

Santa Ana Regional Water Quality Control Board

March 21, 2014

Mr. Jason Uhley
Riverside County Flood Control & Water Conservation District
1955 Market St.
Riverside, CA 92501

COMMENTS ON THE DRAFT HYDROMODIFICATION MANAGEMENT PLAN (HMP) AND DRAFT HMP EVALUATION PROGRAM – ORDER NO. R8-2010-0033

Dear Mr. Uhley:

We reviewed the Draft Hydromodification Management Plan (HMP) and Draft HMP Evaluation Program dated January 29, 2014. The draft documents were submitted in accordance with Section XII.B and Appendix III.G of Order No. RB-2010-0033, NPDES No. CAS818033 (MS4 Permit).

We find the Draft HMP Evaluation Program and the Technical Memorandum on the Causes of Degradation and Aggradation clear, concise and well written. However, we find the following clarifications are needed to meet the intent of the MS4 Permit.

Please address the following comments and incorporate them in the revised Watershed Action Plan (WAP) due May 12, 2014.

Hydromodification Management Plan (HMP)

1. Pages 1-3, Simplified HMP Roadmap for User: These pages appear suited to project-level Hydrologic Condition of concern (HCOC) guidance in the Water Quality Management Plan (WQMP) rather than a watershed level HMP approach. We recommend revising this section to briefly reference the WQMP for project level HCOC applicability determination. The HMP should primarily address drainage area or watershed level approach to manage stream hydromodification susceptibility. Also, considering that the HMP is a component of the WAP, please clarify who are the intended “users” referenced throughout the document. This comment also applies to Section 2.1, pages 12, 13, 14.
2. Page 1, “How do I identify if a project is subject to the requirements of this HMP?” Some of the bulleted exemptions stated are not consistent with the permit or other Santa Ana Regional Board approved document, please delete or identify them as a proposed exemption and provide supporting information

specific to the sub-watershed or drainage area, consistent with Section XII.E.9.b.iv for our consideration. Also, please see comment 1.

3. Page 1 and page 12, Bullet 1: Please revise to state "If the project is not a New Development or Significant Redevelopment project ~~over one acre~~ **that disturbs less than one acre and is not part of a common plan of development**," This should also be reflected in Figure 2 – HMP Decision Flowchart. Also, please see comment 1.
4. Page 2, " *How does the user meet the HCOC MEP standards?* " : This section states a local and regional approach to meet the HCOC standards. We recommend this section to clarify that the HMP is a component of the WAP. The WAP does not currently present a regional option to address watershed-specific water quality and hydromodification concerns but Section 4 of the HMP provides guidance for interested parties on how a regional project may address HCOC consistent with the hydromodification management approach for sub-watersheds in the SAR. Also, please see comment 1.
5. Section 1.1, page 4, SAR HMP Context: This section discusses that flow depths below a certain point will not generate the critical shear stress and therefore have no effect on channel stability. Please elaborate on this by differentiating between an increased flow above the pre-development peak flow that can cause an increase in the shear stress and no increase in flow, but an increase in duration that nevertheless can affect channel stability.
6. Section 1.2, Lakes, Water Reservoirs and Basins: Diamond Valley Lake is outside the jurisdiction of the SAR, please clarify its role in the SAR HMP or delete if there is no impact to the SAR watershed.
7. Figure 1, page 7: Please clarify how this figure is to be used. The issue of streams labeled as not susceptible is identical to the issue of areas not subject to HCOC that is also discussed in this comment letter. If an exemption for a drainage area is presented based on the presence of controlled release points, the permittees must include supporting evidence showing that the controlled release point does not affect the downstream channels during a 2 year storm. See also comment 14 below.
8. Section 2.1.i, page 12: Please revise the following sentence as follows: "It should be noted that all projects are subject to the Permit's LID, design capture volume (DCV) and water quality treatment requirements even if Hydromodification control measures for both volumetric mitigation and time of concentration mitigation are not required."
9. Section 2.1.ii, page 13: Please provide a reference for acceptable energy dissipation system design or reference the WQMP if this is addressed in the WQMP.

10. Section 2.2.i., page 15: The third sentence of the second paragraph states users may evaluate local drainage systems that aren't in Appendix A for exemption applicability. If Permittees are seeking exemption from hydromodification requirements for a specific drainage area, supporting documentation related to the specific drainage areas must be presented in the WAP and HMP.
11. Section 2.2.i., page 15: The third sentence of the third paragraph states that, "The table contains the name of the channel..." Please clarify what table is being referred to. The reference seems to be a table that needs to be developed for each project level WQMP for which an HCOC exemption is to be claimed.
12. Section 2.2.ii, page 21, Watershed Protection Projects: Consistent with the approved WQMP Guidance, please add the following statement to the end of this section "However, such projects may be considered "Other Development Projects". "Other Development Projects" are required to incorporate appropriate LID Principles (Site Design), Source Control, and other BMPs which may or may not include Treatment Control BMPs. Permittee staff will require Project-Specific WQMPs for these Other Development Projects not considered under priority development categories, if deemed necessary to ensure that the potential for significant adverse water quality impacts to storm water are mitigated."
13. Section 2.2.iii, page 21: In the second paragraph of this section, the SAR HMP refers to the San Diego HMP. Please respond as to how the SAR HMP addresses the following issue. The final San Diego HMP (http://www.sdcounty.ca.gov/dpw/watersheds/susmp/susmppdf/susmp_appendix_g_2011mar.pdf) states on page 6-6 that in addition to the 20,000 cfs and 100 square miles watershed criteria, "...all proposed river reaches are subject to significant upstream reservoir flow regulation, have wide floodplain or stabilized channel areas, and low gradients. This combination of factors, in association with field observations and years of historical perspective from the TAC members, justifies exemptions for direct discharges to the exempt river reaches provided that properly sized energy dissipation is provided at the outfall location." The only criteria that the SAR HMP seems to briefly consider are the properly sized energy dissipated outfalls. Other criteria as described in the above quote are not addressed. Watershed-specific analysis must be presented in the SAR HMP and supported by actual data to support a drainage area based exemption.
14. Section 2.2.iv., page 22, Stable Receiving Waters: The purpose and applicability of this paragraph need to be clarified. We recommend that the HMP identify streams, drainage areas or sub-watersheds where permittees believe this may be an option for New Development or Significant Redevelopment projects. Also, additional information on the stream stability assessment such as the type of analyses and criteria that will demonstrate stability may improve implementability of this section.

15. Section 2.2v, page 22, Existing Infrastructure Information: Please clarify the applicability of the reasonable assurance evaluation to demonstrate that the presence of existing infrastructure such as those identified as controlled release points in Figure 1 are protective of the downstream water to HCOCs up to the state of ultimate build-out. The evaluation must consider current watershed conditions and future built-out conditions with and without hydromodification controls. If Permittees' hydromodification management proposes HCOC exemption on a sub-watershed or watershed basis based on evaluation of existing infrastructure, the supporting information should be presented in the HMP. We recommend that the HMP identify streams, drainage areas or sub-watersheds where permittees believe this may be an option for New Development or Significant Redevelopment projects.
16. Section 2.2.vi., page 22, BMP Design Standards: The intent of this section is unclear. Again, this appears to be a paragraph requirement more appropriate as part of the WQMP Guidance. We do not agree with exemption of projects based on a single BMP. If the proposed mitigation is subject to clogging, then the responsible party must be required to propose a mitigation that will function and adequately mitigate the HCOC. Furthermore, inability to meet the drawdown time should also not allow an exemption. The responsible party must propose a device or project design that will mitigate and meet any such standard requirements as a drawdown time. Also, the California Department of Health had informed us that a 96 hour drawdown time is adequately protective for vectors since the shortest time of any mosquito's reproductive cycle is 4 days.
17. Section 2.2.vii., page 23, Transportation Projects: This section states that Permittee transportation projects are not subject to HCOC requirement. Section XII.F. of the MS4 Permit states that the roadway BMP guidance should meet the performance standard of the HCOC criteria. The Transportation Guidance developed to comply with the Permit requirement states it is functionally equivalent to a WQMP. This section also appears to lump all transportation projects into one category which is not accurate. Please revise this section to correctly explain the requirement for HCOC for transportation projects.
18. Section 3.2, page 25, Volumetric Volume Approach: This section has no lower boundary of 95% of pre-development volume, which in general might be a desirable condition. However, watershed level analysis must be conducted so as not to have unintended consequences on sediment budget and downstream plants, wild life and biota if volumetric runoff to receiving water is extremely reduced post-development. Also, please clarify use of this section with respect to project level, drainage area level or sub-watershed level approach.
19. Figures 3, 4 and 6, SAR areas subject to HCOC Requirements: We believe the following areas shown in green require hydromodification management: a) The areas that drain into Temescal Creek in Corona showed some areas in that lower part of Temescal Creek that appear to be undergoing some significant

hydromodification. b) An area along the San Jacinto River just upstream from Canyon Lake that we inspected was also clearly not engineered and regularly maintained. Please revise the maps accordingly.

The HMP must clarify that discharges into a channel that is engineered and maintained may still pose a hydromodification concern if there are any sections further downstream that are susceptible to hydromodification. Therefore, it is not appropriate to label all the upstream channels not subject to HCOC lest any writer of a WQMP be confused about what type of channel that is being discharged to. One example of this situation is Salt Creek through Menifee where even though it is engineered and maintained drains through another area further downstream near Canyon Lake that is subject to hydromodification.

20. Appendix A, Section 3.2.1: This section discusses use of the 10 year inundation level in Prado Lake as a cutoff where any section downstream from that point would not be considered to cause hydromodification. Our field visit of a section of Temescal Creek within the Prado Basin showed what appeared to be evidence of hydromodification below the 10 year inundation level. Moreover, it is not clear why the 2-year level is not used in the HMP since that is the level that could likely be inundated in the storm we are protecting for.
21. Appendix A, Section 3.2.2 : This section discusses HCOC exemption for areas that drain directly to large rivers. The large river criteria was taken from the San Diego HMP to be draining more than 100 square miles and having a 100-year design flow of 20,000 cfs. As stated in Comment 13 above, there are significantly more criteria than just the watershed area, the 100 year flow and energy dissipation devices. Watershed –specific analysis must be presented in the SAR HMP and supported by actual data to support a drainage area-based exemption.
22. Section 4, Page 30, Alternative Compliance for Hydromodification: Please delete “one” in the first sentence and replace the conjunction “or” with “and” for the three bulleted items in the last paragraph of this section.
23. Appendix A, Section 4.2: There are 2 maps that require clarification. The first map entitled Existing Stream Channel Delineation Map (ESCDM) shows the entire San Jacinto River and parts of Temescal Wash as being exempt when only certain parts of the rivers might be exempt. The second map is entitled HCOC Applicability Map (HAM). The HAM doesn't reflect the stream susceptibility represented on the first map. The large river exemption described in the San Diego HMP does not correlate with the ESCDM that shows some of the downstream channels as susceptible to hydromodification. If the downstream area is so susceptible, it appears to follow that any increased flow placed in the river upstream from it has the potential to exacerbate downstream HCOC. All drainage areas to susceptible channels must be shown as subject to HCOC management unless data can be presented or factors specific to a

drainage area is presented to demonstrate it is not. Please revise the HAM to show the existing stream delineation color scheme.

24. Appendix A, Section 2.2 of Susceptibility Mapping Report, Delineation of Existing Stream Channels: This section mentions below ground stream channels. Please elaborate as to what is meant by delineating a below ground stream channel.
25. Appendix A, Table 2 lists large rivers in Riverside County. Please clarify how this table is intended to be used as part of hydromodification management based on area-specific analysis.
26. Appendix B, Causes of Degradation and Aggradation: Page 1, section 1.2 states the reason for excluding the MSAR watershed in the evaluation for causes of degradation and aggradation due to "The tributary drainage area to the MSAR is sufficiently large to create a condition of depositional river;..." The above rationale for excluding this sub watershed from investigating the causes of degradation and aggradation is unclear. Deposition or aggradation could also be a consequence of hydromodification brought on by urbanization.

The second part of the quoted statement above states the possibility that "...the segment of the MSAR may not be impacted by the range of flows typically considered as geomorphically significant in the arid southwest." This statement appears to be a hypothesis that needs to be tested with data pertinent to this watershed. The exclusion of this sub-watershed is inconsistent with the ESCDM that shows NAT (Natural) stream segments in the bottom of the watershed prior to entering the SAR. Further, the HAM shows sections of this drainage area subject to HCOC.

27. Appendix B , Section 3.2.2 , Causes of Degradation and Aggradation: Please verify accuracy of the statement that base flow in the San Jacinto River was from Lake Perris and from publically owned treatment works.
28. Appendix B, Section 4: The conclusion should include consideration of increased runoff due to increased imperviousness from urbanization as a major contributing factor to stream channel degradation and aggradation.
29. Appendix B, Causes of Degradation and Aggradation, Sections 3.1.1, 3.2.1, 3.3.1, 3.4.1, 3.5.1: For each study area, please briefly include additional characterization of the contributing drainage area, including current imperviousness, percent developable land, population, susceptibility to hydromodification of tributary streams within the drainage area. Also, for each study area, please briefly discuss the rationale for selection of the location and stream length of study reach.

30. Appendix B, Causes of Degradation and Aggradation: Figures 2, 3, 5, 6, 8, 9, 11, 12 - please correct the figure titles. Figure 7 – please correct the legend title.
31. Appendix B, Causes of Degradation and Aggradation : The document appears to have many questions marks where not necessary. Please do a global search and delete as appropriate.
32. Section XII.B.5. of the Permit requires a prioritization of actions based on drainage features/susceptibility/risk assessments and opportunities for restoration. It appears that the permittees started to analyze this subject in the Causes of Degradation and Aggradation. However, there is no clear identification and prioritization, opportunities for restoration or assessment methodology provided so follow-up could monitor the effectiveness of BMPs on hydromodification. The plan includes a clear description of the effect of debris basins on hydromodification in several sub-watersheds. This could form the basis for a plan to implement regional BMPs in some sub-watersheds by allowing for the bypass of coarse sediment from these structures. If this path is taken, we suggest that a thorough evaluation be conducted on the design effectiveness that could be translated to other sub-watersheds that have similar characteristics. This could also be an opportunity to optimize designs that correlate sediment budget with successful BMPs.

Hydromodification Management Plan (HMP) Evaluation Program

1. Section 3.1, page 14: This section states that the HMP monitoring data will be submitted to the Santa Ana Regional Board at the end of the evaluation period, tentatively in Fall 2019. While this appears to be a reasonable timeframe to acquire and analyze data, please include a breakdown of tasks with projected schedule from the date of HMP/WAP approval.
2. Section 3.1 – this section identifies possible approaches for the HMEP, however, it lacks commitment to an approach. Please identify the approach that will be used. For example, it is not clearly stated how surveys will be conducted or if certain condition(s) will indicate which techniques or combination techniques will be used. Similarly, this section states that “Aerial photogrammetry can specifically be used to evaluate floodplain width, planform changes, channel migration and floodplain obstructions or constrictions...”, but does not state if aerial photogrammetry will actually be used or situations when it may be used, nor does it specify alternative evaluation methodology.
3. Section 4.2, Performance Protocol, 2nd paragraph: Since one of the objectives of the HMP and HMEP is to evaluate the HCOC management approach specified in the permit which is based on the 2 year storm, please delete the qualifier “if required”.

4. Section 5, bullet 5, and Figure 4: Please explain the qualifier "If applicable". Either specify a decision tree or identify conditions that will determine if an annual hydrologic analysis will be conducted.
5. The HMPEP only identifies one hydromodification monitoring location. The HMP EP is an integral component of the Watershed Action Plan and must encompass all the sub-watersheds within the permit area. The Technical Memorandum on the Causes of Degradation and Aggradation identified various study areas for each sub-watershed. It is unclear if these study areas are candidates for baseline monitoring. Also, the HMP Evaluation Program must relate the stream hydromodification susceptibility assessments to prioritization and management actions consistent with the objectives for each stream and sub-watershed.

Please contact me at (951)782-4419, mgaslan@waterboards.ca.gov or Mr. Michael Roth at (951)320-2027, mroth@waterboards.ca.gov.

Sincerely,



Milasol C. Gaslan, Chief
Inland Storm Water

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