Salinity Management Plan Implementation Workshop, San Diego Region

Meeting Summary

December 14, 2009

About SCSC

A nonprofit organization, SCSC was founded in 2002 by a group of Southern California water and wastewater agencies to better manage salinity in our water supplies. SCSC's member agencies include the Eastern Municipal Water District, Inland Empire Utilities Agency, Irvine Ranch Water District, Metropolitan Water District of Southern California, Orange County Sanitation District, Orange County Water District, San Diego County Water Authority, Sanitation Districts of Los Angeles County, Santa Ana Project Watershed Authority, and West Basin Municipal Water District. The National Water Research Institute (NWRI) administers SCSC on behalf of its members.

For more information, please contact:
Southern California Salinity Coalition
c/o NWRI
18700 Ward Street
P.O. Box 8096
Fountain Valley, California 92728-8096 USA
Phone: (714) 378-3278
Fax: (714) 378-3375
www.socalsalinity.org

Workshop Sponsors

- Southern California Salinity Coalition
- San Diego County Water Authority
- Regional Water Quality Control Board, San Diego Region

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Executive Summary

Over 60 individuals representing local water interests attended the "Salinity Management Plan Implementation Workshop" on October 6, 2009, in San Diego, CA, to:

- Discuss the benefits of water and recycled water agency involvement in salt/nutrient management planning in the San Diego region.
- Discuss a proposed regional approach for supporting the development of salt/nutrient management plans within the region.
- Identify required follow-up actions to refine and implement the selected approach.

The workshop was sponsored by the Southern California Salinity Coalition (SCSC), San Diego County Water Authority, and Regional Water Quality Board, San Diego Region.

Based on discussions and break-out sessions on (a) "salinity management plan technical issues" and (b) "salinity management plan policies, process, and responsibilities," participants identified the following as major issues:

- **Developing salt and nutrient management plans**.
  Participants were interested in determining: (a) how to comply with salt/nutrient management plan requirements, and (b) what impacts these requirements might have upon their agencies. Two suggested solutions to addressing these issues included: (a) agency collaboration in developing plans locally (which includes stakeholder involvement), and (b) developing salt/nutrient management guidelines for the region. The guidelines would be based on a tiered (basin-by-basin) approach to help achieve consistency, provide agencies with regulatory certainty, and establish levels of effort.

- **Basin plan water quality standards**.
  Participants were interested in what changes the salt/nutrient management plans will make to current regulatory policies. Specifically, it was noted that current water quality standards have been a concern for recycled water agencies, especially in regards to total dissolved solids (TDS), contaminants of emerging concern, nutrients, and iron and manganese. With iron and manganese, permit standards are not achievable in a typical tertiary treatment plant without significant investment. In response, participants noted that it may be useful to organize a committee to work with the Regional Board to discuss means to regulate iron and manganese on a region-wide basis.

- **Developing new water supplies**.
  Agencies want to develop new water supply projects, including recycled water and desalination with brackish groundwater and seawater. However, impediments to developing these supplies exist, like high TDS and the inability to dispose of brine. These issues are closely related to salt/nutrient management planning.

- **Motivation for participating**.
  Participants expressed concern that stakeholders will not voluntarily participate in expending resources on salt/nutrient management planning without seeing tangible,

measurable benefits. If the Regional Board and stakeholders are willing to work together, they may be able to achieve the following benefits: achieving regulatory certainty, building trust between agencies, and providing regulatory flexibility to maximize beneficial uses. Commitment fro the Regional Board is essential for the success of regional salt/nutrient management planning; however, other elements for success were identified, such as identifying a lead agency (such as the San Diego Water Authority) to give stakeholders a common voice. In addition, agency collaboration and cost-sharing were identified as key aspects to moving such an effort forward.

Based on the results of the workshop, the workshop sponsors have agreed to the formation of two workgroups to help move forward the development of a region-wide salt/nutrient management planning process:

- **Iron and Manganese White Paper**: Working with Regional Board staff, SCSC will develop a scientific white paper on strategies for addressing iron and manganese compliance.

- **Salinity Management Plan Guidelines**: SCSC and the San Diego County Water Authority will develop tiered guidelines for the preparation of salinity management plans. This effort will include working with Regional Board staff to ensure support for the proposed approaches.

1. Workshop Overview

California's State Water Resources Control Board adopted a statewide "Recycled Water Policy" on February 3, 2009, to establish uniform requirements for the use of recycled water.

As part of this effort, the Policy requires the development of salinity management plans to: (a) assess water quality and salinity loads within each groundwater basin; and (b) identify and evaluate strategies for achieving compliance with Basin Plan water quality objectives and protecting beneficial uses.

A "Salinity Management Plan Implementation Workshop" was held on October 6, 2009, at the San Diego County Water Authority's Kearny Mesa Office in San Diego, CA, to encourage water and wastewater agencies representatives to discuss salinity management issues within the San Diego region. Sponsors of the workshop included SCSC, San Diego County Water Authority, and Regional Water Quality Board, San Diego Region.

Workshop objectives included:

- Discuss the benefits of water and recycled water agency involvement in salt/nutrient management planning in the San Diego region.
- Discuss a proposed regional approach for supporting the development of salt/nutrient management plans within the San Diego region.
- Identify required follow-up actions to refine and implement the selected approach.

The program included discussions of the following topics:

- Purpose of Workshop
- Recycled Water Intent: How Did We Get Here and How Is This Going to Impact Local Water Resource Development Projects?
- Regional Board Perspective on Salinity Management Planning
- Salinity Management Planning: Historical Perspective, Current Overview
- Salinity Management Planning – SAWPA Experience
- Orange County's Experience with Salinity Management

Following the presentations, participants were divided into break-out groups to consider the following topics:

- Salinity Management Plan Technical Issues
- Salinity Management Plan Policies, Process, and Responsibilities

Participants were brought back together at the end of the workshop to discuss the results of the break-out group discussions.

The complete program agenda is included in Appendix A, and presenter biographies are included in Appendix B.

Over 60 people participated in the workshop, including representatives from regulatory agencies, city and county governments, university research centers, utilities, consulting firms, environmental groups, and a local military base. A complete participant list is included in Appendix C.

2. Workshop Presentations

The workshop featured seven presenters from California who provided background information on the Recycled Water Policy, the benefits and challenges to salinity management planning, and salt management planning activities in the San Diego region and other locations. Workshop presentations may be downloaded at www.socalsalinity.org.

2.1 Welcome and Introductions

Jeff Mosher, the Administrative Director of the Southern California Salinity Coalition, opened the workshop with a brief discussion of the Recycled Water Policy (adopted in May 2009), noting that it requires Regional Boards to develop salt/nutrient management plans for every basin within a timeframe of 5 to 7 years.

In San Diego, the Regional Board is considering:

- Requiring recycled water agencies to prepare plans in their basins through their permits.
- Having local agencies play a lead role in conducting plans for their region.

Mosher concluded that ideas brought up at the workshop would be used as a starting point to determine how to best implement these plans so that they: (a) do not impede current recycled water projects; and (b) provide benefits to agencies, such as cost sharing opportunities and better direction on groundwater supply and/or recycled water project development.

2.2 Purpose of Workshop

Toby Roy, Water Resources Manager for the San Diego County Water Authority, provided a brief description of the purpose of the Salinity Management Plan Implementation Workshop, which included:

- Determining the level of interest in developing salt/nutrient management plans.
- Examining how these plans can help expedite the implementation of water recycling projects.
- Looking at the possibility of developing regional guidance on salt/nutrient management planning.
- Identifying a consistent regional approach to developing these plans.

Roy pointed out that developing these plans should be a stakeholder-driven process, with leadership coming from local agencies.

2.3 Recycled Water Policy Intent: How Did We Get Here and How Is this Going to Impact Local Water Resource Development Projects?

Mary Grace Pawson, who serves as Chair of the Legislative and Regulatory Committee for WateReuse California, was actively involved in the stakeholder group that worked with the State Water Resources Control Board to draft the Recycled Water Policy. At the workshop, she described the development of the Recycled Water Policy by the water community and provided insight on the intent behind some of the policy's requirements. She also discussed its possible effect on water supply projects.

Among her conclusions:

- It is important to view recycled water as a solution rather than as a waste.
- The policy should guide decisions, not specific results.
- Salt management should not be limited to recycled water projects only.
- The development of salinity and nutrient management plans should be a stakeholder-driven process with active participation and input from Regional Board staff.
- All stakeholders need to be committed to quality and quantity.
- Leadership in the water industry remains essential.
- Regional planning efforts may be the only way to achieve sensible regulation and a secure water supply.

2.4 Region Board Perspective on Salinity Management Planning

Julie Chan, who manages the Groundwater Basins Branch of the San Diego Regional Water Quality Control Board, spoke on the Regional Board's view regarding salinity management, which included the following:

- Comprehensive salt/nutrient management plans are long overdue.
- Salt/nutrient management plans should take into consideration beneficial uses and public health protection.
- The permitting process should be streamlined.
- Finding funding is critical to success.
- Salt/nutrient management plans can help recommend needed basin plan amendments.
- CECs and priority pollutants will need to be addressed in salt management plans.
- One problem is that the plans do not include imported water.

Chan mentioned the Regional Board can require agencies seeking WDRs for wastewater disposal to comply with salt and nutrient management plans. However, this approach does not include salinity from imported water.

From a Regional Board perspective, the new policy addresses several issues with the current basin plan approach including:

- Salt and nutrient management plans will be more comprehensive.
- Provisions will be made for basin-wide ambient monitoring where appropriate.
- The plans will provide flexibility in management alternatives for the basin.
- Mechanisms will be identified for salt export.

Salt and nutrient management plans for the region will lead to more informed regulation of wastewater discharges, but funding to conduct the planning is critical to the success of the policy.

2.5 Salinity Management Planning: Historical Perspective, Current Overview

Michael Welch, a consulting engineer and former staff member of the San Diego Regional Water Quality Control Board, provided a regulatory context and discussed plan elements, potential benefits, regional issues, and potential approaches associated with salinity management.

Among his conclusions:

- The need for salinity management planning is driven by recycled water regulation.
- The San Diego Region Basin Plan has always envisioned the development of salinity management plans.
- Salinity management plans should address groundwater basins and the hydrologic areas that are tributary to the groundwater basins.
- Salinity management plans can be used to promote recycled water use opportunities, address recycled water compliance issues, enhance water supply availability, and enhance groundwater quality
- It may prove more effective to address some issues on a region-wide basis (e.g., iron and manganese compliance and fluoride compliance) instead of addressing them as part of individual salinity management plans.
- Exiting Basin Plan water quality objectives were developed on the basis of salinity management planning data available in the 1970s. In the absence of updated salinity management plans, the existing Basin Plan objectives will remain in effect.
- The level of effort for the salt and nutrient management plans should be commensurate with the level of beneficial uses of the basin, the size and importance of the basin, and water quality considerations.

Welch also discussed the possibility of developing guidelines for agencies interested in preparing salinity management plans. These guidelines would:

- Provide a work plan for agencies interested in salinity management planning.
- Be developed with active Regional Board input and approval.
- Minimize potential inconsistencies among basins.
- Offer opportunities for agency coordination.
- Be tiered to address varying degrees of effort required to address the varying groundwater basins in the San Diego region.

2.6 Salinity Management Planning – SAWPA Experience

Jeff Beehler, Program Manager at the Santa Ana Watershed Project Authority, shared his experience in developing a salinity management plan, using the Total Dissolved Solids/Nitrogen Task Force as an example. Points included:

- The Task Force was a stakeholder-driven process, involving shared funding, Regional Board commitment, and a consensus-based collaborative approach.
    - Salinity management planning does not work without partnership from the Regional Board.
- Cost estimates, stakeholder allocations, and budgets help participants work toward agreement.
- One benefit of the stakeholder process is few or no legal challenges.
- One challenge to the stakeholder process is that consensus on all issues may not be reached (leaving participants to work only on policies that achieved agreement).
- These processes may require years of effort.
- The Task Force Model included:
    - All basins were represented.
    - A consensus-building process.
    - The establishment of ground rules.
    - Strict conformance with existing and federal/state policies.

2.7 Orange County's Experience with Salinity Management

Greg Woodside, the Planning and Watershed Management Director at the Orange County Water District (OCWD), also shared his experience on salinity management planning in the Orange County region.

- It was important to have someone to bring together the various stakeholders at a neutral site with a neutral staff.
- It was also better to work out a solution among the stakeholders rather than have a judge impose a solution.
- Collaboration helped with attaining state funding (there was no competition, only supporters).
- Years were spent working out the ground rules. The data was evaluated using agreed-upon scientific approaches. Participants committed to the results and conclusions.
- Downstream monitoring is important and allows us to see how the salinity control program is working.

3. Stakeholder Input

Input from participants was obtained several ways. After the presentations, participants were each asked to share thoughts, questions, and concerns regarding implementing salinity management plans and Regional Board requirements in their service area. Then, participants were broken up into two groups to discuss thoughts and concerns about: (a) salinity management plan technical issues, and (b) salinity management plan policies, process, and responsibilities. Following the break-out group sessions, participants were brought back together to report on their results. Major issues included developing salt and nutrient management plans, basin plan water quality standards, developing new water supplies, and motivation for participating (including funding).

3.1 Developing Salt/Nutrient Management Plans

Participants were interested in how to comply with the salt and nutrient management plan requirements and how these requirements might impact their agencies. They were also interested in participating in the development of regional guidelines for salt and nutrient management plans. Issues that were discussed included:

- Cooperative efforts for developing plans locally.
  - Most agencies would rather work cooperatively on these plans than work alone.
  - The U.S. Geological Survey is interested in participating in the development process.
  - Stakeholders should be encouraged to get involved in this process.
  - The environmental community is strong supporter of recycled water projects.
  - We should collaborate with land use and storm water agencies.
  - We need to determine who and how many stakeholders are interested or should be interested in salt and nutrient management planning.

- Development of salt management plan guidelines:
  - Guidelines or work plans are needed to help agencies in the San Diego region move forward with developing these salt management plans. However, different levels of work will be needed, depending on the basin. Therefore, developing guidelines that use a tiered approach would help: (a) achieve consistency; (b) provide agencies with certainty if they want to tackle salinity management planning; and (c) establish an appropriate level of effort for their cause. Buy-in is needed throughout the San Diego region regarding the tiered (basin-by-basin) approach to salt management. Each watershed will need to define its approach for salt management planning.

  - The San Diego region is different from the Santa Ana River Watershed/Orange County region. San Diego has fewer stakeholders, and agencies do not share the same local water sources. Therefore, the level of technical effort on local watersheds should be less than that of Orange County.

  - Salinity and nutrient management planning guidelines should:
    - Identify a list of areas that might require more precise definition. It will be important to identify areas requiring precise “definitions” region wide, such as

what constitutes "degradation." It is recommended that we do not use the term "offset."
    - Statistically characterize basin objectives.
    - Consider beneficial uses.
    - Use an approach that is based on sound science.
    - Use an implementation strategy that is tailored to the appropriate needs of each basin.

- Other issues that will need to be considered in development of guidelines:
    - How will groundwater and surface water be addressed in the plan? The Recycled Water Policy refers to recharge through percolation ponds or irrigation (groundwater only). It does not address live stream discharge.
    - Who complies – the provider or end user of recycled water? Also, what is the cost and who pays for all this?
    - Are there existing tools to help agencies complete salinity management plans using in-house staff?
    - How will these plans affect effluent limits?
    - How will credits for removing or reducing salt loadings be addressed by the Regional Board? For example, can savings through landscape conservation be considered in the salt balance if there is a mechanism to demonstrate reduced salt loading through reduced irrigation?

- SCSC and the Water Authority will work on a preliminary draft of the regional guidelines and will coordinate with the Regional Board on the content. A workgroup will work with SCSC and the Water Authority to refine and finalize the guidelines. A workgroup may also be needed to gather needed information and/or studies regarding salt management planning.
    - Use contacts from this workshop who can direct us toward this information.
    - It may make sense to develop a reference list, which can be listed on the SCSC website.

3.2 Basin Plan Water Quality Standards

- Stakeholders are interested in what changes the salt/nutrient management plan will make to current policies. They are interested in incorporating salt/nutrient management planning into basin management planning. Frustration was expressed regarding existing basin plan requirements; however, stakeholders recognize that additional technical work and research will be needed to revise those requirements.

- Some of the current water quality standards that are a part of the current basin plan have been a concern for recycled water agencies:

    - Iron and manganese water quality objectives are based on secondary drinking water standards and background levels in the groundwater basin. The iron and manganese basin plan and permit standards are not achievable in a typical tertiary treatment plant without significant investment. Permit holders are being issued notices of violation,

which jeopardizes the use of recycled water for irrigation. Smaller agencies do not have the funding to tackle iron and manganese issues.

- It may be useful to organize a committee to work with the Regional Board to discuss means to regulate iron and manganese on a region-wide basis.
  - Iron and manganese permit requirements would be based on sound science.
  - The committee may produce a short (2 page) white paper based on sound science to present to the Regional Board. The white paper could demonstrate that the iron and manganese in the recycled water will not have an adverse impact on water quality in the basin.

- High levels of total dissolved solids (TDS) in groundwater basins and recycled water supplies are an impediment to the development of local water supplies in the San Diego region.
  - Agencies expressed a need for source water control, as they had been seeing a rise in TDS levels in imported water, which increases TDS in recycled water. For example, Metropolitan Water District salinity control program on the Colorado River.
  - Small systems are receiving notices of violations (for chloride). They would like to develop plans to meet the discharge requirements, but lack the funding to do so.
  - When salt is being removed from the basin or loadings are being reduced, getting credit for this is integral to the success of the salinity and nutrient management plans.

- Other water quality concerns:
  - Contaminants of emerging concern (CECs).
  - Nutrients (nitrates).

- Overall Compliance with Recycled Water Permits.
  - Interest was expressed regarding learning more about TDS, nitrates, organic contaminants, etc. in recycled water to help with planning future treatment technologies.
  - How do you significantly increase reclaimed water use while at the same time ensure that basin plan standards for TDS and nutrients are met?

3.3 Developing New Water Supplies

- Agencies are interested in developing new water supply projects, which are closely related to salinity management planning. These include recycled water projects and desalination of both brackish groundwater and seawater. As part of the water supply development effort, they want to: (a) ensure the supply projects will be viable to meet basin plan objectives; (b) work on policies that make best use of aquifers; and (c) streamline permitting processes.

- Recycled water and groundwater are important new water supplies. Impediments to developing these supplies include: (a) high TDS; (b) ability to dispose of brine; and (c) regulatory impediments.

- Brine disposal facilities and the Regional Board's approach to permitting of brine disposal are critical to salt management planning in the San Diego region.

- The San Diego Region abuts the ocean with numerous ocean outfalls. While these outfalls can discharge brine, there is no comprehensive plan or capability to dispose of brine.

- Key brine disposal concerns include:
  - Discharge limitations for the brine.
  - Developing a brine disposal policy.
  - Boron and bromide issues.
  - Availability of brine lines similar to the SARI line.

- Agencies are either considering, implementing, or expanding upon water reclamation/recycling projects to increase the use of recycled water. These agencies will now have to develop salt/nutrient management plans. Elements of recycled water projects could include: discharge to streams, rivers or reservoirs, or groundwater recharge. Some of the questions that were raised on these topics include:
  - How do agencies work with the regulators to comply with the current regulations or modify the regulations to incorporate a better approach?
  - How do the regulations apply to indirect potable reuse?
  - How does blending fit in?
  - How does salt/nutrient management planning fit in to advanced water treatment?
  - Will agencies will be able to use 100-percent recycled water while protecting all beneficial uses?
  - For those agencies currently operating a water reclamation facility, concern has been expressed about how regulations will affect the water reclamation facility and what mandatory monitoring and testing may be required under the recycled water policy.

3.4 Benefits of Participating in Regional Salt Management Planning

- Participants are concerned about expending resources on Salt Management Planning if there is no benefit at the end. There must be a tangible, measurable benefit or stakeholders will not voluntarily participate. Some of the following possible benefits were discussed. Achieving these benefits will depend on the willingness of local Regional Board to work with the stakeholders:

  - The primary potential benefit is achieving regulatory certainty. Agencies developing local water supplies want assurances that they will be able to obtain the proper regulatory permits. In addition, economic constraints need to be considered with the creation of new regulations. Dischargers, cities, and small agencies must be protected so they can meet the discharge requirements on a realistic basis. Agencies need regulatory certainty to avoid a need to upgrade the plant each time a new contaminant is discovered.

- A second benefit is that the planning process can help build trust between agencies and the Regional Board, allowing collaborating on monitoring studies to develop better standards and on local solutions to water quality issues.

- A third benefit is regulatory flexibility that maximizes beneficial uses. For example, collaboration regarding Notice of Violations, or NOVs, (which are a real problem) would be first step to addressing compliance by providing regulatory flexibility.

- There are several elements that are essential for the success of salt management planning. These include:

    - Senior staff and executive officer involvement and commitment from the Regional Board.
    - Identification of a lead agency that takes a lead role for regional planning, such as the Water Authority, to give stakeholders a common voice. The Water Authority would be respected by the Regional Board and would be able to work with Regional Board staff. Water and wastewater is regionally managed, while recycled water is more fragmented. Therefore, the Recycled Water Policy can perhaps provide more collaboration and cost sharing opportunities
    - Use of "phased" implementation, with "go/no go" decision points. Success may be measured by setting one-year targets.
    - Policies that promote local water supply development and, at the same time, achieve the basin plan salinity objectives.
    - Involvement of all stakeholders (such as agriculture, dischargers, etc.), with an equal spot at the table for everyone.
    - A common set of rules throughout the entire region, for each basin, for moving through the process.
    - Commitment of funding and staff resources to support the effort.

- Funding approaches and considerations:

    - How would funding be provided for salt and nutrient management plans for each individual basin?
    - There is interest in keeping the scope manageable to keep costs down.
    - Sharing of planning costs by multiple agencies over the course of years (SAWPA approach).
    - Regional salt management planning may create an opportunity to partner and cost-share on regional projects, especially in pursuing grants.
    - Would it be acceptable to come up with a cost-sharing model to develop salt management planning, similar to SAWPA? Is there a tolerance to begin to fund conceptual efforts?
    - Moving forward in small steps is a consideration, so agencies can have a good understanding of potential costs and benefits.

4. Next Steps

- We propose the formation of two workgroups:

    - **Iron and Manganese:** Develop a scientific white paper, and work with Regional Board staff to develop strategies for addressing iron and manganese compliance. A working group of agencies will be established to develop the white paper. The SCSC will administer the process to develop the white paper. The first meeting of the working group will be held in January/February 2010.

    - **Salinity Management Plan Guidelines:** Develop tiered guidelines for the preparation of salinity management plans. Work with Regional Board staff to ensure support for proposed approaches. Investigate the availability of existing technical reports on salinity management in the San Diego region. The SCSC is in the process of developing draft guidelines in collaboration with the San Diego County Water Authority and other agencies. Working with a consultant, draft guidelines will be developed in early 2010. A meeting of the working group will be held in January/February 2010.

Appendix A: Workshop Agenda

Salinity Management Plan Implementation Workshop
San Diego Region

Sponsored by:

Southern California Salinity Coalition
San Diego County Water Authority
Regional Water Quality Control Board, San Diego Region

Meeting Agenda
Tuesday, October 6, 2009

Location
San Diego County Water Authority
Kearny Mesa Office
Board Room
4677 Overland Avenue
San Diego, CA 92123

On-Site Contacts:
Jeff Mosher (NWRI/SCSC)
Cell: (714) 705-3722
Maria Mariscal (SDCWA)
Office: (858) 522-6746

Tuesday, October 6, 2009		**Board Room**
9:30 am	**Welcome and Introductions**	Jeff Mosher (Southern California Salinity Coalition)
9:40 am	**Purpose of Workshop**	Toby Roy (San Diego County Water Authority)
9:50 am	**Recycled Water Policy Intent: How Did We Get Here and How is this Going to Impact Local Water Resource Development Projects?**	Mary Grace Pawson (Chair, Legislative and Regulatory Committee, WateReuse California)
10:05 am	**Region Board Perspective on Salinity Management Planning**	Julie Chan (Regional Water Quality Control Board, San Diego Region)
10:25 am	**Salinity Management Planning: Historical Perspective, Current Overview**	Michael Welch (Consulting Engineer)
10:55 am	**Salinity Management Planning – SAWPA Experience**	Jeff Beehler (San Ana Watershed Project Authority)

11:10 am	**Orange County's Experience with Salinity Management**	Greg Woodside (Orange County Water District)
11:25 am	**Panel Discussion – Question and Answers**	Michael Welch and Jeff Mosher
11:45 am	**Lunch**	
12:15 pm	**Break Out Group Assignments and Solicitation of Group Input on Salinity Management Planning Questions**	Michael Welch
12:30 pm	**Break Out Group A – Salinity Management Plan Technical Issues (Board Room)**	Tim Moore (Risk Sciences) and Michael Welch - Group A Facilitators
	Break Out Group B – Salinity Management Plan Policies, Process, and Responsibilities **(Library Conference Room)**	Jeff Mosher and Mary Grace Pawson - Group B Facilitators
2:00 pm	**Regroup and Report Out on Group Findings/Next Steps (All – Board Room)**	Tim Moore, Mary Grace Pawson, Jeff Mosher, and Michael Welch
3:30 pm	**Adjourn**	

Appendix B: Presenter Bios

Jeff Mosher serves as Executive Director of the National Water Research Institute (www.nwri-usa.org), a non-profit research organization located in Fountain Valley, CA. As Executive Director, Mosher manages NWRI's research program and related activities. He also is the Administrative Director of the Southern California Salinity Coalition (www.SoCalSalinity.org), a coalition of water and wastewater agencies in southern California dedicated to managing salinity in our water supplies. Mosher serves on the Board of Directors for the American Membrane Technologies Association and the Multi-State Salinity Coalition and is a former Board member for the Southwest Membrane Operators Association. He has degrees in Chemistry from the College of William and Mary and Environmental Engineering from the George Washington University.

Toby Roy has been a Water Resources Manager for the San Diego County Water Authority since 2005. As Water Resources Manager, Roy is responsible for policy related to water conservation, recycled water, and integrated planning, and coordinates with member agencies and state agencies on regulatory issues. Until recently, she managed the Water Authority's conservation programs. Roy also supervises the recycled water program and the Integrated Regional Water Management Plan, an innovative plan to coordinate regional water supply, water quality, and natural resources planning in San Diego. Prior to joining the Water Authority, Roy worked for the Division of Drinking Water and Environmental Management of California Department of Health Services for 14 years. She was responsible for the regulation of public drinking systems and review and oversight of recycled water use in San Diego, Riverside, and Imperial Counties. Roy holds a Bachelor of Science degree in civil engineering from Oregon State University and is a registered Civil Engineer in California. She holds a juris doctorate from California Western School of Law and is a member of the California Bar.

Mary Grace Pawson is a registered civil engineer and senior project manager with Winzler & Kelly, a multi-discipline planning and engineering firm with offices throughout the Pacific Rim. Pawson has broad background in project planning and development for public agencies, including work on recycled water master plans, urban water management plans, water supply assessments, integrated regional water management plans, grant-writing, and rate and fee setting. Pawson also serves on WateReuse California's Board of Trustees and chairs the Section's Legislative and Regulatory Committee. In this role, she has coordinated Section's work on a number of legislative and regulatory initiatives, including the State Water Resources Control Board's Recycled Water Policy. On behalf of the Section, she is currently working on several pieces of legislation that deal with salt management strategies, as well as supporting the Department of Water Resources' efforts to finalize the adoption of a dual-plumbing code for California. Pawson, together with her water, environmental, and State Water Board colleagues, were recognized by the Association of California Water Agencies as "2009 Water Leaders" for their efforts to craft an update to California's Recycled Water Policy. Pawson has a Bachelors of Science in Civil Engineering from Stanford University.

Julie Chan manages the Groundwater Basins Branch of the San Diego Water Board, which houses the Underground Storage Tank, Site Cleanup, Department of Defense, Land Disposal, and Waste Discharge Requirements (Non-NPDES) Programs. After a brief stint in mineral exploration, Chan refocused in groundwater hydrology, working for the USGS on selenium fate and transport in groundwater in tile-drained areas of the San Joaquin Valley. She worked in the Division of Water Rights for 13 years before transferring to the San Diego Water Board to become a water quality regulator and play beach volleyball. She holds B.S. and M.S. degrees in geology from the University of Wisconsin – Milwaukee, and Washington State University respectively.

Michael R. Welch, Ph.D., P.E. has over 30 years of experience in water, groundwater, recycled water, and wastewater projects within the San Diego Region. He has BS and MS degrees in civil engineering from Stanford University and a Ph.D. in civil engineering from the University of California, Irvine. During his professional career, Welch has performed hydrogeologic studies assessing water supply and groundwater quality issues in each of the Region's principal groundwater basins. He has led more than a dozen Basin Plan studies that resulted in modification of Basin Plan groundwater quality objectives for salinity. His has assisted most of the Region's water and recycled water agencies with recycled water and permitting issues. His NPDES permit experience encompasses each of the Region's seven municipal wastewater ocean outfalls. His work has also included preparing salinity management studies, integrated water management plans, and brine disposal permitting. Prior to becoming a consultant in 1980, he served on the staff of the San Diego Regional Water Quality Control Board.

Jeffrey Beehler is a Program Manager at the Santa Ana Watershed Project Authority in Riverside, California. Beehler implements regional projects and develops planning strategies on behalf of this regional water agency. His primary focus has been directed toward developing multi-agency projects, including the development of agreements and financing plans. He also provides technical support and oversight in obtaining permits, negotiating easements, and environmental compliance for agency construction projects. Most recently, Beehler administered multi-agency and stakeholder task force efforts to address changes in water quality and endangered species regulation, mediated several agreements with diverse interest groups for the development of infrastructure projects, implemented a $20 M watershed-wide invasive species and habitat restoration program (which included the development of a financial plan for long-term maintenance), developed a marketing plan for a regional brine disposal system, and initiated a regional GIS imagery purchase program. An “escaped academic,” Beehler has worked in university research, government and in the private sector. He also teaches an occasional class at CSU San Bernardino and is currently the Treasurer of the Riverside Land Conservancy. Beehler received his B.A. from Kalamazoo College and M.S. and Ph.D. degrees from the University of Wisconsin-Madison.

Greg Woodside is the Planning and Watershed Management Director at the Orange County Water District (OCWD). He graduated with a Master’s Degree in hydrology from New Mexico Tech. Woodside is responsible for long-term planning and projects to enhance the groundwater basin’s yield and improve the quality of the water that OCWD uses to recharge the groundwater basin. He is OCWD’s lead staff person on salinity management issues. Woodside is a registered geologist and certified hydrogeologist in California.

Tim Moore founded Risk Sciences in 1986. His firm specializes in developing site-specific water quality criteria and NPDES permit limits for municipal, industrial, and stormwater dischargers throughout the U.S. He has successfully negotiated state and federal requirements for ammonia, chlorine, heavy metals, pesticides, dissolved solids, nitrate, pathogens, sediment, nutrients, whole effluent toxicity, and TMDLs. He received his Post-Graduated degree from the University of Arizona, Tucson, AZ in 1982.

Appendix C: Workshop Registrants

Salinity Management Plan Implementation Workshop -- San Diego Region

October 6, 2009

Last Name	First Name	Title	Affiliation	Address	City	State	Zip	Email	Phone
Abutin	Larry	Associate Engineer	City of San Diego	600 B St. Ste. 600, MS906	San Diego	CA	92101	labutin@sandiego.gov	619-533-5306
Aguilar	Jaime	Sr. Project Engineer	Santa Margarita Water District	26111 Antonio Parkway	Las Flores	CA	92688	jaimea@smwd.com	949-459-6582
Ahles	David	Sr. Civil Engineer	Carlsbad Municipal Water District	1635 Faraday Ave.	Carlsbad	CA	92008	david.ahles@carlsbadca.gov	760-602-2748
Amarillas	Fabiola	Associate Civil Engineer	City of San Diego, Public Utilities	600 B St. Ste. 600,	San Diego	CA	92101	famarillas@sandiego.gov	619-533-5437
Anders	Robert	Hydrologist	U.S. Geological Survey	4165 Spruance Rd. Ste. 200	San Diego	CA	92101	randers@usgs.gov	619-225-6155
Bebee	Jack	Engineering and Planning Manager	Fallbrook Public Utility District	PO Box 2290	Fallbrook	CA	92088	jackb@fpud.com	760-728-1125
Beehler	Jeff	Program Manager	Santa Ana Watershed Project Authority	11615 Sterling Ave.	Riverside	CA	92503	jbeehler@sawpa.org	951-354-4200
Benjamin	Brian	Chief Plant Operator	Encina Wastewater Authority			CA	92069	brian@encinajpa.com	760-438-3941
Boughman	Paul R.	Special Counsel, Water Law	Wester Area Counsel, Camp Pendleton	Box 55231	Camp Pendleton	CA	92055	paul.boughman@usmc.mil	760-725-5461
Branch	Nicky	Supervising Chemist	City of Escondido	1521 S. Hale Ave.	Escondido	CA	92029	nbranch@ci.escondido.ca.us	760-839-4298
Bunker	Jessica	Associate Civil Engineer	LA County Waterworks District	900 S. Fremont Ave.	Alhambra	CA	91803	jbunker@ladpw.org	626-300-3315
Canfield	Gary	Plant Manager	Waste Water Treatment Ramona WD	9300 Fanita Parkway	Santee	CA	92071	gcanfiel@padre.org	619-258-4695
Chan	Julie	Supervising engineering Geologist	Reg. Water Quality Control Board - SD	9174 Sky Park Court, Ste. 100	San Diego	CA	92123	jchan@waterboards.ca.gov	858-467-2952
Chou	Lynn	Sr. Civil Engineer	City of S.D. Public Utility Dept. WWTD	4949 Eastgate Mall	San Diego	CA	92121	lchou@sandiego.gov	858-824-6023
Coburn-Boyd	Lisa	Environmental compliance Specialist	Otay Water District	2554 Sweetwater Springs Blvd	Spring Valley	CA	91978	lisa.coburn-boyd@otaywater.gov	619-670-2219

Last Name	First Name	Title	Affiliation	Address	City	State	Zip	Email	Phone
Curry	William	Assistant Utility Director	City of San Juan Capistrano	32400 Paseo Adelanto	San Juan Capistrano	CA	92675	wcurry@sanjuancapistrano.org	949-487-4307
Dale	Cari	Assistant General Manager	Carlsbad Municipal Water District	5950 El Camino Real	Carlsbad	CA	92008	cari.dale@carlsbadca.gov	760-438-2722
de Hollan	Erika	Project Engineer	County Sanitation District of LA County	1955 Workman Mill Rd.	Whittier	CA	90601	edehollan@lacsd.org	562-908-4288 x2836
Diehr	Daniel	SWRS	San Diego County Water Authority	4677 Overland Ave.	San Diego	CA	92123		
Engelson	Joel	Engineer	HDR Engineering, Inc	8690 Balboa Ave. Ste. 200	San Diego	CA	92123	joel.engleson@hdrinc.com	858-712-8397
Flahive	Brennon	Environmental Compliance Administrator	South Orange County Wastewater Auth.	34156 Del Obispo St.	Dana Point	CA	92629	bflahive@socwa.com	949-234-5419
Fogec	Peter	Assoc. Mgt. Analysis	San Diego Department of Public Works	600 B Street	San Diego	CA	92101	pfogec@sandiego.gov	
Franz	Karen	Watershed Program Director	San Diego CoastKeeper	2824 Dewey Rd., Suite 200	San Diego	CA	92106	karenjm@sdcoastkeeper.org	619-758-7743 x113
Garrod	Michael	Engineering Manager	Sweetwater Authority	P.O. Box 2328	Chula Vista	CA	91912	mgarrod@sweetwater.org	619-409-6752
Guerrero	Francisco	Sr. Engineer	County Sanitation District of LA County	1955 Workman Mill Rd.	Whittier	CA	90601	fguerrero@lacsd.org	562-908-4288x2832
Hedberg	Kathleen	Director	Helix Water District	7811 University Ave.	La Mesa	CA	91942	kchedberg@cox.net	619-667-6232
Howard	Tom	Public Works Utilities Manager	City of Poway	PO Box 789	Poway	CA	92074	thoward@ci.poway.ca.us	858-668-4750
Hunter	Bill	Engineering Manager	Santa Fe Irrigation District	5920 Linea del Cielo	Rancho Santa Fe	CA	92067	whunter@sfidwater.org	858-414-9120
Joy	Jayne	Director, Environmental	Eastern Municipal Water District	2270 Trumble Rd.	Perris	CA	92572	joyj@emwd.org	951-928-3777 x6241
Jungreis	Jeremy	Director - Office of Water Resources	U.S.M.C. Camp Pendleton	Box 555013, Marine Corps Base	Camp Pendleton	CA	92055	jeremy.jungreis@usmc.mil	760-725-1059
Kaludjerski	Milica	Unit Manager - Wastewater Mgmt	Count of San Diego	5555 Overland Ave. Bldg. 2-260	San Diego	CA	92123	milica.kaludjerski@sdcounty.ca.gov	858-694-3921
Khan	Khalique	Deputy Dir., Office of Water Resources	U.S.M.C. Camp Pendleton	Camp Pendleton	Camp Pendleton	CA	92055	khalique.khan@usmc.mil	760-763-1969

Last Name	First Name	Title	Affiliation	Address	City	State	Zip	Email	Phone
Kim	Kyehee	Civil Engineer - Wastewater Mgmt	County of San Diego	5555 Overland Ave. Bldg. 2-260	San Diego	CA	92123	kyehee.kim@sdcounty.ca.gov	858-694-3921
Krzys	Greg	Water Resources Planner	Bureau of Reclamation	27708 Jefferson Ave. Ste. 202	Temecula	CA	92591	gkrzys@usbr.gov	951-695-5310
Lau	Al	Manager of District Projects	Padre Dam Municipal Water District	PO Box 719003	Santee	CA	92072	alau@padre.org	619-596-1804
Lopez Jr.	Cesar	Sr. Water Resources Specialist	San Diego County Water Authority	4677 Overland Ave.	San Diego	CA	92123	clopez@sdcwa.org	858-522-6745
Lindow	Dave	Senior PM	Winzler & Kelly	4180 Ruffin Road, Ste. 115	San Diego	CA	92123	davelindow@w-and-k.com	858-244-0440
Mariscal	Maria	Sr. Water Resources Specialist	San Diego County Water Authority	4677 Overland Ave.	San Diego	CA	92123	mmariscal@sdcwa.org	858-522-6746
McDivitt	Joe	Director of Operations	South Coast Water District	31592 West Street	Laguna Beach	CA	92651	jmcdivitt@scwd.org	949-533-2587
McPherson	Sheri	Land Use and Environmental Planner	County of San Diego	5201 Ruffin Rd. Ste. P.	San Diego	CA	92123	sheri.mcpherson@sdcounty.ca.gov	858-495-5285
Moore	Tim	President	Risk Sciences	1417 Plymouth Dr.	Brentwood	TN	37027	tmoore@risk-sciences.com	615-370-1655
Morris	Robert	Sr. Water Resource Control Engineer	Reg. Water Quality Control Board - SD	9174 Sky Park Court, Ste. 100	San Diego	CA	92123	bmorris@waterboards.ca.gov	858-467-2952
Mosher	Jeff	Executive Director	National Water Research Institute	18700 Ward St	Fountain Valley	CA	92708	jmosher@nwri-usa.org	714-378-3278
Novencido	Reynaldo D.	Assistant Engineer-Civil	City of San Diego	600 B Street, Ste. 1000	San Diego	CA	92101	rnovencido@sandiego.gov	619-533-4187
Onkka	John	Recycled Water Programs Supervisor	Olivenhain Municipal Water District	1966 Olivenhain Rd.	Encinitas	CA	92024	jonkka@olivenhain.com	760-613-8322
Osibodu	Fisayo	Water Resource Control Engineer	Reg. Water Quality Control Board - SD	9174 Sky Park Court, Ste. 100	San Diego	CA	92123		858-467-2952
Pawson	Mary Grace	Senior Civil Engineer	Winzler & Kelly Consulting Engineers	495 Tesconi Circle	Santa Rose	CA	95401	marygracepawson@w-and-k.com	707-523-1010
Peasley	James	Engineering Manager	Otay Water District	2554 Sweetwater Springs Blvd	Spring Valley	CA	91978	jpeasley@otaywater.gov	619-670-2242

Last Name	First Name	Title	Affiliation	Address	City	State	Zip	Email	Phone
Pierce	Robert	Water Resource Control Engineer	Reg. Water Quality Control Board - SD	9174 Sky Park Court, Ste. 100	San Diego	CA	92123	rpierce@waterboards.ca.gov	858-467-2952
Plummer	William	Deputy City Engineer	Carlsbad Municipal Water District	1635 Faraday Ave.	Carlsbad	CA	92008	bill.plummer@carlsbadca.gov	760-602-2768
Plyler	Steven	Public Works Supervisor. Water Operations	Carlsbad Municipal Water District	5950 El Camino Real	Carlsbad	CA	92008	steven.plyler@carlsbadca.gov	760-438-2722
Pruett	Sam	Sr. Operations Supervisor	City of SD - NCWRP	4949 Eastgate Mall	San Diego	CA	92121	spruett@sandiego.gov	858-824-6021
Roy	Toby	Water Resources Manager	San Diego County Water Authority	4677 Overland Avenue	San Diego	CA	92123	troy@sdcwa.org	858-522-6743
Sandvik	Arne	Senior Engineer	Padre Dam Municipal Water District	PO Box 719003	Santee	CA	92072	asandvik@padre.org	619-258-4643
Smith	Tim	Principal Engineer	Helix Water District	7811 University Ave.	La Mesa	CA	91942	tim.smith@helixwater.org	619-667-6201
Smith	Don	Director of Water Resources	Vista Irrigation District	1391 Engineer St.	Vista	CA	92081	dsmith@vid-h2o.org	760-597-3168
Steirer	Marsi	Deputy Director	City of San Diego Public Utilities	600 B Street, Ste. 600	San Diego	CA	92101	msteirer@sandiego.gov	619-533-4112
Teitz	Warren	Senior Resource Specialist	Metropolitan Water District	700 N. Alameda Street	Los Angeles	CA	90012	wteitz@mwdh2o.com	213-217-7418
Vartanian	Gina	Communications Manager	National Water Research Institute	18700 Ward St	Fountain Valley	CA	92708	gmelin@nwri-usa.org	714-378-3278
Vipatapat	Vasana	Laboratory Superintendent	City of Escondido	7780 Goldfish Way	San Diego	CA	92029	vvipatapat@ci.escondido.ca.us	760-839-6284
Welch	Michael	Consulting Engineer		2735 San Clemente Terrace	San Diego	CA	92122	mwelch1@san.rr.com	858-625-0167
Woodside	Greg	Director of Planning & Watershed Mgmt	Orange County Water District	18700 Ward St	Fountain Valley	CA	92728	gwoodside@ocwd.com	714-378-3275

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Fountain Valley, CA 2728-8096
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(714) 378-3375 (fax)
www.socalsalinity.org