California Regional Water Quality Control Board
Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Linda S. Adams
Cal/EPA Secretary

Arnold Schwarzenegger
Governor

12/4/07 Bd. Mtg.
Water Recycling Policy
Deadline: 10/26/07 Noon

October 26, 2007

Ms. Tam Doduc, Chair
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95814-0100

Attention: Jeanine Townsend, Acting Clerk to the Board

COMMENT LETTER – DRAFT WATER RECYCLING POLICY

Thank you for working to develop this policy for the benefit of clarity and statewide consistency.

The Los Angeles Regional Water Quality Control Board (Regional Board) staff have reviewed the Draft Water Recycling Policy (Policy) released for public comment on September 13, 2007, and have the following comments which concern the Regional Board's ability to:

1. Carry out our mandate to implement the State's Antidegradation Policy;
2. Require monitoring for all situations where deemed appropriate;
3. Protect/manage assimilative capacity for high quality waters;
4. Require more than CDPH in order to protect high quality waters under our independent authorities;
5. Protect other beneficial uses in addition to MUN; and,
6. Protect against degradation from emerging chemicals.

General Comments:

As you are aware, the State Board's 2003 assessment of recycled water use throughout California showed that approximately 30% of all recycled water uses in the State occurs in Region 4. In order for our region to reduce our reliance on imported supplies for the future, water recycling will have a critical role. We will have to remain devoted to our history of ensuring the protection of these resources, and although we are interested in this issue from an augmentation of water supply perspective, we are also mandated to protect our valuable local resources.

In response to a permit, our Board directed us in January to form a workgroup to explore recycling issues, in particular, for areas of high quality groundwater, and to

bring back a recommendation which appropriately balances our mandate to protect water quality with the goal to address water supply needs into the future. This workgroup, which includes the major water agencies, generators of recycled water, and environmental groups in our region, has been an excellent forum for substantive discussions of these issues (see Attachment * for a list of work group members). This effort which is 9 months into our 18-month process, has shown great promise and progress, including a possible framework for an antidegradation implementation policy. As presented at the October 2nd State Board Workshop, a work product (Attachment 6) has been developed, as a possible implementation methodology, and is consistent with other state's and USEPA's protocols to consider protection of high quality waters. The fourth workgroup meeting has been scheduled for November 6th and groundwater monitoring requirements are scheduled to be discussed.

Although there are some provisions of your draft policy that will address the unique needs of the Los Angeles Region, there are several areas where existing Regional Board authorities may be compromised in requiring appropriate measures to ensure water quality protection. In addition, in areas of high quality groundwater, we think that the Policy should include provisions that protect the assimilative capacity of the groundwater, which is one of the key prongs of both federal and state antidegradation policies.

Specific Comments: The following comments identify specific language in the policy, which we either support or don't support, or suggest for further clarification, related to our concerns above:

1. The Regional Board supports Resolve 11 which states that:

   For constituents for which CDPH has not established an MCL, a Regional Water Board may interpret a narrative objective for toxicity for protection of human health to establish an effluent limitation for the constituent for a groundwater recharge reuse project, only if it finds that: (a) the constituent is present in the recycled water; (b) the constituent is likely to be persistent in groundwater in the recharge area; (c) adequate information is available to characterize the toxicity of the constituent and establish an effluent limitation; and (d) approved analytical methods are available to measure the concentration of the constituent.

2. The Regional Board supports Resolve 12, and believes that this requirement should be extended to cover recycled water irrigation projects. Resolve 12 states:

For groundwater recharge reuse projects, if a Regional Water Board finds that attenuation of a constituent will occur within soil, the vadose zone or groundwater, in lieu of establishing an effluent limitation, the Regional Water Board may establish a groundwater limitation for the constituent. If a groundwater limitation is established, the Regional Water Board shall require monitoring of the constituent in groundwater. The groundwater shall comply with the limitation at specified monitoring points. The discharger shall have legal control over the attenuation area between the discharge points and the monitoring points to prevent the use of domestic or municipal wells within the attenuation area.

However, the burden of proof should be on the Discharger to conduct appropriate studies to quantify any attenuation factor that would be considered by the Regional Board.

3. The Regional Board supports Resolves 17 and 18, which holds Dischargers responsible and liable if the groundwater is degraded and allows the Regional Board to require financial assurances. However, in order to reflect the language on page 6 of the staff report, the liability description should also be included in Water Recycling Requirements for irrigation projects. The Draft Policy as is currently written only requires that the liability description be included in groundwater recharge reuse projects.

4. The Regional Board supports Resolve 6, which states:

   By January 1, 2018, the Regional Water Boards shall adopt revised implementation plans, consistent with Water Code section 13242, for those groundwater basins within their regions where water quality objectives for salts are being, or are threatening to be, violated.

   However, current basin planning staffing resources would not enable the Regional Board to develop such plans. The regulated community must be required to provide the financial resources or additional resources would have to be given to the Regional Board in order to carry out this Resolve.

5. The Regional Board believes that Resolve 7(a) should be modified to provide clarification to the policy, so that the language coincides with the language on Page 2 of the staff report. The language should be modified to read as follows:

"(a) the development and implementation of a salts (including nitrates) management plans, for those groundwater basins that violate, or threaten to violate, water quality objectives".

6. The Regional Board supports Resolve 7(c), however the topography of the land and the soil type are factors which should also be taken into consideration when deciding the proper amount of recycled water to be applied, in order to minimize if not eliminate incidental runoff.

7. The Regional Board does not support Resolve 7(d) which requires that the following language we placed into waste discharge and water recycling requirements:

   The monthly average TDS concentration in the recycled water to not exceed the monthly average TDS concentration of the source water supply, plus 300 mg/l. The monthly average TDS concentration of the source water supply shall be the flow-weighted monthly average TDS concentration of the public water supply of the service area that generates sewage from which the recycled water is produced.

   This Resolve is not protective of groundwater objectives nor is it in line with the state's Antidegradation Policy (Resolution 68-16). For example, incoming water can be served as drinking water with a TDS concentration of 500 mg/L up to 1,500 mg/L (short term). The Resolve would allow recycled water to contain concentrations between 800-1800 mg/L. Groundwater basins in the Los Angeles Region typically have Basin Plan Objectives around 400-700 mg/L, and many have ambient groundwater concentrations well below the objective. Therefore high quality waters would not be protected. In addition, elevated TDS concentrations can typically be caused by high chloride concentrations. The Resolve does not explain how the chloride Basin Plan Objectives will be implemented, nor how the Antidegradation Policy will be implemented with respect to high salt concentrations.

8. The Regional Board does not support Resolve 7(e) (as it is currently stated) which requires that the following language we placed into waste discharge and water recycling requirements because it is ambiguous. If it is to account for irrigation return water from recycled water projects or ornamental pond overflow, then it should be stated as such:

   Compliance with the federal Code of Regulations, Chapter 40, Part 122, National Pollutant Discharge Elimination System;

9. The Regional Board has concern over the eleven-year "moratorium" for Regional Board's to require salt management measures for water recycling projects, other than those listed in Resolve 7. The time frame is excessive, and there could be possible conflicts with future salts TMDLs which consider all sources of salt loadings to a watershed.

10. The Regional Board does not support Finding 13 which states:

> *Furthermore, it is usually unreasonable to require groundwater monitoring for irrigation projects using recycled water because these projects generally pose a threat to water quality similar to irrigation projects using surface water or groundwater, for which groundwater monitoring is not required.*
>
> Nor does it support Resolve 8, as currently written, which states:
>
> *A Regional Water Board shall only require groundwater monitoring for a recycled water irrigation project if it determines that site conditions such as shallow groundwater could cause an increased potential for the irrigated site to adversely affect public health or surface water quality.*
>
> Resolve 8 should be rewritten so that it ends as follows:
> *...if it determines that site conditions such as shallow groundwater could cause an increased potential for the irrigated site to adversely affect public health, ~~or~~ surface water quality, or groundwater quality.*
> Health-based limitations, such as those for Total Dissolved Solids stated in our Comment No. 5, can exceed groundwater Basin Plan Objectives and can cause degradation to high quality groundwaters, and is not in conformance with antidegradation principles. A tiered approach to monitoring should be used, first looking at a mass balance equation to predict what the loss of assimiliative capacity in the groundwater would be, then some sort of trigger (such as 10% loss of assimiliative capacity) to determine if an Antidegradation Analysis is warranted, followed by groundwater monitoring to verify predictions. Only in this way is groundwater protected from long-term degradation.
>
> Further, Regional Board staff would like further clarification with respect to Resolve 13, because it is unclear as how to the "evaluation of the potential of a proposed groundwater recharge

reuse project to change the geochemical equilibrium of an aquifer" should be conducted.

11. The Regional Board does not support Resolve 16 which states:

Water recycling irrigation projects and groundwater recharge reuse projects that comply with this Policy, the Porter-Cologne Water Quality Control Act, and the applicable Basin Plan, shall be considered to have met the requirements of State Water Board Resolution No. 68-16.

We believe that this paragraph is ambiguous with respect to protecting Basin Plan Objectives, how to protect assimilative capacity of groundwater, and when an Antidegradation Analysis should be performed. Resolve 16 should be rewritten as follows, so that it requires compliance:

Water recycling irrigation projects and groundwater recharge reuse projects must comply with this Policy, the Porter-Cologne Water Quality Control Act, the applicable Basin Plan, and State Water Board Resolution No. 68-16.

12. The Regional Board finds that there is no analysis to support Finding 26.

13. The Regional Board believes that the policy or the staff report should remind all facilities applying for Water Recycling Requirements to file a petition to the State Water Board's Division of Water Rights for a change in the point of their discharge.

We hope that you will seriously consider our comments which we believe balance our agencies dual mandates in promoting recycling and protecting the water resources for the people and environments of California – which are both essential to our water supplies for the future.

We also appreciate having the opportunity to meet with you to discuss our concerns and constructive ideas, including those that resulted from our recycled water workgroup. We look forward to having these discussions in the near future. Should you have any questions, please contact me at (213) 576-6605 or Deb Smith, Chief Deputy Executive Officer, at (213) 576-6609.

Sincerely,

Tracy J. Egoscue
Executive Officer

Attachments: * List of Work Group Members
1. March 28, 2007, Meeting Agenda and Meeting Minutes
2. May 14, 2007, Meeting Agenda and Meeting Minutes
3. August 22, 2007, Meeting Agenda and Meeting Minutes
4. Summary of State Approaches to Second Tier Protection under Their Antidegradation Policies
5. Summary of Great Lakes Initiative Tier 2 Antidegradation Reviews
6. Determination of Criteria Requiring Antidegradation Analyses for Recycled Water Irrigation Projects (For Tier 2 Situations)

cc: Michael Levy, State Water Resources Control Board, Office of the Chief Counsel

Attachment *

List of Work Group Members

Persons That Have Attended the Recycled Water (Irrigation) Work Group Meetings

Tim Blair	Metropolitan Water District of Southern California
Stefan Cajina	California Department of Health Services
Vicki Conway	County Sanitation Districts of Los Angeles County
Evelyn Cortez-Davis	Los Angeles Department of Water and Power
Uzi Daniel	West Basin Municipal Water District
Paula Daniels	Commissioner, Los Angeles Board of Public Works
Gus Dembegiotes	City of Los Angeles, Bureau of Sanitation
Reni Keane-Dengel	Environment Now
Chi Diep	California Department of Health Services
Tracy Egoscue	Santa Monica Baykeeper
Phil Friess	County Sanitation Districts of Los Angeles County
Tatiana Gaur	Santa Monica Baykeeper
Mark Gold	Heal The Bay
Jill Gravender	Environment Now
David Hung	Los Angeles Regional Water Quality Control Board
Gordon Innes	State Water Resources Control Board
Hadi Jonny	Los Angeles Department of Water and Power
Bobbi Larson	WateReuse Association
Michael Levy	Los Angeles Regional Water Quality Control Board
Jim McDaniel	Los Angeles Department of Water and Power
Traci Minamide	City of Los Angeles, Bureau of Sanitation
Omar Moghaddam	City of Los Angeles, Bureau of Sanitation
Hoover Ng	Water Replenishment District of Southern California
Blythe Ponek-Bacharowski	Los Angeles Regional Water Quality Control Board
Dave Rydman	Los Angeles County Department of Public Works
Deborah Smith	Los Angeles Regional Water Quality Control Board
Jeff Stone	California Department of Health Services
William Van Wagoner	Los Angeles Department of Water and Power
Jose Vergara	Metropolitan Water District of Southern California

Attachment 1

March 28, 2007, Meeting Agenda and Meeting Minutes

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Recycled Water (Irrigation) Workgroup Meeting

Wednesday, March 28, 2007
2:00 PM to 4:30 PM
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Library

AGENDA

1. Introductions

2. Workgroup and current meeting objectives

3. Identifying Major Topics for Discussion
   - Permitting issues – end of pipe limits vs. gw monitoring
   - Integrated approaches to compliance
   - Triggers (emerging chemicals) – monitoring …to studies …to limits
   - Antidegradation issues

4. Next Steps
   - Time Frame/ Frequency of Meetings
   - Action Items

5. Adjournment

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MEETING MINUTES

The meeting was chaired by Deborah J. Smith, Chief Deputy Executive Officer, Los Angeles Regional Water Quality Control Board. We had a great turnout. All invited organizations attended. Participants included:

Timothy Blair	Metropolitan Water Districts of Southern California
Vicki Conway	County Sanitation Districts of Los Angeles County
Uzi Daniel	West Basin Municipal Water District
Paula Daniels	Commissioner, Los Angeles Board of Public Works
Gus Dembegiotes	City of Los Angeles, Bureau of Sanitation
Chi Diep	California Department of Health Services
Tracy Egoscue	Santa Monica Baykeeper
Jill Gravender	Environment Now
Mark Gold	(via phone), Heal The Bay
David Hung	Los Angeles Regional Water Quality Control Board
Gordon Innes	State Water Resources Control Board
Bobbi Larson	WateReuse Association
Jim McDaniel	Los Angeles Department of Water and Power
Traci Minamide	City of Los Angeles, Bureau of Sanitation
Hoover Ng	Water Replenishment District of Southern California
Blythe Ponek-Bacharowski	Los Angeles Regional Water Quality Control Board
William VanWagoner	Los Angeles Department of Water and Power

Introductions: The meeting began with introductions, with each participant identifying who they are and what their role and interests are in recycled water. A common theme throughout the introductions was that all participants wanted to further the use of recycled water use in the Region.

Recycled Water (Irrigation) Workgroup Meeting
Wednesday, March 28, 2007
Minutes

Workgroup and current meeting objectives: The Chair explained to the workgroup that the Regional Board, during the hearing on the Water Recycling Requirements for the Donald C. Tillman and Los Angeles-Glendale Water Reclamation Plants, directed that a workgroup was to be convened by the City of Los Angeles, environmental groups, and Regional Board staff, thoroughly vetting the issues with the Water Recycling Requirements permits. Staff was directed to bring the permits back to the Regional Board in 18 months, with hopes of resolving the issues raised with the City of LA permits and finding the best ways of regulating recycled water irrigation projects.

Key issues were identified as:

- Permit compliance issues – end of pipe limits vs. gw monitoring
- Integrated approaches to compliance
- Triggers (emerging chemicals) – monitoring ...to studies ...to limits
- Antidegradation issues

Permitting issues – end of pipe limits vs. gw monitoring: The workgroup began a discussion of this issue. The Chair explained that the Regional Board normally issues Water Recycling Requirements which apply Title 22 limits for priority pollutants and Basin Plan Objectives for salts, at the end-of-pipe and that this has not been problematic over the years. In the case of the City's permit, where there was such as disparity between discharge quality and ambient quality of the groundwater basin, the Regional Board allowed higher salt concentrations but included a companion groundwater monitoring to manage the salts in the future. The question was posed: *How do we monitor this type of irrigation project?*

Bill VanWagoner from the Los Angeles Department of Water and Power was concerned about the cost of monitoring wells, and that the cost may inhibit recycling projects.

Commissioner Daniels explained that there was a basin-wide comprehensive study in the Santa Ana Region that could serve as a model.

Vicki Conway from County Sanitation Districts of Los Angeles County indicated that they could not meet chloride Basin Plan Objectives in some of their projects.

Bobbi Larson of WateReuse indicated that a basin-wide approach, looking at all sources of chloride, including imported potable water, should be done-not just targeting recycled water inputs.

Recycled Water (Irrigation) Workgroup Meeting
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Bill VanWagoner from the Los Angeles Department of Water and Power explained the mass balance equation approach that was submitted for the Water Recycling Requirements for the Donald C. Tillman and Los Angeles-Glendale Water Reclamation Plants. He explained that the State Water Project water contains higher salt concentrations than the recycled water from the Plants (which has multiple sources, including Owens Valley). An increase in chloride will result irrespective of the use of recycled water for irrigation because of the quality of the imported water supply. He also looked at other projects that will be using stormwater to recharge groundwater basins, and that would completely offset any groundwater impacts from the use of recycled water. He said that because the East Valley Groundwater Recharge Project did not commence, the City needs to use recycled water for irrigation purposes.

Jill Gravender, Environment Now, asked whether the recycled water can be blended with the stormwater aboveground, before it is used for irrigation.

Vicki Conway from County Sanitation Districts of Los Angeles County explained that the comprehensive groundwater study in Region 8 was using a "sacrificial basin" to look at basin-wide effects from the application of all sources of water.

Hoover Ng, Water Replenishment District of Southern California, remarked that given enough time, there is mixing of all sources of water in the groundwater basins.

Uzi Daniel, West Basin Municipal Water District, does not believe that current irrigation practices using recycled water results in significant recharge to the groundwater, and that the use of best management practices in the use of recycled water would prevent any degradation from occurring.

Hoover Ng, Water Replenishment District of Southern California agreed, because current practice does not allow flood irrigation, which would cause more recharge.

Vicki Conway from County Sanitation Districts of Los Angeles described "parking" or buildup of salts in soil which has the potential to be driven into groundwater. She also stated that if the recycled water has less salts than imported potable water, then groundwater may actually benefit from the application of recycled water.

Chair Smith then asked the question "So if salt accumulates, how do we monitor it? How do we know that assimilation or "blending" is taking place without monitoring the groundwater?"

Recycled Water (Irrigation) Workgroup Meeting
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Bill VanWagoner from the Los Angeles Department of Water and Power said that we should rely on the mass balance calculation which predicts the worst case scenario. If we rely on groundwater monitoring, it may be too late before you will see groundwater changes over long-term application of recycled water.

Vicki Conway from County Sanitation Districts of Los Angeles asked whether the size of recycled irrigation projects affected the need for groundwater monitoring, and that an incremental approach might work.

Mark Gold, Heal the Bay, asked the group on what amount of change in the chloride quality would concern them.

Bill VanWagoner from the Los Angeles Department of Water and Power answered "over 250 mg/L".

Jim McDaniel from the Los Angeles Department of Water and Power explained that they look at groundwater quality in the terms of providing drinking water.

Bill VanWagoner from the Los Angeles Department of Water and Power said that DWP was trying to use other preferential sources of water (such as the aqueduct) to minimize salt impacts to the groundwater basins.

Mark Gold, Heal the Bay was concerned with the answer to his question (i.e. seemingly no concerns of degradation up to 250 mg/L).

Bill VanWagoner from the Los Angeles Department of Water and Power explained the changes to chloride concentrations in the groundwater that would be expected over time as a result of 10, 000 acre-feet per year application of recycled water for irrigation.

Uzi Daniel, West Basin Municipal Water District, stated that a purveyor must look at water quality in the context of Title 22 drinking water standards but she would not want to see increasing trends in the groundwater.

Mark Gold, Heal the Bay remarked that production wells are being monitored anyway, so why couldn't that data be used to monitoring chloride.

Bill VanWagoner from the Los Angeles Department of Water and Power explained that existing production wells in the Glendale area could not be used to monitoring the application sites there as they were too far away. He stated that the number one imported source of chloride is from the State Water project.

Recycled Water (Irrigation) Workgroup Meeting
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Mark Gold, Heal the Bay stated that during early discussions regarding the quality of imported water that water producers were generally not part of the discussions.

Chair Smith said that 18 years ago, when regional salt management issues came up, we couldn't get purveyors to attend the early salt workshops. She also stated that the federal anitdegradation policy only allows a small (example approaches utilize a 10% cap) increase of a pollutant.

Timothy Blair, Metropolitan Water Districts of Southern California, said that MWD has looked at salt management. The key is determining long term plans. MWD is looking at a 20-year time frame.

Chair Smith indicated that a followup meeting just on this subject will be needed. She asked if the purveyors could map out where the recycling projects are, and where we expect the most growth to occur, and evaluate how best to implement groundwater monitoring given this information.

Vicki Conway from County Sanitation Districts of Los Angeles County said that they may have such a map for their recycling projects.

Uzi Daniel, West Basin Municipal Water District, said that they may have information on landscape irrigation sites.

Traci Minamide, City of Los Angeles, Bureau of Sanitation wanted to know how you could account for chloride loading from other sources.

Bill VanWagoner from the Los Angeles Department of Water and Power said that the focus should be on larger users.

Hoover Ng, Water Replenishment District of Southern California, explained that 30,000 to 40,000 acre-feet per year of recycled water is produced by County Sanitation Districts of Los Angeles County for irrigation, and 300,000 acre-feet per year recycled water is produced by the City of Los Angeles for irrigation. We should be looking at the big picture and what are the largest sources of chloride.

Bobbi Larson of WateReuse said that we should be looking at what is the reasonable future trend. What happens if potable water is replaced by recycled water?

Uzi Daniel, West Basin Municipal Water District, stated that it should be taken into account how the recycled water is being used and irrigation practices.

Recycled Water (Irrigation) Workgroup Meeting
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Chair Smith said that we should look at the cost in not protecting the groundwater basins from salt loading.

Bobbi Larson of WateReuse said that MWD looked at the economic impacts.

Timothy Blair, Metropolitan Water Districts of Southern California, said that a Salinity Management Study was conducted.

Uzi Daniel, West Basin Municipal Water District, stated that the Southern California Salinity Coalition conducted studies after obtaining grants.

Chair Smith addressed the Region 8 Study, and indicated that it was a large investment up-front, but is protective and allows flexibility. "It is something to think about for Region 4."

Timothy Blair, Metropolitan Water Districts of Southern California, said that the Region 8 study primarily concerns aquifer augmentation projects and not irrigation.

Bill VanWagoner from the Los Angeles Department of Water and Power opined that we don't need a Santa Ana type study to set up a control area to provide data that can be obtained through production well data, monitoring wells, and other information.

Chair Smith stated that the Region 8 extensive monitoring and management plans allow for more flexible use of water.

Tracy Egoscue, Santa Monica Baykeeper, asked that if private money, say $10,000 would be available, would the purveyors be willing to cooperate and get their groundwater data into a central database.

Uzi Daniel, West Basin Municipal Water District, stated that it would cost more than that.

Timothy Blair, Metropolitan Water Districts of Southern California, opined that we should not call out recycled water as a "whipping boy". We should be looking at the overall resource management. If a baseline study with a projection of 100 years were made, would the water quality really change? It is somewhat of a curse that the San Fernando Basin water quality is so good. The Basin is evolving. There is a progression, and there will be impacts from bringing in imported supplies.

Recycled Water (Irrigation) Workgroup Meeting
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Vicki Conway from County Sanitation Districts of Los Angeles County stated that it may not be necessary to do a study, but that a mass balance approach could be used for smaller projects.

Tracy Egoscue, Santa Monica Baykeeper believes that an Antidegradation Analysis should have been performed before the WRRs for Tillman and LAG were issued. The Analysis should be done now in a way that everyone can live with.

Chair Smith said that we should get a baseline indication of groundwater quality so that the basin will not be compromised, but in an effort that the recyclers can live with. We should try to avoid a crisis. How can we reach agreement on a reasonable approach?

Timothy Blair, Metropolitan Water Districts of Southern California, said that there could be a pilot study assigning assimilative capacity and monitor using existing wells.

Bill VanWagoner from the Los Angeles Department of Water and Power said that the City has 7,000 miles of potable pipelines, pumps, tanks and reservoirs. They cannot deliver recycled water everywhere.

Tracy Egoscue, Santa Monica Baykeeper, believes that in the future, all sources of water will be from recycled water.

Bill VanWagoner from the Los Angeles Department of Water and Power replied that it would have to undergo advanced treatment with reverse osmosis.

Tracy Egoscue, Santa Monica Baykeeper, Stated that the water districts have to stop saying "it is just a couple of golf courses". They need good public relations and reassure the public that irrigation with recycled water is not causing a problem.

Jill Gravender, Environment Now asked the question, "How do we deal with these permits now?"

Vicki Conway from County Sanitation Districts of Los Angeles County said that recycled water will never be delivered directly to homes- will be by indirect potable use. Also, it costs too much to get in the infrastructure for delivering recycled water.

Timothy Blair, Metropolitan Water Districts of Southern California, said that from the time you sign a contract and deliver the recycled water, 8 to 10 years have lapsed. It is easier to bring in water from other sources.

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Hoover Ng, Water Replenishment District of Southern California believes that we should look at the assimilative capacity of the aquifer and monitor trends with existing production wells. We can look at water quality on an aquifer basis and monitor with existing resources.

Jill Gravender, Environment Now, stated that we will eventually need groundwater basin information and management information for recharge projects.

Timothy Blair, Metropolitan Water Districts of Southern California, said that the City of Los Angeles will be using an additional 10,000 acre-feet per year recycled water for irrigation.

Hoover Ng, Water Replenishment District of Southern California, asked "what % of 10,000 acre-feet per year is the entire water use?"

Bill VanWagoner from the Los Angeles Department of Water and Power answered that it is 10% at the most optimistic use.

Chair Smith asked "What are the plans for the future of recycled water in the region?"

Uzi Daniel, West Basin Municipal Water District, said that there would be more concrete and the need for less irrigation.

Timothy Blair, Metropolitan Water Districts of Southern California, said that dual-plumbed systems will be common.

Bill VanWagoner from the Los Angeles Department of Water and Power said that new developments could plan for using recycled water.

Timothy Blair, Metropolitan Water Districts of Southern California, said that we will need 150,000 acre-feet per year in Southern California. Plans call for an additional 100,000 acre-feet, with a total of 550,000 acre-feet regionwide along with desalination.

Tracy Egoscue, Santa Monica Baykeeper, discussed the difference in the classification of recycled water (waste) vs. potable water (not a waste). She believes that an antidegradation analysis should be conducted, and then we should move forward.

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Bill VanWagoner from the Los Angeles Department of Water and Power said that during stakeholder meetings, there would still be a "toilet to tap" mentality, but that people should become aware that "water is water".

Tracy Egoscue, Santa Monica Baykeeper, agreed, and said that Santa Monica baykeeper will attend DWP's future stakeholder meetings in support of recycled water projects.

Bill VanWagoner from the Los Angeles Department of Water and Power said that the City would use recycled water for irrigation use and send the remainder to spreading grounds.

Tracy Egoscue, Santa Monica Baykeeper, said that Heal the Bay, Santa Monica Baykeeper, and Environment Now will all support recharge projects using recycled water.

Chair Smith explained that after an anitdegradation analysis has been conducted, a small increase (e.g. 10%) in chloride could be justified. But some monitoring may be required. In addition, the mass balance analysis should be conservative.

Tracy Egoscue, Santa Monica Baykeeper, said that the law doesn't care about who is responsible and we should look at all sources of chloride pollution.

Bobbi Larson of WateReuse thought that there could be a tiered approach, such as if there was a greater than 10% change in water quality was predicted by the mass balance approach, then an antidegradation analysis might be required.

Jill Gravender, Environment Now, inquired if a surrogate basin could be monitored as a simple case study.

Bill VanWagoner from the Los Angeles Department of Water and Power said that it would be difficult to find an existing production well near Tillman because of a clay layer in the groundwater basin.

Vicki Conway from County Sanitation Districts of Los Angeles County remarked that we could look at Legg Lake because recycled water was being used there.

Timothy Blair, Metropolitan Water Districts of Southern California, said that there should be a reasonable expectation that there will not be a production well in the way of the observation wells.

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Bill VanWagoner from the Los Angeles Department of Water and Power said that DWP looked at modeling in the coarse sediment areas of the San Fernando Valley which would be the worst-case scenario for transport of chloride.

Jill Gravender, Environment Now asked three questions: "What would an antidegradation analysis look like? Is there a need for some regional monitoring? How do we market recycled water?" She remarked that even if these questions were looked at, it still does not answer the issues in the Tillman and LAG WRRs.

Gordon Innes, State Water Resources Control Board told the group that the state Antidegradation Policy has some exemptions such as demonstrating "benefit to the people of the state". But that there cannot be exceedances of any Basin Plan Objectives, and that the discharger must implement best practicable control treatment and pay for the cost of treatment.

Bill VanWagoner from the Los Angeles Department of Water and Power said that the City will not pay the price to RO the wastewater and still pay for purple pipe infrastructure. If RO was employed, then the recycled would be recharged.

Tracy Egoscue, Santa Monica Baykeeper said that we should not discourage the use of recycled water but that an antidegradation analysis should be conducted.

Next Steps: The next steps were discussed by the group. It was decided that there would be three separate future meetings to discuss 1) Antidegradation; 2) groundwater monitoring; and 3) triggers. Given the discussions at this meeting and the keen interest in knowing how antidegradation would guide and provide boundaries for other decisions we make along the way, it was decided that this would be the primary focus of the next meeting. In addition, the major generators of recycled water would bring maps, where available, so we could start discussing the geography of reuse areas and future trends.

Action Items:

1) Vicki Conway, County Sanitation Districts of Los Angeles County and Bill VanWagoner from the Los Angeles Department of Water and Power will bring any maps that they may have depicting where recycled water is used for irrigation. Uzi Daniel may also be able to provide some maps.

2) Bobbi Larson of WateReuse will develop a draft schematic for a tiered antidegradation approach to regulating recycled water for irrigation for discussion.

Recycled Water (Irrigation) Workgroup Meeting
Wednesday, March 28, 2007
Minutes

3) Timothy Blair, Metropolitan Water Districts of Southern California, will arrange for a conference room at MWD for the next meeting.

Next meeting: Monday, May 14, 2007 Noon to 3 PM at
Metropolitan Water Districts of Southern California

Adjournment: The meeting was then adjourned.

Minutes prepared by B. Ponek-Bacharowski

Attachment 2

May 14, 2007, Meeting Agenda and Meeting Minutes

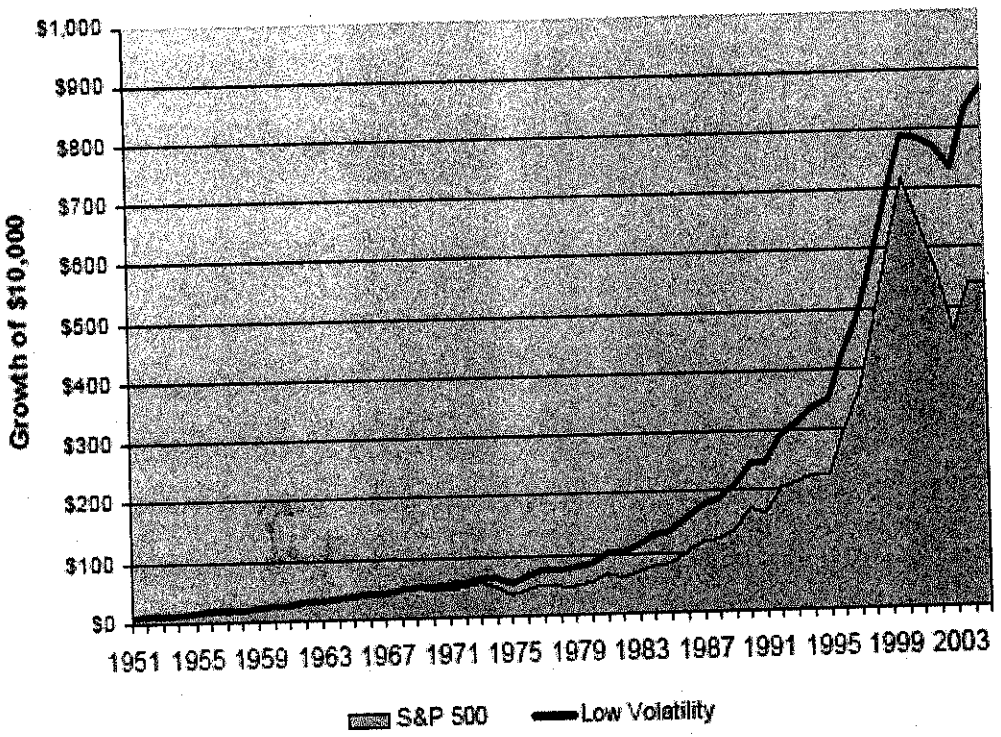
Morgan Stanley

Over the period from 1951 to September 1, 2004, the average annual return of the S&P 500 has been 8.9% with a standard deviation of 15.2%.

$10,000 invested in this market proxy over this period would be worth $539,898 today.

An investment similarly averaging 8.9% but with half the volatility of the S&P 500 over this time period would be worth $868,033 today. Over 60% more.

Lower Volatility Equals More Money Over Time



$868,033

~60% Improvement

$539,892

1. Hedge Fund Research, Inc. © HFR, Inc. 2Q-07.

California Regional Water Quality Control Board
Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Linda S. Adams
Cal/EPA Secretary

Arnold Schwarzenegger
Governor

Recycled Water (Irrigation) Work Group Meeting
Monday, May 14, 2007
12:00 Noon to 3:00 PM
Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012-2944

AGENDA

1. Introductions
2. Review of Meeting minutes from the March 28, 2007 kick-off meeting
3. Antidegradation
   - Antidegradation 101
   - State Board Resolution No. 68-16 and the federal antidegradation policy
   - Ambient water quality, water quality objectives, de minimis degradation, and maximum benefit to the people of the state
   - Discuss tiered approach(es) to implementing antidegradation
   - Relationship to monitoring needs
4. Geographic depiction of current and projected irrigation re-use projects
5. Next Meeting

6. Action Items

7. Adjournment

California Regional Water Quality Control Board
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Linda S. Adams
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Recycled Water (Irrigation) Workgroup Meeting
Monday, May 14, 2007
12:00 Noon to 3:00 PM
Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles CA 90012-2944
Room 1-101

MEETING MINUTES

The meeting was chaired by Deborah J. Smith, Interim Executive Officer, Los Angeles Regional Water Quality Control Board. Participants:

Timothy Blair	Metropolitan Water District of Southern California
Stefan Cajina	California Department of Health Services
Vicki Conway	County Sanitation Districts of Los Angeles County
Uzi Daniel	West Basin Municipal Water District
Paula Daniels	Commissioner, Los Angeles Board of Public Works
Gus Dembegiotes	City of Los Angeles, Bureau of Sanitation
Chi Diep	California Department of Health Services
Tracy Egoscue	Santa Monica Baykeeper
Jill Gravender	Environment Now
Mark Gold	Heal The Bay
David Hung	Los Angeles Regional Water Quality Control Board
Gordon Innes	State Water Resources Control Board
Bobbi Larson	WateReuse Association (by phone)
Michael Levy	Los Angeles Regional Water Quality Control Board
Traci Minamide	City of Los Angeles, Bureau of Sanitation
Hoover Ng	Water Replenishment District of Southern California
Blythe Ponek-Bacharowski	Los Angeles Regional Water Quality Control Board
William VanWagoner	Los Angeles Department of Water and Power
Jose Vergara	Metropolitan Water District of Southern California

Introductions: The meeting began with introductions, and lunch graciously provided by Metropolitan Water District of Southern California.

Recycled Water (Irrigation) Workgroup Meeting
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Chair Deborah J. Smith recapped the March 28, 2007 initial meeting of the Work Group where the group elected to take up the subject of Antidegradation as its first discussion topic for the next, subsequent meeting. She gave a brief overview of the concept behind both State and federal Antidegradation Policies, and current activities involving what other States are doing in implementing their policies. She explained that Water Quality Standards are adopted in conformance with the State's Antidegradation Policy, Resolution No. 68-16, which was adopted by the State before the Clean Water Act was enacted. The State Policy must be at least as stringent as the provisions of the federal Antidegradation Policy, and covers groundwater as well as surface waters. She explained the various Tiers of water quality protection under the federal policy:

Tier 1 Water: Waters that just meet water quality standards;
Tier II Water: Waters where the ambient water quality is better than the water quality standards; and
Tier III Water: Outstanding natural waters (such as Lake Tahoe).

She said that there was a renewed interest in Antidegradation across the county.

Uzi Daniel, West Basin Municipal Water District asked "What is an Antidegradation Analysis?"

Chair Deborah J. Smith explained that an Antidegradation Analysis can range from a simple mass balance type evaluation to a full-blown economic analysis. She said that the Regional Board had discretion in certain areas and could follow a step-like procedure.

The USEPA Great Lakes Initiative/Group Study on Antidegradation reached a consensus that up to a 10% decrease in the assimilative capacity of a surface water body with a 20 % cumulative cap (15 % for bioaccumulative pollutants) would be considered to be non-substantive, would be protective of the beneficial uses of the waterbody, and would be in conformance with antidegradation policies.

Some states utilize a finite percentage; others have some leeway in certain circumstances; others establish a 2 ½ Tier (between Tier 2 and Tier 3) and draw an absolute line which cannot be degraded further.

Timothy Blair, Metropolitan Water Districts of Southern California, asked "What is the highest level you could assign in the percent of assimilative capacity lost. Any priority ranking for certain projects that would be in the best interest of the public?"

Chair Deborah J. Smith said that this issue would fall into a consideration of "the maximum benefit to the people of the State" provision of Resolution No. 68-18.

Mark Gold, Heal the Bay, asked if the information about what other states are doing has been written up by USEPA, and if the Regional Board could provide a couple of examples of how other states implement their Antidegradation Policies.

Chair Deborah J. Smith agreed to provide some information on what certain states were doing, and the item was marked as an action item.

Hoover Ng, Water Replenishment District of Southern California asked if the Regional Board had any examples of an Antidegradation Analysis being conducted in the Region.

Chair Deborah J. Smith said that there were none done in the Region at the level being discussed today. She was not sure about statewide.

Gordon Innes, State Water Resources Control Board, said that typically, a full-blown economic analysis is not done. He asked if other states had applied their Antidegradation Policies to groundwater.

Chair Deborah J. Smith said that some states allow localized degradation in a "containment zone"- like approach.

Vicki Conway from County Sanitation Districts of Los Angeles County, said that she believes that an Antidegradation Analysis was performed when the Districts applied for a chloride variance. She would look into it.

Commissioner Paula Daniels asked about the Regional Board's discretion in the Antidegradation Analysis.

Chair Deborah J. Smith explained that the state's Antidegradation Policy covers both surface and groundwaters, and that the federal Antidegradation Policy covers only surface waters. But since we have a model for Antidegradation under the Clean Water Act for surface waters, that one can apply the same concepts to groundwater. What needs to be decided is what bars must be met.

Commissioner Paula Daniels asked "where can we find the application to groundwater."

Recycled Water (Irrigation) Workgroup Meeting
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Jill Gravender, Environment Now states that under the federal Antidegradation Policy the states can adopt their own policies. She asked if there is enough guidance for the state, and has the state defined what "significant" degradation is.

Chair Deborah J. Smith indicated that the 10% threshold was considered to be less than significant by the interested parties in the Great Lakes Initiative.

Gordon Innes, State Water Resources Control Board, said that if a discharge degrades the water quality a little, then an Antidegradation Analysis is triggered. That Analysis will determine if there are any impacts on beneficial uses. He thought that if there are no impacts on beneficial uses, then the Antidegradation Policy is not triggered.

Bobbi Larson of WateReuse mentioned that there was a 1990 State Board guidance for Regional Board staff.

Chair Deborah J. Smith said that the guidance document that was made part of the Administrative Procedures Manual, talks about a continuum and does not specify when you start nor when a full Antidegradation Analysis is triggered. It addressed primarily Antidegradation in the context of NPDES permitting actions.

Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board, said that the NPDES permits contained only a cursory discussion on Antidegradation.

Michael Levy, Los Angeles Regional Water Quality Control Board, indicated that there have been comments from environmental groups regarding the adequacy of the Regional Boards' Antidegradation policy compliance. Also, what a "significant change in water quality has regional differences. He explained what "inappropriate differences or inconsistencies" between Regional Boards would be.

Chair Deborah J. Smith said that the subject of antidegradation might be something that the Board should be briefed on and reminded the group that "assimilative capacity" in itself is a beneficial use.

The topic then turned to Bobbi Larson's straw man proposal.

Bobbi Larson, WateReuse indicated that her straw man proposal for a tiered Antidegradation approach was limited to irrigation projects, and that most recycled water projects will fit under the first couple of scenarios/categories of potential impact (no impact and de minimis impact). The goal was to come up with some strategy that does not expend resources, and to provide a framework that is relatively easy to follow. WateReuse believes that just looking at an individual recycled water project's

impact is not a good approach. We need to be looking at all sources of water entering a groundwater basin. She then went over the scenarios on the document that was handed out:

First scenario: No impact. We should be looking at the quality of water. No groundwater monitoring would be required under this scenario.

Second scenario: De minimis impact. This is like the City of L.A.'s project. They need to demonstrate that there will be little risk-some showing of that.

Third scenario: Greater than de minimis impact. This is where a large portion of assimilative capacity will be used up. They need to look at long term impacts, and perform a cost-benefit analysis.

Tracy Egoscue, Santa Monica Baykeeper, asked how we define "impacts".

Gordon Innes, State Water Resources Control Board, asked how do we approach this in a regional way?

The focus then turned to a presentation by Vicki Conway, County Sanitation Districts of Los Angeles County, titled "Salinity Assessment of Recycled Water Irrigation Use on Underlying Groundwater Basins". During the powerpoint presentation, there were some discussions/questions regarding the information being presented. The conclusions of the presentation were generally that there was little impact to groundwater quality as a result of the recycled water use, or that it was too soon for any impacts to be seen.

Jill Gravender, Environment Now, asked "how often do you (County Sanitation Districts) do this analysis and how much effort did it take?

Vicki Conway from County Sanitation Districts of Los Angeles County indicated that they had never done such an analysis before, and that she had one person full-time looking at the information since the first meeting of the Work Group.

Bill VanWagoner from the Los Angeles Department of Water and Power said that what County Sanitation Districts had done was to perform the same type of analysis as he did looking at all sources of water, including stormwater, and came up with the same finding that there was de minimis impacts to the groundwater.

Chair Deborah J. Smith asked about how often should we look at this type of analysis, and do we look at monitoring well data to track water quality changes over time?

Vicki Conway from County Sanitation Districts of Los Angeles County replied that once during each permitting cycle might be adequate.

Bill VanWagoner from the Los Angeles Department of Water and Power said that water quality is changing over time because sources of water are constantly changing. He gave the example of how less groundwater than anticipated will be used this year because of contamination in wells in the San Fernando Valley Groundwater Basin.

Gordon Innes, State Water Resources Control Board, asked about the conclusions of Vicki's presentation. He cited two possible conclusions:
1) Recycled water has not reached groundwater; or
2) Soils are somehow attenuating the pollutants.

Vicki Conway from County Sanitation Districts of Los Angeles County replied that sodium can be used as a tracer to track the movement of recycled water in the groundwater.

Jill Gravender, Environment Now, asked if we used the straw man proposal and looked at blended water from all sources, would it go over the 10% decrease in the assimilative capacity of the groundwater?

At this point, the discussion turned to the expanded Table.

Hoover Ng, Water Replenishment District of Southern California asked what is the meaning of the term "ambient water quality", and at what point in time are we defining it?

Chair Deborah J. Smith said that it is the background ground water quality starting now.

Mark Gold, Heal the Bay asked if the group was just focusing on salts. "What about other constituents?"

Bill VanWagoner from the Los Angeles Department of Water and Power said that the scheme could be used for other constituents.

Chair Deborah J. Smith said that the discussion of triggers would be the topic for a future meeting.

Jill Gravender, Environment Now expressed concern that we are solely focusing on groundwater impacts from the use of recycled water for irrigation. Surface waters

can be impacted, and we must be knowledgeable about those impacts on water quality.

Chair Deborah J. Smith asked the group how can we capture data on a regional basis to confirm that the magnitude of impact on groundwater quality by applying recycled water.

Bill VanWagoner from the Los Angeles Department of Water and Power said that what is needed is a data clearinghouse. Maybe we could get a student to compile the data, then we could begin following trends. This effort may place a resource burden on the recyclers so that recycled water use would be inhibited.

Chair Deborah J. Smith commented that maybe we could just fill in some data gaps.

Jill Gravender, Environment Now said that Environment Now has a student coming in for three months, and they could volunteer a talented graduate student to perform this task.

Vicki Conway from County Sanitation Districts of Los Angeles County suggested that we could identify certain wells to look at groundwater quality trends.

Gordon Innes, State Water Resources Control Board said that impacts to water quality will also occur by the use of imported water. An example would be a farm using State Water Project water-this could impact groundwater.

Chair Deborah J. Smith commented that both Vicki's and Bill's analyses looked at those impacts.

Bill VanWagoner from the Los Angeles Department of Water and Power said that there were few opportunities in Los Angeles to use recycled water over large areas, because there is not a lot of agricultural use. DWP's analysis looked at outdoor use (fertilizers used, etc.). 10,000 acre-feet per year is tops for recycled water use in the San Fernando Valley.

Vicki Conway from County Sanitation Districts of Los Angeles County said that we must look at incremental impacts, while at the same time as looking at the maximum benefits.

Timothy Blair, Metropolitan Water District of Southern California said that recycled water quality is better than that of State Water Project water.

Recycled Water (Irrigation) Workgroup Meeting
Monday, May 14, 2007
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Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board, opined that the use of salt management plans will help us account for the interaction of all water uses and aid in protecting the groundwater basins.

Mark Gold, Heal the Bay said that we should move to looking at the detailed approach that we will take. Also, what is de minimis mean? He asked if the group was comfortable with the threshold of 10 %.

Commissioner Paula Daniels asked if we are looking at Bobbi's straw man proposal, or the expanded one?

Chair Deborah J. Smith suggested that we go back to the key issue of whether the 10% threshold was acceptable to the group. Also, if there should be a cap, and if we were only looking at salts.

Tracy Egoscue, Santa Monica Baykeeper asked if the group was equating the 10% threshold with a "de minimis" impact, because de minimis is a legal term that means essentially no measurable impact. She did not like the use of this term.

Michael Levy, Los Angeles Regional Water Quality Control Board, agreed and stated that de minimis is a very specific legal term that really should not be used in the context of a 10% change.

Mark Gold, Heal the Bay asked the group if they were comfortable with using up 10% of the assimilative capacity of the groundwater.

Chair Deborah J. Smith stated that at the hearing (for the WRRs for LAG and Tillman) we said that any measurable trend would trigger additional investigation/studies.

Tracy Egoscue, Santa Monica Baykeeper opined that the 10% threshold should be pollutant-specific.

Chair Deborah J. Smith stated that we are talking about the City of L.A.'s permits, but also looking at a broader picture.

Bill VanWagoner from the Los Angeles Department of Water and Power asked "10% of what? Do you look at a change in the assimilative capacity of the groundwater, or a 10% increase in the concentrations in recycled water?"

Chair Deborah J. Smith said that it was a 10% consumption of the assimilative capacity.

Timothy Blair, Metropolitan Water District of Southern California opined that the amount of potable water conserved by the use of recycled water should be considered.

Mark Gold, Heal the Bay replied back "You are assuming that if you exceed the 10 % assimilative capacity, then a strict prohibition will be imposed."

Michael Levy, Los Angeles Regional Water Quality Control Board said that after we decide that there is an antidegradation issue, then we need to move into other triggers and actions.

Timothy Blair, Metropolitan Water District of Southern California said that we should set up our required actions in a decision tree-type format.

Chair Deborah J. Smith asked the group if there should be a different level of analysis between the "no impact" and the "de minimis" impacts scenarios.

Jill Gravender, Environment Now asked about permitting requirements. She wondered if the Regional Board could require an analysis be submitted by the discharger, and what responsibilities would be for delineated for the Regional Board.

Chair Deborah J. Smith said that the project proponents should do their analysis and monitoring collectively, and that maybe there could be monitoring outside of the permitting process.

Timothy Blair, Metropolitan Water District of Southern California asked if he could convert the expanded Table into a flowchart, and then began on converting it.

Chair Deborah J. Smith moved the discussion back to Tracy's question about the 10% threshold.

Mark Gold, Heal the Bay stated that we were looking at the water quality objective minus the ambient concentration. If it exceeds 10% of that, the discharge would trigger additional actions. We need to figure out what those actions would be.

Gordon Innes, State Water Resources Control Board asked on what basis would that be, project-wide or basin-wide?

California Regional Water Quality Control Board

Los Angeles Region

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Linda S. Adams
Cal/EPA Secretary

Arnold Schwarzenegger
Governor

Recycled Water (Irrigation) Workgroup Meeting

Wednesday, August 22, 2007
12:30 PM to 3:00 PM
at
West Basin Municipal Water District-Second Floor
17140 South Avalon Blvd.
Carson, CA 90746

MEETING MINUTES

The meeting was chaired by Deborah J. Smith, Interim Executive Officer, Los Angeles Regional Water Quality Control Board. Participants:

Evelyn Cortez-Davis	Los Angeles Department of Water and Power
Uzi Daniel	West Basin Municipal Water District
Paula Daniels	Commissioner, Los Angeles Board of Public Works
Gus Dembegiotes	City of Los Angeles, Bureau of Sanitation
Reni Keane-Dengel	Environment Now
Tracy Egoscue	Santa Monica Baykeeper
Phil Friess	County Sanitation Districts of Los Angeles County
Tatiana Gaur	Santa Monica Baykeeper
Mark Gold	Heal The Bay
David Hung	Los Angeles Regional Water Quality Control Board
Hadi Jonny	Los Angeles Department of Water and Power
Bobbi Larson	WateReuse Association
Omar Moghaddam	City of Los Angeles, Bureau of Sanitation
Blythe Ponek-Bacharowski	Los Angeles Regional Water Quality Control Board
Dave Rydman	Los Angeles County Department of Public Works
Jeff Stone	California Department of Health Services
William Van Wagoner	Los Angeles Department of Water and Power

Introductions: The meeting began with introductions, and lunch graciously provided by West Basin Municipal Water District.

Chair Deborah J. Smith suggested that Hadi Jonny give his presentation on the San Fernando Valley Groundwater Basin first.

The attention then turned to Hadi Jonny's, Los Angeles Department of Water and Power, presentation. (The presentation is attached).

Hadi Jonny, Los Angeles Department of Water and Power explained that each production well from the Tujunga Wellfield, located east of the 405 freeway, could produce 4500 gpm because the underlying sediments are made up of coarse alluvial materials that readily transmit groundwater. West of the 405 freeway the underlying alluvium is made up of a tight formation with much clay material, which is much less transmissive. This is why the production wells are all located east of the 405 freeway.

At the Woodley/Sepulveda Dam basin, first water is encounter at a perched clay zone located approximately 18-20 feet below ground surface (bgs), with the deeper, more regional groundwater aquifer being located at approximately 120-150 feet bgs.

The general flow direction of the regional aquifer is from the northwest to the southeast, where it move through the Glendale Narrows to the Los Angeles Coastal Plain Groundwater Basin.

Groundwater estimated travel time from the Sepulveda Dam basin to the nearest production well (Well #7) is approximately 60 years.

From the well information that regional Board staff provided, one well, 3732A, may be a potential candidate for use as a monitoring well since it has a 12-inch diameter casing.

He then explained that the chloride groundwater objectives from the Regional Board's Basin Plan are: East of 405, 100 mg/L; West of 405, 100 mg/L; and above Verdugo Fault, 50 mg/L.

He then described the mass balance analyses for chloride using different scenarios with all sources of water applied to the ground, and those with the absence/presence of recycled water and stormwater infiltration. These scenarios and their respective mass balance outcomes/projected change in assimiliative capacities are described in detail on each of the attached presentation slides.

He also described the PCE and chromium plumes in the San Fernando Valley Groundwater Basin, and that the plumes may mean less pumping (and water supply) from the production wells that are nearby the plume.

Bill Van Wagoner from the Los Angeles Department of Water and Power outlined the plans for increased recycled water use for the City of Los Angeles pursuant to the City's Integrated Resource Plan (IRP). He explained that there are two options for DWP: 1) either expand the recycled water usage/infrastructure using tertiary

treated water; or 2) Use reverse osmosis advanced treatment to the wastewater and use it for groundwater recharge.

He explained that a mass balance was not performed looking at expanded recycled water use for irrigation. But he believes that if the City of Los Angeles exercised the option of advanced treatment of the wastewater and groundwater recharge, then groundwater quality should improve.

He also stated that future State funds will only be granted for projects that have integrated water management plans.

At this time, the presentation ended, and **Chair Deborah J. Smith** continued with the next agenda matter – matrix on states' approaches to Tier II Antidegradation.

Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board summarized what Regional Board staff found in regards to what other states are doing to implement their Antidegradation Policies in regards to Tier II waters. (Summary is attached).

Chair Deborah J. Smith continued with the next agenda matter – Great Lakes Initiative.

David Hung, Los Angeles Regional Water Quality Control Board summarized the Great Lakes Initiative and how the assimiliative capacity of the Great Lakes with respect to bioaccumulative and other pollutants is being protected. (Summary is attached.)

Bill Van Wagoner from the Los Angeles Department of Water and Power said that 10,000 acre-feet per year would be the maximum amount of recycled water use for irrigation at Hansen Dam and Sepulveda Dam recreation areas, and at Los Angeles Pierce College. He said that DWP is "stalling" on adding new recycled water delivery pipelines until the decision was made on recharge vs. recycled water irrigation to avoid unnecessary expenditure.

Commissioner Paula Daniels said that what is needed is State and federal funding for public outreach, infrastructure, and standardized regulations in order to promote the use of recycled water.

Gus Dembegiotes, City of Los Angeles, Bureau of Sanitation asked about the proposed distribution of recycled water for new projects applied in the San Fernando Valley.

Bill Van Wagoner from the Los Angeles Department of Water and Power explained that approximately 2000 acre-feet per year would be used in the Sepulveda Dam basin; 1500 acre-feet per year in three other projects; and 500 acre-feet at Hanson Dam.

Chair Deborah J. Smith continued with the next agenda matter – a flow sheet for determination of criteria requiring an Antidegradation Analysis for recycled water irrigation use.

Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board summarized aspects of the flow sheet, and how a cap would be used. (Flow sheet is attached).

Chair Deborah J. Smith said that the flowchart allowed the city project to go forward and since it was such an extreme example, it was likely that most projects would proceed with only a mass balance. She said that our proposed process (flowchart) was not intended to be a barrier, but was a way to manage the protection of our resources.

The Workgroup generally discussed the flowsheet with each other and there was a general consensus that this type of approach was workable. It was agreed that other projects that were sources of salts coming into the basins should also be accounted for on the flowsheet.

Bill Van Wagoner from the Los Angeles Department of Water and Power said that imported water could edge recycled water out if it continued to contain higher and higher concentrations of salt and there was a finite cap on loss of groundwater assimiliative capacity.

Commissioner Paula Daniels said that the idea for building a peripheral canal in California is being considered.

Chair Deborah J. Smith said that what is really needed is an integrated approach to salinity management, and there was a general consensus by the work group that this approach is needed.

Bill Van Wagoner from the Los Angeles Department of Water and Power indicated that next summer we will likely see drought conditions and mandatory water rationing.

Uzi Daniel, West Basin Municipal Water District said that the flow sheet would probably work for larger purveyors of recycled water (probably 80% of recycled water projects), but it might cause a problem for smaller projects.

Bobbi Larson, WateReuse Association said that we should consider regional issues.

Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board asked "How do we verify or monitor predictions made by the mass balance analysis?"

Chair Deborah J. Smith said that monitoring should be the topic for the next work group meeting.

Phil Friess from County Sanitation Districts of Los Angeles County thought that basin-wide monitoring may be a good and reasonable approach for larger projects.

Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board agreed that we should be focusing on basin-wide impacts.

Bill Van Wagoner from the Los Angeles Department of Water and Power said that DWP got their data to look at basin-wide impacts by using already in-place monitoring wells or production wells.

Tracy Egoscue, Santa Monica Baykeeper asked what the definition is of a "small project."

Phil Friess from County Sanitation Districts of Los Angeles County answered that he thought that a park would be a small project.

Bill Van Wagoner from the Los Angeles Department of Water and Power said that 64% of recycled water use is for irrigation or agriculture, and that the smaller projects cannot afford to monitor.

Uzi Daniel, West Basin Municipal Water District said that if the smaller projects can meet the limits at the end-of-pipe, then they probably will not need to monitor.

Bobbi Larson, WateReuse Association said that maybe something could be added to the flow diagram to account for small users, like less than so many acre-feet applied).

Chair Deborah J. Smith said that we were not focusing at small-scale projects, but larger ones.

Commissioner Paula Daniels suggested that we could ask for cooperation between users to pay into a regional monitoring network.

Mark Gold, Heal The Bay said that nitrates could have been a problem in earlier years if monitoring for them had not taken place.

Uzi Daniel, West Basin Municipal Water District suggested that a purveyor could use existing wells and not have to install new wells.

Bill Van Wagoner from the Los Angeles Department of Water and Power asked "Does it matter that no wells are close by the project?"

Gus Dembegiotes, City of Los Angeles, Bureau of Sanitation replied that 440 acre-feet per year recycled water is applied in the Sepulveda Dam Basin near Woodley Avenue, and there are no wells nearby.

Tracy Egoscue, Santa Monica Baykeeper asked if there was a consensus among the work group that recycled water projects and groundwater assimiliative capacity should be looked at on a basin-wide basis, and change the flow diagram to reflect that all sources of salt impacts should be looked at.

Bill Van Wagoner from the Los Angeles Department of Water and Power expressed concern that other Regional Boards will use the same approach and water recycling requirements from the Los Angeles Regional Board, and proponents of small projects in those other Regions will be dissuaded from using recycled water.

Phil Friess from County Sanitation Districts of Los Angeles County agreed with the basin-wide approach.

Bill Van Wagoner from the Los Angeles Department of Water and Power reiterated that if site-specific groundwater monitoring is required, then small recyclers will be dissuaded.

Dave Rydman, Los Angeles County Department of Public Works said that there is a summary report about recycled water comparing Los Angeles and Ventura Counties. The contact person for this report is Joe Walters.

Omar Moghaddam, City of Los Angeles, Bureau of Sanitation, asked if the hydrogeology of the application sites enters into the analysis.

Bill Van Wagoner from the Los Angeles Department of Water and Power said that it is accounted for in the mass balance analysis. He further stated that existing data will allow a decent mass balance analysis.

Chair Deborah J. Smith said that near-field wells are necessary to intercept problems and to verify the mass balance analysis. So new wells may have to be drilled for large projects, but could be done as part of a regional plan.

Mark Gold, Heal The Bay asked what the fundamental elements would be of a regional monitoring network that takes into account various uses of recycled and imported water, as well as stormwater.

Uzi Daniel, West Basin Municipal Water District suggested that the work group should include a representative from the Southern California Salinity Project.

Chair Deborah J. Smith said that it would be helpful if someone could identify where recycled water projects are located-what is needed is a regional map.

Uzi Daniel, West Basin Municipal Water District agreed that it is great to look at where things are occurring, and land-use.

Commissioner Paula Daniels asked if someone could put together a strawman proposal for regional monitoring.

Chair Deborah J. Smith added that the strawman proposal should consider ambient conditions, confirmation of the mass balance analyses, and volumes of applied recycled water.

Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board asked if there were any volunteers to develop a strawman proposal.

Phil Friess from County Sanitation Districts of Los Angeles County volunteered to develop a strawman proposal.

Recycled Water (Irrigation) Workgroup Meeting
Wednesday August 22, 2007
Meeting Minutes

Next Steps: The next steps were discussed by the group. It was decided that the next meeting would be hosted by the City of Los Angeles, probably at the Donald C. Tillman Water Reclamation Plant. The topic for the next meeting is groundwater monitoring.

Action Items:

1. **Regional Board** staff will make corrections to the Antidegradation Flow Diagram to reflect contributions by other sources of water containing high salts.

2. **Phil Friess from County Sanitation Districts of Los Angeles County** will outline a monitoring approach to be discussed with the group members at the next meeting.

3. **Bobbi Larson, WateReuse Association** will look to see if her Association has information or maps on where the majority of recycled water is being applied in Los Angles County.

4. **Dave Rydman, Los Angeles County Department of Public Works** will also look to see if his Agency has information or maps on where the majority of recycled water is being applied in Los Angles County and other County projects occur, like spreading of water.

5. **Gus Dembegiotes, City of Los Angeles, Bureau of Sanitation** will arrange a venue for the next meeting.

Adjournment: The meeting was then adjourned.

Minutes prepared by B. Ponek-Bacharowski 10/25/07

Attachment 4

Summary of State Approaches to Second Tier Protection under Their Antidegradation Policies

SUMMARY OF STATE APPROACHES TO SECOND TIER[1] PROTECTION UNDER THEIR ANTIDEGRADATION POLICIES

State	Has Antidegradation Regulations or Guidelines?	Has Tier II Regulations or Guidelines?	Has Thresholds (de minimis, etc.)?	Has Regulations or Guidelines for Groundwater ?	Has Thresholds For Groundwater ?	Comments
Arizona	Yes (R, G)	Yes (R, G)	5%[#]	No	No	[#] 5% is considered to be a "non-binding reference"
California	Yes (R, G (memo*))	No	No	No	No	* Memo has a three-part test reference
Colorado	Yes (R,G)	Yes (R,G)	10% bioaccumulative constituents/15% other constituents	No	No	
Illinois	Yes (R,G[@])	Yes (R, G[@])	No	No	No	[@] Regs have a built-in implementation policy
Kentucky	Yes (R, G)	Yes (R, G)	20%	No	No	
Minnesota	Yes (R, G)	Yes (R, G)	1%	Yes (R, G)	1%	

Missouri	Yes (R, G(draft))	Yes (R, G (draft))	10% FAC[♦] 20%SAC[∞]	Yes (R)	No	[♦]FAC= facility assimilative capacity (end-of-pipe) [∞]SAC=segment assimilative capacity (receiving water)
Montana	Yes (R, G)	Yes (R, G)	Changes outside of mixing zone are < 10% std and existing ambient water quality is < 40% of the std	Yes (R,G)	Changes outside of mixing zone are < 10% std and existing ambient water quality is < 40% of the std	
New York	Yes (R,G)	Yes (R,G[☼])	No	No	No	[☼]Guidelines are linked to EIS Process
Ohio	Yes (R)	Yes (R)	No	No	No	
Oregon	Yes (R,G)	Yes (R,G)	No	No	No	
South Carolina	Yes (R)	No	No	No	No	
Virginia	Yes (R,G)	Yes (R, G)	10% human health/25% aquatic life	No	No	
Washington	Yes (R,G)	Yes (R,G)	No	No	No	
West Virginia	Yes (R,G)	Yes (R)	10%	No	No	

Wisconsin	Yes (R,G)	No	10-20%	Yes	Yes (R,G)	
Wyoming	Yes (R,G)	Yes (R,G)	10% initial/20% after mixing	No	No	Tied to mixing zones

[1]**Tier 2** of the federal Antidegradation Policy maintains and protects "high quality" waters-water bodies where existing conditions are better than necessary to support CWA subsection section 101(a)(2) "fishable/swimmable" uses. Water quality can be lowered in such waters. However, State and tribal tier 2 programs identify procedures that must be followed and questions that must be answered before a reduction in water quality can be allowed. In no case may water quality be lowered to a level which would interfere with existing or designated uses.

Table Prepared by Regional Board Staff

Attachment 5

Summary of Great Lakes Initiative Tier 2 Antidegradation Reviews

DRAFT

[For RB4 Water Recycling Work Group Discussion Only]
August 22, 2007 Meeting

Summary of Great Lakes Initiative Tier 2 Antidegradation Reviews

The Federal antidegradation policy is composed of three levels of protection commonly referred to as tiers. The second tier is described in 40 CFR 131.12(a)(2), and protects water quality where water quality is better than that needed to support fish and aquatic life and recreation in and on the water. Where these conditions exist, the water body is considered high quality and water quality must be maintained and protected unless lowering water quality is necessary to support important social and economic development.

Great Lakes Antidegradation Guidance

The Great Lakes antidegradation standard was derived from the existing Federal antidegradation policy at 40 CFR 131.12. EPA's Water Quality Guidance for the Great Lakes System: Supplementary Information Document (SID) (March, 1995) also contains useful background information.

Tier 2 Antidegradation Reviews and Significance Thresholds

On August 10, 2005, EPA Office of Science and Technology (OST) provided technical recommendations regarding significance thresholds and lowering of water quality in high quality waters in the context of tier 2 antidegradation reviews.

The intent of tier 2 protection is to maintain and protect high quality waters and not to allow for any degradation beyond a de minimis level, without having made a demonstration, and with opportunity for public input, that such a lowering is necessary and important. **The available assimilative capacity of a waterbody - the difference between the applicable water quality criterion for a pollutant parameter and the ambient water quality for that pollutant parameter where it is better than the criterion - is a valuable natural resource that needs to be managed and protected.**

It is important to clarify that the most appropriate way to define a significance threshold is in terms of assimilative capacity. Evaluations of significance based solely on the magnitude of the proposed increase without reference to the amount of change in the ambient condition of the waterbody need to be very carefully evaluated to determine how they translate to reduction in assimilative capacity in order to understand whether a significant decrease in assimilative capacity will occur. This analysis can be technically difficult when applied to all possible waterbody types and flow situations. Further, given the importance of public participation and transparency, it is clear that a definition of significance that directly links to the resource to be protected (assimilative capacity) is more likely to be understood by the public. Therefore, OST strongly recommends that define significance in terms of assimilative capacity, unless the state

or tribe demonstrates that another approach is equally or more protective of the state's high quality water resources.

To address situations where there are multiple or repeated increases in discharges, OST recommends that states and tribes incorporate a cumulative cap on the use of total assimilative capacity (i.e., the baseline assimilative capacity of a waterbody established at a specified point in time). This approach creates a backstop so that multiple or repeated discharges to a waterbody over time do not result in the majority of the total assimilative capacity being used without a single antidegradation review. For instance, the state or tribe may choose to subject any lowering of water quality to antidegradation review after a certain percentage of the total assimilative capacity has been used. This ensures that where the ambient water quality is lowered closer to the criteria levels, the state or tribe will conduct an antidegradation review after a certain point to evaluate the necessity and importance of each lowering, regardless of the amount of assimilative capacity that would be used.

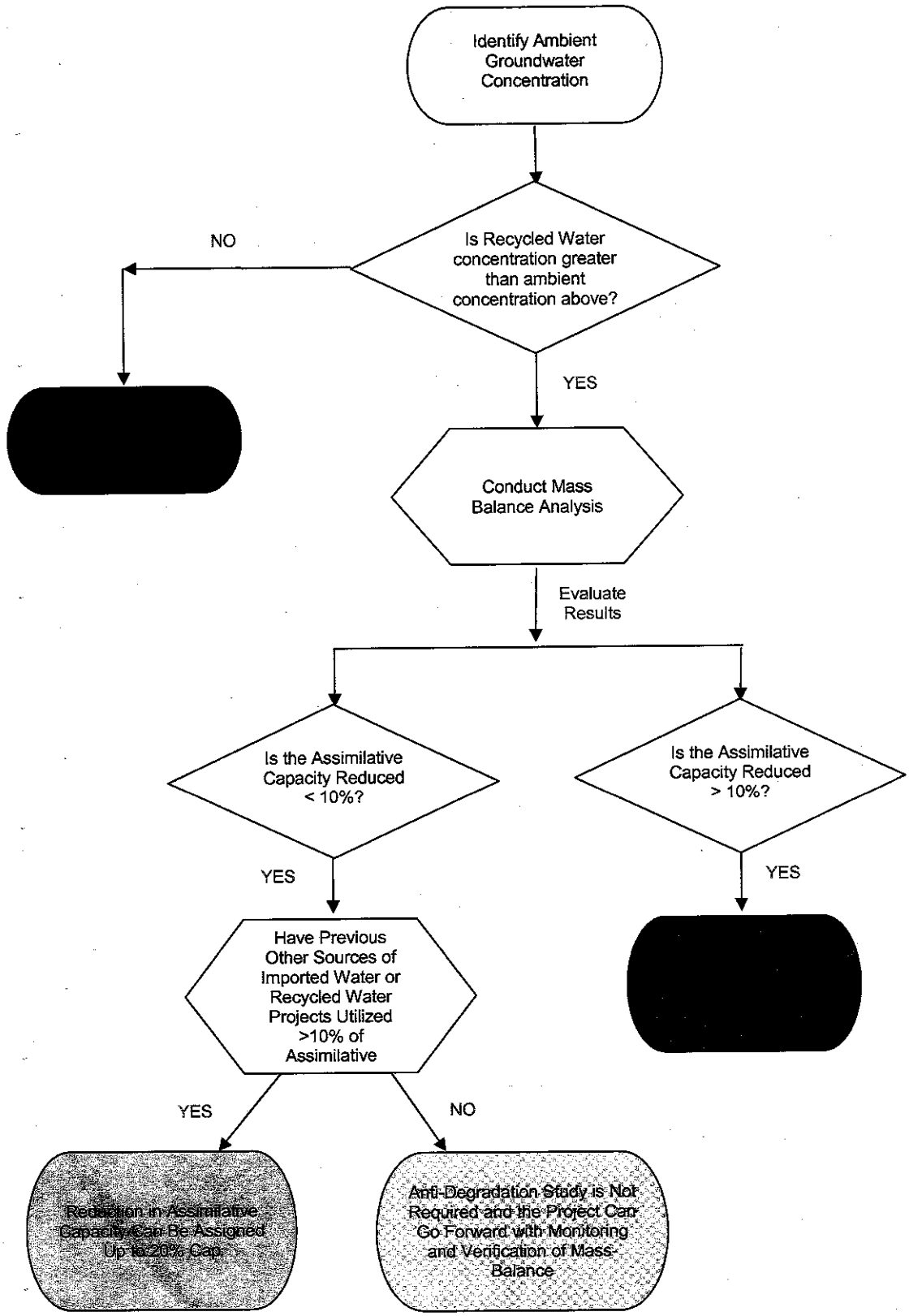
A "significance threshold" issue was considered at length in the process of developing the Water Quality Guidance for the Great Lakes. **Relying upon input offered during a four-year open public process involving environmental groups, industry representatives, and other experts, with numerous opportunities for public input, the directors of the eight Great Lakes states and EPA technical experts reached a consensus on a significance threshold value of ten percent (10%) of the available assimilative capacity, coupled with a 20% cumulative cap and 15% for bioaccumulative chemicals of concern (BCC).** They determined that this threshold represented a reasonable balance between the need of the regulatory agencies to limit the number of actions involving non-BCCs that are subject to the detailed antidegradation demonstration requirements, and the need to protect and maintain water quality. They believed that any individual decision to lower water quality for non-BCCs that is limited to 10% of the available assimilative capacity represents minimal risk to the receiving water and is fully consistent with the objectives and goals of the Clean Water Act. A ten percent (10%) value is within the range of values for significance thresholds that EPA has approved in other states as well. EPA considers this approach to be workable and protective in identifying those significant lowerings of water quality that should receive a full tier 2 antidegradation review, including public participation.

Attachment 6

Determination of Criteria Requiring Antidegradation Analyses for Recycled Water Irrigation Projects (For Tier 2 Situations)

DETERMINATION OF CRITERIA REQUIRING ANTI-DEGRADATION ANALYSES FOR RECYCLED WATER IRRIGATION PROJECTS (FOR TIER 2 SITUATIONS)

(Draft For RB4 Water Recycling Work Group Discussion Purposes)



RWQCB-LA
9-05-07

Mark Gold, Heal the Bay said that we are calling it 10% now. And then asked the question "is this a concept that we can deal with?"

Tracy Egoscue, Santa Monica Baykeeper said that it was up to the purveyors to figure out how they will monitor their activities. If less than 10%, fine. If over, then a demonstration needs to be made that groundwater will not be further degraded.

Bill VanWagoner from the Los Angeles Department of Water and Power said that the City of L.A.'s discharge should be able to meet the 10% threshold. He then handed out some maps.

Stefan Cajina, Department of Health Services cautioned that we should think twice before punching additional monitoring wells, because the wells have not always been constructed, maintained, and destroyed in a responsible manner.

Bill VanWagoner from the Los Angeles Department of Water and Power said that many of DWP's wells are now impacted or threatened by PCE, nitrate, and chromium contaminant plumes.

Commissioner Paula Daniels asked about monitoring requirements.

Bill VanWagoner from the Los Angeles Department of Water and Power explained that we would have to look at beneficial uses of groundwater east of the Sepulveda Dam basin if the concern is what is happening in Sepulveda Dam basin. But there are no production wells there.

Commissioner Paula Daniels then inquired where they could put monitoring wells.

Bill VanWagoner from the Los Angeles Department of Water and Power said that there was no good place to put a well.

Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board said that there were hundreds of monitoring well in the San Fernando Valley Groundwater Basin constructed because of cleanup sites under the direction of the Regional Board and that she would get the list of them east of Sepulveda Basin and West of the 405 Freeway. She explained that the permit allowed for the use of any type of existing well to monitor groundwater trends.

Vicki Conway from County Sanitation Districts of Los Angeles County proposed that the assessment be done every five years, corresponding to the permit cycle.

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Chair Deborah J. Smith indicated that we need a baseline assessment, no matter what the approach.

Bill VanWagoner from the Los Angeles Department of Water and Power said that they have a baseline assessment- 35 mg/L from one well located on the western side of the Valley.

Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board reminded the group that there would be an entire meeting in the future to discuss monitoring.

Mark Gold, Heal the Bay said that if there was no baseline data available, then there is no sense of the assimilative capacity of the groundwater.

Vicki Conway from County Sanitation Districts of Los Angeles County stated that the baseline can be measured at existing production wells.

Stefan Cajina, Department of Health Services opined that if we are more concerned with future salinity, then that would be a good thing because it is the organic compounds that are now problematic.

Bill VanWagoner from the Los Angeles Department of Water and Power remarked that recycled water will never be a problem.

Commissioner Paula Daniels said that if a baseline determination was necessary, then where do you develop it?

Vicki Conway from County Sanitation Districts of Los Angeles County said that you develop the baseline where you expect to measure impacts. This is a bigger issue than recycled water. Salts will go up no matter what.

Stefan Cajina, Department of Health Services said that we should look at the socioeconomic impacts of not using recycled water. This will impact long-term water management. How do you quantify socioeconomic impacts?

Chair Deborah J. Smith replied that socioeconomic impacts would have to be considered, as well as the cost of degrading groundwater quality.

Mark Gold, Heal the Bay said that some groundwater basins have a wide variety of Basin Plan Objectives. Should those objectives ever be exceeded? He stated that the environmental community would not want those objectives to ever be exceeded.

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Vicki Conway from County Sanitation Districts of Los Angeles County stated that the Basin Plan Objectives in the Puente and Spadra Groundwater Basins are already being exceeded. That goes to the issue on how objectives were determined. There may have been a very limited data set used.

Chair Deborah J. Smith asked the question to the group "Should a Region 8 Study be performed in this Region? Are the purveyors willing to fund and do this?"

Timothy Blair, Metropolitan Water District of Southern California said that we are looking at the scenarios of no impact or de minimis impact. So looking at an already-exceeded Basin Plan Objective in a groundwater basin does not fit in our flowsheet.

Mark Gold, Heal the Bay asked if anyone had done anything about impaired groundwater basins.

Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board said that the Calleguas watershed is looking at groundwater impairments and management in a TMDL-like process.

Vicki Conway from County Sanitation Districts of Los Angeles County said that if the aquifer is impaired, then many times production wells are drilled into a deeper, less-impacted aquifer.

Michael Levy, Los Angeles Regional Water Quality Control Board said that Antidegradation is the driver when water quality is better than the objective.

Chair Deborah J. Smith said that a value less than the objective would have to be assigned to cleanup the aquifer to the specified objective. A cap may not be needed.

Mark Gold, Heal the Bay said that all of those things should be considered in our decision tree. Irrigation use should be curtailed near an impaired water body (like in the Malibu Creek watershed).

Bill VanWagoner from the Los Angeles Department of Water and Power said that proper irrigation techniques should be employed.

Stefan Cajina, Department of Health Services said that runoff should be avoided.

Bill VanWagoner from the Los Angeles Department of Water and Power said that smart irrigation should be used.

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Mark Gold, Heal the Bay said that buffer zones are a good idea.

Next Steps: The next steps were discussed by the group. It was decided that the next meeting would be in the middle/end of July and be held at West Basin Municipal Water District, Carson. Topics for the next meeting are the straw man proposal and groundwater monitoring.

Action Items:

1. The **Regional Board** will share examples of what other states are doing to implement their antidegradation policies.

2. **Vicki Conway from County Sanitation Districts of Los Angeles County** will email her powerpoint presentation to the group members.

3. The **Regional Board** will expand the straw man proposal and present it at the next meeting.

4. **Bill VanWagoner from the Los Angeles Department of Water and Power** will arrange for an expert on the hydrogeology of the San Fernando Valley groundwater Basin to talk to the group.

5. **Blythe Ponek-Bacharowski, Los Angeles Regional Water Quality Control Board** will get a list of monitoring wells and observation wells in the San Fernando Valley Groundwater Basin from Geotracker and forward them to LADWP. These wells should be located between the 405 Freeway and the Sepulveda Dam Basin.

Adjournment: The meeting was then adjourned.

Minutes prepared by B. Ponek-Bacharowski

Attachment 3

August 22, 2007, Meeting Agenda and Meeting Minutes

California Regional Water Quality Control Board
Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Linda S. Adams
Cal/EPA Secretary

Arnold Schwarzenegger
Governor

Recycled Water (Irrigation) Work Group Meeting
Wednesday, August 22, 2007
12:30 PM to 3:30 PM

West Basin Municipal Water District-Second Floor
17140 South Avalon Blvd.
Carson, CA 90746
(Right by the 91 and 110 Freeways)

AGENDA

1. Introductions
2. Review of Meeting Minutes from the May 14, 2007 meeting
3. Antidegradation
   - States Tier 2 Antidegradation Summary
   - Great Lakes Initiative
   - Flow Diagram-Straw Man Proposal
   - Relationship to Monitoring Needs
4. Next Meeting
5. Action Items
6. Adjournment