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June 5, 2013

VIA E-MAIL

Peter Kavounas, P.E.
General Manager
Chino Basin Watermaster
9641 San Bernardino Rd.
Rancho Cucamonga, CA 91730
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Re: Chino Basin Recharge Master Plan Update, Section 5

Dear Mr. Kavounas:

This firm represents the City of Fontana (Fontana) in efforts to develop stormwater recharge projects within the Chino Basin, and related matters. Fontana intends to pursue recharge storage projects utilizing stormwater captured via MS4 upgrades and other infrastructure/spreading grounds. In that regard, I write to provide comments on the latest draft of Section 5 of the Recharge Master Plan Update (RMPU).¹

As an initial and important matter, draft Section 5 mischaracterizes key provisions of the Peace Agreements and related, supplemental orders as they relate to stormwater and “New Yield.” In particular, draft Section 5 erroneously assumes that all recharged stormwater is considered “New Yield.” While recharged stormwater *may* be New Yield, as that term is defined in section 1.1(aa) of the Peace Agreement, it may also be considered “Supplemental Water” if the stormwater would leave the Chino Basin but for the MS4 or other improvements that capture and recharge the stormwater into the Basin.

There is a big difference between regional stormwater recharge projects *financed* by Watermaster, as contemplated on page 2 of the October 8, 2010 court order, and projects that are financed and operated by local entities.² A Watermaster-financed stormwater recharge project might have all of its recharge characterized as New Yield. But there is no provision in the Judgment, nor the Peace Agreements, nor any subsequent orders thereon that requires all stormwater recharge be characterized as New Yield. Instead, those key rulings and agreements allow for local entities to store water in the Basin when that water is considered “Supplemental” – i.e., “water imported to the Chino Basin from outside the Chino Basin Watershed...” Stormwater that would otherwise leave the Chino Basin, but is instead

¹ A copy of the Section 5 draft is attached as Exhibit A to this letter.

² A copy of page 2 of the court order is attached as Exhibit B to this letter.

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captured and recharged through Local Storage projects, qualifies as Supplemental Water. (Peace Agreement, section 1.1 (x and ww).)

In this regard, Phase 1 of the CBFIP, which began in 2001, was the first attempt by Watermaster to divert and recharge stormwater that otherwise would have flowed outside the Basin. It was during the CBFIP discussions beginning in 2001 that the parties through Watermaster conducted many different meetings to discuss the upcoming project, how they were going to fund the project, and how they were ultimately going to allocate the recharged water rights among themselves. In April of 2003, the Appropriative Pool decided to allocate the stormwater recharged through the CBFIP by "...using the same method as debt service." (April 10, 2003 Appropriative and Non-Ag Pools meeting minutes, item E.) In other words, the recharged water rights would be allocated to the parties based on their respective rights and corresponding debt service under the Operating Safe Yield. Thus, the parties paying for the CBFIP receive corresponding benefits.

If the current version of Section 5 is adopted by the Watermaster and the court, it would significantly reduce the incentive for local entities to finance and implement recharge projects. Regional MS4 permits will require certain upgrades, but not the kinds of innovative (and expensive) recharge projects that would benefit the Chino Basin. If the key, and inaccurate, assumption underlying Section 5 that all stormwater recharge is necessarily "New Yield" is applied more broadly in the Basin, it would similarly reduce (or entirely remove) the incentive for local agencies to finance/implement stormwater recharge projects generally. Stormwater recharge projects are crucial to meeting regional and local water supply demands. Disincentivizing local and regional stormwater projects will neither benefit the Chino Basin nor the hundreds of thousands of people who depend on the Basin's water resources.

In addition to the fact that neither the Judgment/orders nor the Peace Agreements mandate that all MS4 recharge projects dedicate their recharge to New Yield, such a result would also violate Article X, section 2 of the California Constitution, which compels the beneficial use of California's waters "to the fullest extent of which they are capable." It is patently unreasonable for the Committee or Watermaster to interpret the Judgment and orders of the court, as well as the Peace Agreements, in a manner that so severely disincentivizes stormwater recharge projects. There are many regional and local recharge projects that would be viable and pursued if the implementing agency could store the recharged stormwater in the Chino Basin. Article X, section 2 of the California Constitution compels Watermaster and the court to allow regional and local agencies to store and recover recharged stormwater flows for the benefit of their constituents.

Areas in the Basin that have already been developed have reduced the natural recharge capacity of the Basin, thus contributing to the anticipated reduction in the Safe Yield of the Basin. That anticipated lowering of the Safe Yield will result in pro rata reductions in annual allocations among those who currently enjoy a percentage of Operating Safe Yield, as well as those who will otherwise receive Land Use Conversion credits. Allocating water captured through MS4 recharge efforts from undeveloped communities to the Safe Yield of the Basin

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unfairly punishes those communities because no similar provisions were applied to the communities that were already developed when the Basin was adjudicated. This practice would, in effect, cause a double negative impact to undeveloped appropriators. Allocating MS4 or any other stormwater captured to the Safe Yield of the Basin unfairly allows developed communities to benefit from recharge efforts made by these developing areas, while penalizing the very parties for doing so. The Judgment anticipated periodic adjustments to the Safe Yield of the Basin. The Safe Yield was anticipated to constantly change, growth was anticipated and the Judgment allowed for Land Use Conversion credits to benefit those appropriators who still had agricultural lands that would convert to urban use. The current proposal penalizes undeveloped communities and disincentivizes maximizing recharge.

As such, Fontana respectfully requests that the Committee significantly redraft the introduction to Section 5 of the RMPU to remove the characterization of all MS4 stormwater recharge as New Yield. Section 5 should explicitly allow for regional and local agencies to obtain Local Storage agreements relating to the stormwater that is recharged into the Basin through recharge projects. Of course, those entities would bear the responsibility of demonstrating the level of recharge occurring in excess of current conditions, which would stand as the baseline for measuring the stored Supplemental Water. Section 5 should also make clear that Watermaster will take the steps necessary to allow Local Storage projects to utilize some portion of the water right permits that Watermaster holds in trust for the parties to the adjudication.

As to the three alternatives for estimating the recharge associated with MS4 upgrades, Fontana generally supports Alternative 3. Alternative 3 is the most pragmatic approach, taking in to account the information available as well as the costs associated with project-specific accounting. But, Fontana reiterates that regional and local agencies should be able to apply for Local Storage agreements relating to MS4 upgrades and any other recharge efforts.

The City of Fontana appreciates your consideration of these comments. Representatives of the city would be glad to meet with you or members of the RMPU Committee to discuss these issues.

Sincerely,



Nicholas A. Jacobs
Attorney

NAJ:jm

Encs.

cc: Scott Slater, Esq.

EXHIBIT A

Section 5 Monitoring, Reporting, and Accounting Practices to Estimate Long-Term Average Annual Net New Stormwater Recharge

One of the conclusions of the engineering investigations that supported the development of the Peace II Agreement was that the safe yield of the Chino Basin was declining due changes in landuse and stormwater management practices. In the Final Report and Recommendations on Motion for Approval of Peace II Documents (Schneider, 2007), the Special Referee recommended and the Court ultimately ordered that several elements be included within the 2010 RMPU (Motion to Approve Watermaster's Filing in Satisfaction of Condition Subsequent 5; Watermaster Compliance with Condition Subsequent 6, August 21, 2008) one of which was:

"3. Measures should be evaluated to lessen or stop the projected Safe Yield decline. All practical measures should be evaluated in terms of their potential benefits and feasibility."

The 2010 RMPU identified that the implementation of Municipal Separate Storm Sewer System (MS4) permit in the Chino Basin watershed had the potential to mitigate or offset some of the projected decline in safe yield. In its acceptance of 2010 RMPU the Court ordered:

"(3) Watermaster is hereby ordered to convene the committee described in item 3 of section 7.1 of the updated RMP to develop the monitoring, reporting, and accounting practices that will be required to estimate local project stormwater recharge and new yield."

Item 3 of Section 7.1 of the 2010 RMPU reads as follows:

"3. In implementing the above, Watermaster should form a committee—consisting of itself, the landuse control entities, the County Flood Control Districts, the CBWCD, the IEUA, and others—to develop the monitoring, reporting, and accounting practices that will be required to estimate local project stormwater recharge and new yield. This committee should be formed immediately, and the monitoring, reporting, and accounting practices should be developed as soon as possible."¹

¹ The term "new yield" is defined in the Peace Agreement to mean "proven increases in yield in quantities greater than historical amounts from sources of supply including but not limited to, capture of rising water, capture of available storm flow, operation of the Desalters (Including the Chino I Desalter), induced recharge and other management activities implemented and operational after June 1, 2000."

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The RMPU Steering Committee was formed in November 2011 in response to the Court's order.² This section describes the monitoring, reporting and accounting practices discussed and recommended by the RMPU Steering Committee. Starting in June of 2012, the Steering Committee started its investigation on the nature and occurrence of MS4 projects. A subcommittee of the Steering Committee (hereafter, the Subcommittee) was formed to review the formal process used by the MS4 permittees (land use control entities) to review and approve MS4 projects. The Subcommittee consisted of Dave Crosley of the City Chino, Rosemary Hoerning of the City of Upland, and Peter Kavounas of the Chino Basin Watermaster. The Subcommittee developed and presented draft procedures to the Steering Committee for the monitoring, reporting, and accounting practices required to estimate and account for recharge from MS4 projects.

The Watermaster pleading and subsequent Court order did not include the other two recommendations (1 and 2) described in Section 7.1 of the 2010 RMPU, which included:

- “1. Watermaster should allocate new yield that is created by new recharge above that required by MS4 permit compliance to the owners of those projects that create new recharge. This will require the development of (a) new agreements involving the Watermaster, project owners, and others, and (b) the development of new practices and procedures that can quantify new recharge during project development and subsequently verify that the new recharge is occurring during the project lifetime.
2. Watermaster, working with the Parties, should encourage the construction of local recharge projects in developed areas that will increase the capture and recharge of stormwater. The recommendations for local stormwater recharge projects in developed areas are the same as those for newly developed areas, articulated above.”

MS4 Permit Background

The Cities and Counties that overlie the Chino Basin are obligated to implement the National Pollutant Discharge Elimination System (NPDES) MS4 Permit (Order R8-2010-0036 in San Bernardino County and Order R8-2010-0033 in Riverside County) adopted by the Santa Ana Regional Water Quality Control Board in 2010. Essentially, the new permits require that all stormwater generated from new

² The mandate of the Steering Committee was subsequently expanded to the scope of the entire 2013 RMPU amendment.

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development from a 24-hour, 85th percentile storm (about 1 inch over 24-hours in the Chino Basin) be detained and recharged onsite if recharge is feasible; if recharge is not feasible, the stormwater must be detained and treated and subsequently discharged. The specific technologies for detention and recharge are to be developed by landuse control entities. The landuse control entities are responsible for the inspection and maintenance of these new stormwater management facilities. The recharge facilities could include detention and sedimentation basins, recharge basins, dry wells, and managed swales. The implementation of the new MS4 permits may result in new stormwater recharge relative to pre-project conditions in areas where recharge is feasible.

As part of the 2010 RMPU, projections of new stormwater recharge from the implementation of the 2010 MS4 permits were prepared. Models³ were used to estimate the increase in stormwater recharge from new development by applying the stormwater management criteria from the new MS4 permit for two conditions: (1) half of the stormwater managed pursuant to the MS4 permit is recharged and (2) all of the stormwater managed pursuant to the MS4 permit is recharged. No assumptions were made as to the specific new stormwater management facilities used to comply with the permits except that they were maintained and functioned as originally conceived – there was no deterioration in infiltration capacity over time. The new stormwater recharge created through permit compliance was estimated to range from about 6,300 acre-ft/yr if half of the stormwater managed pursuant to the MS4 permit is recharged and 12,600 acre-ft/yr if all of the stormwater managed pursuant to the MS4 permit is recharged. This new recharge, if realized, would increase gradually from zero in the present to the above estimated value over the time that the land was improved. This could be a period of 40 to 50 years or more.

The recharge at downstream stormwater management facilities was projected to decrease slightly with MS4 permit implementation through the diversion of runoff that would have otherwise been recharged at these existing facilities. The adjusted recharge projections, correcting for reduction in downstream recharge, were about 5,300 acre-ft/yr if half of the stormwater managed pursuant to the MS4 permit is recharged and 10,500 acre-ft/yr if all of the stormwater managed pursuant to the MS4 permit is recharged. Finally, these adjusted estimates would need to be adjusted downward one more time to reduce them for incidental deep infiltration of precipitation that would have occurred in the pre-project condition. Thus, the net new recharge from the implementation of 2010 MS4 permit is equal to the stormwater recharge caused by the implementation of stormwater management projects pursuant to the MS4 permit minus the decrease in recharge at existing

³ Specifically the Rainfall, Runoff, Router, and Rootzone (R4) Model (refer to Section 3 of the *2010 Recharge Master Plan Update* for more discussion on the recharge estimates for future MS4 compliance and more specifically to Appendix C of that report for a description of the R4 Model.

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stormwater management facilities minus the incidental deep infiltration of precipitation that would have occurred in the pre-project condition. A strict accounting method would have to be able to provide the information necessary to estimate net new recharge.

Expected New Development

During the April 4, 2013 Steering Committee meeting the Steering Committee expressed interest in knowing the projected development within Chino Basin to develop an estimate of potential MS4 recharge. The Committee discussed possible methods of obtaining information and the consensus was to ask Appropriators for assistance. The concept articulated was that the land use planning agencies have adopted General Plans that show, with a fairly high degree of accuracy, planned development information including the acreage proposed to be developed; in addition there is likely a projected timeline for development to occur. Watermaster staff issued a request by email to the Appropriators requesting that if they were a landuse control agency that they could provide this planning information to Watermaster staff. If not a landuse control agency its was requested that the Appropriator request this information from the landuse control agency whose areas they serve and provide it to Watermaster staff. The responses are summarized in the table below.

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Summary of Responses

Comment [MJW1]: The table below is new

Appropriator	Landuse Control Agency	Development Timeline Provided?	Land to be Developed in the Next 20 Years (acres)	Remaining Land to be Developed without a Timeline (acres)
City of Chino	City of Chino	No	-	2,600
City of Ontario	City of Ontario	Yes, through 2025	4,600	-
CVWD	City of Rancho Cucamonga	No	-	3,400
MVWD	City of Montclair	Yes, through 2028	150	-

The data provided in table above is incomplete geographically and as to the timing of new development. Data was not provided by the Cities of Chino Hills, Fontana, Pomona and Upland, and the Counties of Riverside and San Bernardino. The response received or lack thereof reflects the level of confidence the Appropriators and landuse control agencies have in predicting future development.

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Alternatives for Estimation of Net New Recharge from MS4 Projects

Three alternative procedures were discussed by the Steering Committee. These alternatives included:

- Alternative 1 – Project-specific monitoring, reporting, and accounting;
- Alternative 2 – Indirect estimation during the periodic redetermination of safe yield;
- Alternative 3 – a hybrid of Alternatives 1 and 2.

Alternative 1 Project-Specific Monitoring, Reporting, and Accounting Alternative

In this alternative, systematic data collection and evaluation would be used to identify MS4 projects as they were implemented, and estimate the projected long-term average annual net new stormwater recharge estimates for each project in the year that they were reported to the Watermaster. This alternative was identified by the Subcommittee.⁴ The process to identify these projects and estimate net new recharge is illustrated in Figure 5-1 and Table 5-1. Figure 5-1 defines the proposed timeline and roles of the Chino Basin Watermaster and the Appropriator parties in this alternative. The process Figure 5-1 shows is as follows:

- The Watermaster will send quarterly reminders to the Appropriator parties to collect and compile Water Quality Management Plan (WQMP) reports and “as-built” drawings for all MS4 projects constructed (herein, collectively referred to as MS4 documentation) in the current fiscal year.
- In August, the Watermaster will request MS4 documentation from the Appropriators.
- The Appropriators will provide the MS4 documentation to the Watermaster in September in a digital format (e.g., an Adobe .pdf document).
- Watermaster staff will review the MS4 documentation, extract the information required to estimate the net new stormwater recharge from each new stormwater management facility. These recharge estimates will be prepared in October. The results will be provided in the format shown in Table 5-1.
- Watermaster will prepare and distribute these estimates in an annual report in November.
- Watermaster will true up the net new stormwater recharge estimates during the next scheduled safe yield redetermination.

⁴ The Subcommittee presented this alternative to the 2013 RMPU Steering Committee on February 7, 2013 and subsequently modified it to incorporate Steering Committee comments.

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- The trued up values will be included in this safe yield redetermination.

Table 5-1 lists the data required to create an annual report and quantify the theoretical potential new yield. The table is organized as follows by column number.

1. Project Name
2. Date of Entry
3. Existence (or not) of Signed Maintenance Agreement
4. Ongoing Maintenance Verified (Every 3 years)
5. MS4-Required Capture volume (cubic feet)
6. Constructed Capture Volume (cubic feet)
7. Long-Term Average Annual Runoff from Site (acre-ft/yr)
8. Estimate of Pre-Project On-Site Incidental Recharge (acre-ft/yr)
9. Decrease in Recharge at Downstream Stormwater Management Facilities with MS4-required Capture Volume (acre-ft/yr)
10. Decrease in Recharge at Downstream Stormwater Management Facilities with Constructed Capture Volume (acre-ft/yr)
11. Long-Term Average Annual Recharge with MS4-Required Capture Volume (acre-ft/yr)
12. Long-Term Average Annual Recharge with Constructed Capture Volume (acre-ft/yr)
13. Long-Term Average Annual Net New Recharge with MS4-Required Capture Volume (acre-ft/yr)
14. Long-Term Average Annual Net New Recharge with Constructed Capture Volume (acre-ft/yr)
15. Chino Basin Management Zone
16. County
17. Land Use Control Agency
18. Service Provider (Appropriator)

The information contained in columns 1, 5, 6, and 15 through 18 can be found in the Water Quality Management Plan (WQMP) and drainage study reports associated with the new development. Column 2 needs to be verified by the Appropriator when the project is built.

Columns 3 and 4 need to be provided by the Appropriator. Order R8-2010-0036 and R8-2010-0033 contains the following language in reference to the operation and maintenance of post-construction BMP's:

1. The Permittees shall ensure, to the maximum extent possible (MEP), that all post-construction BMPs continue to operate as designed and implemented with control measures necessary to effectively minimize the creation of nuisance or pollution

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- associated with vectors, such as mosquitoes, rodents, flies, etc. WQMPs shall identify the responsible party for maintenance, including vector minimization and control measures, and funding source(s) for operation and maintenance of all site design and structural treatment control systems. Permittees shall, through conditions of approval and during inspections, ensure proper maintenance and operation of all permanent structural post-construction BMPs installed in new developments. Design of these structures shall allow adequate access for maintenance.
2. Within twelve months of adoption of this Order, the Permittees shall develop a database to track operation and maintenance of post-construction BMPs. The database should include available BMP information such as the type of BMP design, location of BMPs (latitude and longitude), date of construction, party responsible for maintenance, maintenance frequency, source of funding for operation and maintenance, maintenance verification, and any problems identified during inspection including any vector or nuisance problems. A copy of this database shall be submitted with the annual report.

The values in columns 7 through 14 would be calculated using modeling tools such as those used in the 2010 RMPU and the Chino Basin Groundwater Model. Models are required to estimate stormwater recharge at the new MS4 facilities as these facilities are currently not metered nor can they be practically metered. Models are required to estimate pre-project incidental recharge and the impact of recharge at MS4 facilities on existing downstream stormwater management facilities. The existing modeling tools would be modified to enable Watermaster staff to efficiently estimate net new recharge from each MS4 project. The approximate cost to develop, demonstrate and document these modeling tools is about \$50,000.⁵ The cost to apply these tools to individual MS4 projects would be about \$1,600 each.

The Chino Fire Station No.1 and Training Center was chosen by Watermaster staff to be a case study to demonstrate the major features of this alternative. Chino Fire Station 1 is located on a 3.6-acre site on the northeast corner of Schaefer and 4th Street. The WQMP for this site was provided by the City and reviewed by Watermaster staff. The data and results of this case study are shown in Table 5-1. The site has three subareas that drain to three bio retention basins. The storage capacity of the bio retention basins is made up of 1) the surface volume of the swale, 2) the subsurface 6-foot diameter perforated storm drain which is filled through grated inlets, and 3) the volume of the void spaces that fill the 12-foot deep space below the bio retention basin. The total storage capacity was estimated to be about

⁵ The cost to revise the models alone is about \$8,000. The additional cost includes the cost of documentation and demonstrating model to the Watermaster.

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24,243 cubic feet or about 0.55 acre-ft (column 6 on Table 5-1). The MS4 permit required stormwater management volume is 15,857 cubic feet or about 0.36 acre-ft (column 5 on Table 5-1).

The long-term average annual runoff generated on the project site is 3.17 acre-ft/yr (column 7 on Table 5-1). The pre-project condition was assumed to be the land use immediately before development; in this case vacant land⁶. The long-term average annual deep infiltration of precipitation for the pre-project condition was estimated to be about 1.33 acre-ft/yr (column 8 on Table 5-1). The table below shows the calculation of long-term average annual net new recharge (in units of acre-ft/yr) as a function of infiltration rate.

Estimated Long-Term Recharge Estimates for the Chino Fire Station No.1 and Training Center

	MS4-Required Capture Volume		Constructed Capture Volume	
	0.5 ft/day	1.0 ft/day	0.5 ft/day	1.0 ft/day
Infiltration rate for MS4 Facility	0.5 ft/day	1.0 ft/day	0.5 ft/day	1.0 ft/day
Pre-project Deep Infiltration of Precipitation	1.33	1.33	1.33	1.33
Recharge at MS4 Facility	2.12	2.47	2.55	2.82
Net New Recharge	0.79	1.14	1.22	1.49

The recharge volumes shown in Table 5-1 columns 11 through 14 correspond to an infiltration rate of 0.5 ft/day. These recharge estimates assume that the infiltration rate is constant over the life of the project. This project is located downstream of the existing regional stormwater management facilities; therefore, an adjustment is not required to account for the reduction in recharge at the regional stormwater management facilities that might be caused by construction of the BMP at the Chino Fire Station.

⁶ The appropriate assumption for pre-project condition is a significant unknown. The Steering Committee members have suggested various options including [i] land use immediately before development; [ii] land use in 1974, representing the end of the model calibration period; [iii] land use at the time nearby flood control channels were concrete-lined representing the loss of infiltration in those channels; and [iv] June 1, 2000 to be consistent with the definition of new yield in the Peace Agreement. For this example we have used the first of these possibilities.

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Alternative 2 Indirect Estimation during the Periodic Redetermination of Safe Yield Alternative

Watermaster is currently in the process of re-determining safe yield and will re-determine safe yield periodically in the future⁷. In this alternative, the net new recharge from determining safe yield would be automatically incorporated into the safe yield and the direct estimation of net new recharge would not be made. The volume of net new stormwater recharge caused by the implementation of stormwater management projects pursuant to the MS4 permit would likely be included as a minor calibration adjustment to parameters used in the equations (processes) that estimate the deep infiltration of precipitation and applied water.

Alternative 3 Hybrid Alternative

Watermaster staff would annually acquire and store electronic versions of the MS4 project-related reports and maintenance verification databases. When scoping a future safe yield redetermination, Watermaster would use its judgment and discretion to determine if there has been a significant potential increase in MS4 project-related recharge. If judged significant then Watermaster would explicitly incorporate significant MS4 projects into the modeling and other technical activities required to redetermine safe yield. The calibration process for the groundwater model used in the safe yield redetermination would be used to refine the MS4 recharge estimates. Net new recharge would be estimated by rerunning the calibration without the new MS4 facilities and comparing both simulations.

Alternatives Comparison

Three criteria were used to evaluate these alternative methods to estimate net new recharge from MS4 projects: timeliness of the estimates, relative cost, and expected relative accuracy. This comparison is shown in Table 5-2 and discussed below.

Timeliness of Estimates

The timeliness criterion speaks to the utility of the net new stormwater recharge being classified as new yield and assigned to the Appropriators pursuant to the Peace Agreement. Alternative 1, the *project specific monitoring, reporting and accounting alternative*, will produce net new stormwater recharge estimates each year while the other two alternatives will produce estimates when Watermaster re-determines safe yield. The utility of annual net new stormwater recharge estimates over less frequent estimates would be the development of new yield estimates and

⁷ Watermaster is required to redetermine the safe yield every ten years pursuant to the OBMP Implementation Plan (page 45).

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the allocation of these new yield estimates in the Watermaster assessment process pursuant to the Peace Agreement. The accuracy of net new recharge estimates *from Alternative 1* will likely be challenged during a subsequent safe yield redetermination causing Watermaster to make downward corrective adjustments in future assessment processes. By contrast the other two alternatives will not provide timely estimates of new yield – they will provide estimates of changes in safe yield that may or may not be attributable to new stormwater recharge.

Relative Cost

The relative cost to estimate net new stormwater recharge would be least (probably zero) for Alternative 2 and greatest for Alternative 1. Alternative 3, the *hybrid alternative*, would be relatively close in cost to *Alternative 2* provided that Watermaster annually acquires and stores electronic versions of the MS4 project related reports and maintenance verification databases that are developed by the land use control agencies and mandated by the Regional Board.

Expected Relative Accuracy of the Net New Recharge Estimate

The expected relative accuracy of the net new stormwater recharge estimates derived by Alternative 1 would be the lowest of the three alternatives because there is no way to validate the estimates. Alternative 3 is expected to have the greatest accuracy because preliminary estimates of the net new recharge and its location can be made (a theoretical cap) and subsequently adjusted and validated in calibration. The expected relative accuracy criterion is not applicable to Alternative 2 because net new stormwater recharge would not be explicitly estimated.

Discussion

The net new recharge from MS4 project implementation may, in the fullness of time, add significant recharge to the Chino Basin but there is reason to doubt that over the next 20 to 30 years that it will do so. First, it will be difficult to monitor on the surface and verify that each project is operating at design capacity. There are no provisions for monitoring the volume of water that will be recharged at these proposed facilities and in most cases it will be impossible to monitor them for recharge. From an engineering perspective, there is considerable doubt that most of these facilities can be maintained to ensure that these facilities will perform consistently and as designed for the next 20 to 30 years.

Second, these facilities will be constructed for new development and redevelopment. This means that these facilities will be constructed for relatively small areas spanning decades of time and thus will gradually increase recharge over time with each project contributing small amounts of new recharge. New, small amounts of recharge occurring over time and distributed across the basin will not

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noticeably impact groundwater levels and hence safe yield for several years⁸, perhaps decades. The implication of the slow accumulation of net new recharge is that it will be difficult to quantify the changes in safe yield attributable to the MS4 project implementation in subsequent safe yield determination until considerable recharge, say 50,000 to 100,000 acre-ft, has occurred and accumulated in the basin.

If Alternative 1 were implemented it is likely that most of the new yield estimated directly from the MS4 project documents will have to be retracted in the next safe yield determination that will be done in 2021. Alternatives 2 and 3 will not have this problem and Alternative 3 has the best chance of providing estimates of net new recharge from implementation of future MS4 projects.

Alternative 3 is the most appropriate way to estimate net new stormwater recharge. Alternative 3 will produce the most accurate estimates of the safe yield during future safe yield redetermination efforts.

Recommended Alternative

The Steering Committee met on May 16, 2013 and discussed Section 5 draft number 2. The conclusion of that discussion was to recommend Watermaster staff implement Alternative 3 and to periodically review the time and effort in its implementation, and reassess the value provided by it.

⁸ Due to the time lag between recharge at the ground surface and arrival at the water table and the availability of groundwater level observations to sense it.

EXHIBIT B

1 Consistent with section 8.1 of the Peace II Agreement, condition subsequent number eight
2 requires Watermaster to submit for approval an updated Recharge Master Plan by July 1, 2010. The
3 specific items required to be covered by the updated Recharge Master Plan were described with
4 specificity in the *Special Referee's Final Report and Recommendations on Motion for Approval of*
5 *Peace II Documents*. The updated Recharge Master Plan lists these required elements and in Table
6 7 describes where in the updated Recharge Master Plan they can be found. No party has alleged
7 that the updated Recharge Master Plan does not address all of the issues required by the Court's
8 Order, or does not otherwise satisfy the requirements of section 8.1 of the Peace II Agreement.

9 At the broadest level, the purpose of the Recharge Master Plan updated is to ensure that at
10 any time during the period when the 400,000 acre-feet of Basin Re-Operation water is being
11 produced, Watermaster and the parties will have the ability to cease production of the 400,000 acre-
12 feet and return to normal Basin operations.

13 According to the conclusions of the updated Recharge Master Plan, the Chino Basin
14 currently has sufficient recharge capacity that Basin Re-Operation could cease and normal
15 operations could resume. However, this conclusion is conditioned on certain assumptions.

16 With regard to local stormwater management, the updated Recharge Master Plan
17 recommends the formation of a committee to develop the monitoring, reporting, and accounting
18 practices that will be required to estimate local project stormwater recharge and new yield.

19 With regard to regional stormwater recharge facilities, the updated Recharge Master Plan
20 recommends that Watermaster should conduct further analyses of the Phase I through III projects
21 described in the RMP to refine the projects, to develop a financing plan, and to develop an
22 implementation plan for projects deemed necessary to meet the objectives. The schedule to
23 implement the necessary Phase I through III projects should be developed during the proposed
24 planning work.

25 With regard to supplemental water for replenishment, the updated Recharge Master Plan
26 recommends that the RMP revisit the issue after the completion of the parties' Urban Water
27 Management Plans which are scheduled to be complete by the end of June 2011. The updated
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