations with the objective of meeting TMDL waste load allocations (with some regularity), no potential and reasonable non-structural and structural BMPs are excluded from the currently developed CLRP. Many Los Angeles area MS4 Copermittees include the same strategy in their TMDL Implementation Plans.

There remain numerous examples where exhaustive non-structural and structural BMP efforts were conducted, and significant costs expended, without the desired (or initially predicted) outcome of compliance.

- In Santa Barbara, extensive storm drain investigations were conducted using conventional techniques (e.g., CCTV, visual flow observation, automated flow rate measurement, wastewater chemical indicators, bacteria sampling, dye testing, etc.) as well as more novel ones (e.g., canines scent trained for human waste, and human waste genetic markers) to seek inputs of human waste. As a result, RV discharges and leaking sewer lines were identified and immediately addressed. Despite these efforts, however, channel and creek indicator bacteria levels are unchanged.
- At the Santa Monica Pier, BMPs included bird netting, trash covers, homeless enforcement, prevention of pier washing, repair of leaking sewer, major dry weather storm drain diversion and potable offset use, and human source marker sampling to confirm that human fecal sources were indeed removed. Despite these significant efforts, however, beach bacteria concentrations improved but TMDL exceedances persist.
- At Inner Cabrillo Beach in the Port of Los Angeles, BMPs and studies included circulation enhancement pilot testing, bird deterrent testing, dry weather storm drain diversions, sewer inspection and groundwater sampling, eelgrass sampling (eelgrass was found to be a natural source of indicator bacteria), human source marker sampling, and beach sand replacement (since beach sands were found to be a reservoir for indicator bacteria). Again, despite several million dollars spent at this one beach, TMDL WLA exceedances persist.
- At Ramirez Canyon in Malibu, where dry weather flows are disinfected at the beach, surf zone water quality continues to exceed TMDL WLAs.

It therefore stands to reason that if the comprehensive bacteria removal of dry weather flows (coming at a very high cost when every creek and beach in the San Diego TMDL is considered) does not result in receiving water TMDL compliance, uncertainty must remain during wet weather conditions (which would require a cost significantly greater than for dry weather). As such, consistent and reliable compliance with TMDL standards and recreational bacteria water quality objectives is infeasible.

Copermittee Request:

Include language in Provision H (Modification of Programs) and Attachment E acknowledging the TMDL reopener and describe how the Permit will be modified to reflect the TMDL reopener.

Other

1. Clarify the Tentative Order is a one size fits all approach. Is the Water Quality Improvement Plan a one size fits all approach? {Grant Destache}

San Diego County Copermittee Response

The Permit provides considerable flexibility in many places, but a critical example of a one-size-fits-all approach is land development. While the Permit uses the concept of a Water Quality Improvement Plan to allow Copermittees to define priorities on a watershed basis and to tailor programs and BMPs based on the specific needs of each watershed, **the Permit takes a one size fits all approach to development planning standards.** Specifically, the sizing criteria to meet pollutant removal and hydromodification BMPs are very prescriptive in the Permit. The sizing criteria are the same for all projects regardless of pollutant removal efficiencies, soil retention capacities and susceptibility to erosion.

Copermittee Request:

We request that the Permit allow adaptive management to establish sizing criteria on a watershed level, and to propose in the Water Quality Improvement Plans adjustments to the Board recommended standards. This would allow Copermittees to define areas where more attention is needed and areas where applying the fixed standards does not provide a significant water quality benefit.

2. Further explain the Illicit Discharge Detection and Elimination Requirement in Provision E.2.a (1) and (3) of the Tentative Order that pertains to discharges from footing drains and fountain drains. {Eric Anderson}

San Diego County Copermittee Response

No response to this question.

Sincerely,



CID TESORO, Manager
Department of Public Works

Cc: David Gibson
Eric Becker
Laurie Walsh